



**TRADE-OFFS ON THE ROAD TO UHC:  
A QUANTITATIVE ASSESSMENT OF  
ALTERNATIVE PATHWAYS FOR SOUTH AFRICA**



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# FOREWORD

South Africans deserve access to quality and affordable healthcare. This notion is indeed entrenched in the Constitution's Bill of Rights that grants everyone the right thereto. It furthermore obliges the state to take reasonable measures to progressively achieve the right.

To this end, the National Department of Health has embarked on a process to establish a National Health Insurance (NHI) Scheme for South Africa. It is a health financing system that is designed to pool funds to provide access to quality, affordable personal health services for all South Africans based on their health needs, irrespective of their socio-economic status. These ideals cannot be faulted. Of concern to the Inclusive Society Institute (ISI), given South Africa's current economic realities, is the affordability of NHI and whether it will be implemented incrementally, as funds become available. On the one hand, one would not want to disrupt the status quo without a clear understanding of the costs attached to the ultimate goals of the NHI, and on the other, the existence of the current world class health infrastructure needs to be assured for future generations. As the former German Federal Minister for Health, who oversaw the implementation of the national health system in Germany, Hon. Ulla Schmidt, puts it: Do not break down what you have until you have an alternative in place that works.

There is a dearth of studies into the costing of the proposed NHI. To this end, the ISI has ventured such a costing. The process has involved extensive consultation with a wide spectrum of health sector stakeholders, the discussions of which have culminated into a presentation of four alternative models to secure universal and affordable quality healthcare for all in South Africa. And, in an attempt to give direction, each alternative, together with the Department's NHI proposal, has been costed. It is this costing that is contained in this report.

The report is not a criticism of the Department's NHI proposals, neither does it profess to be accurate in all respects. What it is, is an attempt to ensure feasibility and sustainability, a fresh look at the approach to implementing universal healthcare, and an assessment as to how best to ensure the progressive realisation of the basic right to quality and affordable healthcare for all. As regards the costing: undoubtedly there is room for improvement. The public debate in this regard is bound to identify gaps that could improve the modelling. That said, the Institute is confident that the report is a sound starting point on which dialogue can build.

The Institute chooses not to be descriptive as to the final path that legislators need to take. It however hopes that the policymakers will accept this contribution as a further evaluation tool to ensure that the finally chosen funding model delivers for future generations, a legacy that is indeed capable of delivering on its goals.



# EXECUTIVE SUMMARY

This document sets out the costs of the four alternative universal health coverage (UHC) scenarios that were presented in the previous paper released by the ISI, entitled 'Reimagined Pathways for UHC in South Africa: A critical policy assessment of NHI choices' (2020). The scenarios we've analysed are described in Table 1. The four scenarios are alternatives for the fifth scenario, NHI as Described in the Bill.

The proposed reforms as they stand in the Draft NHI Bill represent a combination of policy building blocks sequenced in a particular way. This paper aims to unpack how and where these policy blocks could be reshuffled or re-envisioned to better achieve UHC, given the current South African health and economic outlook.

There are several reasons why it's important to consider the costs of alternative scenarios relative to the likely costs of NHI as it's currently envisioned. Firstly, it will allow policymakers, citizens and civil society to be cognisant of the trade-offs between cost, quality and access. Without transparency in trade-offs, it's impossible to fully grasp the long-term consequences of a particular policy choice relative to others. Secondly, once the trade-offs and considerations related to a particular UHC path are transparent, policy choices can be reconsidered, if needed. Understanding what drives the costs and outcomes of each scenario allows for the adjustment of policy options, which will help South Africa reach UHC as efficiently and effectively as possible.

The alternative UHC scenarios presented in the previous report are shared below.

*Table 1: Alternative UHC scenarios explored in ISI (2020)*

Scenario	The crux for the patient	The crux for the system	UHC policy objectives achieved
<b>Status Quo Gold Standard</b>	Better service delivery through improvements in quality of care and system hardware.	<ul style="list-style-type: none"> <li>Better data quality and transparency to facilitate evidence for decision-making.</li> </ul>	<ul style="list-style-type: none"> <li>Equity within the public sector, but not between sectors.</li> <li>Improved public sector governance.</li> <li>Sustainability of the public sector strengthened, but costs likely to continue to spiral in the private sector.</li> <li>Public sector efficiency improved through data and decision-making.</li> <li>Minimum quality standard is raised.</li> </ul>
<b>NHI Rejigged</b>	Better regulation of private sector to bring down high costs. Improved quality of care in the public sector.	<ul style="list-style-type: none"> <li>Earlier development of basic benefit package.</li> <li>Development of transitional central risk equalisation. Fund across sectors to lay foundation for NHI Fund.</li> </ul>	<ul style="list-style-type: none"> <li>Equity within each sector; and improved equity between sectors.</li> <li>Improved governance in both sectors.</li> <li>Improved sustainability in both sectors.</li> <li>Efficiency gains as a result of shifts in incentives in the private sector.</li> <li>Minimum quality standard is raised as equity improves.</li> </ul>

<b>Power to the People</b>	User given a choice of insurer by allowing for multiple purchasers, but with a centralised risk equalisation fund to ensure equity across funds. This should ensure that administration of funds is more responsive to client needs (smaller bureaucracies).	<ul style="list-style-type: none"> <li>• More competition between insurers to encourage better administration of funds.</li> <li>• Government is able to hold insurer to account because they are not solely reliant on them.</li> </ul>	<ul style="list-style-type: none"> <li>• Equity across the system as a whole.</li> <li>• Governance strengthened through bottom-up accountability.</li> <li>• Sustainability driven through strategic purchasing and competition between purchasers.</li> <li>• Competing insurers as an incentive that drives efficiency.</li> <li>• Quality driven through greater participation.</li> </ul>
<b>Reorienting Towards Value</b>	Better quality of care. More affordable care.	<ul style="list-style-type: none"> <li>• More cost-effective care.</li> <li>• Improved equity between sectors.</li> <li>• Better data quality to compare and measure providers.</li> </ul>	<ul style="list-style-type: none"> <li>• Equity achieved over time through alignment across sectors.</li> <li>• Governance strengthened through bottom-up accountability.</li> <li>• Sustainability achieved through orientation towards value.</li> <li>• Efficiency driven through bottom-up reorganisation of service delivery.</li> <li>• Quality becomes key focus of this approach.</li> </ul>



## How the model was constructed

The cost model presented here uses the current health system structure and the combined total health expenditure in the public and private sectors (including out-of-pocket spending) as a starting point. We believe it's a pragmatic approach to work with what we have, rather than with what we wish we did.

As a reminder, we include a summary table to tell the story of what is likely to happen to the South African health financing sector as we currently know it under each scenario.

*Table 2: Summary of how different components of SA health financing and delivery system are affected in different scenarios*

	<b>Status Quo Gold Standard</b>	<b>NHI Rejigged</b>	<b>Power to the People</b>	<b>Reorienting Towards Value</b>	<b>NHI as Described in the Bill</b>
Medical schemes	Medical scheme sector continues as is but supporting legislative changes for better governance are implemented.	Medical schemes will continue to exist for a longer period than with NHI as Described in the Bill. While they will eventually also be shut down once the NHI Fund has been established and is fully operational, in the interim period risk transfers will take place between schemes on the basis of basic benefit package using a risk equalisation fund.	While the traditional medical scheme sector will be drastically reduced, a few large medical schemes are likely to convert to NHI purchasers (multi-payer structure).	While the traditional medical scheme sector will be drastically reduced, a few large medical schemes are likely to convert to NHI purchasers (multi-payer structure). These organisations will implement value-based care approaches to financial management and service purchasing.	Medical schemes are shut down. The funds paid over to medical schemes are channelled towards the NHI Fund.
Private health insurance (non-medical schemes, e.g. hospital cash plans)	These products will continue to play a supplementary role. They are not currently allowed to directly fund health expenses.	These products will continue to play a supplementary role. They are not currently allowed to directly fund health expenses.	These products will continue to play a supplementary role. They are not currently allowed to directly fund health expenses.	These products will continue to play a supplementary role. They are not currently allowed to directly fund health expenses.	To provide supplementary cover to the basic benefit package of the NHI Fund, i.e. likely to continue to exist.

Private healthcare providers	Private health providers will continue to operate with but the recommendations of the Health Market Inquiry implemented for better governance.	For the initial preparation phase, private healthcare providers will continue to provide services to medical schemes. Later on they will be contracted by the NHI Fund.	For the initial preparation phase, private healthcare providers will continue to provide services to medical schemes. Later on they will be contracted by the NHI purchasers.	For the initial preparation phase, private healthcare providers will continue to provide services to medical schemes. Later on they will be contracted by the NHI purchasers.	They will be contracted to provide healthcare to the NHI Fund and to individuals on a private out-of-pocket basis or through private health insurance.
Public health expenditure	This financing will continue to be provided from general taxation and allocated to national and provincial governments.	This will be channelled towards the NHI Fund.	This will be channelled towards the NHI purchasers.	This will be channelled towards the NHI purchasers.	This will be channelled towards the NHI Fund.
Public sector healthcare providers	These providers will continue to operate as they currently are, with financing from provincial and national government.	To be contracted by the NHI Fund.	To be contracted by the NHI purchasers.	To be contracted by the NHI purchasers.	To be contracted by the NHI Fund.

We make assumptions about the main demographic and structural cost drivers to arrive at different costings for the five healthcare scenarios, while also considering macro-level indicators such as the consumer price index (CPI), healthcare cost inflation, population growth and GDP growth over the 2021-2040 period. Given that there are many uncertainties about how these variables will play out over time, we've provided our best estimates given the available information.

Changes in total health expenditure (THE) can be understood in terms of three main categories of expenditure:

1. **Publicly funded:** centralised public expenditure (a form of risk pooling, even if not explicitly managed as a risk pool);
2. **Private risk pooling:** the vast majority of this is located in medical schemes; and
3. **OOB (out-of-pocket expenditure) and (non-medical scheme) private insurance by households** for private and public services not covered by either medical scheme funding or public-sector expenditure. This includes, for example, private pharmacy expenditure by those who consult the public sector, or private GP visits for those who don't have medical scheme cover.

Collectively, these three categories form the total funds currently available for health expenditure, unless other funding sources – such as a mandatory payroll tax, income tax, health taxes or value-added tax – are enacted to increase the available amount for spending on health services.

The cost model creates a framework that makes the trade-offs between different policy choices evident, and this is the real value of the model. It shows how total health expenditure and its various components are likely to play out over time if we do or don't take



certain actions now. It makes the long-term costs of inaction evident, and in doing so, provides valuable information that can be used for NHI policy development.

Detailed assumptions about the overall financing structure and cost drivers for each scenario are shared later in this report.

## What the model says about the costs of the various scenarios

By 2030, *Status Quo Gold Standard* is the most expensive model in terms of total healthcare expenditure. In 2040, *NHI as Described in the Bill* is the most expensive model. In contrast, *Power to the People* is the least expensive model in 2030 by a slight margin, while *Reorienting Towards Value* is the least expensive scenario by 2040. We also see that *Reorienting Towards Value* starts off relatively expensive due to the investments needed to reorientate a health system. However, by 2035, this scenario is the most affordable and sustains this position in 2040.

Why does *NHI as Described in the Bill* emerge as the most expensive scenario? UHC implemented through a single-risk fund is not necessarily expensive. However, the current description in the Bill, with its lack of detailed and clear information on accountability structures, creates uncertainty about whether it will be implemented with the necessary attention and rigour. The *NHI Rejigged* scenario shows the potential for NHI to achieve its goals, if it's implemented with the current reality and context in mind, which would make the milestones more achievable and realistic. *NHI Rejigged* is less expensive than *NHI as Described in the Bill* over the longer term as the greater accountability and information and data systems with which it is implemented will greatly reduce administration costs and wastage (through corruption). Because *NHI Rejigged* has a longer preparation phase during which the quality of public health facilities will be improved, there will be more buy-in from system users and lower out-of-pocket expenditure later on.

In calculating the relative costs of estimated total healthcare expenditure, three different growth scenarios are used: mid-growth (1% real growth), low-growth (0% real growth) and high-growth (3% real growth). We only share the results of the mid-growth scenario here. In the mid-growth scenario, the most expensive health financing scenario, *NHI as described in the Bill* constitute 13.2% of the GDP by 2040. Such a large percentage of GDP being allocated to total health expenditure relative to current expenditure levels (around 8.7% of GDP) is unlikely to be affordable relative to other social priorities, but this must be viewed considering low to modest economic growth and a system that would have pushed many people to increase their OOP expenditure (and therefore total healthcare expenditure) by that time. The least expensive scenario costs R638 billion (real 2020 Rands), with the costs of the other four scenarios ranging from R720 to R885 billion (also real 2020 Rands).

## What the costs and scenarios mean for policy choices

The model's results help to illustrate what is gained and lost through different policy choices, relative to the objectives being pursued by moving to UHC: equity, access to quality care and quality outcomes, efficiency, stewardship and governance.

These gains and losses are not just about the financial costs of system change, but ultimately also about healthcare outcomes and overall system resilience.



	Status Quo	NHI Rejigged	Power to the People	Reorienting Towards Value	NHI in the Bill
Public population %	● 86%	● 100%	● 100%	● 100%	● 100%
OOPI and PI as % of THE	5.3%	34%	34%	0.5%	23.7%

The goal of equity should take into account both where funds come from (with contributions based on the ability to pay), and where funds are going (with more funds directed to those with the greatest need). The option that fares worst in terms of equity is Status Quo Gold Standard, where it's assumed that the public and private sectors mostly continue operating as they are, albeit with improved quality and efficiency. NHI as Described in the Bill doesn't fare well either due to the high OOP expenditure dependency. Those who can pay out-of-pocket will likely be able to access better care, resulting in a highly inequitable outcome.

Access to quality care and quality outcomes

	Status Quo	NHI Rejigged	Power to the People	Reorienting Towards Value	NHI in the Bill
Public PHC utilisation	↑	↑	↑	↑	↓
Public hospital care admission rate	↓	↑	↘	↘	↗
Life expectancy	—	—	↑	↑	—

Comparing policy options based on cost can mask what really matters – namely whether we can expect the future system to help the population thrive. But which clear signs indicate that the system is performing? System performance is visible in overall outcome metrics (such as life expectancy and maternal mortality rates), disease-specific outcomes metrics (which our system currently lacks) and through secondary measures (such as the extent of medical malpractice claims).

Apart from considering how many units of care a system can afford, there is a range of dynamics that impact a system's ability to deliver high-quality care. They include:

- **Investment in the service delivery platform** – including infrastructure and IT systems. Financing reforms have limited scope to strengthen the quality of care if the service delivery platform is compromised. This is illustrated in the cost comparison of NHI as Described in the Bill and Status Quo Gold Standard.
- The **balance between primary and hospital care**. A weak system will have too many resources directed towards relatively expensive hospital care due to a bypassing of referral pathways, weak preventative care, and late intervention. This is illustrated in the cost comparison of NHI as Described in the Bill, Power to the People and Reorienting Towards Value.
- **Systems that are patient-oriented**, that have **greater bottom-up accountability** and that **measure and incentivise quality care** tend to produce better health outcomes – and ultimately deliver greater value for the money invested in the system. This is illustrated in the cost comparison of NHI as Described in the Bill, Power to the People and Reorienting Towards Value.
- **Strong systems that support health outcomes**. From a patient perspective, this means strong linkages between care, better continuity of care and strong care coordination. System performance is supported by system stability (i.e. the absence of system shocks), a balance between centralised support and ground-level responsiveness, and ongoing investment in the service-delivery platform. Big-bang reform (NHI as Described in the Bill) is likely to weaken system resilience in an already fragile



system. Policy options that support ongoing quality improvement and system strengthening are likely to outperform over the long term. This was clearly illustrated by the global impact of Covid-19, where countries with resilient and unified health systems have outperformed countries with weak ones.

- **Healthcare worker capacity and satisfaction.** Healthcare outcomes rely on having healthcare workers who deliver quality care. A large monopsony creates the risk of a system that isn't sufficiently oriented towards supporting healthcare workers and enabling supply-side innovation.

*Efficiency: Accountability to users (bottom-up) and societal buy-in as levers*

	Status Quo	NHI Rejigged	Power to the People	Reorienting Towards Value	NHI in the Bill
IT savings as % of THE	24%	1.0%	1.0%	2.2%	0.8%
Admin as % of public health expenditure	15.2%	154%	10.9%	11.8%	17.1%
Medico-legal claims as % of public health expenditure	0.1%	0.0%	0.0%	0.0%	14%

Much of the rationale for NHI as Described in the Bill is the creation of a single purchaser to achieve efficiency through strategic purchasing. There's no doubt that the current system is weak from a strategic purchasing perspective. This is likely to continue in Status Quo Gold Standard, and care needs be taken in NHI Rejigged to improve the structural impediments to strategic purchasing in both the public and private sectors. The Health Market Inquiry (HMI) recommendations are very relevant in realising this goal.

Strategic purchasing is necessary, but not sufficient for improving system efficiency. Efficiency can also be supported in the following ways:

- Offering those who use the system a **choice of funder** and the ability to move. Having multiple funds can create competitive pressure based on strategic purchasing (if, for example, funders have to publish value metrics). The risk of a single fund is complacency and a lack of customer-centricity. This is illustrated in the comparison of NHI as Described in the Bill and Power to the People, where individuals can choose between joining different UHC funds.
- **Value-based approaches** shift the responsibility for both quality and cost to healthcare providers – who happen to be best placed in the system to innovate the ways in which care is delivered. This removes layers of administration centred on managing providers of care – with the emphasis shifting to empowering providers. Value-based systems are most likely to have supply-side innovation, which allows for a move towards more efficient models of care over time.
- **Minimising the cost of corruption, waste, and abuse.** Central control of a system seems attractive from an efficiency perspective. However, large institutions increase the risk of large-scale corruption. A system with strong bottom-up accountability and empowered healthcare providers may be more efficient in the long term than a single fund system that's susceptible to bureaucracy and governance failure.





















*Stewardship and governance*

	Status Quo	NHI Rejigged	Power to the People	Reorienting Towards Value	NHI in the Bill
Corruption reduction as % of THE	4.1%	4.9%	4.6%	6.5%	0.8%

Table 3 and Table 4 show the additional cost burden for public healthcare and for total healthcare, respectively. These are shown per scenario and are considered relative to various sized potential payer groups, ranging from the total population (referred to as per capita) to only those who are active taxpayers. We present the additional cost burden in 2040, relative to the baseline cost<sup>a</sup> burden in 2040. We do not, however, aim to determine the optimal financing source for additional health expenditure.

The additional cost burden can be spread across groups of many sizes. Considering just the public health expenditure then the largest group (the total population) would have a financing implication of R461 (2020 real Rands) per month per capita by 2040 for the most expensive scenario. For the smallest group (active income taxpayers), there would be an additional financing implication of R4,267 per month per taxpayer. If we consider the total health expenditure (as opposed to just public) then we get a different picture. For the most expensive scenario, there would then be a financing implication of R229 per month per capita (the total population), or R2,121 per month per active taxpayer (smallest group). The most expensive option for public health expenditure is *NHI Rejigged*, while for total health expenditure it is *NHI in the Bill*. The differences are driven by OOP and private risk pools where appropriate.

