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Strategic Purchasing Policy Brief Series

Brief 3: Quantifying need

About this series

National Health Insurance (NHI) refers to a wide-ranging set of reforms of the South African healthcare system, including the establishment of the NHI Fund as a new entity tasked with the *strategic purchasing* of healthcare.

The broad aim of the NHI reforms is to achieve universal health coverage (UHC) in South Africa. UHC offers "all individuals and communities the health services they need without suffering financial hardship. It includes the full spectrum of essential, quality health services, from health promotion to prevention, treatment, rehabilitation, and palliative care. UHC emphasizes not only what services are covered, but also how they are funded, managed, and delivered" (World Health Organization 2019).

Much of the discussion in South Africa on how we achieve these aims has been divisive and polarised. For many, it is difficult to engage in the debates meaningfully without understanding the jargon and myriad of complex concepts. In support of meaningful discourse, we offer this series of briefs to deepen public awareness and enrich discussions on one particular aspect of the proposed reforms: the notion of strategic purchasing. What is strategic purchasing? Who will do the purchasing? How do we hold the purchaser(s) accountable?

The providers of healthcare services, both public and private, are important stakeholders in a healthcare system. The ways in which the proposed reforms are likely to impact on providers is an often-neglected perspective, one which we hope to consider here.

Seven briefs explore what a purchaser-provider split in a healthcare system is, what strategic purchasing is, the nuances of matching the need for care with the supply of services, how to ensure quality and access and how to balance all this with affordability.

At the time of writing these briefs, NHI as a concept was informed by the framework as set out in the draft NHI Bill (2019) which was preceded by a previous draft version of the Bill (2018), two White Papers (2015 and 2017) and a Green (Policy) Paper (2011).

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In this brief…

We consider the differences between demand and need, and why understanding need is critical to delivering effective healthcare. We discuss the data requirements to be able to match supply to population need and ways in which this can be quantified. This is positioned within the South African context, explaining how resource allocation is currently done in the public sector and how this would need to shift under NHI.

Why it matters

Health reform in South Africa is strongly motivated by the importance of improved equity. Strategic purchasing of care would therefore involve careful matching of available resources to the health needs of the population. However, resource allocation on the basis of need pre-supposes **knowledge** of the needs of the population. While we do not have that knowledge at hand currently, clinical need is, at least partially, measurable and quantifiable with the right data sources.

This is a major area of required work in South Africa. We require both population data and client data. Population data would allow us to track the need in our population, and client data would allow us to understand who is and is not accessing services and why. For example, if population data shows increasing blood sugar levels while client data shows no increase in people being treated for diabetes, then we can assume there is an unmet health need and can prioritise that sub-population, ensuring services are easy to access. This would then improve overall population health, by preventing uncontrolled high blood sugar rates and the resulting negative health consequences.

Demand vs Need: what is the difference?

Demand deals with which parts of the population access services while need includes the entire population, irrespective of who chooses to access care.

Demand deals with which parts of the population receive services and the types of services received, whereas need includes the entire population and not only those who access services. Demand deals with individuals' perception of their possible need for care and the health seeking behaviour that follows from that (Goddard and Smith 2001). Individuals may under- or over-estimate their need for care. For example, people who do not need care (from a clinical perspective) could access health facilities, thereby becoming a form of expressed demand, while individuals who actually need care (from a clinical perspective) may not realise this and therefore not seek care. This then skews the demand picture away from the reality of actual need. However, determining need is a complex issue in healthcare, precisely because notions of ill health differ across population groups (Goddard and Smith 2001). In South Africa, individuals with lower income tend to under-estimate their health needs adding further complexity to understanding need in a public health system that serves the most vulnerable parts of our population (Rossouw, Bago d'Uva, and van Doorslaer 2018).

In the public sector, it is widely accepted that the current demand falls well below the need, given difficulties in accessing facilities. This difficulty is most often as a result of issues with the quality of services provided and patient waiting times, rather than geography and physical access. This is particularly acute for parts of the service where there has been a close to complete collapse, for example oncology and mental health services in some provinces.

People don't fully access the public service because they know there is a shortage of resources (financial, human and other).

In the private sector, the opposite can be seen. There are concerns of over-supply, due in part to increased geographic access, availability of resources, weak gatekeeping and a fee-for-service environment that incentivises over supply (Conradie 2014). This demand may still not be an accurate representation of need, as it is driven by availability (the health 'market' in the private sector) and the population's perception of what constitutes ill health (Goddard and Smith 2001).

