IntechOpen

Health Insurance Across Worldwide Health Systems

Edited by Aida Isabel Tavares

Health Insurance Across Worldwide Health Systems

Edited by Aida Isabel Tavares

Published in London, United Kingdom

Health Insurance Across Worldwide Health Systems
http://dx.doi.org/10.5772/intechopen.111254
Edited by Aida Isabel Tavares

Contributors
Ian Duncan, Tamim Ahmed, David Mark Dror, Enos Mirembe Masereka, Linda Grace Alanyo, Antony Ikiriza, Maureen Andinda, Pardon Akugizibwe, Emmanuel Kimera, Selaelo Mametja, Mapule Letshweni, Mabatlo Semenya, Boldwin Moyo, Carmen Whyte, Jolene Bultinck-Human, Stanley Moloabi, Joshua Munkombwe, Jackson Phiri, Iqboljon Odashev Mashrabjonovich, Atikah Adyas, Ahmad Jet Alamin, Hasbullah Thabrany, Gabriel Igbo Alobo, Eva Orosz, Aida Isabel Tavares

First published in London, United Kingdom, 2024 by IntechOpen
IntechOpen is the global imprint of INTECHOPEN LIMITED, registered in England and Wales, registration number: 11086078, 5 Princes Gate Court, London, SW7 2QJ, United Kingdom

British Library Cataloguing-in-Publication Data
A catalogue record for this book is available from the British Library

Additional hard and PDF copies can be obtained from orders@intechopen.com

Health Insurance Across Worldwide Health Systems
Edited by Aida Isabel Tavares
p. cm.
Print ISBN 978-0-85466-212-8
Online ISBN 978-0-85466-211-1
eBook (PDF) ISBN 978-0-85466-213-5

Meet the editor

Aida Isabel Tavares holds a Ph.D. in Economic Analysis from the Autonomous University of Barcelona, Spain, and a Ph.D. in Management Science Applied to Decision Making from the University of Coimbra, Portugal. She has published several journal papers on applied health economics and two books, one on public economics and one on the obesity epidemic and the environment in Latin America. Dr. Tavares is also a book editor. Her research areas include health economics and policy, health systems, socioeconomic determinants of health, regulation in health markets, and economic evaluation. She has taught courses on microeconomics, public economics, and health economics at different universities. Currently, she is an associate professor at the Lisbon School of Economics and Management, University of Lisbon. She is also a researcher at the Centre of Studies and Research in Health, University of Coimbra, Portugal.

Contents

Preface

Health insurance, whether private, public, or mixed, acts as the cornerstone of global health systems, aiming to reduce the financial burden of medical costs and improve overall population health. Worldwide, health systems vary significantly, primarily due to resource disparities. While high-income countries can finance healthcare provision, it remains a challenge for low- and medium-income countries. Presently, health systems are grappling with achieving the United Nations Sustainable Development Goal 3 (SDG3), which is ensuring healthy lives and well-being for all. To address this challenge and create a resilient healthcare system, many countries are reshaping their systems by enhancing the financing, accessibility, and coverage of health insurance. This book covers several of these emerging topics for low-, medium-, and high-income countries.

The first part of the book is mainly focused on low- to medium-income countries, and it approaches universal coverage from two broad perspectives. One is the financing of health systems, and the other is access to and coverage of health services. On the one hand, these countries face the challenge of mobilizing funds to finance health services provision and deciding how to allocate those funds to respond to the different health needs of the population. Under this concern, the book comprises four chapters. On the other hand, access and coverage to health services raise another challenge as it requires choices on the set of health services to be provided and ensuring that access and coverage with quality does not cause financial hardship to people. Regarding this topic of access and coverage of health services, the book offers another four chapters. The second part of this book is devoted to high-income countries in Europe, where public and compulsory health insurance faces different kinds of challenges.

The section Health Insurance and Financing begins by discussing the risk adjustment need of health insurance financing for the sake of equity and profit control. **Chapter 1**, "A Proposed Condition-Based Risk Adjustment System for the Colombian Health Insurance Program", develops a condition-based risk adjustment model to minimize the potential inadequate compensation given to insurers for high-risk members. The authors then test the accuracy of their proposed risk adjustment condition using data from the Colombian health system, which is based on different insurers financed by the government. **Chapter 2**, "Perspective Chapter: Microinsurance's Quest to Protect the Unprotected, beyond the Bismarck and Beveridge Models", proposes a different approach to health insurance funding. The authors offer a detailed analysis of this hybrid model of funding health insurance. They describe the role of a "collaborative and contributive model" of microinsurance in low-income countries where populations lack any health protection. **Chapter 3**, "Perspective Chapter: Public Health Insurance in Developing Countries", discusses the importance of and the challenges to developing public health insurance in Africa, while **Chapter 4**, "Perspective Chapter: Financing Private Healthcare for Government Employees to Improve Access", discusses private financial contributions. In this chapter, the authors

describe the evolution of public servant health insurance in South Africa over the last 18 years and how it has improved access to health care.

The following section of the book is mainly focused on health insurance, access, and coverage. **Chapter 5**, "Perspective Chapter: Underlying Issues on Uptake of Health Insurance – The Case of Rural Communities", discusses the problem of low uptake of health insurance by rural communities and concludes that policy may have a role in solving this problem. A study case is presented in **Chapter 6**, "Perspective Chapter: Advantages and Challenges of the Mandatory Health Insurance in Uzbekistan", which describes health insurance in Uzbekistan. **Chapter 7**, "Perspective Chapter: Including the Private Sector to Achieve Universal Health Coverage", presents suggestions for improving coverage and access based on the private sector. The authors' proposal stands on the possibility of complementing public sector provision with private sector health care to achieve equitable access to quality, alternatives, and satisfaction. A reflection on the importance of universal health coverage to improve life expectancy in Sub-Saharan Africa is then provided by **Chapter 8**, "Perspective Chapter: Health Insurance across Worldwide Health Systems: Why it Matters Now".

The last part of this book includes two chapters about European countries. **Chapters 9** and **10** focus on the European countries of Hungary and Portugal, respectively. While Hungary is mainly described as a country with social health insurance, Portugal has a national health service. **Chapter 9**, "Perspective Chapter: Creating and Dismantling Social Health Insurance in Hungary – Causes and Consequences", describes the radical changes in the health financing system of Hungary. It discusses the political and economic reasons for those changes and their impact on the performance of the Hungarian healthcare system. **Chapter 10**, "Who is Buying Voluntary Private Health Insurance in Portugal: A Comparative Analysis for 2014 and 2019", defines and discusses the profile of private health insurance buyers. The author concludes that the main problem that arises from this comparative analysis of buyers is the emerging unequal access to health care, which may create health inequities.

Aida Isabel Tavares
Lisbon School of Economics and Management,
Lisbon, Portugal

Section 1

Health Insurance and Financing

Chapter 1

A Proposed Condition-Based Risk Adjustment System for the Colombian Health Insurance Program

Ian Duncan and Tamim Ahmed

Abstract

Healthcare in Colombia is financed by the government through insurers ("EPSs" *or Entidades Promotoras de Salud*). Under the current system funds are distributed to EPSs through a risk-adjustment system using age/sex and geographic location. The current system has many short-comings that have required the development of work-arounds to ensure that EPSs are adequately compensated for high-risk members. Many countries use a condition-based risk adjustment system. We develop and test the accuracy of a total of seven different models (including two models that proxy the current Colombian system for comparative purposes). By including high-risk conditions in the risk-adjustment model the proposed system would treat all insurers and members equally and remove the need for special payments. In this chapter we explore the development of such a condition-based risk-adjustment system, discuss some of the issues that it raises and suggest ways that they may be addressed.

Keywords: risk-adjustment, Colombia, high-risk conditions, condition categories, quality improvement

1. Introduction

Colombian Law 100 of 1993 created the current healthcare system, known as *Sistema General de Seguridad Social en Salud* (SGSSS) [1]. The current Colombian Risk-adjustment methodology is summarized in [1, 2]. A more detailed treatment (in Spanish) can be found in [3]. Colombian workers pay a healthcare tax to the central authority (12.5% of a quantity called IBC (*Ingreso Base de Cotización*), determined by salary and contract modality). The SGSSS is financed via a central authority that distributes tax revenue in the form of risk-adjusted payments to insurers [4]. Benefits, known as *Plan de Beneficios en Salud* (PBS) were defined in Statutory law 1751 of 2015 [5]. EPSs are compensated based on the age, sex and territory distribution of their

members ("affiliates"). In addition to age/sex/territory adjusted payments EPSs also benefit from payments for non-PBS services (*presupuestos máximos* and *recobros*) or payments that recognize disproportional incidence of certain high-cost conditions (including but not limited to cancer, human immunodeficiency virus (HIV) and stage 5 chronic kidney disease (CKD)). Two major payment systems coexist within the SGSSS: contributory and subsidized regimes. Unemployed affiliates and those in informal employment are covered by the **subsidized regime** directly from tax revenue and do not pay contributions into the system. Most Colombian citizens that are formally employed are covered by the **contributory regime** and pay a healthcare tax to the central authority. According to the Ministry, the subsidized and contributory regimes cover approximately 24.0 and 24.6 million people respectively [6]. In this chapter we focus on the Contributory Regime.

Allocation of the healthcare budget in the Colombian system is made through capitation payments (*Unidad de Pago por Capitación*) or UPC. The UPC is a fixed amount of money per year paid prospectively to the EPSs for the reimbursement of healthcare services. The basis of the current risk adjustment system is a benchmark enrollee whose "cost structure" (*estructura de costo)* is equal to 1.0. The UPC differs by regime and is updated annually. For 2021, the UPC for the contributory regime (UPC-C) was set at $\$989{,}712 COP/year$ [2].[1]

The indicated increase in the UPC is calculated yearly by the health ministry using the Loss-Ratio method as follows:

$$IndicatedUPCChange = \frac{ExpectedEffectiveLossRatio}{PermissibleLossRatio} - 1. \tag{1}$$

Where the *PermissibleLossRatio* is set by the Colombian government for each regime (90% (Contributory) and 92% (Subsidized)). The Projected (or Expected) Claims cost in the projection period is defined as: $Loss^{(0)} \times (1 + IBNR) \times (1 + \tau) \times (1 + f)$,

Where:

- *IBNR* is a factor used to account for incurred but not reported claims.
- τ is a cost inflation factor constructed with information from the Colombian Statistics Department (DANE).
- f is a trending factor to capture the increase in utilization frequency of healthcare services, estimated using a time series methodology.
- $Loss^{(0)} = Homologous + Inclusions + Loss^{(obs)}$. [7].

The quantity *Inclusions* is used to account for the introduction of new technologies and therapies. Finally, the quantity $Loss^{(obs)}$ is the paid total claims cost (without IBNR). The *IndicatedUPCChange* is compared to the Government's available budget and the resulting basic UPC for the applicable period, for each regime is then announced annually in a resolution issued by MinSalud.

[1] The transfers are made weekly within the contributory regime and monthly within the subsidized regime.

2. Current Colombian risk-adjustment system

To compensate the EPSs for the financial risk of their affiliates, MinSalud applies a prospective risk-adjustment system. The system is "prospective," meaning that a member's risk is calculated based on his prior period disease burden and is not affected by newly-emerging conditions. Age, sex and territory type classifications are found in Appendix A.1.[2] In addition to the basic risk-adjustment reimbursement the Ministry has developed an increasing number of extra-system payments for expenses not addressed by the risk adjustment system. This accretion of special ex-post reimbursements dilutes the incentives of a prospective risk-adjustment system leading to development of a new system. Additional payments are made for:

- Contributory EPSs that have a disproportionate prevalence of affiliates 50 and older.
- Restrospective High-Cost fund adjustments for affiliates that suffer from CKD, HIV, 11 different types of cancer and severe Hemophilia.[3]
- Recoveries (*recobros*) and maximum budgets (*presupuestos máximos*) are used to make payments for services not included in the PBS.

The exclusion of certain health services, prescriptions and technology from the PBS has given rise to appeals for payments for services not included in the PBS (*tutelas*). A steep increase in the number of *tutelas* (yellow line and right-hand scale in **Figure 1**) has led to cost of services increasing from 200 billion COP in 2006 to 1800 billion COP in 2009 (blue line and left-hand scale in **Figure 1**).[4]

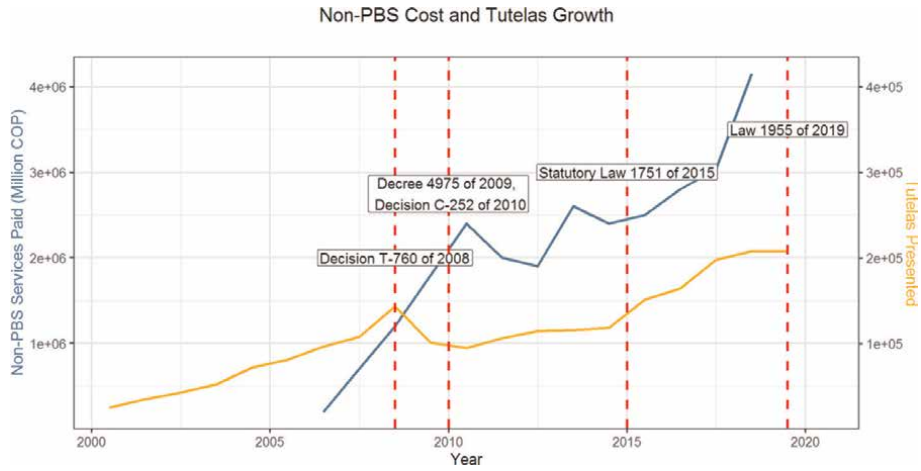

Figure 1.
Evolution of Tutelas and non-PBS costs [8–10].

[2] *Homologous* is a fraction of the premium allocated to the PBS but used to pay for services not included in the plan as required by the resolution 1479 of 2015.

[3] Detailed files may be found at the following: https://github.com/judmejiabe/supplementary-material-col-ch.

[4] The redistribution mechanism for severe hemophilia A is carried out by ADRES.

3. Comparison of the current and proposed systems

A condition-based risk-adjustment system is a valuable tool to enhance the accuracy of EPS reimbursement by making reimbursement more specific to individual burden of disease, aligning incentives, reducing some of the bureaucratic burden present in the SGSSS and improving the reporting of diagnoses.

The current age/sex/territory risk adjustment system imposes the national distribution of conditions within each cell on each EPS. An EPS is reimbursed the cost of an average member of an age/sex/territory cell, irrespective of the EPS's distribution of conditions within its own population. An EPS with a prevalence of more or higher-severity conditions than the national average for a particular cell will be undercompensated (unless additional payments are received). This problem can be addressed by embedding a condition-based model into the risk-adjustment system. The current age/sex/territory risk adjustment system also creates an incentive for insurers to enroll healthier individuals [11–13].

4. Developing the condition-based risk adjustment model

4.1 Data

We merged four anonymized datasets provided by MinSalud and ADRES:

Enrollment data were extracted from a database known as *Base de Datos Única de Afiliados* (BDUA).[5] PBS Claims were obtained from *Base de Datos del Estudio de Suficiencia* (BDES) and non-PBS claims were provided by ADRES. Data were merged as shown in **Table 1**.

5. Condition mapping

One of the most important components of a risk-adjustment model is a diagnosis mapping (in the United States and some other countries referred to as a "Grouper

Dataset	Years	Variables used
Enrollment	2017–2019	Affiliate's Anonymized Identifier, Sex, Date of Birth, Status, Territory of Residence, Date of Entry
PBS Claims	2017–2019	Anonymized Identifier, Primary Diagnosis Code, Secondary Diagnosis Code, Procedure Code, Claim Cost, Date of Entry
Non-PBS Claims (Prescriptions)	2017–2019	Affiliate's Anonymized Identifier, Claim Cost, Date of Entry
Non-PBS Claims (Other Services)	2017–2019	Affiliate's Anonymized Identifier, Claim Cost, Date of Entry

Table 1.
Raw data.

[5] https://servicios.adres.gov.co/Inicio/Post/6150/ADRES-pag%C3%B3-3-13-billones-por-servicios-no-incluidos-en-el-plan-de-beneficios-en-salud-en-2018 (Accessed: August 26, 2021).

Model" as it groups detailed diagnosis codes into diagnostic categories). A diagnosis mapping is a many-to-one function that takes a given set of diagnostic codes and groups them into diagnosis categories or groups. For this project we developed diagnosis categories adapted to Colombian diagnostic coding practices.

The organizations within the Colombian Health Care System follow a modified version of the 10th revision of the WHO's International Classification of Diseases (ICD-10).[6,7] The US Centers for Medicare and Medicaid Services (CMS) provide a comprehensive set of algorithms called the Chronic Condition Warehouse (CCW).[8] We used the CMS clinical definitions as the basis for the Colombian diagnosis mapping using the 255 diagnosis groups in the CCW. Diagnostic codes collected by MinSalud comprise 4 characters (compared to 7 in the WHO and US systems). We mapped the 4-digit diagnosis codes into CCS categories and compared with a mapping of 7-digit codes to determine all possible 4-digit code mappings. By evaluating the frequency of all possible mappings, we manually determined the CCS for each 4-digit code. Finally, Colombian ICD-10 codes that do not correspond to US ICD-10 codes were assigned manually based on clinical criteria.

6. Definition of the model

A risk-adjustment model can be classified as a supervised learning model: we use a dataset of the form, where $x_i = \left(x_{i1}, x_{i2}, \ldots, x_{ip}\right)^T$ refers to the explanatory input variables of the i-th individual and y_i to its respective response variable.[9] The objective is to approximate a functional dependence between y and x. That is

$$\hat{C}_i = f\left(x_i; \hat{\theta}\right). \tag{2}$$

In the previous equation, C_i is the average cost per month incurred by the $i-$th individual (summing PBS and non-PBS claims). Note that we may write $C_i = min\left(C_i, c\right) + max\left(0, C_i - c\right)$, where c is a hyperparameter. We used a linear model for $min\left(C_i, c\right)$ and spread the costs above c uniformly across the population. In consequence, f takes the following functional form

$$f\left(x_i; \hat{\theta}\right) = \hat{min}\left(C_i, c\right) + \hat{max}\left(0, C_i - c\right) = x_i^T \hat{\beta} + \hat{\gamma}^{(c)} \tag{3}$$

where $\hat{\beta} = arg\min_{\beta}\left(\sum_i m_i \left(min\left(C_i, c\right) - x_i^T \beta\right)^2\right)$ and $\hat{\gamma}^{(c)} = \frac{1}{MM}\sum_i m_i \, max\left(0, C_i - c|\right)$. Here, x_i corresponds to the attributes of the $i-$th individual (age sex and territory in the experience period (2019) and condition groups in the baseline period (2017)). m_i is the number of months active in the experience period of the i-th individual and $MM = \sum_i m_i$.

---

[6] See https://www.adres.gov.co/eps/procesos/bdua.

[7] The Colombian Government's diagnosis codes are accessible through https://www.minsalud.gov.co/sites/rid/Lists/BibliotecaDigital/Forms/DispForm.aspx?ID=6998 (Accessed: August 26, 2021).

[8] The WHO provides a searchable database for ICD-10 codes (https://icd.who.int/browse10/2019/en). In the U.S. codebooks are provided by organizations such as the American Association of Professional Coders (www.aapc.com).

[9] https://www2.ccwdata.org/ web/guest/condition-categories (Accessed: August 26, 2021).

To obtain the risk weights, which enable the user to compute the risk scores, associated to each of the features in x, the quantities $\hat{\beta}$ and $\hat{\gamma}^{(c)}$ are normalized by the weighted mean of individual average claim costs in the experience year $\bar{C} = \frac{1}{MM}\sum_i m_i C_i$, (obtaining)

$$w = \frac{\hat{\beta}}{\bar{C}}, \tag{4}$$

(and)

$$w^{(c)} = \frac{\hat{\gamma}^{(c)}}{\bar{C}}. \tag{5}$$

To develop a condition-mapping system we took into account the 10 principles of risk-adjustment systems [13]. Principle 9 was not followed absolutely but a coverage of 99.8% of the diagnoses in the claims dataset was achieved. We applied judgment to balance the tradeoffs among other principles.

1. Diagnostic categories should be clinically meaningful.
2. Diagnostic categories should predict medical expenditures.
3. Diagnostic categories should have adequate sample sizes to permit stable estimates.
4. Hierarchies should be used to characterize the illness level within each disease process.
5. Diagnostic classification should encourage specific coding.
6. Diagnostic classification should not reward coding proliferation.
7. Providers should not be penalized for recording additional diagnoses.
8. Classification system should be internally consistent.
9. Diagnosis mapping should assign all codes.[10]
10. Discretionary diagnostic codes should be excluded.

For estimation we applied a cap c at the 0.999 percentile ($c = 6{,}612{,}859 COP/month$) obtaining:

- $\bar{C} = \$88{,}338 COP/month$
- $\hat{\gamma}^{(c)} = \$7{,}035 COP/month$, $\left(w^{(c)} = 0.079\right)$.

[10] In this case the explanatory variables are categorical while the response variables are continuous.

For presentation purposes the quantity $w^{(c)}$ was added to the age/sex risk weights to obtain the table in Appendix B.1.[11] The territory risk weights of the model are presented in Appendix B.2[12] and the selected condition variables are presented in Appendix B.3[13] with their respective risk weights.

7. Accuracy assessment of the proposed condition-based risk-adjustment model

To assess the accuracy of the risk-scoring model developed in the previous section, we contrasted the model with other models including two implementations of the current Colombian risk-adjustment system using the procedures described in a Society of Actuaries publication [14]. Accuracy of the models is compared in terms of the coefficient of determination metric (R^2), mean average error (MAE), predictive ratios, tolerance curves, and the area under the curve. In this section, the implemented models and testing procedure are explained in detail.

8. Included models

Seven models (M1–M7) were implemented for comparison purposes. The following table summarizes the seven models implemented together with notes on the implementation of each model and its rationale.

Parameters and predictive accuracy values for Models 4–7 are found in Appendices B–F (**Table 2**).[14]

Model	Description
M1	Assigns a risk score of 1.0 to all individuals.
M2	Current Colombian risk-adjustment system, adding *recobros* (recoveries) (non-PBS) costs in an individual fashion.
M3	Current Colombian risk-adjustment system, adding the mean of the recoveries.
M4	Age, sex, territory model recalibrated on a 75% training sample of the full experience year dataset.
M5	Age, sex, territory, and the following conditions: Diabetes, hypertension, CKD, HIV, cancers, and coagulation and hemorrhagic disorders.
M6	Condition-based risk-adjustment model calibrated setting c at the 0.975 percentile.
M7	Condition-based risk-adjustment model described in the previous subsections.

Table 2.
Models included in the comparison procedure.

[11] We were not able to follow principle 9 absolutely but achieved a coverage of about 99.8% of the diagnoses in the claims dataset (a higher percentage than is observed in a typical US risk adjustment application).

[12] See https://github.com/judmejiabe/supplementary-material-col-ch.

[13] See https://github.com/judmejiabe/supplementary-material-col-ch.

[14] See https://github.com/judmejiabe/supplementary-material-col-ch.

8.1 Model M1

This model is equivalent to assigning a regime-wide average cost per member per month for each affiliate. This model provides a baseline for comparison with other models.

8.2 Model M2

Model M2 mimics the Colombian risk-adjustment system that was in force before the introduction of the maximum budget law in 2020. The compensation amount (normalizing by $\bar{C}$) for the i-th individual is given by:

$$\hat{r}_i = \frac{1}{\bar{C}}\left(differential_i \times UPC_{t-2} + \bar{C}_{i,t-2}^{(non-PBS)}\right), \tag{6}$$

where $differential_i$ corresponds to the age/sex/territory-differential of the i-th individual and $\bar{C}_{i,t-2}^{(non-PBS)}$ corresponds to the monthly average cost of recoveries (*recobros*) of the i-th individual and the subscript $t-2$ corresponds to the experience period (2019).

8.3 Model M3

Because the prospective compensation known as maximum budgets (*presupuestos máximos*) is applied at the EPS level, it is hard to implement the maximum budgets compensation at an individual level. Instead we compute the contributory regime-level recoveries cost ($\bar{C}_{t-2}^{(non-PBS)}$, note the absence of i in the subscript)[15] and replace the individual-level recoveries cost $\bar{C}_{i,t-2}^{(non-PBS)}$ in the previous formula with the mean cost $\bar{C}_{t-2}^{(non-PBS)}$. The compensation amount (normalizing by $\bar{C}$) is given by:

$$\hat{r}_i = \frac{1}{\bar{C}}\left(differential_i \times UPC_{t-2} + \bar{C}_{t-2}^{(non-PBS)}\right). \tag{7}$$

8.4 Model M4

Model M4 is an age/sex/territory model calibrated on a sample of the full experience dataset. As the number of variables involved in an age, sex and territory model is considerably smaller compared the number of variables present in a condition-based risk-adjustment model, the computational resources required to develop an age/sex/territory-based risk-adjustment model is significantly lower. Also, a model of this type is less subject to manipulation (upcoding) by the insurers and providers of a system which is the reason that this risk-scoring model is indicated to conduct budget projections. An important use of model M4 is its application to new entrants and enrollees whose baseline period condition data is not available.

[15] See https://github.com/judmejiabe/supplementary-material-col-ch.

8.5 Model M5

Models M5, M6 and M7 are condition-based risk-scoring models, built in the same manner with the exception that model M5 includes fewer condition categories and the censoring threshold c was lower for model M6. A model with considerably fewer conditions was fitted to provide an alternative to the developed model and to quantify the precision cost of including fewer conditions.[16] The chosen condition categories are available in the **Table 3**.

8.6 Model M6

Model M6 applies a method similar to a stop-loss process. Because the individual average monthly claim costs variable is skewed and possesses a heavy tail, the hyperparameter c plays a role in the calibration process: Imposing a more restrictive cap on the independent variable (individual average monthly claim cost) increases the stability of the estimated risk scores by eliminating more outliers but might decrease the precision of the risk-adjustment model by allocating a higher portion of the claims evenly among all the individuals. Model M6 was calibrated using a lower cap $c = \$554{,}690 COP/month$ (0.975 percentile) to illustrate this trade-off.

8.7 Model M7

As explained in **Table 2** model M7 is the condition-based risk adjustment model presented in the preceding subsection which was built using a cap $c = \$6{,}612{,}859 COP/month$ corresponding to the 0.999 percentile.

9. Tests of model accuracy

We compared the accuracy of the developed model (M7) against the models M1–M6. All the models M5, M6 and M7 were calibrated on the same 75% calibration

Condition	CCS
Diabetes	50, 51, 183.
Hypertension	99.
CKD	157.
Cancer	11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 29, 30, 31, 32, 34, 35, 36, 37, 38, 39, 41, 42, 43, 44, 45, 46, 47.
HIV	6.
Coagulation and hemorrhagic disorders	61.

*The cap chosen for model M5 was the same as the model M7 (*c = $6,612,859COP/month*).*

Table 3.
Condition categories used in model M5.

[16] $\bar{C}_{i,t-2}^{(non-PBS)}$ was estimated to be $\$22{,}594.32 COP/month$.

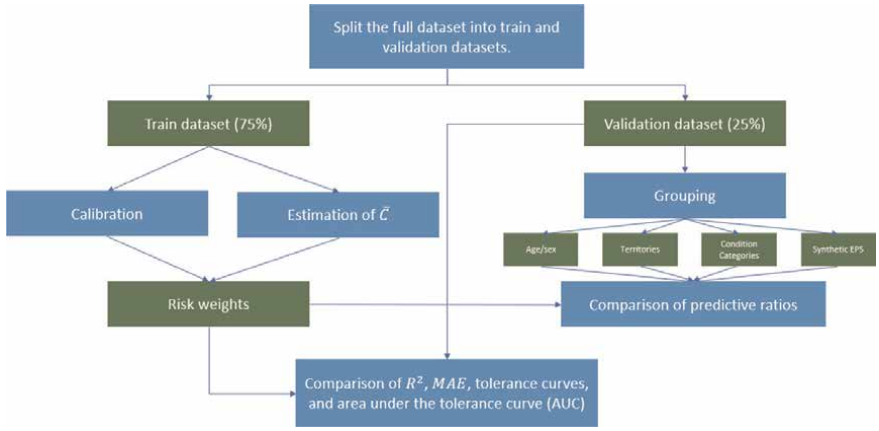

Figure 2.
Comparison procedure.

sample, leaving the remaining 25% of the data for validation purposes. Even though the models M1, M2 and M3 did not undergo the same calibration procedure and model M4 was calibrated on a different dataset, all models will be tested on the same 25% validation dataset.

After calibrating (or implementing) models M1–M7, the predicted risk scores $\hat{r}_i$ of the individuals in the validation dataset were obtained and compared in terms of the R^2, MAE, tolerance curve and AUC metrics. Comparison of risk-scoring models is in terms of the predictive ratios of different sub-groups according to different characteristics. Appendix C[17] provides a comprehensive list of the groups created for comparison purposes; groups were constructed based on age/sex, territory, selected conditions and synthetic EPSs. Synthetic EPSs were created because identification of actual EPSs was not possible. Synthetic EPSs consist of 300,000, 500,000, 1 million randomly sampled individuals from the validation dataset, as well as the full dataset itself (**Figure 2**).

10. Results

Table 4 shows the results of the R^2, MAE and AUC metrics with 1.0 and 3.0 cutoffs; **Figure 3** shows the results of the tolerance curves and the predictive ratios are available in Appendix C.

In terms of the coefficient of determination metric R^2, the model that performs best is M2. However, this result must be interpreted with care:

1. Model M2 mimics the retrospective compensation that was made for non-PBS services before the maximum budgets law. As discussed above, the cost of non-PBS services was growing in an uncontrolled manner, in part because of *tutelas*.

2. Section 5.3 of the Society of Actuaries study [14] illustrates how the R^2 measure can be heavily influenced by only one extreme data point. Since it is the case that

[17] See Appendix A2. for interpretation of these CCS Condition Categories.

Model	R^2 (%)	MAE	AUC (1.0 Cutoff) (%)	AUC (3.0 Cutoff) (%)
M1	0.00	1.38	19.51	69.24
M2	71.22	1.01	45.93	74.83
M3	0.82	1.38	32.06	68.50
M4	0.91	1.22	44.19	74.27
M5	4.35	1.19	45.34	75.17
M6	4.92	1.09	43.28	76.73
M7	8.62	1.02	60.03	79.99

Table 4.
Model comparisons.

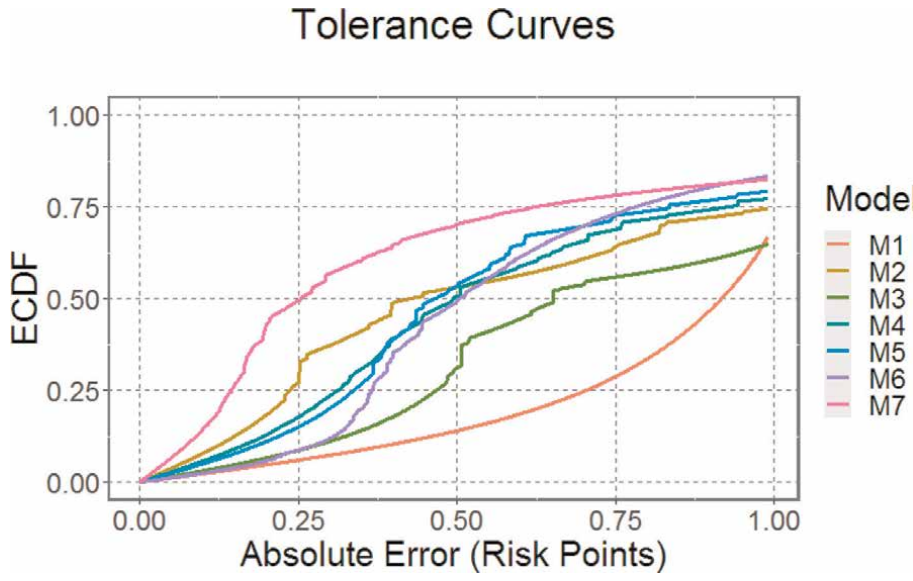

Figure 3.
Tolerance curves of the models.

some non-PBS services have very high costs the high R^2 score for model M2 is a consequence of a very specific compensation for recoveries and not from the model's predictive power. When the individual compensation for recoveries is eliminated by implementing an average compensation for recoveries (model M3) the R^2 metric drops from 71.22% to 0.82%.

With respect to the *MAE* metric, the models M2 and M7 perform equally well. The averages of the absolute differences between the predicted risk scores $\hat{r}_i$ and the observed risk scores r_i are the same.

So far, the R^2 and *MAE* metrics seem to be favoring the model M2 over the model M7. However, the tolerance curves and the predictive ratios tell a very different story: The tolerance curve (see **Figure 3**) for the model M7 shows that around 50% of the individuals are predicted accurately within a range of 0.25 risk points, while for the model M2 around 32.5% of the individuals are predicted accurately within the same

range. In fact, it is clear from the **Figure 2** that the tolerance curve of the model M7 dominates that of the model M2 on a range of one risk point. This implies that model M7 predicts more individuals accurately on a narrow range than model M2. Also, model M7 presents a higher *AUC* score for both cut-offs (1.0 and 3.0).

M7 performs even better on predictive ratios than on the tolerance curves (see Appendix C). Based on the ±10% rule of thumb, the model M7 compensates reasonably well for all age/sex groups, while M2 only compensates well for 2 of 36 age/sex groups (males and females less than 5 years). Considering the territories partition, model M7 compensates reasonably well for all geographical zones, while model M2 compensates well for 1 out of 4 territories. For the selected conditions (diabetes, cancer, cardiac condition, HIV and hemophilia) model M7 compensates reasonably well 3 out of 5 conditions (diabetes, cardiac condition and HIV). The remaining 2 conditions (cancer and hemophilia) are within the 20% range. Model M2 undercompensates all of these conditions by more than 20% and by more than 40% for 4 of 5 conditions. Model M7 compensates all EPSs within a 1% range, while model M2 tends to over-compensate all the synthetic EPSs around 12%. The latter result is due to a difference in the age/sex/territory distribution of the enrollees in the validation dataset compared to that of the dataset used to compute the Colombian model's differentials.

Hence, in terms of the precision of the reimbursement, we conclude that model M7 is more accurate than model M2. Model 7 has additional benefits when compared with existing models because it eliminates the need for the ex-post adjustments of the current system:

- A risk-adjustment system based on this model (which is prospective and condition based) could eliminate the need for retrospective compensation for non-PBS services, which has created pressure in the Colombian healthcare system. Reducing the need of retrospective compensations would generate a positive externality as *tutelas* create a degree of burden in Colombian courts.[18]

- Model 7 also eliminates the need for the adjustments for homologous services because the system reimburses prospectively for all non-PBS services.

- Model 7 addresses the need for a high-cost account adjustment which corrects the imbalance in the distribution of high conditions among EPSs.

We draw other significant conclusions from the testing procedure:

1. Model M7 not only outperforms in terms of accuracy model M2 but also all the other implemented models (namely M1, and M3–M6).

2. Models M4 and M5 outperform (in terms of accuracy) model M3, which mimics the current compensation procedure in force at the time of writing. This result is important because model M5 offers an easier-to-operate condition-based risk adjustment system, less precise than M7 however, maintaining the prospective compensation for non-PBS services and reducing the need for the ex-post adjustments.

[18] See https://github.com/judmejiabe/supplementary-material-col-ch.

3. Model M4, which is an age/sex/territory-based risk-adjustment model, is indicated to perform budget projections and is proposed as a temporary model for the subsidized regime because of the absence of subsidized regime claims.

4. Model M7 outperforms model M6 in terms of accuracy. This shows that the selected cap parameter *c*, set at the 0.999 percentile is better than a cap parameter set at the 0.975 level.

5. Model M5 tends to undercompensate individuals in the validation dataset. This might be due to differences between the claim costs for the individuals for which there exist data in the baseline period and those for which that data is not available.

11. Discussion

We developed a condition-based risk adjustment system for Colombia that unifies the multiple different funding streams currently in place in Colombia. The model performs well and out-performs in accuracy other alternative models.

The Ministry expressed concerns about three operational aspects of the model: maintaining Quality, avoiding fraud and abuse and ensuring EPS stability.

1. Quality: a condition-based risk adjustment system is designed to avoid selection by insurers against severely ill members. However, there is some evidence in other countries that profit-maximizing insurers select healthier members and reduce services to sicker patients that need them most. To address this concern we propose a quality reporting system (in addition to the proposed risk adjustment system) for patients with certain conditions, based on treatment guidelines of relevant professional societies.

2. The issue of fraud and abuse is more difficult to solve. There has been a robust discussion recently in the United States on the topic of how risk adjustment in the Medicare Advantage program encourages over-coding of conditions [15–20]. Avoiding over-coding requires a robust audit and benchmarking function.

3. While we do not anticipate that transition to a full condition-based adjustment system will result in instability in the market we proposed (as an option) an internal reinsurance arrangement where insurers that experience gains relative to their UPCs contribute to a pool to reimburse insurers that experience losses relative to their UPCs. However, the reinsurance market in Colombia is well-developed and insurers may purchase reinsurance as a hedge against adverse results.

4. The accuracy of the model is affected by provider claims coding accuracy, as well as the truncated (4-digit) nature of Colombian coding. Coding is not under the control of MinSalud; however, EPSs could provide incentives for more complete and accurate coding, given its importance to the EPS's revenue. Such incentives would have to be carefully monitored, given the possibility that they would drive over-coding.

12. Conclusion

We have demonstrated the construction of a condition-based risk adjustment system for the Contributory sector of Colombia's health insurance system using data and resources readily available to MinSalud. We were unable to construct a condition-based system for the Subsidized sector due to lack of credible claims data for this sector. The proposed condition-based system outperforms the current and alternative models in terms of accuracy while also addressing the numerous ex-post adjustments currently paid.

Acknowledgements

The work that formed the basis for this chapter was supported by ANIF (*Asociación Nacional de Instituciones Financieras*), Bogota Colombia D.C.

Author details

Ian Duncan[1,2]* and Tamim Ahmed[2]

1 Department of Statistics and Applied Probability, University of California Santa Barbara, CA, USA

2 Santa Barbara Actuaries Inc, Santa Barbara, CA, USA

*Address all correspondence to: duncan@pstat.ucsb.edu

References

[1] Maria MSS et al. El Sector Salud En Colombia: Riesgo Moral Y Selección Adversa En El Sistema General De Seguridad Social En Salud (Sgsss). 2009

[2] Duncan I. Healthcare Risk Adjustment and Predictive Modeling. 2nd ed. New Hartford CT: Actex Publications; 2018

[3] Ministerio de Salud. Aplicación de la Metodología para la Definición del Presupuesto Máximo a Transferir a las Entidades Promotoras de Salud de los Regímenes Contributivo y Subsidiado y a las Entidades Obligadas a Compensar – EOC, en la vigencia, Dirección de Beneficios Costos y Tarifas de Aseguramiento en Salud, Editor. Ministerio de Salud: Bogotá D.C. 2020

[4] Nuñez J, Zapata J, Castañeda C, Fonseca SM, Ramírez J. La Sostenibilidad Financiera Del Sistema De Salud Colombiano -Dinámica Del Gasto Y Principales Retos De Cara Al Futuro. Bogota DC: Fedesarollo Centro de Investigacion Economica y Social; 2012

[5] Colombian Health Ministry (Minsalud). Statutory Law 1751: Por Medio De La Cual Se Regula El Derecho Fundamental A La Salud Y Se Dictan Otras Disposiciones. Bogota DC; 2015

[6] National Administrative Department of Statistics of the Republic of Colombia. *Cifras de Aseguramiento en Salud*, Ministry of Health and Social Protection of the Republic of Colombia, Editor. Ministry of Health of Colombia: Bogota D.C. Colombia. 2021

[7] Colombian Health Ministry (Minsalud). *Resolución 1479.* Bogota DC. 2015

[8] Government of Colombia. Informe Anual Acciones de Tutela en Salud Vigencia 2020, Orden 30 de la Sentencia T-760 de 2008, Ministry of Health and Social Protection of the Republic of Colombia, Editor. Ministry of Health and Social Protection of the Republic of Colombia, Bogota D.C. 2021

[9] Government of Colombia. *Informe de Rendición de Cuentas 2019–2020*, Administradora de los Recursos del Sistema General de Seguridad Social en Salud, Editor. Administradora de los Recursos del Sistema General de Seguridad Social en Salud: Bogota D.C. 2020

[10] Administradora de los Recursos del Sistema General de Seguridad Social en Salud. 04 de February de 2019. Available from: https://servicios.adres.gov.co/Inicio/Post/6150/ADRES-pag%C3%B3-3-13-billones-por-servicios-no-incluidos-en-el-plan-de-beneficios-en-salud-en-2018

[11] Kronick R, Welch WP. Measuring coding intensity in the medicare advantage program. Medicare and Medicaid Research Review. 2014;**4**(2): E1-E19

[12] Pope GC, Kautter J, Ingber MJ, Freeman S, Sekar R, Newhart C. Evaluation of the CMS-HCC Risk Adjustment Model. Research Triangle Park North Carolina: RTI International for CMS; 2011

[13] Pope GC, Kautter J, Ellis RP, Ash AS, Ayanian JZ, Iezzoni LI, et al. Risk adjustment of Medicare capitation payments using the CMS-HCC model. Health Care Financing Review. 2004; **25**(4):119-141

[14] Hileman G, Steele S. Accuracy of Claims Based Risk Scoring Models.

Schaumburg, IL: Society of Actuaries; 2016. p. 90

[15] Berwick D, Gilfillan R. The emperor still has No clothes: A response to Halvorson and Crane, in Health Affairs Forefront. Health Affairs. 2022

[16] Halvorson G, Medicare advantage delivers better care and saves money: A response to Gilfillan and Berwick, in Health Affairs Forefront. Health Affairs. 2022

[17] Crane D, The important roles of Medicare advantage and direct contracting: A response to Gilfillan and Berwick, in Health Affairs Forefront. Health Affairs. 2022

[18] Kang J Duncan I, Huynh N. Making the right diagnosis: A response to Berwick and Gilfillan, in Health Affairs Forefront. Health Affairs. 2022

[19] Gilfillan R, Berwick D., Medicare Advantage, Direct Contracting, And The Medicare 'Money Machine,' Part 1: The Risk-Score Game, in Health Affairs Considering Health Spending. People to People: Baltimore MD. 2021

[20] Gilfillan R, Berwick D. Medicare Advantage, Direct Contracting, And The Medicare 'Money Machine,' Part 2: Building On The ACO Model, in Health Aff (Millwood). People to people: Baltimore MD. 2021

Chapter 2

Perspective Chapter: Microinsurance's Quest to Protect the Unprotected, beyond the Bismarck and Beveridge Models

David Mark Dror

Abstract

This chapter offers a detailed analysis of microinsurance (nowadays often called "inclusive insurance"), an innovative hybrid model combining grassroots initiatives with top-down approaches to reach populations not covered by government-operated social protection systems. With half of the global population, primarily in low and middle-income countries, lacking social protection, the chapter focuses on the potential of microinsurance to address this pressing issue. The commercial microinsurance attempts, often labeled as "insurance for the poor," have been largely insufficient. An alternative lies in the "Collaborative and Contributive" (C&C) model of microinsurance, which harnesses social forces, typically more compelling than market forces in informal settings, to stimulate demand. The chapter evaluates microinsurance's social and economic impacts, drawing insights from 25 years of progress. It underscores the need for policymakers, international development bankers, and the reinsurance industry to recognize the potential of the C and C model in providing comprehensive insurance to marginalized populations.

Keywords: informal sector, financial protection, risk management, affordable coverage, insurance education, microinsurance

1. Introduction

This chapter tackles a significant global development issue: the systemic exclusion of half the world's population from vital social protection systems [1]. Such systems, encompassing crucial services like health insurance, social security, and social assistance, remain inaccessible to a large proportion of the global population. This widespread lack of access deprives numerous individuals of universal social protection coverage's social and financial benefits. It hinders economic growth and equitable income and wealth distribution in various countries. A multitude of complex and interrelated factors drive this troubling situation.

In the early 1970s, Keith Hart's seminal studies catalyzed discussions around informal employment [2]. Building upon this momentum, the International Labour

Organization (ILO) soon introduced the 'non-traditional insurance' concept. Presented in their 1972 report [3], this foundational discourse on informal sectors and non-traditional insurance continued to gain traction in the 1980s and 1990s structural adjustment era. This idea took a definitive form in the 1990s, culminating in the term 'microinsurance.' Over time, microinsurance has further evolved and is now commonly referred to as 'inclusive insurance' to emphasize the aim of reducing exclusion [4].

Microinsurance is not confined to health risks; it can address various perils. However, in this chapter, the focus is primarily on health-related risks, aligning with the overall subject of this book, which is health insurance. This clarification ensures that the scope of the discourse on microinsurance within this work is understood. This term referred to community-based organizations connected to larger structures to facilitate risk pooling. Given that, in many contexts, the perceived incapacity of the state to provide adequate social protection to specific segments of society, this approach was seen as necessary.

The chapter begins by outlining the problem and its background before discussing how the definition and application of the microinsurance concept can provide possible solutions.

1.1 Impact of predetermination beliefs on risk analysis and preventive measures

Cultural norms and societal priorities deeply embedded at the individual level often deter specific groups from accessing insurance mechanisms. From the dawn of time, adverse events have often been attributed to predestination, divine will, or the result of personal actions. This perception, which is still persistent in many parts of the world, causes many to avoid risk analysis and, even more, not to take preventive measures to counteract, mitigate, or compensate for risks (for more details on risk perception, see [5]). An approach to understanding those perceptions requires sustained collective commitment.

1.2 Role of insurance in addressing unforeseen events and financial consequences

Insurance is a proactive tool designed to mitigate financial consequences from unpredictable events. While the broader patterns of these events are known, the exact timing, location, severity, and specific individual or asset at risk are uncertain [6]. At its core, insurance operates on the principle of risk pooling.

Wilkie's seminal work [7] aptly differentiates between two primary forms of risk pooling:

Risk-based pooling: Here, contributions or premiums are determined by the specific risk level each participant (individual or group) introduces to the pool. This approach is commonly seen in private insurance.

Solidarity-based pooling: This model considers broader societal factors when determining contributions, epitomizing the principles of social insurance systems.

In insurance and mutual organizations, "mutuality" traditionally denotes members' shared benefits and burdens. Conversely, "solidarity" represents the foundational ethos of social insurance, where societal or group members collectively shoulder the cost of risk protection, irrespective of the individual risk they introduce.

However, many individuals, particularly those less affluent, less educated, or employed in the informal sector, perceive insurance as beyond their grasp, termed as "lack of agency." This sentiment is especially strong towards commercial insurance among economically disadvantaged populations [8]. Similar sentiments are

echoed in studies on microinsurance [9] and microfinance [10], where individuals feel challenged to manage predictable risks or maintain relationships with insurance providers.

1.3 Historical approach to government intervention in health insurance

Governments first ventured into (health) insurance regulation in the mid-nineteenth century. They expanded their involvement to include financing and provision in the twentieth century. We detail the four models [11] and then discuss the two that have proven more influential.

Bismarckian Model: Named after the German statesman Otto von Bismarck, this model connects the right to healthcare coverage to obligatory insurance financed through contributions. It is common in industrialized countries like Germany, France, Switzerland, and Japan, where employers and employees fund the health insurance system [12].

Beveridgean Model: The Beveridgean model, named after William Beveridge, provides healthcare coverage rights based on residency or citizenship. Primarily funded through general taxation, this model stresses universal coverage, irrespective of income or employment status. It is manifested in the United Kingdom's National Health Service (NHS), Sweden, Spain, Canada, India, China, Italy, and others [13, 14].

USA Model: The US healthcare system is a hybrid model, combining tax-based funding for specific populations (like Medicare and Medicaid recipients and some Affordable Care Act enrollees) with private insurance. This model lacks a coordinated approach to healthcare coverage, leading to significant variability in accessibility and affordability. Furthermore, many people across different socioeconomic levels or employment statuses remain uninsured [15].

The Semashko Model, named after Nikolai Semashko, was a healthcare system used in the former Soviet Union and other socialist nations. Funded by state subsidies, it provided healthcare services through local public centers or designated workplace facilities, often accessible mainly to the "privileged" class, like government institutions, the military, the police, and major factories in critical sectors. This model allowed varying care levels, reflecting Soviet society's informal class distinctions, from the influential "nomenklatura" to those in employment, education, retirement, or with disabilities, and the marginalized "social margin" or "parasites" [16].

The initial efforts of European governments in insurance regulation in the nineteenth century were predominantly geared towards what can be termed as "private" insurance, based on the principle of mutuality, even if they were not always conducted through mutual associations in the modern sense. However, by the second half of the twentieth century, these models introduced more comprehensive systems, representing the nascent stages of what we now recognize as social insurance. As such, it's crucial to differentiate between these early regulatory interventions and the more holistic, state-driven models of social insurance that followed.

1.4 Limitations and exclusions in these models, especially for the informal sector

The Bismarckian and Beveridge models are influential in many countries worldwide because they represent two distinct, well-established approaches to structuring social security and health insurance systems [17]. By contrast, the USA model is criticized for its complexity, high costs, and gaps in coverage [18]. And the Semashko model, accommodating the notion of unequal quality and quantity of care originating

from the social order of the former Soviet Union, is now considered irrelevant to current debates on healthcare systems [16].

Why is there a pressing need for an additional model? The crux of the issue primarily lies in the top-down governance embedded in the four traditional models. These systems thrive on centralized decision-making and control, cultivating distinct command chains and potential efficiencies. But this centralization often propels these systems towards one-size-fits-all solutions, less suitable for context-specific governance [19]. Moreover, such systems are relatively volatile under unstable macroeconomic conditions [20]. And they strive to apply 'one-size-fits-all' solutions that may be unsuitable in numerous settings [21].

Moreover, many low- and middle-income countries have adopted a policy of attracting foreign investors to stimulate export-oriented manufacturing. These economies depend on exporting low-cost goods, which requires low-cost production, often leading to minimum wages for workers and slim business profit margins. Consequently, these countries frequently relax the requirements for foreign firms to provide social benefits, further lowering operating costs [22]. This approach stimulates export-oriented manufacturing with minimal workers' wages and protection and can generate jobs and spur short-term economic growth. However, it often results in decreased tax revenues for the government. This strategy can be executed and scaled without requiring governments to implement extensive social protection models, not to mention the more comprehensive Bismarckian or Beveridgean systems.

1.5 Applicability of international labor standards on universal social protection coverage

The question may arise whether international labor standards might bind countries to provide at least minimal social protection. Although these matters have been acknowledged at various international conferences, there is no binding solution yet. The UN's agency championing the evolution of social protection systems is the International Labour Organization (ILO). Before 2000, the ILO's social security promotion focused on the formal economy [23]. The crux of the ILO's strategy lay in advocating for the ratification and implementation of the Social Security (Minimum Standards) Convention, 1952 (No. 102) [24]. This convention, which outlines minimum standards for the principal branches of social security, reflects a Bismarckian approach, emphasizing contribution-based social insurance schemes.

Even before 2000, the ILO recognized that many nations could not apply the standards foreseen in Convention No. 102. Consequently, it supported a gradual expansion of coverage, considering national circumstances and stressing public consultation's importance in determining suitable implementation strategies [25].

By the late twentieth century, it also became clear that a substantial segment of the global population remained excluded, particularly those in developing countries' informal economies [26, 27].

Subsequently, the ILO began advocating for more flexible social protection models to reach underserved populations [28]. This shift resulted in the ILO's 2012 Recommendation No. 202 [29], which promoted the idea of national Social Protection Floors (SPFs)—basic social security guarantees aiming to combat poverty, vulnerability, and social exclusion [30]. In addition to advocating for the realization of SPFs, the ILO supports formalizing informal employment and considering gender-specific risks in social protection design and implementation.

The World Health Organization (WHO) advocated for Universal Health Coverage (UHC), as well as microinsurance [31]. But its actions have been more declarative than practical. The 58th World Health Assembly (WHA) passed Resolution WHA58.33 in 2005, requesting member states to develop health financing systems capable of achieving and maintaining UHC. The 2010 World Health Report also focused on health financing, providing advice on raising funds, reducing dependence on direct service payments, and enhancing efficiency and equity.

Additionally, the United Nations General Assembly adopted a resolution in 2012 (A/RES/67/81), encouraging member states to progress towards providing UHC. This resolution has been reinforced by subsequent WHA resolutions and the inclusion of UHC as a target of the Sustainable Development Goals (SDGs) in 2015.

Consequently, while the UN and other international bodies have advocated for expanded health insurance access for marginalized populations, they have yet to enact any legally binding instruments to guarantee the realization of this objective. Furthermore, there is a lack of consensus on which entity should spearhead this mission.

2. Microinsurance: extending coverage to the informal sector

Microinsurance is a distinct insurance approach designed to meet the demand of often marginalized, underserved communities, focusing on needs identified and prioritized locally [32] (micro corresponds to local, meso to regional, and macro to national). Given that most uninsured individuals are engaged in the informal sector in

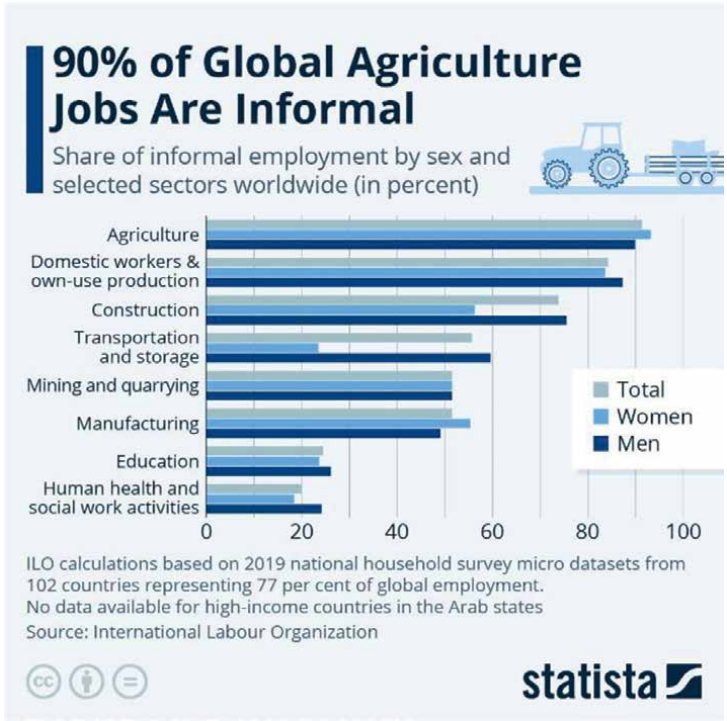

Figure 1.
Hidden workforce: Informal employment in labor-intensive industries.

Low and Middle-Income Countries (LMICs) and that many labor-intensive industries informally employ a significant portion of their workforce [ILO data; graph source [33]], it's imperative to underscore the necessity of tailoring solutions to the unique circumstances of the informal sector (**Figure 1**).

Later, we examine three interpretations of the term 'inclusive insurance.' In its original conception, the beneficiaries actively determine the insured risks based on their ability and willingness to pay premiums. Additionally, the insured group should participate in management and claim adjudication processes. This involvement reduces administrative costs, increases transparency, and nurtures trust. These unique characteristics distinguish it significantly from the operational models of traditional commercial or public insurance schemes.

2.1 Introduction to microinsurance as a non-mandatory social protection model

The International Labour Organization (ILO) introduced non-traditional coverage to offer social protection for informal and agricultural workers, often excluded from traditional pension and social security systems. This concept emerged during the structural adjustment era of the World Bank's early exploration into index insurance [34]. However, attempts to expand social security to non-traditional workers during the 1970s and 1980s encountered significant funding challenges due to the withdrawal of government subsidies under structural adjustment policies [35–37].

During that period, the writings of Amartya Sen became particularly significant. His Capability Approach underscored the importance of individual agency and freedom in achieving developmental outcomes [38, 39]. Sen and Jean Drèze highlighted the importance of public participation in policymaking, advocating against top-down, overly simplified solutions to complex social problems [40].

By the late 1980s, the ILO, influenced by Sen's emphasis on participatory development, suggested a novel approach: advocating for community-based social protection schemes using 'traditional' institutions [41]. This idea gained further traction in the 1990s, propelled by Elinor Ostrom's groundbreaking work on managing common pool resources (CPR) [42]. Ostrom's principles, advocating for local communities' autonomy in managing common resources, resonated with the ethos of community-based social protection schemes that the ILO endorsed.

Influenced by Sen's and Ostrom's ideas, the ILO launched a project focusing on the informal sector in three major developing cities [43]. This project laid the groundwork for 'microinsurance,' introduced in 1999 [44]. Dror's microinsurance model encapsulated community-driven organizations linked to larger structures for risk pooling. The model effectively merged Ostrom's general approach to collective action and CPR management and Sen's emphasis on participatory decision-making and freedom.

Dror's model envisions communities collectively managing and distributing risks [45], supporting a locally organized and financed system that allows collective resource pooling and risk management. The model allows customization of insurance products to fit specific community needs and leverages existing social dynamics among the uninsured, offering affordable, context-specific, and demand-driven insurance packages.

However, during the early development of microinsurance, informal sector workers' voices were often underrepresented, and consultation was insufficient, with empirical evidence of implementation lacking. The discourse was instead dominated by external parties from wealthier nations keen to pinpoint the defining features of microinsurance. Three principal perspectives emerged: one focused on the target population—"the poor" [46, 47]; another highlighted the product's nature,

characterized by "low cost and low coverage" [48, 49]; the third perspective centered on the type of insurance provider, whether mutual, social, or for-profit entities [50].

Commercial insurers found validation for their preference to sell insurance to individuals through agents in Thaler and Sunstein's "nudge" concept [51], which advocates minor interventions to guide decision-making. While this concept aligns with Sen's emphasis on freedom of choice [38], it lacks his emphasis on public discussion to enhance rationality [52]. Furthermore, it contrasts with Ostrom's perspective on the capacity of local communities to self-govern common resources [42].

The blurred lines between "insurance for the poor" and "low-cost & low-coverage products" often resulted in both perspectives deviating from the original proposition of harnessing social dynamics [53, 54]. Additionally, low-cost products did not guarantee that "cherry-picking "practices[1] would not leave protection gaps among the clients of these new products [55]. Several "low premium products" were developed without customizing to local risk exposure or sufficiently exploring the price sensitivity of the uninsured [56]. However, the lack of empirical evidence of implementation and clear evidence of benefits for target populations meant insufficient consultation among the poorest populations thwarted commercial success. The Micro Insurance Academy (founded by David Dror in New Delhi in 2007) focused on implementation support of the Micro Insurance Unit concept, embracing Sen's and Ostrom's theoretical foundations but with novel facilitation of 'insurance education' under the banner of the Collaborative and Contributive (C&C) microinsurance model, which underscores Sen's emphasis on community participation, freedom, and collective engagement in tailoring solutions to specific local resource management [57, 58].