*Table 3: Additional PUBLIC health expenditure burden of different scenarios relative to potential payer groups*

	Status Quo	NHI Rejigged	Power to the People	Reorienting Towards Value	NHI in the Bill
<b>Real additional public health expenditure in 2040</b>	<b>R 148.0B</b>	<b>R 405.8B</b>	<b>R 350.8B</b>	<b>R 289.7B</b>	<b>R 330.5B</b>
<i>Real additional monthly contributions in 2040</i>					
Per capita	 R 168	 R 461	 R 3 99	 R 329	 R 376
Per registered tax payer	 R 428	 R 1,174	 R 1 ,015	 R 839	 R 956
Per active income tax payer	 R 1,556	 R 4,267	 R 3,689	 R 3,046	 R 3,475
Per adult (age 20 to 64)	 R 286	 R 785	 R 679	 R 561	 R 639

<sup>a</sup> Baseline cost in 2040 is calculated by growing the 2020 expenditure by the population, i.e. it is how much we would spend in 2040 if each we continue to spend the same amount per capita.



Table 4: Additional TOTAL health expenditure burden of different scenarios relative to potential payer groups

	Status Quo	NHI Rejigged	Power to the People	Reorienting Towards Value	NHI in the Bill
<b>Real additional public health expenditure in 2040</b>	R 105.2B	R 93.9B	R 37.0B	-R 45.3B	R 201.7B
<i>Real additional monthly contributions in 2040</i>					
Per capita	R 120	R 120	R 42	-R 51	R 229
Per registered tax payer	R 304	R 272	R 107	-R 131	R 584
Per active income tax payer	R 1,106	R 987	R 389	-R 476	R 2,121
Per adult (age 20 to 64)	R 203	R 182	R 72	-R 88	R 390

The imperative for economic and employment growth is evident when we take a long-term perspective and consider how best to achieve health-system objectives within fiscal constraints. An expansion of the economy will permit much-needed investment in the health system, whilst employment growth will allow for a more robust tax base to enable income cross-subsidies and sustainable social solidarity. Any changes to the health financing system cannot be considered without understanding the strong need for economic and employment growth. Without this growth, far more gradual choices will have to be made.

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# ACRONYMS AND ABBREVIATIONS

Acronym/abbreviation	Full description
DHIS	District Health Information System
DHO	District health office
GDP	Gross domestic product
GP	General provider
HIS	Health information systems
HLoC	Higher levels of care
HMI	Health Market Inquiry
HR	Human resources
HRH	Human Resources for Health
MoF	Minister of Finance
NCS	Norms and Core Standards
NDoH	National Department of Health
NHA	National Health Act
NHI	National Health Insurance
NHRPL	National Health Reference Pricing List
OHSC	Office of Health Standards Compliance
OOP	Out-of-pocket (expenditure)
PDoH	Provincial Departments of Health
PI	Private insurance
PHC	Primary healthcare
SAG	South African Government
THE	Total health expenditure
UHC	Universal health coverage
VAT	Value-added tax

# 1. INTRODUCTION

South Africa currently has a draft NHI Bill before Parliament <sup>1</sup>. The period for submissions on the Bill has ended, with a record number being received <sup>2</sup>. The significant number of submissions indicate the concern among civil society, funding bodies, health sector stakeholders and citizens about the massive step-changes that have been proposed for the health sector <sup>3</sup>.

The Covid-19 pandemic continues to highlight the extent of inequities between the public and private sectors – as well as between provinces and districts <sup>4-6</sup>. Furthermore, the pandemic-related impact on health system resilience provides an impetus to deepen universal health coverage (UHC).

The set of reforms in the draft NHI Bill is only one way to achieve the policy goals that would put South Africa's health system in a stronger position to handle the impact of Covid-19, as well as other challenges and stressors. However, there are also other ways of conceptualising and implementing a move to UHC.

In a previous report <sup>7</sup>, four alternative scenarios for achieving UHC for South Africa were shared. They are:

- *Status Quo Gold Standard;*
- *NHI Rejigged;*
- *Power to the People; and*
- *Reorienting Towards Value.*

At their core, each scenario addresses the five UHC policy objectives embedded within them (see Section 2) and present a reimagining of the 'how' for UHC.

This report aims to stimulate debate and discussion about alternative policy pathways. Investigation the potential long-term costs of policy change is a useful way to bring the implications of both action and inaction to light.

We've modelled the potential costs of the four scenarios and *NHI as Described in the Bill* and provided high-level costings for the five scenarios from 2021-2040, with 2030 as a key midway point. Most scenarios improve equity and resource-sharing in healthcare between the private and public sectors. It is also demonstrated that while some scenarios may perform better over the medium term, their real success in terms of cost, quality, efficiency, stewardship and governance can only be assessed over the longer term (2040). Long-term costings are by nature highly uncertain. The costings presented here are illustrative and intended to highlight the underlying factors driving costs, and the trade-offs between policy decisions.

*What the model offers:*

The cost model presented here uses the current health system structure and combined health expenditure in the public and private sectors (including OOP) as a starting point. We believe it's a pragmatic approach to work with what we have, rather than with what we wish we did.



We make assumptions about the main demographic and structural cost drivers to arrive at estimated costs for the five healthcare scenarios, while also considering macro-level indicators such as the consumer price index (CPI), healthcare cost inflation, population growth and GDP growth from 2021-2040. More details on these cross-cutting variables (not specific to any one model) are provided later in the report. The assumptions informing the variables are based on available evidence and aim to illustrate the differences between the policy choices. They should be seen as point estimates in a wide range of possible outcomes. By nature, they're subjective, and useful to stimulate discussion and debate.

Considering the likely costs of each scenario, we looked at the total cost of the health system, which is consistent with the idea of a unified system. It's also helpful in terms of considering the total envelope of funding directed towards healthcare, regardless of the source of the funding.

Total healthcare expenditure encompasses three main categories:

- 1) **Publicly funded:** centralised public expenditure (a form of risk pooling, even if not explicitly managed as a risk pool given that resource allocation is decentralised, as well as the absence of a fully articulated basic benefit package);
- 2) **Private risk pooling:** the vast majority of this is located in medical schemes; and
- 3) **OOP expenditure and (non-medical scheme) private insurance** by households for private and public services not covered by either medical scheme funding or public-sector expenditure. For example, the private pharmacy expenses of those consulting the public sector, or the GP visits of those who don't have medical scheme cover.

Collectively, the three categories represent a ceiling on funds currently available for health expenditure, unless other ways are found to increase the available amount – such as an earmarked health tax or increases to payroll tax, income tax or VAT. A large proportion of this current funding envelope is discretionary, with households and employers making voluntary contributions to medical schemes or paying for care on an out-of-pocket basis.

The cost model allows for compelling storytelling that clearly highlights the trade-offs between the different policy choices. This is the real value of the model: to show how the total healthcare costs and their various components are likely to play out over time if we do, or don't, take certain actions now; or, if certain much-needed steps aren't taken in future. It highlights the long-term costs of inaction, and therefore, helps to inform both policy and implementation. Previous costings of the NHI proposals have compared costs to the current system (doing nothing to change the system) – we hope to make it clear that there are other possible counterfactuals.

There are several reasons why it is important to consider the costs of alternative scenario relative to the likely costs of NHI. Firstly, it will allow policymakers, citizens and civil society to be aware of the trade-offs between equity, cost, quality and access. Without transparency in trade-offs, it's impossible to know the long-term consequences of a particular policy choice relative to others. Secondly, once the trade-offs and various considerations of the various UHC options are clear, it will be possible to reconsider policy choices, if necessary. Once it's clear what is driving the costs and outcomes of a policy direction, the policy can be adjusted to improve costs and outcomes. This could entail tweaking the overall financial structure and approach of a UHC policy option, or opting for a completely different approach altogether.



*What the model is not:*

While offering projections for the five scenarios, this is **not a detailed bottom-up costing model**. We have not evaluated the finer points of a basic benefit package that are needed for a bottom-up costing, since no such package for NHI was set out in the draft NHI Bill – or in any other official government document. It is useful to keep the intention of the model in mind while reading the results of the five scenarios, while also paying attention to its limitations.

The hypothetical nature of the UHC scenarios, as well as the NHI Bill, also constrained our ability to accurately estimate the associated costs. For example, the NHI Bill provides scant information on the single-purchaser model, which is needed for a detailed bottom-up costing. We therefore often had to make bold assumptions about both NHI as Described in the Bill as well as the other scenarios to determine ultimate costs and illustrate the differences between policy choices. The results are normative as they've been informed by a large set of hypothetical assumptions. They can't be viewed as objective cost assessments of the policy options given the multi-layered and interconnected nature of the cost assumptions. While the model is potentially subjective, it does provide a much-needed framework informed by logic.

**In the absence of real policy alternatives that have been clearly articulated in terms of service and funding design, the estimated future costs for the different scenarios provide a starting point for us to collectively imagine alternative ways to achieve our UHC objectives.**

*Report structure:*

Section 2 of this report provides a summary of the five objectives of UHC (as identified in the previous ISI report, 'Reimagined Pathways for UHC in South Africa: A critical policy assessment of NHI choices' (2020)). Section 3 sets out the current total healthcare expenditure in South Africa. Section 4 offers a review of previous NHI cost models in the public domain. Section 5 provides high-level descriptions of each of the five scenarios. Section 6 details the assumptions that underpin the cost modelling for each scenario. Section 7 sets out the structure of the model and the nature of the cross-cutting variables. Section 8 presents the results of the model and in Section 9, the implications of the results for policy are articulated. Section 10 provides a conclusion.



## 2. WHAT ARE WE TRYING TO ACHIEVE? FIRST PRINCIPLES

South Africa has been struggling to find its path to UHC for more than two decades. Despite differences in policy, rhetoric and plans, the intention has always been the same: to **improve equity** between the provinces and health sectors, to **ensure quality** care is provided at the lowest possible cost, and to ensure that the health system is **governed optimally** and with sound leadership. To support this report, we conducted a comprehensive literature and stakeholder review of NHI in South Africa <sup>8</sup>. Based on the review, **five policy objectives** were identified that have been consistently present across policy documentation as South Africa has been trying to move closer and closer to UHC. These policy objectives are:

1. To improve **equity** in the health system, including the sharing of resources (human and other) across the public and private health systems.
2. To address **escalating costs** in the private health sector and contain future escalations in costs across the health sectors.
3. To provide **universal access** to quality **healthcare**.
4. To ensure **efficiency** in service provision and administration.
5. To ensure **good governance** and **stewardship**.

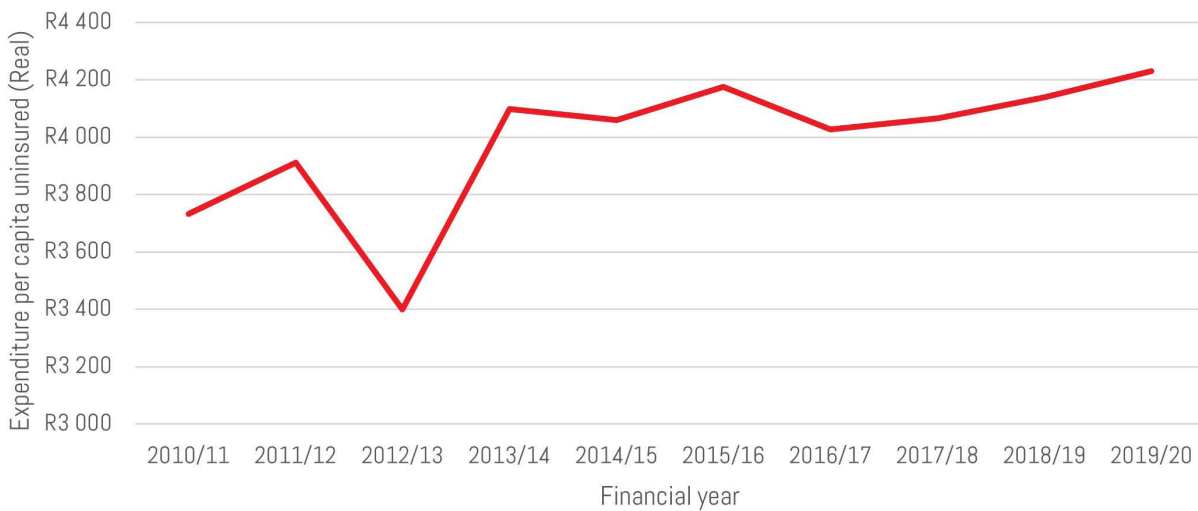
These key objectives of the health reform process will be used as benchmarks to assess the feasibility of various policy choices and pathways that were put forward during the UHC debate. This report may also assist in guiding the sequencing of current reform proposals. Throughout this document, we propose that the combination of cost, quality and efficiency could collectively be reconceptualised as **orienting the South African healthcare system towards value**.



### 3. WHAT DO WE HAVE TO SPEND ON HEALTH SERVICES? RECENT TRENDS IN HEALTHCARE EXPENDITURE

Since 2012, the public health budget in South Africa has become severely constrained as a result of the deepening austerity after the 2008 global recession<sup>9</sup>. Prior to 2012, the National Treasury was able to shield the social sectors from the declining fiscal environment, but from 2012 onwards, health, education and other social service sectors also bore the brunt of South Africa's ongoing fiscal austerity measures. Figure 1 shows the real expenditure per capita uninsured from 2010/11 to 2019/20 in South Africa<sup>10</sup>. The dip in health spending in 2012/13 is evident, as is the erratic nature of the public health allocation over the 10-year period.

Figure 1: Annual public health expenditure per capita uninsured (Real)



Our analysis shows little predictability in the health budget year-on-year, which impacts the sector's ability to plan appropriately. The analysis also shows that in the decade between 2010/11 and 2019/20, the overall per capita spend for the uninsured population has only grown by 15%. This growth is worrisome given that medical inflation constantly supersedes average general inflation (CPI) and we would anticipate at least a CPI-linked increase for each year, which would result in a growth rate well above the 15% shown. Once the above-CPI price increases have been taken into account, it has not left much additional growth to account for a growing disease burden and greater health needs. This has no doubt contributed to the dire conditions in the public health sector in terms of its dilapidated infrastructure, limited human resources for health and rising quality concerns – the Eastern Cape being an example of this decline<sup>11</sup>.

Figure 2 shows the average expenditure per capita uninsured by province. The erratic nature of budget availability is clear over the period, highlighting the difficulties that an uncertain budget creates for health sector planning. The impact of this on a long term plan to rollout NHI is immediately evident; there is no way to be certain that next year's budget will be able to include new, major health reform costs.

Figure 2: Public health expenditure per capita uninsured, by province (Real)

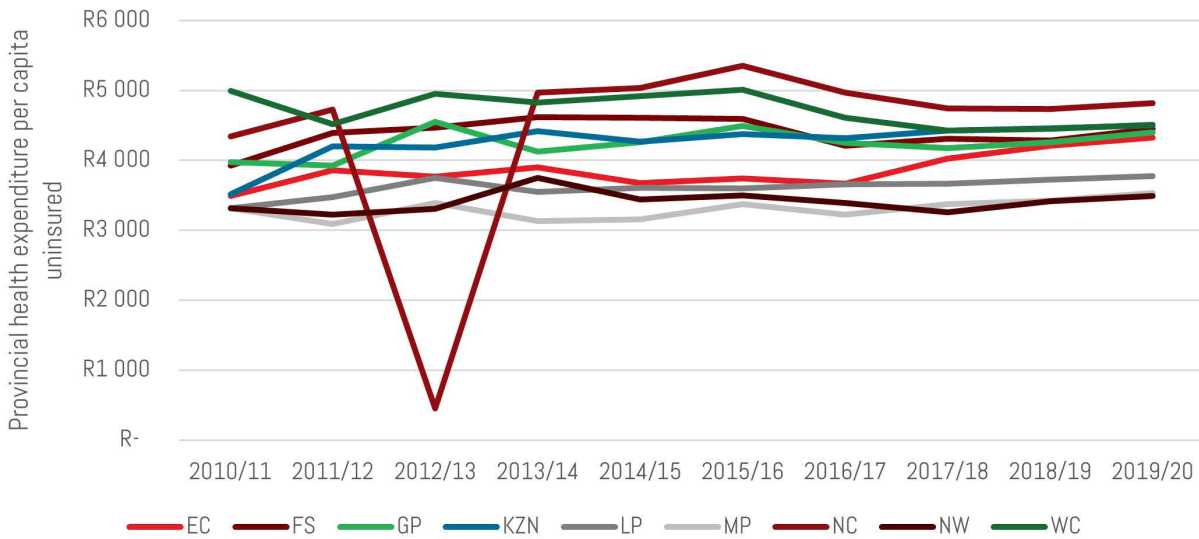
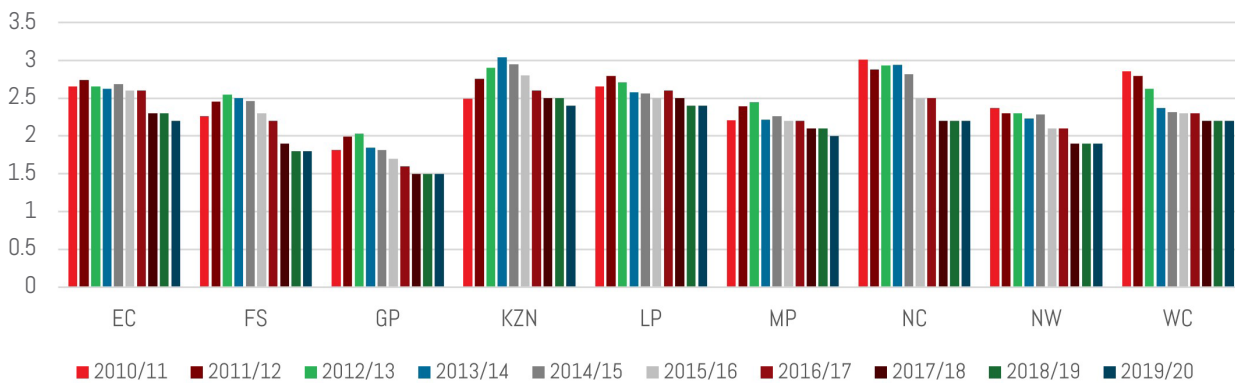


Figure 3 provides a clear picture of the impact of this declining budget on service delivery. All the provinces show a substantial decline in primary healthcare (PHC) utilisation rates between 2010/11 and 2019/20. Accessible and quality PHC is a critical part of keeping a population healthy – with the reduction in utilisation of these services, one can expect the population to become sicker as the system is unable to perform key prevention and health promotion activities.