An additional layer of the difference between demand and need goes beyond just the numbers (who is accessing) and speaks to **which services should be provided** (what are they accessing). The gap between services that are provided, and services that should be provided skews our perception of need. The public sector is providing services in line with a stipulated package of service and is largely constrained by the available infrastructure and funding envelope. However, only in recent years has the sector begun to re-evaluate which services within each of the levels of the system (PHC to most specialised hospital) should be provided and in what way (South African National Department of Health 2017). The system currently lacks the data to evaluate the consistency of provision across the country. Therefore, the current package of service may be out of touch with need or may not be available in reality given resource constraints.

In the private sector, those services for which beneficiaries are covered by their medical schemes are the most available and accessed services. The prescribed minimum benefits (PMBs) ensure that certain emergency care, chronic diseases and in-hospital services (acute care) are covered to ensure that medical scheme contributions afford beneficiaries a relatively extensive level of protection (Ataguba and McIntyre 2012). This package is meant to be reviewed every 2 years, a process which has not be occurring. The current review that commenced in 2016 is intended to prioritise primary healthcare and preventative medicine (Council for Medical Schemes 2016). However, this has not yet been concluded -

To finance services based on need means that the system must find ways to improve access and gatekeeping to ensure demand and need are more closely aligned.

raising concerns about whether the NHI Fund and its supporting structures will be more adept at ensuring ongoing relevance of the package.

Current public sector approach to resource allocation

The public sector is currently financed through the general public purse (i.e. we do not currently have an earmarked tax for healthcare). Financing decisions are made with the current policy context in mind, such as the emphasis on primary healthcare (PHC) (Blecher et al. 2017).

At a country-level, the National Treasury uses a resource allocation formula to apportion available funds to each of the provinces (via the provincial treasuries). This provincial equitable share formula (PES) aims to quantify need, using several metrics linked to the government's responsibility to provide services to its citizens. The PES is determined based on six weighted components, shown in the table below (South African National Treasury 2017):

Table 1: PES components

Component	**Definition**	**Weighting**
Education	Determined based on size of school age population and number of learners in public schools.	48%
Health component	**Based on provincial risk profile and the utilisation of public sector health facilities**	**27%**
Population component	Proportion of total South African population	16%
Institutional	Given equally across provinces	5%
Poverty component	Based on income data	3%
Economic output component	Based on Regional Gross Domestic Product	1%

The healthcare component is based on demographic data, estimates of the burden of disease and current utilisation of services as reported in the district health information system (DHIS). Therefore, the PES components do try and quantify variations in provincial need at a high-level, however the formula has not been updated recently and the data sources are either not regular, of poor quality or not detailed enough to allow the sort of planning you would require for accurate forecasting.

Once the total block of PES funding has been allocated to the provincial treasuries, it is then distributed to the different public sector departments, one of which is the provincial department of health (PDoH). Despite the PES formula being used to allocate from national to provincial level, **there is no allocation formula that guides**

how provincial treasuries should share funds across their government departments. Without a formula, provincial treasuries have had to use a different system to inform resource allocation across provincial departments (health, education etc.). In the absence of a formula, the provincial treasury requests that the government departments advocate for their budgets and uses these presentations to support resource allocation decisions. This therefore relies on provincial departments' ability to effectively quantify and advocate for their beneficiaries. It also sets up an environment where departments compete for resources, instead of resources being allocated in an integrated manner- understanding the links between social security, education and health outcomes.

There is no standardised formula for allocating resources at a provincial level.

In an optimally functioning system; policy directives, plans and population need would form the basis for the PDoHs budget application to provincial treasuries. There are a few specific areas where planning and resource allocation have managed to come closer together in the public sector. The best examples of this are the HIV and Tuberculosis (TB) space (SANAC 2017). These disease areas, given the epidemiological burden, have been researched extensively and there are parallel data systems within the public sector that track them in a more detailed way, allowing for individual patient data and electronic health-record-keeping. This has allowed for costing and investment cases that have fed into the resource allocation methods for these disease areas. Funds are also ringfenced through a conditional grant, meaning that there is dedicated funding available and the funding envelope is determined based on incidence and prevalence rates for HIV and TB. Therefore, these areas have provided practical experience of how to quantify need in the health sector.

For the other health areas and diseases, resource allocation is done looking at historical budget allocations to programme areas, with allowance for a generalised increase in line with what the new budget envelope allows for. Although the sector is able to estimate average expenditure per capita retrospectively, this calculation is purely based on what was available (total expenditure divided by total population) rather than what was needed (cost of intervention multiplied by number of people requiring the intervention). Therefore, if the Fund wants to shift to alternative reimbursement mechanisms, like capitation or Diagnosis Related Groupers (DRGs), the sector will need to determine fair and equitable pricing structures, and these prices will need to be multiplied by the epidemiological burden when determining budgetary needs. This may result in a budget well above what is affordable, as well as a budget that is not capped in the way the current system is capped (DRG rates are paid per case, therefore a higher-than-expected case burden will mean greater expenditure). It is at this point that the system would need to be able to prioritise using tools like cost-effectiveness analyses.