However, premiums had to be affordable. This begs the question: Are the uninsured interested in purchasing "cheap insurance for the poor"? [59]. The analysis of this vital issue forms the next point of discussion.

2.2 Price sensitivity: tailoring insurance plans based on economic status

Defining microinsurance as "insurance for the poor" insinuates two conditions: firstly, that such coverage exists outside the structure of a universal social protection system and, thus, contributory, but without government mandates. And secondly, the premiums should be low to suit the limited resources of poor people [60]. The first condition implies that microinsurance must be priced to compensate for the pure actuarial premium without subsidy [61]. Consequently, the cost of microinsurance could potentially exceed regular (subsidized) insurance, an outcome that is not typically deemed pro-poor. The second condition implies that low premium "insurance for the poor" could succeed if price sensitivity is high among the target group [62]. So, what concrete evidence is there to support this assumption?

Empirical evidence reveals that lowering the prices of microinsurance increases demand, but overall uptake is minimal [63–65]. Households with higher liquidity and easier access to credit are more likely to buy insurance, i.e., slightly less price sensitive [63, 66], and adjusted premium payment structures can ease liquidity

[1] Cherry-picking in insurance refers to the practice where insurance companies selectively provide coverage only to low-risk individuals or groups, while avoiding or excluding those perceived as high risk. This practice, also known as "cream-skimming," allows insurers to minimize their potential liabilities and maximize their profits. However, it can leave higher-risk individuals without affordable insurance options, most notably those who have become high-risk after many years of having been insured when they were considered low-risk.

constraints [67, 68]. Studies have highlighted the impacts of compound risk aversion and ambiguity aversion on insurance uptake [69, 70]. These studies suggest that the target population's risk aversion and overall wealth level lead it to forego substantial premium discounts when the offer is insufficiently sensitive to specific demand drivers like income, education, age, household size, and health status. The effect of these demand drivers can vary significantly across different types of insurance [71, 72].

A crucial factor influencing demand is insured individuals' out-of-pocket expenses on top of premiums when accessing healthcare. A qualitative study from Ghana [73] revealed that even insured clients of Ghana's NHIS incur additional costs for consultations and medications, which should be covered by the scheme, primarily because of drug shortages and administrative fees. The study recommends eliminating these extra charges to enhance trust in the NHIS across all regions and facilities. A qualitative investigation in the USA [74], which has several laws to deliver "insurance for the poor," points out that the lower out-of-pocket spending, the more likely the positive effect of premium subsidies[2].

In the commercial microinsurance space, "insurance for the poor," i.e., products that offer restricted coverage to maintain low premiums and profitability, or "freemium" coverage that conceals the insurance premium within the cost of mobile services but ignores other demand drivers, have struggled to achieve widespread acceptance and consistent renewal rates [53, 75, 76].

This situation is often encapsulated in the phrase "*insurance for the poor is poor insurance*." Firstly, "microinsurance for the poor" only has one practical pathway to stimulate demand: it must be appealing enough to uninsured groups. The traditional marketing effort aims to reach individual clients. However, evidence shows that people tend to conform to what others are doing and rely on others' opinions and experiences when making decisions. This idea is widely accepted and is rooted in multiple psychological and sociological studies [77]. We've gathered evidence indicating that our target audience prioritizes shared experiences and group consensus over price or package composition. Specifically, they value experiences that corroborate their collective understanding of the group's perceived priorities [78].

Furthermore, it's significant to them that their choices lead to widespread benefits for many group members. This underscores the desire to join voluntary and contributory Community-Based Health Insurance schemes (CBHIs) [78]. Through iterative rounds of an exercise named 'Choosing Healthplans All Together' (CHAT), we observed an enhanced level of consensus among participants. This repeated cycle of consultation and pricing adjustments led us to describe the process as 'Collaborative and Contributive.' Importantly, our evidence underscores that group consensus does not emerge spontaneously but necessitates a catalyst, as referenced in the source [79].

This notion resonates with the hypothesis suggesting that microinsurance becomes a viable business model tailored to match the affordability, needs, and priorities of groups within the informal sector [80]. The insurance industry is yet to fully accept

[2] This recent investigation assessed the affordability of healthcare for individuals perceived as poor (those receiving unemployment benefits) within the context of California. Utilizing data from adult participants in on- and off-Marketplace individual plans in California in 2021, the study discovered that 41 percent of respondents declared incomes at or below 400 percent of the federal poverty level. Additionally, 39 percent lived in households receiving unemployment compensation. Strikingly, 72 percent of participants reported having no trouble affording premiums, and 76 percent stated that out-of-pocket expenses did not deter them from seeking medical care. These findings imply that ARPA (American Rescue Plan Act of 2021) extended access to insurance plans considered affordable, even though affordability concerns persisted.

the potential consequences of its ambition to harness and carve a market foothold at the base of the economic pyramid. This perspective provides a novel lens to understand how 'micro' insurance differentiates itself from traditional insurance. The following section delves further into this concept and presents empirical evidence.

2.3 Collaborative strategies to meet the requirements of low-income populations

The approach's fundamental principles are rooted in historical wisdom and lessons from contemporary social movements. The first principle, captured by the rallying cry "No Taxation Without Representation" during the American Revolution, asserts that those contributing money should have a say in how to use it [81]. This democratic maxim is echoed in the "Collaborative and Contributive" (C&C) concept of microinsurance, underscoring the crucial link between citizen participation in governance and financial contributions [79]. This principle of collective-choice arrangements mirrors one of Elinor Ostrom's design principles for managing common-pool resources [42], emphasizing that most individuals affected by the operational rules can participate in modifying the rules. Microinsurance distinguishes itself by focusing on customizing insurance offerings to local, regional, and national needs. Such customization is achieved through consultation and pooling resources among specific groups, echoing the principle of group solidarity [82, 83]. This principle, resonant with Ostrom's ideas, promotes cooperative efforts and shared responsibility over isolated individual actions. At the core of solidarity is the spirit of cooperation, wherein individuals or groups band together to assist each other, particularly during challenging times, and work towards shared goals. This collective approach aligns with Ostrom's design principle of congruence between rules and local conditions.

The belief that collective action and shared responsibility typically yield more fruitful outcomes than individual, isolated efforts has been demonstrated across various initiatives [84]. This ethos is a guiding principle from community-led social movements to cooperative economic models and microinsurance [85]. Drawing from Ostrom's rules for clearly defined boundaries, the C&C approach to microinsurance defines the group as the unit to be insured, establishing a collaborative environment for managing shared risks.

Empirical evidence shows that addressing non-price barriers, such as trust issues and limited awareness, necessitates changes in contract designs, grassroots governance, and financial education [86, 87]. Reflecting Ostrom's principle of monitoring, the C&C approach advocates for the insured group's participation in managing the scheme, fostering transparency and trust.

The need for community involvement and education is increasingly emphasized [63, 88, 89]. Hence, microinsurance distinguishes itself from traditional insurance through a unique business process that interlinks customers' contributions and active participation in decision-making. This participatory decision-making aligns with Ostrom's principles for managing common-pool resources, underscoring the necessity of nested enterprises and minimal recognition of rights to organize. The C&C model recognizes the group's right to organize and manage their insurance scheme, which can be nested within larger structures for greater risk pooling and resilience.

2.4 Actuarial techniques to meet the requirements of low-income populations

Bernards [90] emphasizes the concerted efforts of various entities to develop actuarial practices suitable for microinsurance operations, with a particular focus on

non-agricultural sectors. Main contributors to these efforts include the International Association of Insurance Supervisors (IAIS), the International Actuarial Association (IAA), private consultancies, and the Microinsurance Centre (MIC).

Responding to encouragement from CGAP and the World Bank in the late 2000s, the IAA established the Microinsurance Working Group (MiWG) in 2010. In 2014, MiWG released an issue paper that suggested a proportional approach to regulations given the simpler nature, scale, and scope of microinsurance products [91].

Furthermore, in collaboration with IAIS and A2ii, the IAA created guidance and training materials to establish minimum actuarial standards in microinsurance operations [92]. The IAA also advocated for 'formula-based approaches' to actuarial calculations. This led to the creation of simplified pricing models for credit-life insurance and health microinsurance in 2012 and 2016, respectively [93, 94]. These models use accessible software platforms and publicly available data, allowing firms to set premium rates based on demographic data, country conditions, expected profit levels, expenses, and subsidies (if available).

Nevertheless, despite these strategic efforts, the impact on field operations remains limited. The primary barrier to effective implementation is not the lack of actuarial support but the prevailing socioeconomic dynamics among rural and informal sector workers.

3. The original idea of the 'collaborative and contributive' (C&C) model

The Collaborative and Contributive (C&C) model captures more than its "customer-centric" and "demand-driven" approach to group insurance. This model underscores that insurance is not merely a commercial product but an empowerment tool for communities and a safeguard for affiliated members. The C&C approach pivots around peer-to-peer dialogs, where local adults engage in discussions to determine which risks should be prioritized in that location for management and the acceptable cost calculated by external experts like actuaries. These collaborative discussions build consensus, fostering the willingness to join and pay.

The C&C strategy triggers demand, even among those typically excluded from or resistant to insurance, by converging three crucial aspects: the power of group discussions on prioritized risks, the importance of catalyzing consensus on cost and benefits, and the critical role of group members in administering the plan.

Regarding group discussions, these have proven to significantly broaden members' understanding of the implications of insurance, empowering them and building their capacity to negotiate with insurers on behalf of the group. It fosters a sense of collective bargaining, a potent counterpoint to the feeling of powerlessness, or lack of agency an individual might experience when pitted against an imposing insurance company.

Concerning the package design, the C&C model champions a symbiotic relationship where the collective group acts as an 'insurer' while individual members are exposed to risk. This model greatly emphasizes customers' active role in designing and pricing insurance packages that are context specific. Unlike the offering of low-cost, low-coverage products, this process leverages existing informal support and risk-sharing networks within the group, resulting in products tailored to their intimate knowledge of each other's needs. Although we focus on health insurance, the C&C process has been successfully applied across various risk categories—including health, life, livestock, crop, and assets—employing indemnity and parametric models.

Local administrative participation provides three key advantages. First, it fills information gaps, mitigating the risk of failures. Second, it eases the claim submission process at the local level, aiding individuals who might struggle with form completion or providing required information. Finally, it delegates the disbursement of pooled funds to a committee selected from the group members, bolstering trust through this direct control over the group's resources.

These three aspects significantly quell individual reticence, offering a more appealing alternative to the isolated experience of facing an insurance salesperson without a supportive network.

It's important to note that the C&C model is distinct from Collaborative Learning Networks (CLN) [95] or "communities of practice" (CoP). The latter entails the exchange of insights, best practices, and new knowledge between individuals from different locations or even countries who share a common interest or concern. While these practices have been helpful in many fields and are gaining traction in global development as innovative technical assistance models, they fundamentally differ from the C&C approach. The focus of CLN or CoP is more on leveraging adult learning theories and social learning principles to develop sustainable systems. The C&C approach directly tackles the challenges of extending insurance coverage in a specific locality in a participatory manner.

3.1 The C&C model facilitates the transition from dormant to solvent demand

Dror ([89], chapter 1) advances that in the settings of poverty and informality, humans pursue the objectives and priorities of groups to which they belong, established through iterative exchanges to reach a consensus on "what a responsible adult does" [79, 80, 96]. This assumption posits that individuals align with their support group rather than conducting an individual risk assessment. This assumption challenges the centrality of Von Neumann and Morgenstern's proposition that insurance offers a solution for personal risk aversion [97] or Kahneman and Tversky's theory regarding individual loss aversion [98–100].

The margin of individual decision-making on financial matters is limited in quantity and scope. The limited quantity is a function of low disposable cash reserves. The limit in scope is that each spending comes at the expense of other alternatives, i.e., an exercise in rationing that can influence other household members and therefore requires prior consultation with the family, extended family, and the group that provides the support in case of need. Dror et al. [88] provide evidence of success in establishing the consensus that "insurance is what responsible adults in our setting/community do." The flip side of this process is that when there is no consensus (or no discussion), many or most uninsured individuals in poverty and informality express dormant rather than solvent demand for insurance.

Dormant demand describes the attitude of consumers who do not consider the merits of the products on offer. Their battle cry is irrefutable: "*I am too poor to pay*." This argument does not per se mean they are too poor in absolute terms, but that they are too poor to pay for something that they cannot explain to their support circle, as all they could do is repeat (probably only partially) arguments of outsiders whom a priori they do not trust (e.g., an insurance agent or a government official). Consequently, the marketing effort must address the group's concerns rather than the individual. Furthermore, it must demonstrate tangibly that the insurance transaction offers welfare gains rather than only promises that might never materialize. When people are convinced, they are prepared to pay, i.e., exercise solvent demand.

3.2 The transformative effect of the C&C model: nurturing dependability over dependency

Informal sector workers often develop a dependent mentality, anticipating the management of unexpected risks to fall upon others. For instance, during calamities such as epidemics, floods, droughts, or earthquakes, the larger population, including those in developing countries, expects the government to intervene using public funds. This expectation perhaps stems from the coexistence of public services (horizontal systems) and targeted programs for specific conditions (vertical programs), like control of HIV/AIDS, tuberculosis, malaria, COVID, and maternity issues. These horizontal systems and many vertical programs often offer services at no cost and occasionally provide monetary incentives for compliance.

This ingrained practice indicates that the government is responsible for risk mitigation, not the individual at risk. Shifting this paradigm requires moving from a dependency mentality to one of dependability. Community-Based Health Insurance (CBHI) initiatives exemplify such a shift's effectiveness. Often burdened with caregiving duties without sufficient resources, women have been empowered through participation in the administration, governance, and oversight of pooled funds via CBHI schemes [101, 102]. Women involved in Self-Help-Groups and CBHI [103] emphasized the empowerment gained from having a say in their healthcare decisions for the first time. This transition from dependency to dependability, often expressed with immense satisfaction, can be seen as one of microinsurance's most significant indirect benefits.

3.3 Insurance education as a catalyst for financial inclusion: insights from the C&C model

In the informal sector, it is difficult to start a dialog on any topic dealing with finance or insurance because most people associate those topics with exclusion rather than inclusion. Shifting the paradigm from exclusion to inclusion begins with people's shared understanding that inclusion entails a benefit and that the terms to avail of that benefit are reasonable. Discussion, consensus building, and dialog lead to understanding the basic concepts [104]. A universe of discourse then leads to cultural acceptance of the financial instrument and only then to participation. Reaching this cultural acceptance requires insurance education and financial literacy, not a sales pitch [105]. However, to this day, there is no generalized recognition that it is necessary to impart insurance education to grassroots groups. Neither governments nor the insurance industry has invested the resources in developing the curriculum or the required institutional support to impart large-scale insurance education [106]. Governments, NGOs, or insurers wishing to improve financial inclusion should start by enhancing financial/insurance education [107]. Integrating insurance literacy into primary education could serve as a valuable strategy, allowing children to grasp and reinforce these essential concepts at home [108]. For adults, the group setting proves most effective for learning and accepting insurance literacy, particularly when engaging with community peers [63].

3.4 Impact of being insured

The impact of insurance signifies both the tangible and intangible shifts experienced by an insured individual, household, or community. It encompasses financial

stability, risk management, improved health and well-being, poverty reduction, economic growth, and increased resilience to unexpected shocks or disasters. The impact is gauged through numerous indicators, among which the changes in financial status, service usage, socioeconomic variables, and overall quality of life stand out. A direct and significant metric is the claims ratio (loss ratio)—the percentage of premiums paid out as benefits.

The Landscape of Microinsurance Study 2022 [109] is the most extensive publication, with data from 253 insurance providers reporting on 935 diverse products in 34 countries across Africa, Asia, Latin America, and the Caribbean. The study presents a microinsurance landscape, providing insights into the market size, evolution, premiums, product development, social performance, reinsurance, and claims. The research reveals that total premiums have doubled from USD 1.1 billion in 2020 to USD 2.2 billion in 2021, although the number of people covered has decreased in the same period. The study highlights that microfinance institutions, financial institutions, and agents & brokers are the most active distribution channels.

In 2021, life and accident insurance products saw a median claims ratio of 22%, a slight rise from 18% the previous year, although with regional differences. Such low claims ratios could potentially heighten the insured's vulnerability given the relative premium costs, contradicting the purpose of insurance. Agricultural products had a higher median claims ratio of 28%, which saw significant regional variations. Unfortunately, the study lacked information on the health microinsurance claims ratio.

Insurers typically aim to strike a balance in their claims ratio. If it's too high, it might indicate underpricing of risks, potentially leading to financial challenges. Conversely, a meager ratio might suggest overpricing, delivering less value to policyholders, or possibly that policyholders aren't claiming even when eligible. The observed claims ratios for the given year lean towards the lower end, prompting questions about allocating the unclaimed premium funds. It's plausible (though not explicitly mentioned) that a portion of the premium income is set aside for "technical" and "solvency" reserves—both of which are crucial. It's imperative to differentiate between profits and reserves transparently. Moreover, a longer-term accounting perspective is essential. However, if a significant portion of these funds is reserved as profits, it may indicate that the premiums are potentially overpriced, further exacerbating concerns about pricing and trust.

Another way to evaluate the impact of community-based health insurance (CBHI) is by analyzing empirical data on healthcare utilization and financial risk protection in low- and middle-income countries (LMICs). A recent systematic review [110] provided insights into this, examining 61 studies that represented the experiences of 221,568 households (equivalent to 1,012,542 individuals) across 20 LMICs. The key takeaway is that CBHI schemes have considerably boosted healthcare utilization, with a pronounced emphasis on outpatient services. Of the 43 studies reviewed, 24 identified a tangible improvement in financial risk protection due to CBHI. When collated, the data indicated that insured households leaned more towards healthcare utilization, outpatient services, and health facility deliveries. Yet, there was no significant uptick in inpatient hospitalizations. Financially, CBHI-affiliated households reported a decrease in out-of-pocket health expenses and a reduced likelihood of encountering catastrophic health expenditures, gauged at 10% of total household expenditures and 40% of non-food expenditures. To sum up, CBHI effectively enhances healthcare utilization in LMICs but offers inconsistent financial protection against unexpected health-related expenses.

4. Challenges in implementing the C&C model and ensuring scalability

4.1 Tackling the critical obstacles to microinsurance sustainability and scalability

The potential of the C&C Microinsurance model to extend social protection coverage for vulnerable and marginalized populations is substantial. However, to harness this potential effectively, it is vital to understand and address the model's inherent challenges. Here are the primary hurdles:

4.1.1 Limited financial literacy and awareness

The complexity of insurance concepts and a lack of understanding of the benefits of microinsurance often inhibit its adoption. Financial education should aim at shaping decisions rather than just imparting information. Hence, targeted financial literacy initiatives, which lay the foundation for the 'Collaborative' aspect of C&C, should be introduced before premium solicitation. Such initiatives are most effective when they involve trusted community figures and peers, capturing hearts and minds.

4.1.2 Affordability

Affordability can be enhanced through innovative pricing structures, such as aligning certain payments with periods when farmers sell their produce instead of demanding upfront premiums. Additionally, devising group policies for entire communities and bundling various risk categories into a comprehensive approach may allow for cross-subsidization, further addressing affordability concerns.

4.1.3 Delivery and administration challenges

The large-scale implementation of microinsurance, especially in rural settings, brings significant logistical challenges. Partnering with local institutions, like microinsurance-focused village committees, can help mitigate these difficulties. At the same time, digitizing processes can improve operational efficiency, reduce paperwork and redundancies, and expedite response times. However, given the limited interest shown by finance capital [90], the onus of developing microinsurance markets falls mainly upon the initiating organizations. This emphasizes the need for intentional market creation and demand stimulation [88] over spontaneous evolution. High administrative costs, particularly during limited outreach, further compound these challenges. As an aside, it's pertinent to note that the administrative costs associated with health insurance are frequently substantial, as underscored by studies like [111]. Similarly, Community-Based Health Insurance (CBHI) schemes also grapple with high administrative costs due to the group's small size, rendering premiums insufficient to finance administrative costs in the early years of operation.

4.1.4 Risk of fraud or mismanagement of pooled funds

Microinsurance operators managing pooled funds face significant financial risks due to weak internal controls and governance [98]. However, establishing more effective controls often leads to increased costs.

4.1.5 Risk pooling and sustainability

Small or homogeneous risk pools can jeopardize the sustainability of the microinsurance program. The pooling of various groups, introducing diversified products, and including reinsurance [112] can help broaden and diversify the risk pool.

4.1.6 Regulatory environment

A supportive regulatory environment can propel the growth of microinsurance. It is incumbent upon governments to develop regulations that encourage innovation in the microinsurance sector while ensuring consumer protection.

4.1.7 Data availability and pricing

The lack of reliable granular data for local risk assessment and pricing can diminish the effectiveness of microinsurance. Collaborations between implementers and research institutions and using advanced technologies for local data collection and analysis can improve data management.

4.1.8 Product design

Microinsurance products must align with the specific needs of target populations. This necessitates a user-centric design process and ongoing feedback mechanisms for product refinement.

4.1.9 Low claims ratio

A low claims ratio may suggest the insured group is not reaping benefits commensurate with their premium payments. This might be due to restrictive policy conditions, a lack of awareness about the claims process, high deductibles that discourage individuals from making claims, and overly conservative risk assessments. Addressing these issues requires a reassessment of the terms to ensure they are fair and not overly restrictive and enhance transparency and simplicity in the claims process.

4.1.10 Dependence on continued external technical assistance

As highlighted by Schmidt et al. [113], dependency on external technical assistance presents a significant challenge. Ensuring a smooth transition to sustainable solutions without compromising technical performance standards constitutes a substantial task.

Addressing these challenges necessitates coordinated action from multiple stakeholders, including governments, microinsurance providers, NGOs, local community organizations, and insured groups. By confronting these issues, we can more effectively unlock the potential of the C&C Microinsurance model, thereby broadening its impact in extending social protection to those who need it most.

4.2 Long-term investment and reinsurance for scaling microinsurance

In the early stages of microinsurance development, proponents recognized that the advantages of small mutual aid groups also presented challenges in risk

diversification and covariance. The solution suggested was "Social Reinsurance," a concept to provide reinsurance for Micro Insurance Units (MIUs) [112].

The primary advantage of reinsurance is its ability to offer solvency protection. By distributing risk among multiple entities, reinsurance safeguards insurance providers from insolvency due to significant claim events, such as natural disasters [114].

In addition to this vital role, reinsurance's value proposition lies in its capacity to extend coverage beyond insurers' risk-bearing abilities, protecting a broader pool of clients [114]. In a commercial context, the stabilizing impact of reinsurance on underwriting results—achieved by reducing the variability of an insurer's loss ratio—renders financial outcomes more predictable and appealing to investors [115].

Reinsurance also plays an essential role in capacity enhancement. By providing access to global reinsurance markets, insurers, particularly those operating in developing countries, can offer products and services that might otherwise exceed their risk-bearing capacity [116].

In commercial insurance contexts, additional benefits of reinsurance include capital management. It offers a form of contingent capital that can be mobilized in the event of substantial losses, thus reducing the amount of money required to underwrite insurance [115]. Furthermore, reinsurers often provide underwriting, pricing, and claims management expertise and support, which is particularly valuable for primary insurers in niche sectors where such expertise may be limited [116].

The proposed concept of Social Reinsurance intended to bolster Microinsurance Units (MIUs) did not materialize. A subsequent proposal about the role of reinsurance in microinsurance [117] also did not progress. A primary reason for this lack of advancement lies in the regulations governing reinsurance businesses in many countries, which permit only licensed insurance companies to cede risks to reinsurance, leaving community-based microinsurance entities unable to do so. This restriction raises an important question: how much capital is necessary for such schemes to scale their services? The answer to this question was sought in a 2019 research paper [118]. The researchers used algorithms to calculate capital requirements for expanding health microinsurance for poor rural populations.

They found that to offset early losses, a prototype plan serving 40,000 people in India would need an initial funding of USD 62,477 if long-term operating costs would not exceed 20% of the premium and the claims ratio would stabilize at around 70%.

Not surprisingly, when the confidence levels were decreased below 99.9%—meaning a greater level of risk was accepted that the prototype plan might not stay solvent throughout a year—the capital requirements diminished significantly. Based on the researchers' calculations, a grace period of 5 years would be followed by a 15-year repayment period to compensate the investors who provided the initial funding entirely with an annual interest rate of 5% in USD.

Based on these findings, the study suggests that health microinsurance programs can achieve sustainability by providing the necessary initial capital as a loan and closely monitoring five key parameters: enrollment, premiums, operating costs, renewal rates, and the claims ratio.

The per-person, per-year capital requirement is strikingly low. The study's assumptions of a 15-year loan period and a commercial interest rate imply that if investors could be attracted, it would be feasible to significantly scale up microinsurance as a development project, even without reinsurance. However, the ideal way to scale microinsurance for a more significant impact would be through reinsurance, which offers the advantage of capacity enhancement and other benefits. Yet, this

opportunity likely depends on the support of governments or development banks like the World Bank and the engagement of the reinsurance industry to agree to transact with small insurance entities like MIUs.

5. Conclusion

The glaring issue that spurred the development of microinsurance is universally recognized: approximately half of the global population is bereft of access to social protection. The traditional top-down Bismarckian and Beveridgean models fail to make strides in most low- and middle-income countries due to evident and justifiable reasons. As the informal sector burgeons and several labor-intensive industries become hubs of informal employment, the call for an innovative operative model rings more urgent than ever.

While it's evident that past efforts to frame and deliver microinsurance as "insurance for the poor" or "low-cost, low coverage" insurance have fallen short of their intended goals, these attempts have provided valuable lessons. They revealed the complex dynamics that shape the demand for microinsurance and its effectiveness, from financial constraints to customers' risk priorities and other demand drivers, claims ratios, and renewal rates.

Despite the limitations of multilateral and international organizations in establishing robust insurance infrastructure in informal settings, their role in gathering insights from various pilots—successful or otherwise—cannot be understated. Even though such efforts, including the provision of 'distance insurance literacy,' have not yet fully reached or impacted the informal sector, they are steps in the right direction. Each effort brings us closer to realizing the potential of microinsurance in contributing to welfare gains at the grassroots level. The wealth of data and experience offers a significant foundation for building new strategies.

This strategic approach to scaling microinsurance, aka 'anticipatory marketization,' should include establishing more granular data sources, insurance education at the grassroots level, and adapting business practices by commercial insurers to better align with the needs of the community-based market.

Moreover, the few initiatives taken by some donors and philanthropic bodies have exposed a critical insight: microinsurance is more than just a financial transaction. It operates within a nexus of political and social dynamics, which must be considered for successful implementation.

Maintaining a positive outlook in the face of challenges is crucial. In an era where public trust in "the system" is eroding, the answer is not merely to preach faith in the benevolence of top-down or profit-driven insurers. The growing inequality in wealth, income, political influence, and access to justice underscores that simply declaring noble intentions is insufficient. Mandatory enrolment, a hallmark of the Bismarckian model, has not been well-received in many countries, proving it's not the ultimate solution. Despite this, each field experience, whether failed or successful, has yielded valuable insights, shaping a more inclusive and effective microinsurance sector. This is indeed progress. Yet, much more must be done to stimulate appropriate investments in 'anticipatory marketization.'

The way forward lies in the realization that when social forces are more potent and actionable than market forces, the fitting path forward involves leveraging these social dynamics to catalyze demand. Microinsurance, rooted in mutual aid, thrives in small group settings, fostering open dialog and consensus on risk insurance and

resource allocation for risk management. The tireless efforts of pioneers and NGOs for a generation to validate an unconventional demand theory have led to an abundance of field pilots and evidence-backed publications. What does this collective wisdom tell us? A viable alternative path to reaching the uninsured does exist, one paved with the power of collaboration, cooperation, consultation, and consensus-building, fueling willingness to join and pay. Scaling this transformative model necessitates resources, regulatory backing, and institutional support, much like any groundbreaking development project. It's high time we rally politicians, bankers, and reinsurers to pool their resources and ambitions and tether them to this pioneering social protection model.

The pursuit of developing microinsurance markets and the persistent efforts to troubleshoot and re-engineer those markets represent complex attempts to develop forms of social protection that do not necessitate substantial redistribution. Is this a deal-breaker?

The evidence suggests that the excluded groups neither expect nor demand that insurance delivers substantial income redistribution. However, they insist on participatory decision-making. This expectation can be met by applying the "Collaborative and Contributive" (C&C) microinsurance model. This approach emphasizes inclusion and empowerment of everyone—whether employed or not, engaged in formal or informal work, and residing in urban or rural areas—to participate in insurance decision-making. This represents a dramatic departure from the authoritarian style of state-owned schemes or the rigid and obfuscated operations of commercial insurance.

Despite its potential, the C&C model encounters several obstacles, including regulatory impediments like limitations on transferring risks to reinsurance and insufficient political and financial backing needed to generate impact on a large scale.

However, the past quarter-century has seen significant strides in evolving demand theory and establishing operational frameworks for mutual aid microinsurance schemes, such as Community-Based Health Insurance (CBHI). Thanks primarily to NGOs, pioneering practitioners, and a handful of countries that have adopted CBHI as the national system, these experiments have catalyzed a willingness to join, pay actuarially fair premiums, and participate in governance and administration. Now, it's time for the academic community to examine microinsurance's social and economic impacts, including its potential contribution to GDP growth by insuring informal workers and the welfare gains to the insured. Most importantly, it's time for 'development politicians', prudent bankers—particularly international development bankers—and the reinsurance industry to back the C&C microinsurance model's potential to extend insurance to all, using models that transcend Bismarck and Beveridge's models.

Acknowledgements

The author would like to sincerely acknowledge the invaluable review comments offered by Prof. Martin Eling, Dr. Nihar Jangle, and Mr. John Woodall. Their constructive feedback has significantly enhanced the quality of this work. However, any assertions or conclusions drawn in this article are the sole responsibility of the author.

DOI: http://dx.doi.org/10.5772/intechopen.1002483

Author details

David Mark Dror[1,2,3]

1 Micro Insurance Academy, New Delhi, India

2 Erasmus School of Health Policy and Management, Erasmus University, Rotterdam, Netherlands

3 ILO/UN, Geneva, Switzerland

*Address all correspondence to: daviddror@socialre.org

IntechOpen

References

[1] International Labour Office. World Social Protection Report 2020-22. Vol. 1. Geneva: ILO; 2021, Online resource, 377 p. ISBN 978-92-2-031950-5. Available from: https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_817653/lang--en/index.htm

[2] Hart K. Informal income opportunities and urban employment in Ghana. The Journal of Modern African Studies. 1973;**11**(1):61-89

[3] International Labour Office. Employment, Incomes, and Equality: A Strategy for Increasing Productive Employment in Kenya. Geneva: ILO; 1972

[4] Point 2 of the FAQ Defines the Term "Inclusive Insurance." Available from: https://a2ii.org/en/FAQs

[5] Wachinger G, Renn O, Begg C, Kuhlicke C. The risk perception paradox—Implications for governance and communication of natural hazards. Risk Analysis. 2013;**33**(6):1049-1065

[6] Dionne G. Risk management: History, definition, and critique. Risk Management and Insurance Review. 2013;**16**(2):147-166. DOI: 10.2139/ssrn.2231635

[7] Wilkie D. Mutuality and solidarity: Assessing risks and sharing losses. Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences. 1997;**352**(1357):1039-1044

[8] Banerjee AV, Duflo E. Good Economics for Hard Times. New York: Public Affairs; 2019

[9] Giesbert L, Steiner S. Client perceptions of the value of microinsurance: Evidence from southern Ghana. The Journal of Development Studies. 2015;**51**(7):869-884

[10] Mader P. Microfinance and financial inclusion. In: The Political Economy of Microfinance. Cham: Palgrave Macmillan; 2018. pp. 99-123

[11] Almgren G. Health care systems: Four basic models. In: Health Care Politics, Policy, and Services: A Social Justice Analysis. 3rd ed. New York: Springer Publishing Company; 2018. pp. 78-82

[12] Leisering L. Nation state and social policy: An ideational and political history. In: Social Policy in the Federal Republic of Germany. 2013. pp. 1-22

[13] Abel-Smith B. The Beveridge report: Its origins and outcomes. International Social Security Review. 1992;**45**(1-2):5-16

[14] Hills J, Sefton T, Stewart K, editors. Towards a more Equal Society? Poverty, Inequality, and Policy since 1997. Bristol: The Policy Press; 2009. Available from: https://publications.iadb.org/publications/english/document/Microinsurance-Risk-Protection-for-the-Poor.pdf

[15] Hamel MB, Blumenthal D, Collins SR. Health care coverage and the affordable care act—A progress report. The New England Journal of Medicine. 2014;**371**:275-281. DOI: 10.1056/NEJMp1406857

[16] Rowland D, Telyukov AV. Soviet health care from two perspectives. Health Affairs. 1991;**10**(3):71-86. DOI: 10.1377/hlthaff.10.3.71

[17] Palmer N. The use of private-sector contracts for primary health

care: Theory, evidence, and lessons for low-income and middle-income countries. Bulletin of the World Health Organization. 2000;**78**:821-829

[18] Oberlander J. The US healthcare system: An international perspective. Daedalus. 2003;**132**(3):32-41

[19] Ostrom E. Beyond markets and states: Polycentric governance of complex economic systems. American Economic Review. 2010;**100**(3):641-672

[20] Ruckert A, Labonté R. The global financial crisis and health equity: Early experiences from Canada. Globalization and Health. 2014;**10**(1):2

[21] Tumwine G, Palmieri J, Larsson M, Gummesson C, Okong P, Östergren PO, et al. 'One-size doesn't fit all': Understanding healthcare practitioners' perceptions, attitudes and behaviors towards sexual and reproductive health and rights in low resource settings: An exploratory qualitative study. PLoS One. 2020, 2020;**15**(6):e0234658. DOI: 10.1371/journal.pone.0234658

[22] Harrison A, Scorse J. Multinationals and anti-sweatshop activism. American Economic Review. 2010;**100**(1):247-273

[23] Barrientos A, Hulme D. Social protection for the poor and poorest in developing countries: Reflections on a quiet revolution. Oxford Development Studies. 2008;**37**(4):439-456

[24] International Labour Organization (ILO). Social Security (Minimum Standards) Convention. Vol. 102. Geneva: ILO; 1952

[25] International Labour Organization. Introduction to Social Security. Geneva: ILO; 1984

[26] ILO. World Labour Report 2000: Income Security and Social Protection in a Changing World. Geneva: International Labour Office; 2000

[27] van Ginneken W. Extending social security: Policies for developing countries. International Labour Review. 2003;**142**(3):277-294

[28] International Labour Organization (ILO). World Social Protection Report 2017-19: Universal Social Protection to Achieve the Sustainable Development Goals. Geneva: ILO; 2017

[29] International Labour Organization. Recommendation Concerning National Floors of Social Protection. Geneva: ILO; 2012. Available from: https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_INSTRUMENT_ID:3065524

[30] International Labour Organization. The ILO's Flagship Programme: Building Social Protection Floors for All. Geneva: ILO; 2016. Available from: https://www.ilo.org/global/topics/social-security/WCMS_490725/lang--en/index.htm

[31] World Health Organization. Microinsurance for Health: A Unique Social Protection Measure. Geneva: WHO; 2017

[32] Dror DM. Demand for health insurance in emerging Asia. Health Economics, Policy and Law. 2018;**13**(3-4):408-429

[33] Usage and publication rights to content from the free infographics service are granted under a Creative Commons (CC) license. Available from: https://www.statista.com/chart/30347/share-of-informal-employment-by-sex-and-selected-sectors/

[34] Best J. Ambiguity and uncertainty in international organizations: A history of debating IMF conditionality.

International Studies Quarterly. 2013;**57**(4):674-688

[35] International Labour Organization. Social Security Principles. Geneva: International Labour Office; 1977

[36] International Labour Organization. Extending Social Security Coverage. Geneva: International Labour Office; 1980

[37] International Labour Organization. Approaches to Social Protection: An International Review. Geneva: International Labour Office; 1989

[38] Sen A. Rights and agency. Philosophy & Public Affairs. 1982;**11**:3-39

[39] Sen A. Poor, relatively speaking. Oxford Economic Papers. 1983;**35**(2):153-169

[40] Sen A, Drèze J. India: Economic Development and Social Opportunity. Oxford: Oxford University Press; 1995

[41] Mouton Y, Gruat JV. Protection sociale dans les pays en développement: Alternatives pour les secteurs non structurés. Travail et Société. 1989;**14**(2):265-289

[42] Ostrom E. Governing the Commons: The Evolution of Institutions for Collective Action. Cambridge: Cambridge University Press; 1990

[43] van Ginneken W. Meeting social needs in developing countries. International Labour Review. 1996;**135**(6):615-625

[44] Dror DM, Jacquier C. Microinsurance: Extending health insurance to the excluded. International Social Security Review. 1999;**52**(1):71-97

[45] Dror DM, Piesse D. What is microinsurance? In: Radermacher R, Roth K, editors. A Practical Guide to Impact Assessments in Microinsurance. Luxemburg and New Delhi: Microinsurance Network and Micro Insurance Academy; 2014. pp. 24-39

[46] McCord MJ. The Microinsurance Product and its Pricing. Vol. 3. Appleton, Wisconsin, USA: Micro Insurance Centre Briefing Note; 2001

[47] Churchill C. What is insurance for the poor? In: Churchill C, editor. Protecting the Poor: A Microinsurance Compendium. Geneva: International Labour Office and Munich Re Foundation; 2006

[48] Roth J, McCord MJ, Liber D. The Landscape of Microinsurance in the World's 100 Poorest Countries. Appleton, Wisconsin, USA: The Micro Insurance Centre; 2007

[49] Churchill C, McCord MJ. Current trends in microinsurance. In: Churchill C, Matul M, editors. Protecting the Poor: A Microinsurance Compendium. Vol. 2. Geneva: ILO; 2012. pp. 8-39

[50] Preker AS, Scheffler RM, Bassett MC. Private Voluntary Health Insurance in Development: Friend or Foe? Washington DC: The World Bank; 2007

[51] Thaler RH, Sunstein CR. Nudge: Improving Decisions about Health, Wealth, and Happiness. New Haven, CT: Yale University Press; 2008

[52] Sen A. Development as Freedom. Oxford: Oxford University Press; 1999

[53] Matul M, McCord MJ, Phily C, Harms J. The landscape of microinsurance in Africa. In: Microinsurance Innovation Facility Research Paper No. 4. Geneva: International Labour Organization; 2010

[54] Churchill C, Matul M. Protecting the Poor: A Micro Insurance Compendium. Vol. II. Geneva: International Labour Organisation; 2012

[55] Wipf J, Garand D. Performance Indicators for Microinsurance: A Handbook for Microinsurance Practitioners. 2nd ed. Luxemburg: ADA asbl, Microinsurance Network, and BRS; 2010

[56] Cohen M, Young M. Microinsurance: Innovating to meet the needs of the poor. In: Making Insurance Work for Microfinance. Washington, DC: Micro Finance Network; 2007. pp. 9-31

[57] Sen A. Commodities and Capabilities. Amsterdam: North-Holland; 1985

[58] Sen A. Gender and cooperative conflicts. In: Tinker I, editor. Persistent Inequalities: Women and World Development. Oxford: Oxford University Press; 1990

[59] McCord M, Osinde S. Reducing vulnerability: The demand for microinsurance. Journal of International Development. 2005;**17**(3):377-385

[60] Churchill C. Making Insurance Work for Microfinance: Institutions, Products, and Country Experiences. Geneva: ILO Microinsurance Innovation Facility; 2007

[61] Radermacher R, Brinkmann V. The Importance of Pricing in Microinsurance: Principles and Case Studies. Luxemburg: Microinsurance Network; 2011

[62] Cohen M, Young M. Microinsurance: The risks, perils, and opportunities. Small Business Economics (New York: Springer). 2007;**28**(1):113-116

[63] Cole S, Giné X, Tobacman J, Topalova P, Townsend R, Vickery J. Barriers to household risk management: Evidence from India. American Economic Journal: Applied Economics. 2013;**5**(1):104-135

[64] Thornton RL, Hatt LE, Field EM, Islam M, Solís Diaz F, González MA. Social security health insurance for the informal sector in Nicaragua: A randomized evaluation. Health Economics. 2010;**19**(S1):181-206

[65] Clarke DJ. A theory of rational demand for index insurance. American Economic Journal: Microeconomics. 2016;**8**(1):283-306

[66] Giné X, Townsend R, Vickery J. Patterns of rainfall insurance participation in rural India. The World Bank Economic Review. 2008;**22**(3):539-566

[67] Casaburi L, Willis J. Time versus state in insurance: Experimental evidence from contract farming in Kenya. American Economic Review. 2018;**108**(12):3778-3813

[68] Bauchet J, Morduch J. Paying in pieces: A natural experiment on demand for life insurance under different payment schemes. Journal of Development Economics. 2019;**139**:69-77

[69] Elabed G, Carter MR. Compound-risk aversion, ambiguity, and the willingness to pay for microinsurance. Journal of Economic Behavior & Organization. 2015;**118**:150-166

[70] Belissa TK, Lensink R, van Asseldonk M. Risk and ambiguity aversion behavior in index-based insurance uptake decisions: Experimental evidence from Ethiopia. Journal of Economic Behavior & Organization. 2020;**180**:718-730. Available from: https://www.sciencedirect.com/science/article/pii/S0167268119302380

[71] Dror DM, Hossain SAS, Majumdar A, Pérez Koehlmoos TL, John D, Panda PK. What factors affect

voluntary uptake of community-based health insurance schemes in low- and middle-income countries? A systematic review and meta-analysis. PLoS One. 2016;**11**(8):e0160479. DOI: 10.1371

[72] Platteau JP, De Bock O, Gelade W. The demand for microinsurance: A literature review. World Development. 2017;**94**:139-156

[73] Akweongo P, Aikins M, Wyss K, et al. Insured clients' out-of-pocket payments for health care under the national health insurance scheme in Ghana. BMC Health Services Research. 2021;**21**:440. DOI: 10.1186/s12913-021-06401-8

[74] Fung V et al. The affordability of individual-market health Insurance in California under the American rescue plan act, 2021. Health Affairs. 2023;**42/7**:1011-1020. DOI: 10.1377/hlthaff.2022.01419

[75] Leach R, Sitaram A. Micro-insurance in India: Insurance for the poor? The Journal of Alternative Perspectives in the Social Sciences. 2002;**4**(1):27-46

[76] Tellez CA, Zetterli P. Mobile insurance, savings, and credit. Focus Note. 2014;**96**:5-13

[77] Sundar A, Noseworthy TJ. Too exciting to fail, too sincere to succeed: The effects of brand personality on sensory disconfirmation. Journal of Consumer Research. 2016;**43**(1):44-67, Oxford University Press. Available from: https://ideas.repec.org/a/oup/jconrs/v43y2016i1p44-67..html

[78] Dror DM, Panda P, May C, Majumdar A, Koren R. "One for all and all for one": Consensus-building within communities in rural India on their health microinsurance package. Risk Management and Healthcare Policy. 2014;**2014**:139-153. DOI: 10.2147/rmhp.s66011

[79] Dror DM, Firth L. The demand for (micro) health insurance in the informal sector. The Geneva Papers on Risk and Insurance-Issues and Practice. 2014;**39**(4):693-712

[80] Dror DM. Financing Micro Health Insurance: Theory, Methods, and Evidence. Vol. 2. Singapore: World Scientific Publishing; 2018. p. 10944, World Scientific Series in Health Investment and Financing. ISBN 978-981-3238-47-3, 552

[81] Bailyn B. The Ideological Origins of the American Revolution. Cambridge, Massachusetts: Harvard University Press; 1992

[82] Kropotkin P. Mutual Aid: A Factor of Evolution. London: William Heinemann; 1902

[83] Ansell C, Gash A. Collaborative governance in theory and practice. Journal of Public Administration Research and Theory. 2007;**18**(4):543-571

[84] Lozano-Díaz A, Fernández-Prados JS. Young digital citizenship in #FridaysForFuture. Review of Education, Pedagogy, and Cultural Studies. 2022;**44**(5):447-468

[85] Birchall J, Ketilson LH. The Resilience of the Cooperative Business Model in Times of Crisis. Geneva: Sustainable Enterprise Programme, ILO; 2009

[86] Cai J, de Janvry A, Sadoulet E. Social networks and the decision to insure. American Economic Journal: Applied Economics. 2020;**2**(2):81-108

[87] Song C. Financial education and savings behavior: Evidence from a randomized experiment among low-income clients of branchless banking in India. Journal of Development Economics. 2020;**146**:102558

[88] Dror DM, Chakraborty A, Majumdar A. The effect of consensus

on demand for voluntary micro health insurance in rural India. Risk Management and Healthcare Policy. 2018;**11**:139-158

[89] Dror DM. Health Microinsurance: Implementing Universal Health Coverage in the Informal Sector. Vol. 4. Singapore: World Scientific Publishing; 2020. World Scientific Series in Health Investment and Financing, ISBN 9789811208522

[90] Bernards N. Waiting for the market? Microinsurance and development as anticipatory marketization. Environment and Planning A: Economy and Space. 2022;**54**(5):949-965. DOI: 10.1177/0308518X221073986

[91] IAA. Actuarial Practices in Microinsurance. Ottawa: International Actuarial Association; 2014

[92] IAA. Actuarial Practices in Microinsurance. Ottawa: International Actuarial Association; 2018

[93] UKAP. Credit-Life Insurance Pricing Model. London: UK Actuarial Profession; 2012

[94] Milliman. Health Microinsurance Pricing Model. Seattle: Milliman; 2016

[95] Designing & Facilitating Collaborative Learning Net-works : A Toolkit. Published by Results for Development (Online). Available from: https://r4d.org/wp-content/uploads/R4D-Collaborative-Learning-Toolkit-DRAFT.pdf

[96] Turner JC. Social Categorization and the Self-Concept: A Social Cognitive Theory of Group Behavior. Washington, DC: Psychology Press; 2010

[97] Neumann V, Morgenstern. Theory of Games and Economic Behavior. Princeton, NJ, USA: Princeton University Press; 1944. Republished by J. Wiley; 1967. ISBN 9780471911852, 0471911852

[98] Daniel K, Amos T. Prospect theory: An analysis of decision under risk. Econometrica. 1979;**47**(2):263-291. The Econometric Society. Available from: http://www.jstor.org/stable/1914185

[99] Sterne JA, Hernán MA, Reeves BC, Savović J, Berkman ND, Viswanathan M, et al. ROBINS-I: A tool for assessing the risk of bias in non-randomized studies of interventions. BMJ. 2016;**355**:i4919

[100] Hart SD, Michie C, Cooke DJ. Precision of actuarial risk assessment instruments: Evaluating the 'margins of error' of group v. individual predictions of violence. The British Journal of Psychiatry. 2007;**190**(S49):s60-s65

[101] Fletschner D, Kenney L. Rural Women's access to financial services: Credit, savings, and insurance. In: Gender in Agriculture. Netherlands: Springer; 2014. pp. 187-208. DOI: 10.1007/978-94-017-8616-4_8

[102] Holtz J, Cox B, Cico A. Building Momentum for Universal Health Coverage: Communication and Advocacy in Action. Washington, DC: HFG Project, HFG Series: Advances in Health Finance & Governance; 2018. Available from: www.hfgproject.org

[103] Mersland R, Nyarko SA, Szafarz A. Do social enterprises walk the talk? Assessing microfinance performances with mission statements. Journal of Business Venturing Insights. 2019;**11**:e00117. DOI: 10.1016/j.jbvi.2019.e00117

[104] Kumar N, Raghunathan K, Arrieta A, Jilani A, Hamza; and Pandey, Shinjini. The power of the collective empowers women: Evidence from self-help groups in India. World

Development. 2021;**146**(2021):105579. DOI: 10.1016/j.worlddev.2021.105579

[105] Lusardi A, Mitchell OS. The economic importance of financial literacy: Theory and evidence. American Economic Journal: Journal of Economic Literature. 2014;**52**(1):5-44

[106] Lusardi A, Mitchell OS. Financial literacy around the world: An overview. Journal of Pension Economics & Finance. 2011;**10**(4):497-508

[107] Beyene HA. Factors affecting the sustainability of rural water supply systems: The case of Mecha Woreda, Amhara Region, Ethiopia [thesis]. Ithaca, NY, USA: Cornell University; 2012

[108] Lusardi A, Tufano P. Debt literacy, financial experiences, and over-indebtedness. Journal of Pension Economics & Finance. 2015;**14**(4):332-368

[109] Microinsurance Network. The Landscape of Microinsurance 2022. Luxembourg: Microinsurance Network; 2023. Available from: https://microinsurancenetwork.org/publications

[110] Eze P, Ilechukwu S, Lawani LO. Impact of community-based health insurance in low- and middle-income countries: A systematic review and meta-analysis. PLoS One. 2023;**18**(6):e0287600. DOI: 10.1371/journal.pone.0287600

[111] Mathauer I, Nicolle E. A global overview of health insurance administrative costs: What are the reasons for variations found? Health Policy. 2011;**102**(2-3):235-246. DOI: 10.1016/j.healthpol.2011.07.009

[112] Dror DM, Preker AS. Social Reinsurance: A New Approach to Sustainable Community Health Financing. Washington DC and Geneva: World Bank and International Labour Office; 2002. A Review of the Book Appeared in Dror DM, Preker AS. World Development. 2002;**30**(2):209-225

[113] Schmidt H, Gostin LO, Emanuel EJ. Public health, universal health coverage, and sustainable development goals: Can they coexist? The Lancet. 2015;**386**(9996):928-930

[114] Cummins JD, Weiss MA. Convergence of insurance and financial markets: Hybrid and securitized risk-transfer solutions. Journal of Risk and Insurance. 2009;**76**(3):493-545

[115] Harrington SE, Niehaus G. Capital, corporate income taxes, and catastrophe insurance. Journal of Financial Intermediation. 2003;**12**(4):365-389

[116] Swiss Re. The Essentials of Insurance: Introduction to Reinsurance. Zurich: Swiss Re Institute; 2017

[117] Wiedmaier-Pfister M, Dror I. The role of insurers and reinsurers in the growth of microinsurance. In: Churchill C, editor. Protecting the Poor: A Microinsurance Compendium. Geneva: International Labour Organization; 2006

[118] Dror DM, Majumdar A, Jangle N. Estimating capital requirements to scale health microinsurance serving rural poor populations. Geneva Papers on Risk and Insurance: Issues and Practice. 2019;**44**:410-444. DOI: 10.1057/s41288-019-00126-w.+

Chapter 3

Perspective Chapter: Public Health Insurance in Developing Countries

Enos Mirembe Masereka, Linda Grace Alanyo, Antony Ikiriza, Maureen Andinda, Pardon Akugizibwe and Emmanuel Kimera

Abstract

Public health insurance protects citizens from unexpected high medical costs. It ensures healthcare equity and quality in many countries. Unlike the developing countries, health insurance covers all citizens in the developed countries. Due to low health insurance coverage in developing countries, the health expenditure at both household and national level is souring. Access to quality healthcare remains a big challenge, and many households struggle with high out-of-pocket health expenditures. Many people have even lost their lives because of failure to access healthcare services due to high costs that they cannot meet out of pocket. Countries with functional public health insurance schemes have attained optimal healthcare coverage for their citizens. In an effort to advocate for the development of health insurance systems by countries, this book chapter will cover the following; developing a public health insurance, the impact of a functional health insurance scheme on healthcare access, country-specific public health insurance schemes in Africa, challenges encountered and how to ensure health insurance schemes are sustainable.

Keywords: public health insurance, health insurance, healthcare access, national health insurance, social health insurance, community based health insurance

1. Introduction

Public Health Insurance (PHI) is a model of health insurance where healthcare plans for citizens are funded by governments at national or local levels. The introduction and expansion of PHI has been a central focus to achieve Universal Health Coverage (UHC) and to ensure healthcare equity and quality in many countries. The PHI scheme ensures that everyone has access to the required and quality health services without financial hardship. It prevents catastrophic health expenditure among the insured people. In majority of the developed countries, health insurance coverage is at 100 percent of the population for instance in Canada, Germany, Japan, and Singapore and about 83 percent in the United States of America [1, 2]. In the United Kingdom, citizens are entitled to free public healthcare provided by the National Health Service (NHS). The NHS receives funding from taxes, and national insurance [3].

Developing countries are increasingly expanding PHI to achieve UHC. However, PHI policies differ from one country to another and each country implements PHI

schemes at different levels; for instance, at national or community levels. In some developing countries, PHI is voluntary, and in others it is mandatory. In Philippines, Indonesia, the Lao People's Democratic Republic, and Vietnam, mandatory payment of public health insurance premiums exists. However, the majority of individuals without formal employment are not able to pay and there is no formal system through which this category of people can pay premiums [4].

Coverage of PHI in most African countries is still suboptimal. For instance, Uganda, South Sudan, Nigeria, and Mali have the lowest coverage with 2%, 2%, 3%, and 7% of people covered respectively. Coverage is 25% in The United Republic of Tanzania, 28% in Kenya, 28% in Ethiopia, 50% in Burundi, 68% in Ghana and 92% in Rwanda. Algeria and Tunisia as well have rates above 80% [5]. In Africa, voluntary PHI schemes are more prevalent than mandatory, and majority are mainly private. Some countries operate community-based PHI schemes and others operate centrally monitored or country-wide PHI [5]. In countries such as Ethiopia and Rwanda, efforts have focused on implementing Community-Based Health Insurance Schemes (CBHIS) on a large scale and national or central PHIs are not well-developed. There are a few countries with functional central PHIs. In countries where both central and community-based PHIs co-exist, integration of the two has not been well achieved. However, Rwanda and Ghana provide good examples where the integration has been successful. In Rwanda, the integration process is reported to have significantly increased outpatient service utilization rates [6].

As a result of very low PHI coverage in some countries, there is catastrophic health expenditure. For instance, in Uganda, out-of-pocket expenditure is currently beyond the set threshold of 10–25% [7]. The country operates 28 CBHI schemes not linked to the national PHI and located in only 22% of the districts throughout the country. The largest number is in Southwestern Uganda [7]. As it has been mentioned above, the coverage of healthcare insurance is suboptimal, this means that access to quality healthcare is also limited, especially among the rural poor people. This leaves the majority with high out-of-pocket health expenditures in trying to access healthcare [8]. Those that may not afford to pay, may end up losing their lives before seeking or even receiving appropriate healthcare. Health insurance ensures that access to appropriate, quality, and affordable healthcare is guaranteed among all people including the less privileged. The fact that most developing countries are struggling to develop PHI schemes in order to achieve UHC needs to be addressed and this book chapter supports the process. The chapter describes the processes of developing public health insurance, including its functionality, and sustainability.

2. Developing a public health insurance scheme

Achieving UHC is now an essential health policy focus for many countries across the world. This focus became popular following the World Health Assembly Resolution 58.33 (2005) and the Sustainable Development Goal 3.8 (achieving universal health coverage, including financial risk protection, access to quality essential healthcare services, and access to safe, effective, quality and affordable essential medicines and vaccines for all) [4]. In low- and middle-income countries (LMIC), the concept of UHC, that talks about everyone receiving quality healthcare without suffering financial hardship has been widely accepted and public health insurance schemes have been proposed to be one of the key mechanisms to achieving financial protection and UHC for all including the poor [9]. Operating a PHI scheme requires several

managerial and administrative tasks. These are critical in ensuring financial sustainability of the scheme. They include those responsible for oversight and monitoring of the health insurance system. In addition, adequate administrative and management structures are required to effectively address issues relating to quality, utilization, service delivery costs, efficiency, and service provider payments. PHI scheme like any other health insurance scheme is often faced with challenges regarding the pooling of resources that may require administrative and managerial attention to ensure pools are sufficient all the time. For instance, the occurrence of infectious diseases that affect large numbers of people, as well as the increasing burden of chronic illnesses may threaten the insurance income levels or pools. This is because they levy a burden on the income or existing financial resources of the insurance scheme. Therefore, managing financial flows to ensure accommodative financial pools at all times is key to guaranteeing sustainability of the insurance scheme.All these issues need to be considered to create a self-sustaining PHI scheme [10]. Starting a PHI program therefore involves several complex steps that require careful planning, coordination, and resources. The exact process can vary from country to country based on the country's legal, political, and economic context but may include, although not limited to the following;

2.1 Step 1: conducting needs assessment

A needs assessment is conducted to determine gaps in healthcare delivery. It compares the current situation and the desired and it suggests solutions to arrive at the desired status. Sufficient data is required to ascertain the gap and propose the actual solutions. In the health insurance context, it entails obtaining data concerning the broader health needs of a population, the determinants of health, the legal, political, environmental and socio-economic situations in the country [11, 12]. This will help to justify the current health insurance unmet need. A needs assessment may take different forms. The most common forms include surveys, interviews, focus group discussions, key informant interviews and review of existing data bases. A needs assessment might utilize one or more data collection formats [13]. The ultimate goal for conducting a needs assessment is to determine needs, examine their nature and causes, and set priorities for consideration in the health insurance service package. When Uganda thought of establishing a health insurance scheme in 1995, her assessment and justification for the scheme highlighted contentious issues [14]; that there was a lack of financial access to health services resulting in poor health, and a high disease burden among the poor. It was also found that progress in the overall human development indicators in Uganda was relatively low. The country had a low life expectancy, high infant and under-five mortality as well as high maternal death rate. It also faced a double epidemic of communicable and non-communicable diseases. In addition, the government annual health expenditure was still below the target of at least 15% that was set during the Abuja Declaration in 2001. The proportion of households that incurred catastrophic health expenditure has been high despite the abolition of user fees. Medicines frequently being unavailable in public facilities resulting in patients paying higher prices to acquire medicines at private pharmacies. By then and as of now, the protection of Ugandans is still low, with Community Health Insurance Schemes (CHIS)being accessible to only 5–10% of the population. Private commercial health insurance schemes cover only an additional 1% of the population [14]. With this, the country started the process of forming national health insurance scheme that would cover the health needs of all people including the poor. However, since the emergency of this idea in 1995 until now, the country is still in the process.