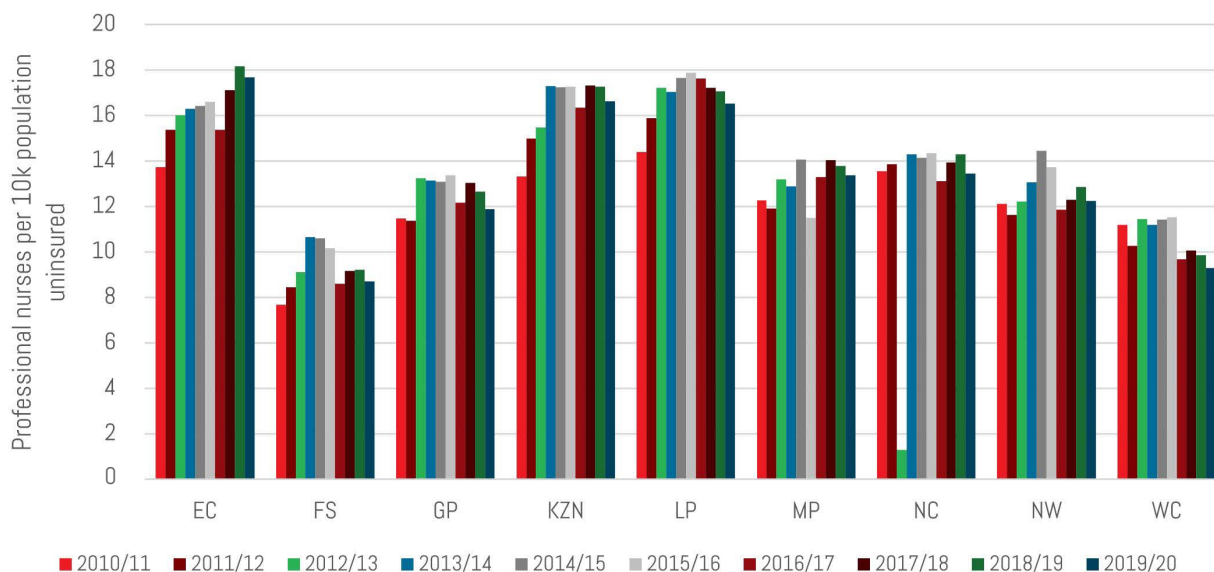
Figure 3: PHC utilisation rate by province



Another casualty of the declining budget has been the sector's inability to hire more human resources. Professional nurses are the backbone of any health system and they're particularly integral to a well-functioning PHC system. Figure 4 shows the professional nurses per 10k population uninsured per South African province. Almost every province shows a declining trend.



Figure 4: Professional nurses per 10k population uninsured



The public health budget has been declining since 2012/13. This has placed severe pressure on the sector as it attempts to maintain service delivery and respond to new crises of non-communicable diseases. Expenditure has increased by only 15% over the past decade, pointing to a severely constrained fiscal climate. The effect of this is evident in both utilisation, the overall health status of the population and rising medical negligence claims as facilities are unable to render effective and quality care with the resources at hand.

## 4. PREVIOUS NHI COSTINGS

There have been several NHI costing models in South Africa, only some of which are in the public domain. For those in the public domain, this report provides an overview of the costing approach used, as well as a high-level summary of both the absolute and relative costs.

**Econex**<sup>12</sup> used a **demand-based approach** (in 2010) to estimate the utilisation (demand) for different sub-groups of the population, and for different cost components, and then aggregated it. Based on a comprehensive package that incorporated all the essential features of NHI at the time<sup>b</sup>, utilisation patterns of the uninsured population, unchanged unit costs and a conservative addition of R8 billion for NHI public health administration costs, Econex estimated the cost of a full NHI to be R287 billion (in 2008 Rand values). This upper threshold of their costing estimate (base case) was more than four times the total amount spent by the state on health-care at the time (R62.8 billion in 2008 Rands), and almost double what was spent on total healthcare at the time ((R144.5 billion in 2008 Rands). In addition to the base case, Econex estimated five alternative costing scenarios that made varying assumptions about the degree of savings and rationing. At the lowest costing threshold<sup>c</sup>, the total NHI cost was estimated to be **R174 billion (in 2008 Rand values)**. If the costing scenarios were extended to account for the impact of HIV/AIDS, the authors added R6 billion (in 2008 Rand values) to their cost estimates.

**McLeod, Grobler and Van der Berg**<sup>13</sup> used an **actuarial costing method** in 2009 to estimate the cost of NHI. The model accounted for both the prevalence of various conditions and the cost of treating each, taking into account the age and sex distribution for a reference population. The reference population was drawn from the ASSA2003 provincial model<sup>14</sup>, as recommended by McLeod<sup>d</sup><sup>15</sup>.

McLeod, Grobler and Van der Berg's model estimated NHI costs for five different packages across four levels of delivery efficiency. Their findings showed that a fully comprehensive package (with all healthcare benefits) delivered at the medical scheme efficiency level (100% of cost) would amount to **R334 billion (in 2009 Rand values)**. This was the upper-most limit of their NHI costing range. At the lowest threshold of the range, a package of Prescribed Minimum Benefits<sup>e</sup> delivered at the staff model efficiency level (50% of cost) was estimated at **R78 billion (in 2009 Rand values)** for the same year. These costings excluded NHI administrative and managed-care costs, and didn't fully account for the impact of HIV/AIDS. For these reasons, the authors regard their NHI costing as preliminary.

The McIntyre **NHI costing approach** of 2010<sup>16</sup> could be described as **demand-based**, as cost estimates were derived from the product of population, utilisation rates and unit costs. For the universal coverage scenario, the model estimated the cost of public healthcare if the population were to be covered by the public sector. The benefit package used by McIntyre leaned more towards the public sector framework of service delivery than the private sector framework, so the services covered were limited and explicit. However, the unit costs in this model were higher than public sector unit costs at the time – to account for the required improvements in public sector resourcing or the option to purchase services from the private sector. McIntyre also assumed a substantial increase in health services utilisation, particularly at the primary healthcare level. NHI administrative costs as well as the cost of HIV/AIDS were accounted for<sup>f</sup> in the modelling. Costing estimates for the universal coverage scenario<sup>g</sup> ranged from **R193 billion to R200 billion (in 2010 Rand values)**.

It's clear from all three models that the estimated cost of NHI (in GDP terms) was for the most part incredibly close to estimated total health expenditure (THE), except for a small margin that was allowed for OOP and other private risk pooling schemes. Given uncertainties about the elements that would constitute the basic benefit package, some of the relative upper-cost thresholds

<sup>b</sup> Universal coverage of the population (irrespective of contribution), comprehensive cover, service to be sought from the provider of choice, no co-payment.

<sup>c</sup> After accounting for severe rationing and savings.

<sup>d</sup> This policy brief strongly recommended that all NHI costing work use the ASSA2003 provincial model (or updated versions thereof).

<sup>e</sup> These are the benefits that medical schemes are required to deliver by law.

<sup>f</sup> Used the ASSA2003 AIDS and Demographic model<sup>43</sup>.

<sup>g</sup> Inclusive of those who chose to remain on scheme cover over in addition to their universal cover.



were more than total healthcare expenditure, going as high as **14.1% of the GDP**. Such a high allocation of total GDP towards healthcare expenditure means that resources would have to be directed from other types of expenditure – possibly education, social development or even housing.

In addition, there are several NHI costing models **not in the public domain** that have been commissioned and produced by different organisations:

- The PWC model produced for the Ministerial Advisory Committee;
- The 2016 model by the Clinton Health Access Initiative (CHAI) and Insight Actuaries & Consultants;
- The Government Technical Advisory Centre (GTAC) 2018 model;
- The GTAC 2019 model; and
- The 2018 Actuarial Society of South Africa model.

*Table 5: Costs and implications of various NHI costing models*

<b>Model</b>	<b>NHI costing estimate: upper threshold (in R billion)</b>	<b>NHI costing estimate: lower threshold (in R billion)</b>	<b>% of GDP <sup>1</sup></b>	<b>% of total government spending <sup>2</sup></b>	<b>Implications for total health expenditure</b>
<b>Econex (2010)</b>	287.7 (2008)	174.6 (2008)	12.5% – 7.6% (2008)	44.9% – 27.3% (2008)	Even at the lowest threshold of NHI costs, the State would not be able to fund NHI without sacrificing competing public budgets.
<b>McLeod, Grobler &amp; Van der Berg (2010)</b>	334.0 (2009)	78.0 (2009)	14.1% – 3.2% (2009)	44.7% – 104% (2009)	The potential cost of NHI is massive given public budget constraints and the low rate of economic growth.
<b>McIntyre (2010)</b>	200.0 (2010)	193.0 (2010)	7.3% – 7.0% (2010)	17.5% – 16.9% (2010)	Moving towards a universal health system will increase total government expenditure substantially.

<sup>1</sup> Own calculations: numerator sourced from respective NHI costing model; denominator sourced from relevant National Treasury Budget Reviews

<sup>2</sup> Own calculations: numerator sourced from respective NHI costing model; denominator sourced from relevant National Treasury Budget Review



## 5. NHI AND THE FOUR UHC ALTERNATIVES

In the earlier report <sup>7</sup>, the four scenarios that were presented (Status Quo Gold Standard, NHI Rejigged, Power to the People, and Reorienting Towards Value) allowed the reader to reimagine UHC implementation in South Africa. We conducted a comprehensive literature review before the report and also used interviews and documentation to differentiate the scenarios.

Each scenario has the five policy objectives embedded into its core, and therefore represent a reimagining of the 'how' for NHI (see Table 6). The scenarios may help the South African government and various UHC stakeholders to continue furthering the important UHC agenda, without risking the public purse or service continuity.

*Table 6: Alternative UHC scenarios explored in this document*

Model	NHI costing estimate: upper threshold (in R billion)	NHI costing estimate: lower threshold (in R billion)	Implications for total health expenditure
<b>Status Quo Gold Standard</b>	<ul style="list-style-type: none"> <li>Better service delivery through improvements in quality of care and system hardware.</li> </ul>	<ul style="list-style-type: none"> <li>Better data quality and transparency to facilitate evidence for decision-making.</li> </ul>	<ul style="list-style-type: none"> <li>Equity within the public sector, but not between sectors.</li> <li>Improved public sector governance.</li> <li>Sustainability of the public sector strengthened, but costs likely to continue to spiral in the private sector.</li> <li>Public sector efficiency improved through data and decision-making.</li> <li>Minimum quality standard is raised.</li> </ul>
<b>NHI Rejigged</b>	<ul style="list-style-type: none"> <li>Better regulation of private sector that will bring down high costs.</li> <li>Improved quality of care in the public sector.</li> </ul>	<ul style="list-style-type: none"> <li>Earlier development of basic benefit package.</li> <li>Development of transitional central risk equalisation fund across sectors to lay foundation for NHI Fund.</li> </ul>	<ul style="list-style-type: none"> <li>Equity within each sector, and then improved equity between sectors.</li> <li>Improved governance in both sectors.</li> <li>Improved sustainability in both sectors.</li> <li>Efficiency gains as a result of shifts in incentives in the private sector.</li> <li>Minimum quality standard is raised as equity improves.</li> </ul>
<b>Power to the People</b>	<ul style="list-style-type: none"> <li>User given a choice of insurer by allowing for multiple purchasers, but with a centralised risk equalisation fund to ensure equity across funds.</li> <li>This should ensure administration of funds is more responsive to client needs (smaller bureaucracies).</li> </ul>	<ul style="list-style-type: none"> <li>More competition between insurers to encourage better administration of funds.</li> <li>Government is able to hold insurer to account because they are not solely reliant on them.</li> </ul>	<ul style="list-style-type: none"> <li>Equity across the system as a whole.</li> <li>Governance strengthened through bottom-up accountability.</li> <li>Sustainability driven through strategic purchasing and competition between purchasers.</li> <li>Competing insurers incentivised to drive efficiency.</li> <li>Quality driven through greater participation.</li> </ul>



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***Reorienting  
Towards Value***

- Better quality of care.
  - More affordable care.
  - More cost-effective care.
  - Improved equity between sectors.
  - Better data quality to compare and measure providers.
  - Equity achieved over time through alignment across sectors.
  - Governance strengthened through bottom-up accountability.
  - Sustainability achieved through orientation towards value.
  - Efficiency driven through bottom-up reorganisation of service delivery.
  - Quality becomes key focus of this approach.
- 



## 6. ASSUMPTIONS INFORMING COST-MODELLING FOR EACH SCENARIO

The assumptions driving the cost model structure for each scenario are set out below. Each discussion starts with a narrative summary of the overall structure and anticipated changes.

### *Status Quo Gold Standard: No purchaser-provider split and strengthening the public sector*

#### Summary

The public sector is improved while the private sector is left to continue as is. Medical schemes remain operational in their current form and OOP expenditure from private sector users follows current trends, while reducing for public sector users. The state continues its role as funder for the dependent population, with provinces as purchasers. Public facilities are improved and regularly assessed against a set of standards to monitor quality. If facilities fail to meet the standards, there is an intervention to swiftly address issues. The public sector budgeting process is done in a transparent manner, contributing to a reduction in corruption.

#### *What drives costs in this scenario?*

Under this scenario (Table 7), costs relative to the current health expenditure will initially increase due to expenditure on health information systems (DHIS2 and PERSAL, as examples), while focused quality improvement approaches in the public sector will also lead to initial cost increases. Over time, however, these investments pay off and quality improves dramatically. A lack of competition in the purchaser space may result in sluggishness and sub-optimal performance and total health expenditure costs may not be as low as possible.



Table 7: Assumptions driving costs for Status Quo Gold Standard in model framework

Status Quo Gold Standard	
Population served	<ul style="list-style-type: none"> <li>• The state serves the population who are not in private risk pools (not in medical schemes)</li> <li>• The private sector is largely unaffected but a small % may choose to move over as quality improves</li> </ul>
Revenue collection & pooling	<ul style="list-style-type: none"> <li>• The same single national pooling system remains in public system                             <ul style="list-style-type: none"> <li>– Likely unable to tap into private sector revenue</li> </ul> </li> </ul>
Purchasing	<ul style="list-style-type: none"> <li>• PDoHs continue as purchasers</li> <li>• Budgeting is transparent and made public for greater accountability</li> <li>• Budgeting is more closely linked to health outcomes and accounts for risk adjustment</li> </ul>
Service delivery	<ul style="list-style-type: none"> <li>• Health facilities are held to high quality standards</li> <li>• Information systems are accurate, up to date and universally utilised to allow for evidence-based decision-making</li> <li>• Information systems that collect individual-level data are used to promote value in care provision</li> </ul>
Other key aspects	<ul style="list-style-type: none"> <li>• Information gathered when assessing standards and through information systems would be made public to aid users in choosing the facility they attend and for improved decision-making in governance</li> <li>• Governance structures and other relational matters are important aspects to consider (if not included in the guiding standards)</li> </ul>

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## Cost drivers

Differences in cost are driven by the following factors:

- Data and information systems improvement:
    - Requires technical maintenance costs and teams to monitor and improve the system which adds to the cost
    - The need to train relevant staff to use the systems may have cost implications
    - Data supports better strategic purchasing and therefore supports value (better outcomes/less cost)
    - PERSAL system improves HR management process and leads to more efficient staffing
    - Patient records help target resources and reduce LTFU, reducing the long-term cost of care
    - Linking patient-level data (for example, DHIS2) to outcomes may lead to better outcomes-based financing and value measurement
      - Creating a public domain where data is available to citizens, clients, researchers and more may improve accountability
  - Improved healthcare quality:
    - Certification of facilities may lead to greater maintenance costs and frequent assessment costs
    - Setting up structures to publicly share information gathered from quality assessments may have cost implications
    - Funds may be more easily directed towards providers who are better/more efficient, leading to overall greater system efficiency
    - Health outcomes data is linked to the facility to promote the continuous prioritisation of quality, as opposed to only meeting the minimum requirements for certification
  - Improved budget processes:
    - Transparent budgeting leads to more accountability and less misuse of funds or corruption
    - Transparent budgeting helps with resource allocation – leading to greater efficiency
    - The system to publicise budgets may require maintenance costs
    - A greater budgeting skillset and/or time allocation may be needed for more agile budgeting, which may have a cost implication
  - Lack of competition in the purchaser space may result in sluggishness and sub-optimal performance – costs may then not be as low as possible
  - Likely working on a more constrained budget compared to other scenarios, since none of the private sector expenditure is captured by the public sector, unless mechanisms are put in place to meaningfully increase revenue
- 

## *NHI Rejigged: NHI, but sequenced differently*

### Summary

NHI is eventually implemented as envisaged in the NHI Bill, but it occurs more gradually. Medical schemes are phased out and the public sector serves the entire population through the NHI Fund. While still relevant, the private sector is regulated, largely in line with the main recommendations of the Competition Commission's Health Market Inquiry<sup>17</sup>. The public sector is improved as outlined in Status Quo Gold Standard and develops the capacity to contract from private providers. The process to achieve NHI is incremental and by the



time it is implemented, there will be a greater capacity to do so successfully and efficiently. OOP expenditure decreases over time as the state covers a greater proportion of needs. The incremental implementation of the fund provides time to establish governance structures that lead to a reduction in corruption.

*What drives costs in this scenario?*

Similar to the previous scenario, many of the initial costs for *NHI Rejigged* (Table 8) will be driven by data system investments as well as concerted efforts to improve quality in the public sector through certification and a broader quality improvement process. The implementation of the Health Market Inquiry’s recommendations will over time lead to relative cost reductions in the private sector. Relative to the two multi-payer scenarios (Power to the People and Reorienting Towards Value) the eventual monopsony payer (NHI Fund) may lead to a loss of efficiency due to the absence of competition.

*Table 8: Assumptions driving costs for NHI Rejigged in model framework*

<b>NHI Rejigged</b>	
Population served	<ul style="list-style-type: none"> <li>Entire population is served, although some may still opt to pay (out-of-pocket) for private providers</li> </ul>
Revenue collection & pooling	<ul style="list-style-type: none"> <li>Revenue collection is unspecified, but the system will be able to tap into current private sector revenue</li> <li>Tax-based collection most likely</li> </ul>
Purchasing	<ul style="list-style-type: none"> <li>Single purchaser, purchasing for the entire population</li> <li>PDOHs, local municipalities and private providers are competing providers – the fund may easily purchase services from any of these providers</li> </ul>
Service delivery	<ul style="list-style-type: none"> <li>Providers offer standard benefit packages to all patients, funded by a single fund</li> <li>Public facilities are raised to standards as outlined in Status Quo Gold Standard</li> <li>Private providers are regulated by NDoH and have sustainable price levels</li> <li>Private providers compete with public providers</li> <li>Public facilities are held to high quality standards</li> <li>Data availability in central repository supports evidence-based decision-making</li> </ul>
Other key aspects	<ul style="list-style-type: none"> <li>Incremental approach to establishing the fund allows the system to develop, to trial and test contracting systems and other changes, to build trust with the current private sector and more. This gives NHI a much greater chance of success.</li> </ul>

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Cost drivers

Differences in cost are driven by the following factors:

- Improved equity – private sector
    - Costs being managed in the private sector lead to a lower cost of care
    - The utilisation of services being managed in the private sector leads to lower cost
    - The regulation of the private sector leads to transparency on pricing, pooling and quality of care, which supports better value in private sector – and reducing costs
    - A standardised benefit package guides utilisation down towards the appropriate levels and decreases costs
    - A gradual approach to NHI allows time to establish trust and mutually beneficial contracts with the private sector, leading to a greater variety of private providers to contract with
  - Improved equity – public sector
    - Improvements in public sector, as in the Status Quo Gold Standard scenario
  - Improved equity
    - Greater economies of scale likely achieved from overlap/merge of private and public sector, leading to lower costs of care
    - NHI implemented after notable experimenting and trials, and therefore more likely to be done efficiently, leading to overall better value through lower costs and/or better outcomes
    - Central data repository supports resource allocation and new research leading to greater opportunity for value
    - Standardised benefit packages ensure equality and more defined cost
  - Monopsony is maintained and may lead to loss of efficiency due to the absence of competition. Costs could then rise
    - The effect of a monopsony is greater here than in the Status Quo scenario since there is no private sector to compete with
- 

## *Power to the People: Purchaser provider split but with multiple purchasers*

### Summary

NHI end results are largely achieved as set out in NHI Rejigged, with the primary difference being the multi-purchaser environment. A purchaser-provider split is still maintained. Provincial Departments of Health (PDoHs), local municipalities and private providers are providers of care. There is a process to apply to be a purchaser, but the envisaged purchasers are the government body (through a fund such as the NHI) and medical schemes (that would be appointed by the relevant body to act as purchasers for UHC) as they have experience in performing the purchaser role. Users can select their preferred purchaser, who is then allocated funds accordingly. There is a clearly defined benefit package in place and these are used in the contracting between purchasers and providers. As with NHI Rejigged, the public sector is improved, medical schemes in their current form are closed and OOP expenditure and corruption decrease over time.

