

## National Health Systems: Public Service vs. Insurance-Based Models

*The recently published National Health Insurance (NHI) Green Paper by the South African government, mentions that alternative health system models may be investigated. With this in mind, and also the call for public comment on the proposal, this note explores several health system models. In addition to a theoretical description of the different systems, it offers a comparison of health outcomes, costs and patient satisfaction rates between the various models. Based on this analysis, the appropriateness of an insurance-based universal healthcare system for South Africa is questioned.*

### 1 Introduction

While previous notes in this series focused mostly on the theoretical and practical considerations of the proposed National Health Insurance (NHI) model, this note takes a step back; looking at insurance-type models (such as the proposed NHI) and public service-type models for protecting citizens against catastrophic health expenses and delivering healthcare services to the population at large. We offer a higher level discussion of different types of health system models and consider the advantages and disadvantages of each, taking into account the South African context specifically.

### 2 Classification of National Health Systems

There is a large body of literature on the different ways of categorising health systems: some according to financing arrangements, others according to the delivery of care or type of cover provided, regulation of the system, etc. In reality though, no two systems are exactly alike and it is difficult to organise them in only a few groups. A widely used typology for the classification of healthcare systems, based on the way systems are funded and the extent of state involvement, divides these systems into four broad models that are discussed below.

#### 2.1 Beveridge models (public service)

This type of model is the simple public service model where healthcare is financed through general taxation and provided 'freely' to the entire population as a public good, just like police services or public roads. The classic example is that of the National Health Service (NHS) in the UK (also where the model derives its name from: William Beveridge initially designed the NHS). In this type of model, healthcare services are fully administered by the state, they control delivery, and the factors of production are largely owned by the state (facili-

ties, human resources, etc.).<sup>1</sup> In some cases, such as the UK, the health system is organised in a highly centralised way, while in Norway and Sweden, for example, the organisation and management is more decentralised.<sup>2</sup>

In terms of funding, Beveridge type models compete with other government spending and may thus be underfunded in some cases. Although, on the other hand, these systems are usually more efficient in terms of cost containment, than some of the other models. A more focused discussion on the advantages and disadvantages of these models follows in section 3 below.

## 2.2 Bismarck models (social security based)

Bismarck models derive its name from the Prussian Chancellor Otto von Bismarck “who invented the welfare state as part of the unification of Germany in the 19th century.”<sup>3</sup> Accordingly, Germany is most often cited as the prime example of such a model. There are a number of different models all forming part of this group,

but in its purest form, a Bismarck model is a social insurance model where it is compulsory for all citizens to belong to an insurance fund (also called “sickness funds”) which are financed through social contributions or premiums paid by employers and employees. The premiums are usually in the form of payroll deductions and hence costs are still controlled by the government to an extent. The funds are not allowed to make profits and healthcare providers tend to be largely private.<sup>4</sup>

However, Bismarck models are sometimes referred to as “mixed” models since both public and private providers can be used, and funding are also more flexible than in pure public service type models.<sup>5</sup> Similar to Beveridge models, Bismarck models can also be centralised (as in France) or more decentralised (like the German and Dutch systems). Usually these systems are associated with a larger degree of choice (or free choice) of doctor, which creates competition between providers, but also increases costs.<sup>6</sup>

## 2.3 National insurance models

In some of the literature it is argued that a NHI system is a form of the Bismarck model and should be seen as a sub-category or variant of that group. Although this may be true, in this section we will follow the authors who classify it as a separate model (see for example Lee et. al. 2008<sup>7</sup>), specifically because of it being the chosen model for South Africa at this stage. In the rest of our discussions however, public service (tax-based) models will be contrasted with insurance-based models – the latter group including both Bismarck and NHI models.