2.2 Step 2: define the goals and objectives of the public health insurance program

Goals and objectives inform program design and define what will be achieved. A goal statement summarizes the direction that the health insurance program will take. An example of a goal of health insurance promotion program can be: *"To ensure that economically disadvantaged mothers have access to safe and affordable Emergency Obstetric Care at all times".* the main focus according to the goal above is access to obstetric care by pregnant mothers. The second example of a goal is that of the Uganda national health insurance program that is currently under development. It is stated as follows; *"To protect residents in Uganda from unexpected and high medical costs by allowing them an opportunity to pay affordable premiums and get treatment when and where they need it without financial hardships"* [15]. Program objectives show how program goals will be achieved. While formulating objectives, it is important to ensure that they meet each of the following features; they should be specific, measurable, achievable, realistic, and time-bound. In most instances, program evaluations in the future will make reference to stated objectives and goals. This is made easy when objectives and goals are concisely stated, making this step critical and of crucial focus during program development and in the lifetime of a program.

2.3 Step 3: creating regulations and guidelines

Designing policies, laws, regulations, rules, protocols, and procedures that guide or influence the insurance scheme is key. Policies can be either legislative or organizational. Policymakers need to have access to a variety of documents as well as research papers to guide how beneficiaries will be selected and how premiums will be collected. They also specify the minimum benefit package and how beneficiaries will relate with their service providers [16]. However, traditional methods based on political lobbying and health providers' conflicts of interest need to be considered in the process of policy-making [17].

Since Uganda's idea of establishing a national health insurance scheme in 1995, related laws and acts have been put in place. For instance, the Insurance Act of 2017. Since then, the Ugandan Ministry of Health (MOH) commissioned the first feasibility study on health insurance. The continued poor financing of the health system between 2001 and 2005 led the government to commission a second feasibility study on health insurance and visitations to Thailand, India, and Tanzania to study models of national insurance on how the beneficiaries are selected, how premiums are paid and how healthcare services are provided to the beneficiaries. Observations from these studies and visitations contributed to a lot of improvements in structuring the proposed national health insurance scheme and on March 31, 2021, the parliament of Uganda passed an NHIS bill that outlines the general structure for the scheme in Uganda. However, the NHIS bill awaits to be signed by the president of Uganda to turn it into a law.

2.4 Step 4: stakeholder engagement

At this stage, involving a wide range of stakeholders such as government agencies, healthcare providers, insurance experts, patient advocacy groups, and the general public is key. Consulting these will help to gather input, address concerns, and build support for the program. A substantial amount of work needs to be done to refine policies, guidelines, and regulations in line with feedback from the consultative meetings with the different stakeholders. More so, consulting increases the chances of buy-in.

Doetinchem and colleagues argued that it is generally not possible to introduce an insurance program without the broad support of the population and political systems [10]. It is recommended that the population is consulted and adequately sensitized, this may take at least a period of 3 years during which other steps such as policy formulation, and capacity building are as well being finalized [10]. The Ugandan stakeholder engagement process stalled and this justifies why stakeholders should be engaged earlier in the process [14]. Between 2006 and 2011, Uganda's NHIS met resistance from some stakeholders such as the National Social Security Fund (NSSF). The NSSF initially perceived that health insurance was to be a project of the MOH rather than a broad-based government initiative and so did not see need to actively be involved. The private health insurance owners felt threatened to lose market once the NHIS starts. This showed a need for bringing together the public and private sectors for harmonization. Although the NTF succeeded in bringing together public and private sectors in a common forum, the proposed health insurance plan still lacked the backing of some major stakeholders. These were the private sector employers and employees. NTF continued negotiations with stakeholders from 2010 to 2011 and successfully changed the name from social insurance scheme which implied that the scheme would cover a segment of the population to NHIS which meant that the scheme will cover the entire population. Furthermore, it was recommended to add a CHI component to cover individuals working in the informal sector. The cabinet approved these revised principles in September 2011 and a draft NHIS bill was formed.

2.5 Step 5: financing, budgeting, and infrastructure development

In developing a PHI scheme, financing and budgeting are critical components. Countries vary significantly in how they generate or pool revenue or funds. The various methods may include; government contributions, employer and employee contributions, taxes, and external funding such as international aid. Some countries may use a combination of any of these methods. For instance, a combination of tax financing through government budgets with social health insurance or voluntary health insurance, and other direct payments [18, 19]. For instance, Ghana's NHIS pools revenue from insurance premiums, payroll tax, and earmarked value-added tax [5].

Revenue redistribution after the pooling of funds depends on the health plan of a country. Revenue may be redistributed equally among regions of the country. In some countries, explicit risk adjustment formulas are used to allocate funds among geographic areas. In countries or geographical areas with multiple or competing health plans, risk adjustment is sometimes used to redistribute money away from plans for healthy individuals towards plans for very sick or highly costed persons. These funds should be collected and managed in a way that ensures the sustainability of the health insurance scheme. In addition, infrastructure, administrative structures, technological systems, operational systems, enrolment processes, claims processing systems, provider networks, and information technology systems necessary to run the health insurance scheme should be developed.

2.6 Step 6: enrolment of eligible individuals and families

This step is perhaps the most complicated yet the most needed for the kick-starting of the scheme as well as its sustainability. It involves enrolling legally qualified individuals, families, and companies into the scheme. Different criteria can be used. For instance, payment of premium by an individual or family a pre-requisite for enrolling

in the program. However, some segments of the population may be exempted from the payment of the premium [20]. Some East African countries like Tanzania and Kenya have implemented compulsory schemes such as the National Health Insurance Fund (NHIF) of 1999 in Tanzania that offered compulsory coverage for all formal sector workers [21]. The Community Health Fund (CHF) and *Tiba kwa Kadi* (TIKA) schemes for individuals with no formal employment in Tanzania [22]. The National Hospital Insurance Fund (NHIF) 1960s covered employees with formal jobs in Kenya [23]. Kenya also implemented the CBHIS for citizens with non-formal employment and the Social Health Insurance Benefit (SHIB) scheme for citizens in the private sector.

Enrolling eligible individuals and families into a health insurance scheme involves creating a systematic process for individuals to sign up for enrollment. This process can include; outreach and awareness campaigns to inform the target population about the application processes, expected benefits, and requirements for registration such as identification documents, address, and other relevant information. Verification to confirm the eligibility of applicants based on pre-determined criteria such as income thresholds, age, citizenship, and other factors may be required as well. It may also be required that support to individuals who may need help with the enrolment process, especially those with language barriers, limited internet access, or other challenges is organized.

2.7 Step 7: ongoing communication

Ongoing communication helps to maintain open communication with the public, stakeholders, and policymakers to keep them informed of the progress of the program, changes, and benefits. Communicating with stakeholders has always been integral to the business of health insurance because it keeps members engaged, involved, and informed, and helps them get the most out of their benefits.

2.8 Step 8: monitoring and evaluation

Monitoring of the health insurance scheme entails regular review of the performance of the scheme. It is usually part of the wider national health sector performance review and involves continuously collecting data to document trends in diseases, healthcare uptake, and coverage. As well, it documents the healthcare inputs, outputs, and outcomes of healthcare provision. It correlates disease burdens in the different regions of the country with inequalities in healthcare access. Therefore, disease surveillance and risk factor assessment are part of program monitoring. It also involves implementing mechanisms to continuously monitor the program's performance such as metrics related to enrolment, healthcare utilization, financial sustainability, and patient satisfaction. The process may also regularly evaluate the program's impact on health outcomes, healthcare access, and financial protection of beneficiaries. Studies have proved that health insurance schemes can curb costs by implementing an elaborate monitoring system to control provider claims through monitoring provider behavior, controlling balance billing, and curbing the practice of overprescribing drugs and overproviding services [10, 24].

3. The impact of a functional health insurance scheme on health care provision

Beneficiaries of a health insurance scheme are more likely to use health services than the uninsured. This is because they are less likely to suffer catastrophic

out-of-pocket medical bills. The insured are likely to afford services such as inpatient care, and maternity services. These patients can access services at both public and private hospitals. Health insurance also ensures access to healthcare services by key populations such as children, pregnant women, elderly, and the poor [25]. This is because, it pools funds from the old people to the children, from the healthy to the sick, and from the rich to the poor. In so doing, it ensures equity in healthcare access. In the context of health service utilization among key populations, a study conducted in Ghana, Indonesia, and Rwanda found that health insurance improved maternal healthcare utilization [26]. The findings particularly revealed a positive impact of health insurance on facility-based delivery and on the use of antenatal care. In another study conducted in Ghana, using propensity score matching estimation, Mensah and colleagues found that women insured through the NHIS were more likely to attend antenatal care, have a hospital delivery, attend postnatal care and turn up for immunization of their children [27]. Similar to the findings of another insurance program in Bangladesh that found a higher probability of antenatal care utilization, institutional delivery, and postnatal care [28]. Several other studies have also demonstrated a positive association between health insurance coverage and use of maternal health care [29–31].

4. Country-specific public health insurance schemes in Africa

4.1 Public health insurance scheme in Rwanda

Following Rwanda's independence in 1962, the country implemented the "free of charge" health care provision strategy. However, this became ineffective in meeting the healthcare demands of the people and it was later abandoned. This created a total vacuum, leaving the entire population exposed to diverse risks. The government responded by creating mandatory health insurance for public servants called *Rwandaise d'Assurance Maladie* (RAMA) and that of the military personnel called the Military Medical Insurance (MMI). These covered only a very small portion of the population and it called for a community-wide Community-Based Health Insurance System [32]. The CBHIS covers 85% of the population, and 92% of the population with other insurance schemes including RAMA, MMI, and private insurance. Health care packages provided under the health insurance scheme in Rwanda have been formulated based on the different services provided by the different health facility levels in the country.

The CBHIS schemes in Rwanda are country-wide community partnerships that provide health insurance coverage to populations employed in the rural and informal sectors. Revenue is generated through three main mechanisms; beneficiaries' premiums, general government revenue, and other external contributions. Pooling of revenue is organized at three levels; (1) the community pool from the local beneficiaries, (2) the district pool that brings together contributions from the community pool and subsidies from the Local Government, (3) the national pool that is funded by national revenues, contribution from the district pools, as well as cross-subsidy from RAMA, MMI, private insurances and external funders. The majority of low-income households in Rwanda are provided with health insurance coverage based on their own contributions and supported by a third party (either the state, districts, donors or non-governmental organizations). To ensure risk pools are adequately funded, all private health insurance and social health insurance schemes contribute to the

national and district pooling mechanisms. The health package is comprehensive and beneficiaries are entitled to all preventive and curative services provided by health centers, district hospitals, and national referral hospitals. Benefits include outpatient, inpatient, maternity care, essential drugs, medical imagery, and laboratory tests. The CBHIS is governed and managed by the *Rwanda Health Insurance Council (RHIC).* The RHIC is constituted by members from the Ministry of Finance, Ministry of Local Government, Ministry of Health, CBHI representatives, Civil Society Organization representatives, MMI, RAMA, private health insurance companies, health providers, and citizens' representatives. The roles of the RHIC are; (1) informing revision of health insurance and cross-subsidization policies, (2) maintaining a database of health insurance organizations in the country, (3) conducting studies to generate evidence and inform the functioning of health insurance schemes, (4) conduct analyses to support the periodic revision of contribution and premium policies, (5) generating the necessary evidence for adopting fair provider payment modality policies, (6) obtaining a better understanding of the factors associated with non-enrolment, (7) propose safeguard measures, (8) conduct cost, benefit, utilization and client satisfaction assessments. Each section of CBHIS from community to national levels has operational management staff. The local members are well represented in management bodies at each section and all levels from community to national levels.

4.2 Public health insurance scheme in Tunisia

Following independence in 1956, the government established a universal system of healthcare provision. In 1956 and the late 1980s, service delivery was improved and social health insurance was established for the employed. However, the pace of improvement was not kept and by 1990's, it had declined in terms of healthcare quality and uptake. It was at this point that the government thought of new investments in health and boosting the coverage of health insurance alongside other health financing modalities. The government therefore used a wide range of healthcare financing mechanisms in addition such as government revenue, and private financing. However, social health insurance contributed the biggest share. From 1980 to 2010, the total government expenditure on healthcare rose from 3.2% to 7.0%, with financing coming from general governmental expenditure (23.8%), social health insurance (27.7%), private insurance (7%), and private expenditure (41.2%). However, this was not the best situation and between 1995 and 2011, private health spending by households rose rapidly at an annual rate of 19 percent. Due to this, the government established the free medical assistance program under the Caisse Nationale de l'Assurance Maladie to support the poor [33]. It was financed by transfers from the central government to the MOH to cover the estimated social health insurance contributions of beneficiaries. The Ministry of Social Affairs was responsible for determination of potential beneficiaries. Eligibility included; self-declared (unverified) household revenue falling below the poverty line, number of household members, consideration of household members with a disability or chronic health condition, household living conditions and physical assets. The inability for the head of household to work due to an impairment was another consideration. The Ministry of Health was majorly responsible for the delivery of services and was not involved in the selection of beneficiaries.

Households enrolled in the Caisse Nationale de l'Assurance Maladie received 100 Tunisian dinars monthly to uplift them to slightly above the poverty line and a free health card. In addition, they are given 10 Tunisian dinars monthly as child allowance for up to a total of three children. Families that did not meet the criteria for free

medical assistance but are near-poor qualified for subsidized health cards. The free health card is issued for a period of 5 years. Financing is by funds from the MoH mainly. Beneficiaries are entitled to outpatient visits and inpatient care at regional and university hospitals. However, household survey data show that low-income groups spend out-of-pocket for health services despite the free medical assistance program.

4.3 Public health insurance in Ghana

National health insurance of Ghana was established in 2003 and by 2014 it covered 40 percent of Ghana's population [34]. Ghana National Health Insurance Authority (NHIA) has strengthened the insurance scheme over time and is financed primarily by tax revenue, NHI levy, Social Security, and National Insurance Trust (SSNIT) deductions. Ghana is one of the countries that are widely known to finance their health insurance schemes through value-added tax. In this case, the insurance revenue grows with the country's economic growth. However, revenue pools may not increase at the same pace as insurance coverage. This is because all citizens and non-citizens are eligible for the NHIS coverage and not all are required to pay premiums. For instance, enrollees under the age of 18 or over the age of 70 do not pay premiums. Public and Christian-owned facilities receive funding from the MoH, whereas private providers do not receive it. Because of this, the reimbursable cost of a consultation is higher for a private hospital than it is for a public hospital. Health facilities require NHIA accreditation to provide services to NHIS through the NHIA's quality-assurance department. The NHIS covers 95 percent of diagnosed conditions, and it has no cost-sharing requirements. It also covers all outpatient, inpatient, and emergency care. Members pay no out-of-pocket costs for services or pharmaceuticals based on the policy. The NHIA subjects requisition for payment to a 5-step process i.e., fulfillment, vetting, data entry, vetting-report generation, and initiation of the payment for the request.

5. Challenges faced by public health insurance schemes

Public Health insurance schemes could be voluntary or involuntary and are prone to challenges. The integration of the population especially those who are in informal employment and those with no regular incomes along with the poor poses challenges as the majority are left out. The lack of knowledge about the insurance scheme and its enrolment processes is in most cases the most critical barrier to this group of people as well as the lack of income to pay their premium [35]. This means that the low-income earners, the unemployed, and other dependents such as the elderly and children may not be protected by the safety net offered by the insurance schemes and could suffer catastrophic payments when ill. Many countries are in a situation where those employed in the private sector and those in public sector but with better pay remain outside the public health insurance scheme. Even when joining the scheme is compulsory for those in the formal sector, private companies may not abide but choose to pay for better health packages for their staff [36]. Employees may also have deficient information from their employers concerning what benefits insurance can offer. Poor-quality health services at public hospitals are also a major contributor to the failure to choose social insurance schemes.

There is a concern about failing to attain the purchaser-provider split. Just like general taxation, public health insurance schemes may not offer any additional benefit in terms of ensuring there is a split between the purchaser and provider [37].

The government could be in control of the scheme and still remain in the position of purchaser and at the same time provider. This compromises the quality of care since the one purchasing is the one providing and so cannot criticize self. The health insurance scheme may not be equitable in cases where the structure has a similar premium to be paid by all, irrespective of income capabilities. This approach benefits the rich more than the poor. The one-size-fits-all health insurance structure is not favorable [38]. Information asymmetry is another issue that affects insurance schemes. The insurer and the insured may have different levels of information. Potential members know their disease risk levels better than the insurers. Members could take advantage of this information asymmetry and those who are at high-risk may be able to purchase insurance at a lower premium than their disease risk. On the other hand, if the premium is fixed based on the average disease risk of the potential members and willingness to pay, then that is known as adverse selection [39]. Adverse selection makes the cost of running such insurance schemes high and unsustainable.

Other multitude of challenges include; (1) inadequate commodities, and services for treatment at partner health centers, (2) delays for reimbursement as claim management capacities may be limited, (3) over-prescription and over-charging by service providers puts financial sustainability of the insurance system at a threat, (4) drug prescriptions for the insured patients may be filled in private pharmacies without reimbursement, (5) Financing of primary pools still relies mainly on the contributions of households who are relatively poor in some countries and this is a challenge in cases where cross-subsidization from richer groups is not improved, (6) in situations where contribution policies are based on a flat rate for all income groups, underfunding of the insurance system is likely, (7) weak administrative capacity for resource mobilization in some countries leads to low financial capacity of the health insurance scheme, (8) in countries where the primary funding mechanism are premiums from members with no other additional funding, these countries are at much higher risk of bankruptcy and are unlikely to achieve financial sustainability, (9)the tendence of households rising out-of-pocket payments on health care despite the existence of health insurance coverage is still common in some countries in Africa, this is an indication of inefficiencies in the health insurance systems and is a sign of lack of satisfaction of beneficiaries (10) Poor quality-of-service which is made worse, by an increase in the prevalence of chronic ill health that requires long-term, health care coverage, and (11) in some countries, the systems have been prone to accusations of corruption and a lack of transparency and equity.

6. Sustaining a public health insurance scheme

To sustain a public health insurance scheme, a number of interventions and strategies could be considered. To ensure that both low- and high-income earners benefit from public health insurance, innovative methods such as special low-income schemes especially focused on the poor and other vulnerable groups could be considered [40]. Alternatively, the Government could pay insurance premiums for such individuals. To achieve equity, adjusting could also be in the form of raising the premium or lowering the reimbursement tariff of the high-income earners and vice versa for the low-income earners [38]. Another important issue to consider at the start is assessing the "willingness-to-pay" insurance premiums. This is an important step that would help understand the citizens' level of acceptance before the implementation of

an insurance scheme. This would also help clarify the amount that they are willing to pay to ensure sustainability [41]. Other factors that favor the successful implementation of the health insurance scheme in a country include ensuring good economic development and a strong financial and administrative capacity of the government through well-established systems through which premiums can be collected [42]. Chances of sustainability are higher if the insurance scheme is well managed. In addition to coverage for secondary and tertiary care, the health insurance scheme should have other benefit packages such as health information, education, counseling, and disease prevention related to the prevention of non-communicable diseases [43]. This lowers the cost of insurance due to long-term or chronic disease hence sustainability. Creating a national health insurance scheme could be initiated by integrating various existing community-based healthcare financing schemes into the national scheme. This is likely to increase the pooling of funds and ensure risk distribution across a wide range of people including the poor [44]. To encourage more enrolment of informal sector families, the premium should be affordable and subsidized by the government and this can be achieved if the government adequately supplements the premium with funds from government budgets [45]. Finally, a likely workable solution is to create a hybrid scheme of general taxation with the health insurance scheme, and factor in complementary or supplementary private insurance depending on the extent of coverage [46].

7. Conclusions and recommendations

The impact of health insurance on healthcare utilization is closely associated with its characteristics, such as premiums, benefits, location of healthcare services, and for whom the services are intended. Three types of public health insurance schemes are commonly implemented in low- and middle-income countries namely, national health insurance scheme, social health insurance scheme and community-based health insurance schemes. These differ in enrolment requirements, funding, size of the risk pool, associated fees, and reimbursement mechanisms. However, some countries have made efforts to integrate all of them to contribute to one single public health insurance scheme in one way or another. The public health insurance scheme is essential for the financial security, well-being, and overall health of individuals and society. It promotes access to healthcare, encourages preventive care, and contributes to economic stability by improving the quality of life for many and ensuring universal access to healthcare by the poorest.

Acknowledgements

Authors extend their gratitude to Mountains of the Moon University www.mmu.ac.ug for the favorable environment and access to online resources via the university online library during the writing of this book chapter.

Conflict of interest

Authors declare no conflict of interest.

Author details

Enos Mirembe Masereka[1*], Linda Grace Alanyo[1], Antony Ikiriza[2], Maureen Andinda[2], Pardon Akugizibwe[2] and Emmanuel Kimera[2]

1 Faculty of Health Sciences, Department of Nursing and Midwifery, Mountains of the Moon University, Fort Portal, Mid-Western Uganda

2 Faculty of Health Sciences, Department of Public Health, Mountains of the Moon University, Fort Portal, Mid-Western Uganda

*Address all correspondence to: mirembeenos@gmail.com

IntechOpen

References

[1] World Health Organization. Universal health coverage partnership annual report 2019: In practice: Bridging global commitments with country action to achieve universal health coverage. 2020. Available from: https://apps.who.int/iris/bitstream/handle/10665/341433/9789240012950-eng.pdf?sequence=1

[2] Ellis RP, Chen T, Luscombe CE. Comparisons of health insurance systems in developed countries. Encyclopedia of Health Economics. 2014;**1**:1-22. Available from: https://blogs.bu.edu/ellisrp/files/2013/04/2013_EllisChenLuscombe_Comparisons_EHE_20130425b.pdf

[3] Majeed A. Universal health coverage in the United Kingdom. The Journal of Ambulatory Care Management. 2003;**26**(4):373-377. Available from: https://journals.lww.com/ambulatorycaremanagement/abstract/2003/10000/universal_health_coverage_in_the_united_kingdom.14.aspx

[4] Tangcharoensathien V, Mills A, Palu T. Accelerating health equity: The key role of universal health coverage in the sustainable development goals. BMC Medicine. 2015;**13**:1-5. Available from: https://link.springer.com/article/10.1186/s12916-015-0342-3

[5] Ly MS, Bassoum O, Faye A. Universal health insurance in Africa: A narrative review of the literature on institutional models. BMJ Global Health. 2022;**7**(4):e008219. Available from: https://gh.bmj.com/content/7/4/e008219.abstract

[6] Kalisa I, Musange S, Collins D, Saya U, Kunda T. The Development of Community-Based Health Insurance in Rwanda: Experiences and Lessons. Medford: University of Rwanda College of Medicine and Health Sciences-School of Public Health, Kigali, Rwanda and Management Sciences for Health; 2015

[7] Kwesiga B, Aliti T, Nabukhonzo P, Najuko S, Byawaka P, Hsu J, et al. What has been the progress in addressing financial risk in Uganda? Analysis of catastrophe and impoverishment due to health payments. BMC Health Services Research. 2020;**20**:1-8. Available from: https://link.springer.com/article/10.1186/s12913-020-05500-2

[8] Namyalo PK, Mutatina B, Byakika S, Walimbwa A, Kato R, Basaza RK. The feasibility analysis of integrating community-based health insurance schemes into the national health insurance scheme in Uganda. PLoS One. 2023;**18**(4):e0284246. Available from: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0284246

[9] Obermann K, Jowett M, Kwon S. The role of national health insurance for achieving UHC in the Philippines: A mixed methods analysis. Global Health Action. 2018;**11**(1):1483638. Available from: https://www.tandfonline.com/doi/full/10.1080/16549716.2018.1483638

[10] Doetinchem O, Carrin G, Evans D, World Health Organization. Thinking of introducing social health insurance? Ten questions (No. WHO/HSS/HSF/PB/09.04). World Health Organization. 2009. Available from: https://apps.who.int/iris/bitstream/handle/10665/341155/WHO-HSS-HSF-PB-09.04-eng.pdf?sequence=1

[11] Carrin G, James C, Adelhardt M, Doetinchem O, Eriki P, Hassan M, et al. Health financing reform in Kenya-assessing the social health insurance

proposal. South African Medical Journal. 2007;**97**(2):130-135. Available from: https://www.ajol.info/index.php/samj/article/view/135638

[12] Running A, Martin K, Tolle LW. An innovative model for conducting a participatory community health assessment. Journal of Community Health Nursing. 2007;**24**(4):203-213. Available from: https://www.tandfonline.com/doi/abs/10.1080/07370010701645869?journalCode=hchn20

[13] Cowley S, Houston AM. A structured health needs assessment tool: Acceptability and effectiveness for health visiting. Journal of Advanced Nursing. 2003;**43**(1):82-92. DOI: 10.1046/j.1365-2648.2003.02675.x

[14] Basaza RK, O'Connell TS, Chapčáková I. Players and processes behind the national health insurance scheme: A case study of Uganda. BMC Health Services Research. 2013;**13**:1-13. DOI: 10.1186/1472-6963-13-357

[15] Orem JN, Zikusooka CM. Health financing reform in Uganda: How equitable is the proposed National Health Insurance scheme? International Journal for Equity in Health. 2010;**9**(1):1-8. DOI: 10.1186/1475-9276-9-23

[16] Lavis JN. How can we support the use of systematic reviews in policymaking? PLoS Medicine. 2009;**6**(11):e1000141. DOI: 10.1371/journal.pmed.1000141

[17] Majdzadeh R, Yazdizadeh B, Nedjat S, Gholami J, Ahghari S. Strengthening evidence-based decision-making: Is it possible without improving health system stewardship? Health Policy and Planning. 2012;**27**(6):499-504. DOI: 10.1093/heapol/czr072

[18] Lagomarsino G, Garabrant A, Adyas A, Muga R, Otoo N. Moving towards universal health coverage: Health insurance reforms in nine developing countries in Africa and Asia. The Lancet. 2012;**380**(9845):933-943. DOI: 10.1016/S0140-6736(12)61147-7

[19] Spaan E, Mathijssen J, Tromp N, McBain F, Have AT, Baltussen R. The impact of health insurance in Africa and Asia: A systematic review. Bulletin of the World Health Organization. 2012;**90**:685-692. Available from: https://www.scielosp.org/article/ssm/content/raw/?resource_ssm_path=/media/assets/bwho/v90n9/a13v90n9.pdf

[20] Fenny AP, Yates R, Thompson R. Strategies for financing social health insurance schemes for providing universal health care: A comparative analysis of five countries. Global Health Action. 2021;**14**(1):1868054. DOI: 10.1080/16549716.2020.1868054

[21] Marwa CW. Provision of national health insurance fund services to its members; pain or gain. Unified Journal of Sport Health Science. 2016;**2**:1-6

[22] Mills A, Ataguba JE, Akazili J, Borghi J, Garshong B, Makawia S, et al. Equity in financing and use of health care in Ghana, South Africa, and Tanzania: Implications for paths to universal coverage. The Lancet. 2012;**380**(9837):126-133. DOI: 10.1016/S0140-6736(12)60357-2

[23] Deolitte CL. A Strategic Review of NHIF and Market Assessment of Private Prepaid Health Schemes. Nairobi: Ministry of Medical Services; 2011

[24] Somanathan A, Tandon A, Dao HL, Hurt KL, Fuenzalida-Puelma HL. Moving toward Universal Coverage of Social Health Insurance in Vietnam: Assessment and Options. World Bank Publications; 2014. Available from:

https://books.google.co.ug/books?hl=en&lr=&id=f-boAwAAQBAJ&oi=fnd&pg=PP1&dq=Somanathan,+A.,+Tandon,+A.,+Dao,+H.+L.,+Hurt,+K.+L.,+%26+Fuenzalida-Puelma,+H.+L.+(2014).+Moving+toward+universal+coverage+of+social+health+insurance+in+Vietnam:+assessment+and+options.+World+Bank+Publications.&ots=LzcAza8zrx&sig=kfslCWIewP03Qf1uFn0CCjoUtdo&redir_esc=y#v=onepage&q&f=false

[25] Langenbrunner JC, Langenbrunner J, Somanathan A. Financing Health Care in East Asia and the Pacific: Best Practices and Remaining Challenges. World Bank Publications; 2011. Available from: https://books.google.co.ug/books?hl=en&lr=&id=8bRgZdrc-WYC&oi=fnd&pg=PR5&dq=Langenbrunner,+J.+C.,+Langenbrunner,+J.,+%26+Somanathan,+A.+(2011).+Financing+health+care+in+East+Asia+and+the+Pacific:+best+practices+and+remaining+challenges.+World+Bank+Publications.&ots=pPaTPe7LJi&sig=Pkte8YBty90jWt9HlnRSMTQgxBg&redir_esc=y#v=onepage&q&f=false

[26] Wang W et al. The impact of health insurance on maternal health care utilization: Evidence from Ghana, Indonesia and Rwanda. Health Policy and Planning. 2017;**32**(3):366-375. DOI: 10.1093/heapol/czw135

[27] Mensah J, Oppong JR, Schmidt CM. Ghana's National Health Insurance Scheme in the context of the health MDGs: An empirical evaluation using propensity score matching. Health Economics. 2010;**19**(S1):95-106. DOI: 10.1002/hec.1633

[28] Nguyen HT, Hatt L, Islam M, Sloan NL, Chowdhury J, Schmidt JO, et al. Encouraging maternal health service utilization: An evaluation of the Bangladesh voucher program. Social Science & Medicine. 2012;**74**(7):989-996. DOI: 10.1016/j.socscimed.2011.11.030

[29] Giedion U, Alfonso Sierra EA, Diaz YB, Savedoff WD. The impact of subsidized health insurance on access, utilization and health status in Colombia. In: Utilization and Health Status in Colombia (May 2007). iHEA 2007 6th World Congress: Explorations in Health Economics Paper. 2007. Available from: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=993919

[30] Smith KV, Sulzbach S. Community-based health insurance and access to maternal health services: Evidence from three West African countries. Social Science & Medicine. 2008;**66**(12):2460-2473. DOI: 10.1016/j.socscimed.2008.01.044

[31] Kozhimannil KB, Valera MR, Adams AS, Ross-Degnan D. The population-level impacts of a national health insurance program and franchise midwife clinics on achievement of prenatal and delivery care standards in the Philippines. Health Policy. 2009;**92**(1):55-64. DOI: 10.1016/j.healthpol.2009.02.009

[32] Nyandekwe M, Nzayirambaho M, Kakoma JB. Universal health insurance in Rwanda: Major challenges and solutions for financial sustainability case study of Rwanda community-based health insurance part I. Pan African Medical Journal. 2020;**37**(1)

[33] Arfa C, Elgazzar H. Consolidation and Transparency: Transforming Tunisia's Health Care for the Poor. World Bank Publications; 2013. Available from: https://documents1.worldbank.org/curated/en/242251468122347643/pdf/749970NWP0Box30Transparency0TUNISIA.pdf. https://openknowledge.worldbank.org/entities/publication/9ce818c3-303b-5c94-a3eb-22b0aafb90c7

[34] Wang H, Otoo N, Dsane-Selby L. Ghana National Health Insurance Scheme: Improving Financial Sustainability Based on Expenditure Review. World Bank Publications; 2017. Available from: https://documents1.worldbank.org/curated/en/493641501663722238/pdf/117828-PUB-PUBLIC-pubdate-7-31-17.pdf

[35] Mathauer I, Schmidt JO, Wenyaa M. Extending social health insurance to the informal sector in Kenya. An assessment of factors affecting demand. The International Journal of Health Planning and Management. 2008;**23**(1):51-68. DOI: 10.1002/hpm.914

[36] Alkenbrack S, Hanson K, Lindelow M. Evasion of "mandatory" social health insurance for the formal sector: Evidence from Lao PDR. BMC Health Services Research. 2015;**15**:473. DOI: 10.1186/s12913-015-1132-5

[37] Wagstaff A. Social health insurance reexamined. Health Economics. 2010;**19**(5):503-517. DOI: 10.1002/hec.1492

[38] Pan J, Tian S, Zhou Q, Han W. Benefit distribution of social health insurance: Evidence from china's urban resident basic medical insurance. Health Policy and Planning. 2016;**31**(7):853-859. DOI: 10.1093/heapol/czv141

[39] Rothschild M, Stiglitz J. Equilibrium in competitive insurance markets: An essay on the economics of imperfect information. In: Uncertainty in Economics. Academic Press; 1978. pp. 257-280. DOI: 10.1016/B978-0-12-214850-7.50024-3

[40] Coronini-Cronberg S, Laohasiriwong W, Gericke CA. Health care utilisation under the 30-Baht scheme among the urban poor in Mitrapap slum, Khon Kaen, Thailand: A cross-sectional study. International Journal for Equity in Health. 2007;**6**(1):1-9. DOI: 10.1186/1475-9276-6-11

[41] Nosratnejad S, Rashidian A, Mehrara M, Sari AA, Mahdavi G, Moeini M. Willingness to pay for social health insurance in Iran. Global Journal of Health Science. 2014;**6**(5):154. DOI: 10.5539/gjhs.v6n5p154

[42] Liu JQ. Dynamics of social health insurance development: Examining the determinants of Chinese basic health insurance coverage with panel data. Social Science & Medicine. 2011;**73**(4):550-558. DOI: 10.1016/j.socscimed.2011.05.052

[43] Bayarsaikhan D, Nakamura K. Health promotion financing with Mongolia's social health insurance. Asia Pacific. Journal of Public Health. 2015;**27**(2):NP887-NP896. DOI: 10.1177/1010539509332449

[44] Obermann K, Jowett MR, Alcantara MOO, Banzon EP, Bodart C. Social health insurance in a developing country: The case of the Philippines. Social Science & Medicine. 2006;**62**(12):3177-3185. DOI: 10.1016/j.socscimed.2005.11.047

[45] Nga TT, FitzGerald G, Dunne MP. Family-based social health insurance for informal workers in Vietnam: Willingness to pay and its determinants. Asia Pacific Journal of Public Health. 2018;**30**(6):512-520. DOI: 10.1177/1010539518799785

[46] Jamal MH, Abdul Aziz AF, Aizuddin AN, Aljunid SM. Successes and obstacles in implementing social health insurance in developing and middle-income countries: A scoping review of 5-year recent literatures. Frontiers in Public Health. 2022;**10**:918188. DOI: 10.3389/fpubh.2022.918188

Chapter 4

Perspective Chapter: Financing Private Healthcare for Government Employees to Improve Access

Selaelo Mametja, Mapule Letshweni, Mabatlo Semenya, Boldwin Moyo, Carmen Whyte, Jolene Bultinck-Human and Stanley Moloabi

Abstract

Eight years following the first democratically elected government in South Africa in 1994, most public sector employees remained unable to access private health insurance and care due to high cost. In 2002, the Parliamentary Cabinet approved a policy framework on a restricted medical insurance scheme for public sector employees. This policy centered around the principles of equity, efficiency, and differentiation. Employees would have access to essential healthcare benefits across different option plans under equitable remuneration structures based on their health needs. The establishment of the Government Employees Medical Scheme (GEMS) was approved by the Cabinet in 2004 and was then registered and operationalised in January 2005. This chapter aims to describe the evolution of GEMS as the largest closed medical insurance scheme within South Africa over the past 18 years, and how it improved access to care by embracing Universal Health Coverage (UHC) principles. We present the socio-demographic evolution of the Scheme and how it and the employer have provided affordable contributions and expanded healthcare benefits to universally cover members, their immediate and extended families during their active working years and retirement. We also expand on member-centric benefit design and the critical role of organised labor and government, as both employer and policy maker.

Keywords: South Africa, government employees medical scheme (GEMS), universal health coverage (UHC), quality of care, affordability, benefit design, medical insurance

1. Introduction

South Africa has made substantial progress in developing its healthcare system since 1994. Universal access is a fundamental principle in the Constitution of the Republic of South Africa, and health sector policies and outcomes have improved on aggregate. However, health inequalities remain a significant challenge facing the country [1]. South Africa has a two-tiered system. The government health services mainly serve 84% of the population, with the majority from low- and middle-income

strata. In contrast, private facilities mainly service the smaller (16%) subset of wealthier households and take up a significant share of the overall health spending [1, 2]. The public sector is funded through taxes and the private sector through out-of-pocket payments and voluntary private health insurance, known as medical schemes in South Africa [1, 2].

A framework policy on restricted (closed) medical schemes was approved by the Cabinet in 2002 for further development by an interdepartmental working group (Departments of Public Service and Administration, National Treasury, Health, Education, Correctional Services, and the South African Police Service), and is centered in equity, efficiency, and differentiation. Equity is defined as "where employees have equal access to the most extensive set of equal basic benefits under equitable remuneration structures, subject to affordability".. Efficiency focuses on the delivery and costs of benefits. Differentiation takes place when an employee chooses a more extensive cover and has equal access to higher benefits subject to their needs [3].

Income Inequality and disparities in healthcare are intricately linked. The history of apartheid or healthcare segregation in South Africa has a long history dating back to the 18th Century when the African people and European people received different levels of care. The debates for a white civil servants' medical scheme started way before the implementation of apartheid (segregation policy by National Party in 1948.) The inadequate provision of medical care led to the establishment of voluntary medical insurance for white government employees, the Civil Servant's Medical Benefit Association (CSMBA) [4]. This medical scheme only covered the wives of Civil servants and their children under the age of 18; white servants of members could be included at a fee.

The debates for National Health Services in South Africa started with the publication of the Beveridge Report in 1940, which formed the basis of the current British Health National System (NHS). Between 1942 and 1944: the Gluckman Commission advocated for a unitary national health service and free medical care to all South Africans [5]. When the National Party came into power in 1948, this was abolished. Then the Civil Society Medical Scheme Benefit was born in 1967 [6]. This was contributory medical insurance that only covered state employees. Its rapid expansion and lack of underwriting led to the scheme's demise.

This chapter describes the evolution of the Government Employees Medical Scheme (GEMS) as the largest closed medical insurance scheme within South Africa over 18 years and how it improved access to qualifying government employees by embracing UHC principles. The chapter will present the socio-demographics evolution of the Scheme and how the Scheme and the employer have provided affordable contributions and expanded healthcare benefits to universally cover the members during their active working years and in retirement.

2. Discussion

2.1 History of South African apartheid, health, and inequality

In 1994, the African National Congress (ANC) won elections against the then-ruling National Party, which had ruled the country since 1948. The National Party developed a health care system sustained through the years by promulgating racist legislation. The net result has been a system that was fragmented, biased towards curative care, inefficient, and inequitable. The ANC abolished the Apartheid system and developed

an inclusive constitution that stated health as the right of citizens and those who live in the country [7]. When the ANC took over, governing the country in 1994, South Africa had a very poor Human Development Index (HDI) of 0.66 [8]. This indicator gauges the socio-economic progress of a nation. It considers factors such as the average number of years spent in education, the anticipated number of years spent in school, life expectancy at birth, and gross national income per capita. In 1993, the infant mortality rate (IMR) during that time was 46 per 1000 live births, life expectancy was 63 years old and a Gini- coefficient of 59.3 [9–11]. These indicators have since increased, and in 2020, just before COVID-19, the HDI was 0.73, the IMR was 27 per 1000 live births, the Gini-coefficient was 63, and life expectancy peaked at 65 years [8, 10–12]. These indicators improved along with the GDP (Gross Domestic Profit), which almost doubled from 2004 to 2022 [13].

In 1994, the ANC implemented the Reconstruction and Development Programme (RDP) to address disparities in the country's social and economic maladies, as well as the National Health Plan [14, 15]. This was followed by the 1997 White Paper on the Transformation of the Health System, which intended to develop an equitable and unified health system capable of delivering quality health care through primary health care with constitutionally enshrined rights [16].

Healthcare financing reforms included promulgating the Medical Schemes Act (MSA) of 1998 as a steppingstone towards Social Health Insurance (SHI) [17, 18]. Before the promulgation of the MSA, medical insurance could discriminate based on gender, race, or ill health. The act intended to promote equitable access to health care, efficient utilisation of resources, and protection of individuals against financial catastrophe using principles of social solidarity. The pillars of the act include open enrolment (anybody wishing to apply could apply), community rating (not determining contributions based on health risks), and prescribed minimum benefits (PMBs), which mandated a full cover for chronic conditions and a list of 270 plus conditions subject to the designated service provider, managed care protocols and defined medicine lists. Apart from the list of chronic diseases, the Medical Schemes Act's PMBs promoted in-hospital care. The Health Market Inquiry (HMI) found that these provisions led to market failures by promoting supplier-induced demand, lack of competition, and insufficient considerations for health outcomes [2].

The Medical Schemes Act prevented all forms of discrimination, including race, gender, age, or ill health. Members on the same option plan had to receive similar benefits, although contributions could be income-based [17]. To protect members against anti-selection, that is, members choosing to buy cover only when health needs arise, the Act allowed a three-month general waiting and twelve-month condition-specific waiting period. The fourth pillar, mandatory participation, is unlikely to be implemented due to changes in healthcare financing policy.

Before 2004, the South African Government Advanced Social Health Insurance (SHI) as mandatory health insurance. The Healthcare Finance Committee of 1994 recommended that the core membership of arrangements to expand coverage to other groups over time should consist of formally employed individuals and their immediate dependents [19]. It was at the peak of these debates that GEMS was born.

The ANC resolved to introduce the National Health Insurance (NHI) in 2007. The proposed NHI aims to achieve equal access to healthcare and universal financial risk protection. The NHI policy papers have been developed, and the NHI Bill is presented at the National Council of Provinces (NCOP) Parliament [20–23]. The Bill addresses the role of medical schemes as complementary once NHI is implemented. It is envisaged that NHI will take some time to be fully implemented.

2.2 GEMS demographics

GEMS was established as a voluntary private health insurance in 2005, the first member to join was a male 52 years old, together with his wife and 2 children effective from 1 January 2006. Since the Scheme was and still is voluntary, government employees could choose not to belong to the medical scheme. The Scheme is a closed medical scheme as it only caters to government employees and their families. GEMS members can enrol their immediate families, i.e., spouses and children. Cover can be extended to relatives, e.g., parents, grandparents, nephews, nieces, and anyone financially dependent on the member. The wide family coverage is in harmony with the moral theory of Ubuntu (African philosophy of you are because I am) and filial obligation (duty of care to one's parents). In the GEMS context, enabling families to support their extended family echoes Ubuntu and social solidarity principles at a family level where the value of relationships is for the wellbeing of the immediate and extended family. Ubuntu is also a means to equity. Ubuntu, as a principle of equity, means that well-off family members often support the members who have no means for the collective well-being of the immediate and extended family. It should be noted that these principles were not adequately articulated in the law, and GEMS had to respond to the societal norms and practices in its design [24].

Since implementation, the scheme has grown to over 818 thousand members, covering 90.52% of public sector employees and over 2.1 million beneficiaries. **Figure 1** shows the member gender age distribution. Currently the Scheme has 461,082 (21.1%) adult dependents and 907,971 (41.5%) child dependents. The member to dependency ratio is 1.67. The average family size is 2.67. Amongst the principal members 60% are females.

In 2017, the Council for Medical Schemes (CMS) reported that only restricted schemes had shown growth, and this growth is mainly attributed to GEMS [25]. While the entire industry showed attrition in membership during the Covid-19 period, GEMS membership increased by 10.9% between January 2020 and 31 December 2022, at the pick of the pandemic [25, 26].

The average age of beneficiaries of the scheme is 32.9 years, and pensioner ratio (>60 years) is 19.1%. A total of 527,138 (24.1%) beneficiaries have at least one chronic disease. **Figure 2** shows average age trend for the principal members and the proportion of pensioners (>60 years), and **Figure 3** outlines the multiple comorbidities by age group. **Figure 3** shows that the probability of developing two or more chronic conditions increases with age. The majority of members aged 60 years and older have at least two or more chronic conditions. The Scheme has an HIV prevalence of 6.8%, which is lower than the SA prevalence of HIV, which is 18.3% [27].

2.3 Benefit design

Benefit design is decisions made about the funding (fully or partially) of health services and goods. Over the last few years, benefit design has evolved to embrace the UHC principles and Tanzanite one was developed as an essential basic benefit package. The ix plans which are, in increasing order of benefit richness: Tanzanite One, Beryl, Ruby, Emerald, Emerald Value (EVO), and Onyx. As required by legislation, all our plans cover essential health care, including PMBs.

Two options, Tanzanite One and EVO, are the flagship options, and EVO is an efficiency discounted option of the Emerald option. These options were developed

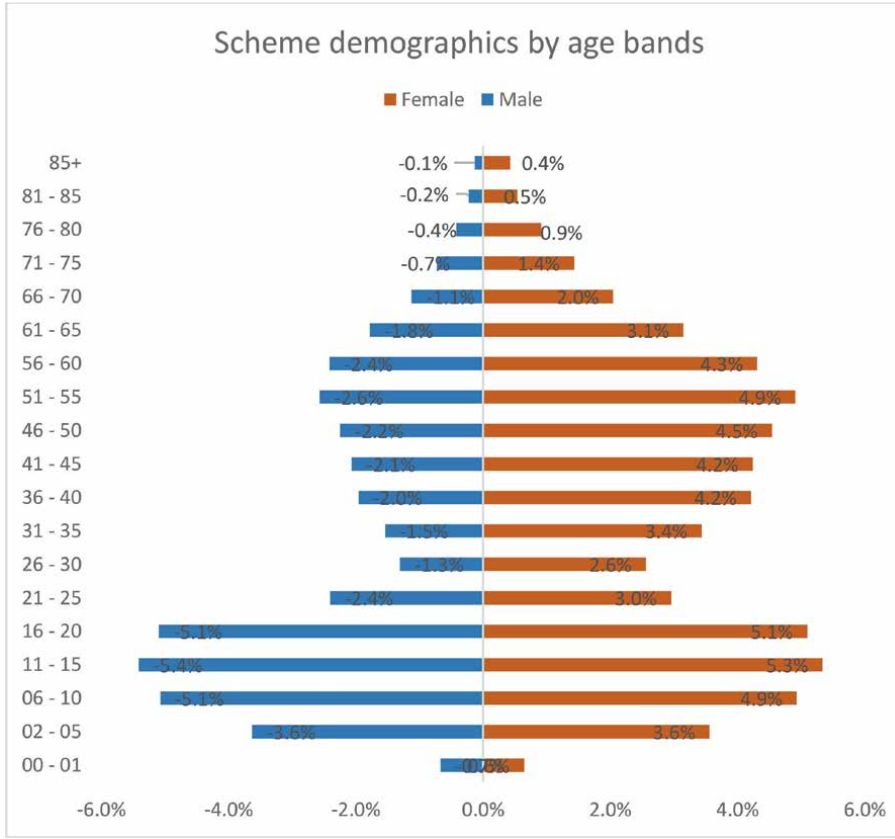

Figure 1.
Scheme demographics by age.

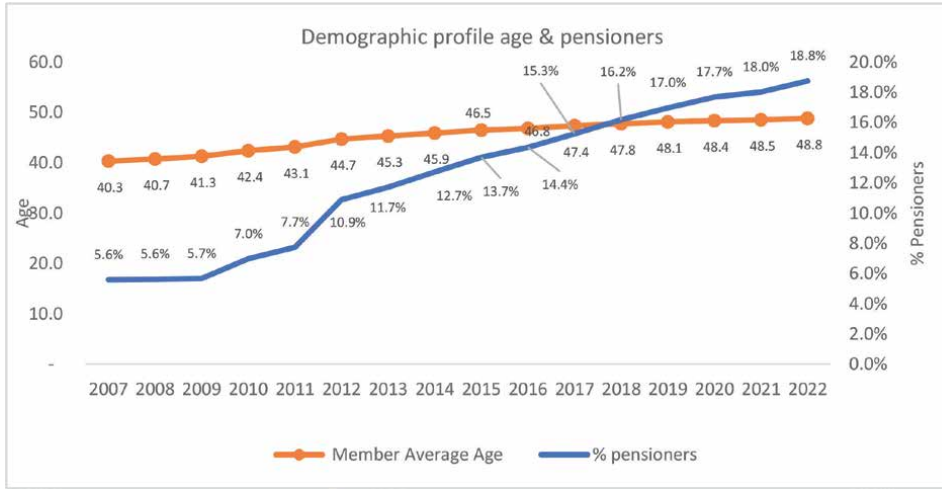

Figure 2.
Trend in the average age of the scheme and > 60 years the ratio.

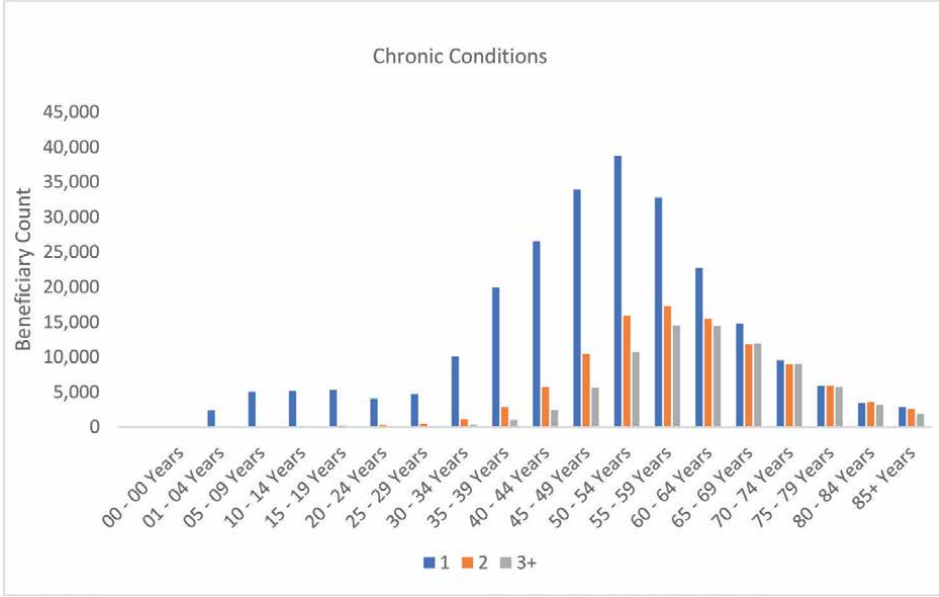

Figure 3.
Beneficiary counts by chronic disease status and age:

during the period of the Health Market Inquiry. In return for making use of a network of healthcare providers, general practitioner (primary healthcare) nomination, and strict referral to specialists, members can pay 16% less in contributions for the same benefits on EVO as on the Emerald option. Membership of this option grew rapidly, from 19,000 members in 2017 at the introduction to over 100,000 at the end of 2021; this represents a 425% growth in five years [28].

GEMS, together with Public Service Co-ordinating Bargaining Council (PSCBC), established the Tanzanite One option in January 2020. PSCBC was established in terms of Section 35 of the Labour Relations Act, No. 66 of 1995 as amended to provide a platform for the State as the Employer, and the Public Service Unions as social partners to engage constructively over matters of mutual interest. In December 2017 PSCBC made a resolution to review resolved [29]. This resolution was amended in the PSCBC Resolution 1 of 2018 to develop a benefit product specifically for members earning on salary levels 1–5 (lowest income bands) that will enhance continuous medical cover.

Tanzanite One aims to provide members with comprehensive access to care at an affordable cost. The Tanzanite One option is intended to function as a template for the Basic Benefits Package as envisaged in the NHI policy papers, and as recommended by the HMI, while still noting that the option is contained by the confines of the MSA [1, 14, 15]. Tanzanite One has been designed to offer a broad spectrum of benefits, a comprehensive preventative package, unlimited primary healthcare, private hospitalisation, pathology, radiology, dental and optical benefits. The option also provides an essential medicine list at all levels of care. The benefits are also structured so that they address the prevention and treatment of the quadruple burden of disease in South Africa, namely: infectious diseases, chronic diseases of lifestyle, injuries, and maternal and child health. The option plan also considers the needs of vulnerable populations, defined as children, the elderly and people living with disabilities. And

hence includes a modest package of assistive devices as well. In Tanzanite One, care coordination and network contracting make membership affordable, with an average contribution of R 100 monthly, equivalent to five United States dollars.

Since the establishment of Tanzanite One, the option has grown from 55,000 members in 2020 to 96,000 members in 2021, a 75% growth. In 2022, 93% of Tanzanite One members were satisfied with the option plan and considered it value for money. The Scheme has shifted from being hospicentric, dealing with only the seriously ill at a hospital level, over the years with appropriate funding of a preventative and primary healthcare package. The Scheme's strategy is to further enrich access to health care by the Lancet Commission report, as Primary Healthcare (PHC) is the engine for UHC, PHC provides the programmatic approach in our context [30].

2.4 Affordability and efficiency

Affordability refers to how much GEMS contributions are cheaper than other medical schemes. GEMS contributions for an average family in 2023 are 25% lower when compared to the average contribution for competing schemes, as shown on **Table 1**. When accounting for the government subsidy on contributions, however, the contributions are 66% lower. The highest differences are noted for the Scheme's flagship plan options, Emerald Value and Tanzanite One, due to the inherent efficiency built into these options by design. The Emerald Value and Tanzanite One plan options are designed as efficiency discount options (EDOs) in that only a list of healthcare service providers who are comparatively efficient in their healthcare delivery activities are included as part of the network providers to service these plan options. These efficiencies are then shared between the members of the Scheme through lower contributions and the healthcare service providers through an increased number of patients incentivised to use their services [31].

While GEMS members are spread across all income levels, there is, however, a higher proportion of members in low-income earners and middle-income earners, specifically Level 1–5, constituting 221,834 (27.1%) of all GEMS members, as shown on **Figure 4**. These low-income earners are spread across all options, with the majority in Tanzanite One plan option for affordability reasons. GEMS option plans

Option	% difference between GEMS average family contribution and average family contribution of competing schemes before subsidy	% difference between GEMS average family contribution and average family contribution of competing schemes after subsidy
Tanzanite One	38%	97%
Beryl	17%	70%
Ruby	5%	61%
Emerald	24%	59%
Emerald Value	34%	72%
Onyx	25%	53%
All	25%	66%

Table 1.
GEMS average affordability in 2023.

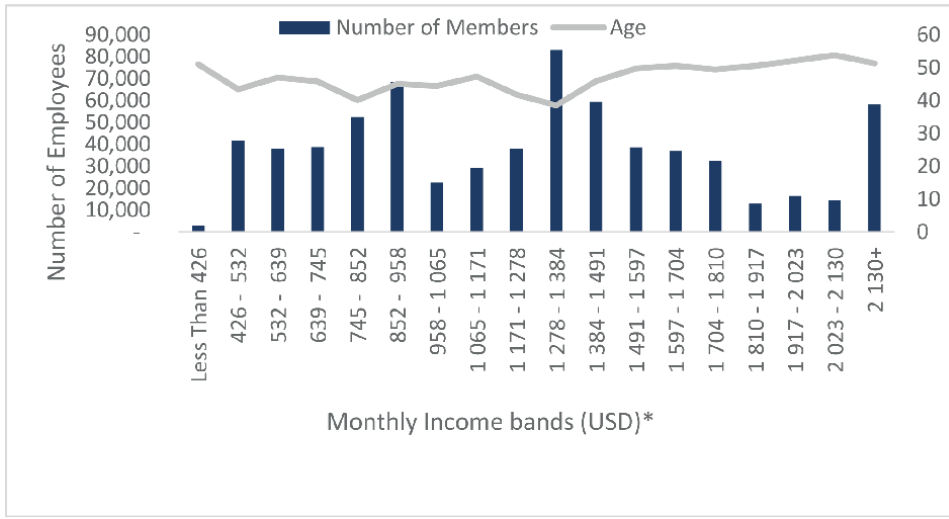

Figure 4.
Income distribution of public servants.

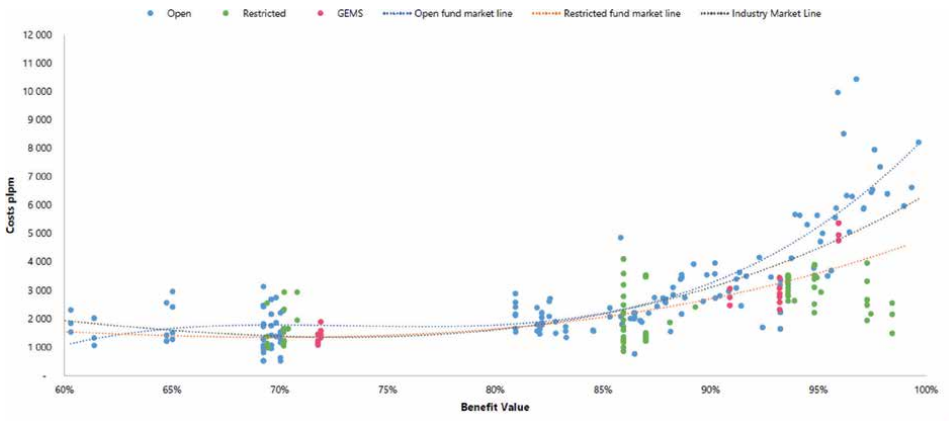

Figure 5.
Benefit value and costs PLPM 2023.

are accessible for all government employees, a demonstration of a commitment to increase access to universal health coverage [32].

In addition to affordability, GEMS still manages to provide competitive plan options. The value for money offered by GEMS plan options is either better than or on par with the medical schemes industry. **Figure 5** shows the results from an actuarial review of the benefit richness and cost comparison to medical industry shows that two thirds (specifically 4 out of 6) of GEMS plan options are performing better than the industry [33].

In addition to providing higher benefit value and affordable plan options, GEMS has managed to maintain efficiency in operations and return on investment. For every one Rand received in contributions the Scheme paid an average of R0.89 in healthcare costs for the members, thus translating into a claims loss ratio of 89%. This means that there is, on average, R0.11 left to cover the non-healthcare expenditure such as

administrative fees (overhead costs) and retain some as reserves. The Council for Medical Schemes requires that all medical schemes keep in reserve at least 25% of annual contributions amount. The non-health expenditure for the Scheme remained very low at 4.81% compared to the industry of 8.66%, thus demonstrating administrative or operational efficiency [25]. CMS measures the industry solvency ratio.

The solvency ratio is the calculated level of reserves, or accumulated funds, needed by a medical scheme as a percentage of gross annualised contributions. At the end of 2021, GEMS had a solvency ratio of 46.44% compared to the industry average of 46.73% [25]. However, the scheme has not always met the statutory solvency ratio of 25%. In 2016 the Scheme had an all-time lowest reserve ratio sitting at 6.5%. The biggest driver of unsustainable coverage was found to be adverse selection. Interventions introduced included underwriting to reduce adverse selection. Underwriting was successfully submitted but limited to applying a general three-month and a twelve-month condition-specific waiting period, limited to principal members and beneficiaries who cancel membership and later wish to rejoin in the absence of termination of employment. The Scheme significantly improved the reserve ratio from 6.5% in 2016 to 46.1% by December 2021 [28].