*What drives costs in this scenario?*

This scenario (Table 9) has many of the same cost drivers as the NHI Rejigged scenario (e.g. information systems and quality improvement costs), with some additional cost drivers. The big potential cost saving factor associated with this scenario the choice given to



citizens between multiple purchasers. This potentially allows for better bottom-up accountability, compelling purchasers to move to greater efficiencies, which could lead to lower administrative costs and lower health expenditure over time.

*Table 9: Assumptions driving costs for Power to the People in model framework*

<b>Power to the People</b>	
Population served	<ul style="list-style-type: none"> <li>Entire population is served although some may still opt to pay (out-of-pocket) for private providers</li> </ul>
Revenue collection & pooling	<ul style="list-style-type: none"> <li>Revenue collection is unspecified, but the system will be able to tap into current private sector revenue</li> <li>Tax-based collection most likely</li> <li>Risk equalisation fund to be set up due to multi-fund environment</li> <li>Multiple funds with independent pools</li> <li>Users select their fund of choice</li> </ul>
Purchasing	<ul style="list-style-type: none"> <li>There are multiple purchasers</li> <li>PDoHs, local municipalities and private providers are competing providers – the fund may easily purchase services from any of these providers or private providers</li> <li>User-selected fund acts as purchaser</li> </ul>
Service delivery	<ul style="list-style-type: none"> <li>Providers offer standard benefit packages to all patients, funded by single fund</li> <li>Public facilities are raised to the standards outlined in Status Quo Gold Standard</li> <li>Private providers are regulated by NDoH and have sustainable price levels</li> <li>Private providers compete with public providers</li> <li>Data availability in central repository supports evidence-based decision-making</li> </ul>
Cost drivers	<p>Differences in cost are driven by the following factors:</p> <ul style="list-style-type: none"> <li>Largely the same cost drivers as the NHI Rejigged scenario, with the additional cost drivers/considerations below</li> <li>The choice of multiple purchasers allows for greater bottom-up accountability, compelling purchasers to find greater efficiencies, which could lead to lower administrative costs and lower health expenditure</li> <li>Competition ensures that funds are directed to the most efficient purchasers, who in turn have an incentive to direct them to the most efficient providers: <ul style="list-style-type: none"> <li>There are fewer economies of scale associated with a single purchaser</li> <li>There is a lower administrative cost due to competition</li> <li>There may be greater innovation from competition</li> </ul> </li> <li>A central risk equalisation fund will need to be administered, which has cost implications: <ul style="list-style-type: none"> <li>This can be done efficiently, but will not benefit from the effect of competition</li> </ul> </li> </ul>



## Reorienting Towards Value: a value-based approach to UHC

### Summary

A value-based approach to UHC is implemented on the financing structure of the Power to the People scenario. Medical schemes as known in the private sector are eventually closed off, but may apply to become UHC funds that serve the public through a multi-payer approach to UHC. It's assumed that at least a few schemes (most likely the largest ones) continue to exist in the form of UHC funds. Health facilities are continually improved as needed and are not necessarily accredited. Accountability is built and maintained using strong data systems and strengthened by the multi-purchaser environment which provides user choice. Purchasers compete on value. The measurement systems are crucial and require tracking of cost and outcome information per user. Measurements are the same across providers, which consist of public facilities and private providers. There is a strong emphasis on primary care, which eventually leads to a decrease in the need for hospitalisations. As with the Power to the People scenario, the public sector is improved, medical schemes in their current form are closed and OOP expenditure and corruption drop over time. Overall health costs are herded in over time as there's a shift away from expensive hospital treatments towards cheaper preventative care.

#### *What drives costs in this scenario?*

In the conceptualisation of access to quality care for all, it front-ends the notion of quality and forces deeper thinking about what we mean by quality, how to measure quality and how to incentivise quality. Historical approaches to UHC, which focus on the access component of the conceptualisation, run the risk of orienting health care systems to volume, instead of value. This creates a long-term sustainability risk because the cost of the system increases as volumes rise. The implicit assumption is that a higher volume of service delivery leads to improved outcomes, but global research indicates that this is not true. The role of volume orientation in the South African private sector is illustrative of the risks associated with this paradigm. Research from the Lancet Global Commission on High Quality Health Systems indicates that "of the mortality amenable to healthcare, 60% is due to poor quality of care, compared to 40% due to lack of access" <sup>18</sup>.

Value-based approaches have a continuous improvement mindset built in – something that is lacking in the current articulation of the NHI reforms. With a value-based approach, it is less about accrediting facilities, and more about working with facilities to improve the quality of care that is delivered.

This scenario (Table 10) allows for, similar to Power to the People, a multi-payer approach to UHC. This potentially creates better bottom-up accountability, compelling purchasers to achieve greater efficiencies, which could lead to lower administrative costs and lower health expenditure over time.

*Table 10: Assumptions driving costs for Reorienting Towards Value in model framework*

Reorienting Towards Value	
Population served	<ul style="list-style-type: none"><li>• Entire population is served although some may still opt to pay (out-of-pocket) for private providers</li></ul>
Revenue collection & pooling	<ul style="list-style-type: none"><li>• Assumed to be the same as in Power to the People</li></ul>
Purchasing	<ul style="list-style-type: none"><li>• Assumed to be the same as in Power to the People</li></ul>



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## Service delivery

- Care is provided through integrated practice units, leading to greater health outcomes as there is a more holistic approach to care
- Care is value-oriented and the data is used to make evidence-based decisions about how to get the most value
- Public and private providers are held to account based on value metrics, and they influence where purchasers will purchase from
- Value performance metrics are made publicly available for both providers and purchasers
- Primary care is the focus leading to higher primary care usage and lower hospitalisations than in other scenarios

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## Cost drivers

Differences in cost are driven by the following factors:

- Largely the same cost drivers as the Power to the People scenario, with the additional ones listed below
- Clear focus on value could reduce inclinations to push volume and lead to less wastage
  - Lower unnecessary volumes of care provided may mean lower overall costs
- Continuous improvement in value monitoring may require additional research costs
- Facilities need to be improved, but accreditation is no longer necessary as accountability is built into the system
- Measurement reform
  - Tracking the cost and outcome information for each patient may require data-system related costs
  - Strong HIS system will be in place and there may be maintenance costs
- Payment
  - Bundled payments per condition or user will limit unfruitful expenditure and possibly decrease costs
- Delivery
  - Integrated practice units need to be maintained, which may have an administrative cost
  - The team integrations may lead to synergies and lower the costs of care
- A population health perspective is taken, possibly leading to declining burdens of disease and therefore lower costs in the long run;
  - This could also accelerate the increase in life expectancy and lead to a greater proportion of the elderly – there is an uncertain overall impact on total cost

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## *NHI as Described in the Bill: the policy proposal currently on the table*

### Summary

NHI is rolled out as proposed in the Bill. The Bill is silent on many details, such as the basic benefit package and how hospital services, for example, will be funded. This lack of detail in the implementation plan is assumed and built on in the financing model.

The process is swift, medical schemes are closed as proposed in the Bill (quicker than in other scenarios) and the population is served by the new NHI Fund. Medical schemes are only allowed to fund health services not covered by the NHI Fund. The NHI Fund is the single purchaser. The Fund purchases from provincial and local departments as well as private providers. The quick implementation without a slow and gradual reform process to prepare the system for the changes that will follow leads to a less robust system

and lower levels of trust. Accountability is limited and corruption initially increases in the early years of the Fund, given the ease of implementing large-scale corruption in a centralised fund as seen with other centralised public funds, e.g. the Road Accident Fund<sup>19 20</sup> and the Covid-19 Relief Fund<sup>21</sup>. The public sector attempts to improve facility standards to levels acceptable to the new population now serviced by the Fund (formerly covered by medical schemes), but struggles to offer quality care to the population. OOP expenditure and private insurance (non-medical schemes, but hospital cash plans) grow exponentially as those who can afford to, seek to access services outside the public finance scheme.

*What drives costs in this scenario?*

NHI as Described in the Bill (Table 11) currently proposes large health system shifts over a short period. These pose substantial risks to the system which are likely to manifest as increased costs over the longer term. Corruption is likely to increase with a centralised fund, as seen with other central government funds, especially given the clear lack of accountability mechanisms in the Bill. The lack of choice between payers means that a strong accountability mechanism (bottom-up accountability) will be removed. This is likely to manifest in poor quality healthcare, especially given the absence of a long NHI preparation phase, leading to private sector clients choosing to pay on an OOP basis for their healthcare.

*Table 11: Assumptions driving costs for NHI as Described in the Bill in model framework*

<b>NHI as Described in the Bill</b>	
Population served	<ul style="list-style-type: none"> <li>Entire population is served although some may still opt to pay (out-of-pocket) for private providers</li> </ul>
Revenue collection & pooling	<ul style="list-style-type: none"> <li>Revenue collection is unspecified, but the system will be able to tap into current private sector revenue.</li> <li>Tax-based collection most likely</li> </ul>
Purchasing	<ul style="list-style-type: none"> <li>Single purchaser, purchasing for the entire population</li> <li>PDoHs, local municipalities and private providers are competing providers – the Fund may easily purchase services from any of these providers or private providers</li> </ul>
Service delivery	<ul style="list-style-type: none"> <li>Providers offer standard benefit packages to all patients, funded by a single fund</li> <li>Public facilities are eventually raised to standards as outlined in the Status Quo Gold Standard scenario, but initially suffer from the rapid increase in population being served</li> <li>Private providers are eventually regulated by NDoH, but initially opt out of providing for NHI to keep their high price points and cater to the out-of-pocket population</li> <li>Significant private sector serves only privately paying clients</li> <li>Some legacy processes adopted initially due to rush, but eventually, data is made available in a central repository and used to inform evidence-based decision making</li> </ul>



## 7. APPROACH TO COST MODELLING AND KEY CROSS-SCENARIO ASSUMPTIONS

An Excel-based model was used to estimate the costs of the proposed scenarios. The model allows the user to enter assumptions for each of the 20 forecast years (2020 to 2040), for each scenario. The key variables/assumptions per scenario are outlined below. These assumptions, along with a series of base costs (2019 costs) are used to model all future expenditure. The expenditure is split between private risk pools (medical schemes), public healthcare and out-of-pocket and private insurance. The model further breaks down private risk pool expenditure into administration, primary healthcare and other levels of healthcare. It also breaks down public expenditure into administration, primary healthcare, hospital care, infrastructure, medico-legal claims and savings from IT systems and reduced corruption. The assumptions and outputs are used to calculate and compare final output values from the various scenarios.

As a reminder: this is not a detailed bottom-up costing model working from the basis of a defined benefit package. Rather, we use a top-down approach and use the available financial resources spent on health services as our starting point. We believe this is a more pragmatic approach in the absence of the detailed basic benefit package that is missing from the current NHI Bill.

Table 12 outlines the key variables that went into our scenario assumptions and provides a brief explanation for the range of assumptions used.

*Table 12: Model variables*

Variable name	Description (some-times self-evident)	Baseline and range of assumption	Justification	Data sources
% of population in public sector system	The percentage of the population without private risk pooling	84% of South Africa is not currently covered by medical schemes – it can increase to 100% in the scenarios, but does not drop in any of them	Scheme membership has been stagnant in recent years, and improving the public system will likely make more users join it. Closing schemes will require users to join the public system	Council for Medical Schemes <sup>22</sup> StatsSA United Nations <sup>23</sup>

<b>OOO as % of private expenditure, and OOO as % of public expenditure</b>	<p>The out-of-pocket or private insurance costs for medical scheme members, as a percentage of total private expenditure (excluding OOO).</p> <p>The out-of-pocket or private insurance costs for medical scheme members, as a percentage of total public expenditure</p>	Ranging from 5% to 34% by 2040	<p>Currently, OOO sits at about 10% of total health expenditure. OOO is estimated at 18% of privately risk pooled fund and % of public funds. The OOO proportion would increase or decrease based on the scenario</p>	Several (described in appendix)
<b>Utilisation boost</b>	The percentage increase in utilisation for users who have recently moved from the private sector to the public sector	Recent movers are expected to have a 10-30% utilisation boost	<p>PHC visits in the private sector were 60% higher than the public sector in 2019. There will however be constraints on their utilisation in the public sector</p>	<p>District Health Barometer <sup>24</sup></p> <p>Council for Medical Schemes <sup>22</sup></p>
<b>Medical cost inflation</b>	The increase in average medical costs YoY split between public and private sector	<p>CPI base assumption applied throughout. Public sector medical inflation above CPI is matched to real GDP growth (0.87%). Private sector medical inflation above CPI is double this figure, at 1.73%</p>	<p>Medical inflation typically above inflation. Private sector medical inflation is typically higher than public sector due to downward cost pressures in the public sector.</p>	<p>District Health Barometer <sup>24</sup></p> <p>Council for Medical Schemes <sup>22</sup></p>
<b>CPI</b>	YoY growth in CPI (i.e. inflation rate)	<p>Assumed as recorded/estimated in CMS for 2019-2023</p> <p>Stabilised and assumed constant from 2024 onwards at 4.5% p.a.</p>		Council for Medical Schemes <sup>25</sup>



<b>Impact of VBC models</b>	Percentage saved on PHC and Hospital costs each year, as a result of value-based care initiatives	Savings assumed to go up to 10%	VBC can lead to up to 16% savings, but the research is thin. 10% is adequately conservative and realistic	Singhal S et al <sup>26</sup>  Esposti F et al <sup>27</sup>
<b>Admin cost inflation</b>	Annual increase applied to admin expenditure	CPI is a driving force behind all increases. These are adjusted up or down, depending on the scenario. Ranges from -2% to 11% above CPI	Admin is subject to inflation like all other expenditure. Different scenarios may function on more or less admin expenditure	Council for Medical Schemes <sup>22</sup>  National Treasury <sup>28</sup>
<b>Additional infrastructure spend (new hospitals, facilities, etc.)</b>	Annual increase applied to infrastructure expenditure	CPI is a driving force behind all increases. These are adjusted up or down depending on the scenario. Ranges from -2% to 30% above CPI	Infrastructure is subject to inflation like all other expenditure. Different scenarios would have different infrastructure needs	Council for Medical Schemes <sup>22</sup>  National Treasury <sup>28</sup>
<b>Savings from improved IT systems</b>	Savings each year attributed to shifts in IT systems (as % of total health expenditure)	An investment will initially be needed for several years before savings materialise. Savings range from -1% to 3.5% of total health expenditure.	IT systems take time to set up and incorporate into large organisational structures, so initially, there are negative savings. After some time, these systems should improve efficiencies and lead to savings.	Not based on an external source (i.e., authors' judgement)
<b>Savings from reduced corruption</b>	Savings each year attributed to a reduction in corruption (as % of total health expenditure)	Corruption savings range from -5% to 10% of total health expenditure.	An estimate showed 6.3% of total health expenditure was lost to corruption in 2012 in South Africa. We estimate this may have risen as high as 10% since then. In an uncontrolled environment, we estimate that this figure could reach 15%.	Rispel LC et al <sup>29</sup>  Segato L et al <sup>30</sup>

<b>Savings from reduced medico-legal claims</b>	The reduction in medico-legal claims per capita YoY	There were R1 billion of medico-legal claims in total in 2019, which is used to calculate a per capita value. The YoY change ranges from -39% to 19%	Medico-legal expenses are expected to be proportional to the size of the population being served. This value would be different for the different scenarios.	Maphuumulo, WT <sup>31</sup>  Law Reform Commission <sup>32</sup>
<b>Utilisation at PHC and hospitals</b>	PHC visits per user or hospital admission rate	PHC utilisation ranges from 2 (current value) to 6 visits per user. Hospital care utilisation ranges from 107 per 1,000, to 560 per 1,000	Initial values sourced from CMS and DHB. Public sector values are considered below ideal levels and therefore are expected to mainly rise with the improved system. Private sector utilisation is high, but may rise further as the pull of private users worsens	Council for Medical Schemes <sup>22</sup>  District Health Barometer <sup>24</sup>
<b>Average cost per visit or admission</b>	Cost of a PHC visit or a hospital care admission	Costs increase YoY by medical inflation (which differs for private and public sectors). Costs also influenced by the VBC savings	Initial costs drawn from CMS and DHB.	Council for Medical Schemes <sup>22</sup>  District Health Barometer <sup>24</sup>
<b>Private cost discount (for PHC and Hospital care)</b>	Percentage discount offered to the public sector when contracting from private providers	Discount ranges from 0%-30%	Public sector purchasing power can demand discounts from the private sector, particularly when there are no private sector risk pools	Not based on an external source (i.e., authors' judgement)
<b>Private contracting % (for PHC and Hospital care)</b>	Percentage of total care that the public sector contracts from the private sector. Done for PHC and hospital care	Contracting percentage ranges from 0-25%	The public sector will leverage private providers to serve the dependent population	Not based on an external source (i.e., authors' judgement)



## 8. RESULTS OF COST MODELLING FOR THE SCENARIOS

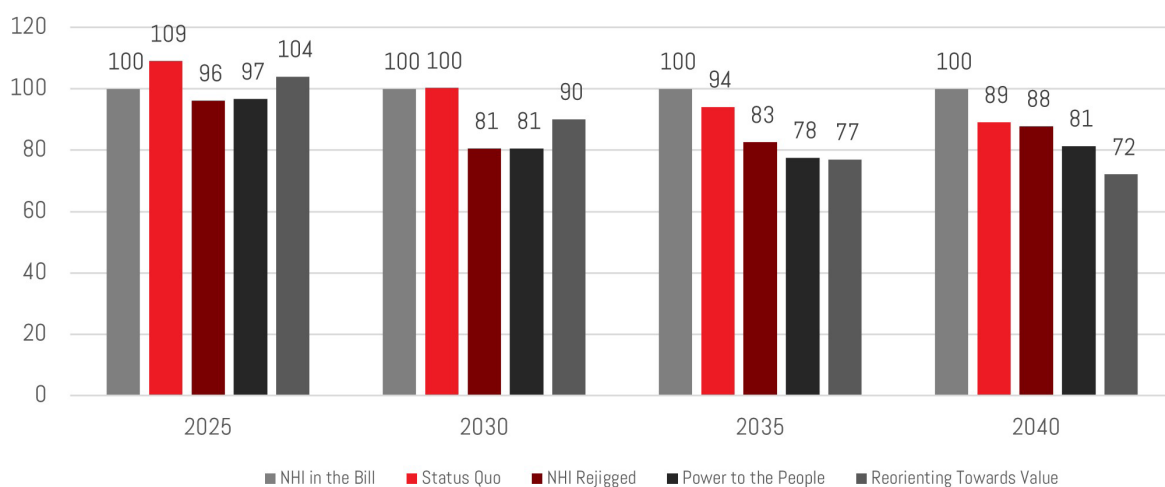
This section highlights the estimated costs of each scenario in 2030 (interim costs) and the estimated costs in 2040 (final costs) to distinguish between shorter-term investments and a longer-term steady state. The costs of the models are presented in standardised terms (relative to the NHI Bill scenario at a cost of R100) to rank the different scenarios. Absolute amounts are shown and expressed in 2020 terms (in real terms). However, they should be interpreted with caution due to various inherent uncertainties and assumptions.