When standard prices are determined, resourcing will become a product of price and burden of disease.

As a result of the allocation process described above, resource allocation and need remain far apart. The implications are as follows:

- PDoHs have little control over the budgets allocated to them by their provincial treasury. The appropriateness of the allocation is tied up in the PDoHs ability to advocate for their real population health needs.
- However, there is insufficient data in the system for PDoHs to adequately understand their population and therefore there is an over reliance on historical budgeting. As a result, it is unlikely that programme expenditure will be reduced if that programme no longer meets real needs. Similarly, particular facilities that are under-utilised will not see a reduction in funding.
- Resource allocation and planning are currently strongly driven by what is available rather than by what is needed.

Below we outline the current data challenges and ways in which the existing data can be used to quantify need. We then provide an example of how need can be quantified, using the hypertension burden in South Africa.

Data to quantify need

Current data usage and challenges

Utilisation data (which is a proxy for demand data) in the public sector is currently not collected on a per-person basis, with only HIV and TB captured in detail. We also rely heavily on mortality data, through routinely collected death data, which is not only a poor metric for demand (you can die from something totally different to what makes you access a health system) but also for need. Clinical coding and activity-based data are almost entirely absent from the system.

The way data is collected, and the focus on the cause of death rather than burden of care, leads to a siloed view of burden of disease. This therefore ignores the impact of other diseases that coincide with a specific major disease (co-morbidity). This co- or multi-morbidity can be across non-communicable diseases (NCDs) and communicable diseases (e.g. TB and HIV). For example, a person living with HIV who is on antiretrovirals will likely live longer and therefore become more susceptible to NCDs, due to the relationship between age and chronic disease (Chang et al. 2019). It can also exist *within* NCDs, with people experiencing hypertension, diabetes and arthritis for example all at the same time (Lalkhen and Mash 2015). Therefore, recognising that a person can experience more than one clinical issue at a time is key to really understanding your population and delivering the appropriate care.

In South Africa, we have three reliable survey data sources that are valuable for understanding need:

- National Income Dynamics Study (NiDS): The National Income Dynamics Study (NiDS) is a panel study that has followed 28K South Africans, since 2008, to track any changes in status in this population[1]. The NiDS captures two measures of hypertension. In addition to objective measures of hypertension, it also captures data on health-seeking behaviour and detailed socio-economic and demographic data on individuals. For the children's questionnaire, it tracks items like weight at birth, head circumference etc. These types of questions can be helpful in predicting future health problems in the population.
- General Household survey (GHS): The GHS captures self-reported diagnoses of certain NCD conditions and, similar to the NiDS, also captures data on health seeking and detailed socio-economic and demographic data on individuals.
- The South African National Health and Nutrition Examination Survey (SANHANES): The SANHANES collected detailed data in 2011 and 2012 on "defined aspects of the health and nutritional status of South Africans with respect to the prevalence of NCDs (specifically cardiovascular disease, diabetes and hypertension) and their risk factors (diet, physical activity and tobacco use)" (HSRC & MRC, 2013). The adult questionnaire's data have been made publicly available through the HSRC website.

Survey data provides a useful high-level view of patterns in the burden of disease but is not detailed enough to be used for planning and resource allocation purposes.

In the private sector, the fee-for-service payment structure has incentivised detailed data collection. However, this data only exists in relation to claims submitted and is therefore strongly influenced by benefit design. Due to the hospital-centric nature of medical schemes, data on primary care is under-represented. Data is largely focused on costs, although data collection for quality purposes has shown improvement in recent years. The CMS[2] report on some metrics of spend and disease in their annual report, allowing for a full market picture. However, most of the detailed data is proprietary to each scheme and no one scheme has a full view of the entire private healthcare market. Therefore, while the private sector is a much more data rich environment, the fragmented data generated by it doesn't lend itself to whole-systems analysis. It also has the feature of serving demand rather than need, especially given that preventative care (check-ups etc.) is often not paid for by the schemes. Some medical schemes have begun to incentivise scheme members to do routine health checks, however this data is not shared with the CMS because it is not funded by the medical scheme. These 'wellness benefit'

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[1] https://www.datafirst.uct.ac.za/dataportal/index.php/catalog/712/study-description

[2] The CMS play a role akin to the National Department of Health except that they are not able to influence benefit design or pricing decisions based on the consolidated information they have access to. So, their oversight function is significantly reduced.

arms of medical schemes are valuable but because the data is not being centrally collected by the CMS, or another body, we still don't have a full view of the medical scheme population's overall health needs.