2.5 Quality of healthcare and value

Health Quality Assurance (HQA), a non-profit organisation, assesses quality in healthcare by medical schemes annually. Such assessments aim to assist decision-makers to evaluate and improve the quality of care received by members [34]. The Scheme's 2022 Annual Integrated Report outlined that about 82% of the healthcare quality outcomes were established to be above the industry average on predetermined Health Quality Assessment metrics. In 2020, GEMS showed an improvement in its primary health quality scores and was above the industry average in antenatal, chronic disease, and HIV management scores [34]. Not surprisingly as the GEMS basic benefit design prioritises coverage for the quadruple burden of disease in South Africa namely, chronic diseases care, maternal and child health, HIV program and all serious injuries are mostly included.

GEMS also has the most extensive HIV programs in the private health sector. As part of this HIV disease management programme, the Scheme aims to achieve what is termed the 90–90-90 targets. That is, 90% of Scheme's members living with HIV must know their HIV status, and 90% of Scheme's HIV positive members must be on antiretroviral therapy (ARTs) and 90% of Scheme members receiving ARTs must have viral suppression. Against these targets the Scheme is performing at 90%, 91.2% and 92.2% respectively.

3. Conclusions

In conclusion, South Africa's health system, although making tremendous advancements over the past twenty years regarding UHC, remains two-tiered and inequitable. As a medical scheme, GEMS has followed a process of evolving towards providing improved and affordable access to healthcare to its members and their families over the past 18 years. The Scheme has embraced UHC principles and is preparing itself for the inevitable and eventual implementation of the NHI through the effective benefit design and influencing transformation of the health system towards the one that promote equitable universal access to health care. As a closed scheme, GEMS is continuously working

towards improving access and affordability to qualifying members and closing the gap of past disparities. Based on findings discussed within this report such as a Scheme growth of 90.52% since implementation and a 75% growth on the Tanzanite one option just between 2020 and 2021 at a 93% satisfaction rate, the Scheme's efforts are working, and also managing to maintain efficiencies in operations and return on investment.

Conflict of interest

No interests to declare.

Acronyms and abbreviations

ART	antiretroviral therapy
CSMBA	Civil Servant's Medical Benefit Association
EDOs	efficiency discount options
EVO	Emerald Value Option
GEMS	Government Employees Medical Scheme
HMI	Health Market Inquiry
HQA	Health Quality Assurance
HDI	Human Development Index
ANC	African National Congress
NP	National Party
NHS	National Health System
NHI	National Health Insurance
MSA	Medical Schemes Act
MRI	Mortality Rate Index
NCOP	National Council of Provinces
PHC	Primary Healthcare
PMBs	Prescribed Minimum Benefits
PSCBC	Public Service Co-ordinating Bargaining Council
SHI	Social Health Insurance
UCH	Universal Healthcare

Author details

Selaelo Mametja*, Mapule Letshweni, Mabatlo Semenya, Boldwin Moyo, Carmen Whyte, Jolene Bultinck-Human and Stanley Moloabi
Government Employees Medical Scheme, Pretoria, South Africa

*Address all correspondence to: selaelo@gems.gov.za

References

[1] James C, Gmeinder M, Rivadeneira AMR, Vammalle C. Health financing and budgeting practices for health in South Africa. OECD Journal on Budgeting. 2018;**17**(3):95-126

[2] Competitions Commissioner of South Africa. Health Market Inquiry Report. South Africa. 2019. Available from: https://www.compcom.co.za/wp-content/uploads/2020/01/Final-Findings-and-recommendations-report-Health-Market-Inquiry.pdf

[3] Government Employees Medical Scheme. The Introduction of GEMS South Africa. South Africa. 2023. Available from: https://www.gems.gov.za/en/About-Gems/Overview

[4] Coovadia H, Jewkes R, Barron P, Sanders D, McIntyre D. The health and health system of South Africa: Historical roots of current public health challenges. The Lancet. 2009;**374**(9692):817-834

[5] Phillips HT. The 1945 Gluckman report and the establishment of South Africa's health centers. American Journal of Public Health. 1993;**83**(7):1037-1039

[6] Verhoef G. From friendly society to compulsory medical aid association: The history of medical aid provision in South Africa's public sector, 1905-1970. Social Science History. 2006;**30**(4):601-627

[7] The Constitution of the Republic of South Africa. 1996

[8] South Africa - Human Development Index - HDI [Internet]. 2021 [cited 1 August 2023]. Available from: https://countryeconomy.com/hdi/south-africa

[9] Gini index - South Africa [Internet]. 1993 - 2014 [cited 1 August 2023]. Available from: https://data.worldbank.org/indicator/SI.POV.GINI?end=1994&locations=ZA&start=1993

[10] Life expectancy at birth, total (years) [Internet]. 1960-2021 [cited 1 August 2023]. Available from: https://data.worldbank.org/indicator/SP.DYN.LE00.IN?end=1993&locations=ZA&start=1990

[11] Mortality rate, infant (per 1,000 live births) - South Africa [Internet]. 1974-2021 [cited 1 August 2023]. Available from: https://data.worldbank.org/indicator/SP.DYN.IMRT.IN?end=2021&locations=ZA&start=1974

[12] 20 countries with the biggest inequality in income distribution worldwide in 2021, based on the Gini index [Internet]. 2021 [cited 01 August 2023]. Available from: https://www.statista.com/statistics/264627/ranking-of-the-20-countries-with-the-biggest-inequality-in-income-distribution/

[13] World Bank Open Data [Internet]. 2022 [cited 31 July 2023]. Available from: https://data.worldbank.org/?cid=ECR_GA_worldbank_EN_EXTP_search&s_kwcid=AL!18468!3!665425039372!b!!g!!world%20bank%20projects&gclid=Cj0KCQjwn_OlBhDhARIsAG2y6zNycx65GB2zfdd9k1XVmpv8BuMUknX3VdGhWVifCmeHd-J7aC2eTowaAgqmEALw_wcB

[14] African National Congress. National Health Plan. 1994

[15] African National Congress. African National Congress A basic guide to the Reconstruction and Development Programme. 1994

[16] National Department of Health. White Paper for the Transformation of the Health System in South Africa. 1997

[17] South African Government. Medical Schemes Act. No. 131 of 1998. In: Department of Health, editor. South Africa. 1998

[18] Harrison S. Medical schemes. South African Health Review. 2003;**2003**(1):291-298

[19] Parliamentary Monitoring Group. NHI Timeline: Key dates and events. 2019

[20] National Department of Health. White Paper on National Health Insurance. 2015

[21] National Department of Health. National Health Insurance Green Paper. 2011

[22] McIntyre D. Private Sector Involvement in Funding and Providing Health Services in South Africa: Implications for Equity and Access to Health Care. EQUINET, Harare: Health Economics Unit; 2010

[23] NHI Timeline: Key dates and events [Internet]. 2023 [cited 31 July 2023]. Available from: https://pmg.org.za/blog/NHI%20Timeline:%20Key%20dates%20and%20events

[24] Bennett TW. Ubuntu: An African equity. Potchefstroom Electronic Law Journal. 2011;**14**(4):30-61

[25] Council for Medical Schemes. Annual Report 2021/22. South Africa; 2022. Available from: https://www.medicalschemes.co.za/cms-annual-report-2021-22/

[26] Government Employees Medical Scheme. Annual Integrated Report. South Africa: Government Employees Medical Scheme; 2021

[27] Prevalence of HIV, total (% of population ages 15-49) - South Africa [Internet]. 2022. Available from: https://data.worldbank.org/indicator/SH.DYN.AIDS.ZS?locations=ZA

[28] Whyte C, Mametja S, Semenya M, Bultinck-Human J, Matoti L, Moyo B, et al. Primary healthcare: Addressing financing reforms for universal health coverage. South African Health Journal. 2023:3-7

[29] Public Service Co-ordinating Barganing Coucil. PSCBC Annual Report: 2021/2022. 2022

[30] Hanson K, Brikci N, Erlangga D, Alebachew A, De Allegri M, Balabanova D, et al. The lancet Global Health Commission on financing primary health care: Putting people at the Centre. The Lancet Global Health. 2022;**10**(5):e715-ee72

[31] Government employees medical scheme. Affordability Report. 2023

[32] Government Employees Medical Scheme. Income bands report. 2023

[33] Government Employees Medical Scheme. Signal Model Results. 2023

[34] Health Qualtity Assessment. 17th Annual Industry Report on the Quality of Healthcare in South Africa. 2021

Section 2

Health Insurance, Access, and Coverage

Chapter 5

Perspective Chapter: Underlying Issues on Uptake of Health Insurance – The Case of Rural Communities

Joshua Munkombwe and Jackson Phiri

Abstract

Exploring the underlying issues of low uptake of health insurance by rural communities is a subject of growing importance for the attainment of inclusive health. Insurance plays a key role in many aspects of community development, especially the vulnerable and marginalized groups. Agreeably, human health insurance uptake in many developing countries seems to be increasing with the mandatory government policy direction that compels all employed citizens to subscribe to the health insurance policy. This study answers the question why health insurance presents a low uptake in the health systems. We reviewed 55 journal articles and 20 practitioner websites covering the period between 2003 and 2022 to understand the underlying reasons for the low uptake of human health insurance systems, especially among rural communities. The results show that policy direction significantly influences system change for the uptake of health insurance across different stakeholders.

Keywords: insurance, uptake, medical system, human health insurance, policy

1. Introduction

Understanding the underlying issues of human health insurance among marginalized groups is becoming increasingly important. Over the years, research has shown that human health insurance remains the best choice for establishing social justice mitigation strategy [1]. The subject of inclusive human health, as outlined in sustainable development goal 3 (SDG 3), ensures healthy lives and promotes well-being for all at all ages, while sustainable development goal 2 (SDG 2) targets zero hunger for all. Consequently, there is increasing motivation to provide universal coverage of health services as a result of the Millennium Development Goal (MDG) targets for health improvement and poverty reduction [2]. Reference [2] shows that everyone has access to affordable, high-quality healthcare when they need it. Reducing the out-of-pocket costs that people incur for healthcare is an essential step toward increasing affordability. These are widely acknowledged as a barrier to access, particularly in poorer nations, and as dragging households deeper into poverty [3]. Due to errors in healthcare financing and delivery,

several poor people approximately making up to 1,3 billion worldwide continue to lack access to effective and low-cost medicines, procedures, and other vital measures [4, 5].

At independence, several African countries adopted health systems that were supported and structured by the government, which suggested staff, facilities, and other inputs [6]. However, it appears that sub-Saharan African statistics on healthcare are largely insufficient. For instance, while the region constitutes only 11% of the world's populace, 24% of the global disease burden is accounted for, and it accounts for less than 1% of health outflow globally [7]. The representation of the healthcare position in sub-Saharan Africa depicted above, combined with Africa's position as a low-income region with poverty as a foremost obstacle to access to healthcare, demonstrates the necessity for social health insurance (SHI) as a means of providing access to healthcare for the majority of the populace [8]. Therefore, this situation agrees with and positions Kutzin's [9] idea of the health insurance system as a means to pay for healthcare and guarantee access to services by offering a mechanism for distributing the risk of acquiring medical outflows among different individuals. Governments aim to influence and direct public life through policy, and the population serves as the unit of study for public policy [6, 8].

It is asserted that the majority of people in developing nations are based in rural regions, engaged in agriculture, and have unstable, fluctuating incomes and poor health services. In fact, the single most pressing and difficult challenge faced by several low- and middle-income countries is how to deliver inclusive and sustainable human healthcare for the more than 1.3 billion poor people who live in rural areas or work in the informal sector [4, 5]. They work as farmers, peddlers, day laborers, tax drivers, employees of the informal sector, store proprietors, and independent professionals, among other jobs [10].

Consequently, health systems are key to making and contributing to the agriculture market system and particularly food systems. Farmers will contribute positively to the economic growth of developing economies. Hence, the importance of the health insurance mechanism as an edging tool for rural farmers becomes important for them to remain and keep improving in both production and productivity in many aspects, including agriculture, education, community, and social stratification development [11]. The policy position of the government on health insurance may appear to influence the level of inclusivity in participation by marginalized populations. The government has the mandatory responsibility to ensure healthy populations, which will translate into increased productivity gains across various sectors of the economy [12]. Therefore, the health insurance system plays a key role in many aspects of community development, especially for vulnerable and marginalized groups in developing countries, where the government has developed a mandatory policy direction that compels all employed citizens to subscribe to the health insurance policy, yet gaps in adoption remain unknown among many citizens [13]. Albeit the low uptake, in the field of public health and health policy making, health insurance has been proposed to be a significant safety net for low- to middle-income residents by lowering emergency medical costs for all social classes [14, 15].

But historically, there have been a number of factors that have made it difficult for the underprivileged in sub-Saharan Africa to get healthcare. These include insufficient medical staff, facilities that are located far from intended beneficiaries, poor management of healthcare institutions that promote resource waste, and patients paying the majority of healthcare costs out of pocket [8]. The widespread belief that curative healthcare therapy is preferable to preventive healthcare therapy is another obstacle. This condition leads to issues of unfairness, inequality, and poor service

quality. The concept of universal health coverage can be used to address the issue of low health outcomes in the developing countries, especially in Africa, even if discrepancies in health status are a global issue affecting health systems [8, 16].

Finally, globally, we have all committed to worldwide healthiness coverage. This is a tactical component of the post-2015 Millennium Development Goals (MDGs) intended to lower household and individual health costs, which are a significant contributor to poverty in many nations. The principle of leaving no one behind as Universal health coverage (UHC) is "the single most powerful concept that public health has to offer to address deep rooted health inequalities. It is regarded as a powerful equalizer that abolishes distinctions between the rich and the poor, the privileged and the marginalized, the young and the old, ethnic groups, and women and men," according to Margaret Chan, Director-General of the WHO" [6, 8–18]. Therefore, medical health insurance systems are important if universal health coverage is to be achieved. It is against this reason that this study tries to answer the question why health insurance presents low uptake in the health systems.

2. Methods and materials

This section provides an outline of the approach employed to achieve the research objectives. Electronic databases, including Google Scholar, SciELO, AGRICOLA, SpringerLink, ScienceDirect, and Scopus, were searched for scholarly articles for performing a narrative review. Initial searches were made using a broad Boolean search phrase that includes the terms "health insurance for humans," "insurance systems," and "health insurance coverage." The term "insurance system," according to Cieza [19], denotes a health system that functions in unison and is encompassed of trained and motivated health workers, a well-maintained infrastructure, and a reliable supply of medicines and technologies, supported by adequate funding, robust health plans, and evidence-based policies. Subsequently, the search focus was narrowed down to include only topics concerning health insurance systems, public policy, community-level health insurance interactions, and adoption. Moreover, the top search engines offered free access to full-text articles. Where these connections could not be located, we utilized research websites such as ResearchGate, which provided the option of getting the complete text directly from the authors. Finally, it was required to use the Google Search engine in order to source research papers and reports that may have been ignored during the initial search. First, the reference lists of included research or review papers were combed through, followed by an examination of all journals that cited each of the included articles. Additionally, works published between 2003 and 2022 were evaluated.

3. Attempts to achieve inclusive human medical insurance coverage by various nations

3.1 Health insurance and health insurance systems

An advanced and risk-pooling system known as health insurance is used to pay for medical expenses that result from disease. These costs may be connected to hospitalization, medication, or medical appointments. Social and national health insurance could increase access to healthcare for all individuals and shield them from the financial risks associated with diseases [6, 17].

The achievement of insurance for all is highly dependent on a functional health insurance system that equally needs to obey the economic rules of supply and demand in the health sector, taking into consideration the people at the bottom of the pyramid, the guiding rules, and the supporting functions. For the system to function, it must respond to several factors that include the basic rule of demand and supply matrix as the core beginning, the various rules and regulations that need to be followed, and the support function that would ensure all the required functional support is in place for the entire health system to operate [17, 20].

It is widely acknowledged that healthcare service delivery systems and financing methods have significant consequences for people accessing and gaining from health coverage. Although national health insurance programs give people in many nations access to comprehensive and fair healthcare, putting them into place presents a number of difficulties [17].

A well-functioning health system is supported by qualified and motivated health professionals, a well-maintained infrastructure, and a consistent supply of medications and technologies, as long as it is sufficiently funded, ensuring robust health plans and implementing evidence-based policies [19]. Depending on the degree of economic growth and the political system in existence, healthcare systems vary from one country to the next. Healthcare is a primacy and a basis of worry worldwide. All countries, regardless of their private, public, or mixed healthcare system, face challenges about quality, delivery, and cost of services.

However, the World Health Organization (WHO) contends that a health system comprises of all groups, individuals, and activities whose main goal is to promote, restore, or maintain health, rather than just a pyramid of publicly owned personal healthcare delivery facilities or structures [21]. Health system targets mostly involve the enhancement of health and health equity in systems that are proactive, monetarily sustainable, and optimally efficient; they should furthermore prevent wasting resources. Nonetheless, to achieve these goals, a health system ought likewise to accomplish the intermediate goals of guaranteeing better access, effective coverage, quality, and safety of healthcare services for most of the populace [21].

Social health insurance is "a means of financing healthcare and ensuring access to services by providing a mechanism for sharing the risk of accumulating medical expenses among different individuals" [8, 9].

Furthermore, Kutzin [9] stresses the strategic significance of financial protection as well as the capability, willingness, and access to health services as fundamental for social health insurance. He contends that as public policy goals for the health sector include advancing equity, efficiency, acceptability (to providers and users), and sustainability, increasing the reach of health insurance may help with these goals [9]. However, he warns that the pursuit of broad coverage through health insurance is not the end of policy [8]. There is not a single paradigm that applies to all health insurance system designs. Priorities, populations, development, governmental structures, and other aspects differ widely among nations. This heterogeneity has given nations seeking reforms a range of experience to consider [22].

There are numerous varieties of health insurance programs available worldwide, including:

- Social health insurance: Public multipayer systems with indirect provision.
- National health service: Centralized single-payer systems with direct provision.

- National health insurance: Centralized single-payer systems with generally private provision of medical services.
- Private insurance: Some countries have private multipayer systems with indirect provision.

3.2 Human health insurance systems in perspective

3.2.1 Global

The current global insurance trends indicate challenges in both the availability and accessibility of insurance products for marginalized groups, especially in developing countries, as the example of Zambia [23]. Social health insurance (SHI), community-based health insurance (CBHI), and private health insurance (PHI) are the three most prevalent forms of health insurance plans found worldwide [24]. The requirements and coverage of these various programs vary. SHI is a mandated program in which participants are required by law to participate and pay a predetermined premium amount [25].

3.2.2 Health insurance systems in Korea

The National Health Insurance (NHI) program, which is a universal social insurance program that covers the entire population and is mandatory by law, is used to execute the healthcare system in the Republic of Korea. The NHI Service (NHIS) oversees the running of this system under the guidance of the Korean government. The sole insurer, known as the NHIS, works to improve social security by ensuring that people have access to the required medical treatment for illness, accident, pregnancy, and death. It similarly runs a free medical relief program as a practice of public support for individuals in the low-income group, for whom the application of social insurance is tough through NHI [26, 27]. This suggests that medical assistance plays a significant role as a social security system in Korea for people in lower income categories who pass a means test and are supported by local governments rather than the NHI system [24]. Loyalists and veterans who get benefits as persons of national merit are also incorporated in the medical relief group. The percentage of medical relief beneficiaries is about 3% of the entire population in South Korea [28]. The rapid introduction of a private health insurance (PHI) program can deprive important healthcare application by those who are poor, while the benefits of the adoption of PHI are moderately modest [28, 29]. **Figure 1** displays the association that takes place between the insurers, health service providers, and NHIS and Health Insurance Review & Assessment Service (HIRA) in delivering comprehensive and long-lasting health medical insurance in [28].

3.2.3 Health insurance approach: Swiss system

Multiple private insurers operate in regulated, competitive markets as part of the health insurance systems of Switzerland and the Netherlands, which offer universal coverage. The systems share a number of characteristics, including an individual mandate, basic benefits that are standardized, a strictly regulated insurance market, and funding plans that make insurance affordable for low- and middle-income families. The degree of centralization, the basis for insurer competition, the availability of managed care, and the extent to which they rely on patient cost-sharing to influence participants'

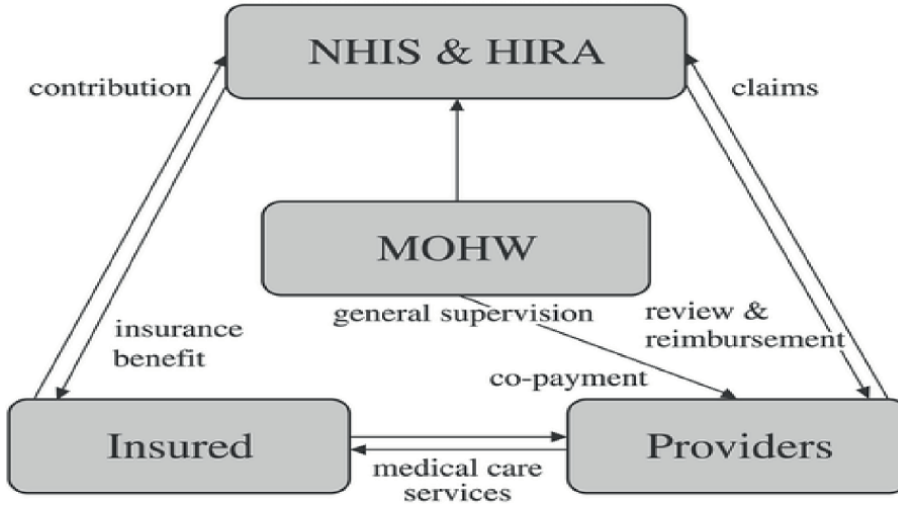

Figure 1.
The figure shows the associations among key parties of Korean National Health Insurance (NHI) that include the Ministry of Health and Welfare (MOHW), National Health Insurance Service (NHIS), and the Health Insurance Review & Assessment Service (HIRA). Adopted [28].

care-seeking behavior are all significant distinctions between the two systems. Since 1996, the Swiss system has been governed by a health insurance law designed to provide access to treatment, make it more affordable, and keep costs in check. Every resident must obtain fundamental health insurance from one of the several rival private insurers operating within the confines of the social insurance law's established market rules. All applicants must be accepted by insurers during designated open enrollment times with community-rated premiums, and insurers must be nonprofit. About 12% of enrollees are enrolled in managed care plans of some kind, mostly fee-for-service plans with a primary care gatekeeping component [30]. The 26 cantons of Switzerland serve as the insurance markets and insurance mandate. Numerous strategies have been used by cantons to enforce coverage. The income tax system provides premium subsidies. To identify people without coverage, tax data can be compared to enrollment data from insurers. A third of the population and 40% of all Swiss households are thought to benefit from this premium assistance. This share exceeds 50% in several cantons [30]. The canton or the community of residence may designate an insurer for a person who needs medical care but has no insurance. The Federal Office of Public Health (FOPH) oversees the requirement for basic health insurance. The Federal Office of Private Insurance (FOPI) has distinct regulations for supplemental insurance, which may be provided by both basic health insurers and other insurance firms. The same set of benefits must be provided by all basic insurance schemes [31].

3.2.4 The Dutch health insurance system

A health insurance scheme resembling the present German system existed in the Netherlands until 2006 [31]. Most people participated in nonprofit "sickness funds" funded by fixed-income donations; those with greater incomes purchased commercial insurance. This two-tiered system has been replaced by a single system under the new Health Insurance Act, where all citizens are required to get minimum essential coverage from a private insurer, which may be for-profit or nonprofit and includes insurers

that formerly served as sickness funds. However, most Dutch people (90% or more) choose supplemental insurance that includes extra benefits like adult dental treatment that are not included in the standard package. By limiting possibilities for profit or loss by choosing a particular health risk, insurance market regulations and oversight, such as risk equalization funds, aim to concentrate insurance competition on quality and cost performance (value). Each insurer determines its rate, which cannot be affected by enrollment, health, or any other factors. Individuals enrolling through collective agreements, such as employer groups, may receive discounts from insurers of up to 10%. About half of overall expenses are covered by income-based premiums, while the remaining four-fifths are put into the insurance fund by the government out of general revenues for child coverage [32]. Through a national premium credit scheme, people with lower incomes are given a healthcare allowance to assist in paying the flat premium. An estimated 40% of households are eligible for this help [31].

3.2.5 Health insurance system in Macedonia

The Health Protection Law (1), which was amended in 1993 (2) and 1995 (3), inaugurated the Republic of Macedonia's present system of health insurance in 1991 (3). This law specifies three different types of health insurance: mandatory, supplementary mandatory, and optional insurance for specific categories of medical care.

Obligation, reciprocity, and solidarity are the cornerstones of mandatory health insurance. Every insured individual has unlimited access, as needed, to the healthcare and rights provided by their health insurance, including the essential healthcare rights protected by the law's mandated health insurance. On the other hand, continuing to make contributions toward health insurance is a requirement for all employees or other insurance holders. Regardless of the level of pay or income, frequency, or amount of health services utilized on account of the health insurance funds, the contribution rate is the same for everyone [33].

There is supplemental mandatory insurance available for certain risks or different demographics. In cases of workplace injuries and occupational diseases, it uses preventive and screening methods as well as medical care. The insured's further agricultural, manufacturing, or other endeavors are also covered. For medical services that were not covered by required health insurance, voluntary health insurance was developed. It covers the use of a few certain medical services as well as those that are provided at a better standard or level of comfort than those provided by mandatory health insurance, i.e., standards set by the Ministry of Health.

The state budget covers the costs of healthcare services for Republic of Macedonia residents who are not Fund insured in the following circumstances: healthcare for (a) children and teenagers up to the age of 18, students and pupils up to the age of 26, and those over the age of 65; (b) women's healthcare relating to pregnancy, delivery, motherhood, and contraception; and (c) the treatment of infectious diseases, mental illnesses, complications from rheumatic fever, cancer, diabetes, chronic dialysis, progressive nervous and muscular diseases, cerebral paralysis, multiple sclerosis, cystic fibrosis, similar diseases, epilepsy, alcoholism, and drug addiction [33].

3.3 Africa

Exploring social health insurance's potential to improve access to and affordability of healthcare in Africa is currently a topic of great interest. Various strategies are currently being tested in a number of nations [34, 35].

3.3.1 Health insurance systems in sub-Saharan Africa

Literature analysis suggests that an increasing number of nations are adopting health insurance plans to satisfy the healthcare needs of their populations [6, 8–36]. Social health insurance (SHI) and community-based health insurance (CBHI) are more frequent in Asia and Africa than National Health Services. Developed countries in Europe are more likely to have national health insurance systems (NHIS) (Physicians for a National Health Program (2010). However, private health insurance (PHI) plans flourish in sub-Saharan Africa [8] because of the inability of public health systems to cover the needs of the entire population. Therefore, private employers provide their employees with health insurance policies. The following elements play a strong role in African countries toward the adoption of social or community-based health insurance systems.

i. Healthcare sector underfunding [8, 36]: most African nations spend less than US $10 per person per year, despite the World Health Organization's recommendation of US $27 per person annually. Additionally, although African leaders pledged in the 2001 Abuja Declaration to devote 15% of their annual budgets to health, annual health spending in the area rarely reaches an average of 5% of gross domestic product (GDP) [35].

ii. Inequitable and inefficient allocation of the few resources are allocated to the public health sector [9, 35]. This frequently leads to regional inequalities in the distribution of healthcare infrastructure between rural and urban areas and low-quality health services [37]. Health issues are almost always worse in areas with few resources and access to care for those who need it the most.

iii. A poverty scenario: the rate of absolute poverty in sub-Saharan Africa is about 54%, there is a large illness load, and many people die. Malnutrition, HIV/AIDS (human immunodeficiency virus/acquired immunodeficiency syndrome), and other diseases like malaria that can be prevented [38], additionally diarrhea, and respiratory tract infections are the major causes of death, on top of other mortality causes like injuries from accidents, violence, and war.

iv. Lack of human resources in the health sector is primarily the result of brain drain, which is brought on by subpar working and pay conditions, subpar healthcare infrastructure, and subpar medical technology. Other issues include the shortage of medical professionals in some nations and the overcrowding of medical professionals in a few urban areas at the expense of rural communities [35, 39].

v. Inadequate, outdated, underfunded, and data-reporting health systems that overlook traditional, religious, and other nonmedical services of care that can supplement conventional medical care [35, 40].

In addition to these characteristics just described, the following traits spur nations in the region to implement social health insurance:

i. The idea of being one's brother's keeper is one that Africans generally respect and value. This complies with the social health insurance premise of from each according to his capacity, to each according to his need.

ii. Even without direct government engagement, an increasing percentage of Africa's private sector, especially the urban private sector, is adopting joint health insurance programs for its employees [35].

iii. Due to rising poverty, there is a growing army in Africa of the unemployed, the underemployed, and the unemployable (who received substandard education and want jobs whose demands they cannot cope with) and the destitute, who need access to healthcare as human beings. In the face of dwindling government resources, reduced healthcare funding, rising health inequalities, and other concerns of foreign donors who have been contributing to healthcare in Africa, social health insurance would be appropriate for sub-Saharan Africa [35].

iv. More importantly, public or universal social welfare systems are not yet developed in many African countries. Therefore, the expanded African interpretation of the concept of "family" (in terms of determining appropriate beneficiaries) would make whole-scale adoption of Western health financing systems problematic for Africans [8].

3.3.2 Health insurance systems in Ghana

Ghana's National Health Insurance Act (Act 650) was enacted into law in 2003, however implementation (in terms of benefit access) did not start until the fall of 2005 [41]. Membership (either through the District Health Management Information System (DHMIS) or through a private insurance policy) is required. Employees in the formal sector are subject to Social Security and National Insurance Trust (SSNIT) payroll deductions that are not their choice. The informal sector is assessed for paying premiums, which ought to be based on income. There is a 6-month waiting period before being eligible for benefits at first. In order to control the market, the National Health Insurance Authority (NHIA) was created [41]. This includes accrediting providers, settling on contribution rates with plans, resolving disagreements, running the National Health Insurance Fund (NHIF), and approving cards. Benefits cannot be transferred across district plans, unless each district has a DMHIS with a minimum of 2000 members. Every DHMIS must submit annual reports to NHIA and have its financial records audited on a yearly basis [41].

The National Health Insurance Authority does not offer subsidies to private MHIS. Every 2 years, the NHIA and license programs are overseen by the National Health Insurance Council (NHIC), the Executive Secretary of the NHIA, as well as officials from the Ministry of Health, Ghana Health Service, governing bodies, consumers, and other key stakeholder organizations [42]. The president appoints the chair and executive secretary. The NHIC submits a funding formula for yearly approval to Parliament and submits an annual report to Parliament on the usage of money. A board oversees each DHMIS. For managing complaints against providers or schemes, rules are set.

The National Health Insurance Levy (NHIL), which accounts for 2.5% of value-added tax (VAT) and 2.5% of employees' salaries in the formal sector, provides funds for the program. Additionally, DHMIS receives funding from premia for participants in the informal sector, which are determined in accordance with the National Health Insurance Authority (NHIA). However, hybrid forms of SHI are also fairly common, in which the government pays payments for people who would otherwise have trouble doing so, such as the unemployed and the destitute. However, it differs from other approaches, in that it distributes the responsibility for healthcare financing among individuals and the private sector as well, rather than relying solely on public funding [34, 43].

3.3.3 Health insurance systems in Zambia

Healthcare has long been offered in Zambia by public, religious, and commercial organizations. The Health Professions Council of Zambia (HPCZ) oversees and issues licenses to all healthcare facilities in the nation. Primary healthcare (PHC) services, such as health posts, health centers, and level-1 hospitals, make up the public health system. Hospitals at levels 2 and 3 offer specialized treatments like obstetrics, internal medicine, and surgery. In public health institutions, user fees were completely eliminated at the PHC level by the government in 2012. These healthcare centers are designed to offer free treatment to everyone. In addition, free medical care is meant to be provided to patients who are sent from these PHC clinics to level-2 and level-3 hospitals. This regulation reduced out-of-pocket costs for households [44, 45]; however, the widespread scarcity of medicines and insufficient support for the healthcare industry spurred the creation of a national health insurance scheme [45].

Recently, Zambia introduced health insurance, in 2018, when it passed its National Health Insurance (NHI) Act to provide "universal access to quality health services" [46]. The National Health Insurance Management Authority (NHIMA), a semiautonomous organization presently in charge of obtaining services from various healthcare facilities, paying residents' contributions, and distributing benefits to beneficiaries, was founded by the Act. The existing statutory instrument mandates that employees contribute 1% of their monthly salary, with employers matching that amount [47]. Self-employed people who work in the informal economy are required to contribute 1% of their declared monthly income, with a minimum contribution of 60 kwacha (US$4) per month. In the formal sector, deductions from wages started in October 2019, while payments to healthcare institutions started in February 2020. As of February 2022, there were 1.35 million principal members and 500,000 secondary registered beneficiaries, respectively. Principal members are allowed six beneficiaries under their membership [48]. Contributions are not required of individuals over the age of 65, or those who are physically or mentally impaired. It is crucial to understand the consequences of health insurance's purchasing functions and predict how they will affect access to high-quality treatment in the future since the industry is still in the early stages of implementation.

4. Public policy as key driver for public health and social health insurance

For many countries, both developed and less developed, the need for inclusive healthcare services appears to be driven largely by public policy instruments by governments. The degree of government attention and prioritizing in effecting health improvement has been noted by various academics as a crucial driver [31, 49]. The concept of the "public sphere" encompasses all facets of daily life or activity that are thought to need governmental oversight, involvement, or regulation [50, 51]. Public policy is concerned with the general population and its issues, and it will probably represent "how, why, and to what extent governments pursue particular courses of action or inaction" [8, 52]. As a result, public policy makes an effort to discuss the nature, reasons for, and consequences of governmental action or inactivity with an emphasis on the welfare of its citizens [49]. As a result, public health addresses important scientific, social, economic, environmental, and political issues that have an impact on the well-being of the overall populace [53, 54]. The concern for the population, whose interests the government was established to defend and develop, is a key relationship between public health and public policy [55].

5. Factors affecting uptake of health insurance

Numerous factors, including institutions, healthcare orientation in rural communities, and household-specific characteristics, have been identified in the literature as influencing the acceptance of medical health insurance among the population in developing nations.

5.1 Institution factors

Individuals may establish their own opinions on the ability of the public health system to deliver quality care in the setting of health insurance based on their own experiences with the healthcare system and media reporting. Their willingness to sign up for national health insurance may be influenced by how confident they are in both public and private healthcare providers. People who have limited financial resources and believe they will not require medical care in the future may even be less willing to sign up for a health insurance plan [45]. Other social science studies have found that confidence in institutions influences decision-making [56].

For example [57], asserted that there are critical experiences that influence the uptake of health insurance at the community level. Good experiences with health insurance for local and rural people will build confidence in the uptake of health insurance.

5.2 Healthcare in rural communities

Rural residents often encounter barriers to healthcare that limit their ability to obtain the care they need. Access to healthcare implies that healthcare services are available and obtainable in a timely manner. Yet, rural residents often encounter barriers to healthcare access. Even when an adequate supply of healthcare services exists in the community, there are other factors that may impede healthcare access. For instance, to have healthcare access, rural residents must also have:

- Financial resources to cover the cost of services, such as accepted health or dental insurance by the providers.
- Means to reach and use services, such as transportation to services that may be located at a distance, and the ability to take paid time-off of work to use such services.
- Confidence in their capacity to communicate with healthcare professionals, especially if they do not speak English well or do not have a lot of health literacy.
- Belief that they may use services without having their privacy being violated.
- Belief that they will obtain high-quality treatment [58].

Health insurance systems therefore need to account for these community dynamics to be able to manage and meet the health needs. Otherwise, the rural communities risk missing even the government policy-driven health insurance systems [59, 60].

5.3 Household-specific factors

Many scholars have indicated that the level of awareness of health insurance determines the uptake of health insurance [61]. As much as health insurance is seen as an option for inclusive health for all, it all comes down to the household itself, understanding its importance and health insurance investment options [62]. According to some studies, the main determinants of health outcomes are social and economic variables, sometimes known as social determinants of health, and individuals' health habits are influenced by social and economic factors [63]. Even as the government and private sector may provide supportive options, households have a critical role in picking up the opportunities. In the developed countries, citizens are fully aware of their right to health services and take the lead in ensuring that they are covered by health insurance systems. The health system mechanisms are clear for the citizens to decide on various options based on their abilities [64, 65]. An extensive body of economic and social research has examined how people make decisions in the face of uncertainty, including choices about health insurance [56]. In neoclassic theory, models explaining the demand for health insurance show how rational agents evaluate their expected utility with insurance compared to their expected utility without insurance [66, 67].

6. Discussion

Based on a survey of the literature, different governments in both developed and developing countries employ different health insurance systems. There is not a single paradigm that applies to all health insurance system designs. Priorities, populations, development, governmental structures, and other aspects differ widely among nations. This heterogeneity has given nations seeking reforms a range of experience to take into account [22]. However, government policy plays a key role in setting the agenda for how to achieve universal health. For many countries, both developed and less developed, the need for inclusive healthcare services appears to be driven largely by public policy instruments by governments. The degree of government attention and prioritizing in affecting health improvement has been noted by various academics as a crucial driver [31, 49]. The different countries reviewed point out the different strategies of health insurance policies. In the case of developed countries with functionally competitive private insurance markets, they play a key role in ensuring health insurance is provided through them, with the government ensuring low- and middle-income citizens are taken care of. In developing countries, the government takes up a lead role through health insurance policies that compel all employed salaried employees to contribute toward the health insurance to cater for the poor and vulnerable families, though they are also supposed to contribute to the schemes.

After an extensive review of the different countries' health insurance systems, governments put up different measures to ensure universal health insurance systems. Critical to the functional health insurance systems are the funding and revenue mechanisms the country has put in place. In some countries, the government has a national health insurance system that covers 100% of the population. However, the target group is not using publicly funded health services in many nations where the government aims to pay for and provide free, or virtually free, treatments for rural inhabitants and the poor. The government's funding of primary care at the village and township levels is inefficient, according to thorough research conducted in low-income nations. While funds allotted for the procurement of drugs and supplies are insufficient, public funds

are typically used to sustain the salaries of health personnel, regardless of whether they are providing satisfactory services or not. Therefore, rather than producing an efficient system for delivering healthcare, this strategy develops a public employment program. As a result, it appears that the supposedly "free" treatments may actually increase in cost as individuals are forced to pay for their own medications and other medical supplies [10]. Thus, health insurance systems become key to meeting the health needs of the people. Achieving universal health insurance requires dynamic government policies that also consider the private sector's involvement and contribution toward achieving universal health objectives. The analysis of a few examples from the Asia and Africa regions highlighted a number of actions that governments may take to increase and improve human healthcare systems. This included creating connections with established healthcare networks, subsidizing contributions for the underprivileged, and offering technical support to enhance a scheme's administrative capabilities.

Health insurance systems appear to be lacking in rural communities. The majority of nations attempt to actively provide for their rural populations by running public clinics, although it is frequently challenging to fill them with skilled medical professionals. People who respond to this advertisement usually work irregular hours and offer subpar services. Pharmaceuticals and other medical supplies are sometimes lacking inside the institutions. People who fall ill are frequently obliged to turn to home remedies recommended by traditional healers and pharmacists as their first line of treatment. The majority finally seek treatment from the few rural public and non-profit hospitals for serious sickness episodes [10]. Even in the public sector, patients receiving care in hospitals frequently have to make an official copayment or unofficial price. As a result, many people are forced to decide between ruining their families and paying for necessary medical care. According to studies, more women and children than men are forced to forego medical care. Furthermore, studies show that even when the government offers free or almost free services, disadvantaged households nevertheless spend a sizeable portion of their income on unofficial fees [10]. Up to 80% of all healthcare costs in low-income nations are covered directly out of pocket by patients. Large medical expenses (such as inpatient hospital services and expensive outpatient medications) are a significant contributor to poverty, according to studies in numerous countries. Reaching out to rural health facilities with insurance systems requires both awareness creation for the rural people as well as funding mechanisms that should support or subsidize for the rural and informal people.

7. Conclusion and recommendation

Health insurance systems take different strategies from different governments and countries with a focus on inclusive health. Poor communities and farmers are at risk of compromised health. This has multiple implications for the farmers' health, agriculture production risk, food security risk, and economic risk. Therefore, the health systems that are responsive to the different levels of society are key to the total well-being of the people. Inclusive health remains key for economic and social development. Information on the health system is key if people are to adopt health insurance products and services.

The fundamental causes of many current health issues in low-income nations are frequently well understood; there are frequently effective and reasonably priced medications, operations, and other therapies. Potentially beneficial policies and programs, however, frequently fall short of reaching the homes and communities that

most require them due to a number of issues with resource mobilization, risk sharing, resource allocation, and purchasing arrangements, as well as issues with the delivery of goods and services to rural and low-income populations. Hence, well-functioning health insurance systems may be the answer to edging out and protecting the rural poor. This must be supported by concrete public policy driven by governments.

Infrastructures for health services and sufficient financial mechanisms are essential for advancing the goal of universal health coverage worldwide. Social and national health insurance programs, whether they are run by numerous or single payer, are crucial to raising the standard of healthcare and ensuring equal access for all residents. However, putting ideas into practice is difficult and calls for continual adjustments to a situation that is rapidly changing. The key issues shared by all population groups are reaching them through insurance-based methods, an aging population, addressing the rise in medical care demand, and securing sustainable financial resources. The importance of various issues and the approaches taken to address them vary by nation. However, the demands of the populace must always serve as the primary criterion for creating effective healthcare systems. The premiums should be tailored to individual levels to aid the less fortunate members of the community, and enrollment centers should be established in each town for convenient accessibility.

Author contributions

Joshua Munkombwe: Production of the first draft, review, and editing of writing, as well as ideation, methodological development, data analysis, and writing.

Dr. Jackson Phiri: Production of the first draft, review, and editing of writing, as well as ideation, methodological development, data analysis, and writing.

Acknowledgements

I acknowledge Mr. Enock Siankwilimba for reviewing the work.

Conflict of interest

There is no conflict of interest in this study, whether financially, nonfinancially, or otherwise. Therefore, we, the authors, declare no competing interests.

Declaration of competing interest

The authors affirm that they have no known financial or interpersonal conflicts that would have appeared to have an impact on the research presented in this study.

Ethical approval

Our article is a narrative review of the literature. It does not involve human participants or animal subjects. Therefore, it did not require the approval of an Ethics Committee.

DOI: http://dx.doi.org/10.5772/intechopen.1003531

Author details

Joshua Munkombwe[1*] and Jackson Phiri[2]

1 Graduate School of Business Studies, University of Zambia, Lusaka, Zambia

2 Department of Computer Science, University of Zambia, Lusaka, Zambia

*Address all correspondence to: mutabi.munkombwe@gmail.com

IntechOpen

References

[1] Moghaddasi H, Hosseini A, Asadi F, Esmaeili M. Problems of health insurance systems and the need for implementation of a reform approach. Journal of Health Administration (JHA). 2011;**14**(44):71-80

[2] World Health Organisation. Moving Towards Universal Coverage Series. Geneva: WHO; 2006

[3] Xu K, Evans D, Kawabata K, Zeramdini R, Klavus J, Murray C. Household catastrophic health expenditure: A multicountry analysis. Lancet. 2003;**362**:111-117. DOI: 10.1016/S0140-6736(03)13861-5

[4] ILO. Social health protection. An ILO strategy towards universal access to health care. Social security policy briefings. In: Paper 1/ International Labour Office, Social Security Department. Geneva; 2008

[5] World Health Organization. Everybody business: strengthening health systems to improve health outcomes: WHO's framework for action. Geneva: WHO; 2017

[6] Fusheini A, Eyles J. Achieving universal health coverage in South Africa through a district health system approach: Conflicting ideologies of health care provision. BMC Health Services Research. 2016;**16**:558. DOI: 10.1186/s12913-016-1797-4

[7] World Bank Group. International Finance Corporation (IFC) Annual Report. I am Opportunity: Main Report (English). Washington, DC: World Bank Group; 2011. Available from: http://documents.worldbank.org/curated/en/583971468331056156/Main-report

[8] Olugbenga EO. Workable social health insurance systems in sub-Saharan Africa: insights from four countries. Africa Development. 2017;**42**(1):147-75. eISSN: 0850-3907

[9] Kutzin J. Health financing for universal coverage and health system performance: Concepts and implications for policy. Bulletin of the World Health Organization. 2013;**91**:602-611

[10] Preker AS. Health Financing for Poor People: Resource Mobilization and Risk Sharing. Washington DC: World Bank; 2004

[11] Boyce T, Brown C. Economic and social impacts and benefits of health systems. Economic and social impacts and benefits of health systems. SBN 978-92-890-5395-2. Available from: http://www.euro.who.int__data/assets/pdf_file/0006/395718/Economic-Social-Impact-Health-FINAL.pdf 2019

[12] Kruk ME, Gage AD, Arsenault C, Jordan K, Leslie HH, Roder-DeWan S, et al. High-quality health systems in the sustainable development goals era: Time for a revolution. Lancet Global Health. 2018;**6**(11):e1196-e1252. DOI: 10.1016/S2214-109X(18)30386-3. Epub 2018 Sep 5. Erratum in: Lancet Glob Health. Sep 18; Erratum in: Lancet Glob Health. 2018 Nov;6(11):e1162. Erratum in: Lancet Glob Health. 2021 Aug;9(8):e1067

[13] Mupedziswa R, Malenga T, Ntshirang PT. Standard of living, wellbeing and community development. The Case of Botswana. 2021;**2021**:65-79 DOI: 10.5772/ intechopen-97680

[14] Ahlin T, Nichter M, Pillai G. Health insurance in India: What do we know and why is ethnographic

research needed. Anthropology & Medicine. 2016;**23**(1):102-124. DOI: 10.1080/13648470.2015.1135787

[15] Ministry of Healthy. Zambia National Health Strategic Plan 2022-2026. Lusaka: Zambia: Ministry of Health; 2022. Available from: https://www.nfnc.org.zm/download/2022-2026-strategic-plan-national-health-towards-attainment-of-quality-universal-health-coverage-through-decentralization/

[16] Kolié D, Van De Pas R, Codjia L, et al. Increasing the availability of health workers in rural sub-Saharan Africa: A scoping review of rural pipeline programmes. Human Resources for Health. 2023;**21**:20. DOI: 10.1186/s12960-023-00801-z

[17] ISSA. Improving Health Insurance Systems. Geneva, Switzerland: Coverage and Service Quality; 2021. Available from: https://www.issa.int/analysis/improving-health-insurance-systems-coverage-and-service-quality

[18] Katsuma Y. Global Health diplomacy to combat communicable diseases and to promote universal health coverage in achieving the sustainable development goal 3. In: Urata S, Kuroda K, Tonegawa Y, editors. Sustainable Development Disciplines for Humanity. Sustainable Development Goals Series. Singapore: Springer; 2023. DOI: 10.1007/978-981-19-4859-6_2

[19] Cieza A, Causey K, Kamenov K, Hanson SW, Chatterji S, Vos T. Global estimates of the need for rehabilitation based on the Global Burden of Disease study 2019: a systematic analysis for the Global Burden of Disease Study 2019. The Lancet. 19 Dec 2020;**396**(10267):2006-17. pp 1-12 DOI: 10.1016/S0140-6736(20)32340-0

[20] Nunn R, Parsons J, Shambaugh J. A dozen facts about the economics of the US health-care system. The Hamilton Project, Economic Facts. Mar 2020 10.1775. NW, Washington DC: Massachusetts Ave; 2003;**6**(202):797-6279. Available from: https://www.brookings.edu/wp-content/uploads/2020/03/HealthCare_Facts_WEB_FINAL.pdf

[21] World Health Organization. Everybody business: strengthening health systems to improve health outcomes: WHO's framework for action. 2007. Geneva, Switzerland: WHO; 2017. Available from: http://www.who.int/healthsystems/strategy/everybodys_business.pdf

[22] Hussey P, Anderson. GF. Health Policy and Management. Baltimore, MD: John Hopkins University; 2003. DOI: 10.1016/S0168-8510(03)00050-2

[23] Preda A, Popescu M, Drigă I. The impact of covid-19 on global insurance market. InMATEC Web of Conferences EDP Sciences. 2021;**342**:08012. DOI: 10.1051/matecconf/202134208012

[24] Bambra C. Cash versus services: The decommodification of cash benefits and health care services. Journal of Social Policy. 2005;**34**:195-213

[25] Mulenga J, Mulenga MC, Musonda K, Phiri C. Examining gender differentials and determinants of private health insurance coverage in Zambia. BMC Health Services Research. 2021;**21**(1):1-11

[26] Kim DS. Introduction: Health of the health care system in Korea. Social Work in Public Health. 2010;**25**:127-141

[27] Kim KS, Lee YJ. Developments and general features of national health insurance in Korea. Social Work in Public Health. 2010;**25**:142-157

[28] Sohn M, Jung M. Effects of public and private health insurance on medical

service utilization in the National Health Insurance System: National panel study in the Republic of Korea. BMC Health Services Research. 2016;**16**:503. DOI: 10.1186/s12913-016-1746-2

[29] AbAbel-Smith B, Rawal P. Can the poor afford 'free' health services? A case study of Tanzania. Health Policy and Planning. 1 Dec 1992;**7**(4):329-41. Available from: DOI: /10.1093/heapol/7.4.329

[30] Leu RE, Rutten FF, Brouwer W, Matter P, Rütschi C. The Swiss and Dutch health insurance systems: universal coverage and regulated competitive insurance markets. The Commonwealth Fund. Jan 2009;**104**:1-40. Available from: https://search.issuelab.org/resources/11352/11352.pdf

[31] Basaza R, Kyasiimire EP, Namyalo PK, Kawooya A, Nnamulondo P, Alier KP. Willingness to pay for community health insurance among taxi drivers in Kampala City, Uganda: A contingent evaluation. Risk Management and Healthcare Policy. 2019;**12**:133-143. DOI: 10.2147/RMHP.S18487

[32] VWS (Ministry of Health, Welfare and Sport). Health Insurance in the Netherlands: The New Health Insurance System from 2006. The Hague: VWS; 2006

[33] Donev DM. Health insurance system in the Republic of Macedonia. Croatian Medical Journal. 1999;**40**(2)

[34] Witter S, Garshong B. Something old or something new? Social health insurance in Ghana. BMC International Health Human Rights. 2009;**9**:20

[35] Kaonga O, Masiye F, Kirgi M. How viable is social health insurance for financing health in Zambia? Results from a National Willingness to Pay Survey. 2022;**2022**. DOI: 10.1016/j.socscimed.2022.115063

[36] Hanson E et al. The Lancet Global Health Commission on financing primary health care: Putting people at the Centre. 2022. 10.1016/S2214-109X(22)00005-5

[37] Siankwilimba E, Hiddlestone-Mumford J, et al. COVID-19 and the sustainability of agricultural extension models. International Journal of Applied Chemical and Biological Sciences. 2022;**3**(1):120. Available from: https://identifier.visnav.in/1.0001/ijacbs-21l-05003/

[38] Olugbenga EO. Workable social health insurance systems in sub-Saharan Africa: Insights from four countries. Africa Development. 2017;**42**(1):147-175

[39] Atte F. The moral challenges of health care providers brain drain phenomenon. Clinical Ethics. 2021;**16**(2):67-73

[40] Kaseje D. Health care in Africa: Challenges, opportunities and an. 2006

[41] Mordi DO, Eghan K, Rankin J. The impact of Ghana's National Health Insurance Scheme median pharmaceutical pricing methodology and reimbursement policy on the pharmaceutical system. Journal of Pharma Policy and Practise. 2015;**8**(Suppl. 1):P5. DOI: 10.1186/2052-3211-8-S1-P5

[42] Boateng D, Awunyor-Vitor D. Health insurance in Ghana: Evaluation of policy holders' perceptions and factors influencing policy renewal in the Volta region. International Journal for Equity in Health. 2013;**12**:50. DOI: 10.1186/1475-9276-12-50

[43] Carrin G, Doetinchem O, Kirigia J, Mathauer I, Musango L. Social health insurance: How feasible is its expansion in the African region?. Dev issues. 2008. Available from: http://www.iss.nl/layout/set/print/content/view/full/12939

[44] Lépine A, Lagarde M, Le Nestour A. How effective and fair is user fee removal? Evidence from Zambia using a pooled synthetic control. Health Economics. 2018;**27**(2018):493-508

[45] Afriyie DO, Masiye F, Tediosi F, Fink G. Confidence in the health system and health insurance enrollment among the informal sector population in Lusaka, Zambia. Social Science & Medicine. 2023;**321**:115750

[46] Government of Zambia. The National Health Insurance Act Lusaka (2018) [No. 2 of 2018]. 2018

[47] Government of Zambia. The National Health Insurance Act Lusaka (2018) [No. 2 of 2018]. Lusaka, Zambia: Ministry of Justice; 2018. Available from: https://zambialii.org/akn/zm/act/2018/2/eng@2018-04-11/source.pdf

[48] National Health Insurance Management Authority. Lusaka, Zambia: Accreditation of Healthcare Providers NHIMA; 2022. Available from: https://www.nhima.co.zm/health-care-providers

[49] Venkateswaran S, Slaria S, Mukherjee S. Political motivation as a key driver for universal health coverage. Frontiers in Public Health. 2022;**2022**:3707

[50] Parson J, Ryan N. A dozen facts about the economics of the U.S. health care system. 2019

[51] Kraft ME, Furlong SR. Public Policy: Politics, Analysis, and Alternatives. 7th Edition. USA, Green Bay: University of Wisconsin, Cq Press; 2019:544. Available from: https://us.sagepub.com/en-us/nam/public-policy/book259264

[52] Dewey J. The Public and its Problems. New York: Holt; 1927

[53] Green L, Ashton K, Bellis MA, Clemens T, Douglas M. 'Health in all policies'—A key driver for health and well-being in a post-COVID-19 pandemic world. International Journal of Environmental Research and Public Health. 2021;**18**(18):9468

[54] Mwiinde AM, Siankwilimba E, Sakala M, Banda F, Michelo C. Climatic and environmental factors influencing COVID-19 transmission—An African perspective. Tropical Medicine and Infectious Disease. 2022;**7**(12):433

[55] Agyepong AI, Adjei S. Public social policy development and implementation: A case study of the Ghana National Health Insurance Scheme. Health Policy and Planning. 2008;**23**:150-160

[56] Schneider P. Trust in micro-health insurance: An exploratory study in Rwanda. Social Science Medicine. 2005;**61**:1430-1438

[57] Social protection and Public Finance management. New SP&PFM project launched in Zambia to extend social health insurance coverage to the poor and vulnerable. 2023. Available from: https://socialprotection-pfm.org/new-sppfm-project-launched-in-zambia-to-extend-social-health-insurance-coverage-to-the-poor-and-vulnerable/

[58] Rural Health Information Hub. US Department of Health and Human Services. 2022

[59] Rural Health Information Hub. US Department of Health and Human Services. 2022. Available from: https://www.ruralhealthinfo.org/

[60] Jaiswal J. Whose responsibility is it to dismantle medical mistrust? Future directions for researchers and health care providers. Behavioral Medicine. 2019;**45**(2):188-196

[61] Shrestha MV, Manandhar N, Dhimal M, Joshi SK. Awareness on social health insurance scheme among locals in Bhaktapur municipality. 2020

[62] Raphael D. Social Determinants of Health: Canadian Perspectives. USA: Canadian Scholars' Press, University of NewYork; 2016:PP 648. ISBN-10: 1551308975, ISBN-13: 978-1551308975,

[63] Rietkerk S. Feb 21, 2023 Internal/ External Posting# HC01-23-02 Occupational Therapist–RISE Community Health Centre. 2023

[64] Ma M, Tian W, Kang J, Li Y, Xia Q, Wang N, et al. Does the medical insurance system play a real role in reducing catastrophic economic burden in elderly patients with cardiovascular disease in China? Implication for accurately targeting vulnerable characteristics. Globalization and Health. 2021;**17**:1-13

[65] Jung HW, Kwon YD, Noh JW. How public and private health insurance coverage mitigates catastrophic health expenditures in Republic of Korea. BMC Health Services Research. 2022;**22**(1):1-12

[66] Kirigia JM, Sambo LG, Nganda B, Mwabu GM, Chatora R, Mwase T. Determinants of health insurance ownership among south African women. BMC Health Services Research. 2005;**5**(1):1-10

[67] Spaan E, Mathijssen J, Tromp N, McBain F, Have AT, Baltussen R. The impact of health insurance in Africa and Asia: A systematic review. Bulletin of the World Health Organization. 2012;**90**:685-692

Chapter 6

Perspective Chapter: Advantages and Challenges of the Mandatory Health Insurance in Uzbekistan

Iqboljon Odashev Mashrabjonovich

> *"Health is a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity"*
>
> *World Health Organization.*

Abstract

This manuscript provides a detailed analysis of the current landscape of mandatory health insurance in Uzbekistan, aiming to offer valuable insights and inform future discussions on the topic. It explores the benefits, challenges, and implications of health insurance for individuals and the healthcare system as a whole. By incorporating perspectives from policymakers, healthcare providers, insurance companies, and the general public, this study examines the opportunities and limitations associated with health insurance coverage. Furthermore, it investigates the impact of health insurance on access to quality healthcare services, financial protection, and overall health outcomes. Case studies, policy frameworks, and empirical evidence evaluate the effectiveness of different health insurance models in addressing the unique needs and challenges faced by Uzbekistan's population. Additionally, this manuscript identifies strategies for overcoming barriers and improving the affordability, accessibility, and inclusivity of health insurance programs. It offers a comprehensive overview of health insurance in Uzbekistan, contributing to existing literature on health policy and serving as a resource for policymakers and stakeholders involved in designing and implementing sustainable health insurance schemes. Ultimately, this research aims to enhance healthcare systems and ensure equitable access to healthcare services for all individuals in Uzbekistan.