Three elements of expenditure are distinguished: publicly funded, private risk pooling, and OOP & private insurance expenditure. Private insurance, as opposed to medical schemes, is similar to OOP due to the limited nature of risk and income cross-subsidies, as well as the absence of a strategic purchaser. Risk-pooled private expenditure refers to medical schemes. In most scenarios, this sector no longer exists in its current form.

*The total estimated cost of the five scenarios:*

By 2030, Status Quo Gold Standard and NHI as Described in the Bill are the most expensive scenarios in terms of total health expenditure (Figure 5). By 2040, NHI as Described in the Bill is the most expensive scenario. By contrast, Power to the People is the least expensive scenario by 2030 by a slight margin, while Reorienting Towards Value is the least expensive scenario by 2040. We also see that Reorientating Towards Value starts off relatively expensive due to the investments needed to measure the quality of care and the longitudinal costs of care. However, by 2035, this scenario is the most affordable. It sustains this position in 2040.

*Figure 5: Total healthcare expenditure by scenario (Rands, standardised so NHI Bill scenario is R100 each year)*



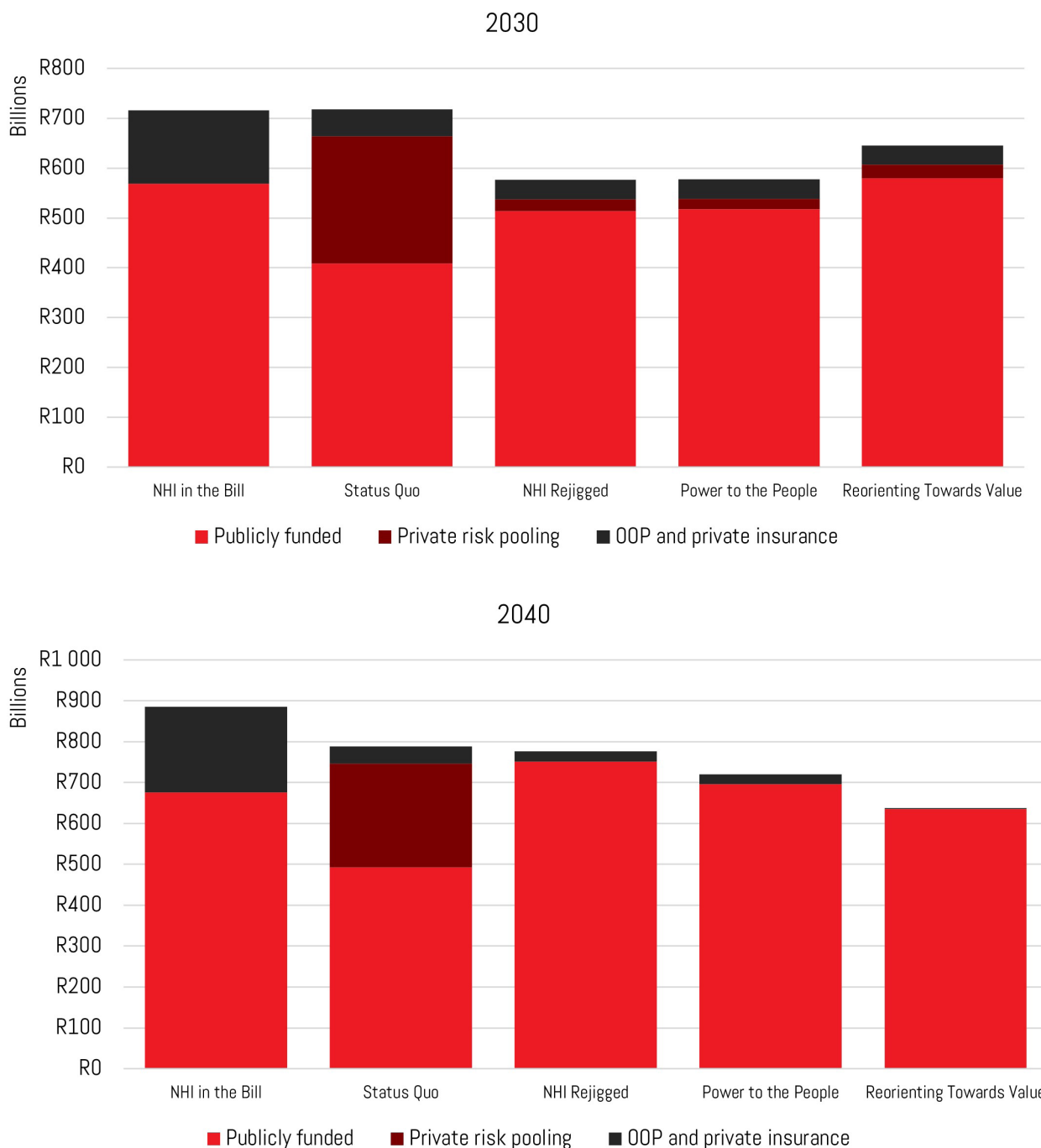
The breakdown of total health expenditure into the three main categories (publicly funded, private risk-pooling OOP) provides some insight into what is driving total health expenditure (Figure 6). OOP provides an essential third factor in understanding how the overall financing structure drives total healthcare expenditure. Under conditions of low-quality healthcare and limited choices to users within the chosen UHC system, OOP increases. Conversely, when users are satisfied with the quality of healthcare and have some choice in who provides their care, OOP reduces. South Africa currently has one of the lowest OOP levels for a low- and middle-income country<sup>33,34</sup>.

In 2030, NHI as Described in the Bill will have resulted in the closure of all private risk pooling (medical schemes). It is envisioned to have the highest OOP of all scenarios by 2030. By 2040, OOP has increased even further and constitutes a very large share (R210 billion of almost R900 billion) of total health expenditure, which is multiples greater than all other scenarios.



By contrast, Status Quo Gold Standard has the highest share of private risk pooling in 2030 as it assumes the medical scheme sector will continue to operate. By 2040, this is the only scenario with a substantial remaining proportion of private risk pooling. For NHI Rejigged, Power to the People and Reorienting Towards Value, private risk pooling has disappeared by 2040 although some medical schemes are likely to continue to exist in the form of the multi-fund UHC structure. Most of total health expenditure goes towards the UHC structure, with relatively small amounts spent as OOP.

Figure 6: Real total healthcare expenditure (2020 Rand billions) by scenario for 2030 vs. 2040

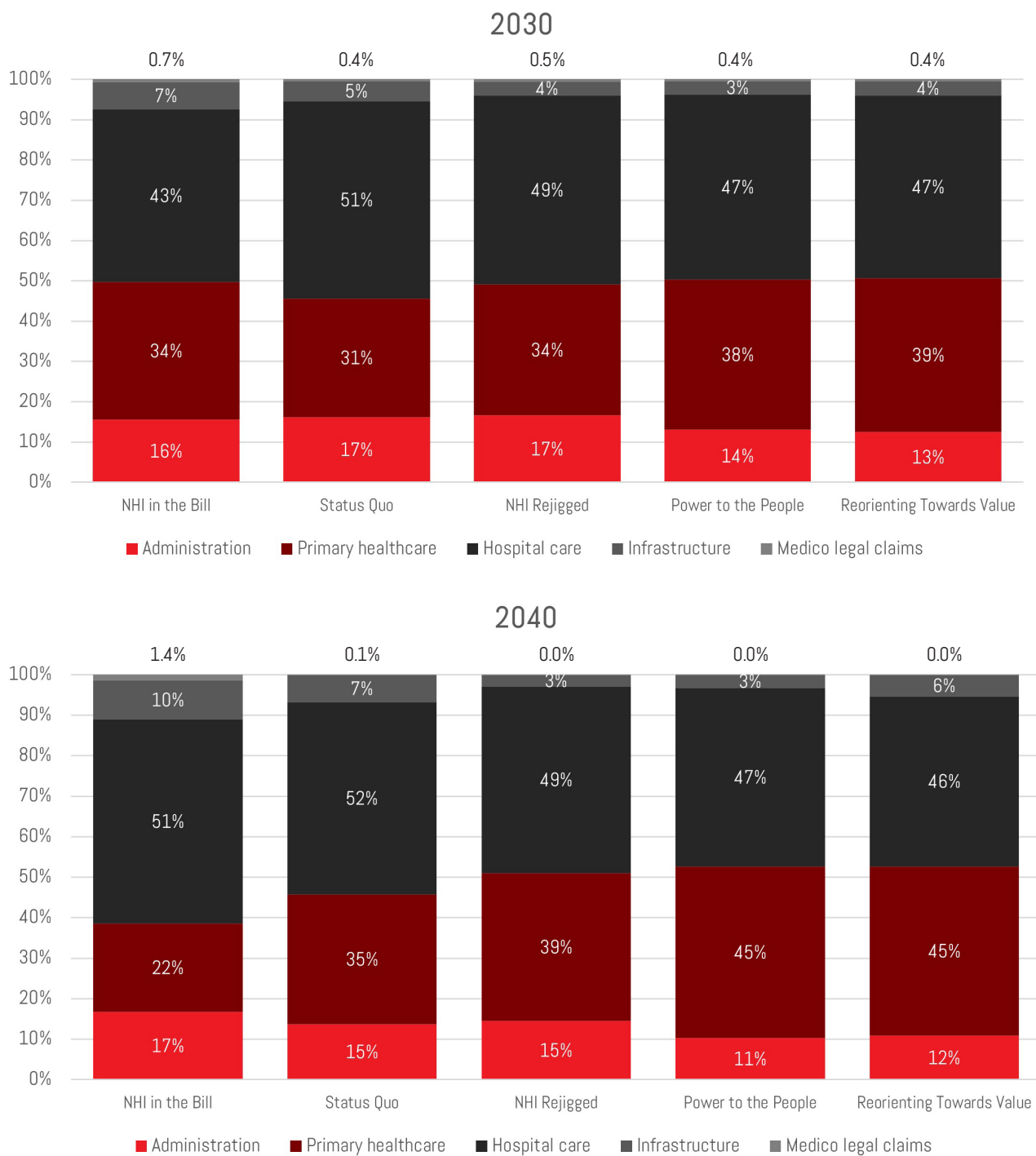


It is also useful to look at what money is spent on in the various scenarios to get a sense of what drives the overall costs. The various components that drive total health expenditure are illustrated in relative terms (Figure 7). NHI as Described in the Bill has the highest proportion of expenditure on administration and medico-legal claims by 2040.



Power to the People and Reorienting Towards Value have the lowest administration expenditure by 2040. Reorienting Towards Value has the lowest relative expenditure on hospital care, as the system is oriented towards primary and preventative care.

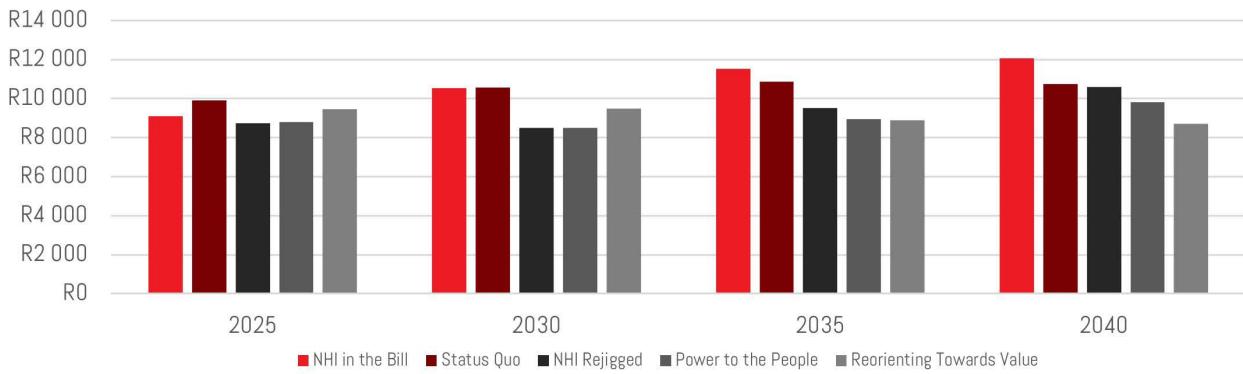
Figure 7: Breakdown of public sector costs by scenario for 2030 and 2040



### The role of population growth and medical inflation in driving real costs

Expressing total real expenditure in per capita terms per year (Figure 8) clearly shows the differences in expenditure between the scenarios, while taking population size into account. By 2040, there are sizeable differences in per capita terms between the lowest cost scenario (Power to the People) and the two highest-cost scenarios (NHI as Described in the Bill and Status Quo Gold Standard).

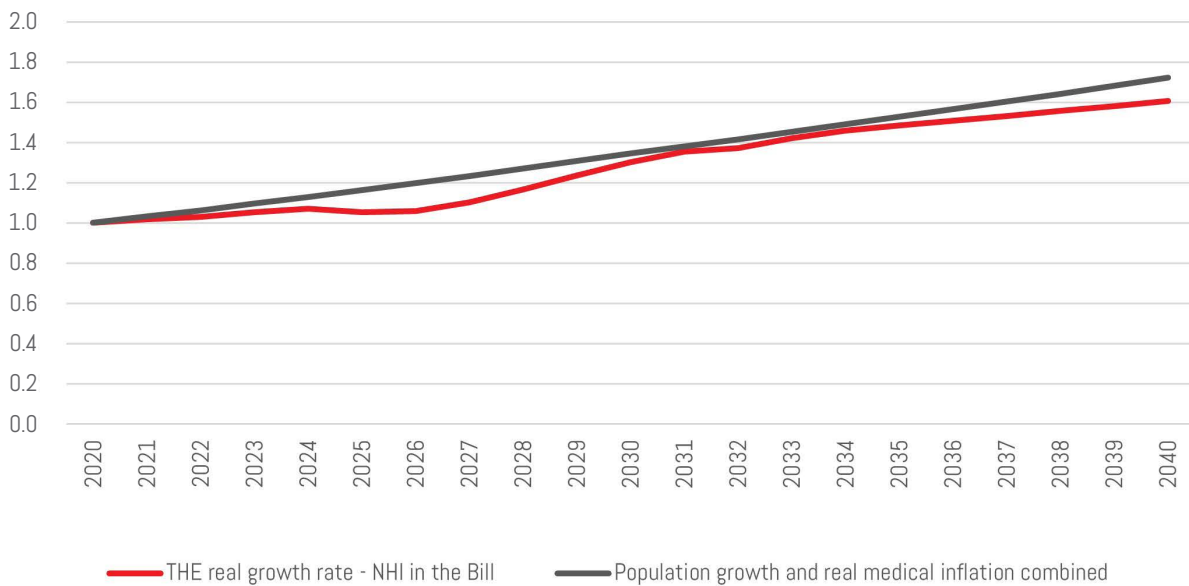
Figure 8: Total real expenditure (2020 Rand values) per capita per year over time



It's not only growth in the population and medical inflation that drives growth in total healthcare expenditure. The burden of disease and demographic changes (changes in sex and age) can also lead to variation in costs over time. These were not explicitly included in the model and they are not considered as sources of growth in the analysis. This would increase the total healthcare expenditure even more than what is presented in this report.

Figure 9 shows the difference between the growth in total health expenditure of the highest-cost scenario (NHI as Described in the Bill) relative to population growth and medical inflation. There is a clear gap in growth between the two lines at certain periods. This indicates that even with large increases in real expenditure, funding for this scenario is not able to keep up with the demands that will be posed by medical inflation and population growth.

Figure 9: Real total health expenditure growth over time vs. population and medical inflation growth combined



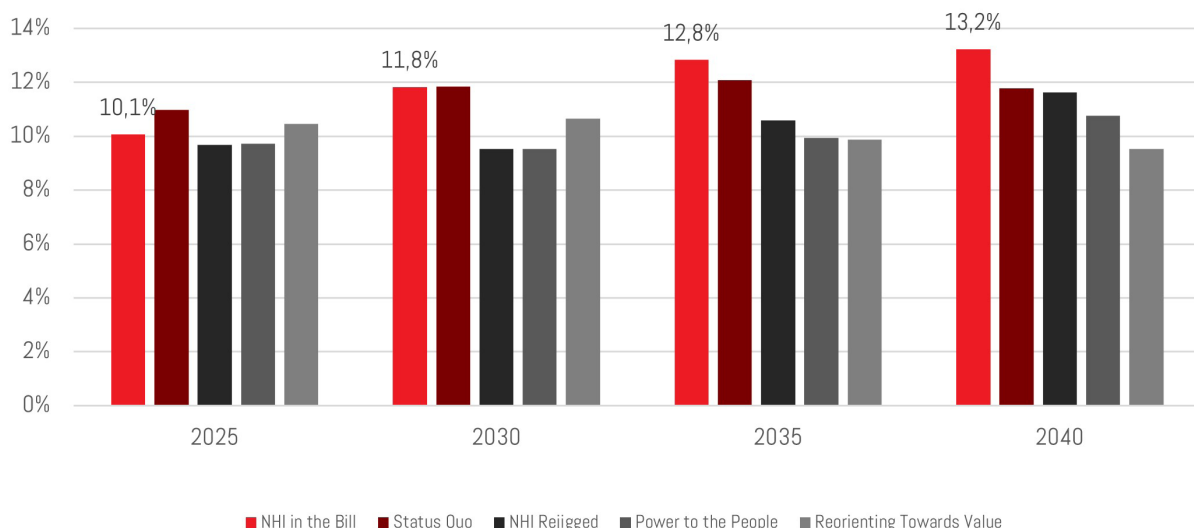
### Health's share of the total economy

In calculating total health expenditure relative to the GDP, three different growth scenarios are used. The results of the mid-growth scenario – the most likely growth scenario at this stage – is presented first. Mid-growth assumes real economic growth of 1%. The high growth scenario assumes real growth of 3% per year, while the low-growth scenario assumes no real growth. The different growth scenarios highlight that our capacity to invest in healthcare is very closely related to the overall economic wellbeing of South

Africa. These figures are calculated by taking the total health expenditure and dividing it by the size of the economy (its GDP). When the economy grows, it is easier to accommodate growth in healthcare expenditure.