While both NHI and Bismarck models are insurance-based, the main difference is that NHI models are single payer systems, as opposed to having multiple payers (insurance funds) like the pure Bismarck models. In other words, there is a single, central fund receiving contributions and paying the providers of healthcare services. Payroll contributions are often supplemented by general taxation or other public funds. Providers

1. Blank, R. H. & Burau, V., 2004. *Comparative Health Policy*, London: Palgrave.

2. Hassenteufel, P. & Palier, B., 2007. “Towards Neo-Bismarckian Health Care States? Comparing Health Insurance Reforms in Bismarckian Welfare Systems,” *Social Policy and Administration*, Vol.41, No.6, pp.574-96.

3. From an excerpt of Reid, T.R., 2009. *The Healing of America: A Global Quest for Better, Cheaper, and Fairer Health Care*, Penguin Press. Available at: <http://www.pbs.org/wgbh/pages/frontline/sickaroundtheworld/countries/models.html>

4. See footnote 3.

5. Lameire, N., Joffe, P. & Widemann, M., 1999. “Healthcare systems – an international review: an overview,” *Nephrology Dialysis Transplantation*, Vol.14, Suppl.6, pp. 3-9.

6. See footnote 2.

7. Lee, S., Chun, C., Lee, Y. & Seo N.K., 2008. “The National Health Insurance system as one type of new typology: The case of South Korea and Taiwan,” *Health Policy*, Vol.85, pp.105-113

and facilities tend to be largely private, although mixed systems of public and private providers are not uncommon. NHI models are built on insurance principles such as risk pooling and cross-subsidisation. It is further characterised by mandatory contributions to a national insurance fund and benefits are also enjoyed by those who do not contribute – in a social health insurance (SHI) model, those who do not contribute do not benefit.

NHI-type models also tend to provide universal coverage right from the start, whereas many Bismarck/social insurance models start by providing coverage to only a certain group (usually the formally employed population) before extending insurance to the rest of the population. Taiwan and South Korea are the most well-known examples of countries with NHI systems. One can easily see the similarities between the proposed NHI model in South Africa, and the Taiwanese model described in the following excerpt:

*“Taiwan is the most recent advanced economy to adopt a*

*universal health insurance programme. The introduction of the National Health Insurance (NHI) in 1995 created a single-payer national insurance programme funded through a system jointly financed by payroll taxes, governmental subsidies and individual premiums. In the past decade, it has increased the proportion of the population with insurance coverage from 57 per cent to 98 per cent by 2005. Moreover, it has improved the delivery and availability of health care services for its citizens while managing largely to contain overall costs. The NHI is administered by the Bureau of National Health Insurance (BNHI) under the jurisdiction of the Department of Health and by law is mandated to fund and operate the NHI on a self-sustaining basis. To do this, it has been given substantial power over fees, drug prices and other ‘terms of engagement’ with providers.”<sup>8</sup>*

## 2.4 Out-of-pocket models

Most classifications of health systems do not discuss out-of-pocket (OOP) models as a separate category – mainly because it is not tru-

ly a structured or planned system. However, since the majority of countries in the world are too poor and the governments too weak to institute a public health system of any kind, and as a result have OOP systems, it is mentioned here as a separate health service model.

In OOP models patients pay in cash (or by whatever means they have available such as food products, child care services, etc.) to receive medical care. Often they cannot afford doctors and will see traditional/ village healers which may or may not provide effective remedies.<sup>9</sup>

Both public and private providers can provide healthcare services in this type of model. As in SA, OOP models are often found in conjunction with other models. In systems where there is no universal coverage, the portion of the population that is uncovered or only partially covered has to pay out-of-pocket for medical services.