Keywords: medical care, health insurance, models, national reforms, realization

1. Introduction

In this manuscript, we embark on a journey into the multifaceted world of health insurance in Uzbekistan. Our aim is to shed light on its functioning and impact on individuals and society. Health insurance plays a crucial role in ensuring access to quality healthcare services and protecting the well-being and financial stability of individuals and families. As Uzbekistan rapidly develops as a country in Central Asia,

the landscape of health insurance has undergone significant changes in recent years. According to the World Bank's "Europe and Central Asia Economic Update" report, Uzbekistan's GDP has experienced considerable growth, reaching 5.7% in 2022. This growth can be attributed to factors such as remittances, consumption, and exports. Projections indicate that this economic growth will continue to rise, reaching an anticipated 5.1% by the end of 2023. Supporting our narrative are statistical data from reliable sources. The World Bank reports a decrease in the infant mortality rate in Uzbekistan, from 19.196 deaths per 1000 live births in 2022 to 18.787 deaths per 1000 live births in 2023. Additionally, the World Health Organization highlights an increase in life expectancy at birth in Uzbekistan, rising from 66 years in 2000 to 73 years in 2019. UNICEF reports consistently high immunization coverage for children in Uzbekistan, with over 90% of children receiving vaccinations against common diseases such as measles, mumps, and rubella. Moreover, the Asian Development Bank notes significant progress in access to improved sanitation facilities in Uzbekistan, increasing from 67% in 2000 to 94% in 2018. Lastly, the WHO acknowledges a decline in the maternal mortality ratio in Uzbekistan, from 41 deaths per 100,000 live births in 2000 to 29 deaths per 100,000 live births in 2017. These positive trends in health indicators are a testament to the well-implemented reforms undertaken by the Republic of Uzbekistan. Our manuscript aims to unravel the complexities surrounding this essential aspect of Uzbekistan's healthcare system. As your helpful and patient assistant, I will guide you through the pages of this manuscript, exploring the perspectives of various stakeholders. These include policymakers, healthcare providers, insurers, and most importantly, the individuals who rely on mandatory health insurance for their medical needs. Through the examination of these diverse viewpoints, we seek to develop a comprehensive understanding of the current state of health insurance in Uzbekistan and identify areas for improvement. During our exploration, we will delve into topics such as the evolution of health insurance in Uzbekistan, examining its benefits and challenges. We will also analyze the government's role in shaping health insurance policies, evaluate the influence of private insurers, and showcase the experiences of individuals who have utilized health insurance services. Our goal is to provide you with an insightful analysis that not only highlights the strengths and weaknesses of the system but also offers recommendations for enhancing the accessibility, affordability, and effectiveness of health insurance in Uzbekistan. By acknowledging the efforts made by policymakers, healthcare providers, and other stakeholders in achieving these significant improvements, we can further appreciate the importance of continued reforms and identify areas where further progress can be made to ensure a comprehensive and inclusive healthcare system for all Uzbekistan's citizens. Our collective efforts aim to contribute to the ongoing discourse surrounding healthcare policy and its implications for the well-being of the Uzbek population. Together, let us explore the advantages and challenges of mandatory health insurance in Uzbekistan, with the ultimate aim of fostering a robust and equitable healthcare system for all.

2. Literature review

Health insurance holds a crucial role in providing healthcare services and financial protection for individuals and families. As healthcare systems continue to evolve globally, understanding the complexities and implications of health insurance is vital for policymakers, healthcare providers, and patients. The objective of this literature review is to analyze and synthesize existing research on various aspects of health

insurance, including its impact on access to care, cost containment, and quality of healthcare.

Several Uzbek scientists have investigated health insurance perspectives in the Uzbekistan insurance market. In the following **Table 1**, we can review how Uzbek scientists have investigated mandatory health insurance and its perspectives:

Based on the findings of the scientific research conducted by Uzbek researchers on mandatory health insurance, the following conclusions can be drawn:

The investigations carried out by Uzbek scientists on mandatory health insurance in Uzbekistan explore the challenges and opportunities associated with health insurance in the country. They offer valuable insights into the current state of the system and identify potential areas for improvement. The analysis of factors influencing the effectiveness of health insurance provides valuable information for policymaking and system enhancement. By analyzing health insurance schemes in the country, the researchers draw important lessons and provide recommendations to optimize their functioning and improve healthcare outcomes. The investigation into the role of health insurance in improving healthcare access in rural areas of Uzbekistan sheds light on the potential impact of insurance schemes on underserved populations. Furthermore, the examination of the implementation of public-private partnerships in health insurance assesses their effectiveness and discusses potential benefits and challenges. In summary, the scientific research conducted by Uzbek scholars on mandatory health insurance demonstrates their commitment to understanding and improving the healthcare insurance system in Uzbekistan. The research provides valuable insights that can serve as a basis for policy development and system reform to enhance healthcare outcomes for the entire population.

Moreover, it is necessary to emphasize the close cooperation of the WHO with the Ministry of Health of the Republic of Uzbekistan in a number of important issues in improving health care. In particular, the significant contribution of WHO experts is required in the development of the Concept for the Development of the Health Care System of the Republic of Uzbekistan for 2019-2025, which was approved by the

	Researchers name	Year	Scientific findings and directions
1	Abdullaev, A.	2017	He examines the challenges and opportunities for health insurance in Uzbekistan, providing insights into the current state of the system and potential areas for improvement [1]
2	Khamraev, A., Karimov, S.	2018	They conduct an analysis of factors influencing the effectiveness of health insurance in Uzbekistan, offering valuable insights for policy-making and system improvement [2]
3	Mansurov, A., Ahmadjonov, I., Foezli, R.	2020	They analyze health insurance schemes in Uzbekistan, drawing lessons and providing recommendations to optimize their functioning and improve healthcare outcomes [3]
4	Norkulova, M., Karshibaev, A., Khalmirzaeva, D.	2019	They investigate the role of health insurance in improving healthcare access in rural areas of Uzbekistan, shedding light on the potential impact of insurance schemes on underserved populations [4]
5	Sharapova, M., Kasymova, M.	2019	They examine the implementation of public-private partnership in health insurance in Uzbekistan, assessing its effectiveness and discussing potential benefits and challenges [5].

Table 1.
The role of Uzbek scientists in investigating mandatory health insurance.

Decree of the President of the Republic of Uzbekistan on December 7, 2018, "On Comprehensive Measures to Further Improve the Health Care System of the Republic of Uzbekistan." Through the assistance of international experts, measures are being taken to improve the financial support of health care, establish mandatory medical insurance and introduce an electronic health care system, promote a healthy lifestyle and healthy eating habits, as well as combat non-communicable and communicable diseases [6]. Hussain [7] presents a case study of the development of health insurance in Central Asia, focusing on Uzbekistan and identifying key factors that shaped its implementation and effectiveness. Hussain is affiliated with the Institute of Health Policy and Management at the University of Central Asia [7].

Furthermore, other researchers worldwide have also contributed to the study of health insurance systems. Let's review their scientific results, insights and achievements by the following **Table 2**:

	Researchers name	Year	Scientific findings and directions
1	Wendt, C.	2019	They propose a social health insurance model for Europe, offering a framework that could enhance healthcare coverage and accessibility across the continent [8]
2	Anderson, G.	2003	They highlight the impact of pricing on healthcare costs in the United States compared to other countries, emphasizing the need for price regulation and cost management strategies [9].
3	Bärnighausen, T., Sauerborn, R.	2002	They analyze the lessons that middle- and low-income countries can learn from the German health insurance system, which has operated for over a century [10].
4	Carrin, G., James, C.	2005	They provide an economic perspective on revolving funds for health, exploring their potential as a financing mechanism to improve access to healthcare services [11].
5	Kutzin, J.	2013	They discusses concepts and implications of health financing for universal coverage and health system performance, highlighting the importance of well-designed financial schemes [12].
6	Kwon, S.	2015	They provide an international perspective on health insurance reform in South Korea, examining its implications and lessons that can be learned by other countries [13].
7	Liu, G.G.	2016	They present a comprehensive study on national spending on health in different countries, projecting trends between 2013 and 2040, offering valuable insights for policy planning and resource allocation [14].
8	McIntyre, D., Meheus, F., Røttingen, J.A.	2017	They explore the ideal level of domestic government health expenditure required to achieve universal health coverage, considering various economic factors and policy implications [15].
9	Moreno-Serra, R., Millett, C., Smith, P.C.	2011	They propose improved measurements for financial protection in health, aiming to strengthen health systems and ensure equitable access to healthcare services [16].
10	Musgrove, P.	1999	He examines financial mechanisms for integrating funds for health, highlighting the importance of coordinated financing approaches to strengthen healthcare delivery and resource allocation [17].
11	Savedoff, W.D., de Ferranti, D., Smith, A.L.	2019	They present the final report of the Transitions in Health Financing project, offering insights and recommendations for countries transitioning towards universal health coverage [18].

	Researchers name	Year	Scientific findings and directions
12	Scheil-Adlung, X.	2018	He reviews definitions, indicators, and pathways towards achieving universal health coverage, providing a comprehensive understanding of the concept and strategies for its realization [19].

Table 2.
Examining mandatory health insurance worldwide: Insights from international scientists.

In conclusion, these research studies offer valuable insights into medical insurance and its impact on healthcare systems. The suggested social health insurance model for Europe presents potential enhancements in coverage and accessibility. The researchers emphasize the importance of regulating prices to control healthcare costs, with particular attention drawn to the situation in the United States. Lessons from the German system can be applied to middle- and low-income countries to strengthen their healthcare insurance systems. The studies also explore the potential advantages of revolving funds for health as a financing mechanism to improve access to healthcare services. Additionally, the researchers delve into various concepts and implications of health financing aimed at achieving universal coverage and optimizing system performance. The analysis of health insurance reform in South Korea provides valuable insights that may be relevant to other countries. Moreover, the comprehensive study on national health spending offers significant data and insights for policymakers, highlighting the crucial role of reaching an optimal level of domestic government health expenditure while considering economic factors. Such action is vital for achieving universal health coverage. The researchers propose improved measurements for financial protection in health and stress the importance of strengthening health systems to ensure fair access to healthcare services. They also underscore the need for coordinated financing approaches to enhance healthcare delivery and resource allocation. The final report of the Transitions in Health Financing project provides further recommendations and guidance for countries transitioning towards universal health coverage. The review of definitions, indicators, and pathways for achieving universal coverage enhances our understanding of this concept and provides strategies for its attainment. Overall, this collection of research significantly contributes to the existing knowledge on health insurance and offers valuable insights for policymakers, healthcare providers, and researchers worldwide.

In Uzbekistan, also, Dr. Mukhammadjon Rasulov, a professor at the Tashkent Medical Academy, specializes in health economics and health insurance systems. His research examines the effectiveness and efficiency of health insurance schemes in Uzbekistan, as well as their impact on population health outcomes. Dr. Rasulov's work has published in various scientific journals and has informed policy decisions related to health insurance in Uzbekistan.

Based on the scientific research mentioned above, as well as my experience as a general financial manager at Insurance Company Limited liability company "Alfa Invest" from 2008 to 2016 and a three-month practical internship at "Uzbekinvest" Export-Import Insurance Company, "Uzagrosugurta" Joint Stock Company, and the Insurance Market Development Agency under the Ministry of Finance and Economy of the Republic of Uzbekistan in 2017, directed by the Academy of Public Administration under the President of the Republic of Uzbekistan, I conducted an investigation into the history and current implementation of medical insurance globally and in Uzbekistan. My research aimed to identify solutions to address the challenges and potential of medical insurance in Uzbekistan. To achieve this, I conducted a SWOT

analysis of medical insurance in Central Asian countries, presented methods for implementing medical insurance based on existing models, and outlined the stages of implementing medical insurance in the Republic of Uzbekistan.

3. A historical overview of health insurance: Global and Uzbekistan at a glance

The concept of health insurance can indeed be traced back to ancient times when mutual aid and assistance were practiced. However, modern health insurance as we know it today emerged in the late nineteenth century and has evolved significantly over time. An interesting historical academic aspect to consider is the development of health insurance in Germany. In the late nineteenth century, German Chancellor Otto von Bismarck introduced the pioneering social insurance program, known as the "Sickness Insurance Law" of 1883. This legislation marked the first government-led efforts to provide health insurance to the working class. The law mandated that certain workers contribute a portion of their wages to a sickness fund, while employers also made contributions. In return, these workers received medical coverage, sick pay, and access to healthcare services. This system laid the groundwork for the development of health insurance systems in other countries around the world. Returning to the United States, it's fascinating to note that the roots of health insurance can be found in response to workplace accidents during the era of industrialization. Mutual benefit associations and fraternal organizations emerged in the late 1800s, offering financial aid to members during times of illness or injury. These early forms of health insurance relied on member contributions to cover medical expenses. The Franklin Health Assurance Company of Massachusetts holds the distinction of introducing the first official health insurance policy specifically covering injuries from train or steamboat accidents in 1850. This was followed by the establishment of other insurance companies that primarily focused on accident and injury coverage rather than general healthcare. Moving into the early twentieth century, the concept of employer-sponsored health insurance gained prominence. In 1929, a group of teachers in Texas created Blue Cross, a prepaid hospitalization plan that formed the foundation for modern health insurance. Blue Cross expanded nationwide, and in 1939, Blue Shield was created to cover physician services. Eventually, Blue Cross and Blue Shield merged to form the association we know today. Government involvement in healthcare took a significant step forward with the Social Security Act of 1935. This act laid the foundation for the introduction of Medicare and Medicaid in 1965, which provided healthcare coverage for elderly individuals, low-income individuals, and those with disabilities. These programs aimed to ensure access to necessary medical services for vulnerable populations. Over time, various reforms have shaped the healthcare industry. The Health Maintenance Organization (HMO) Act of 1973, for example, promoted cost-effective healthcare delivery through HMOs. These organizations gained popularity as a response to rising healthcare costs. Managed care organizations, such as Health Maintenance Organizations (HMOs) and Preferred Provider Organizations (PPOs), became prominent in the healthcare industry during this period. In recent times, the Affordable Care Act (ACA), signed into law in 2010, aimed to increase access to health insurance and implement significant reforms in the industry. It introduced provisions such as guaranteed coverage for pre-existing conditions, the establishment of health insurance marketplaces, and subsidies to make coverage more affordable for individuals and families. Throughout history, health insurance has continuously evolved to meet changing

needs and challenges in healthcare. Today, it remains a vital component of modern healthcare systems, offering financial protection and access to necessary medical services.

Now, let us explore the historical bases of the different models of medical insurance that have emerged around the world:

1. *Socialized medicine*: In the early twentieth century, various countries began adopting socialized medicine, where healthcare services are provided and financed by the government. Examples of countries with socialized medicine include the United Kingdom's National Health Service (NHS), Canada's Medicare system, and Sweden's comprehensive healthcare system [20]. Socialized medicine aims to ensure equitable access to healthcare services for all citizens, regardless of their ability to pay [21].

2. *Compulsory health insurance*: Compulsory health insurance schemes require individuals to contribute a portion of their income towards healthcare coverage [22]. This model was implemented in Germany in the late nineteenth century, with the passing of the Health Insurance Act in 1883 [23]. Compulsory health insurance provides coverage for both employees and self-employed individuals, ensuring universal access to healthcare services [23].

3. *Managed care*: Managed care refers to a system where healthcare providers and insurers coordinate to deliver cost-effective healthcare while maintaining quality [24]. This model gained popularity in the United States in the late twentieth century as a response to rising healthcare costs [25]. Managed care organizations, such as Health Maintenance Organizations (HMOs) and Preferred Provider Organizations (PPOs), became prominent in the healthcare industry [25].

4. *Market-based health insurance*: Market-based health insurance relies on private insurers competing in a market to offer coverage options to individuals [26]. It allows individuals to choose from a range of insurance plans that suit their needs and preferences [26]. Countries like Switzerland, the Netherlands, and Singapore have implemented market-based health insurance systems.

These various models of medical insurance reflect different approaches to financing and delivering healthcare services, each with its own advantages and limitations. The choice of model often depends on a country's socio-political context and healthcare system goals. The conclusion of the historical overview of medical insurance worldwide provides a comprehensive overview of the history of health insurance, highlighting key milestones and developments. It is important to recognize that health insurance has evolved over time to meet the changing needs and challenges in healthcare. It also introduces different models of medical insurance that have emerged around the world, including socialized medicine, compulsory health insurance, managed care, and market-based health insurance. These models reflect different approaches to financing and delivering healthcare services, with each having its own advantages and limitations. The choice of model often depends on a country's socio-political context and healthcare system goals.

The history of health insurance extends beyond the international scope, including Uzbekistan. Health insurance in Uzbekistan has its roots in the Soviet era when the healthcare system was primarily state-funded and centralized. During this time, the government provided universal healthcare coverage to all citizens. Following the

dissolution of the Soviet Union, Uzbekistan underwent a transition towards a market-oriented economy. As a result, the healthcare system also underwent significant changes. The introduction of private medical institutions and the emergence of a private sector led to the need for health insurance options beyond the state-provided coverage. In the early 2000s, efforts were made to develop health insurance programs in Uzbekistan to complement the existing state-funded system. The government introduced compulsory social health insurance for certain population groups, such as public sector employees and workers in selected industries. These programs aimed to provide additional financial protection and access to healthcare services, particularly for those who sought care outside of the state-funded system. Over the years, the health insurance landscape in Uzbekistan has continued to evolve. The government has introduced various reforms and initiatives to expand health insurance coverage, including the establishment of voluntary health insurance programs for individuals and families. Today, health insurance in Uzbekistan plays an important role in providing access to healthcare services and ensuring financial protection for the population. It continues to be an area of focus for the government as it works towards enhancing the overall healthcare system and addressing the healthcare needs of its citizens.

It is impossible not to mention the great encyclopedic scientist, philosopher, and medical care provider, Ibn Sina. Ibn Sina, also known as Avicenna, was a Persian polymath who lived during the Islamic Golden Age in the tenth and eleventh centuries. His contributions to medicine were groundbreaking and have had a lasting impact. His full name was Hussain ibn Abdullah ibn Hassan ibn Ali ibn Sina. He was born around 980 in Afshana, near Bukhara, which was his mother's hometown, in Greater Khorasan, to a Persian family. One of Ibn Sina's most significant contributions was his renowned medical encyclopedia, "The Canon of Medicine." This work became a central authority in the field of medicine for several centuries, both in the Islamic world and Europe. It covered various topics, including anatomy, physiology, pathology, and pharmacology. The Canon of Medicine served as a comprehensive guide to medical knowledge and practice at the time and greatly influenced medical education worldwide. Ibn Sina also made important advancements in understanding contagious diseases. He recognized that some diseases, like tuberculosis, are spread through the air, while others, like skin diseases, are spread through direct contact. His insights on contagion helped shape the field of epidemiology and laid the foundation for future developments in disease prevention and control. Additionally, Ibn Sina emphasized the importance of a holistic approach to healthcare, taking into account not only the physical aspects but also the psychological and spiritual dimensions of the patient. This approach, known as "holistic medicine," is increasingly recognized and valued in modern medicine. Overall, Ibn Sina's contributions to medicine were vast and diverse. His work in medical research, education, and patient care continues to be revered, making him one of the most influential figures in the history of medicine.

4. A comprehensive look at health insurance in present-day Uzbekistan

In recent years, the government of Uzbekistan has made significant efforts to improve the healthcare system and ensure access to quality healthcare services for all citizens. One crucial aspect of these reforms is the implementation of a comprehensive health insurance system. Health insurance has been in place in Uzbekistan since 1994, following the country's independence from the Soviet Union. The government

established a system of state mandatory health insurance to provide basic medical care for all citizens, which was later expanded to include additional benefits such as dental care and maternity services.

In 2019, Uzbekistan accepted the Law of the Republic of Uzbekistan on Compulsory Employer's Liability Insurance, which introduced a new health insurance law aiming to improve the quality of healthcare and increase access to medical services. The law requires all employers to provide health insurance coverage for their employees, while individuals are also required to purchase health insurance if they are not covered by an employer.

Overall, the development and implementation of health insurance systems have been driven by the need to provide access to healthcare for as many people as possible, regardless of their financial situation or employment status. Currently, the government is in the process of implementing mandatory health insurance into practice. Through mandatory health insurance, every citizen of Uzbekistan can access a high profile of guaranteed medical services. The implementation process has been successfully realized in the Sirdarya region, and efforts are now underway to transfer the medical system of Tashkent city into the Government mandatory health insurance process.

The Ministry of Health manages the healthcare system, and there are also private healthcare providers available in Uzbekistan. In recent years, the government has made significant investments in the healthcare system, including the construction of new hospitals and clinics, as well as the development of new medical technologies and pharmaceuticals. However, there are still some challenges within the healthcare system, including limited access to specialized care, shortages of medical personnel and equipment in certain areas, and outdated infrastructure in some medical facilities. Despite these challenges, the healthcare system of Uzbekistan is continuously improving and has made significant strides in recent years to improve the health outcomes of its citizens.

The healthcare system in Uzbekistan is state-funded and provides free medical care to all citizens. However, the level of care can vary, and many people choose to take out private health insurance to supplement their government-funded healthcare. Private health insurance is not yet widespread in Uzbekistan but is becoming increasingly popular. Many international insurance companies offer comprehensive health insurance policies for individuals and families living in Uzbekistan. These policies typically cover a range of medical expenses, including hospital treatments, emergency medical care, and outpatient services. The cost of health insurance varies depending on the level of coverage required and the insurer. In general, premiums are relatively affordable and well worth the peace of mind that comes with knowing that you are covered in an emergency.

It should be noted that there are certain limitations to private health insurance in Uzbekistan. Some insurers may place restrictions on pre-existing conditions, and certain treatments and procedures may not be covered. Additionally, there may be deductibles or co-payments required for some types of treatment. Overall, private health insurance is a wise investment for those who want to ensure they have access to quality healthcare in Uzbekistan. As the country's healthcare system continues to develop, we can expect to see more insurance products become available to meet the growing demand.

5. A statistical overview of the health system in Uzbekistan

Let us review some main health indicators of Uzbekistan based on the numbers provided by Statistics Agency under the President of the Republic of Uzbekistan. Health indicators play a vital role in assessing the overall well-being of a population

and providing insights into the efficiency and effectiveness of a country's healthcare system. By examining and analyzing the main health indicators in Uzbekistan, including the number of hospitals, availability of hospital beds, access to specialized clinics, and the presence of healthcare professionals, we can gain valuable insights into the strengths and weaknesses of the healthcare system, identify areas for improvement, and ultimately enhance the quality of healthcare services.

Based on the data presented in the **Table 3**, an analysis of the main health indicators in Uzbekistan reveals the following trends:

The number of hospitals in Uzbekistan has increased from 1162 in 2000 to 1281 in 2021, indicating positive progress in providing accessible healthcare facilities for the population. The availability of hospital beds has fluctuated over the years, reaching a peak of 142.4 thousand in 2005 before rising to 165.5 thousand in 2021. However, the ratio of population per hospital bed has shown an upward trend, increasing from 179 in 2000 to 243 in 2015 but slightly decreasing to 213 in 2021. This highlights the importance of ensuring sufficient hospital bed availability to meet the healthcare needs of the population.

The number of ambulatory polyclinics has steadily risen from 4847 in 2000 to 6676 in 2021, indicating better access to outpatient care and preventive services, contributing to a healthier population. However, there has been a decrease in the number of specialized clinics, particularly in obstetrics and gynecology. Access to specialized clinics, such as obstetrics and gynecology, is crucial for addressing the specific healthcare needs of women.

Ensuring adequate access to healthcare services for children is crucial for their overall well-being and development. However, there has been a decline in the number of children's polyclinics in Uzbekistan, decreasing from 2519 in 2000 to only 535 in 2021. This reduction can be attributed to the extensive healthcare reforms being implemented in the country. One significant aspect of these reforms is the Presidential Decree No. PD 6110, issued on November 12, 2020, titled "Measures to implement new mechanisms in the activities of primary medical and sanitary care institutions and further enhancing the effectiveness of reforms in the healthcare system."

Indicators	2000	2005	2010	2015	2021
Number of hospitals	1162	1149	1158	1071	1281
Number of hospital beds, thousand	138.6	142.4	139.6	129.7	165.5
Population per hospital bed	179	185	209	243	213
Number of ambulatory polyclinics	4847	5507	5993	6220	6676
The capacity of outpatient clinics, visits per shift, thousand	391.5	401.7	422.5	407.0	461.3
Number of obstetrics and gynecology offices	2074	2370	2857	2752	1699
Number of children's polyclinics (departments)	2519	2417	2341	1997	535
Number of doctors of all specialties, thousand	81.5	76.5	79.9	83.4	95.6
Population per doctor	304	344	356	379	369
Number of nurses, thousand	259.7	271.0	310.2	336.4	372.5
Population per average medical worker	96	97	92	94	95

Source: www.stat.uz.

Table 3.
Year-end assessment: Key health indicators of Uzbekistan.

This decree plays a crucial role in establishing a modern system for providing primary medical and sanitary care, preventing and early detecting diseases, preparing qualified medical personnel, and introducing new management approaches.

According to the decree, a schedule has been approved for the creation of family doctor practices and family polyclinics from 2021 to 2023, which includes children's polyclinics. Additionally, the following will be established: 315 family doctor practices, with 100 in 2021, 105 in 2022, and 110 in 2023; 52 family polyclinics in rural areas, with 17 in 2021, 18 in 2022, and 17 in 2023; and 33 family polyclinics in cities, with 7 in 2021, 13 in 2022, and 13 in 2023. The funding sources for the establishment of these additional family doctor practices and family polyclinics include funds from the state budget of the Republic of Karakalpakstan, local budgets of regions and the city of Tashkent, charitable donations from legal and natural persons, and other sources not prohibited by legislation.

The availability of healthcare professionals has witnessed positive growth, with the number of doctors increasing from 81.5 thousand in 2000 to 95.6 thousand in 2021. However, the ratio of population per doctor has generally risen during the same period, suggesting potential challenges in accessing healthcare services. Similarly, the number of nursing staff has increased from 259.7 thousand in 2000 to 372.5 thousand in 2021, contributing to enhanced healthcare delivery.

In summary, while Uzbekistan has made improvements in certain areas of the healthcare system such as the number of hospitals, ambulatory polyclinics, and the healthcare workforce, challenges remain in terms of hospital bed availability, access to specialized clinics, and the ratio of population to healthcare professionals. Addressing these issues is crucial to ensure better healthcare provision and promote a healthier lifestyle for the population.

Table 4 provides detailed information on the number of hospitals in different regions of Uzbekistan between 2016 and 2021. It effectively highlights the

Regions	2016	2017	2018	2019	2020	2021
Republic of Karakalpakstan	42	41	43	49	51	58
Andijan region	136	136	139	149	154	157
Bukhara region	75	79	81	82	89	90
Jizzakh region	58	60	58	63	54	52
Kashkadarya region	86	82	94	89	88	87
Navoi region	28	29	31	34	37	40
Namangan region	115	125	131	116	108	110
Samarkand region	89	90	85	99	109	120
Surkhandarya region	53	58	64	57	62	63
Syrdarya region	33	33	38	45	42	42
Tashkent region	78	81	82	85	93	94
Fergana region	123	118	116	125	126	127
Khorezm region	38	42	42	50	56	72
Tashkent city	135	161	144	146	147	153

Source: www.stat.uz.

Table 4.
Number of hospitals in Uzbekistan (by districts).

transformations and patterns observed within the country's healthcare infrastructure. To exemplify, in 2016, the Republic of Karakalpakstan had a total of 42 hospitals. This figure slightly declined to 41 in 2017 before gradually increasing each subsequent year, ultimately reaching 58 hospitals in 2021. This upward trend demonstrates a consistent dedication to enhancing access to healthcare services within the region. Similarly, the Andijan region began with 136 hospitals in 2016, maintaining that exact number in 2017. Subsequently, there was an incremental annual growth, culminating in 157 hospitals by 2021. Consequently, this indicates a steady expansion of healthcare facilities in Andijan. In the case of the Samarkand region, it initially possessed 89 hospitals in 2016. Over time, this number experienced fluctuations, yet ultimately surged to 120 hospitals by 2021. Such findings suggest ongoing investments in healthcare infrastructure aimed at accommodating the needs of the local population. Furthermore, the Khorezm region commenced with 38 hospitals in 2016. Gradually, the number of hospitals consistently rose each year, eventually reaching 72 in 2021. This significant increase reflects substantial improvements in the region's healthcare infrastructure. Conversely, Tashkent city consistently maintained the highest number of hospitals throughout the designated period. Starting with 135 hospitals in 2016, the figure peaked at 161 in 2017 and subsequently decreased to 153 hospitals by 2021. Regardless of these minor fluctuations, the healthcare infrastructure in Tashkent city continues to deliver extensive services to the local population. Overall, this data clearly indicates the nation's endeavors to enhance healthcare infrastructure and improve accessibility across various regions of Uzbekistan. Although certain areas witnessed temporary fluctuations in the number of hospitals, the general trend shows a positive increase in healthcare facilities. These efforts reflect the government's unwavering commitment to providing its citizens with high-quality healthcare services.

Analyzing the data provided on medical personnel by profession in the Republic of Uzbekistan from 2007 to 2021, we can observe several trends and changes (**Table 5**), which are next explained:

1. *Total number of doctors*: The total number of doctors in Uzbekistan has been gradually increasing over the years. From 2007 to 2021, there has been continuous growth in the number of doctors, reaching a peak of 95.6 thousand in 2021. This suggests that Uzbekistan has been making efforts to expand its healthcare workforce and improve access to medical services for its population.

2. *Doctors by specialization*: Within the medical profession, different specializations have varying numbers of doctors. The therapeutic profile, which includes physicians in physical therapy and sports, experienced fluctuations over the years but saw a slight increase in recent years, reaching 23.1 thousand in 2021. The number of doctors in the surgical profile has also shown a gradual increase from 9.3 thousand in 2007 to 11.8 thousand in 2021. Obstetrician-gynecologists, pediatricians, ophthalmologists, otolaryngologists, phthisiatricians, neuropathologists, psychiatrists, narcologists, dermato-venereologists, dentists, radiologists, and oncologists have shown varying levels of stability or slight fluctuations in their respective numbers over the years.

3. *Gender distribution*: The data also reveals the proportion of male and female doctors in Uzbekistan. On average, the percentage of women among the total number of doctors has remained relatively stable at around 41–45% throughout the years.

Medical personnel by profession	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Doctors total	79.9	81.7	81.3	81.7	82.0	83.4	84.1	85.4	89.8	91.9	93.3	95.6
therapeutic profile	22.3	22.3	25.0	26.9	28.0	28.4	29.2	28.9	19.2	19.4	20.8	23.1
including physicians in physical therapy and sports	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
surgical profile	9.9	10.1	10.3	10.5	11.1	11.4	10.9	11.0	11.3	11.6	11.3	11.8
obstetrician-gynecologists	6.0	6.1	5.8	5.9	5.7	5.8	5.7	5.6	5.7	5.7	5.4	5.1
pediatricians	9.7	9.1	8.8	8.1	7.5	7.0	6.5	6.0	6.1	6.1	5.2	5.0
ophthalmologists	1.2	1.2	1.3	1.5	1.6	1.6	1.7	1.6	1.8	1.8	1.6	1.3
otolaryngologists	1.3	1.4	1.3	1.7	1.7	1.8	1.8	1.8	1.9	2.0	1.8	1.7
phthisiatricians	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3
neuropathologists	2.3	2.3	2.0	2.5	2.6	2.7	2.7	2.7	2.9	3.0	2.8	2.7
psychiatrists	1.0	1.0	1.1	1.0	1.1	1.1	1.1	1.1	1.3	1.1	1.0	1.0
narcologists	0.4	0.4	0.4	0.4	0.5	0.4	0.5	0.5	0.5	0.4	0.4	0.4
dermato-venereologists	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.3	1.3	1.4	1.3
dentists	5.8	7.2	7.0	7.6	7.1	7.4	7.6	7.7	8.5	8.7	5.6	6.2
sanitary-epidemiological group	4.3	4.2	4.5	4.4	4.5	4.6	4.6	4.5	4.6	4.8	4.8	4.0
radiologists and radiologists	0.9	0.9	1.3	1.2	1.2	1.3	1.4	1.4	1.5	1.5	1.3	1.4
oncologists	0.6	0.6	0.7	0.9	0.8	0.8	0.7	0.8	0.8	0.8	0.4	0.5
of the total number of doctors, women	41.1	43.2	42.7	42.9	42.7	43.1	43.2	43.1	44.8	44.3	44.4	44.3
Number of nursing staff	310.2	319.7	324.6	327.4	332.4	336.4	341.3	348.2	356.7	365.7	369.8	372.5

Source: www.stat.uz.

Table 5.
Medical personnel by profession in the Republic of Uzbekistan (thousand people).

4. *Nursing staff*: The number of nursing staff in Uzbekistan has shown a consistent increase over the years, with a steady rise from 280.3 thousand in 2007 to 372.5 thousand in 2021. This indicates a focus on strengthening the nursing workforce to support healthcare services and improve patient care.

Overall, the data suggests that Uzbekistan has been investing in expanding both the doctor and nursing staff populations to enhance the country's healthcare system. The increasing number of doctors reflects efforts to improve accessibility and quality of medical care, while the rise in nursing staff emphasizes the importance of a skilled workforce to support healthcare services. Furthermore, the relatively stable gender

Regions	2015	2016	2017	2018	2019	2020	2021
Republic of Uzbekistan	3,828,362	4,188,042	4,191,924	3,789,161	3,930,052	3,993,356	4,274,655
Republic of Karakalpakstan	274,745	298,407	285,386	268,836	274,947	279,974	264,745
Andijan	352,007	315,158	352,352	365,871	374,284	368,117	379,702
Bukhara	228,240	278,122	366,882	531	108,896	66,177	86,891
Jizzakh	133,599	150,126	158,470	167,284	154,761	159,387	165,813
Kashkadarya	355,721	400,272	406,356	329,426	377,337	410,500	452,863
Navoi	133,282	145,388	143,958	150,374	153,254	163,135	169,159
Namangan	320,681	346,562	350,282	359,262	368,338	374,286	350,256
Samarkand	419,732	434,118	373,736	414,355	407,504	411,031	638,543
Surkhandarya	230,497	246,119	261,332	266,564	235,299	259,605	313,750
Syrdarya	109,804	112,894	124,232	105,989	104,235	108,667	104,392
Tashkent	318,213	359,360	358,563	348,683	357,238	363,977	368,045
Fergana	432,213	526,843	453,282	438,757	442,947	446,485	410,572
Khorezm	216,301	239,585	251,718	246,141	245,733	252,890	260,825
Tashkent city	303,327	335,088	305,375	327,088	325,279	329,125	309,099

Source: www.stat.uz.

Table 6.
Contraceptive use and its impact on health indicators in Uzbekistan (people).

distribution among doctors indicates equal opportunities for both men and women in the medical profession in Uzbekistan.

The data presented represents the number of people utilizing contraception in various regions of Uzbekistan from 2015 to 2021. Contraceptive use is a crucial aspect of reproductive health, as it enables individuals to plan and space their pregnancies, leading to improved overall health indicators (**Table 6**).

1. *Overall contraceptive use in Uzbekistan*: The total number of people using contraception in Uzbekistan has shown a consistent increase over the years, starting at 3,828,362 in 2015 and reaching 4,274,655 in 2021. This upward trend signifies growing awareness and acceptance of contraception as an essential tool for family planning.

2. *Regional variation in contraceptive use*: There is notable variation in contraceptive use among different regions of Uzbekistan. Tashkent city consistently reports the highest numbers, with 309,099 people utilizing contraception in 2021. Other regions such as Andijan, Samarkand, Fergana, Namangan, and Kashkadarya also show significant numbers of contraceptive users. Smaller regions like Syrdarya, Karakalpakstan, and Surkhandarya report relatively lower numbers, although they still represent a considerable proportion of the population.

3. *Importance of contraceptive use in health indicators*: Contraceptive use plays a vital role in shaping various health indicators. It contributes to reducing maternal mortality rates by allowing women to plan their pregnancies, ensuring better

access to healthcare services, and adequate intervals between pregnancies. Furthermore, contraception helps in controlling population growth and managing resources effectively. It also contributes to improving child health outcomes by enabling parents to focus on child-rearing and ensuring optimal care for each child.

4. *Implications for reproductive health programs*: The increasing numbers of contraceptive users in Uzbekistan indicate the success of reproductive health programs and their impact on raising awareness about family planning. These programs should be further strengthened and expanded to ensure access to a wide range of contraceptives and comprehensive sexual education. Special attention should also be given to regions with lower contraceptive use to address potential barriers and improve access to contraception. Overall, the data highlights the positive trend of increasing contraceptive use in Uzbekistan. It emphasizes the importance of effective family planning programs in improving health indicators, enhancing maternal and child health outcomes, and managing population growth. Policymakers should continue to prioritize and invest in reproductive health initiatives to sustain progress in this area and ensure the well-being of the population.

6. Exploring the health systems of central Asian countries: A comparative study

Studying the health systems of Central Asian countries is crucial for implementing State Mandatory Health Insurance (SMHI) in Uzbekistan. By examining the unique challenges and opportunities these countries face in healthcare provision, we can identify effective strategies to implement. Additionally, studying diverse health systems fosters international cooperation, allowing for knowledge sharing and improved healthcare outcomes globally. Understanding social determinants specific to the region aids in developing targeted interventions. Moreover, exploring different models contributes to evidence-based decision-making and the advancement of global health research and policy. In summary, studying the health system of Central Asian countries, specifically examining the advantages and challenges of SMHI in Uzbekistan, is relevant because it enables comparative analysis, facilitates policy learning, addresses regional needs, promotes equity and access, encourages international collaboration, and enhances the global understanding of healthcare systems.

Now, let us delve into some information about the health insurance practices in the bordering countries of Uzbekistan:

1. *Kazakhstan:* Kazakhstan has a mandatory health insurance system that covers basic healthcare services. The government also subsidizes the insurance premiums of certain groups, including low-income families, pregnant women, and children under 5 years old. This approach aims to ensure that vulnerable populations have access to essential healthcare services.

2. *Kyrgyzstan:* Kyrgyzstan has a universal health care system that covers all citizens and residents. The government provides free basic healthcare services, but the quality of care can be inconsistent. Efforts are being made to improve the overall quality of healthcare provision in the country.

3. *Tajikistan:* Tajikistan has a state-funded healthcare system that provides basic medical services at no cost to citizens. However, the quality of care is generally poor, and patients often have to pay for medications and specialized treatment. Improving the quality and accessibility of healthcare services is a major challenge in Tajikistan.

While conducting academic analyses on the healthcare systems and health insurance practices in Central Asian countries, it is crucial to review international organizations that provide individual and worldwide analyses in this field. One prominent organization in this regard is The World Health Organization (WHO), which has conducted numerous studies and assessments on healthcare systems in Central Asian countries. WHO's Health Systems Performance Assessment, for instance, offers comprehensive analyses of the strengths and weaknesses of health systems in countries such as Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan. These assessments evaluate various aspects, including access to healthcare services, quality of care, financing mechanisms, and health system governance.

Additionally, The World Bank has also published reports and research papers that focus on healthcare in Central Asia. These publications often scrutinize health insurance practices in the region and analyze the effectiveness and efficiency of different models. The studies conducted by The World Bank shed light on the challenges faced by countries like Uzbekistan in implementing State Mandatory Health Insurance, while also providing recommendations based on international best practices.

Another notable organization is the Asian Development Bank (ADB), which conducts research and provides technical assistance to support healthcare reform in Central Asian countries. ADB's publications and studies delve into topics such as healthcare financing, health insurance schemes, and strategies for improving healthcare accessibility and quality. These resources offer valuable information for policymakers and researchers seeking to understand the dynamics of health systems in the region. In addition to international organizations, academic institutions and research organizations also contribute significantly to our understanding of Central Asian health systems. For example, universities and think tanks may conduct studies on specific aspects of health insurance in countries like Kazakhstan, Kyrgyzstan, and Uzbekistan. These academic publications explore various topics, including the impact of health insurance on healthcare utilization, financial protection for vulnerable populations, and policy implications for achieving universal health coverage.

To summarize, international health organizations such as the World Health Organization, World Bank, and Asian Development Bank, in conjunction with academic institutions, play a critical role in providing analytical and academic insights into health insurance practices and healthcare systems in Central Asian countries. Their research, reports, and studies assist policymakers and researchers in gaining a deeper understanding of the challenges and opportunities associated with implementing health insurance schemes. As a result, evidence-based decision-making for healthcare reform is facilitated.

It is important to note that while Central Asian countries have mandatory health insurance systems, there can be significant variations in the quality and coverage of healthcare services. Conducting a SWOT analysis (Strengths, Weaknesses, Opportunities, and Threats) can provide further insights into the health insurance practices in these countries. By comparing the medical care systems of different nations, we can identify best practices and areas for improvement.

In conclusion, exploring the health systems of Central Asian countries, including their health insurance practices, allows us to gain valuable knowledge that can inform

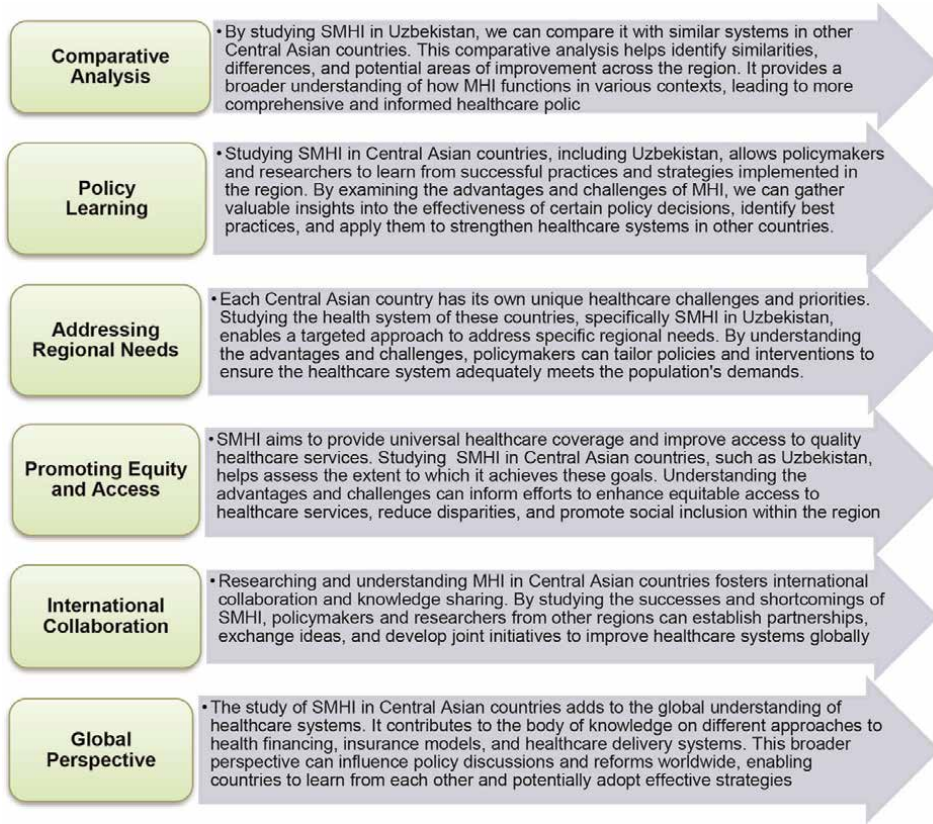

Figure 1.
Several reasons why we highly need to study the health system of central Asian countries. Source: Author.

policy decisions, promote collaboration, address regional needs, and enhance the understanding of healthcare systems globally (**Figure 1**).

The SWOT analysis for health insurance in Central Asian countries highlights several important factors that have an impact on the sector. While there are strengths and opportunities that present favorable conditions, there are also weaknesses and threats that need to be addressed for the continued growth and success of health insurance.

One of the key strengths identified is the growing demand for health insurance as the healthcare infrastructure improves in Central Asian countries. This indicates an increasing awareness of the importance of accessing quality healthcare services and presents an opportunity for insurers to cater to this demand. Government support is another strength, as governments in Central Asian countries are recognizing the significance of health insurance and taking steps to promote and regulate the sector. This support can help overcome barriers and facilitate the expansion of health insurance coverage. The competitive market in Central Asia is also a strength, as multiple insurance providers foster competition, leading to more affordable and innovative insurance options for consumers. This can drive market growth and improve the accessibility of health insurance (**Table 7**).

However, there are weaknesses that need to be addressed. Limited coverage, particularly in rural areas and among vulnerable groups, poses a challenge in ensuring

equitable access to affordable insurance options. Underdeveloped healthcare infrastructure also limits the availability and quality of services covered by health insurance. Lack of awareness among the general population about the benefits and importance of health insurance is another weakness. Efforts to educate and raise awareness among the public will be crucial in increasing the uptake and utilization of health insurance. Financial constraints present another challenge, as limited resources and affordability issues may prevent individuals from purchasing health insurance, resulting in a large uninsured population. Finding ways to address these financial barriers is essential.

Opportunities exist for market growth, driven by the increasing recognition of the importance of health insurance. Innovation and digitization offer avenues for insurers to offer convenient and user-friendly products and services. Partnerships with healthcare providers can lead to improved access and better coverage options. Customization of insurance programs to meet specific population segments' needs can attract more participants.

There are threats that need to be considered as well. Regulatory challenges, such as frequent changes in regulations and policy frameworks, can pose obstacles for health insurance providers. Rising healthcare costs can increase the financial burden on both insurers and policyholders, potentially impacting premiums and coverage. External economic factors, including global economic fluctuations, may indirectly affect individuals' purchasing power and their ability to afford health insurance (**Figure 2**).

In conclusion, while there are favorable conditions and opportunities for the growth of health insurance in Central Asian countries, addressing weaknesses and mitigating threats will be crucial to ensuring the sustainability and effectiveness of health insurance systems in the region.

This analysis is just a general assessment and may vary depending on specific country circumstances within Central Asia. Central Asian countries such as Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan have made significant progress in improving their healthcare systems since gaining independence in the 1990s. Each country has its own unique circumstances, based on the SWOT analysis we can see that there are several common trends in healthcare across the region, such as those described by **Figure 3**.

7. An overview and analysis of various health insurance models

The objective of this section is to provide a comprehensive review of various health insurance models and their implications for healthcare systems. By understanding the different types of health insurance models implemented worldwide, policymakers and stakeholders can make informed decisions to improve access, affordability, and the quality of healthcare. This review will explore the historical development of health insurance, examine key features of different models, and highlight case studies that showcase their real-world applications.

Health insurance plays a pivotal role in ensuring individuals have access to necessary healthcare services while mitigating financial risks associated with medical expenses. The evolution of health insurance models has been influenced by historical, economic, and social factors, leading to a diverse range of approaches adopted globally. In this section, our aim is to provide a comprehensive review of these health insurance models, shedding light on their origins, characteristics, and impact. To grasp the evolution of health insurance models, it is crucial to delve into their

Strengths	**Weaknesses**
• *Growing demand:* As the healthcare infrastructure improves in Central Asian countries, there is an increasing demand for health insurance to access quality healthcare services. • *Government support:* Governments in Central Asian countries are recognizing the importance of health insurance and are taking steps to promote and regulate the sector. • *Competitive market:* The presence of multiple health insurance providers fosters competition, leading to more affordable and innovative insurance options for consumers. • *Development assistance:* International organizations and donor countries often provide financial support to develop and strengthen the health insurance systems in Central Asian countries.	• *Limited coverage:* Health insurance coverage is still limited in many areas, with rural populations and vulnerable groups having less access to affordable insurance options. • *Underdeveloped infrastructure:* The healthcare infrastructure in some Central Asian countries is still developing, which can limit the availability and quality of services covered by health insurance. • *Lack of awareness:* A lack of awareness and understanding about the benefits and importance of health insurance among the general population can hinder its uptake and utilization. • *Financial constraints:* Limited financial resources and affordability issues may prevent individuals from purchasing health insurance, leading to a large uninsured population.
Opportunities	**Threats**
• *Market growth potential:* With the increasing recognition of the importance of health insurance, there is significant potential for market growth in Central Asian countries. • *Innovation and digitization:* Advances in technology and digital platforms provide opportunities for insurers to offer convenient and user-friendly health insurance products and services. • *Partnerships:* Collaboration between health insurance companies and healthcare providers can lead to improved healthcare access and better coverage options for policyholders. • *Customization:* Tailoring health insurance programs to meet the specific needs and preferences of different population segments, such as young adults or elderly individuals, can attract more participants.	• *Regulatory challenges:* Frequent changes in regulations and policy frameworks can pose challenges to health insurance providers operating in Central Asian countries. • *Cost inflation:* Rising healthcare costs can increase the financial burden on health insurance providers and policyholders, potentially leading to increased premiums or reduced coverage. • *External economic factors:* Global economic fluctuations may indirectly affect the purchasing power and spending capacity of individuals, potentially impacting their ability to afford health insurance.

Source: Author.

Table 7.
SWOT analysis for health insurance in central Asian countries.

historical roots. Health insurance traces its origins back to ancient civilizations, where early forms of mutual aid societies emerged to provide financial support during times of illness or injury. Over time, healthcare financing mechanisms transformed to accommodate societal changes and emerging healthcare needs. Understanding this historical context will enable us to appreciate the environment within which contemporary health insurance models operate.

Health insurance models vary significantly worldwide, reflecting the diverse approaches different countries take to finance and deliver healthcare. Here are some commonly observed health insurance models:

1. *Socialized medicine:* This model, prevalent in countries like the United Kingdom and Sweden, involves government ownership or control of healthcare facilities.

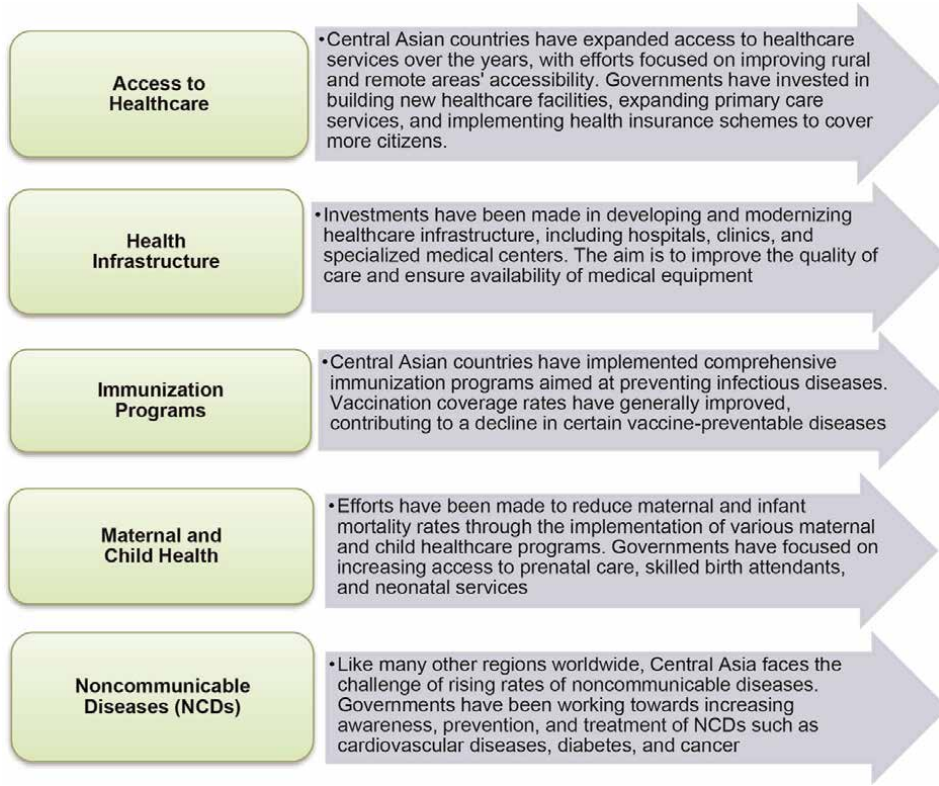

Figure 2.
Several common trends in healthcare across the central Asian countries. Source: Author.

The government funds healthcare through taxes and provides services directly to citizens, aiming to ensure equal access for all [27, 28].

2. *National health insurance:* Countries like Canada and Taiwan have adopted this model. It involves a single-payer system where the government finances healthcare through a universal insurance program. Healthcare providers remain private, but the government acts as the sole insurer and pays for covered services [29, 30].

3. *Bismarck model:* Named after Germany's chancellor Otto von Bismarck, this model is followed by several European countries such as France, Germany, and the Netherlands. In this system, health insurance is provided by multiple nonprofit, heavily regulated sickness funds. The funds are financed through contributions from employers and employees, ensuring universal coverage [31, 32].

4. *Beveridge model:* Similar to socialized medicine, this model is found in countries like Spain and Italy. The government runs healthcare facilities and employs healthcare professionals. Healthcare is financed through general taxation, providing free or low-cost services to all citizens [33, 34].

5. *Managed care:* Common in the United States, managed care involves private health insurance companies negotiating contracts with healthcare providers to

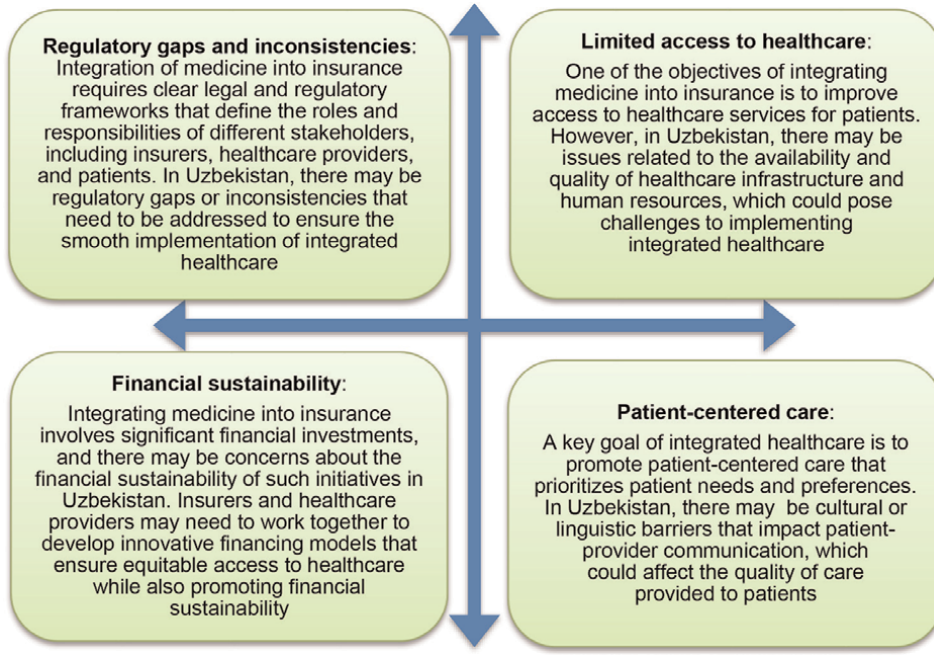

Figure 3.
Possible challenges that may arise during the integration process medical care with health insurance in Uzbekistan. Source: Author.

deliver care to policyholders. These insurers closely manage healthcare utilization and costs, often employing networks of preferred providers [25].

6. *Market-based insurance:* Predominantly seen in countries like the United States, Switzerland, and the Netherlands, this model emphasizes competition among private insurance companies. Individuals purchase private health insurance plans, which are regulated to ensure a minimum benefit package. Governments often play a role in subsidizing insurance premiums for low-income individuals. These models represent different approaches to achieve universal healthcare coverage, control costs, and ensure access to quality healthcare. Each has its own advantages, challenges, and variations within specific countries. Ongoing research and policy debates continue to explore the effectiveness and efficiency of these models in different healthcare systems worldwide.

These different models offer various advantages and drawbacks, reflecting the diverse ways countries structure their healthcare systems. By examining and understanding these models, we can gain insights into what works well in different contexts and utilize this knowledge to inform policy decisions aimed at improving healthcare systems globally. In terms of socio-economic efficiency, each model has different advantages and disadvantages. By investigating every model, we can conclude that the National Health Insurance Model and the Bismarck Model allow for more private sector involvement and individual choice, but they tend to be more expensive due to higher administrative costs. The Social Health Insurance Model and Beveridge Model are more cost-effective, but they may have longer wait times for treatment.

Advantages	Disadvantages
Socialized medicine	
Provides equal access to healthcare services for all citizens, regardless of income or social status	Potential for long waiting times and limited choice of healthcare providers
Lower administrative costs due to a single-payer system	Higher tax burden on individuals and businesses
Can negotiate lower prices for medications and services	Limited private sector competition and innovation
National health insurance	
Universal coverage ensures access to healthcare services for all citizens	Potential for longer wait times for specialized care
Simplified billing process as there is a single insurer	Limited choice in healthcare providers
Reduced administrative costs compared to a multi-payer system	High tax burden to fund the insurance program
Bismarck model	
Equal access to healthcare services, irrespective of income or employment status	Limited choice of healthcare providers
Centralized control facilitates efficient resource allocation	Longer waiting times for non-urgent treatments
Lower administrative costs compared to multiple payer systems	May face issues with underfunding and strain on resources
Managed care	
Emphasizes preventive care and coordination of services	Limited choice of healthcare providers outside the network
Cost containment through managed utilization and negotiated pricing	Potential for increased bureaucracy and administrative complexities
Flexibility in choosing healthcare providers within the network	Difficulty in balancing cost control measures and quality of care
Market-based insurance	
Promotes competition among insurance providers, potentially leading to better services and prices	Affordability challenges, especially for lower-income individuals.
Offers a variety of insurance plans, allowing individuals to choose based on their needs	Risk of coverage gaps and disparities between different insurance plans
Emphasizes individual choice and autonomy in healthcare decision-making	May not guarantee universal coverage or equitable access to healthcare services

Source: Author.

Table 8.
Pros and cons of health insurance models worldwide.

Ultimately, each country must consider its unique cultural, economic, and political circumstances when deciding which health care model is best suited for them. It is important to note that the advantages and disadvantages can vary within each model, as countries implement them differently based on their specific healthcare systems, socio-political contexts, and population needs (**Table 8**).

The government of Uzbekistan has recently introduced a healthcare reform program called “Healthy Mother and Child” to enhance access to quality healthcare

services for all citizens, particularly women and children. This program includes the integration of health insurance and medicine. In Uzbekistan, there are two main types of health insurance: state-funded insurance and voluntary insurance. The state-funded insurance is available to all citizens and covers basic medical services like doctor consultations, laboratory tests, and some medications. On the other hand, voluntary insurance is provided by private insurance companies and covers additional medical services such as hospitalization, surgeries, and more medications that are expensive. To integrate health insurance and medicine effectively, the government has implemented various measures. Firstly, the Ministry of Health is collaborating closely with the Ministry of Finance and the State Health Insurance Fund to revise the current list of basic medical services covered by the state-funded insurance. This revision aims to include more comprehensive medical services and improve patient care quality. Secondly, the government is promoting the involvement of private insurance companies in healthcare provision. The Ministry of Health is establishing partnerships with private insurance companies to offer affordable and comprehensive health insurance plans that cover a wider range of medical services. In summary, the ongoing integration of health insurance and medicine in Uzbekistan requires cooperation between different government agencies and private insurance companies. The ultimate goal is to enhance access to quality healthcare services for all citizens, regardless of their financial status.