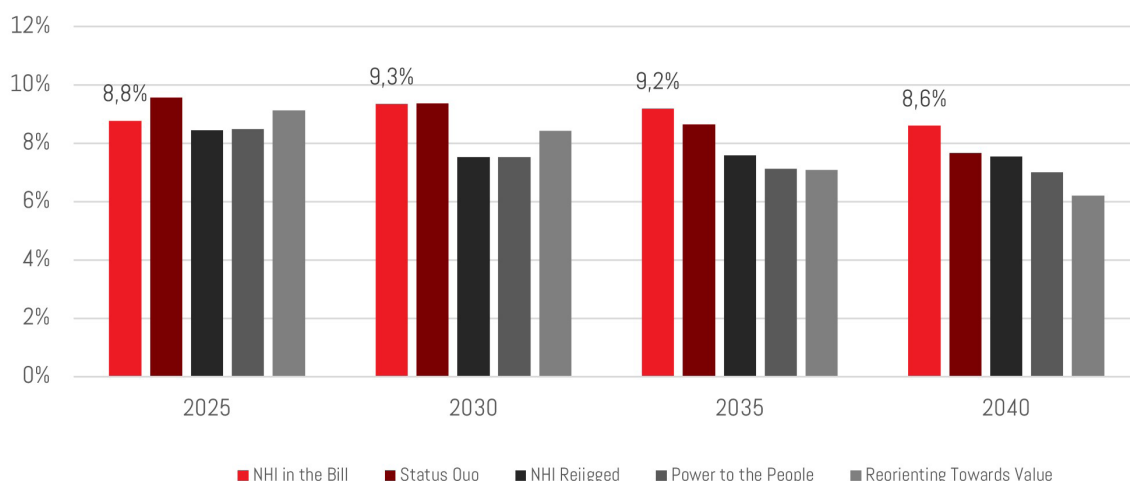
Figures 10-12 show the percentage of GDP (for the different growth scenarios) constituted by total health expenditure under each of the policy scenarios for four periods: 2025, 2030, 2035 and 2040. In the mid-growth scenario (Figure 10), the most expensive policy scenario, NHI as Described in the Bill, constitutes 13.2% of the GDP by 2040. Such a large percentage of GDP being allocated to total health expenditure relative to current expenditure levels (around 8.7% of GDP) is startling, but it needs to be viewed in the context of low-to-moderate economic growth and a system that would have encouraged many people to increase their OOP by that time.

Figure 10: Total health expenditure as % of GDP (1% growth, mid-growth scenario) by scenario over time



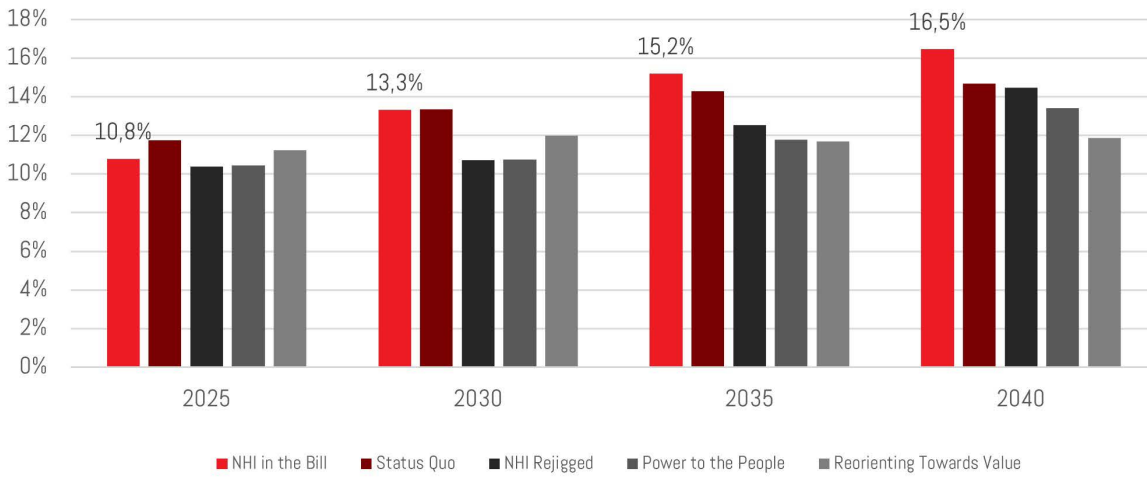
Total health expenditure as a percentage of GDP for all scenarios seems much more reasonable against sustained real economic growth of 3% per annum (Figure 11). The proportion of GDP spent on healthcare is even lower than current levels for all scenarios. Using the high growth scenario, the highest cost policy scenario (NHI as Described in the Bill) only totals 8.6% of GDP by 2040.

Figure 11: Total health expenditure as % of GDP (3% growth, high growth) by scenario over time



Lastly, in the highly unlikely no-growth scenario (Figure 12), NHI as Described in the Bill reaches a relative cost of 16.5% of the GDP by 2040 – from 10.8% in 2025.

Figure 12: Total health expenditure as % of GDP (0% growth, low growth) by scenario over time



By viewing total health expenditure by year (Figure 13) – or summarised over two periods (2021-2030 and 2030-2040 – Figure 14), certain patterns emerge. In Figure 13, the steep increases in expenditure in *NHI as Described in the Bill*, *Power to the People* and *NHI Rejigged* in the later periods are evident. The relatively stable costs in the earlier years are mostly due to the closing of the private risk pools. In *Status Quo Gold Standard*, where private risk pools are not affected, total health expenditure rises steadily over the 20-year period.

Figure 13: Real total costs (2020 Rand billions) by scenario over time

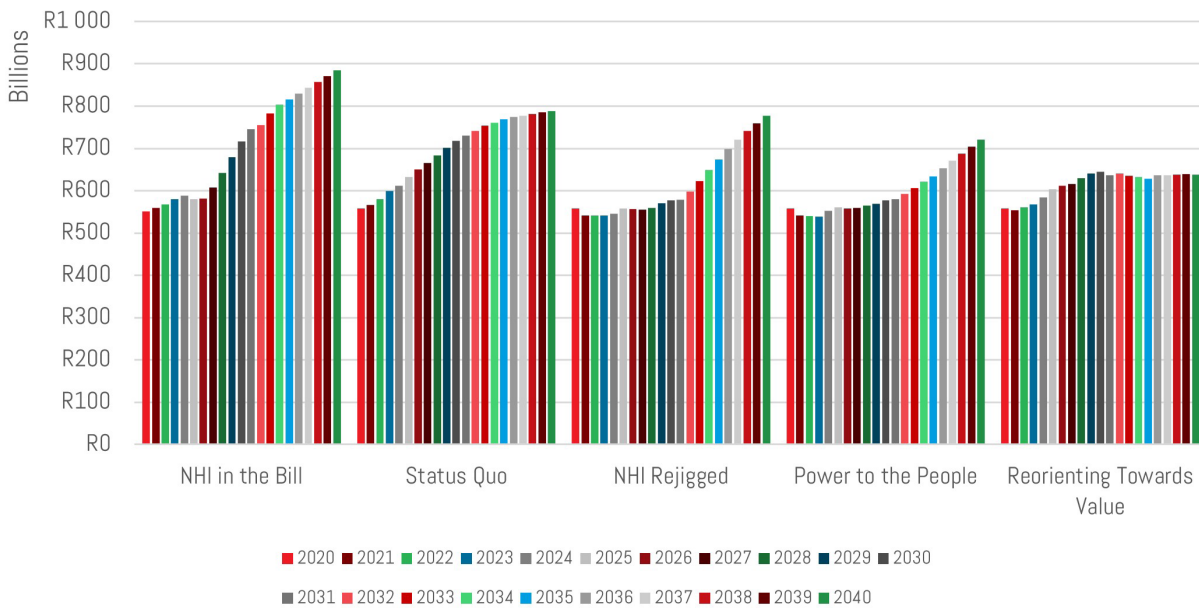


Figure 14 provides a better view of health expenditure over larger time frames. Considering the two time periods presented, it is clear that *Status Quo Gold Standard* is quite expensive for the first ten years. *Reorientating Towards Value* requires similar total expenditure to *NHI as Described in the Bill* in the first ten years. But in the next ten years, it requires much less than the *NHI as described in the Bill* scenario.



Figure 14: Real expenditure over time (2020 Rand billions)

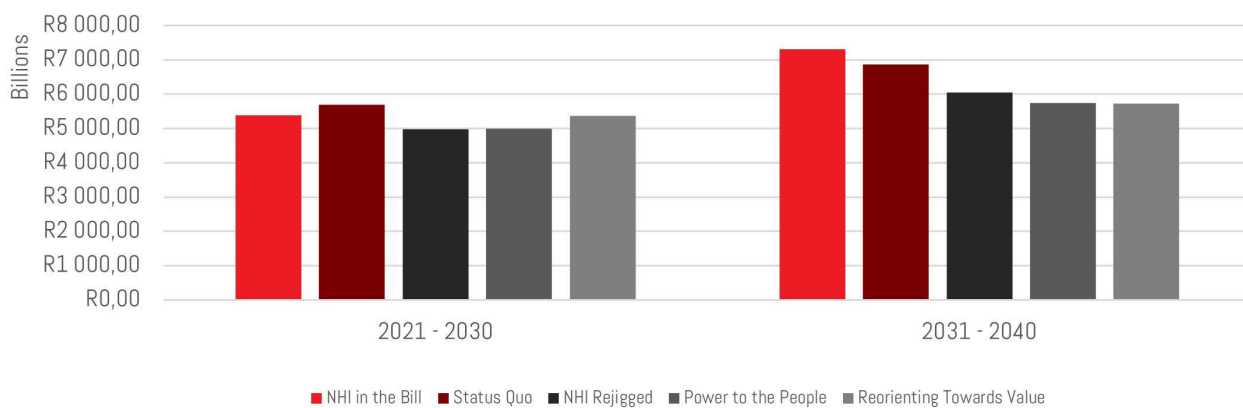


Figure 14 highlights the long-term cost of under-investment in the quality of care, and mechanisms to support a human-centred health system.

## 9. WHAT DO THE MODEL RESULTS MEAN FOR POLICY? THE TRADE-OFFS BETWEEN NHI AND OTHER UHC OPTIONS

In this section, we interpret the model results to understand their implications for sensible policy choices. The results help to illustrate both what is gained and what is lost through specific policy choices; these gains and losses are not just about the financial costs of system change, but ultimately also about healthcare outcomes and overall system resilience. Healthcare systems can become fragile when they're put under undue stress, as the Covid-19 experience demonstrated in many low- and middle-income countries around the world.

We have divided the key emerging insights associated with the different policy options into themes and presented them in summary style throughout this section.

### *Why does NHI as Described in the Bill cost so much more than the other models?*

Before focusing on the themes and policy choices raised by the cost modelling, it is important to understand why NHI as Described in the Bill emerges as the most expensive UHC option of the scenarios considered. UHC implemented through a single risk fund is not necessarily a problem. Rather, the current description in the Bill and its lack of detail and clear information on accountability structures creates uncertainty about whether it will be implemented with the necessary attention and rigour. A lack of attention to critical structural aspects will generate various inefficiencies and the NHI Rejigged scenario illustrates the potential for NHI to achieve its goals when implemented more thoughtfully than currently suggested by the Bill's proposals.

#### *Financing as the focus, rather than health delivery*

A focus on finance in the delivery of health services, as in the NHI Bill, introduces the risk that the quality of care in the public sector will not be sufficient to satisfy the population's needs – particularly those who previously had medical scheme-mediated access. We foresee an increase in OOP expenditure along two pathways: an opting out of UHC structure usage by the middle class, and a crowding out of the public sector as more people rely on the system than it is able to serve. OOP expenditure is the most inefficient and inequitable way of financing care. South Africa currently has very low OOP expenditure because of the role medical schemes play in risk pooling private expenditure and the free services offered in the public sector.

The ongoing weakening of the public sector delivery platform has broader economic costs arising from long waiting times and reduced productivity, and there are also costs associated with malpractice claims. These costs don't only reflect low-quality care. A weak health delivery system is also fertile ground for increased claims.

#### *Preferencing private providers over the public system*

The NHI Bill allows for the Fund to purchase from providers based on whether they meet accreditation criteria. A lack of investment in strengthening the public sector delivery platform will result in increased reliance on private providers. In theory, this should result in competition between providers and improve the overall quality of care. However, international experience has shown that there are not enough providers in underserved areas for competition dynamics to have an effect. Increased reliance on private providers increases the risk of state reliance on large market players. The upward pressure on costs can be curtailed through effective contracting, but there is a risk that costs will not be capped in the same way as public sector global budgets.



*Insufficient attention to capacitating the primary healthcare system*

Over the last decade, we have seen a disconnect between health policy and healthcare expenditure in terms of the split between primary healthcare and hospital care. Policy has been, and continues to be, primary-care focused – but each year, relatively more resources are directed towards the hospital sector. In our view, the NHI Bill is insufficiently clear on the mechanisms to support and capacitate the primary care system. We anticipate a weakening of linkages between primary and hospital care as the provincial role is weakened – and a healthcare system with insufficient attention to preventative and primary care is a more expensive system, especially in the longer run.

*Increased risk of corruption*

The large institutional nature of the NHI Fund increases the risk of large-scale corruption and governance failure. This is accentuated by the lack of bottom-up accountability articulated in the NHI Bill, and we considered it in our cost modelling.

*What about fiscal constraints?*

The illustrated rising costs of implementing the NHI Bill may appear unrealistic in the context of fiscal constraints. The public health budget has been declining since 2012/13, and expenditure has increased by only 13% over the past decade, pointing to a severely constrained fiscal climate. However, healthcare service delivery occurs within a constitutional framework of the progressive realisation of rights. At a minimum, the system would need to continue to deliver the current level of services – albeit to a larger population. It is important to recognise the true costs of delivering a desired set of quality services, and in doing so, the impact of fiscal constraints that limit access to quality care.

## Considerations in weighing the different policy options

*Table 13: Equity*

	Status Quo	NHI Rejigged	Power to the People	Reorienting Towards Value	NHI in the Bill
Public population %	● 86%	● 100%	● 100%	● 100%	● 100%
OOP and PI as % of THE	■ 5.3%	■ 34%	■ 34%	■ 0.5%	■ 23.7%

The goal of equity should take into account where funds come from (with contributions based on the ability to pay) as well as where funds are going (with more funds directed to those with the greatest need).

The option that fares worst in terms of equity is *Status Quo Gold Standard*, where it is assumed that the public and private sectors continue operating mostly as they are, albeit with improved quality and efficiency. *NHI as Described in the Bill* fares poorly too, due to the high OOP expenditure dependency. Those who can pay out-of-pocket will likely be able to access better care, resulting in a highly inequitable outcome.

**Public sector equity.** There are currently considerable differences between provinces and districts in the allocation of funds, access to services and the quality of those services. Focused effort to strengthen the public sector delivery platform will serve to improve equity. Quality improvement efforts could be directed towards addressing areas of weakness. It is also possible to improve the equity of financing within the public sector by refining the ways in which resources are allocated – the healthcare component of the Provincial



Equitable Share, and an equivalent sub-provincial equivalent. All the policy options bring about an improvement in the current public sector equity situation.

**Private sector equity.** While there are some mechanisms to support social solidarity in medical schemes, there is scope to further strengthen this through income cross-subsidies, mandatory contributions, and risk equalisation. Private sector equity is strongest in the NHI Rejigged, Power to the People and Reorienting Towards Value options.

**Equity across the system.** A key difference between *Status Quo Gold Standard* and *NHI Rejigged* is the introduction of a risk equalisation fund to improve equity between the public and private sectors. Risk can be shared between the public and private sectors, thereby ensuring equity across sectors within the health system.

*NHI Rejigged*, *Power to the People* and *Reorienting Towards Value* all fare well in terms of equity across the system (as a whole), as they all have some form of shared risk pooling across the public and private sectors. This highlights that it is possible to achieve equity without necessarily having a single risk pool. This is a very important consideration when selecting an appropriate UHC structure for South Africa.

**The inequity of out-of-pocket funding.** There is a risk of out-of-pocket expenditure increasing over time due to weaknesses in the public sector service delivery platform and an absence of private pooling mechanisms in the *NHI as Described in the Bill* scenario. This outcome would have adverse implications for equity, because there is no risk pooling for OOP expenditure and therefore no way to engineer cross-subsidies and ensure that funds are directed to those most in need.

**Income cross-subsidies and access to funding.** Equity is strengthened in any option where funds flow through the fiscus because it allows for income cross-subsidies. This does not require a single fund, and the extent of equity will depend on the tax collection mechanism chosen.

*Table 14: Access to quality care and quality outcomes*

	Status Quo	NHI Rejigged	Power to the People	Reorienting Towards Value	NHI in the Bill
Public PHC utilisation	↑	↑	↑	↑	↓
Public hospital care admission rate	↓	↑	↘	↘	↗
Life expectancy	—	—	↑	↑	—

When policy options are compared based on cost, the most important question tends to be overlooked – whether the future system will ensure a thriving population.

Signs of a system that is performing include visible overall outcome metrics (such as life expectancy and maternal mortality rates), disease-specific outcomes metrics (which our system currently lacks) and secondary measures (such as the extent of medical malpractice claims).

Up to a point, there is a relationship between utilisation and quality. People need to have access to the system to have a chance of improving their health outcomes. An inefficient health system with a high level of fraud, waste and abuse has fewer resources directed towards delivering care.



Apart from considering how many units of care a system can afford, there is a range of dynamics that impact a system's ability to deliver high-quality care. They include:

- **Investment in the service delivery platform**, including infrastructure and IT systems. Financing reforms have limited scope to strengthen the quality of care if the service delivery platform is compromised. This is illustrated in the comparison of *NHI as Described in the Bill and Status Quo Gold Standard*.
- **The balance between primary and hospital care**. A weak system will have too many resources directed towards relatively expensive hospital care due to a bypassing of referral pathways, weak preventative care, and late intervention. This is illustrated in the comparison of *NHI as Described in the Bill and Power to the People and Reorienting Towards Value*.
- Systems that are **patient-oriented**, that have greater **bottom-up accountability** and that **measure and incentivise quality care** tend to produce better health outcomes – ultimately delivering greater value for the money invested in the system. This is illustrated in the comparison of **NHI as Described in the Bill, Power to the People and Reorienting Towards Value**.
- Having a strong **system** supports health outcomes. From a patient perspective, this means strong linkages between care, better continuity of care and strong care coordination. System performance is supported by system stability (i.e., the absence of system shocks), a balance between centralised support and ground-level responsiveness, and ongoing investment in the service-delivery platform. Big-bang reform (*NHI as Described in the Bill*) is likely to weaken system resilience in an already fragile system. Policy options that support ongoing quality improvement and system strengthening are likely to outperform over the long term. This was illustrated by the global impact of Covid-19, where countries with resilient and unified health systems have outperformed countries with weak ones <sup>35</sup>.
- **Healthcare worker capacity and satisfaction**. Healthcare outcomes rely on having healthcare workers who deliver quality care. A large monopsony creates the risk of a system that is insufficiently oriented towards supporting healthcare workers and enabling supply-side innovation.

Table 15: Efficiency: Accountability to users (bottom-up) and societal buy-in as levers

	Status Quo	NHI Rejigged	Power to the People	Reorienting Towards Value	NHI in the Bill
IT savings as % of THE	24%	1.0%	1.0%	2.2%	0.8%
Admin as % of public health expenditure	15.2%	154%	10.9%	11.8%	17.1%
Medico-legal claims as % of public health expenditure	0.1%	0.0%	0.0%	0.0%	14%

Much of the rationale for *NHI as Described in the Bill* is the creation of a single purchaser to achieve efficiency through strategic purchasing. There is no doubt that the current system is weak from a strategic purchasing perspective. This is likely to continue in *Status Quo Gold Standard*, and care needs to be taken in *NHI Rejigged* to improve the structural impediments to strategic purchasing in both the public and private sectors. The HMI recommendations are very relevant.