Data requirements from the provider perspective

Moving to alternative reimbursement methods (ARMs) such as capitation and DRGs/global payments requires detailed activity data which currently exists in the private sector but is absent in the public sector. This data is critical for calibrating the levels of payment. This means that public facilities will need to be convinced of the usefulness of collecting this data. They also need to be skilled in capturing and inputting data. Time-consuming and burdensome data collection is a common problem for providers. One of the most important decisions for a system is what data to collect. Data collection systems have to be as simple as possible to reduce administration but with significant depth to ensure rich enough data is being captured. This balance, between simplicity and depth, is a common challenge in health data.

The ideal is a data collection system that has unique patient identifiers and patient information, linked to clinical coding. The private sector currently has these systems in place. The public sector is moving towards this, although it has not been widely rolled out as yet (and it is only through rigorous analysis that the veracity of data collected can be verified). A roll out of this nature is not just about system, but also about change management and developing clinical coding capacity.

While the private sector does have in-depth population data about their beneficiaries (albeit lacking in clinical detail), the same is not true for the public sector at the moment- which make up about 84% of the total South African population (Massyn et al. 2017). As a result, we know very little about our population's characteristics outside of HIV and TB clients and we are unable to build a picture of services accessed at the individual level, which would help the sector to quantify the demand. Quantifying the need requires data beyond just the patient domain, as we have discussed. The next section outlines how population need could be better quantified under NHI, using the example of NCDs.

Therefore, in order to ensure use, the sector needs to decide on a **limited set of high-impact indicators** for collection and to create **easy to use tools** that reduce the burden on providers. Developing these metrics and tools should therefore be done in conjunction with the providers, to promote acceptability. Both the public and private sectors are currently innovating on the electronic health patient record front, based off a common understanding that data is required for appropriate planning.

An example of using data to quantify need

Bringing multiple data sources together allows us to develop a more nuanced understanding of how NCDs play out with regard to a specific demographic characteristic such as sex. Data from the NiDS, a nationally representative household survey, indicates that on average, men self-report hypertension prevalence of 10.7%, while the corresponding figure for women is 20.7% (Wandai et al. 2017). For both sexes, however, objectivelymeasured hypertension rates were around 26% (Wandai et al. 2017). From a comparison with measured hypertension prevalence rates with data from the SANHANES survey, another nationally representative study, we know that the average prevalence rate for hypertension is approximately 26%- this is likely to be a truer reflection of reality than the self-reported rates. The difference between measured and self-reported hypertension rates shows that **men are significantly more likely to under-report hypertension**. It is not clear what the cause of this is: whether men do not seek access to healthcare services as frequently as women or whether they purposefully misreport the prevalence of hypertension.

These findings would help the sector to understand that they may need to prioritise men- ensuring they access healthcare earlier to prevent further ill-health, given that the self-reported rates fell far below the actual estimated rates. This would then allow a PDoH to allocate funds to a programme that would specifically target this group, and this would improve access and population health by ensuring that need and resources are aligned. The Fund will have to have sufficient high-quality data, at a local level, to drive resource allocation decisions in order to achieve this type of strategic purchasing.

Conclusions and Recommendations

The proposed reforms will require better population health data to accurately match supply to need. The raw data will require an overlay of clinical and statistical tools. Both of these processes will take time to develop at scale. Regardless of our reform pathway, these investments are critical for a well-functioning health system. The sooner we begin these investments, the better.

The value of understanding need in the population is more equitable resource allocation and a system that is better able to prevent and respond to ill-health.

We can influence resource allocation decisions by understanding the health needs and access-behaviours of our population.

The recommendations we propose are as follows:

- There is a strong need for a data information and management system that captures data at the individual level[3] and monitors patients need (as determined through preventative care) and patient demand.
- Data collection indicators and tools should be developed in cooperation and dialogue with the providers – these tools should not impose unreasonable requirements on providers.
- Resource allocation decisions should be guided by need; however, expressed demand should also be a factor until such time as access and available population health data is improved.

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[3] The process to implement a unique patient identifier has commenced.

- Priority-setting will be important to ensure affordability and sustainability of the Fund and should be guided by international best practice and local partners. There should be an interplay before processes to develop the benefit package, to undertake costings and to contract with providers – at present, these are conceptualised as separate structures.
- Costing work will be required to determine fair reimbursement rates that drive quality and safeguard affordability. This should also be developed with providers. Good population-level data should enable and complement the costing work.

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