In practice there are several main proved steps involved in integrating health insurance with medicine:

The first step is to assess the patient's health needs, including their medical history, health status, and any chronic conditions they may have. Based on the patient's health needs, appropriate health insurance coverage must be identified, taking into account factors such as coverage type, premiums, deductibles, and co-payments. Once health insurance coverage is identified, coordination of care between health insurers and healthcare providers is necessary to ensure that patients receive the appropriate care and that insurance claims are processed efficiently. Patients must be educated about

Figure 4.
The main steps of health insurance realization into practice. Source: Author.

their health insurance coverage and how to use it effectively, including understanding their benefits, accessing network providers, and filing claims. Finally, regular evaluation and feedback are necessary to identify areas for improvement and ensure that the integration of health insurance and medicine is successful in improving patient outcomes and reducing costs (**Figure 4**).

Based on the main steps of integrating health insurance with medicine in Uzbekistan, there are several directions and strategies that can effectively facilitate the implementation of these steps. It is important to note that this project is the first of its kind in the history of Uzbekistan's medical care system. Therefore, it is recommended to thoroughly analyze all aspects of the medical infrastructure, the level of medical development, and the medical culture of the Uzbek people before implementing these steps. To support the implementation of the integration process, it is highly recommended that these supportive directions and methods are considered at every step of the realization of health insurance. **Figure 5** shows some directions and guidelines to support the integration process of Uzbekistan's medical care system:

These recommendations are general in nature and should be adapted to the specific needs and context of Uzbekistan's healthcare system. It is essential to engage local experts and stakeholders to develop a comprehensive strategy tailored to the country's unique circumstances.

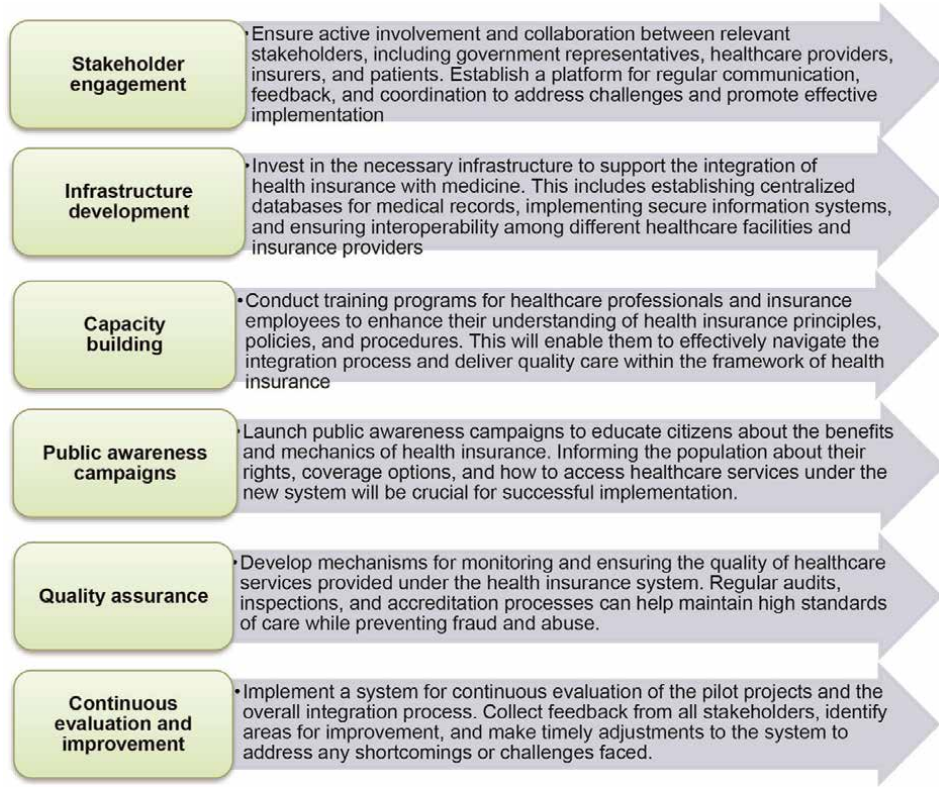

Figure 5.
Some supportive guidelines for the integration of health insurance into Uzbekistan's medical care system. Source: Author.

8. Understanding the complexities of health insurance realization in Uzbekistan: Opportunities, challenges, and problems

Over the years, Uzbekistan's medical care system has undergone significant improvements, with the government prioritizing healthcare and implementing various reforms to enhance the quality and accessibility of medical services. One such reform is the draft law "On Compulsory Medical Insurance" which is a legislation that aims to ensure access to quality healthcare services for all residents of Uzbekistan which was stated in the resolution of the Cabinet of Ministers "On approval of the program on development of draft laws and their introduction to the Legislative Chamber of Oliy Majlis of the Republic of Uzbekistan in 2019". The law establishes a comprehensive system of compulsory health insurance and its fund, which covers the cost of necessary medical services. The law emphasizes principles of equality, fairness, transparency, and efficiency in the provision of healthcare services and outlines the rights and responsibilities of insured individuals, healthcare providers, and insurance organizations. These efforts prioritize improving overall health and well-being by ensuring universal coverage and affordability of healthcare services. Large-scale reforms are planned to create conceptually new models for organizing and financing healthcare, significantly improving the efficiency, quality, and accessibility of medical care. Singapore, South Korea, Japan, France, Germany, Estonia, Norway, Latvia, Turkey, Russia, Azerbaijan, and Kazakhstan have been studied throughout the preparation of the draft law. Despite advancements, challenges remain, including outdated equipment and inadequate resources in some areas, reducing waiting times, improving efficiency, and patient satisfaction. Uzbekistan has expanded its healthcare infrastructure with modern medical facilities equipped with state-of-the-art technology, invested in training and professional development for healthcare workers and made efforts to decentralize medical care through regional medical centers and clinics. Telemedicine initiatives have also been introduced, allowing patients to consult with doctors remotely.

On November 12, 2020, President Shavkat Mirziyoyev signed a resolution to implement a pilot project for a new model of healthcare system organization and state medical insurance mechanisms in the Syrdarya region. The project began in 2021, introducing a new model of healthcare organization and state medical insurance mechanisms. The State Medical Insurance Fund began operations in December of the same year, responsible for approving payment mechanisms for the guaranteed package, employing financing methods such as per capita financing and "case-based" financing based on the results of performed work. Medical teams comprising family doctors, mid-level medical staff for therapy and pediatrics, home care nurses, and midwives will be created in primary medical and sanitary institutions. Each medical institution will develop a package of free medical services and medications guaranteed by the state, laying the groundwork for gradually implementing mechanisms of state medical insurance. A system for medical prevention and home care is also part of the initiative, dividing the population into risk groups and conducting regular medical examinations for individuals in medium and high-risk groups with periodic health monitoring. President Shavkat Mirziyoyev emphasized the need to accelerate the transition to state medical insurance, announcing plans to launch the system in Tashkent next year, followed by a gradual implementation in other regions. The president also announced a three-year program to improve maternal and child health, including renovating and equipping all maternity complexes, increasing the number of beds by

35%, and creating radiological centers in Samarkand, Fergana, and Khorezm through public-private partnerships.

Notably, Minister Inoyatov A. Sh mentioned a strong commitment to digital transformation, with $30 billion US dollar allocated to fully digitizing clinics and hospitals in the capital. Plans were also announced to provide necessary equipment and inventory to every family clinic and medical point within the next 2 years, while also updating express laboratories. The creation of 140 new family medical centers and clinics and establishment of compact medical points in 520 hard-to-reach and remote mahallas were also highlighted. Overall, Uzbekistan's medical care system is continuously evolving, with ongoing efforts aimed at enhancing the quality and accessibility of healthcare services for all residents. However, I suggest checking with government or health authorities in Uzbekistan for more accurate and detailed information about the progress of the implementation of medical insurance in the country.

In Uzbekistan, there are several challenges associated with the realization of health insurance. Some of these problems are represented in the **Figure 6**. In Uzbekistan, many individuals have limited knowledge about health insurance and its benefits, which could lead to low enrollment rates and difficulties in accessing healthcare services. Currently, health insurance coverage is mainly provided through mandatory programs for specific groups, like civil servants posing challenges for those outside these groups. The allocated financial resources for health insurance may not fully meet the demands of the population, resulting in limited services, longer waiting times, and inadequate coverage for certain treatments. The healthcare system consists of state-owned and private facilities, but coordinating coverage across these institutions can be challenging, causing delays in claims processing. Additionally, inconsistencies in coverage and benefits offered by different providers can be confusing for individuals seeking healthcare. Access to quality care is still unequal between urban and rural regions, affecting the effectiveness of health insurance for those in remote areas.

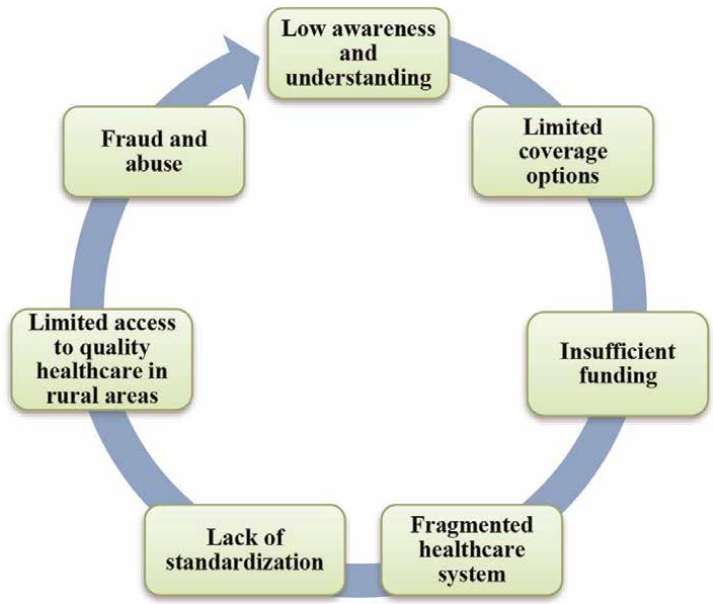

Figure 6.
Some challenges associated with the realization of health insurance in Uzbekistan. Source: Author.

Fraud and abuse are also concerns, requiring effective monitoring and oversight mechanisms to maintain the integrity of the system. Improving healthcare infrastructure, increasing the number of healthcare workers, improving healthcare financing, strengthening primary healthcare, and encouraging partnerships are key strategies to ensure that people in these countries have access to the basic healthcare they need to live healthy and productive lives. This comprehensive approach involves investing in new hospitals, clinics, and medical equipment to improve healthcare capacity. It also includes training and recruiting more doctors, nurses, and other healthcare professionals. Additionally, increasing government spending on healthcare and exploring innovative funding models like community-based health insurance programs can improve healthcare financing. Strengthening primary healthcare services, such as immunization and maternal and child health care, is essential for preventive healthcare. Furthermore, partnerships with international organizations, non-profits, and private sector entities can help fund and run healthcare programs. By implementing these measures, we can contribute to the improvement of healthcare infrastructure and ensure that individuals in these countries receive the necessary healthcare services for their overall well-being.

Addressing these challenges will require continued efforts to improve awareness, expand coverage options, allocate sufficient funding, enhance coordination among healthcare facilities, standardize benefits and coverage, improve access to healthcare in rural areas, and establish robust monitoring systems to detect and prevent fraud.

In general, integrating medicine into insurance can be a complex process that involves legal, financial, and administrative aspects, as well as considerations regarding access to healthcare, quality of care, and patient outcomes. Some possible challenges that may arise during the integration process which are shown in **Figure 6**.

The successful integration of medicine into insurance in Uzbekistan will require close collaboration between insurers, healthcare providers, policymakers, and patients to address the various challenges that may arise during the process. There are several foreign countries that Uzbekistan can look to for guidance in implementing medical insurance. Germany is known for its emphasis on universal coverage and the use of private insurance companies. Uzbekistan could consider adopting a similar system with a mix of public and private insurance options. Switzerland involves mandatory health insurance for all residents, with the government regulating prices and quality of care. Uzbekistan could follow this model to ensure that everyone has access to affordable healthcare. Japan has a universal healthcare system funded by a combination of employer contributions, premiums paid by individuals, and government subsidies. Uzbekistan could explore this approach to healthcare financing. Canada has a publicly-funded healthcare system that covers all residents and is paid for through taxes. Uzbekistan could consider implementing a similar system to ensure that healthcare is accessible to everyone regardless of income. It's important to note that each country's healthcare system is unique and may not be directly applicable to Uzbekistan's situation. However, studying the experiences of other countries can provide valuable insights and ideas for designing a successful health insurance program. It is difficult to give an exact number as the investment needed to solve the lack of access to professional medical care varies depending on the country and the specific needs of each region. However, it is clear that significant investment is needed in order to address this issue globally. The World Health Organization estimates that achieving universal health coverage would require an additional $371 billion USD in annual health spending globally. This investment would need to be prioritized towards building and strengthening healthcare infrastructure in developing countries,

increasing access to essential medicines and vaccines, and training and retaining healthcare workers in underserved areas. The World Health Organization (WHO) is a specialized agency of the United Nations that is dedicated to improving and providing access to professional medical care for people all around the world. WHO works closely with governments, healthcare professionals, and community organizations to promote health and well-being, prevent illness and disease, and address health emergencies. They also provide technical assistance and support to countries to help strengthen their healthcare systems, improve access to essential medicines and technologies, and train healthcare workers.

9. Recommendation

This paper aims to highlight the significance and relevance of health insurance in Uzbekistan. The following recommendations provide insights into the importance of health insurance and emphasize its potential benefits. These recommendations include fostering collaboration between the healthcare and financial sectors, launching awareness and education campaigns, incentivizing private sector involvement, strengthening regulatory frameworks, investing in research and data collection, and facilitating public-private partnerships. By implementing these recommendations, Uzbekistan can significantly enhance the vantage points of health insurance, not only within the healthcare sector but also in the financial and economic spheres. Health insurance is a vital component of a well-functioning healthcare system, ensuring financial protection, equitable access to care, and sustainable development of the country's economy.

1. *Collaboration between healthcare and financial sectors:* To develop comprehensive health insurance policies, encouraging collaboration between the healthcare and financial sectors is crucial. Involving stakeholders from various sectors ensures a holistic approach, maximizing the impact of health insurance on the overall well-being of the population.

2. *Awareness and education campaigns*: Launching targeted awareness and education campaigns is essential to improve public understanding of the advantages of health insurance. These campaigns should focus on explaining the benefits such as financial security, access to quality healthcare, and proactive health management. Emphasizing the potential positive impact on individuals, families, and the economy will further encourage participation.

3. *Incentives for private sector involvement*: Providing incentives for private sector involvement in the health insurance market promotes healthy competition, improves service quality, and expands coverage options. Encouraging insurance companies to develop innovative products tailored to Uzbekistan's population's specific needs enhances the overall efficiency of the health insurance sector.

4. *Strengthening regulatory frameworks*: Strengthening the regulatory frameworks governing health insurance in Uzbekistan is vital to create a favorable environment for insurers and consumers. Transparent, enforceable regulations aligned with international best practices ensure fair treatment, efficient claims processing, and adequate coverage.

5. *Research and data collection*: Investing in comprehensive research and data collection is essential to gain a comprehensive understanding of the current state of health insurance in Uzbekistan. Collecting reliable data on coverage rates, affordability, and customer satisfaction enables evidence-based policy decisions and identifies areas for improvement.

6. *Public-private partnerships:* Facilitating public-private partnerships enhances the efficiency and effectiveness of health insurance programs. Collaborations between the government, private insurers, healthcare providers, and relevant stakeholders pave the way for innovative solutions, improved service delivery, and increased accessibility to quality healthcare services.

By implementing these recommendations will significantly enhance the advantages and benefits of mandatory health insurance in Uzbekistan. By fostering collaboration, raising awareness, encouraging private sector involvement, strengthening regulations, conducting research, and establishing partnerships, Uzbekistan can achieve equitable healthcare access, financial security, and sustainable economic development. Health insurance serves as a crucial pillar within the healthcare system, contributing to the overall well-being of the population and the nation's prosperity.

10. Conclusion

The implementation of health insurance in Uzbekistan has made significant strides in improving healthcare access for its citizens. Mandatory health insurance has led to a decrease in out-of-pocket expenses for medical care, benefiting individuals seeking treatment. Moreover, health insurance has played a fundamental role in enhancing the overall quality of healthcare services by promoting competition among providers and encouraging improved standards. The availability of health insurance has also resulted in increased utilization of preventive care, leading to early detection and treatment of diseases and ultimately improving health outcomes. Furthermore, health insurance has successfully alleviated the financial burden on low-income households, ensuring equitable access to necessary medical treatments and services. The establishment of a robust health insurance system has stimulated investment in the healthcare sector, resulting in the development of state-of-the-art medical facilities and attracting skilled professionals. Additionally, the integration of technology and digital platforms has streamlined administrative processes, making healthcare services more accessible and manageable for both patients and providers. To sustain and improve the health insurance system in Uzbekistan, continuous monitoring and evaluation are essential to identify areas for enhancement and address existing gaps or challenges. Public awareness campaigns about the benefits and significance of health insurance can contribute to increased enrollment rates and better utilization of available services.

1. *Positive steps taken:* Uzbekistan has made significant progress in recent years in developing and implementing health insurance programs. This includes the introduction of compulsory health insurance for certain population groups.

2. *Inclusion challenges:* Despite these efforts, there are still challenges in achieving universal health insurance coverage. Some population groups, especially those in

rural areas or from low-income backgrounds, face difficulties accessing health insurance due to various barriers such as lack of awareness, affordability, and limited availability of insurance providers.

3. *Benefits of health insurance:* Health insurance plays a crucial role in ensuring financial protection and equitable access to quality healthcare services. It provides individuals and families with the necessary support during times of illness or medical emergencies, reducing out-of-pocket expenses and improving overall health outcomes.

4. *Potential for improvement:* Uzbekistan has the potential to further strengthen its health insurance system by addressing the existing challenges mentioned above. By expanding coverage options, improving affordability, and enhancing healthcare infrastructure, the country can make significant strides towards achieving universal health coverage for its citizens.

It is important to note that these recommendations and conclusions are based on available information and further research may be necessary to fully assess the vantage points of health insurance in Uzbekistan.

Lastly, collaboration between the government, private sector, and international organizations is crucial for the sustainability and further advancement of the health insurance system in Uzbekistan.

Acknowledgements

I would like to express my deep gratitude to IntechOpen, the world's leading Science, Technology, and Medicine Open Access book publisher, for providing researchers with a great opportunity to publish their work. I am also thankful to my research supervisors for their patient guidance, enthusiastic encouragement, and helpful critiques of this research. Furthermore, I would like to extend my thanks to the specialists at the National University of Uzbekistan named after Mirzo Ulug'bek for their assistance in keeping me on schedule. Additionally, I am grateful to the Insurance Market Development Agencies under the Ministry of Finance and Economy of the Republic of Uzbekistan for their efforts in organizing statistical data on medical insurance in the Uzbekistan insurance market. Specifically, I acknowledge the assistance provided by the "Uzbekinvest" Export-Import Insurance Company, "Uzagrosug'urta" joint-stock company, and Insurance Company Limited liability company "Alfa Invest" during my three-month practical internship period. I am also indebted to the specialists at the Institute for Macroeconomic and Regional Studies under the Cabinet of Ministers of the Republic of Uzbekistan for their valuable help in conducting the methodological data analysis. Moreover, I extend my gratitude to the technicians at the National Library of Uzbekistan named after Alisher Navoiy for their assistance in accessing resources for running the program.

Additionally, I would like to express my heartfelt appreciation to the Statistics Agency under the President of the Republic of Uzbekistan for providing invaluable statistical data that significantly contributed to this research. Their assistance has been crucial in analyzing and interpreting the findings. I am grateful for their dedication and support in ensuring the accuracy and reliability of the information used in this study.

Lastly, I want to express my deepest appreciation to my parents and all members of my family for their unwavering support and encouragement throughout my studies and the completion of this article.

Conflict of interest

The author declares no conflict of interest.

Author details

Iqboljon Odashev Mashrabjonovich
Institute for Macroeconomic and Regional Studies under the Cabinet of Ministers of the Republic of Uzbekistan, Uzbekistan, Tashkent

*Address all correspondence to: iqboljon.odashev@gmail.com

References

[1] Abdullaev A. Challenges and opportunities for health insurance in Uzbekistan. European Scientific Journal. 2017;**13**(2):204-215

[2] Khamraev A, Karimov S. Analysis of factors influencing the effectiveness of health insurance in Uzbekistan. Central Asian Journal of Medicine. 2018;**4**(2): 127-134

[3] Mansurov A, Ahmadjonov I, Foezli R. Analyzing health insurance schemes in Uzbekistan: Lessons and recommendations. Journal of Public Health Research and Development. 2020;**1**(1):54-69

[4] Norkulova M, Karshibaev A, Khalmirzaeva D. The role of health insurance in improving healthcare access in rural areas of Uzbekistan. Journal of Health Policy and Economics. 2019;**22** (3):265-280

[5] Sharapova M, Kasymova M. Public-private partnership in health insurance: The case of Uzbekistan. International Journal of Health Economics and Policy. 2019;**5**(4):210-226

[6] Yulduz O. Available from: https://xs.uz/uzkr/post/zhsst-va-ozbekiston-sogliqni-saqlash-vazirligi-ortasida-ikki-jilga-molzhallangan-hamkorlik-kelishuvi-imzolandi, Xalq so'zi, Tashkent, 11.02.2020

[7] Hussain SA. Development of health Insurance in Central Asia: A case study of Uzbekistan. International Journal of Health Planning and Management. 2007; **22**(1):81-103

[8] Wendt C. Social health Insurance in Europe: Basic concepts and new principles. Journal of Health Politics, Policy and Law. 2019;**44**(4):665-677

[9] Anderson G et al. It's the prices, stupid: Why the United States is so different from other countries. Health Affairs. 2003;**22**(3):89-105

[10] Bärnighausen T, Sauerborn R. One hundred and eighteen years of the German health insurance system: Are there any lessons for middle- and low-income countries? Social Science & Medicine. 2002;**54**(10):1559-1587

[11] Carrin G, James C. Revolving funds for health: An economic perspective. The International Journal of Health Planning and Management. 2005;**20**(1):63-88

[12] Kutzin J. Health financing for universal coverage and health system performance: Concepts and implications for policy. Bulletin of the World Health Organization. 2013;**91**(8):602-611

[13] Kwon S et al. Health insurance reform in Republic of Korea: An international perspective. International Social Security Review. 2015;**68**(2):13-41

[14] Liu GG et al. National spending on health by source for 184 countries between 2013 and 2040. The Lancet. 2016;**387**(10037):2521-2535

[15] McIntyre D, Meheus F, Røttingen JA. What level of domestic government health expenditure should we aspire to for universal health coverage? Health Economics, Policy, and Law. 2017;**12**(2): 125-137

[16] Moreno-Serra R, Millett C, Smith PC. Towards improved measurement of financial protection in health. PLoS Medicine. 2011;**8**(3):e1001087

[17] Musgrove P. Financial mechanisms for integrating funds for health. Health Policy and Planning. 1999;**14**(4):309-318

[18] Savedoff WD, de Ferranti D, Smith AL, et al. Transitions in Health Financing and Policies for Universal Health Coverage: Final Report of the Transitions in Health Financing Project. Washington, DC: Results for Development Institute; 2019

[19] Scheil-Adlung X. How to reach universal health coverage? A review of the definitions, indicators and pathways. International Journal of Health Services. 2018;**48**(3):397-412

[20] Sakellarides C, Castella HE, Beermann OB, Otok R. The European health report 2004: Public health action for healthier children and populations. World Health Organization Regional Office for Europe; 2004

[21] Stuckler D, Basu S. The Body Economic: Why Austerity Kills. Basic Books; 2013

[22] Koppel R. Introduction: The age of compulsory insurance. Health Policy. 1999;**46**(3):153-165

[23] Flesch K. Bismarck's social policy legislation: Historical context and contemporary relevance. International Journal of Health Services. 2005;**35**(1): 185-208

[24] Shortell SM, Casalino LP, Fisher ES, Rundall TG. Transformation or transaction: Can the US health care system learn from Kaiser Permanente? Health Affairs. 2000;**19**(3):147-162

[25] Glied SA, Miller EA. "Managed Care" programs in the United States. New England Journal of Medicine. 2002; **346**(11):868-874

[26] Herring B, Pauly MV. Incentive-compatible guaranteed renewable health insurance premiums. Journal of Health Economics. 2006;**25**(3):395-417

[27] Wendt C, Frisina L, Rothgang H. Healthcare system types: A conceptual framework for comparison. Social Policy & Administration. 2009;**43**(1):70-90

[28] Sagan A, Thomson SM, editors. Voluntary Health Insurance in Europe: Country Experience. World Health Organization Regional Office for Europe; 2016. p. 161

[29] Squires DA. Explaining high health care spending in the United States: An international comparison of supply, utilization, prices, and quality. Issue Brief (Commonwealth Fund). 2017; **91**:1-16

[30] Cheng TM. Taiwan's new national health insurance program: Genesis and experience so far. Health Affairs. 2018;**18** (3):146-156

[31] Reinhardt UE, Hussey PS, Anderson GF. Cross-national comparisons of health systems using OECD data, 1999. Health Affairs. 2004;**23**(3):169-181

[32] Busse R, Blümel M. Health systems in transition: Germany. European Observatory on Health Systems and Policies. 2014;**16**(2):1-296

[33] Klein R. The New Politics of the NHS: From Creation to Reinvention. Routledge; 2010. p. 279

[34] Lister J. Health and politics: An approach to understanding the politics of health policy. Journal of Epidemiology and Community Health. 2015;**69**(11): 1063-1066

Chapter 7

Perspective Chapter: Including the Private Sector to Achieve Universal Health Coverage

Atikah Adyas, Ahmad Jet Alamin and Hasbullah Thabrany

Abstract

In implementing Universal Health Coverage (UHC), public healthcare financing is the dependable mechanisms to ensure equity and to minimize catastrophic health spending. However, public financing often creates long queueing and low satisfaction of the community and is less responsive to the demand from the public. On the other hand, the private sector has advantages in responding to the demand of the patients, higher efficiencies, and having higher customer or patient satisfaction. The combination of the two sectors is the best in achieving UHC. The government must provide and regulate the room for the private sector. However, the private sector has limitations in developing services because of obstacles in providing appropriate healthcare for everyone without conflicting with the business goals. In general, there are three roles of the private sector to be adopted in the health system of countries to ensure equitable access to quality healthcare, provide options, facilitate higher satisfaction for patients, increase private sector opportunities to participate in providing health services, that potentially establish competition that will improve the quality of services.

Keywords: health insurance, private sector, universal health coverage, public-private mix, public financing

1. Introduction

A country's health system includes relevant organizations and resources, including personnel, funds, facilities, and technologies, among other things, to provide health services to its population. Currently, most people in developing countries face obstacles in obtaining access to appropriate and quality services, resulting in severe risk of illness. In general, all countries in the world provide public healthcare providers with free access or small user fees. Yet, many people in developing countries still rely on out-of-pocket payments, especially private providers or in rural areas where the public providers are unavailable [1–4]. Private healthcare providers normally provide complement or supplement healthcare as options to public healthcare provision. In general, public providers or public health insurance has the advantage of ensuring equity in access to healthcare. But, often public provision or public health insurance is perceived as providing poor quality of care. Private providers or private

health insurance are perceived better in providing perceived quality of services. Those who have health insurance or have access to public healthcare providers have a higher chance of receiving care [5, 6]. The right combination of public and private roles in ensuring access to healthcare and eliminating financial hardship in meeting healthcare needs is a big challenge to achieving universal health coverage (UHC) in many developing countries.

The World Health Organization (WHO) defines UHC as the ability of individuals to obtain health services they need without suffering financial hardship [7] as best achieved by Model 1 [8]. This supplemental or top-up option by the private sector is not well understood by many policymakers in developing countries. The balance roles between public and private insurance or providers must be thoroughly examined to ensure equity, efficiency, sustainability, and effectiveness of the health system [8]. The WHO's 13th General Programme of Work has conducted a systematic analysis of barriers to service access, which provides evidence-based solutions for UHC [9]. The implementation of national (public) health insurance or publicly funded healthcare enables people to access the healthcare they need. However, many high-income people who perceive public provisions as poor quality prefer to use private insurance or high pay out of pocket in private healthcare providers [10, 11].

The private sector—including both insurance companies and healthcare providers—has an important role in ensuring access to health services. The private health sector provides health coverage to individuals or organizations that are neither owned nor directly controlled by the government in the distribution of health services. The private sector continues to improve in providing healthcare services, catering to more than a third of the total medical care needs in many developing nations. These developments are influenced by a growing middle class and an increasing demand for quality healthcare, macroeconomic stability and liberalization, poor public sector management, and operational practices [12, 13]. The development of private health insurance is determined by the variability in economic status (per capita expenditure) and education in society [14]. It should be noted that the private sector lags in ensuring equitable access for everyone. Because of market failure in healthcare services, the private sector's role is limited to complementing the public sector, especially in health financing, such as in insurance.

In implementing UHC, the government must provide room for the private sector so that there is a healthcare option for higher-income groups [15]. In this regard, this study assesses the potential of the private sector and strengthens private role models to complement UHC in the health insurance system by considering the challenges faced and plans for improvement in this sector.

2. The private sector as an under-utilized entity

The private health sector is recognized as an important player in any health system, but many policymakers do not know the extent of its strengths and limitations. In some countries, efforts by the public sector to collaborate with private providers face political constraints, but there are many other opportunities for maximizing the sector to help improve public health [16]. Private insurance caters to several chronic diseases and can help to reduce the burden of personal medical expenses for policyholders [17]. Private health insurance has the potential to provide healthcare via good coordination with the public sector [18, 19].

The United Nations Sustainable Development Goals (SDGs) comprise 16 targets that are set to be achieved by 2030 and that are directly or indirectly related

to health. Both the private and public sectors should work hand in hand to meet health-related SDG 3.8 on UHC and related goals, such as SDG 8 (decent work and economic growth) and SDG 9 (industry, innovation, and infrastructure) [20]. The participation of the private sector to achieve the SDG goals is strengthened by the following statement by Norimasa Shimomura, resident representative of the United Nations Development Programme Indonesia: "The SDGs cannot be achieved without contributions from the private sector, and vice versa, business actors cannot continue their business practices without the SDGs, where the SDGs can create a supportive environment for sustainable business" [21].

The government must determine the interrelationship between the roles of private health insurance and national (public) health insurance. Public–private partnerships have the potential to achieve the best health indicators for publicly funded health care. Public–private partnerships are a viable alternative, as the public sector faces constraints in meeting the growing need for quality health services by higher-income groups [22]. However, it must be acknowledged that private health insurance will not be able to provide coverage for low-income people, those who live in rural areas, and high-risk groups, such as the elderly and persons with disabilities.

3. The private sector as a partner in fostering innovation

Innovation often occurs in the private sector, as it must continue implementing changes to remain competitive. Private health insurance has developed 14 rules that are used as guidelines for evaluating insurance claims [23]. Internally, innovation in the private sector develops in relation to people, resources, and the vision and mission. Cultural innovation, organizational learning, and private organizational commitment have positive and significant effects on organizational performance. The factors that encourage the development of innovation are government policies, technological advances, and the emergence of other private companies [23]. Innovation pursued by the private sector in tackling societal problems in health and education can also benefit the public sector [24].

Despite some external environment-related challenges, such as in terms of infrastructure, operational costs, and customers or service users, private insurance has relied heavily on the use of telemedicine during the COVID-19 pandemic [25, 26]. In collaboration with the public, the private sector has succeeded in creating better services and developing business models in PHC [27]. To achieve the best results, public–private partnerships harness the strengths of the public and private sectors together, creating expanded access to health services for underserved communities. These partnerships can produce sustainable benefits for the private sector [28].

4. Partnering with the private sector as a path to universal health coverage

To achieve UHC, many state governments are engaging with the private sector to improve the public's access to quality primary health services. Most countries generally award command and control to the private sector, rather than providing incentives or allowing self-regulation. The arrangement requires private facilities to have a minimum number of doctors with special qualifications and a minimum number of infrastructure and equipment to provide health services. National health insurance (NHI) can pay capitation with performance incentives to private facilities that

provide services. Likewise, private facilities are given accreditation scores associated with reimbursement payments [29].

National health insurance schemes suggest an opportunity for accredited private healthcare providers to serve low-income populations, but this would entail strengthening monitoring and accountability to reduce costs and maintaining a certain quality level to continue receiving public financing. Private service providers consider accreditation to be important to the continuity of their businesses, even though they find lengthy and convoluted accreditation processes a major obstacle to their participation in the public health insurance system. Private service providers would like to comprehend NHI, and they see an opportunity to participate. They are ready to undergo the accreditation process and engage in payment arrangements that will complement the implementation of NHI and thus provide a higher level of patient satisfaction [30].

The private health sector supports the implementation of UHC, and in Indonesia, government assistance accounts for half of the growth of private hospitals, in line with good governance initiatives to achieve UHC; around 32.6% of hospitals are integrated with community-centered health services [31]. Thus, it is increasingly clear that private sector participation is an integral part of efforts to achieve UHC.

5. Challenges

A framework for determining strategies to engage the private sector has been introduced. However, the existence of the private sector is often not appreciated because of varied understandings of the sector. Public and private cooperation in health insurance shows that there are challenges and constraints posed by contextual conditions in designing contracts for financing and providing healthcare. The presence of health insurance systems that are integrated between government/public insurance and private insurance have resulted in disparities in access and inappropriate health service outcomes at the primary care level [32]. Governments seek to implement a combination of private and public health insurance systems to support equity and promote effective PHC services.

There are also differences in views when interpreting the quality of services between implementers (health service providers) and the beneficiary community, thus significantly affecting the quality of health services itself. Implementers feel that beneficiaries have good access to the service, but beneficiaries think otherwise. From an implementer perspective, quality is assessed based on ease of referral, effectiveness in monitoring, timeliness, efficiency, replacement, and compliance with healthcare standards, guidelines, and accreditation processes. On the other hand, community beneficiaries evaluate processes based on essential health services, including medical consultations; diagnostics services; and the provision of medicines [33]. The discrepancy in views on the role of the private sector is mainly driven by political factors, such as economic transition, decentralization of the health system, and increased costs. Future policies to increase the role of the private sector in achieving health development goals require data collection on the efficiency, quality, and equity of private services [34].

Private insurance schemes are not equitable to the public and are reserved only for those who can afford them as supplemental insurance, particularly those who live in urban areas, while NHI can cover all people to achieve UHC. The Public funding, both tax-funded and SHI scheme pools risk-sharing contributions on proportion or percentage of individual or family income. The SHI basically similar to income tax

with the difference is that income tax is normally progressive while SHI contribution can be regressive, if there is a ceiling income such as implemented in Indonesia [8]. Yet, SHI implemented as a single-payer at the national level could result in long queue in healthcare providers. Complement and supplemental insurance by private insurance for higher income people or corporate paid supplemental insurance could offer some solution to cut off the line by offering executive clinics.

Various international initiatives have been made to involve the private sector in the efforts of countries to complement UHC for the higher-income population. A PHC global agreement expects UHC to operationalize the progressive realization of the PHC vision and the right to health. The WHO strongly supports mixed systems governance to ensure the optimal combination of the private and public sectors in achieving UHC, as public funding is optimal for equity while private providers are good on quality of care. Private insurance is not good to ensure access for everyone because in financial protection the private insurance will set premiums on a risk-base. The higher risk individuals such as the elderly and the low-income will not be able to afford the premiums [8, 19]. Underlining the operational understanding of the provision of health services to achieve UHC can divide the scope of the private sector in both insurance and healthcare delivery in public funding systems. Championing UHC requires a commitment to becoming the health anchor for all implementations in the country by involving civil society and communities in all relevant processes and by acting responsibly in relation to such a commitment [35].

6. Private role models to achieve universal health coverage

Understanding the relationships of the parties involved in the healthcare and health insurance systems could provide the role of the private sector in achieving UHC without jeopardizing access to low-income and high-health risk people. The following general three models of the roles of the private health sector could be used as general guidance for low- and middle-income countries (LMICs).

Model 1: The private sector as health service providers.

Model 2: The private sector as a supplemental health insurers.

Model 3: The private sector as a supplemental buyer of health services for the employees.

6.1 Model 1: private sector as healthcare providers

Facilitating the role of the private sector as a provider of health services by having annual pay performance with NHI or NHS requires legal reform. Private health services contract with national insurance administrator (s) to deliver the benefits covered for the NHI members or the population. To ensure the quality of services provided to meet the needs for healthcare, the private providers must meet the terms and conditions to ensure service quality. The regulations set by the NHI or NHS normally cover tariffs that can be fee for services, per procedures, per diagnosis, per diem rates, procedures, claim mechanisms, payment schedules, and liability reports.

The government sets standards related to the accreditation of healthcare providers to ensure service quality is provided at convenient office hours, reasonable queueing time, and competency of medical personnel. Hospital accreditation includes patient safety, access to hospitals and continuity, patient and family rights, anesthesia, surgical services, pharmaceutical services, communication, and education management.

Primary healthcare accreditation includes administration and management, patient-oriented clinical services, clinical service support management, clinical quality improvement, patient safety, and clinical performance indicators. To be able to enter a contract with the NHI; private healthcare providers must fulfill varification process to reduce practices of moral hazards or fraudulence. In some countries, the NHI or NHS establishes strict referral health procedures for efficiency. In managing the balance between efficiency and quality of care, patient satisfaction survey should be conducted regularly.

It is inevitable that the NHI/NHS needs to prioritize contracts with healthcare providers accepting cheaper healthcare, both from public and private healthcare providers. In some countries, There are regulations that give government health facilities the authority to use their income directly without depositing it into the state treasury. Therefore, health facilities can use their income according to their plans and budgets. They can set competitive rates with private healthcare providers. In Indonesia, public healthcare providers (puskesmases) are given too large number of members while the puskesmases also must provide public health services. So, there are pressures to reduce the puskesmases burden for medical care to ensure that the staff could not deviate their attention too much on serving the NHI patients and neglecting their primary mandates of providing health promotion and prevention.

The advantage of model 1 is that the private sector contracted will ensure a sizable market. The best rule is the government should ensure that members of NHI or people under the NHS have the right to choose public or private healthcare providers, while the NHI or NHS will pay for healthcare consumed by members or people at reasonable rates. This money follows the patient principle and will provide fairness in financing and delivering care (**Figure 1**).

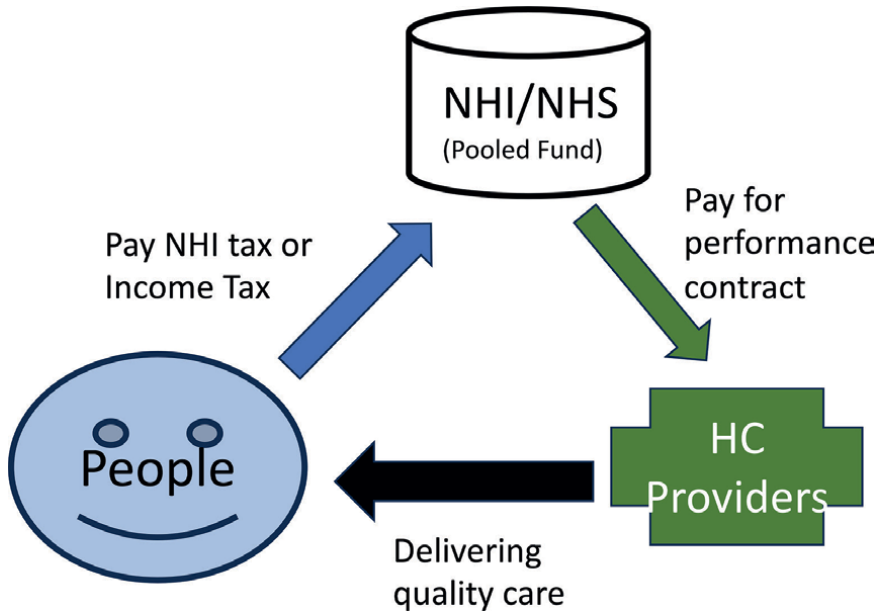

Figure 1.
Publicly funding and privately delivery healthcare.

6.2 Model 2: private sector as health insurers

Naturally, health insurance is the rational response to the uncertainty of the need for medical care, which results from uncertain risks of illnesses. The law of the large number allows an insurer to predict the amount of money needed to share among policyholders. The premiums are set based on the probability of a group to experience illhealth and the average claim costs once illhealth occurs by an insured. So, the premium is set on an expected risk-based. However, the risk-based premiums are not affordable by low-income or high-risk people, resulting in inequity and unacceptable reality by humanity's norms. Therefore, the private health insurer's roles are limited and cannot be the only funding mechanism for medical/healthcare.

The advantage of private health insurers is the responsiveness to the demand and the attractiveness to finance healthcare especially private healthcare providers. It is a good solution to offer as supplemental or complemental financing for high-income groups, mainly for corporations that want to attract high-competence employees. It could contribute to UHC by offering health benefits according to market demands, but not by the needs of the people. Certainly, private insurers are unable to reach the entire population of a country.

Expanding the roles of private health insurers needs strict licensing requirements because of a high information asymmetry between the insurers and the policyholders. They must be staffed with proven competent of human resources in managing health insurance and ensuring the insured gets healthcare fairly. Private health insurers may apply managed care techniques popular in the USA by applying prospective payment and rigid utilization reviews to contain costs. Private health insurers often conduct selective contracting to choose only credible healthcare providers to gain competitive advantages in attracting policyholders. In some countries where public healthcare providers are given autonomous status, private insurers can enter into a contract with them and receive competitive prices (**Figure 2**).

To attract qualified employees, private companies offer adequate healthcare coverage. In fact, many countries require that every company guarantees the health services of its employees through the insurance system. In this case, the company will

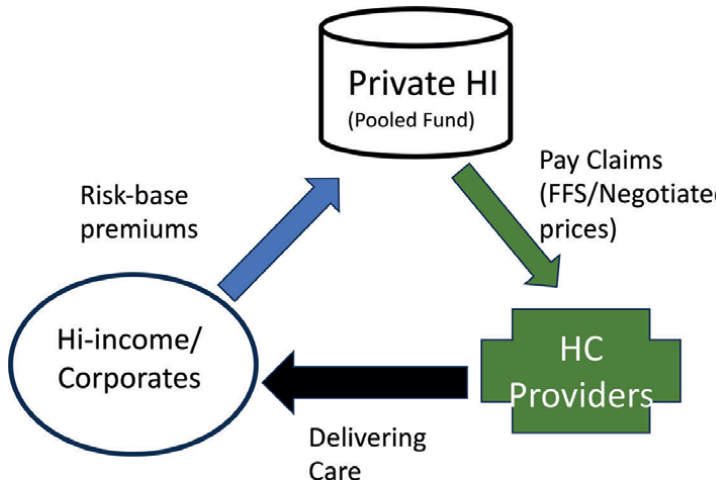

Figure 2.
Private sector as private insurers.

consider the guaranteed benefits offered by health insurance, starting from benefits for top-level managers to ordinary employees. The advantage of model 3 is that companies that are aware of their participation in the health insurance system will likely support the achievement of UHC.

If the state implements a mandatory NHI policy, the company is faced with the choice of including or not including employees, with the consequence of violating mandatory laws. It is a reality that several private companies have not registered their employees as insurance participants, either because of the company's income level or because the employee's income is inadequate. This could also be due to the influence of private company labor unions that do not support insurance participation because they are not satisfied with the perceived benefits. Thus, private companies that have not yet registered their employees may look at the appropriateness of the benefits offered by insurance organizations. Good communication is needed to achieve UHC and bring together the interests of two parties in accordance with existing regulations.

In countries that implement a national health insurance system organized by the government, and provide space for private insurance organizations to develop, it could happen that private companies as participants can participate in two insurance systems at once with appropriate benefits. In double-insured conditions, this must be avoided so that there are no double payments so that financing efficiency is maintained. The health insurance system recognizes coordination of benefits, which is an agreement between insurance organizations as to who will pay first and who will pay the rest, so that no one is harmed by each other. Likewise, participating insurance companies can also experience the benefits of participating in more than one insurance company.

6.3 Model 3: private sector as buyer of healthcare for the employees

The private sector is normally aggressive and innovative in meeting their needs as the regulations allow them to do. In many countries where there is no NHI or NHS or even there is a public funding system for healthcare available, many employers could contract directly with healthcare providers to take care of their employees. Depending on the size of private employers, the size and the scope of contracting healthcare services vary widely. Large and reputable private employers need to attract competent or professional employees to boost productivity. Often, companies or private employers provide employment benefits (perks) such as healthcare, pension, family benefits, or even leisures for part or all employees. The perk can be sole benefits or supplemental benefits for the existing social security schemes.

The scheme can be delivered as service benefits in which private employers sign contracts with a single or a network providers or employees could pay directly the healthcare providers and get reimbursement from the department of human resources. The scheme could be very efficient and could also be expensive because the economic scale is small. Medium companies often have less power to contract with healthcare providers. For medium companies, insuring employees with or without immediate family members is more efficient and more convenient for the employees.

Other form of the private sector is individual person or family who may purchase healthcare and pay out of pocket or use public healthcare providers and pay small user charges. This form of the role of the private sector is the most regressive

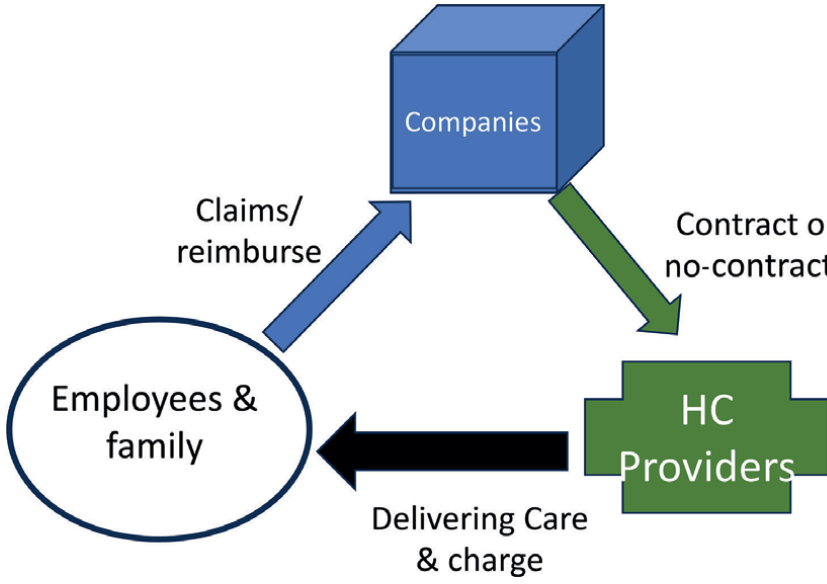

Figure 3.
Private sector as buyers of healthcare of employees.

and can impoverish family or individual to pay high costs of inelastic healthcare. Often individual or family has no option and is imposed to pay high cost healthcare (**Figure 3**).

7. Conclusion

Countries differ in their adoption and implementation of facilitating private sectors in the country's health systems. In general public sector is superior in ensuring equity of healthcare, making low-income individuals could get access to healthcare with or without user fees or paying out of pocket. However, the public sector is often less responsive to the demand for quality of care, and often access to public healthcare providers requires long queueing. On the other hand, the private sector is not good to ensure equity as the private sector must ensure the return on investment and making profit or surplus for growth. The private sector is responsive to the demand from patients and is good at delivering quality care giving the patients have higher level of satisfaction. The combination of the public and the private sector could ensure equity, efficiency, and quality of healthcare. There are three models discussed in this chapter on the roles of the private sector to optimize UHC through supplemental health insurance, providing healthcare for the NHI members, or purchasing healthcare for employees when regulation allows. Private not-for-profit organizations and private for-profit entities could complement NHI or NHS to minimize catastrophic health spending of the people in a country. Countries could explore the roles of the private sector to ensure equitable access to quality healthcare, provide options, facilitate greater satisfaction for higher-income groups, expand private healthcare providers, and ensure that high-quality care is provided. Finally, the private sector is expected to participate in promoting UHC and reducing catastrophic health spending, and facilitate long-term investment in a country's health system.

Conflict of interest

The authors declare that there is no conflict of interest in writing and publishing this chapter. None of the authors work or has a share in private health insurers or private healthcare providers.

Author details

Atikah Adyas[1*], Ahmad Jet Alamin[2] and Hasbullah Thabrany[3]

1 Faculty Health, Department of Public Health, University of Mitra Indonesia, Indonesia

2 The College of Health Science, STIKES An-Nasher, Cirebon, Jawa Barat, Indonesia

3 The Indonesian Association of Health Insurance and Management (PAMJAKI), The Indonesian Health Economics Association (InaHEA), Indonesia

*Address all correspondence to: adyas_atikah@yahoo.com

IntechOpen

References

[1] Campo-Arias A, Ceballos-Ospino GA, Herazo E. Barriers to access to mental health services among Colombia outpatients. International Journal of Social Psychiatry [Internet]. 2020;**66**(6):600-606. Available from: https://europepmc.org/article/MED/32466709

[2] Garnelo L, Parente RCP, Puchiarelli MLR, Correia PC, Torres MV, Herkrath FJ. Barriers to access and organization of primary health care services for rural riverside populations in the Amazon. International Journal for Equity in Health [Internet]. 2020;**19**(1):1-14. Available from: https://equityhealthj.biomedcentral.com/articles/10.1186/s12939-020-01171-x

[3] World Health Organization. Assessment of Barriers to Accessing Health Services for Disadvantaged Adolescents in Nigeria [Internet]. Brazzaville: WHO; 2019. p. 80. Available from: file:///C:/Users/DELL/AppData/Local/Temp/9789290234319-eng.pdf

[4] DeSa S, Gebremeskel AT, Omonaiye O, Yaya S. Barriers and facilitators to access mental health services among refugee women in high-income countries: A systematic review. Systematic Reviews [Internet]. 2022;**11**(1):186. Available from: https://pubmed.ncbi.nlm.nih.gov/35387680/

[5] Walker C, Peterson CL. Universal health coverage and primary health care: Their place in people's health. Journal of Evaluation in Clinical Practice [Internet]. 2021;**27**(5):1027-1032. Available from: https://onlinelibrary.wiley.com/doi/full/10.1111/jep.13445

[6] Kumbeni MT, Apanga PA, Chanase MAW, Alem JN, Mireku-Gyimah N. The role of the public and private health sectors on factors associated with early essential newborn care practices among institutional deliveries in Ghana. BMC Health Services Research [Internet]. 2021;21(1):621. Available from: /pmc/articles/PMC8244223/

[7] World Health Organization. Universal Health Coverage (UHC) [Internet]. Geneva: World Health Report. 2010. Available from: https://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-(uhc)

[8] Thabarny and Sayekti. The advantage of a single payer health insurance. In: Travers, editor. Health Insurance. London, UK, London: Intech Open; 2022

[9] GPW-13 Team. Draft Thirteenth General Programme of Work, 2019-2023: Promote Health Keep the World Safe Serve the Vulnerable [Internet]. WHO Press; 2018. p. 50 Available from: https://www.who.int/publications/i/item/thirteenth-general-programme-of-work-2019-2023

[10] Sarkodie AO. Effect of the National Health Insurance Scheme on healthcare utilization and out-of-pocket payment: Evidence from GLSS 7. Humanities and Social Sciences Communications [Internet]. 2021;**8**(1):1-10. Available from: https://www.nature.com/articles/s41599-021-00984-7

[11] Nugraheni WP, Mubasyiroh R, Hartono RK. The influence of Jaminan Kesehatan Nasional (JKN) on the cost of delivery services in Indonesia. PLoS One [Internet]. 2020;**15**(7):e0235176. Available from: https://pubmed.ncbi.nlm.nih.gov/32614846/

[12] Rahman R. The privatization of health care system in Saudi Arabia. Health Services Insights [Internet]. 2020;**13**:3-6. Available from: https://journals.sagepub.com/doi/10.1177/1178632920934497

[13] Klinton J. The Private Health Sector: An Operational Definition [Internet]. Geneva: World Health Organization; 2020. pp. 1-5. Available from: https://www.who.int/docs/default-source/health-system-governance/private-health-sector-an-operational-definition.pdf

[14] Hasan AR, Bachtiar A, Candi C. The potential of private health insurance ownership based on the 2018-2020 National Socioeconomic Survey Data. Kesmas. 2022;**17**(4):279-286

[15] Agbanyo R, Peprah JA. National health insurance and the choice of delivery facility among expectant mothers in Ghana. International Journal of Health Economics and Management [Internet]. 2021;**21**(1):27-49. Available from: https://link.springer.com/article/10.1007/s10754-020-09288-w

[16] Abd Khalim MA, Sukeri S. Uptake and determinants of private health insurance enrollment in a country with heavily subsidised public healthcare: A cross-sectional survey in East Coast Malaysia. PLoS One [Internet]. 2023;**18**(1):e0278404 Available from: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0278404

[17] Yang JM, Bin LS, Kim YJ, Chon DY, Moon JY, Kim JH. Association between private health insurance and medical use by linking subjective health and chronic diseases. Medicine (Baltimore) [Internet]. 2022;**101**(32):E29865. Available from: https://pubmed.ncbi.nlm.nih.gov/35960073/

[18] Listya Dewi S, Setiyaningsih H, Kedokteran F, Dan Masyarakat Keperawatan K, Gadjah Mada U. Peran Sektor Swasta Dalam Respon Terhadap Covid-19: Studi Kasus Di Yogyakarta the role of private sector in response to covid-19: A study case of Di Yogyakarta. Jurnal Kebijakan Kesehatan Indonesia JKKI. 2020;**09**(04):218-224

[19] Engaging the private health service delivery sector through governance in mixed health systems: Strategy report of the WHO Advisory Group on the Governance of the Private Sector for Universal Health Coverage [Internet]. Available from: https://www.who.int/publications/i/item/9789240018327 [Accessed: August 31, 2023]

[20] Theron GB. Sustainable development goals [Internet]. Obstetrics and Gynaecology Forum. 2016;**26**:1. Available from: https://www.who.int/data/gho/data/themes/sustainable-development-goals

[21] Peran Swasta Wujudkan Pembangunan Berkelanjutan Perlu Diperkuat [Internet]. Available from: https://www.beritasatu.com/ekonomi/901523/peran-swasta-wujudkan-pembangunan-berkelanjutan-perlu-diperkuat [Accessed: August 31, 2023]

[22] Nuhu S, Mpambije CJ, Ngussa K. Challenges in health service delivery under public-private partnership in Tanzania: Stakeholders' views from Dar es Salaam region. BMC Health Services Research [Internet]. 2020;**20**(1):1-12 Available from: https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-020-05638-z

[23] Ekaputrie AC, Fauzan A. Analysis of the character of the insured by policy holders of private insurance companies in Indonesia with the rough set method.

Eksakta: Journal of Sciences and Data Analysis. 2023;**4**(2):8-14

[24] Pratama AB. The landscape of public service innovation in Indonesia: A comprehensive analysis of its characteristic and trend. Innovation & Management Review. 2020;**17**(1):25-40

[25] Whaley CM, Pera MF, Cantor J, Chang J, Velasco J, Hagg HK, et al. Changes in health services use among commercially insured US populations during the COVID-19 pandemic. JAMA Network Open [Internet]. 2020;**3**(11):e2024984 Available from: https://pubmed.ncbi.nlm.nih.gov/33151319/

[26] Scassa T. Pandemic innovation: The private sector and the development of contact-tracing and exposure notification apps. Business and Human Rights Journal [Internet]. 2021;**6**(2): 352-359 Available from: https://www.cambridge.org/core/journals/business-and-human-rights-journal/article/pandemic-innovation-the-private-sector-and-the-development-of-contacttracing-and-exposure-notification-apps/78A78BE8922FD8512A93C6648B76C2CE

[27] Srinivasan A, Garg A. Role of the private sector in supporting access to primary healthcare. The CSR Journal [Internet]. 10 Dec 2021. Available from: https://thecsrjournal.in/private-sector-primary-healthcare-meghalaya/

[28] Public-private partnerships can give more people better healthcare, World Economic Forum [Internet]. Available from: https://www.weforum.org/agenda/2021/12/how-public-private-partnerships-can-give-more-people-better-health/ [Accessed: August 31, 2023]

[29] Wegewijs D. Engaging the private health service delivery sector through governance in mixed health systems: strategy report of the WHO Advisory Group on the Governance of the Private Sector for Universal Health Coverage 2020 [Internet]. 2020. Available from: https://www.who.int/publications/i/item/9789240018327 [Accessed: August 31, 2023]

[30] Sinjela KM, Simangolwa WMW, Hehman L, Kamanga M, Mwambazi WK, Sundewall J. Exploring for-profit healthcare providers' perceptions of inclusion in the Zambia National Health Insurance Scheme: A qualitative content analysis. PLoS One [Internet]. 2022;**17**(5):e0268940. Available from: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0268940

[31] Role of Private Sector in defence [Internet]. Available from: https://www.daily-sun.com/printversion/details/346764/Role-of-Private-Sector-in-Healthcare [Accessed: August 31, 2023]

[32] Wu R, Li N, Ercia A. The effects of private health insurance on universal health coverage objectives in China: A systematic literature review. International Journal of Environmental Research and Public Health; Mar 2020;**17**(6):2049. Available from: https://www.mdpi.com/1660-4601/17/6/2049/htm

[33] Role of the Private Sector in Health Care Research Paper—EssayEmpire [Internet]. Available from: https://research-paper.essayempire.com/examples/health/role-of-the-private-sector-in-health-care-research-paper/ [Accessed: August 31, 2023]

[34] Fisher M, Freeman T, Mackean T, Friel S, Baum F. Universal health coverage for non-communicable diseases and health equity: Lessons from Australian primary healthcare.