Strategic purchasing is necessary but not sufficient for improving system efficiency. Efficiency can also be supported in the following ways:

- Giving users of the system some **choice of funder** and the ability to move. Having multiple funds can create competitive pressure based on strategic purchasing (if, for example, funders have to publish value metrics). The risks of a single fund are complacency and a lack of customer-centricity. This is illustrated in the comparison of *NHI as Described in the Bill* and *Power to the People*, where individuals are given the choice between joining different UHC funds.
- **Value-based approaches** shift the responsibility for both quality and cost to healthcare providers – who happen to be best placed in the system to innovate the ways in which care is delivered. This removes layers of administration centred on managing providers of care – with the emphasis shifting to empowering providers. Value-based systems are most likely to have supply-side innovation, which allows for a move towards more efficient models of care over time.

Table 16: Stewardship and governance

	Status Quo	NHI Rejigged	Power to the People	Reorienting Towards Value	NHI in the Bill
Corruption reduction as % of THE	4.1%	4.9%	4.6%	6.5%	0.8%

**Minimising the cost of corruption, waste and abuse.** Central control of a system seems attractive from an efficiency perspective. However, large institutions increase the risk of large-scale corruption. A system with strong bottom-up accountability and empowered healthcare providers may be more efficient in the long term than a single-fund system that's susceptible to bureaucracy and governance failure.

#### Additional cost burden to be covered

Given uncertainties about the elements that would constitute the basic benefit package, our estimates of the cost of NHI have put it as high as 14.1% of the GDP. The ultimate relative cost of *NHI as Described in the Bill*, or of any other UHC scenario, is dependent on the size of the economy. If South Africa experiences low growth in the next twenty years, together with undertaking an uncertain reform, it's possible that costs could spiral to much higher levels than currently experienced.

Table 18 and Table 19 show the additional cost burden for public healthcare and for total healthcare, respectively. These are shown per scenario and are considered relative to various sized potential payer groups (outlined in Table 17), ranging from the total population to only those who are active taxpayers. We present the additional cost burden in 2040, relative to the baseline cost burden<sup>h</sup> (if we were to continue on our current health system trajectory) in 2040. We do not, however, aim to determine the optimal financing source for additional health expenditure.

First, we consider just **total public health expenditure**. The additional cost burden can be spread across groups of many sizes. For the largest group (all individuals), there would be a financing implication of R461 per month (2020 Rands) per capita by 2040 for the most expensive scenario, *NHI Rejigged*, for total public health expenditure. For the smallest group (active income taxpayers), there would be an additional financing implication of R4,267 per month (over and above what's already contributed to the financing of the public health sector). In any scenario, the effect of this additional tax burden would be gradual. If we assume the tax burden increases each year, then the most expensive scenario would lead to a R213 increase in monthly tax for each year over the 20-year period until 2040.

<sup>h</sup> Baseline cost in 2040 is calculated by growing the 2020 expenditure by the population. I.e. it is how much we would spend in 2040 if each we continue to spend the same amount per capita.

<sup>i</sup> Active tax payers are those counted by SARS as "expected to submit". SARS states "expected submission counts for each tax year include all taxpayers who have been assessed for a taxyear as well as taxpayers with an "active" status who were assessed in any of the two previous years." These are effectivly the individuals paying income tax in a given year.



The monthly figure for the active payer group may appear concerningly high, considering the average medical scheme contribution for 2020 was R2,817 per month<sup>22</sup>. However, the active taxpayer grouping makes up a small proportion of the population, less than 11% in 2020. The R4,267 per month may be paid by one individual but would support eight other South Africans. Such a system relies on social solidarity with those better able afford it taking the financial hit. It is also important to better contextualise these amounts by considering how much would be spent on other healthcare services outside financing for the public UHC structure.

We now consider the **total health expenditure**. The story looks markedly different when also accounting for OOP and private risk pools. In Table 19, we can see that the alternative scenarios could reduce overall health expenditure in South Africa. *Reorienting Towards Value* presents overall healthcare savings, leading to a saving of R476 per month per taxpayer. NHI as described in the Bill is the most expensive scenario for total health expenditure and could lead to additional health expenditure of R229 per month per capita, or R2,121 per month per active taxpayer.

The tax burden values presented here could change significantly if our economic prospects change. In particular, the small proportion of active taxpayers have the potential to grow to a much larger base if the economy performs well. This would lessen the burden on the typical taxpayer. We can consider the registered tax payer grouping as a proxy group for how much lighter the burden could become if costs were spread over a larger personal income tax paying base.

Additionally, the values presented are averages. So, in the case of NHI Rejigged's public health burden of R4,267 per taxpayer, the higher income taxpayers may pay multiples more than this value while the low-income end of tax payers pay much less than the value presented.

*Table 17: Potential payer groups*

	2020	2040
Total population	59.8M	73.3M
Registered tax payers	22.9M	28.8M
Active income tax payers	6.3M	7.9M
Adults (age 20 to 64)	34.3M	43.1M

*Table 18: Additional PUBLIC health expenditure burden of different scenarios relative to potential payer groups*





















	Status Quo	NHI Rejigged	Power to the People	Reorienting Towards Value	NHI in the Bill
<b>Real additional public health expenditure in 2040</b>	<b>R 148.0B</b>	<b>R 405.8B</b>	<b>R 350.8B</b>	<b>R 289.7B</b>	<b>R 330.5B</b>
<i>Real additional monthly contributions in 2040</i>					
Per capita	 R 168	 R 461	 R 3 99	 R 329	 R 376
Per registered tax payer	 R 428	 R 1,174	 R 1 ,015	 R 839	 R 956
Per active income tax payer	 R 1,556	 R 4,267	 R 3,689	 R 3,046	 R 3,475
Per adult (age 20 to 64)	 R 286	 R 785	 R 679	 R 561	 R 639

Table 19: Additional TOTAL health expenditure burden of different scenarios relative to potential payer groups

	Status Quo	NHI Rejigged	Power to the People	Reorienting Towards Value	NHI in the Bill
<b>Real additional public health expenditure in 2040</b>	R 105.2B	R 93.9B	R 37.0B	-R 45.3B	R 201.7B
<i>Real additional monthly contributions in 2040</i>					
Per capita	R 120	R 120	R 42	-R 51	R 229
Per registered tax payer	R 304	R 272	R 107	-R 131	R 584
Per active income tax payer	R 1,106	R 987	R 389	-R 476	R 2,121
Per adult (age 20 to 64)	R 203	R 182	R 72	-R 88	R 390



## 10. CONCLUSION

Covid-19 and its associated interruptions to normal political processes decelerated parliamentary processes around the NHI Bill. The pandemic has also shown the importance of a high-quality, accessible health system that provides care to everyone who needs it. For the foreseeable future, South Africa's public funding for health is likely to be constrained by a tough fiscal environment. The political pause, together with a dramatically changed context, provides an opportunity to reconsider the UHC policy pathway that would work best for South Africa.

This cost modelling highlights that many of the policy objectives underpinning *NHI as Described in the Bill* can be achieved by other lower-cost and higher-quality (i.e. better value) UHC policy pathways. The selection of policy options should not only be about money, but also about service delivery design. Services and the way they are delivered drive both costs and patient outcomes over the longer term.

The imperative for economic growth and employment growth is evident when we take a long-term perspective and consider how best to achieve health-system objectives within fiscal constraints. An expansion of the economy will permit much-needed investment in the health system, whilst employment growth will allow for a more robust tax base to enable income cross-subsidies and sustainable social solidarity.

Should the wrong path be taken, system choices made now are likely to lead to unsustainable costs over the longer term. If the goals of UHC are considered relative to how they can be achieved with other policy trajectories, it should be evident that *NHI as Described in the Bill* is not South Africa's only option for achieving policy objectives. There are other choices available that provide stronger governance, better quality, and a choice to South Africans, who deserve accessible, affordable and high-quality care when needed.

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# APPENDIX A:

## Out-of-pocket health expenditure in South Africa

Various concepts and indicators are used to measure OOP health expenditure. We've drawn on the work of Wagstaff et al.<sup>36</sup> to summarise these concepts and indicators in the table below.

Table 20: Concepts and indicators used in OOP health expenditure studies

Concept	Indicator
1. Expenditure in absolute terms	<ul style="list-style-type: none"><li>Per capita annual OOP expenditures in monetary terms</li></ul>
2. Dispersion (risk)	<ul style="list-style-type: none"><li>Coefficient of variation (CV)</li><li>Q90/Q50. The ratio of the expenditures incurred by households at the 90th and 50th percentiles of the out-of-pocket expenditure distribution</li></ul>
3. Budget share	<ul style="list-style-type: none"><li>Budget share (share of income or consumption spent on out-of-pocket health expenses)</li></ul>
4. Progressivity	<ul style="list-style-type: none"><li>Kakwani's (1977) index of progressivity (applied to OOP expenditures)</li></ul>
5. Catastrophic expenditures	<ul style="list-style-type: none"><li>Fraction of households whose out-of-pocket health expenditures exceed some pre-specified threshold (e.g. 10%) of their total income or consumption</li></ul>
6. Inequality in the incidence of catastrophic expenditures	<ul style="list-style-type: none"><li>Concentration index of catastrophic expenditures</li></ul>
7. Impoverishment	<ul style="list-style-type: none"><li>The increase in the poverty headcount and mean poverty gap when out-of-pocket expenditures are subtracted from income or consumption</li></ul>

Source: Wagstaff et al.<sup>36</sup>

For the purposes of this costing report, we extracted evidence on OOP health expenditure in South Africa from literature that uses the following concepts and their respective indicators: expenditure in absolute terms, budget share and catastrophic expenditures (highlighted in Table 20 above). We've limited this rapid literature review to these three concepts, since they're intuitive and therefore more easily understood and used when making assumptions for the NHI costing models.

### Catastrophic health expenditure

The most recent literature on OOP health expenditure in South Africa showed a limited incidence of it being catastrophic, irrespective of the threshold or method used to determine it<sup>33</sup>. More specifically, in 2010, less than one percent (0.07%) of the population faced catastrophic healthcare expenditures at the  $\geq 40\%$  threshold (see Table 21), a figure which was in keeping with previous studies<sup>34,35</sup>. Based on the rare incidence of catastrophic expenditure, very few households in South Africa were impoverished due to healthcare costs. However, it was notable that in more recent years, larger shares of households' capacity-to-pay were being allocated to healthcare<sup>33</sup>.



It must be emphasised that the above findings did not account for foregone earnings or travel costs. More than three-quarters of South Africans who report that public healthcare is unaffordable believe that it's due to travel costs<sup>39</sup>. It's not hard to imagine that seeking healthcare would add the cost of lost income for many poor South Africans who work informally.

## Expenditure in absolute terms

In absolute terms, OOP health expenditure per capita was \$80 in South Africa in 2013<sup>40</sup>. Compared to other BRICS countries, this level was relatively low, with OOP expenditure amounting to \$762 per capita in Russia, \$435 in Brazil, \$219 in China and \$125 in India in the same year. An earlier study reported that the average OOP payment per person per annum for outpatient care was R695.57 in 2008<sup>41</sup>. When disaggregating this average by sector, OOP expenditure for outpatient care in the public sector was far lower than OOP expenditure in the private sector (see Table 21). This is mainly because of exemptions and subsidised care in the public health sector. Medically insured South Africans are not exempt from OOP health expenditure. Cairncross et al.<sup>42</sup> found that in 2019, insured South Africans paid an annual average of R3,914 per capita for OOP health expenditure (see Table 21). This amount roughly has an 80:20 split when disaggregated into out-of-hospital and in-hospital expenditure.

*Table 21: OOP health expenditure in South Africa*

Author, Year	Data Source	OOP health expenditure indicator	Sector		
			Private	Public	Non-specific
Koch and Setshegetso 2020 <sup>33</sup>	South African Income and Expenditure Survey	% of population facing catastrophic health expenditure from OOP health expenditure at various thresholds of household's non-subsistence expenditure (WHO method)			2010 <sup>i</sup> ≥40%: 0.07%
Mills et al. 2012 <sup>37</sup>	South African Income and Expenditure Survey	% of population facing catastrophic health expenditure from OOP health expenditure at ≥40.0% of household's non-subsistence expenditure (WHO method)			2006 ≥40%: 0.09%
Xu et al. 2003 <sup>38</sup>	South African Income and Expenditure Survey	% of population facing catastrophic health expenditure from OOP health expenditure at ≥40.0% of household's non-subsistence expenditure (WHO method)			1995 ≥40%: 0.03%
Cairncross et al. 2020 <sup>42</sup>	Annual statutory return data (Council for Medical Schemes)	OOP expenditure per capita for medical scheme members (current Rand values)	2019 <i>Out-of-hospital:</i> R3178.66 <i>In-hospital:</i> R735.29 Total: R3,913.94		

Jakovljevic et al. 2017 <sup>40</sup>	WHO NHA	OOO expenditure per capita (current \$PPP)			2013 \$80
Ataguba and Goudge 2012 <sup>41</sup>	South African Consortium for Benefit Incidence Analysis Survey	Average OOP payments per person per annum for outpatient care (current Rand values)	2008 GP: R1,285.05 Specialist: R2,937.94 Hospital: R4,620.98 Dentist: R1,304.47 Pharmacy: R1,045.57	2008 Hospital: R1,93.61	2008 Total: R695.57

<sup>j</sup> Only included percentages for the most recent year reported in the study.

<sup>k</sup> Only included amount for the most recent year reported in the study.



# APPENDIX B:

## Additional detailed model results

Table 22: 2030 detailed model results

<i>2030 model outcomes</i>	Status Quo	NHI Rejigged	Power to the People	Reorienting Towards Value	NHI in the Bill
<i>2020 Real (R billions)</i>					
Total Healthcare Expenditure	R717,8 B	R576,9 B	R577,2 B	R645,1 B	R716,1 B
Private risk pooling	R255,3 B	R23,9 B	R20,5 B	R27,2 B	R0 B
Publicly funded	R409,1 B	R513,8 B	R517,7 B	R580,0 B	R568,3 B
OOB and private insurance	R53,5 B	R39,2 B	R39,0 B	R37,9 B	R147,8 B
Total Private OOB	R39,6 B	R3,2 B	R2,8 B	R3,1 B	R0 B
Total Public OOB	R13,9 B	R36,0 B	R36,2 B	R34,8 B	R147,8 B
Public breakdown					
Administration	R69,0 B	R88,3 B	R70,0 B	R74,8 B	R88,3 B
Primary healthcare	R125,0 B	R173,1 B	R198,1 B	R227,7 B	R194,2 B
Hospital care	R208,5 B	R249,8 B	R245,5 B	R270,7 B	R243,8 B
Infrastructure	R21,1 B	R18,5 B	R17,7 B	R21,8 B	R38,3 B
Medico-legal claims	R1,8 B	R2,6 B	R2,0 B	R2,2 B	R3,8 B
<i>Nominal</i>					
Total Healthcare Expenditure	R1 106,3 B	R889,1 B	R889,5 B	R994,1 B	R1 103,6 B
Private risk pooling	R393,4 B	R36,9 B	R31,6 B	R41,9 B	R0 B
Publicly funding	R630,4 B	R791,8 B	R797,8 B	R893,8 B	R875,9 B
OOB and private insurance	R82,4 B	R60,4 B	R60,1 B	R58,4 B	R227,7 B
Total Private OOB	R61,0 B	R5,0 B	R4,3 B	R4,8 B	R0 B
Total Public OOB	R21,4 B	R55,4 B	R55,8 B	R53,6 B	R227,7 B
Public breakdown					
Administration	R106,4 B	R136,1 B	R107,9 B	R115,3 B	R136,1 B
Primary healthcare	R192,6 B	R266,7 B	R305,3 B	R350,9 B	R299,3 B
Hospital care	R321,3 B	R385,0 B	R378,4 B	R417,2 B	R375,7 B
Infrastructure	R32,4 B	R28,6 B	R27,3 B	R33,6 B	R59,0 B
Medico-legal claims	R2,8 B	R3,9 B	R3,1 B	R3,3 B	R5,8 B
<i>Standardised with NHI bill total as base</i>					
Total Healthcare Expenditure	80,91	81,11	65,19	65,22	72,89
Private risk pooling	0,00	28,85	2,70	2,32	3,07
Publicly funding	64,22	46,22	58,05	58,49	65,53
OOB and private insurance	16,70	6,04	4,43	4,41	4,29
Total Private OOB	0,00	4,47	0,36	0,31	0,35
Total Public OOB	16,70	1,57	4,06	4,09	3,93
Public breakdown					
Administration	9,98	7,80	9,98	7,91	8,46
Primary healthcare	21,94	14,12	19,56	22,38	25,73
Hospital care	27,55	23,55	28,23	27,74	30,59
Infrastructure	4,32	2,38	2,09	2,00	2,46
Medico-legal claims	0,43	0,20	0,29	0,23	0,25

<i>2030 model outcomes</i>	Status Quo	NHI Rejigged	Power to the People	Reorienting Towards Value	NHI in the Bill
<i>Proportion of total</i>					
Total Healthcare Expenditure	100,00%	100,00%	100,00%	100,00%	100,00%
Private risk pooling	35,56%	4,15%	3,56%	4,21%	0,00%
Publicly funding	56,99%	89,06%	89,69%	89,91%	79,37%
OOP and private insurance	7,45%	6,79%	6,76%	5,88%	20,63%
Total Private OOP	5,51%	0,56%	0,48%	0,48%	0,00%
Total Public OOP	1,94%	6,23%	6,28%	5,39%	20,63%
<b>Public breakdown</b>					
Administration	16,87%	17,19%	13,53%	12,90%	15,54%
Primary healthcare	30,55%	33,69%	38,27%	39,26%	34,17%
Hospital care	50,96%	48,63%	47,43%	46,68%	42,89%
Infrastructure	5,15%	3,61%	3,42%	3,76%	6,73%
Medico-legal claims	0,44%	0,50%	0,39%	0,37%	0,66%
<b>Outcomes</b>					
Healthcare as % of GDP	⊗ 11,9%	✓ 9,5%	✓ 9,5%	⚠ 10,7%	⊗ 11,8%
Public population %	◐ 84%	● 99%	● 99%	● 99%	● 100%
Public PHC visits per user	↓ 3,00	↓ 3,03	↘ 3,23	↑ 3,64	↓ 3,04
Public Hospital care admissions per 1000	↘ 131,42	→ 135,58	→ 133,23	↑ 144,32	↓ 125,60
Life expectancy % above base	▬ 0,2%	▬ 0,3%	▬ 0,3%	▬ 0,4%	▬ 0,1%
IT savings as % of THE	▬ 0,8%	▬ 0,9%	▬ 0,9%	▬ 0,5%	▬ 0,8%
Corruption reduction as % of THE	▬ 1,5%	▬ 2,3%	▬ 1,8%	▬ 2,2%	▬ -0,8%
Population served	57,2M	67,2M	67,2M	67,2M	67,9M
Public PHC utilisation base	2,00	2,00	2,00	2,00	2,00
Public Hospital care admission rate base	107,41	107,41	107,41	107,41	107,41
Life expectancy base	66,38	66,38	66,38	66,38	66,38
Savings from improved IT systems	R5,6 B	R5,3 B	R5,3 B	R3,0 B	R5,6 B
Corruption savings	R10,6 B	R13,2 B	R10,4 B	R14,3 B	-R5,6 B
<b>2020 Real per capita</b>					
Total expenditure per capita	R10 573	R8 497	R8 502	R9 501	R10 548
Public expenditure per capita	R7 157	R7 644	R7 702	R8 628	R8 371
OOP and PI expenditure per capita	R243	R535	R539	R518	R2 176
<b>% above NHI base</b>					
Expenditure per capita	0,2%	-19,4%	-19,4%	-9,9%	0,0%
Total public health expenditure	-28,0%	-9,6%	-8,9%	2,0%	0,0%
Total OOP and private insurance	-63,8%	-73,5%	-73,6%	-74,3%	0,0%
Total healthcare expenditure	0,2%	-19,4%	-19,4%	-9,9%	0,0%
<b>Private Sector</b>					
Population served	10,7M	0,7M	0,7M	0,7M	0
Cost per capita	R23 771,27	R35 234,05	R30 230,38	R40 046,64	R0,00
<b>Other</b>					
Discount factor to bring to 2020 value	64,89%	64,89%	64,89%	64,89%	64,89%
GDP ZAR	R6 054,9 B	R6 054,9 B	R6 054,9 B	R6 054,9 B	R6 054,9 B