## 2.5 Typology

Notwithstanding the typology explained above, another (re-

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8. See footnote 1. (p.13)

9. See footnote 3.

Table 1: Typology of OECD healthcare systems, 1994

FINANCING	HEALTHCARE PROVISION		
	Public provider	Mixed (public + private)	Private provider
Public			
- Contribution		Belgium, Japan, France, Germany, Austria, Luxemburg	
- Taxation	Ireland, Italy, Spain, Sweden, Denmark, UK, Finland, Greece, Portugal, Norway	Australia, New Zealand	Canada
Mixed		Turkey, Korea	Netherlands, Mexico
Private			US, Swiss

Source: OECD, 1994

lated) way of categorising health systems is a method published by the OECD in 1994,<sup>10</sup> based on the main funding mechanism and the main provider of healthcare services. Table 1 shows this methodology, although it was subsequently changed again in 2004 to exclude the “mixed” categories from both variables.<sup>11</sup>

Note that some of the countries listed as examples in Table 1, may have adopted different systems by now, and this table serves only to illustrate another way of thinking about health systems. According to the typology discussed previously, Beveridge models would fall in the group where the system is mainly funded by taxation and care is mainly provided by public providers. Bismarck models would be grouped under public financing through contributions and where healthcare is provided by either public or private providers.

As with any other method of categorisation, this typology also has its limitations. The proposed NHI in SA, for instance, will be publicly funded, but through contributions and taxation, while care will mainly be provided by public providers or alternatively by both public and private providers. Very few countries, if any, have a national healthcare system that fits into only one of the categories – most use a combination of these models – as explained here:

*“It must be noted that while typologies are helpful for teaching purposes because they allow us to simplify a complex reality and focus on the most important aspects, they must always be viewed as a heuristic tool, not a full representation of reality. Even in those cases where the health system of a country is dominated by one of the types identified in these models, traces of many variations are*

*identifiable. Most countries reflect mixes of characteristics in finance, provision and governance across the various types and there is often variation across time and space within a single country. The specific configuration of any health care system depends on a multitude of factors including the political system, the cultural framework, the demographic context, the distinctive historical background, specific events and social structures inherent to that country. Societal goals and priorities develop over time and shape all social institutions and values, which themselves are fluid and changeable.”<sup>12</sup>*

### 3 Comparing the Different Models

Our focus in this section is mostly on the difference between health systems that are all publicly funded, but some through taxation

10. OECD, 1994. *The Reform of Health Care Systems*, Paris: Organisation of Economic Cooperation and Development.

11. See footnote 7.

12. See footnote 1. (p.15)

(public service-based) and others through contributions (insurance-based). In general, there does not appear to be any definite relationship between specific types of health systems and better or worse health outcomes. Public service type models are however associated with lower levels of spending on health (as a percentage of GDP or per capita health expenditure) and greater access or higher levels of coverage.<sup>13</sup> In general, administration costs tend to be higher in insurance-based models, contributing to those systems being more expensive than systems where healthcare is funded through taxation and provided as a public good.

The rest of this section draws upon a 2007 study by Van der Zee and Kroneman<sup>14</sup> in which they divide all health systems in only two broad categories in order to determine which system performs best, i.e. national health services (Beveridge type models) and social security healthcare systems (SSH/SHI or Bismarck type models). Their point of departure is two similar papers from 1996<sup>15</sup> and 2004<sup>16</sup> respectively. Both studies suggest that there is no significant difference in health outcomes between the two systems (although it depends on the specific indicator), but that there may be

a trade off between cost containment and patient satisfaction. As already pointed out, NHS/Beveridge type models are usually cheaper, while SSH/Bismarck systems may provide greater patient satisfaction and have larger public support.

The Van der Zee and Kroneman (V&K) study uses time series data of more than 30 years (1970-2003/4) for each indicator in 17 Western European countries to analyse the validity of the previous studies' results. Their findings are discussed below.

### 3.1 Health outcomes

The three indicators used to compare health outcomes by V&K were overall (age standardised) mortality rates, infant mortality rates and life expectancy. While both overall and infant mortality declined over the study period, there were no convergence in overall mortality rates between the two systems and SSH (Bismarck/insurance-based) systems had on average a 5% lower mortality rate than NHS (Beveridge/public service) models over all the years.