International Journal of Health Policy and Management [Internet]. 2022;**11**(5):690-700 Available from: https://www.ijhpm.com/article_3964.html

[35] Espinosa MF, Andriukaitis VP, Kickbusch I, Nishtar S, Saiz E, Takemi K, et al. Realising the right to health for all people—UHC is the umbrella to deliver health for all. The Lancet Global Health [Internet]. 2023;**11**(8):e1160. Available from: http://www.thelancet.com/article/S2214109X23002024/fulltext

Chapter 8

Perspective Chapter: Health Insurance across Worldwide Health Systems – Why It Matters Now

Gabriel Igbo Alobo

Abstract

Quality of health and life expectancy is increasing globally as countries deploy different national health insurance schemes. The universal health coverage index increased from 45 in 2000 to 67 in 2019 with the fastest growth coming from sub-Saharan Africa at an average rate of 2.6% per annum from 2010 to 2019. Life expectancy increased from 66.8 years in 2000 to 73.3 years in 2019. Number of health workers also increased by about 29%. Between 2000 and 2017, catastrophic health expenditures increased by 3% and 1%, using 10% and 25% of family income spent on health respectively. At a global UHC score of 67, the maternal mortality ratio was 132/per 100,000 live births, neonatal mortality rate, and infant mortality rates were 13, and 26 per 1,000 live births, respectively, which are below the respective SDG targets. Unimmunized (zero dose) infants increased by 5 million between 2019 and 2021. Health insurance coverage remains low with about one billion or 13% of the world population impoverished by catastrophic health expenditures. To meet the SDG target by 2030 SDG, the time for nations to act is now.

Keywords: health insurance, universal health coverage, financial risk protection, out-of-pocket expenditures, catastrophic health expenditures, SDG

1. Introduction

According to the World Health UHC global road map, the universal health coverage index increased from 45 in 2000 to 67 in 2019 with the fastest growth coming from sub-Saharan Africa at an average rate of 2.6% per year from 2010 to 2019. The global life expectancy increased from 66.8 years in 2000 to 73.3 years in 2019. The UHC scores vary across different countries. It spanned from over 95% in Japan and Iceland to less than 25% in Somalia and the Central African Republic [1]. Similarly, the number of health workers increased globally by 29%. Despite the improved global UHC scores and increased number of health workers, about 5 million under-five children died in 2020. The number of zero-dose of immunized children increased by 5 million in 2021 when compared to 2019. In 2017, the maternal mortality ratio was 211 per 100, 000 live births against the sustainable development goal target of 70 per 100,000 live births. There is also a drag in the communicable disease prevalence with

malaria being off target by 40%, and HIV incidence dropping by only 39% as against the target of 75%. Targets for noncommunicable diseases were also off-target [1]. The road map gave the following recommendations:

- Countries were generally encouraged to invest more and better in one national plan with government financing. This is necessary because higher health expenditures are associated with lower out-of-pocket expenditures.
- Prioritizing primary health care as a foundation for UHC, health security, and better health outcomes.
- Provision of equitable health services by leaving no one behind, informed by equity-oriented research, and data for decision-making.
- Providing opportunities for multi-sectoral and multilateral collaborations.
- Continuous tracking of progress and accountabilities on coverage with a focus on those left behind.

Health insurance is described as a contract between a company and a consumer in which the company agrees to pay all or some of the insured person's healthcare costs in return for payment of a monthly premium [2]. According to the Encyclopedia Britannica, health insurance is a system for the financing of medical expenses by means of contributions or taxes paid into a common fund to pay for all or part of health services specified in an insurance policy or the law. When the financing is by a private organization or health insurance company through a contract, it is called private or voluntary health insurance but when it is financed by legally mandated compulsory contributions or by taxes and whose provisions are specified by legal statutes, it is known as government insurance or social insurance [3].

There are different models of health insurance, such as the single-payer model as operational in the United Kingdom, Spain, New Zealand, and Cuba, where the government provides free health care from revenue generated from taxes. In the social health insurance model, everyone buys insurance usually through deductions made by their employers as obtained in Germany, France, Belgium, the Netherlands, Japan, and Switzerland. In the national health insurance model, public health insurance is used to pay for private practice health care as obtained in Canada, Taiwan, and South Korea. Health insurance has many advantages such as lowering health and administrative costs, standardization of services, prevention of future social and health costs, and healthier life choices. The challenges are healthy people pay for the sickest, it has lesser financial incentives to stay healthy, it's associated with high waiting time, incentivizing health workers to lower quality due to cost is common, and the inability of the government to fund it [4]. In OECD countries, around 10% of healthcare spending is from private health insurance in 2019. In over 50% of the countries, the private health expenditure is around 5%. This marks a growth of about 1% when compared to the figure in 2005. However, there are widespread variations between countries from 0.2% in the Czech Republic to 58.5% in the Netherlands [5].

Health insurance across the global health system becomes imperative as we approach the 2030 sustainable development goal targets adopted by many nations in the world. While substantial progress has been achieved between 2015 and today, much remains to be done to bring about 1 billion global population with

impoverishing health expenditures into some form of financial risk protection through health insurance and other mechanisms.

The aim of the chapter is to present the global progress on universal health coverage across different health systems, health insurance coverage, health financing, financial risk protection, catastrophic health expenditures, and key health indices by regions and countries.

The methodological approach involves extensive literature reviews of contemporary issues and progress made toward financial risk protection and implementation of national health insurance schemes by regions and countries, including progress made toward reduction in impoverishing and catastrophic health expenditures. In almost all cases, current issues from 2020 till date were referenced. Information was sourced from reputable organizations such as World Health, World Bank, OECD, Commonwealth Funds, United Nations, and systematic reviews among others with no personal opinion included.

1.1 Key findings

- Globally, the ratio of out-of-pocket expenditure to the total health expenditure fell from 19% in 2000 to 16% in 2020 with the largest drop coming between 2018 and 2020. About 1 billion people had catastrophic health expenditures in 2020.

- On a scale of 1–100, the global UHC was 67. Between 2000 and 2017, catastrophic health expenditures increased by 3 and 1%, using 10 and 25% of family income spent on healthcare services, respectively. The global subjective feelings of well-being were 5 on a scale of 1–10.

- Among OECD countries, the United States with UHC score of 83 met most of the SDG targets, but many health indices were poorer than many other high-income countries despite spending more on health per capita than them.

- Sub-Saharan Africa needs concerted efforts to meet the SDG targets. The UHC score was 44 with many of the SDG indicators about five times lower than the SDG targets. Almost all the building blocks of health system strengthening require improvement.

- Asia and the Pacific home to about 60% of the global population have the highest catastrophic health expenditures. Most countries in the region have UCH score above the global average. Health financing improved but would require more investments. The region is on track to meeting the SDG targets with moderate efforts based on current health indices.

- India has the largest national health insurance scheme in the world with the potential to reach about 500 million people. The country's UHC is 61 with many health indices about two to three times lower than the SDG targets. The success of the health insurance scheme would significantly minimize out-of-pocket expenditures.

- China with a UHC score of 82 has met most of the SDG health targets. With subjective feeling of well-being at 5.9, the health system would require more high-quality, value-based, and equitable health services. Health insurance

coverage improved from 22.1% in 2003 to 95.1% in 2013, and a drop in out-of-pocket expenditure followed this from 60.1% in 2000 to 35.9% in 2016.

- Nigeria with a UHC of 44 and many health indices about 10 times lower than the SDG targets requires substantial efforts and investment. Only about 10% of the population have a form of health insurance. The implementation of the basic health care provision fund and the launch of the National Health Act in 2022 mandating every citizen to enroll in the national and state health insurance agencies is a bold step, which, if well implemented, can provide the needed financial risk protection and improve access to health services.

1.2 Chapter structure

The chapter started with brief introduction, definition of key terms, review of global out-of-pocket expenditures, trends in catastrophic health expenditures, progress toward UHC, and related key health indices. It progressed with review of health systems across global regions and selected countries. It concluded with references.

2. Review of progress toward universal health coverage

Financial risk protection is necessary for all people to prevent unexpected illnesses from pushing people into abject poverty by selling assets, using up family savings, and forcing indebtedness to access healthcare. According to the World Health, Universal health coverage (UHC) means that all people have access to the full range of quality health services they need, when and where they need them, without financial hardship. It covers the full continuum of essential health services, from health promotion to prevention, treatment, rehabilitation, and palliative care across the human life course. UHC is measured by tracking coverage of essential health services and catastrophic health spending [6].

The ratio of the global out-of-pocket expenditure to the total health expenditures has been progressively dropping from 2000 to 2020 (**Figure 1** and **Table 1**). The ratio dropped from 19% in 2000 to 16% in 2020 [7]. Contrasting this drop, the percentage of the global population with catastrophic health expenditure increased between 2000 and 2017. Catastrophic health expenditure is defined as the population with large out-of-pocket spending in relation to household consumption or income with "large" defined using two thresholds of 10 and 25% of the income [8].

A total of 10% of family income used for health expenditure increased from 579 million people (8.4%) in 2000 to 996.3 million people (11.1%) in 2017. This implies an increase of about 3%. In the same period, 25% of family income used on health increased from 131.3 million people (1.9%) in 2000 to 289 million people (2.8%) in 2017. This implies an increase of about 1% (details in **Table 1** and **Figure 1**).

Noncommunicable diseases remain a major challenge to achieving UHC despite accounting for 60% of disability-adjusted life years and 70% of global mortalities. LIC and LMIC account for 78% and 82% of the global mortalities and morbidities due to NCDs, respectively [9]. With efficient use of health resources, about $1398 is needed per capita in order to achieve 80% of the UHC coverage index [1]. In 2019, 17% of countries fell below the UHC index of 45 with 56% and 44% being low income and low-medium income countries, respectively. Although the percentages of countries' gross domestic products spent on health appear similar, the per capita health

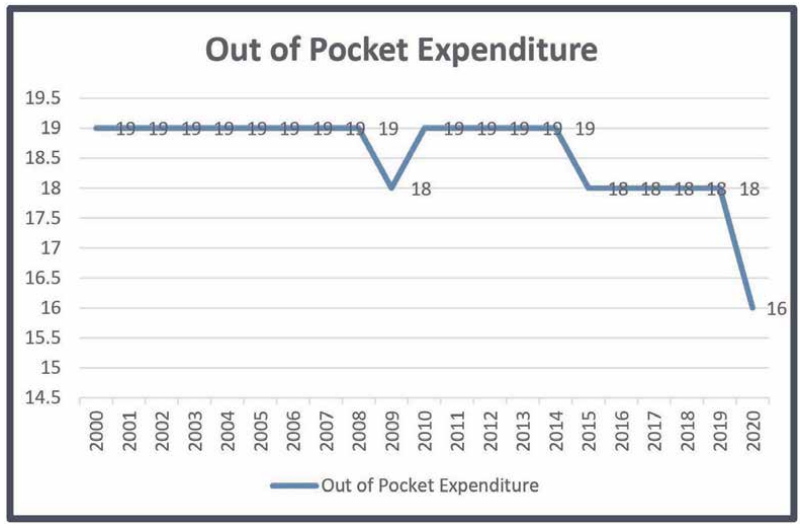

Figure 1.
Global trend in the ratio of out of pocket expenditures to countries health expenditures.

expenditures for LIC and LMIC were low at $43 and $138, respectively due to relatively lower GDP making it difficult to achieve 80% of UHC indices at the projected cost of $1398. Health funding in many of these countries relies on donors implying that these countries need to play more active roles [9].

In **Table 1**, apart from regions classified as fragile and conflict-affected situations, the ratio of out-of-pocket expenditure to the overall regional health expenditures dropped globally in 2020 when compared with 2000 with the highest drops coming from East and South Asia, the Pacific, heavily indebted poor countries (HIPC), Latin America, and the Caribbean (excluding high-income countries). The lowest drops were from sub-Saharan Africa, least developed countries, the European Union, Eurozone, and Central Asia.

Apart from North America, Europe, and Central Asia, catastrophic health expenditure using the 10% threshold of family income used on healthcare spending increased globally between 2000 and 2017. The highest increase was from East Asia and the Pacific, the Middle East and North Africa, and South Asia. Using the 25% threshold, sub-Saharan Africa has the highest improvement with a drop of 0.6%. There were drops also in North America, Europe, and Central Asia. These pose a lot of implications in the attempt to reduce global out-of-pocket expenditures as regions with the highest populations also have the highest increase in numbers of families with catastrophic health expenditures in both the 10 and 25% thresholds.

With many years of cross-fertilization of ideas and experiences globally, including medical research and a large burden of evidence, the drivers of poor health indices are well understood. A high UHC score using the SDG 3 indices has been consistently associated with improved healthcare delivery, including the subjective feeling of well-being by health users. The global UHC score (**Table 2**) is about 67, and this was associated with a maternal mortality ratio of 132/100,000 live births and neonatal and infant mortality rates of 13 and 26 per 1000 live births, respectively. This score was also associated with a subjective feeling of well-being of five and a life expectancy of 73 years. Having a UHC score of 80 and above correlates with many positive health

Country name	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Differences between 2000 and 2020
Africa Eastern and Southern	22	23	24	21	20	20	20	21	21	18	18	17	17	19	18	19	19	17	15	16	15	7
Africa Western and Central	63	62	64	67	62	62	64	64	65	65	65	64	63	62	62	61	63	64	62	60	58	5
Arab World	38	36	37	36	36	35	34	35	35	32	33	31	31	30	28	30	29	27	27	33	31	7
Central Europe and the Baltics	24	24	22	22	24	23	23	23	22	22	22	23	23	22	22	22	22	22	21	21	19	4
East Asia and Pacific (excluding high income)	56	59	58	56	55	55	52	48	46	43	41	41	40	39	37	35	36	36	36	35	35	21
Europe and Central Asia (excluding high income)	33	32	31	31	32	32	31	31	31	31	32	33	32	34	34	35	36	37	37	36	30	3
Europe and Central Asia	17	17	17	17	17	17	17	17	17	17	17	18	18	18	18	18	18	18	18	18	16	1
Euro area	15	15	15	15	16	15	16	16	16	15	15	16	16	16	16	16	16	16	16	16	14	1
European Union	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	14	1
Fragile and conflict affected situations	49	48	49	51	47	48	45	45	48	47	48	48	48	51	50	52	54	52	53	53	52	↑3
Latin America and Caribbean (excluding high income)	38	40	42	42	41	41	39	37	35	33	31	31	31	30	30	28	28	27	28	28	26	12
Latin America and Caribbean	38	40	41	41	40	41	39	37	35	34	32	31	31	30	30	28	29	28	29	28	26	12
Middle East and North Africa	38	38	37	37	38	38	36	36	37	36	38	36	36	32	29	31	30	28	28	32	30	8
Middle East and North Africa (excluding high income)	54	53	51	50	50	51	49	49	48	49	51	50	50	48	44	46	46	44	42	44	42	12
OECD members	17	16	16	16	16	16	16	16	16	15	15	15	15	15	15	14	14	14	14	14	12	4
Other small states	28	28	28	26	26	26	26	26	28	27	25	24	22	22	22	20	21	22	22	21	18	9
Sub-Saharan Africa (excluding high income)	32	34	36	36	33	33	34	34	36	33	31	31	31	33	34	34	34	32	29	30	30	2
Sub-Saharan Africa	32	34	36	36	33	33	34	34	36	33	31	31	31	33	34	34	34	32	29	30	30	2

Country name	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Differences between 2000 and 2020
East Asia and Pacific (IDA and IBRD countries)	56	59	58	56	55	55	52	48	46	43	41	41	40	39	37	35	36	36	36	35	35	21
Europe and Central Asia (IDA and IBRD countries)	32	31	29	29	31	30	30	30	29	29	30	31	31	31	32	32	33	33	32	32	27	4
Latin America and the Caribbean (IDA and IBRD countries)	39	40	42	42	41	41	39	38	36	34	32	31	31	30	30	29	29	28	29	29	27	12
Middle East and North Africa (IDA and IBRD countries)	54	53	51	50	50	51	49	49	48	49	51	50	50	48	44	46	46	44	42	44	42	12
South Asia (IDA and IBRD)	69	71	70	71	70	71	71	70	68	66	65	62	63	68	66	65	63	57	55	55	53	15
Sub-Saharan Africa (IDA and IBRD countries)	32	34	36	36	33	33	34	34	36	33	31	31	31	33	34	34	34	32	29	30	30	2
Heavily indebted poor countries (HIPC)	52	52	54	52	51	49	48	49	49	45	45	45	43	45	43	43	43	42	40	41	38	14
Least developed countries: UN classification	51	51	53	53	51	50	48	50	49	47	48	48	47	49	48	51	50	49	49	51	50	1
Low income	51	51	52	52	51	50	52	53	53	50	51	50	49	52	48	49	47	46	44	45	42	9
Lower-middle income	59	60	59	60	59	59	57	57	56	55	56	55	54	55	53	53	53	50	48	49	47	12
Low- and middle income	45	47	47	47	45	45	44	42	40	39	38	38	38	37	37	36	36	35	35	35	34	11
Upper middle income	41	43	44	43	42	41	40	38	36	35	34	34	34	33	33	32	33	32	33	32	31	10
High income	16	16	15	16	16	15	15	15	15	15	15	14	14	14	14	14	14	14	14	14	12	4
World	19	19	19	19	19	19	19	19	19	18	19	19	19	19	19	18	18	18	18	18	16	3

Note: Adopted from the World Bank. Out-of-pocket expenditure as a percentage of current health expenditure. Available at https://data.worldbank.org/indicator/SH.XPD.OOPC.CH.ZS

Table 1.
Out-of-pocket expenditure trends.

outcomes such as skilled birth attendants at birth, subjective well-being, and life expectancy. In these selected countries (**Table 2**), Canada, United Kingdom, Germany, Japan, France, and the United States with high UHC scores of over 80 have a higher life expectancy at birth, skilled birth attendants during deliveries, better subjective feeling of well-being, very low maternal mortality ratio, low neonatal and under-five mortality rates, and high immunization uptake for children. Mortalities

Region (10%) (Household income)	**Population in million (2000)**	**Population in million (2017)**	**Region (10%) (Household income)**	**Population 2000 percentage**	**Population 2017 (%)**	**Differences**
East Asia and Pacific	189.1	412.7	East Asia and Pacific	9.1%	17.6%	−8.5%
Europe and Central Asia	62.6	62.3	Europe and Central Asia	7.3%	6.8%	0.5%
Latin America and Caribbean	37.6	55	Latin America and Caribbean	7.2%	8.7%	−1.5%
Middle East and North Africa	25.3	68.1	Middle East and North Africa	8.0%	15.4%	−7.4%
North America	17.7	15.9	North America	5.7%	4.4%	1.3%
South Asia	195.2	294.9	South Asia	14.0%	16.5%	−2.5%
Sub-Saharan Africa	51.5	87.4	Sub-Saharan Africa	7.7%	8.3%	−0.6%
Summaries	579	996.3	Summaries	8.4%	11.1%	−2.7%
Region (25%) (Household income)	Population in million (2000)	Population in million (2017)	Region (25%) (Household income)	Population 2000 percentage	Population 2017 (%)	Differences
East Asia and Pacific	47.7	128.5	East Asia and Pacific	2.3%	5.5%	−3.2%
Europe and Central Asia	9.6	9.1	Europe and Central Asia	1.1%	1.0%	0.1%
Latin America and Caribbean	6.1	10.1	Latin America and Caribbean	1.2%	1.6%	−0.4%
Middle East and North Africa	5.8	13.3	Middle East and North Africa	1.8%	3.0%	−1.2%
North America	3.2	2.5	North America	1.0%	0.7%	0.3%
South Asia	41.3	105.5	South Asia	3.0%	5.9%	−2.9%
Sub-Saharan Africa	17.6	20.9	Sub-Saharan Africa	2.6%	2.0%	0.6%
Summaries	131.3	289.9	Summaries	1.9%	2.8%	−1.0%

Note: Catastrophic health expenditures are defined as the population with large out-of-pocket spending in relation to household consumption or income with "large" defined using two thresholds 10% and 25% of the income. Adapted from World Bank. Universal health coverage data. Trends in catastrophic health expenditure. (Amount of Household income on out-of-pocket health expenditure). Available at https://datatopics.worldbank.org/universal-health-coverage/

Table 2.
Global trends in catastrophic health expenditures.

due to noncommunicable diseases were also lower. Nigeria, Bangladesh, Kenya Indonesia, and India with UHC scores of about 60 and below also have poorer indices across all spectrums with the health indices below the global averages. High UHC scores were also positively correlated with good health indices in wealthier nations classified as upper middle and high-income as against low-income and lower-middle-income countries. OECD countries with high UHC also have better health indices, while the poorest indices came from Oceania and sub-Saharan Africa, which also have the lowest UHC scores (**Table 3**).

3. Health care systems across the world: What works and why it matters now?

3.1 United States health system

The United States has not achieved universal health coverage despite investing more in health per capita compared to other high-income countries. There are still many uninsured people in the country affected by healthcare costs. Among high-income countries, the US has the lowest life expectancy at birth and a higher death rate from preventable causes of death. Higher maternal and infant mortalities including high suicide rate. The country also has a higher incidence of multiple chronic medical conditions and obesity. The health-seeking behavior is also lower as Americans see fewer physicians, including having a lower ratio of physicians and hospital beds per 1000 population. The country however screens more people for breast and colorectal cancer, including flu vaccines [10].

According to the 2020 Census Bureau, 8.6% do not have any form of health insurance. Of those insured, the private sector accounted for 66.5% of the population. The employment-based insurance accounts for 54.4% of the insured. The public health insurance marginally grew from 34.4% in 2018 to 34.8% in 2020. Within the same period, the number of uninsured children less than 19 years old rose from about 7.7 to 9.3% [11].

The system is described as a high cost providing lower coverage to the people and lower quality of healthcare services commensurate with the investment. To address these, the following have been recommended: Health coverage decisions should be based on how much such services benefit the people rather than how much is spent. In addition, there is a need for consensus on the minimal criteria for people to be enrolled. The need to unbundle the one size fits all in public investment to enable users to have the option of determining how much is paid for services by different individuals in line with differential needs and expectations. The third recommendation is how people can easily fund additional care outside those covered by the subsidies [12].

According to the 2023 Scorecard of America's Health System as reported by the Commonwealth Fund, Massachusetts, Hawaii, and New Hampshire were the best-performing states with Oklahoma, West Virginia, and Mississippi being the least performing. COVID-19 reduced life expectancy generally. Health system performance covered the uninsured leading to minimal morbidities but the policies lacked sustenance. Some of the recommendations were for the government to close the coverage gap to increase the number of insured, improve cost protection for those on subsidiary coverage, and reduce barriers to reproductive, preventive, and behavioral health [13].

Country	Universal health coverage (UHC) index of service coverage (worst 0–100 best)	Maternal mortality rate (per 100,000 live births)	Neonatal mortality rate (per 1000 live births)	Mortality rate, under-5 (per 1000 live births)	Surviving infants who received 2 WHO-recommended vaccines (%)	Births attended by skilled health personnel (%)	Age-standardized death rate due to cardiovascular disease, cancer, diabetes, or chronic respiratory disease in adults aged 30–70 years (%)	Subjective Well-being-Scale 1–10 (2022)	Life expectancy at birth (years)
Bangladesh	51	123	16	27.3	97	59	18.9	3.4	74.3
Brazil	75	72.2	8.5	14.4	68	99.1	15.5	6.3	75.9
Canada	89	11	3.4	5	90	98	9.6	6.9	82.2
China	82	23.1	3.2	6..9	99	99.9	15.9	5.9	77.4
France	84	7.9	2.5	4.4	92	97.6	10.6	6.6	82.5
Germany	86	4.4	2.2	3.6	91	96.2	12.1	6.6	81.7
India	61	102.7	19.1	30.6	85	89.4	21.9	3.9	70.8
Indonesia	59	172.9	11.3	22.2	67	94.7	24.8	5.6	71.3
Iran	77	22	8.1	12.6	98	99	14.8	5	77.4
Japan	85	4.3	0.8	2.3	96	99.9	8.3	6.2	84.3
Kenya	56	530	18.4	37.2	89	70.2	21	4.4	66.1
Latin America	73	90.2	9.2	16.2	71	95.4	15.5	6.1	75.6
Nigeria	44	1047	34.9	115.2	80	43.3	16.9	4.5	62.6
Russia	75	13.7	2	5.1	97	99.6	24.2	6	73.2
South Africa	67	126.8	11	32.8	86	96.7	24.1	5.6	65.3
United Kingdom	88	9.8	2.8	4.2	91	NA	10.3	6.7	81.4
United States	83	21.1	3.3	6.2	91	99	13.6	6.7	78.5
World	67	131.5	12.7	25.8	84	88.6	19	5.2	73.3
High-Income Countries	83	11.1	2.5	4.6	92	98.8	11.9	6.6	80.7

Country	Universal health coverage (UHC) index of service coverage (worst 0–100 best)	Maternal mortality rate (per 100,000 live births)	Neonatal mortality rate (per 1000 live births)	Mortality rate, under-5 (per 1000 live births)	Surviving infants who received 2 WHO-recommended vaccines (%)	Births attended by skilled health personnel (%)	Age-standardized death rate due to cardiovascular disease, cancer, diabetes, or chronic respiratory disease in adults aged 30–70 years (%)	Subjective Well-being-Scale 1–10 (2022)	Life expectancy at birth (years)
Low-Income Countries	42	382.5	25.9	63.9	65	67	23.5	3.7	65
Lower- Middle Income Countries	58	190.1	19.3	37	80	82.1	22.2	4.5	70.1
Upper- Middle Income Countries	78	38.6	5	9.9	92	99	16.6	5.9	76.4
World	6.7	131.5	12.7	25.8	84	88.6	19	5.2	73.3
East And South Asia	68	82.4	13	22.2	88	90.8	20.1	5	73.3
Eastern Europe and Central Asia	69	80.6	7.7	13.9	89	95.3	25.2	5.3	72.4
Middle East and North Africa	68	47.3	11.1	19.8	88	92	21.3	4.7	74
Oceania	37	168.9	19.1	38.9	41	64	36.4		65.6
OECD	83	18.1	3.3	5.8	91	98.6	11.9	6.5	80.4
Sub-Saharan Africa	44	491.1	26.4	70.1	67	64.7	21.3	4.3	64.3
World	67	131.5	12.7	25.8	84	88.6	19	5.2	73.3

Adopted from the Sustainable Development Report 2023. Country Profiles. https://dashboards.sdgindex.org/profiles

Table 3.
Universal health coverage and multiple health indices.

There have been several health reforms in the United States with many positive outcomes, including Medicare and Medicaid. A seven-year review (2014–2020) of Medicaid expansion under the Affordable Care Act found an overall increase in insurance coverage when expanded states were compared to non-expanded states with the increase cutting across adults in rural and urban groups, different racial/ethnic communities, and most of the vulnerable populations. Despite the increased number of uninsured people nationally, they remained stable in the expanded states. Private coverage marginally decreased. Medicaid expansion generally has positive health outcomes, access to care, affordability, and financial security [14]. Building on these successes, a review of studies between February 2020 and March 2021, shows a positive effect of Medicaid on mortalities, cancer, chronic diseases, disabilities, and sexual and reproductive health. There were also improvements in behavioral and other social determinants of health in addition to positive economic impacts on states and providers [15, 16].

3.2 Sub-Saharan Africa

Sub-Saharan Africa is not on course to meet the sustainable development targets by 2030. The maternal mortality ratio is about 390 deaths per 100,000 live births, which is more than the global average of 211/100,000 live births and about five times the SDG target of 70/100,000 live births. The infant mortality rate is 72/1000 live births, which is about three times the SDG target of 25. Half of the deaths are neonatal predominately occurring on the day of birth and immediate peripartum period. With an annual decline of 3.1% in infant mortality rates, it would be 54/1000 live births by 2030. About 56.3% of women of reproductive age in the region have their family planning needs met compared to the global average of 77%. Skilled birth attendance is 65% compared to the SDG target of 90% [17].

Many nations in sub-Saharan Africa are among the low- and medium-income countries with multiple challenges in the health system. Almost all the building blocks of health system strengthening are affected, particularly healthcare financing, leadership, and weak and non-resilient health systems, including epidemiological and demographic challenges. In most of these countries, about 75 dollars is spent per capita on health compared to $850 in high-income countries. While health insurance would help very well in financial risk protection, strengthening the primary health care system is another very important area requiring strengthening, particularly in countries in the region classified as LMICs [18]. The need for private sector investment in the health sector is very important in Africa following the inability of the government to meet the needs of healthcare financing. A literature review revealed poor health financing, corruption, and bureaucracy as major reasons for the government to effectively deliver on health. The need for better participation of private sector and philanthropic organizations is necessary to attain UHC [19]. It is believed that current health resources in sub-Saharan Africa can only improve UHC by about 19%, improving education, governance systems, and healthcare financing are necessary for the reduction of out-of-pocket expenditures and donor dependence [20]. Even when available, health insurance has not drastically reduced catastrophic health expenditures in Africa due to the design of national health insurance schemes. Investment in research on NHI, compulsory national health insurance programming, and inter-sectoral collaborations are necessary for West African regions to reduce impoverishing health expenditures and increase financial risk protection [21].

3.3 Asia and Pacific

Asia-Pacific is home to 60% of the world's population implying that health challenges in this region would affect the global indices drastically. Emerging challenges in these regions are the aging population with about 25% of the population above 60 years. With this aging demography, susceptibility to noncommunicable diseases, such as hypertension, diabetes, and cancers, is high. The region is characterized by a large out-of-pocket expenditure a factor that was exacerbated by the COVID-19 pandemic. The region needs to improve efficiency, optimize resources, and have patient-centered outcomes [22]. Life expectancy in this region decreased by 1 year due to the COVID-19 pandemic. The neonatal mortality rate was 15.8 per 1000 live births, and the maternal mortality ratio was 140 per 100,000 live births among countries in this region classified as lower-middle and low-income. Between 2010 and 2019, healthcare expenditures increased by 41.4, 62.5, and 74.1% for countries in these regions classified as lower-middle, low-income, upper-middle, and high-income countries, respectively [23].

Challenges facing Southeast Asia countries are unsustainable revenue-raising approaches, fragmented health insurance schemes, discordance between insurance benefits and people's needs, low political will, rising healthcare costs, and the attitude of caregivers and managers. To address these, countries within the region should address sustainable health financing, innovative digital technologies, and adaptable health systems tailored to prevailing needs [24].

A landscape review of Cambodia, India, Indonesia, the Philippines, Thailand, and Vietnam on UHC for key populations in southeast Asia found barriers such as lack of awareness, complicated administrative processes, documentation issues, co-payments or facility fees, stigma, discrimination, and weak data privacy systems. Some of these barriers can be reduced through improved legislation and regulation of health insurance schemes with particular emphasis on key populations, provision of comprehensive HIV service coverage, strengthening confidentialities, addressing knowledge gaps, sound financing strategies, partnership with civil society organizations, reduction in vertical programming, adopting multispectral approach, and strengthening transition and sustainability plans [25].

3.4 India

With a population of 1.4 billion, India accounts for about 18% of the global population. The under-five, infant, and neonatal mortality rates were 31, 25, and 19%, respectively. The ANC utilization rate was 59%, while skilled birth attendance and postnatal care were 89 and 61%, respectively [26]. To achieve the sustainable development goal three, India launched the Ayushman Bharat in 2017 with a commitment to leave no one behind. It adopted a continuum of care covering health and wellness centers and a health insurance scheme called Pradhan Mantri Jan Arogya Yojana. The Ayushman Bharat PM-JAY is the largest health assurance scheme in the world targeting 40% of the population. It was designed to provide cashless access to healthcare services and reduce catastrophic health spending with the aim of UHC in the country [27].

Much has been achieved in the Indian health system. Life expectancy increased from 47.7 years in 1970 to 69.5 years in 2020. The maternal mortality ratio decreased from 301 in 2003 to 130 in 2016. Noncommunicable diseases remain a challenge with ischemic heart disease, chronic obstructive pulmonary diseases, and cardiovascular

accidents, being the leading causes of mortalities. About 70 and 58% of outpatient and inpatient health services are provided by private or nonprofit organizations. Common challenges include quality of healthcare services, accessibility, and affordability of services, including ready availability of essential medicines and diagnostics [28]. The commitment of the government to achieving UHC is commendable through the launch of the largest health insurance scheme in the world.

3.5 China

China is committed to UHC and a Healthy China by 2030. Health insurance coverage improved from 22.1% in 2003 to 95.1% in 2013, and a drop in out-of-pocket expenditure followed this from 60.1% in 2000 to 35.9% in 2016. Within these intervention periods, life expectancy increased from 72.0 to 76.4 years, the maternal mortality ratio dropped from 59 to 29 per 100,000 live births, the under-five mortality from 36.8 to 9.3 per 100 live births, similarly, the neonatal mortality rate dropped from 21.4 to 4.7 per 1000 live birth from data reviewed between 2000 and 2017. Few challenges remain such as the need for high-quality, value-based, and more equitable health services [29]. A review of 24 service coverage indices between 1993 and 2018 showed that prevention indices increased from 65.5 to 87.7%, and treatment indices increased from 57.1 to 75.5%. Inequitable services increased during the period. It is projected that, apart from noncommunicable diseases, most indicators will achieve 80% by 2030 with prevention and treatment projected to reach 92.7 and 83.2%, respectively by 2030. Despite all these, catastrophic health expenditure and inequity remain large. It is recommended that the systems need to prioritize integrated service delivery at the primary health care levels and provision of better financial protection [30].

3.6 Nigeria

Nigeria is the largest country in Africa in terms of population. Despite having the highest maternal mortality ratio, under-five mortality rate, lowest numbers of unimmunized children, and lowest numbers of skilled birth attendance in the world, only 10% of the country has any form of health insurance for financial risk protection. The introduction of the National Health Insurance Act in 2022 making it mandatory for all Nigerians to have a form of insurance was a very important intervention aimed at ensuring UHC in the country. The act has the authority to regulate, promote, manage, and integrate all health insurance schemes and practices in the country. It further has special coverage for vulnerable groups [31].

Knowledge about health insurance is limited, including the ability to monitor progress toward UHC. Although the country has implemented the basic health care provision fund, which is a laudable intervention ability to fund it, may be a challenge. The country also has poor capacity for health insurance implementation, poor communication, and poor stakeholder management. This would require interagency collaboration and capacity-building strategies (**Table 4**) [32].

4. Conclusions

There has been very laudable significant progress by many nations globally on financial risk protection from health expenditures. The universal health coverage index is improving progressively including life expectancy and many other indices,

	Countries/ Regions	Challenges	Recommendations
1.	Globally	• UHC score of 67.	• Invest in one national health plan with government financing, prioritizing PHC, equitable services, accountability in health care using research, and multispectral collaborations [1].
2.	OECD Countries* United States health system	• About 8.6% do not have any form of health insurance [11]. • Higher per capita expenditure on health but more morbidities and mortalities [10].	• Unbundling of one-size-fits-all, Users ability to determine how much is paid and how people can fund additional care [12]. • Close coverage gaps, improve cost protection, and reduce barriers to reproductive, preventive, and behavioral health [13].
3.	Sub-Saharan Africa	• UHC score of 44. • Low per capita spending on health. • Donor dependence • Weak health system [20]	• Strengthening of PHCs [18]. • Improved private sector participation [19]. • Improved research, and scale-up of national health insurance coverage [21].
4.	Asia and the Pacific	• Fragmented health insurance schemes, discordance between insurance benefits and people's needs, low Political will, rising healthcare costs, and the attitude of caregivers [24]. • Key population lack of awareness, stigma, discrimination, and weak data privacy [25].	• There is a need for sustainable health financing, innovative digital technologies, and adaptable health systems tailored to prevailing needs [24]. • Protective legislation for key populations [24].
5.	China	• UHC Score of 82. • Has met most of the SDG targets.	• The need for high-quality, value-based, and more equitable health services [29]. • Prioritization of integrated service delivery at the primary healthcare levels [30].
6.	India	• UHC Score of 61. • Many poor health indices.	• Improved quality of care and coverage. • Sustained government commitment to the recently launched health insurance scheme.
7.	Nigeria	• UHC score of 44. • Not on course to meet the SDG target.	• User education on the National Health Insurance Act. • Strengthening of government to manage the NHIA [32].

** Only the United States was discussed here due to relatively higher investment in health but lower health indices compared to most OECD countries.*

Table 4.
Summaries of regional health system challenges and recommendations.

such as maternal and child health. While many countries in the world have met the sustainable development goal targets and others are on track, countries in sub-Saharan Africa appear to be left behind. Although the ratio of out-of-pocket expenditure to total expenditure on health is decreasing globally, about 11.1 and 2.8% of the global population continue to suffer from catastrophic health expenditures, using about 10 and 25% of family income on health expenditure. Regions with the highest burden of

diseases have the lowest per capita health expenditure and lowest UHC scores. The World Health recommends a nationally driven health insurance scheme and prioritization of primary health care to meet sustainable development goal three. With a few years to the sustainable development goal target, high numbers of uninsured population with about 1 billion or 13% of the world population impoverished by catastrophic health expenditures, the time to act is now.

Author details

Gabriel Igbo Alobo
National AIDS, STI, and Viral Hepatitis Control Program (NASCP), Federal Ministry of Health, Abuja, Nigeria

*Address all correspondence to: alobogab@gmail.com

References

[1] Lozano R, Fullman N, Mumford JE, Knight M, Barthelemy CM, Abbafati C, et al. Measuring universal health coverage based on an index of effective coverage of health services in 204 countries and territories, 1990–2019: A systematic analysis for the global burden of disease study 2019. Lancet. 2020;**396**(10258):1250-1284

[2] Investopedia. Health Insurance: Definition, How it Works. Available from: https://www.bu.edu/law/files/2016/01/EllisPaper.pdf

[3] Encyclopaedia Britannica. Britannica Money. Health Insurance. Available from: https://www.britannica.com/money/health-insurance

[4] Balance. What Is Universal Health Care. Available from: https://www.thebalancemoney.com/universal-health-care-4156211

[5] OECD. Private Health Insurance. Private Health Insurance Spending-Brief 2022. Available from: https://www.oecd.org/health/Spending-on-private-health-insurance-Brief-March-2022.pdf

[6] WHO. Universal Health Coverage (UHC). Available from: https://www.who.int/news-room/fact-sheets/detail/universal-health-.coverage-(uhc)

[7] World Bank. Out-of-Pocket Expenditure (Percentage of Current Health Expenditure). Available from: https://data.worldbank.org/indicator/SH.XPD.OOPC.CH.ZS

[8] World Bank. Universal Health Coverage Data. Trends in Catastrophic Health Expenditure. (Amount of Household Income on Out-of-Pocket Health Expenditure). Available from: https://datatopics.worldbank.org/universal-health-coverage/

[9] Adedeji O. Global health–Is universal health coverage achievable? Journal of Global Medicine. 2021. Available from: https://www.researchgate.net/publication/349655568_Global_health_-_Is_universal_health_coverage_achievable

[10] The Commonwealth Fund. 2023 Scorecard on State Health System Performance. Available from: https://www.commonwealthfund.org/publications/scorecard/2023/jun/2023-scorecard-state-health-system-performance

[11] United States Census Bureau. Health Insurance Coverage in United States: 2020. Available from: https://www.census.gov/library/publications/2021/demo/p60-274.html

[12] Baicker K, Chandra A, Shepard M. A different framework to achieve universal coverage in the US. JAMA Health Forum. 2023;**4**(2):e230187. DOI: 10.1001/jamahealthforum.2023.0187

[13] The Commonwealth Fund. Improving Quality of Care. U.S. Health Care from a Global Perspective, 2022: Accelerating Spending, Worsening Outcomes. Available from: https://www.commonwealthfund.org/publications/issue-briefs/2023/jan/us-health-care-global-perspective-2022

[14] KFF. The Effects of Medicaid Expansion under the ACA: Studies from January 2014 to January 2020. Medicaid. Available from: https://www.kff.org/medicaid/report/the-effects-of-medicaid-expansion-under-the-aca-updated-findings-from-a-literature-review/

[15] KFF. Building on the Evidence Base: Studies on the Effects of Medicaid

Expansion, February 2020 to March 2021. Medicaid. Available from: https://www.kff.org/medicaid/report/building-on-the-evidence-base-studies-on-the-effects-of-medicaid-expansion-february-2020-to-march-2021/

[16] Sustainable Development Goals. SDG Indicators. Metadata Repository. Available from: https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Funstats.un.org%2Fsdgs%2Fmetadata%2Ffiles%2FMetadata-03-08-01.docx&wdOrigin=BROWSELINK

[17] WHO Africa. Africa's Advances in Maternal, Infant Mortality Face Setbacks: WHO Report (01 December 2022). Available from: https://www.afro.who.int/news/africas-advances-maternal-infant-mortality-face-setbacks-who-report

[18] Kodali PB. Achieving universal health coverage in low- and middle-income countries: Challenges for policy post-pandemic and beyond. Risk Management and Healthcare Policy. 2023;**16**:607-621. DOI: 10.2147/RMHP.S366759

[19] Salawu MM, Onwujekwe O, Fawole OI. Innovative strategies to strengthen health service delivery for universal health coverage in Africa–A scoping literature review. South Eastern European Journal of Public Health. 2023; **2**:1. DOI: 10.56801/seejph.vi.214

[20] Arhin K, Oteng-Abayie EF, Novignon J. Assessing the efficiency of health systems in achieving the universal health coverage goal: Evidence from sub-Saharan Africa. Health Economics Review. 2023;**13**:25. DOI: 10.1186/s13561-023-00433-y

[21] Odonkor SNNT, Koranteng F, Appiah-Danquah M, Dini L. Do national health insurance schemes guarantee financial risk protection in the drive towards universal health coverage in West Africa? A systematic review of observational studies. PLOS Global Public Health. 2023;**3**(8):e0001286. DOI: 10.1371/journal.pgph.0001286

[22] World Economic Forum. Charting a Course to Remodel Universal Healthcare in the Asia-Pacific. 2021. Available from: https://www.weforum.org/agenda/2021/11/how-to-remodel-universal-healthcare-in-the-asia-pacific/

[23] OECD/WHO. Health at a Glance: Asia/Pacific 2022: Measuring Progress Towards Universal Health Coverage. Paris: OECD Publishing; 2022. DOI: 10.1787/c7467f62-en

[24] Lim MY, Kamaruzaman HF, Wu O, Geue C. Health financing challenges in southeast Asian countries for universal health coverage: A systematic review. Archives of Public Health. 2023;**81**(1): 148. DOI: 10.1186/s13690-023-01159-3

[25] UNIADS. Key Populations are Being Left behind in Universal Health Coverage: Landscape Review of Health Insurance Schemes in the Asia-Pacific Region. 2022. Available from: https://www.aidsdatahub.org/sites/default/files/resource/unaids-key-populations-uhc-asia-pacific-2022.pdf

[26] UNICEF Data. Country Profiles. India. Available from: https://data.unicef.org/country/ind/

[27] National Health Authority. About Pradhan Mantri Jan Arogya Yojana. 2019. Available from: https://nha.gov.in/PM-JAY#:~:text=Ayushman%20Bharat%2C%20a%20flagship%20scheme%20of%20Government%20ofcommitment%2C%20which%20is%20to%20%22leave%20no%20one%20behind.%22

[28] Selvaraj S, Karan KA, Srivastava S, Bhan N, Mukhopadhyay I. India Health

System Review. New Delhi: World Health Organization, Regional Office for South-East Asia; 2022

[29] Tao W, Zeng Z, Dang H, et al. Towards universal health coverage: Achievements and challenges of 10 years of healthcare reform in China. BMJ Globalization and Health. 2020;**5**: e002087

[30] Li Y, Zhang C, Zhan P, Fu H, Yip W. Trends and projections of universal health coverage indicators in China, 1993–2030: An analysis of data from four nationwide household surveys. The Lancet Regional Health-Western Pacific. 2023;**31**:100646. DOI: 10.1016/j.lanwpc.2022.100646

[31] Ipinnimo TM, Omotoso AA, Bamidele TA, Sanni TA, Ibirongbe DO, Ipinnimo MT, et al. Comparing the Nigeria National Health Insurance Scheme Act, 2004 and the National Health Insurance Authority Act, 2022-what is new and its implications for the health system. West African Journal of Medicine. 2023;**40**(5):525-532

[32] Ogundeji YK, Tinuoye O, Bharali I, et al. Is Nigeria on course to achieve universal health coverage in the context of its epidemiological and financing transition? A knowledge, capacity and policy gap analysis (a qualitative study). BMJ Open. 2023;**13**:e064710. DOI: 10.1136/bmjopen-2022-064710

Section 3

Health Insurance in High-Income Countries

Chapter 9

Perspective Chapter: Creating and Dismantling Social Health Insurance in Hungary – Causes and Consequences

Eva Orosz

Abstract

In the early 1990s, as part of the political transition, a comprehensive reform of the Hungarian health system was launched, including the transformation of tax-based financing into a social health insurance (SHI) system. The SHI was financed by contributions paid by employers and employees and operated by a newly created institution, the National Health Insurance Fund Administration (NHIFA), which enjoyed considerable independence. In 2008, there was a short-lived attempt to replace the single-payer, public institution model of the SHI with a system of competing private health insurers: the parliament passed the relevant law, only to repeal it a few months later. In the 2010s, the health system underwent radical changes as part of the overcentralisation of the entire public administration. All the basic elements of the SHI system were abolished, and the essential powers of the NHIFA were taken over by the government. This chapter describes these radical changes in the health financing system and reveals the political and economic reasons behind them, as well as their impact on the performance of the Hungarian health care system.

Keywords: health financing reform, factors hindering reforms, social health insurance, insurance competition, health system governance, performance of health financing systems

1. Introduction

In the early 1990s, as part of the political transition, Hungary also faced the challenge of the long-lasting crisis of the state-socialist health system. The fundamental problems, which together led to the poor performance of the sector were: decades of serious underfinancing; the exclusive role of the State (as the owner, financier and service provider), overcentralised, rigid institutional system, command-and-control governance and lack of choice and voice for the general population within the formal system. As the other side of the coin, chronic shortages led to a widespread informal

economy.[1] The reforms were expected to dismantle these old institutions and create new ones, including a well-functioning health financing system.

Over the decades, three radical changes took place in the Hungarian health financing system. In the early 1990s, as part of the political transition, a comprehensive reform of the health system was launched, including the transformation of tax-based financing into a social health insurance system (SHI). However, the reform process halted in the mid-1990s and eroded afterwards. In 2008, there was a short-lived attempt to replace the single-payer, public institution model of the SHI with a system of competing private health insurers. In the 2010s, the health system underwent radical changes as part of the overcentralisation of the entire public administration. All the basic elements of the SHI system were abolished; the current financing system can only be considered social health insurance in name, but not in substance.

Due to the failure of reforms, Hungarian health care system is struggling with alarming problems in access to and quality of care. This is reflected in the everyday experience and concern of the population: according to the regular Eurobarometer surveys, between 2016 and 2020, the situation of health care was the most important problem for the Hungarian population out of 15 areas. From 2021, it was overtaken by increasing inflation and the economic situation but still ranked 3rd in the spring of 2023 [1].

The study consists of five sections. The second one that follows the introduction describes the characteristics as well as the economic and political drivers of the aforementioned three radical changes in the health financing system. The third section outlines key characteristics of the Hungarian SHI system and their impacts on the performance of the health system. Section four seeks the answer to the question of what factors led to the failure of establishing workable SHI system. The closing section highlights some of the most important consequences of this failure.

2. Establishing and dismantling the independent institutional system of SHI

2.1 The launch of reforms

One of the pillars of the health system reform that started in 1989 was the transition from tax-based funding of the state-socialist health system to compulsory SHI. Intense work was launched in the mid-1980s to develop comprehensive reforms in the areas of the economy, public finance, public administration and welfare systems in response to the serious economic and social crises of the state-socialist system. The emphasis was on economic reforms and a transformation of the role of the state, reducing state intervention and redistribution. As part of this process, i.e. as a result of external factors, a Reform Secretariat was established in the Ministry of Health, which elaborated a comprehensive concept for the reform of the health care system. After the 1989 regime change, essentially the implementation of this concept started.

The ideas for the transformation of health care system were based on the concept of "managed markets" ("quasi-markets"), drawing primarily from the UK reform concept [2]. Its major elements included transition to compulsory SHI ("purchaser-provider split"), replacing the former input-financing of providers with performance-based payment methods (providing incentives for competition of providers),

[1] Widespread practice of informal, so-called "under-the-table" payments by the patients to the doctors and nurses.

enabling the operation of private providers and institutionalising patients' rights [3]. The implementation of SHI system meant not only a change in the method of funding but also, along with the other changes, a new way of health system governance: an institutional framework for dividing power (decision-making) and responsibility amongst the players[2] of health system instead of management that was based on centralised government instructions. The reform concepts envisaged a new health care system, where the government (Ministry of Health) primarily had a regulatory role and was not involved in the financing and provision of health services directly. Decisions were made at the level where the information mostly available. Government decisions were based on the coordination of various interests, with regulated institutional frameworks and mechanisms.

As for SHI system, the main steps were as follows (**Table 1**). On 1 January 1990, health care financing was integrated into the Social Insurance Fund, and the operation of health insurance became the responsibility of the National General Directorate for Social Insurance.[3] In 1991, a law was voted on the self-governance system of social insurance (pension insurance and health insurance). In 1992, social insurance contributions were divided into pension insurance and health insurance contributions. In 1993, the Health Insurance Self-Government (HISG)[4] and the National Health Insurance Fund Administration (NHIFA) (a "purchasing agent" with considerable autonomy) were established. This meant that Hungarian SHI was created with a single-payer, centralised institutional system. Additionally, various forms of voluntary health insurance were also initiated (voluntary insurance funds and policies offered by commercial insurers).

The powers of the Health Insurance Self-Government were contradictory. On the one hand, it had a great deal of autonomy, only the law could impose tasks on it, and it had the right of consent for government decrees on SHI. Additionally, the Social Insurance (pension and health insurance) Funds formed an independent part of public finance, separate from the state budget, and were submitted to the Parliament as a separate law by the Minister of Finance and the presidents of the social insurance self-governments. The Director General of the NHIFA was nominated by the Self-Government. On the other hand, however, the law did not allocate any direct means to the task of the Self-Government and the NHIFA in relation to the management of health insurance, the decision on all the substantive issues remained within the powers of the Parliament or the government (e.g. the contributions rate, spending on individual service areas, monetary values of the payment methods' performance units etc.). The Self-Government only had the power to make recommendations, give opinions and, in certain issues, give its consent.

Important changes were made in the sphere of service provision also. General practitioners became self-employed, outpatient clinics, hospitals were transferred to the possession of local governments. (Previously, they had been owned centrally by the state.) Private businesses have entered the health sector. New performance-based

[2] Namely, between the Ministry of Health (Public Welfare), the Ministry of Finance, the Health Insurance Self-Government, local governments, heads of the health care institutions (hospital directors) and professional organisations.

[3] The former task of the National General Directorate for Social Insurance was to manage pension insurance only.

[4] The Health Insurance Self-Government (HISG) comprised 30 employer representatives and 30 representatives of trade unions. A board of 11 members (called the "presidency") was responsible for continuous control.

1990:	Tax-based funding switched by social health insurance.
	Ownership of health facilities transferred to local governments.
1992:	Social Insurance Fund divided into Pension Fund and Health Insurance Fund.
	Parliament eliminated universal entitlement to health care and defined conditions for eligibility.
	Family Physician Service created and capitation-based payment introduced.
1993:	Health Insurance Self-Government and National Health Insurance Fund
	Administration set up.
	Output-based provider payment methods introduced.
	Voluntary Health Insurance authorised.
1997:	Act on Health Care passed. (The act also provides for patient rights.)
	Act on Services of Social Health Insurance passed.
1998:	Health Insurance Self-Government abolished.
2004:	Individual provider-level cap on performance volume introduced for Outpatient- and inpatient care.
2007.01:	Health Insurance Supervisory Authority set up.
2007.02:	The legislation on the visit fee and hospital daily fee came into force.
2007.10:	The government submitted the bill on Sickness Funds to the Parliament.
2008.02:	The Parliament adopted the law on Sickness Funds.
2008.02:	Referendum on the user charges.
2008.05:	The Parliament repealed the act on Sickness Funds.
2010:	Health Insurance Supervisory Authority abolished.
2011:	The regional units of NHIFA were taken away and integrated into the newly created county government offices.
2012:	Employers' pension and health insurance contributions replaced by social contribution tax.
	The ownership of hospitals owned by local governments transferred to the central government.
2017:	The NHIFA abolished. A significant part of its powers transferred to the Ministry. The National Institute of Health Insurance Fund
	Management with limited authority became the legal successor.

Table 1.
A chronology of key measures in the Hungarian health financing system (1990–2019).

payment methods aimed at competition between providers were introduced.[5] Additionally, the institutionalisation of patients' rights was also launched. Overall, the changes that took place in the early 1990s responded to the problems of the health care system adequately, marking the start of the actual reform process. Furthermore, the new macro-level institutional framework (the principles and direction of changes) was also in line with the general characteristics of the Western European health care systems and reform efforts [4].

However, the development of the new institutions started in a confrontational and contradictory manner; by the time the Health Insurance Self-Government was

[5] The input-related global budget was replaced by output-related payment methods: a German-style points system for outpatient specialist care and the Hungarian version of the Diagnosis-Related Groups (DRGs) payment methods for acute inpatient care.

established in 1993, the revaluation of management by self-government had already started and the efforts aimed at the weakening and liquidation of the new institutions had also emerged within the government. The powers of the Ministry of Finance, the Ministry of Public Welfare and the Health Insurance Self-Government (and the NHIFA) were not defined properly, a conflict-ridden relationship evolved between them. The actual processes were characterised by mutual recriminations instead of a joint search for the solution of problems. Consolidation of the new governance model would have required strong commitment from the government (political leadership and ministerial bureaucracy) as well as specific, feasible plans for organisational development and proper administration capacities for the implementation. However, these conditions were missing significantly.

Changes in the macrostructure obviously could not bring about a quick solution for the basic problems of the operation of the health care system: problems with the accessibility, quality and efficiency of care, doctor-patient relationships, informal payments and meeting consumer needs. This would have required the increasing of public spending and the establishment of professional structures (e.g. adequate economic and quality regulation), as well as the transformation of the microstructure[6], which would have taken time.

2.2 Halt in the reform process

However, in the second half of the 1990s, the reform process halted, and instead of improving the functioning of the new institutions and continuing the reforms, the focus shifted to "putting out fires". It had several reasons, both within and outside the health care sector. The short-term side effects, tensions of the transformation of the financing system were felt more than the expected long-term advantages. The most important side effects were: widespread avoidance of the payment of health insurance contributions, extensive DRG-manipulation and the fast growth in pharmaceutical expenses of NHIFA, regularly exceeding amounts planned in the budget, which resulted in the deficit of the Health Insurance Fund (HIF). However, the main reason for the halt of the reform was of economic nature. The transformation crisis unfolding in the economy in the early 1990s and the large budgetary deficit resulting from the fall of GDP pushed government policy to focus on the restoration of balance and the decrease of public spending. Consequently, the health care reform was subjected to economic stabilisation: the real value of public expenditure on health fell drastically (by 15%) in 1995–1996. (From 1997, it actually remained at the same level until 2001.) The actual measures were limited to "putting out fires" instead of developing new institutions and financing methods: reducing hospital capacities, managing the deficit of the HIF, mitigating tensions derived from the indebtedness of hospitals. Additionally, the government considered the idea of the early 1990s about the self-government and autonomy of SHI as mistaken and considered it necessary to increase the role of the government. The laws initiated by the MSZP-SZDSZ[7] government in 1997 narrowed down the powers of self-governments. Then

[6] This study distinguishes between three levels of structures within health system: (i) *macrostructures* (*institutional framework* of governance, financing and service provision); (ii) *professional structures* (economic and quality regulation related to the processes of care, etc.); and (iii) *microstructures:* non-institutionalised characteristics and patterns of relationships between the players (e.g. characteristics of the doctor-patient relationship, informal payments, informal hierarchy amongst doctors, the informal relationships of ministry officials and hospital directors, etc.).

[7] MSZP: Hungarian Socialist Party; SZDSZ: Alliance of Free Democrats.

the FIDESZ-KDNP[8] government that came into power in 1998 abolished health (and pension) insurance self-governments and social insurance became a chapter in the state budget, and the supervision of the NHIFA was transferred under the Ministry of Health. This institutional structure remained in place until 2010. Changes in certain characteristics of health insurance (e.g. contribution system) will be discussed later.

2.3 Attempt to involve commercial insurers in the operation of compulsory health insurance

Since the creation of the centralised (single-insurer) institutional system of SHI (the NHIFA) in 1993, various concepts emerged regarding its transformation, basically along the line of two strategies—regional decentralisation and privatisation. The concepts recommending regional decentralisation would have kept the institutional system of health insurance within the broadly interpreted public sphere but instead of the only insurer, the establishment of 5–7 independent, regional insurers were proposed. The advantages of regional insurers were considered to be derived from the regional, need-based distribution of resources, the better consideration of regional/local needs and service provider characteristics, and regional coordination. This model considered the role of competition important in the service provision and voluntary health insurance.

The debate of the supporters and opponents of the other model, i.e. the "system of multiple health insurers" or "competing insurers", has accompanied and divided governments and political parties from the early 1990s.[9] The model of competing insurers was far more than an institutional model: the basic difference between the single-insurer system and the system of multiple health insurers was the role of market players, i.e. private insurers. The supporters of the concept considered the involvement of commercial insurers in the operation of compulsory health insurance as a decisive issue of the health care reform. Their concept was based on the assumption that the state and the government are not able to modernise health care, only market players can do that. The basic conditions for efficient operation are competition and profit-orientation. The central effort of this strategy was for commercial insurers to take over the operation of compulsory health insurance from the centralised state organisation.[10]

The main driving force behind the implementation of competing insurers was the smaller party (SZDSZ) of the MSZP-SZDSZ coalition that had been governing the country since 2002 and won a new election in 2006; it was the main topic of difference from other parties (including the coalition partner) in the party's election programme. The Ministry of Health controlled by the SZDSZ disclosed its radical proposal about competing insurers in January 2007: only commercial insurers would have been allowed to participate in the operation of the compulsory health insurance, and the NHIFA would have been abolished. In addition, the concept also foresaw that competition between insurers had to be created in the medium term concerning the service package and the contributions rate [7]. The Ministry of Health published the proposal whilst there was still no agreement in the government. The majority of the MSZP's health politicians and MPs opposed it.

[8] FIDESZ: FIDESZ-Hungarian Civic Alliance; KDNP: Christian Democratic Peoples Party.

[9] The concept of competing insurers was one of the dominant and, at the same time, controversial issues of international reform efforts in the second half of the 1990s [5].

[10] Due to the contradictory international experiences and the underfinancing of Hungarian health care as well as the lack of institutional conditions, the opponents considered the concept an inadequate solution for the then problems of Hungarian health system [6].