Table 23: 2040 detailed model results

2040 model outcomes	Status Quo	NHI Rejigged	Power to the People	Reorienting Towards Value	NHI in the Bill
<i>2020 Real (R billions)</i>					
<b>Total Healthcare Expenditure</b>	R788,5 B	R777,2 B	R720,3 B	R638,0 B	R885,0 B
Private risk pooling	R253,2 B	R0 B	R0 B	R0 B	R0 B
Publicly funded	R493,1 B	R750,9 B	R695,9 B	R634,8 B	R675,6 B
OOP and private insurance	R42,2 B	R26,3 B	R24,4 B	R3,2 B	R209,4 B
<b>Total Private OOP</b>	R28,6 B	R0 B	R0 B	R0 B	R0 B
<b>Total Public OOP</b>	R13,6 B	R26,3 B	R24,4 B	R3,2 B	R209,4 B
<b>Public breakdown</b>					
Administration	R75,0 B	R115,8 B	R76,0 B	R74,9 B	R115,8 B
Primary healthcare	R174,2 B	R290,9 B	R311,5 B	R288,8 B	R150,1 B
Hospital care	R258,7 B	R367,8 B	R325,2 B	R289,7 B	R347,6 B
Infrastructure	R36,4 B	R22,3 B	R23,4 B	R36,4 B	R66,1 B
Medico-legal claims	R0,3 B	R0,3 B	R0,2 B	R0,2 B	R9,7 B
<i>Nominal</i>					
<b>Total Healthcare Expenditure</b>	R1 887,0 B	R1 860,1 B	R1 723,8 B	R1 526,9 B	R2 118,1 B
Private risk pooling	R606,0 B	R0 B	R0 B	R0 B	R0 B
Publicly funding	R1 180,1 B	R1 797,2 B	R1 665,5 B	R1 519,3 B	R1 616,9 B
OOP and private insurance	R100,9 B	R62,9 B	R58,3 B	R7,6 B	R501,2 B
<b>Total Private OOP</b>	R68,5 B	R0 B	R0 B	R0 B	R0 B
<b>Total Public OOP</b>	R32,5 B	R62,9 B	R58,3 B	R7,6 B	R501,2 B
<b>Public breakdown</b>					
Administration	R179,4 B	R277,1 B	R182,0 B	R179,2 B	R277,1 B
Primary healthcare	R416,9 B	R696,2 B	R745,6 B	R691,3 B	R359,3 B
Hospital care	R619,2 B	R880,3 B	R778,4 B	R693,4 B	R831,8 B
Infrastructure	R87,0 B	R53,5 B	R56,0 B	R87,1 B	R158,1 B
Medico-legal claims	R0,7 B	R0,7 B	R0,5 B	R0,4 B	R23,1 B
<i>Standardised with NHI bill total as base</i>					
<b>Total Healthcare Expenditure</b>	89,09	87,82	81,38	72,09	100,00
Private risk pooling	28,61	0,00	0,00	0,00	0,00
Publicly funding	55,71	84,85	78,63	71,73	76,34
OOP and private insurance	4,76	2,97	2,75	0,36	23,66
<b>Total Private OOP</b>	3,23	0,00	0,00	0,00	0,00
<b>Total Public OOP</b>	1,53	2,97	2,75	0,36	23,66
<b>Public breakdown</b>					
Administration	8,47	13,08	8,59	8,46	13,08
Primary healthcare	19,68	32,87	35,20	32,64	16,96
Hospital care	29,23	41,56	36,75	32,74	39,27
Infrastructure	4,11	2,52	2,64	4,11	7,46
Medico-legal claims	0,03	0,03	0,02	0,02	1,09

2040 model outcomes	Status Quo	NHI Rejigged	Power to the People	Reorienting Towards Value	NHI in the Bill
<i>Proportion of total</i>					
Total Healthcare Expenditure	100,00%	100,00%	100,00%	100,00%	100,00%
Private risk pooling	32,11%	0,00%	0,00%	0,00%	0,00%
Publicly funding	62,54%	96,62%	96,62%	99,50%	76,34%
OOP and private insurance	5,35%	3,38%	3,38%	0,50%	23,66%
Total Private OOP	3,63%	0,00%	0,00%	0,00%	0,00%
Total Public OOP	1,72%	3,38%	3,38%	0,50%	23,66%
<b>Public breakdown</b>					
Administration	15,20%	15,42%	10,93%	11,79%	17,14%
Primary healthcare	35,33%	38,74%	44,77%	45,50%	22,22%
Hospital care	52,47%	48,98%	46,73%	45,64%	51,44%
Infrastructure	7,37%	2,97%	3,36%	5,73%	9,78%
Medico-legal claims	0,06%	0,04%	0,03%	0,03%	1,43%
<b>Outcomes</b>					
Healthcare as % of GDP	🚩 11,8%	🚩 11,6%	🚩 10,8%	✅ 9,5%	❌ 13,2%
Public population %	🌑 86%	🌑 100%	🌑 100%	🌑 100%	🌑 100%
Public PHC visits per user	📈 3,51	📈 3,50	📈 3,67	📈 3,63	📉 2,50
Public Hospital care admissions per 1000	📉 136,56	📈 166,13	📉 148,07	📉 147,09	📈 156,10
Life expectancy % above base	📉 0,6%	📉 1,0%	📈 1,0%	📈 1,7%	📉 0,1%
IT savings as % of THE	📈 2,4%	📈 1,0%	📈 1,0%	📈 2,2%	📈 0,8%
Corruption reduction as % of THE	📈 4,1%	📈 4,9%	📈 4,6%	📈 6,5%	📈 0,8%
Population served	63,0M	73,3M	73,3M	73,3M	73,3M
Public PHC utilisation base	2,00	2,00	2,00	2,00	2,00
Public Hospital care admission rate base	107,41	107,41	107,41	107,41	107,41
Life expectancy base	68,16	68,16	68,16	68,16	68,16
Savings from improved IT systems	R18,8 B	R8,0 B	R7,4 B	R13,8 B	R6,8 B
Corruption savings	R32,7 B	R38,2 B	R33,1 B	R41,4 B	R6,8 B
<b>2020 Real per capita</b>					
Total expenditure per capita	R10 757	R10 603	R9 827	R8 704	R12 075
Public expenditure per capita	R7 822	R10 245	R9 494	R8 661	R9 217
OOP and PI expenditure per capita	R215	R359	R332	R43	R2 857
<b>% above NHI base</b>					
Expenditure per capita	-10,9% 📉	-12,2% 📉	-18,6% 📉	-27,9% 📉	0,0%
Total public health expenditure	-27,0% 📉	11,1% 📈	3,0% 📈	-6,0% 📉	0,0%
Total OOP and private insurance	-79,9% 📉	-87,5% 📉	-88,4% 📉	-98,5% 📉	0,0%
Total healthcare expenditure	-10,9% 📉	-12,2% 📉	-18,6% 📉	-27,9% 📉	0,0%
<b>Private Sector</b>					
Population served	10,3M	0	0	0	0
Cost per capita	R24 674,79	R0,00	R0,00	R0,00	R0,00
<b>Other</b>					
Discount factor to bring to 2020 value	41,78%	41,78%	41,78%	41,78%	41,78%
GDP ZAR	R6 688,4 B	R6 688,4 B	R6 688,4 B	R6 688,4 B	R6 688,4 B



# APPENDIX C:

## Model assumptions by scenario

Table 24: Model assumptions by scenario

Variable name	How it affects our calculation	Status Quo	NHI Re-jigged	Power to the People	Reorienting Towards Value	NHI in the Bill
% of population in public sector system	Determines population size dependent on public offering. Population in each sector multiplied by the cost per life figure.	Remains constant until 2030 and mildly increases in the next 10 years. (1 <sup>st</sup> )	Gradually shifts from current proportion to reach 100% by 2031, when private pooling is closed. (2 <sup>nd</sup> )	Same as NHI Rejigged. (2 <sup>nd</sup> )	Same as NHI rejigged (2 <sup>nd</sup> )	Gradually shifts from current proportion to reach 100% by 2027, when private pooling is closed. (2 <sup>nd</sup> )
OOP as % of private expenditure <i>*rankings when private pooling closed in each scenario</i>	Applied as a percentage loading above total private risk pool expenditure.	Declining steadily from 2025 on. (2 <sup>nd</sup> )	Slowly falling from 2022 until private risk pools close. (3 <sup>rd</sup> )	Same as NHI Rejigged. (3 <sup>rd</sup> )	Slowly falling from 2022 on. Starts falling quicker than NHI rejigged from 2027 until private risk pools close. (1 <sup>st</sup> )	Steadily increasing from 2023, until private risk pools close. (5 <sup>th</sup> )
OOP as % of public expenditure (OOP for uncovered lives)	Applied as a percentage loading above total public expenditure.	Declining slowly and steadily from 2025 on. (2 <sup>nd</sup> )	Steadily increasing from 2023, and peaking in 2030. Then reducing from then, reaching a figure lower than current levels by 2034 and stabilising in 2036. (3 <sup>rd</sup> )	Same as NHI Rejigged. (3 <sup>rd</sup> )	Similar to NHI Rejigged until 2031, although reaching a lower peak in 2030. Decreasing at a greater rate than NHI Rejigged from then until 2040. (1 <sup>st</sup> )	Increasing sharply from 2023 until 2027. Then continues upward until 2034 where it stabilises at its peak value. (5 <sup>th</sup> )
Utilisation boost	Applied as a percentage above the public utilisation rate. Boosted utilisation is then allocated to the recent movers (recent movers are those joining public sector in last 3 years)	Constant. (1 <sup>st</sup> )	Same as Status Quo. (1 <sup>st</sup> )	Same as Status Quo. (1 <sup>st</sup> )	Same as Status Quo. (1 <sup>st</sup> )	Same as Status Quo with an added boost between 2023-2024. (5 <sup>th</sup> )



Variable name	How it affects our calculation	Status Quo	NHI Re-jigged	Power to the People	Reorienting Towards Value	NHI in the Bill
Medical cost inflation	Applied as annual increase to PHC and hospital care costs (added on to CPI before being applied). The figure for public sector is lowered relative to the private sector cost inflation.	Public sector medical inflation (above CPI) is constant, matching our base case GDP real growth. Private sector inflation is double this.	Same as Status Quo.	Same as Status Quo.	Same as Status Quo.	Same as Status Quo.
Impact of VBC models	A percentage saving applied to PHC and hospital care costs in a given year.	N/A	N/A	N/A	Negative savings from 2025 until 2031. Thereafter saving becomes and remains positive. (1 <sup>st</sup> )	N/A
Admin cost inflation	Applied as an annual increase to admin expenditure.	Tracking medical cost inflation. (2 <sup>nd</sup> )	Tracking above medical cost inflation with a large boost in 2028. (4 <sup>th</sup> )	Tracking medical inflation with a large boost in 2028 (though the boost is smaller than in NHI Rejigged). (2 <sup>nd</sup> )	Tracking above medical inflation until 2031 with a large boost in 2028 (though the boost is smaller in NHI Rejigged). Then tracking below medical inflation from then on. (1 <sup>st</sup> )	Tracking above medical inflation with a large boost in 2026. (5 <sup>th</sup> )
Additional infrastructure expenditure	Applied as an annual increase to infrastructure expenditure in the public sector.	Steady and consistent increases above medical inflation. (4 <sup>th</sup> )	Steady and consistent increases above medical inflation with a boost from 2023-2025. (1 <sup>st</sup> )	Steady and consistent increases above medical inflation. Higher in the first 10 years. (2 <sup>nd</sup> )	Steady and consistent increases above medical inflation. (3 <sup>rd</sup> )	Steady and consistent increases above medical inflation with a boost from 2023-2027. (5 <sup>th</sup> )



Variable name	How it affects our calculation	Status Quo	NHI Re-jigged	Power to the People	Reorienting Towards Value	NHI in the Bill
Savings from improved IT systems	Applied as a percentage reduction to overall expenditure in the public sector.	Negative from 2022-2024, then positive and increasing from 2027 on. (1 <sup>st</sup> )	Negative from 2022-2026, then positive and constant from 2027 on. (3 <sup>rd</sup> )	Negative from 2022-2025, then positive and constant from 2029 on. (3 <sup>rd</sup> )	Negative from 2022-2027, then positive and increasing from 2030 on. (2 <sup>nd</sup> )	Negative from 2022-2028, then positive and increasing from 2030 on. (3 <sup>rd</sup> )
Savings from reduced corruption	Applied as a percentage reduction to overall expenditure in the public sector.	Gradually increasing from 2025, peaking and stabilising in 2037. (1 <sup>st</sup> )	Gradually increasing from 2025 on. (3 <sup>rd</sup> )	Gradually increasing from 2025 on. (3 <sup>rd</sup> )	Gradually increasing from then 2025 on. (2 <sup>nd</sup> )	Negative from 2026 and returns back to current level in 2031. Then steadily improves from then on. (5 <sup>th</sup> )
Medico-legal claims growth	Applied as an increase to the medico-legal claims per user each year.	Tracking medical inflation until 2025. Then begins decreasing, turning negative from 2028 onwards. (4 <sup>th</sup> )	Tracking medical inflation until 2025. Then begins decreasing turning negative from 2028 onwards. (1 <sup>st</sup> )	Same as NHI Rejigged. (1 <sup>st</sup> )	Same as NHI Rejigged. (1 <sup>st</sup> )	Tracking medical inflation until 2024 then increasing and peaking in 2031. From then, begins decreasing turning negative from 2037 onwards. (5 <sup>th</sup> )
PHC utilisation rate in public sector	Multiplied by cost per public PHC visit to get total PHC expenditure per public sector user.	Increasing steadily from 2022 and peaking in 2036, where it stabilises. (2 <sup>nd</sup> )	Same as Status Quo (2 <sup>nd</sup> )	Increasingly steadily from 2022 until 2040. (5 <sup>th</sup> )	Increasing from 2022 (quicker than other options) and peaking in 2036 before starting to decline. (4 <sup>th</sup> )	Increasing steadily from 2022, peaking in 2031 before starting a slow decline. (1 <sup>st</sup> )
PHC utilisation rate in private sector <i>*rankings when private pooling closed in each scenario</i>	Multiplied by cost per private PHC visit to get total PHC expenditure per private sector user.	Remains constant. (1 <sup>st</sup> )	Increasing from 2022 until private risk pools close. (4 <sup>th</sup> )	Increasing from 2022 until private risk pools close. (2 <sup>nd</sup> )	Increasing from 2022 until private risk pools close. (5 <sup>th</sup> )	Increasing from 2022 until private risk pools close. (3 <sup>rd</sup> )
Hospital utilisation rate in public sector	Multiplied by cost per public hospital care visit to get total hospital care expenditure per public sector user.	Increasing gradually from 2022 on. (1 <sup>st</sup> )	Increasing gradually from 2022 on. (5 <sup>th</sup> )	Increasing gradually from 2022 on. (3 <sup>rd</sup> )	Increasing gradually from 2022 on and peaks in 2035 before declining from then. (2 <sup>nd</sup> )	Increasing gradually from 2022 on. (4 <sup>th</sup> )

Variable name	How it affects our calculation	Status Quo	NHI Re-jigged	Power to the People	Reorienting Towards Value	NHI in the Bill
<b>Hospital utilisation rate in private sector</b> <i>*rankings when private pooling closed in each scenario</i>	Multiplied by cost per private hospital care visit to get total hospital care expenditure per private sector user.	Declining from 2027 on. (1 <sup>st</sup> )	Increasing from 2022 until private risk pools close. (4 <sup>th</sup> )	Increasing from 2022 until private risk pools close. (3 <sup>rd</sup> )	Increasing from 2022 until private risk pools close. (5 <sup>th</sup> )	Increasing from 2022 until private risk pools close. (2 <sup>nd</sup> )
<b>Private service cost discount for PHC</b>	Discount applied to private sector PHC costs when being contracted by public sector.	Constant throughout. (4 <sup>th</sup> )	Constant throughout. (1 <sup>st</sup> )	Constant until 2035 then declines. (2 <sup>nd</sup> )	Constant until 2029 then declines. (3 <sup>rd</sup> )	Constant throughout. (4 <sup>th</sup> )
<b>Private service cost discount for hospital care</b>	Discount applied to private sector hospital care costs when being contracted by public sector.	Constant throughout. (4 <sup>th</sup> )	Constant throughout. (3 <sup>rd</sup> )	Constant until 2036 then increases. (1 <sup>st</sup> )	Constant until 2036 then increases. (2 <sup>nd</sup> )	Constant throughout. (4 <sup>th</sup> )
<b>Private service contracting % for PHC</b>	Percentage of public sector users who utilise contracted private sector PHC services, i.e. pay private sector costs.	Increases in 2023 then remains constant. (5 <sup>th</sup> )	Increasing from 2022 on. (2 <sup>nd</sup> )	Increasing from 2022 on. (3 <sup>rd</sup> )	Increasing from 2022 on. (1 <sup>st</sup> )	Increasing from 2022 until stabilising at peak in 2027. Then decreasing from 2030 on. (4 <sup>th</sup> )
<b>Private service contracting % for hospital care</b>	Percentage of public sector users who utilise contracted private sector hospital care services, i.e. pay private sector costs	Increases in 2023 then remains constant. (5 <sup>th</sup> )	Increasing from 2022 on. (1 <sup>st</sup> )	Increasing from 2022 until stabilising at peak in 2026. Then decreasing from 2035 on. (2 <sup>nd</sup> )	Increasing from 2022 until stabilising at peak in 2026. Then decreasing from 2035 on. (3 <sup>rd</sup> )	Increasing from 2022 until stabilising at peak in 2027. Then decreasing from 2030 on. (4 <sup>th</sup> )

#### Notes

\* Ranking provided in brackets (x<sup>th</sup>) is the ranking for each assumption in 2040 where 1st is the least costly and 5th is the most costly.

\* Where referring to private risk pools, the rankings are based on the assumption at the time where private risk pools are closed.





## INCLUSIVE SOCIETY INSTITUTE



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