The disclosure and future fate of the proposal about competing insurers was fundamentally affected by the fact that after the 2006 elections, health care became the field of a double political conflict. One of the conflicts was between the two parties of the governing coalition, the other between the government and FIDESZ, which was again in opposition. After losing the elections, FIDESZ immediately launched a "political war" and chose health care as one of its battlefields. It also opposed the insurance reform, but the major point of attack was the co-payment for health services. (This will be discussed later.)

As a result of intense arguments and extensive technical work and consultations, the two governing parties reached a political compromise by the end of May 2007 [6]. The main elements of the bill on sickness funds were as follows:

- The NHIFA would have been transformed into an institution managing the Health Insurance Fund and only the financing of some high-cost, priority care would have been left for it.

- Health insurance basically would have been operated by sickness funds organised on a county basis with mixed ownership. The state would have acquired a minimum 51% ownership, consequently, business players could have obtained a maximum 49% share in a sickness fund.

- National risk pooling would have been ensured by the identical contribution rate and the compulsory territorial population coverage.

- At the same time, sickness funds could have accepted applicants from anywhere in the country.

It is obvious that the accepted organisational structure was a compromise between the two major approaches (regional and competing insurers): it included the elements of both regional organisation and the possibility of competition.

The Parliament passed the law in February 2008. However, the fate of the sickness funds was fundamentally affected by the referendum held on 9 March 2008 (and initiated by FIDESZ) regarding user charges (co-payment for outpatient services, hospital per diem fee and tuition fees in higher education).

2.4 Introduction and cancellation of user charges for health services

The government economic programme aimed at managing the budgetary deficit that had reached a critical level by 2006 implemented several austerity measures in the health care system. One of its elements was the introduction of user charges (co-payment for outpatient services and hospital per diem fee) in February 2007. The amount was actually minimal: patients who were not included in the exempted groups had to pay HUF 300 for a visit to the GP or a specialist and HUF 600 for a day spent in a hospital.[11] Approximately, 40% of the population was exempted. It is important to see that it was not the new user charges that represented the largest item in the increase of the burden on the population. To put the proportions into perspective, in 2007, the rise in the total cost-sharing on pharmaceuticals was four times the amount of the new user charges and it did not cause any political tension.

[11] In comparison: HUF 300 was equal about 1.2 euros.

At the same time, FIDESZ understood that the user charges could be made a symbol of the growing general discontent of society and they initiated a referendum to cancel them. With simple political messages, they managed to present user charges as a symbol of the "anti-society" nature of government reform. Due to the deteriorating economic situation, tension had increased in society and new user charges became an easy, tangible target and focus of it. By the time the referendum took place, support for the government had hit rock bottom. Support for the cancellation of co-payments was overwhelming in the referendum held on 9 March 2008. This huge political loss predicted the unavoidable fall of the government in 2010. After the shock of the referendum, the SZDSZ left the government and the minority socialist government, partly because of fearing a new referendum initiative, submitted a bill to the Parliament in May 2008, repealing the law on sickness funds. Thus, the issues of co-payments and competing insurers were taken off the agenda for a long time.

2.5 Dismantling social health insurance

In 2010, FIDESZ-KDNP had a significant electoral victory: they won two-thirds of the parliamentary seats. There was widespread positive expectation for the government, including that it could start to overhaul the health care system. The matching concept was also in place: the State Secretariat for Health had developed a detailed reform programme with the involvement of a wide range of experts. One of its elements was the strengthening of the purchasing function of the NHIFA and the increasing of the transparency of SHI. However, this concept did not make impact on the real processes. During 2010, the concept for the transformation of public administration, which basically affected the institutional system of health administration, was being developed at the Prime Minister's Office parallel to developing the health care reform concept but without any coordination. Out of the conflict between the two concepts, and between the leaders of the Prime Minister's Office and the State Secretariat for Health, the concept of the Prime Minister's Office emerged as the winner.

The transformation of the macrostructure of the health care system was subordinated to the strong centralisation of the public administration, one element of which (as of 1 January 2011) was the creation of county government offices with general competence (regional administrative bodies of the government). In the case of health care system, this affected the National Public Health Service (NPHS)[12] and the NHIFA. In 2011, their regional units were taken away and forced under county government offices. This meant the abolition of the national-level institutional system of health care administration (NPHS, NHIFA) that was separate from other areas of public administration. In 2017, the central office of the NHIFA, which was in operation until then, was also eliminated and its essential functions were merged into the Ministry of Human Resources. The legal successor of the NHIFA, the National Institute of Health Insurance Fund Management (NHIFM) has only narrow functions, basically the day-to-day management of payments to the providers. The government has eliminated not only the institutional system but also the legal and financial bases of SHI. The Constitution was replaced with the so-called Fundamental Law which does not include the notion or institution of social insurance at all. Even the phrase itself was left out of the Fundamental Law, indicating that social insurance was eliminated from the

[12] The NPHS was responsible for monitoring and evaluating sanitary conditions, epidemiological issues and changes in the population's health status; and for health promotion and prevention.

basic institutions of Hungarian society. In 2012, the employer contribution system was abolished and replaced with the social contribution tax. The transparent distribution of employer payments between pension insurance and health insurance has ended. This also meant that the essential characteristic of health insurance, that its financial fund is created by transparent rules, was eliminated. The extent of the health insurance fund is not defined by the regulated contribution revenues any longer but by the government decisions made during the development of the state budget. As a result of all this, the health financing system operating in Hungary remained health insurance only in name.

The other radical change covering the entire public administration was taking away the property and a significant portion of the powers of the local governments. In the area of health care, it covered hospitals. In 2012, the hospitals owned by local governments were transferred to central state ownership and the management of the more than 100 hospitals was transferred to a single national central institution.[13] The power of the hospitals' directors was reduced to a minimum. This irrational centralisation is in contrast with the specificities of health care, and also meant that the element of the 1990s reform that the relationship of the insurer and the service providers was based on a contract between them was also eliminated.

Changing the ministerial structure of the government was also part of the overcentralisation of public administration. Several, formerly independent ministries were merged into the newly created Ministry of Human Resources[14], contributing to the weakening budgetary position of these areas. The Ministry of Human Resources was dismantled in 2022 and the management of health care was transferred to the Ministry of Interior Affairs.

2.6 Ending the autonomy of patients' rights institutions

There was a radical reversal in the development of the system of independent patients' rights institutions; it fell victim to the overcentralisation measures of the government. Prior to 2010, the Health Insurance Supervisory Authority and the Public Foundation for the Rights of Patients, Receivers of Health Care Services and Children performed tasks related to patients' rights, both were independent of the Ministry of Health and the NHIFA. The FIDESZ government dismantled both institutions in 2010. The representation of patients' rights was first transferred to a governmental back office which was abolished in 2017, and then they created the Integrated Rights Protection Service (IRPS) as an organisational unit of the Ministry of Human Resources. The patients' rights advocacy organisation now operates as a sub-unit of a ministry. This is obviously dysfunctional since it is not independent of the operator of the health care institutions.

3. Key issues of the main components of social health insurance

As we saw in Section 2, out of the components of the SHI system, the transformation of the institutional system was at the forefront. However, it does not mean

[13] The name of the institution and partly its functions also changed several times. Its current name is: National Directorate General for Hospitals. University clinics, national institutes and state-owned hospitals were not transferred to its supervision.

[14] Ministry of Health, Ministry of Education and Culture and Ministry of Social Affairs and Labour.

that there were no important changes in the other components of SHI. This section outlines key characteristics of the Hungarian SHI system and their impacts on the performance of the health care system.

SHI is a complex system with the following basic components: population coverage (entitlement to the SHI's services); service-basket and cost coverage; funding (revenue-raising and pooling of funds); purchasing (purchaser-provider relationships) and the institutional arrangement. SHI system performs well if it ensures the population's financial protection and contributes to access to care of good quality. Furthermore, it also ensures efficiency in the utilisation of financial resources and sustainable financing, as well as equity in both financing and access to care [8].

3.1 Population coverage

In terms of access to care, the regulation of entitlement to health insurance benefits is a fundamental issue. In the Hungarian SHI system, individuals can be divided into four major groups from the perspective of entitlement:

1. Insured persons who are entitled to the full range of social insurance benefits (health insurance benefits in kind and in cash, and pension insurance). The basis of this (until 2012): employer and employee contribution payment.

2. Those who are entitled to health insurance benefits in kind (health services) only but do not have to pay any contributions. This includes retirees, minors and those who receive regular income support in cash, either due to their health condition or social situation.

3. Those who are entitled to health insurance benefits in kind based on their own payments (flat-rate health service contribution). This group includes all those who do not belong to the previous two groups.

4. Those who do not have a valid insurance. This group includes those who were not entitled to health services based on the aforementioned legal grounds in the given period because of failing to pay the health insurance contribution or health service contribution.

Data show that the number of those not entitled to health services increased considerably between 2010 and 2020 (**Table 2**). In 2020, it meant approximately 700 thousand people, 7% of the population.

Individuals can lose their entitlement status for various reasons. Amongst those who emigrate, some do not de-register from health insurance for several years but do not pay contributions. There are many people living in permanent poverty who do not have any legal income (because they have dropped out of social benefits but have not been able to enter the labour market) and cannot pay the health service contribution. As a result of the above regulation of SHI entitlement, the radical curtailment of social benefit entitlement after 2010 may make it more difficult or impossible for the most vulnerable to access health care. However, we do not know how many of the 700 thousand uninsured people can be like that. After 2010, governmental measures outside health care made a controversial impact on this group of society. Reduction of the unemployment benefits to 3 months and the termination of regular social assistance could have increased their number substantially. However, this may have been

	Number of persons (thousands)		Proportion of persons	
	2010	**2020**	**2010 (%)**	**2020 (%)**
Number of insurees	3844	4096	38.5	41.9
Persons entitled to health care services only	5728	4970	57.4	50.9
Persons without entitlement for health insurance	414	704	4.1	7.2
Population	9986	9770	100.0	100.0

Source: Statistical Yearbooks of National Institute of Health Insurance Fund Management.

Table 2.
Number and proportion of persons with and without entitlement for health insurance.

partially compensated by the considerable expansion of the public labour programme between 2014 and 2018. However, the government has significantly narrowed down the public labour programme since 2019.

3.2 Service and cost coverage

Only a few services are explicitly excluded from the Hungarian SHI service package: treatments for aesthetic and recreational purposes and occupational health services. (Employers are responsible for financing occupational health services.) Cost-sharing is required for pharmaceuticals, therapeutic appliances, balneotherapy, tooth-preserving dental services for adults, treatment in sanatoria, long-term chronic care and some hotel services in hospitals.

In Hungary, the share of out-of-pocket payments (OOP) in total health spending is rather high, primarily due to the cost-sharing on medicines, the significant proportion of OTC medicine and the rise in outpatient care purchased in the private sector. A significant portion of the latter services could be used by individuals free of charge within the SHI system but due to the long waiting times, a significant portion of patients turn to providers in the private sector. These factors limit access to care by low-income groups of society significantly. Until 2020, informal payment was also a significant component of the OOP payment.[15] In 2019, OOP payment amounted to 27.8% of total current health expenditure; 48.3% of the OOP payment was made up by pharmaceuticals (cost-sharing and OTC medicine together) and 32.3% by outpatient care.[16]

Indicators of out-of-pocket expenditure as a share of final household consumption and the share of households with catastrophic health spending (by consumption quantile) are used to assess financial protection and (barriers to) access to care [8]. OOP expenditure as a share of final household consumption was 3.8% in 2019 (the fifth highest in the EU). The share of households with catastrophic health spending was the fifth highest in the EU in the mid-2010s. Poor financial protection limits

[15] In 2020, a law was passed on the significant (about 100%) increase of doctors' salaries. At the same time, the law provided for the abolishment and strict sanctioning of informal payments.

[16] The study does not publish data more recent than 2019 data, because COVID-19 pandemic had a temporary effect on them. Source of data reported in the study: OECD.Stat (Health) database 2023, unless otherwise noted.

access to necessary health care on time in the case of disadvantaged social groups, which may gravely affect their health condition, increase inequality in health status as well as poverty and social inequalities.

The scheme of individual equity that the SHI primarily applies for certain very expensive, innovative medicines is an additional critical issue of access. Due to the constraint of financial resources, the inclusion of innovative, already registered medicines in the SHI system is often delayed. These include mostly drugs used for the treatment of cancer and inflammatory diseases, or the off-label application of medicines. In such cases, patients can try to get these medications based on an individual equity application. The weight of the problem is shown by the fact that these drugs accounted for only 1.5% of the SHI's drug expenditure in 2010, which increased to 6.9% in 2019. Another group of individual equity, paid from hospital budgets, is composed of drugs used for the treatment of rare diseases. The scheme of individual equity can limit access in several ways: it may prevent access to adequate care, especially for patients from disadvantaged social groups who need it the most. Additionally, due to the prolonged authorisation procedure, access may be delayed for the patients concerned, which may reduce the chances of effective treatment.

3.3 Revenue-raising

From the mid-1990s, the changes and problems of the contribution system have been affected by economic and political factors from outside health system. At the end of the 1980s, when the goal was to replace the state health system financed from tax revenues with compulsory health insurance funded from contributions, the idea was that, assuming stable economic growth, the Health Insurance Fund would represent an increasing and predictable source for funding health care benefits (contrary to the previous annual budgetary negotiations). Additionally, the self-governance system of SHI would represent strong advocacy to ensure the funds. In the spirit of this concept, in 1993, 82% of revenues came from contributions (**Table 3**).

The idea of stable revenues from contributions, however, proved to be an illusion. Since the introduction of the SHI, avoidance and evasion of contribution payment, including payment arrears, non-payment and underreporting of income have been widespread. Economic downturn, the relatively high level of contributions and the problems of contribution collection all contributed to these phenomena. From the establishment of the social insurance system, it was the employers' fundamental demand to decrease the contributions rate. This process had started in the 1990s, but the basic change took place in the 2000s. In 1993, employers' contribution constituted 19.5% of salaries and only 2.6% in 2010. Employee contributions totalled 6%. Health insurance contribution (employer and employee together) fell from 23.5 to 8.6% between 1994 and 2010. As a result of all this, the revenue structure of the Health Insurance Fund (HIF) changed radically: transfers from the state budget increased from 13% of the HIF revenues in 1993 to 45% in 2010 (**Table 3**). The amount of the transfers from the state budget was defined by the government in a discretionary manner.[17] As presented previously, the changes after 2010 radically modified, essentially abolished, the SHI system**.** The employer contribution system of pension and health insurance *was terminated in 2012 and replaced by a tax-type payment (the*

[17] In principle, government payments should have provided contribution on behalf of those who were entitled to health services without paying contributions; i.e. its size should have been determined based on this.

		1993 (%)	2000 (%)	2010 (%)	2015 (%)	2019 (%)
1	Revenues from employers and insurees	86	89	49	64	75
1.1	Employer's insurance contributions *From 2012: social contribution tax*	67	75	15	27	31
1.2	Insuree's contribution	15	11	31	34	41
1.3	Other revenues from employers*	4	3	3	3	3
2	Transfers from government's general revenues	13	10	45	29	18
3	Other revenues	1	1	6	7	7
	Total revenues of HIF	100	100	100	100	100

** Primarily related to sick-leaves benefits.*
Source: Statistical Yearbooks of National Institute of Health Insurance Fund Management.

Table 3.
The share of the revenues from employers, insurees and government transfers in funding SHI.

social contribution tax); as well as the transparent split of employer contribution rate between pension insurance and health insurance also ended. After 2012, the other important change was the fall of the share of transfers from general tax revenues in funding the HIF: from 45% in 2010 to 18% by 2019.

Since the drastic fall in the employer contribution revenues of the HIF was only partially compensated by the transfers from the state budget, the rise in the real value of the SHI expenditure was very low, it was below GDP growth. The spending of HIF made up 4.4% of GDP in 2010 and only 3.8% in 2019. As a result, in the past decades, the SHI system has had serious disturbances in the areas of financial sustainability[18]: the indebtedness of hospitals to suppliers (drug wholesalers and suppliers of health technology mainly) and the deficit of the Health Insurance Fund.

3.4 Purchaser- provider relationship

The NHIFA's purchasing role was rather limited from its inception. In the case of the basic parameters of the financing system, the NHIFA only had a proposal-making role, the decisions were defined by government decrees or laws. The NHIFA's room for manoeuvre was limited by the fact that there was no way for selective contracting, but it was obliged to conclude a contract with all service providers that the relevant legal regulations on health care capacities applied to.

The introduction of performance-based financing methods received the main emphasis in the reform process as the main means for the more efficient allocation of resources and the creation of a regulated competition. In 1993, as already mentioned, output-related payment methods were introduced for providers. However, three aspects were conflicted in the transformation of the provider-payment system. On the

[18] According to Thomson [9]: "*Fiscal sustainability can be interpreted as the presence of a balance / imbalance between the obligations that a health system has (in respect of entitlements and instituted rights) on the one hand, and its ability to meet those obligations on a continuing basis on the other*".

one hand, the efficiency approach: normative financing providing identical fees for the same performance. Political security was the other aspect, i.e. to go through the inevitable changes with as little conflict as possible. The third was cost-containment. The closed budget of HIF was maintained: "closed sub-budgets" were specified in the major service areas (e.g. specialised outpatient care, dental care, acute inpatient care etc.) and the total amounts of payments for health care services should have not exceeded them. To this end, several "brakes" were incorporated into the output-based provider-payment methods. In 2004, the implementation of the provider-level performance volume limit (PVL), which was introduced as a result of external economic pressures, further eroded the incentives of the payment methods (the "money follows the patient" principle). Originally, the PVL was meant to be temporary, but it is still a basic means for limiting expenses of HIF. As a result of all this, the positive effects of the performance financing were considerably weaker, whilst its side effects were stronger than expected based on international experiences. As mentioned before, in 2012, the government took hospitals away from local governments and centralised them under a single institution. This eliminated both the concept and the possibility of contractual relationships between financing agent and providers. The basic goal was to maintain the operability of the system and to mitigate disruptions, whilst public spending was kept extremely low. The reproduction of the indebtedness of hospitals showed that this expectation was not met, either.

The above shows that financial protection, equal access and ensuring good quality of services received little attention in the operation of the SHI system. The dominant aspects were cost containment and deficit management. A player whose basic interest would be ensuring financial protection, access and quality is missing from the Hungarian health financing system.

4. What factors led to the failure to establish a well-functioning SHI system?

A number of interlinked and mutually reinforcing factors from outside and inside the health sector have led to the failure of the health reform concept of the regime change, including the establishment of a well-functioning SHI system. First, the factors outside health care, then those within the health care system are discussed.

4.1 Lack of commitment by governments to comprehensive, longer-term reforms of the health system

Owing to the exceptional historical context of the regime change, the early 1990s meant a rare exception in the history of health system after the regime change: the basic conditions of the reform were present simultaneously to a sufficient extent for 2 to 3 years: the governments' willingness, financial resources, professional concept, sufficient professional capacity for the implementation and, last but not least, sufficient support for / acceptance of the changes by medical professionals and opposition parties. However, from the middle of the 1990s, the lack of commitment to health care reform was dominant, which was part of the more general characteristics of governance (affecting education, environmental protection etc.): in setting government priorities, short-term political interests (the keeping of power) squeezed out aspects of longer-term societal interests and pushed them to the background [10]. In the rare cases, when government commitment was in place for decisions on health system

(e.g. self-governing administration of health insurance), it was soon eroded either by short-term economic pressures or due to the "political war" between the political parties. The priorities of other sub-systems (public finance, public administration) superseded the professional aspects of health care.

In addition to the opportunistic behaviour of governments and the fights in the political arena, the following also contributed to the lack of priorities: the erroneous and outdated views of the political and economic elites on the role of health system; the weak position of the health care administration within the government; the low level of professional capacity of the health care administration; and the lack of a political agent capable of effectively manifesting the society's dissatisfaction with the state of health system.

The Hungarian economic and political elite maintained their view, which was typical of state socialism, that health care (and education) were "non-productive sectors". This is partly due to the fact that the neoliberal view dominant in the international arena in the 1980s and the 1990s primarily saw these sectors as a fiscal burden and, consequently, it considered the main task of governments to limit welfare (health) expenditure. The thinking of the Hungarian elite got stuck here and resisted the significant turnaround that took place internationally in the early 2000s: interpreting public spending on education and health as an investment in human resources came to the forefront again; it was recognised that their role is fundamental in long-term economic development [11].

4.2 Unfavourable economic policy context

The financial resources available to the health sector were shaped by international economic conditions (e.g. the 2008 crisis), Hungarian economic policy and the previously discussed political priorities. In the past three decades, Hungarian economic policy was characterised by the so-called stop-go cycles: the state overspent in election years, the obvious reason being the "buying of votes". Consequently, a fiscal imbalance developed, which forced out austerity measures after the elections. Health care was one of the main losers of the stop-go budgetary cycles: it did not profit from electoral spending but was one of the main victims of austerity. When economic conditions were favourable and would have enabled the correction of the financial situation of health system (e.g. after 2012), the political intention was missing. Due to all these, public spending on health increased much more slowly than GDP[19], apart from a few corrections forced by growing tensions[20] (**Figure 1**).

Figure 1 shows the gap between GDP and the growth of public spending on health that opened after 2005. In 2019, the GDP exceeded the 2005 level by 30%, whilst public expenditure on health—after a dramatic decrease—only returned to the 2005 level. In 2019, OOP spending was 11% higher and, in turn, total health expenditure was 3% higher than in 2005.

The trends of Hungarian health expenditure deviated from that of the EU14[21] countries. This is reflected in that the ratio of public expenditure on health to GDP decreased: in 2005, it was 5.6% and only 4.3% in 2019; whilst the EU14 average

[19] The GDP (at real value) was nearly double (192%) in 2019 of the 1992 level, whilst public spending on health exceeded the 1992 level by only 39%.

[20] The most important such government steps were: the increase in public sector wages in 2002/03 and the period of the COVID-19 pandemic (including the big increase of doctors' salary in 2021).

[21] EU14 refers to the group of EU countries before the 2004 enlargement, except UK.

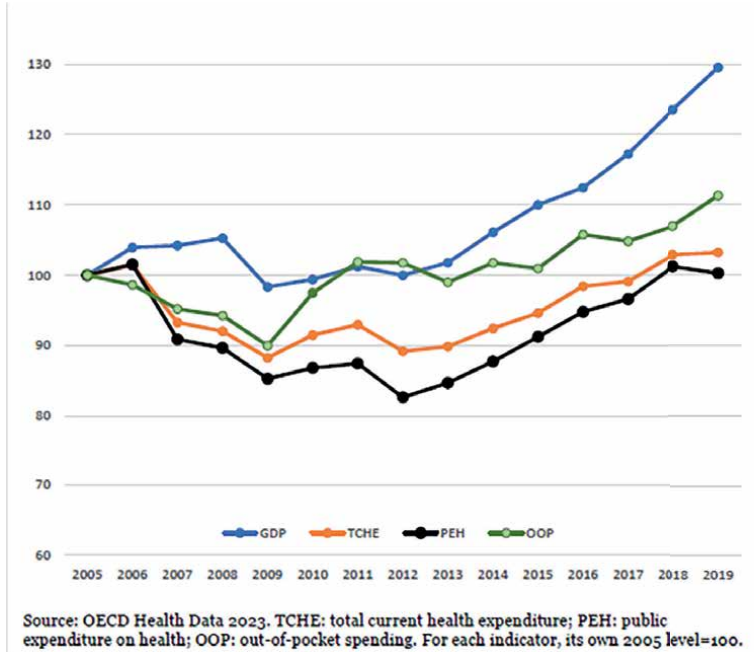

Figure 1.
The trends in GDP, public spending on health, OOP spending and total health expenditure (2005 = 100).

increased from 6.4% in 2005 to 7.2% in 2019. Hungarian public expenditure on health per capita reached 50% of that of the EU14 in 1992, then 45% in 2005, and only 39% in 2019. Hungary is lagging behind not only the EU14 countries, but even the countries which had similar level of development and historical legacy in the early 1990s. Hungarian public expenditure on health per capita amounted to 90% of that of the Czech Republic in 1993, then 78% in 2005, and only 52% in 2019.

4.3 "Political trenches" between government and opposition

The political competition between government and opposition that was typical of the period of the regime change was replaced by "political trenches" by the early 2000s. The parties' political wars and the dominance of short-time political interests in the operation of governments reinforced each other and rendered the development of strategies overarching governmental cycles and organisational innovations impossible in health system. The wars in party politics made the situation of sectors, where the timeframe for changes extends beyond governmental cycles difficult. The uncertainty and potential temporary tensions or negative side effects that necessarily accompany the changes can be easily used to trigger dissatisfaction with the government or to "materialise" the existing diffuse discontent. The most memorable example for the latter was the referendum against the user charges in 2008.

4.4 Fights within the government

When new governments took power, generally there was no mature concept to remedy the basic problems of health care. At the beginning of several governmental cycles, there was a struggle within the government between the heads of the health

sector and other governmental units, and their various concepts regarding what measures and changes to make in health care system. An example is the attempt to introduce competing insurers and the collision of health and public administration reform concepts in the early 2010s.

4.5 Weak governmental position and inadequate capacity of health administration

The factors outlined above significantly limited the health administration's space for manoeuvre. Apart from a few periods, the main expectation of government heads from health ministers was to "maintain peace" within the health care system (and not the comprehensive, fund-requiring transformation of health care). Health administration strived or was forced to adjust professional concepts to these expectations. The activity of health administration was dominated by austerity measures forming part of the budgetary consolidations, and the (also "fire-fighting") measures aiming to mitigate the evolving tension (settling hospital debt, salary raise etc.). The low quality of the professional capacities of health administration also contributed to its weak position within the government (e.g. in the competition for budgetary sources). The government and the Ministry of Health were not able to meet the challenge of having to perform the everyday tasks related to the operation of the health care system and to manage the transformation of the health care system simultaneously. The successful transformation of the financing and delivery system would have required a longer period, systematic, continuous professional work and corrections. For example, in order to develop the efficient purchasing function of the NHIFA, the regular review of the parameters of DRG payment method and the build-up of the quality assurance system would have been necessary.

4.6 Spontaneous processes

In addition to governmental intervention, the spontaneous market processes (i.e. the efforts of market players, the grey economy and corruption etc.) also made an impact on the actual processes and the behaviour of health sector players. In the public sector, the patients' informal (so-called "under-the-table") payments and now the continuously and significantly expanding private sector were able to mitigate the tensions of the publicly funded system (thus it could work against the reforms). The growth of waiting lists that developed due to the drastic limitation of public spending and the deterioration of the quality and circumstances of care channelled patients who were able to pay towards the private sector. It has been accepted by some in society that they increasingly used private services for which they would have been entitled to within the SHI system. For a significant portion of doctors and nurses, simultaneous work in the public and private sectors provided sufficient income. Between 1991 and 2019 (at real value), the direct health spending of households rose 4.4-fold[22], whilst in 2019, public spending was only 42% higher than in 1991 (whilst total health spending by 83%).

The governments failed (or did not make a strong effort) to develop a realistic concept regarding the role of the public and private sectors and the regulation of

[22] The high share of household spending in total health expenditure developed by the early 2000s: it increased from 13% in 1992 to 27% in 2000. In 2019, OOP spending amounted to 28% of total health expenditure (the 4th highest rate in the EU).

their relationship, taking into account both general health policy goals and Hungarian conditions. As for the regulation of private sector, governments were lagging behind market developments.

Upon the regime change, there were not any efforts made to eliminate under-the-table payments in health care. Several factors may have contributed to this. Some expected that the new financing methods would generate a competition between providers for patients, which may squeeze out informal payments. Many have thought that health care was somewhat still functional because of the informal payments and they were afraid that determined action against informal payments would endanger support for reforms. As already mentioned, it is not yet possible to see whether due to the significant increase of doctors' salaries in 2021 and the enacting of strict sanctions, the under-the-table payments have forced out of Hungarian health care system.

5. Final remarks

It is visible from the history of the past decades that the early 1990s, owing to the exceptional historical context and the available reform concepts elaborated in the previous period meant a rare moment: the basic conditions for the reform of health system were in place and a comprehensive reform process started in the macrostructure. The introduction of SHI system meant not only a change in the funding, but also, along with the other changes, a new way of health system governance: distribution of power and responsibility over the resources of the health sector amongst the players of health system. The consolidation of this and successful transformation of other elements of the health system would have required continuation of reform steps: changes—mutually presupposing and reinforcing each other—in the macro-professional and microstructure. In general, changes in the macrostructure can provide conditions, incentives for a new professional- and microstructure to evolve, whilst these, in turn, are necessary for the macrostructure to function in a new way. In a longer-run, the appropriate macrostructure and professional structures can stimulate changes in the relationships between the key actors of health system (i.e. in the microstructure), which in turn, are necessary for the new macrostructure to become embedded in society. However, due to the factors analysed in the third section of the study, these processes did not materialise in the Hungarian health system. In the mid-1990s, the reform process came to a standstill and later, there was no intention/capability/opportunity to restart comprehensive reforms. After 2010, the governance and incentive system of the health sector has, in many aspects, reverted to a structure similar to the one before the regime change. The current health financing system can only be considered social health insurance in name, but not in substance. However, it would be a mistake to claim that the situation of the late 1980s has returned, due to two important differences. On the one hand, there were important developments in health care technology in Hungary, and on the other hand, an extensive private health care sector emerged.

The direct consequence of the combined effect of chronic underfinancing, the structural problems of health financing and service provision, the lack of incentives for the efficient operation of the health system, and the inadequate, overcentralised health governance are the human resource crisis (to which the new opportunities created by the EU accession and the local private sector also contributed) and the grave problems of access to health services and the quality of care. The broader societal consequence is that the health status of the Hungarian population is lagging behind not

only the EU14 but also the neighbouring post-socialist countries. Our relative position is particularly grave in terms of avoidable (preventable or treatable) mortality which is an overall indicator of the health system performance. In Hungary, the avoidable mortality rate (per 100 thousand people younger than 75 years) was 2.4 times of the EU14 average, 1.6 times than it was in the Czech Republic and 1.4 times than in Poland in 2019. The social cost of the bad performance of the health system and, as part of it, the financing system, can be measured in human lives. In the 5-year period, between 2015 and 2019, 234 thousand Hungarians younger than 75 years died due to avoidable (preventable or treatable) causes. If we had reached the level of the Czech Republic (our avoidable mortality rate would have been the same), 86,000 (37%) fewer people younger than 75 years would have died in this period, and if we had reached the average of the three best-off countries (Spain, Italy and Sweden), approx. 149,000 (64%) fewer people younger than 75 years would have died (in this five-year period).

Author details

Eva Orosz
Faculty of Social Sciences, Eötvös Loránd University, Budapest, Hungary

*Address all correspondence to: orosz.eva@tatk.elte.hu

IntechOpen

References

[1] European Union, Standard Eurobarometer 99. Country Factsheets in English: Hungary. Spring 2023. Available from: https://europa.eu/eurobarometer/surveys/detail/3052

[2] Ovretveit J. Purchasing for health gain. The problems and prospects for purchasing for health gain in the 'managed markets' of the NHS and other European health systems. European Journal of Public Health. 1993;**3**(2): 77-84. DOI: 10.1093/eurpub/3.2.77

[3] Orosz E, Burns A. The healthcare system in Hungary. Paris: OECD; 2000. Available from: https://www.oecd.org/hungary/1883815.pdf

[4] Docteur E, Oxley H. Health-system reform: Lessons from the reform experience. In: OECD: Towards High Performing Health Systems. Paris: OECD Publishing; 2004. pp. 19-86 Available from: https://www.oecd.org/els/health-systems/towardshigh-performinghealthsystems.htm

[5] Smith P, Preker A, Light D, Richard S. Role of markets and competition. In: Figueras J, Robinson R, Jakubowski E, editors. Purchasing to Improve Health System Performance. Maidenhead: Open University Press; 2005. pp. 236-264

[6] Sinkó E, Gaál P. Új egészségbiztosítási modell? [New health insurance system model?]. IME:Journal of Hungarian Interdisciplinary Medicine. 2007;**6**(8):5-12

[7] Mihályi P. Opening up the Insurance Market. Budapest: Ministry of Health; 2007

[8] Thomson S, Cylus J, Evetovocs T. Can People Afford to Pay for Health Care? New Evidence on Financial Protection in Europe. Copenhagen: World Health Organisation; 2019. Available from: https://www.who.int/europe/publications/i/item/who-euro-2019-3439-431980-60514

[9] Thomson S, Thomas F, Mossialos E. Financing Health Care in the European Union: Challenges and Policy Responses. Copenhagen: World Health Organisation; 2009. Available from: https://eurohealthobservatory.who.int/publications/i/financing-health-care-in-the-european-union-challenges-and-policy-responses-study

[10] Orosz E, Kollányi Z. Opportunism of public policies as an underlying determinant of health inequalities in hungary. In: ATINERS Conference Paper Series HEA2014 Paper: HEA2014-1009. Athens; 2014. Available from: http://www.atiner.gr/papers/HEA2014-1009.pdf

[11] Figueras J, McKee M. Health Systems, Health, Wealth and Societal Well-being: Assessing the Case for Investing in Health Systems. Maidenhead: Open University Press; 2012

Chapter 10

Who is Buying Voluntary Private Health Insurance in Portugal: A Comparative Analysis for 2014 and 2019

Aida Isabel Tavares

Abstract

The Portuguese health system is defined as a National Health Service with universal health coverage of the population and almost free access to health care at any point of delivery. Despite this, the percentage of people who report having voluntary private health insurance has increased from 16% to 20.5% between 2014 and 2019. This paper aims to estimate the main determinants for having voluntary private health insurance in 2014 and 2019. We use data collected by the National Health Survey of 2014 and 2019 to compare results. A logistic model is estimated to explain the decision to hold an insurance policy. The results show that despite the increase in the number of people with private health insurance, the determinants are similar. Except for the role of being male, having had flu vaccination and being unemployed, which became significant in 2019. The most relevant results are (i) people who benefit from health subsystems, (ii) people who report long waiting times for medical care, (iii) people who have been vaccinated against the flu, and (iv) people who report unmet health needs are less likely to have private health insurance. The results of this paper indicate some potential inequalities in access to health care.

Keywords: voluntary and private health insurance, drivers, logistic regression, National Health Survey, Portugal

1. Introduction

Voluntary and private health insurance (VPHI) plays a dual role in countries such as Portugal [1] or the UK, complementing and supplementing the National Health Services (NHS).

The acquisition of health insurance is of great interest to individuals because of its ability to provide expeditious access to health services, the freedom to choose preferred healthcare providers, enhance the overall experience of hospitalisation, and grant access to medical services outside the scope of the NHS, such as dental care.

Portuguese NHS is characterised by its universal coverage of the population and a wide package of health services at nearly no cost at the point of delivery [1]. The NHS

suffer from several challenges and weaknesses which have been identified in policy reports and other literature such as long waiting times for appointments, lack of coverage for some health care and limited freedom of choice [2, 3]. VPHI is an instrument people can use to overcome some of these difficulties [4, 5].

The percentage of people in Portugal who reported having a VPHI increased from around 16–20% between 2014 and 2019. However, this increase does not translate into an increase in the percentage of the current health expenditure financed by this source. The share of current health expenditure supported by VPHI has been stable over time: it was 7.98% in 2014 and 7.64% in 2019 [6]. However, the average premium paid for a health insurance policy has increased over time [7].

These observations raise the simple question of what drives people to buy VPHI in Portugal. Therefore, the aim of this paper is to estimate the main drivers associated with the demand for VPHI and to compare the results between 2014 and 2019. To achieve this purpose, we use data from the National Health Survey of 2014 and 2019 to estimate a logistic regression for each wave, using the same independent variables to ensure comparability.

2. Overview of the health insurance market and on VPHI in Portugal

The health insurance market is characterised by the presence of asymmetric information [8–11] which manifests itself in two principal paths: moral hazard and adverse selection. Moral hazard emerges after the insurance contract has been signed, whereby the insured individual tends to exhibit a propensity to use healthcare services to a greater extent than necessary, as the financial consequences are borne by the insurer. Adverse selection, on the other hand, occurs before the insurance contract is signed when the insurer lacks the comprehensive means to assess the individual's risk profile. There are, therefore, two possible outcomes: the individual may belong to a low-health risk category, resulting in predominantly good health and minimal healthcare expenses, or the individual may belong to a high-risk category, requiring substantial healthcare expenditure. The existence of adverse selection poses a significant challenge to insurance companies, as they may inadvertently attract a larger proportion of high-risk individuals, with potentially adverse financial consequences. However, a favourable situation of advantageous or propitious selection [12] can be observed which confers benefits for the insurance companies. This phenomenon is often linked to the individual's risk aversion, with those in good health showing a tendency towards risk-averse behaviour, leading them to choose VPHI coverage more often. Such a decision is likely to be motivated by their desire to secure additional protection against potential health-related expenses and uncertainties.

The demand for Voluntary Private Health Insurance (VPHI) has been extensively studied in academic literature, with two recent comprehensive reviews shedding light on this subject. While Outreville's work [13] focuses on the general demand for insurance, Kiil's [14] research focuses specifically on the demand for VPHI. Both contributions thoroughly explore the socio-demographic determinants that influence individuals' decision to purchase VPHI policy. Such determinants encompass a range of factors, including gender, age, education, income, marital status, labour status, and other relevant characteristics. In general, there is a discernible correlation between the likelihood of individuals purchasing VPHI and certain factors such as higher income levels, greater educational attainment, age, employment status, urban residency, and immigrant status. However, the results pertaining to gender, family composition, and

pensioner status are more heterogeneous and less unequivocal, with varying outcomes evident across different research studies and country-specific contexts [15, 16].

There are few studies on the demand for VPHI in Portugal. The oldest study was published in 2003 [17], the author found that some factors associated with buying VPHI such as being older, self-employed, living in urban areas, and receiving high income. Following this study, Tavares [18–20] has published some research work on the drivers related to holding VPHI policy in Portugal, focused on the relationship between health insurance demand and lifestyle decisions [18] and on the seniors' segment [19, 20]. In this set of empirical work, demographic, socioeconomic, health status, and healthcare utilisation factors were used to explain paying for VPHI. There is a common conclusion across this set of studies which is the potential inequality of access to health care that may be created by holding VPHI in a health care system defined by NHS.

The contribution of the present analysis is two-fold. Firstly, it provides a study for a representative study of the Portuguese population, and secondly, it provides a comparative analysis between two years, 2014 and 2019. This comparison not only allows to draw conclusions on the evolution of the demand drivers for VPHI but also provides well-grounded information for policymakers aiming to reduce health inequalities.

3. Research design

3.1 Data and sample

We use data collected by the two waves of the National Health Survey: 2014 and 2019. These surveys are standardised and regulated at the European level (European Parliament and European Council Regulation no 1338/2008; European Commission

Group of variables	Independent variables	Description
Demographic	Male	Dummy variable. Takes value 1 is male, 0 otherwise
	Age	Median point of the correspondent age class.
Socio-economic	Education	The number of years of education completed.
	Income (Q1–Q5)	Set of dummy variables expressing the quantile of net monthly income per equivalent adult. The lowest income quantile corresponds to the first quantile, which is Q1. The reference category is Q5 corresponding to the highest income quantile.
	Urban	Dummy variable. Takes value 1 if the residence area is densely inhabited, and 0 otherwise.
	Rural	Dummy variable. Takes value 1 if residence area is sparsely inhabited, 0 otherwise.
	Moderate urban	Reference category.
	Marital status	
	Single	Dummy variable. Takes value 1 if single; 0 otherwise.
	Married	Dummy variable. Takes value 1 if married; 0 otherwise.
	Divorced	Dummy variable. Takes value 1 if divorced; 0 otherwise.
	Widow	Reference category.
	Employee	
	Self-employed	

Group of variables	Independent variables	Description
Insurance status (health sub-system)	ADSE	Dummy variable. Takes value 1 if covered by public servant health sub-system; 0 otherwise.
	SMAS	Reference category. Takes value 1 covered by private bank employee's health sub-system; 0 otherwise.
Health status	SAH	Self-assessed health ranges from 1 to 5 levels, where 1 represents 'very bad' and 5 'very good' health. The variable is taken as an approximation to a continuous variable.
	Chronic_disease	Dummy variable. Takes value 1 if suffers from at least one chronic disease; 0 otherwise
Health care use	Unmet_needs	Dummy variable. Takes value 1 if reported unmet health care needs due to financial constraints; 0 otherwise.
	Waiting_care	Dummy variable. Takes value 1 if waiting for a medical appointment or treatment beyond reasonable time; 0 otherwise.
	Flu_Vaccine	Dummy variable. Takes value 1 if vaccinated in the last 12 months; 0 otherwise.

Table 1.
Description of independent variables.

Regulation no 2018/255). The wave in 2014 included 18,204 individuals while the wave in 2019 included 14,617 individuals.

3.2 Variables

3.2.1 Dependent variable

The dependent variable is obtained from the question about holding voluntary private health insurance (VPHI). This is a binary variable which takes value 1 if the respondent has VPHI and 0 otherwise.

3.2.2 Independent variables

Independent variables are described in **Table 1** and may be grouped into socio-economic, insurance status, health status, and health care utilisation.

4. Quantitative analysis

Firstly, we perform a descriptive statistic. Secondly, we estimate a logistic regression to explain the holding voluntary private health insurance (VPHI) because (i) the dependent variable is binary and logistic regression is widely used in this case, (ii) it provides the estimation of odd ratios related to each independent variable which are easy to interpret, (iii) it allows for easy assessment on model fit, and finally (iv) we aim to have the set of independent variables jointly explaining VPHI, without excluding or selecting some of the independent variables.

Several diagnostic tests are performed, we begin by estimating variance inflation factors (VIF) to test multicollinearity. Then goodness-of-fit tests are undertaken

using Pearson test, estimation of the area under ROC curve (receiver operating characteristic curve), and percentage of correctly classified cases. Robust standard errors are computed to correct for heteroscedasticity. The results are obtained using STATA 15 econometric software.

5. Results

5.1 Descriptive statistics

Table 2 presents the descriptive statistics for the independent variables used in the logistic regression. The majority of the individuals are women and the mean age increased between 2014 and 2019. A large percentage of people afford a small income and the level of formal education increased by about 4 years. There is a significant share of people benefiting from ADSE insurance coverage and the majority of people report not-so-good levels of health. Finally, there is a large percentage of

Independent variables		**2014**	**2019**
Demographic	Age (years)	53.1	56.7
	Male (%)	43.6	43.4
Socioeconomic	Income Q1 (%)	22.1	18.3
	Income Q2 (%)	20.6	24.7
	Income Q3 (%)	19.8	20.7
	Income Q4 (%)	18.9	18.1
	Income Q5 (%)	18.6	18.2
	Education (years)	8.0	12.2
	Urban (%)	30.1	28.9
	Rural (%)	37.2	32.7
	Single (%)	24.6	23.9
	Married (%)	51.7	50.0
	Divorced (%)	9.4	10.0
	Self-employed (%)	7.0	6.8
	Employee (%)	29.8	31.7
	Unemployed (%)	11.4	6.9
Insurance status	ADSE (%)	13.3	13.7
	SAMS (%)	1.5	1.6
Health status	Chronic_disease (%)	61.2	57.8
	SAH [levels 1, 2 and 3]	55.5	56.9
Health care use	Waiting_care (%)	21.4	24.8
	Unmet_needs (%)	10.6	10.0
	Flu_vaccine (%)	18.6	44.3

Table 2.
Descriptive statistics.

people reporting unmet health needs, either from waiting or from financial barriers, and a substantial increase in the percentage of people reporting being shot against influenza.

5.2 Estimated results

The results obtained with the estimation of the logistic regression for having voluntary private health insurance (VPHI) are presented in **Table 3**, for survey wave

	2014		2019	
	OR	**P > z**	**OR**	**P > z**
Age	0.990	0.000	0.978	0.000
Male	**1.028**	**0.549**	**0.810**	**0.000**
Income Q1	0.188	0.000	0.252	0.000
Income Q2	0.285	0.000	0.251	0.000
Income Q3	0.415	0.000	0.373	0.000
Income Q4	0.553	0.000	0.566	0.000
Education	1.117	0.000	1.018	0.002
Urban	1.254	0.000	1.119	0.038
Rural	1.106	0.074	0.994	0.916
Single	1.265	0.050	1.186	0.117
Married	1.548	0.000	1.327	0.003
Divorced	1.660	0.000	1.449	0.001
Self-employed	2.525	0.000	1.652	0.000
Employee	1.716	0.000	1.657	0.000
Unemployed	**0.852**	**0.082**	**0.799**	**0.039**
ADSE	0.367	0.000	0.468	0.000
SAMS	**0.651**	**0.005**	**0.740**	**0.091**
Chronic_dis	1.098	0.075	0.980	0.706
SAH	1.173	0.000	1.251	0.000
Waiting_care	**0.932**	**0.245**	**1.129**	**0.028**
Unmet_needs	0.784	0.007	0.771	0.004
Flu_vaccine	**1.007**	**0.928**	**1.147**	**0.006**
_cons	0.075	0.000	0.494	0.005
N	18,153		13,973	
Wald chi2(22)	2394.14		1632.34	
Prob > chi2	0.000		0.000	
Pseudo R2	0.180		0.131	
Pearson chi2	14,441.99		11,850.15	
Prob > chi2	0.985		0.258	
VIF	1.75		1.64	
Correctly classified (%)	84.34		80.30	
Area under ROC curve	0.795		0.750	
%people with VPHI	16.34		20.66	

Table 3.
Logistic regression results.

2014 and wave 2019, where bold font in the table points to differences between the survey waves.

Firstly, the preliminary test for multicollinearity shows that VIF values are compatible with the absence of multicollinearity in both logistic estimations as they are under the value 10. The post-estimation testing shows that there is a general good fit of the model in both regressions as shown by no statistical significance of Pearson value, by the large area under the ROC curve (about 0.79 and 0.75 for the first and second regression), and by the large percentage of cases correctly classified (about 84% and 80% to wave 2014 and wave 2019, correspondently).

Secondly, concerning the factors associated with holding a private health insurance policy. In general, socioeconomic factors influence this asset of a person; younger people, more educated, employed (both self-employed or employed), with higher incomes, and with better health status tend to drive people to buy a VPHI. There is no evidence that single people are more, or less, interested in buying VPHI, but both married and divorced people are likely to buy such insurance. People benefiting from the health sub-system of protection are less likely to have a VPHI and identically happens to bank employees in 2014, but it loses statistical significance in 2019. People reporting unmet health care needs, as expected, are less likely to have a VPHI and people reporting flu vaccine in the previous 12 months are more likely to report having a VPHI in 2019.

6. Discussion

The Portuguese health system is defined as a National Health Service, providing universal coverage for the population and for a very wide range of health services. Nevertheless, it faces some challenges which may lead people to demand VPHI. The aim of this study was to estimate the main drivers for buying VPHI in Portugal.

6.1 Key findings

The key findings of this study are threefold. First, the drivers for buying VPHI did not change significantly between 2014 and 2019. Secondly, people who benefit from ADSE and SAMS health insurance sub-systems are less likely to buy VPHI, despite the lack of confirmation in 2019 for people integrated into SAMS. Thirdly, and more importantly, people with unmet health care needs, due to financial barriers, are less likely to benefit from VPHI; people who report waiting too long for a medical appointment or treatment, and people who adopt a preventive behaviour for influenza illness by taking a vaccine are more likely to have a VPHI policy.

6.2 Interpretation of findings

Firstly, one major finding points to the association between unmet healthcare needs, due to financial barriers, and a lower likelihood of benefiting from VPHI, which was also found before [20–22]. This evidence raises questions about the equity access to healthcare services by people with lower incomes. In fact, income quintiles confirm that income plays a role in buying VPHI and people with higher incomes afford a VPHI.

Another major finding concerns the role that waiting for a medical consultation and treatment plays as a possible driver for buying private health insurance which

became evident in 2019. It is well-known the waiting lists in the Portuguese NHS, both for consultation and treatments. Despite the relationship found does not allow for establishing a causal effect, one may suggest that there is in fact a causal relationship such that people look for VPHI as a possible solution to the excessive waiting times. The other direction of causality is less likely under the context of VPHI as a complement to the NHS. It could be that people holding a VPHI consider that waiting time for consultations and appointments within NHS is longer based on their expectations. A similar result has been found in Spain [23] where a reduction of the waiting times reduces the probability of buying VPHI.

One additional major finding is the positive relationship between people assuming preventive behaviour against flu disease and holding a VPHI policy. The flu vaccine is not compulsory in Portugal. It is voluntary but it is highly recommended and nearly free to people requesting at the primary health care units. The evidence of this relationship is only available for 2019, despite the smaller sample size. This relationship is interesting as it brings into discussion the asymmetric feature of the insurance market. On the one hand, it may be that insurance companies motivate the insures to be vaccinated against flu to minimise moral hazard [24] or there is advantageous selection and so it may be that people are more risk averse and cautious so that they get flu vaccine to minimise the risk of getting ill [25]. Another explanation is that it could be a result of NHS campaign to vaccinate seniors and other vulnerable groups [26] which could be inferred from the substantial increase in the percentage of people vaccinated against influenza disease in 2019.

Secondly, people benefiting from ADSE and SAMS health sub-systems are less probable to buy VPHI, despite the lack of confirmation in 2019 for people integrated into SAMS sub-system. This result is expected as health sub-systems function as a second layer of health protection. People benefiting from this level of protection must pay a percentage of their salary, so it is absent the incentive to pay even more for a third layer of protection provided by VPHI [19, 20].

Thirdly, there is no major change in the drivers for buying VPHI between 2014 and 2019. Demographic and socioeconomic drivers are identical for the two waves of the National Health Survey. As expected, older people are less likely to buy VPHI as found [19, 20]. This happens not only as a cream-skimming market strategy by insurance companies but also because primary care contractual goals are favourably biased towards older people [27]. Males are less likely to hold a VPHI, despite the opposite relationship found previously [18]. It may be difficult to explain such a result, however since buying VPHI implies a decrease in the real wages and forces shopping trade-offs, it might be that men are becoming less willing to give up on purchasing power.

Finally, other associated factors are higher incomes, and higher education and people in urban areas are more likely to buy VPHI as found earlier [17]. While unemployed people may struggle to buy a VPHI, employed people, either self-employed or employees, are motivated to buy a VPHI. Finally, despite the lack of evidence concerning people suffering from chronic diseases, findings show that better health status is related to holding a VPHI. This may result from selection strategies by the insurance companies to deal with adverse selection [9, 27] or it may be associated with advantageous selection of some people who prefer to have VPHI despite their good health status [12, 28].

6.3 Strengths and limitations

One limitation arises from the survey question about holding VPHI. It may be that some people confuse VPHI with health clubs or provider networks, where prices are

lower than those of private healthcare providers. Unfortunately, there is no instrument to identify this situation. Another limitation is the impossibility of analysing causality or dynamic effects. The methods used here provide evidence of the correlation between VPHI and factors associated with the decision to take out health insurance. The main strength of the work is the comparison performed between two waves of the National Health Survey, both including a representative sample of the population.

6.4 Policy implications

The findings reached in this work continue to provide evidence of the increasing health inequalities and care inequities. The unfairness of the resulting health outcomes requires special attention from policymakers. Ensuring policies that contribute to the mitigation of health inequities is a primary concern nowadays [29]. Given the high share of out-of-pocket payments in Portugal and the different access to VPHI, well-designed policies are needed to improve access to health care for people with low incomes.

Acknowledgements

The authors acknowledge CEISUC/CIBB is funded by national funds through FCT—Foundation for Science and Technology, I.P., under the Multiannual Financing of R&D Units 2020–2023.

Author funding

The author received no financial support for the research, authorship, and/or publication of this article.

Conflict of interest

The author declares no conflict of interest.

Declaration

The author declares this work does not require any human/animal subjects to acquire ethical approval.

Author details

Aida Isabel Tavares[1,2]

1 ISEG, Lisbon School of Economics and Management, Lisbon, Portugal

2 CEISUC, Centre of Studies and Research in Health of the University of Coimbra, Coimbra, Portugal

*Address all correspondence to: atavares@iseg.ulisboa.pt

IntechOpen

References

[1] Simoes J, Augusto G, Fronteira I, Hernández-Quevedo C. Portugal: Health system review. Health Systems in Transition. 2017;**19**(2):1-184

[2] Or Z, Cases C, Lisac M, et al. Are health problems systemic? Politics of access and choice under Beveridge and Bismarck systems. Health Economics, Policy, and Law. 2010;**5**(03):269-293. DOI: 10.1017/s1744133110000034

[3] van der Zee J, Kroneman MW. Bismarck or Beveridge: A beauty contest between dinosaurs. BMC Health Services Research. 2007;**7**:94. DOI: 10.1186/1472-6963-7-94

[4] Jofre-Bonet M. Public health care and private insurance demand: The waiting time as a link. Health Care Management Science. 2000;**3**:51-71

[5] Costa J, Garcia J. Demand for private health insurance: How important is the quality gap? Health Economics. 2003;**12**(7):587-599. DOI: 10.1002/hec.756

[6] Eurostat Database. Online code [hlth_sha11_hf]. 2023. Available from: https://ec.europa.eu/eurostat/web/main/data/database

[7] Barros PP, Costa E. Seguros de saúde privados no sistema de saúde português: mitos e factos. Observatório da Despesa em Saúde. 2022;**02**:1-10

[8] Arrow K. Uncertainty and the welfare economics of medical care. American Economic Review. 1963;**53**(5):941-973

[9] Doiron D, Jones G, Savage E. Healthy, wealthy and insured? The role of self-assessed health in the demand for private health insurance. Health Economics. 2006;**17**(3):317-334

[10] Chernew ME, Newhouse JP. What does the RAND Health Insurance Experiment tell us about the impact of patient cost sharing on health outcomes? American Journal of Managed Care. 2008;**14**(7):412-414

[11] Powell D, Goldman DP. Disentangling moral hazard and adverse selection in private health insurance. Journal of Econometrics. 2020;**222**(1):141-160

[12] David M, Webb DC. Advantageous selection in insurance markets. RAND Journal of Economics. 2001;**32**:249-262

[13] Outreville JF. Risk aversion, risk behavior, and demand for insurance: A survey. Journal of Insurance Issues. 2014;**37**(4):158-186

[14] Kiil A. What characterises the privately insured in universal health care system? A review of the empirical evidence. Health Policy. 2012;**106**(1):60-75. DOI: 10.1016/j.healthpol.2012.02.019

[15] Cantiello J, Fottler MD, Oetjen DM, Zhang NJ. The impact of demographic and perceptual variables on a young adult's decision to be covered by private health insurance. BMC Health Services Research. 2015;**15**(195):1-15

[16] Paccagnella O, Rebba V, Weber G. Voluntary private health care insurance among the over fifties in Europe: A comparative analysis of SHARE data. Health Economics. 2008;**22**(3):289-315

[17] Giraldes MR. Seguro privado de saúde em Portugal: que evolução? Análise comparativa dos Inquéritos Nacionais de Saúde de 1995/1996 e de 1998/1999. Cadernos de Saúde Pública.

2003;**19**(1):263-268. DOI: 10.1590/S0102-311X2003000100029

[18] Tavares AI. Health insurance and lifestyles. Applied Economics. 2014;**46**(16):1910-1923

[19] Tavares AI. Voluntary private health insurance demand by Portuguese seniors before the COVID-19 pandemic. International Journal of Health Planning and Management. 2022;**38**(2):494-506

[20] Tavares AI. Voluntary private health insurance demand by older people in a National Health Service, the case of Portugal. In: Tavares AI, editor. Health Insurance. London, UK: IntechOpen; 2022. Available from: https://www.intechopen.com/chapters/82047

[21] Sagan A, Thomson S. Voluntary Health Insurance in Europe: Role and Regulation [Internet], Observatory Studies Series, No. 43. Copenhagen (Denmark): European Observatory on Health Systems and Policies; 2016. Available from: https://www.ncbi.nlm.nih.gov/books/NBK447647/

[22] Mossialos E, Thomson S. Voluntary health Insurance in the European Union: A critical assessment. International Journal of Health Services. 2002;**32**:19-88

[23] Jofre-Bonet M. Public health care and private insurance demand: The waiting time as a link. Health Care Management Science. 2000;**3**:51-71

[24] Tenforde MW, Talbot HK, Trabue CH, et al. Influenza vaccine effectiveness against hospitalization in the United States, 2019-2020. The Journal of Infectious Diseases. 2020;**224**(5):813-820. DOI: 10.1093/infdis/jiaa800

[25] Börjesson M, Enander A. Perceptions and sociodemographic factors influencing vaccination uptake and precautionary behaviours in response to the A/H1N1 influenza in Sweden. Scandinavian Journal of Public Health. 2014;**42**:215-222

[26] Machado A, Mazagatos C, Dijkstra F, et al. Impact of influenza vaccination programmes among the elderly population on primary care, Portugal, Spain and the Netherlands: 2015/16 to 2017/18 influenza seasons. Euro surveillance: Bulletin Europeen Sur les maladies transmissibles = European Communicable Disease Bulletin. 2019;**24**(45):1900268. DOI: 10.2807/1560-7917.ES.2019.24.45.1900268

[27] Cather DA. Cream skimming: Innovations in insurance risk classification and adverse selection. Risk Management and Insurance Review. 2018;**21**:335-366

[28] Buchmueller TC, Fiebig DG, Jones G, Savage E. Preference heterogeneity and selection in private health insurance: The case of Australia. Journal of Health Economics. 2013;**32**(5):757-767

[29] WHO. WHO releases the largest global collection of health inequality data. 2023. Available from: https://www.who.int/news/item/20-04-2023-who-releases-the-largest-global-collection-of-health-inequality-data

Edited by Aida Isabel Tavares

Health insurance is the mechanism used to respond to uncertainty and risk aversion to illness. Health insurance, whether private, public, or mixed, serves as the main structural foundation for health systems across countries. Its objectives are to minimize the financial burden of medical expenses on people and to enhance population health. Globally, there is a great diversity of health systems and even greater variation among them. There are substantial differences in health systems and health insurance between low- and middle-income nations. The primary explanation for this could be the disparities in the resources available to fund the health system. High-income countries have the financing ability to fund the provision of health care, whereas low- and medium-income countries have a harder time funding health care. Another challenge health systems face nowadays is the achievement of the United Nations Sustainable Development Goal 3: healthy lives and promoting well-being for all. To create resilient and sustainable health systems that guarantee healthy lives and foster well-being for people of all ages, many countries are redesigning their healthcare systems by improving financing, access, and coverage. This book discusses these issues in different health systems around the world, in low-, middle-, and high-income countries.

Published in London, UK

IntechOpen

ISBN 978-0-85466-213-5