The trend for infant mortality did however converge over the years. Initially the NHS-type systems had lower rates, but from 1983 to 1998, SSH-type models had lower rates. The differences be-

tween the two systems became negligible from 1999 onwards.

As one would expect, life expectancy increased over the period under consideration. There was some convergence in the trend between the two groups up to 1985, but since then the trend stayed fairly constant. In the first few years of the sample, countries with NHS models had higher life expectancies, while the SSH systems had slightly higher life expectancies (as little as 0.5 years on average) in the later years.

Overall it seems that the V&K study does not fully support previous work in this area which found no differences in health outcomes between the two types of systems. Albeit very small, their analysis does in fact show slight differences in some outcomes at times.

### 3.2 Healthcare expenditure

Considering data on health expenditure per capita and as a percentage of GDP confirms earlier findings that public service models are generally cheaper than social security or insurance-based systems.

V&K find a diverging trend of health expenditure per capita between the two groups of systems over the 30 year period. The health expendi-

13. See footnote 5.

14. Van der Zee, J. & Kroneman, M.W., 2007. "Bismarck or Beveridge: a beauty contest between dinosaurs," *BMC Health Services Research*, Vol.7, pp.1-11

15. Elola, J., 1996. "Health care system reforms in western European countries: the relevance of health care organization," *International Journal of Health Services*, Vol.26, pp.239-51

16. Saltman, R.B., Busse, R. & Figueras, J., 2004. *Social health insurance systems in Western Europe*, Maidenhead, Open University Press.

ture per capita in countries with SSH type models are increasingly higher than that of NHS models.

For both types of systems, health expenditure as a percentage of GDP shows an increasing trend during the first decade (1970-1980), after which it is flat during the 1980's. An increasing trend is then again evident for both groups of systems from 1993 onwards, although the expenditure for SSH type models increases at a much faster rate. "Over time, in SSH systems the share of health care expenditure in GDP increased from 5% in 1970 to 10% in 2003. The NHS systems increased on average from 5% to 8% in the same period."<sup>17</sup>

### 3.3 Satisfaction

Again confirming results from the earlier two studies on this subject, V&K finds that data for the years 1996, 1998 and 1999 indicate much higher satisfaction levels in Bismarck type models, than in Beveridge type systems. Almost two thirds of the population in SSH countries are either very or fairly satisfied with the particular health system, compared to only half of the population in countries with NHS type models. Also, whereas

satisfaction levels in the group of countries with SSH systems remain fairly constant over the 3 years, there is great variation in levels of satisfaction within NHS countries.

### 3.4 General results and other research

For the most part, the V&K analysis shows that there was not any convergence over time in the indicators examined (except for infant mortality) between the two groups of systems. The differences in life expectancy and overall mortality were however very small, whereas more significant differences were found for healthcare expenditure and satisfaction rates. While time series analysis and international comparisons, especially over a small number of countries, has its obvious advantageous and disadvantages, the results may indicate that these differences are indeed structural and associated with NHS or SSH type models, respectively.

#### 3.4.1 OECD countries

A paper comparing social health insurance (SHI) and tax-financed health systems in the OECD countries over the period 1960-2006, concludes that an insurance-based (or SHI) type model "raises

per capita total health spending by 3-4%, and reduces the formal-sector share of employment by 8-10%. ... SHI systems, on balance, have certain characteristics that make them more expensive than tax-financed systems, do no better in terms of most health outcomes that are amenable to medical care despite the extra spending, may do worse in respect of outcomes that require strong population-level public health programs, and do worse in terms of encouraging informal labour markets and discouraging employment."<sup>18</sup>

#### 3.4.2 Europe and Central Asia

In a similar study to the one on OECD countries discussed above, Wagstaff and Moreno-Serra<sup>19</sup> considers the effect of introducing insurance-based (SHI) systems in 28 Central and Eastern European and Central Asian countries between 1990 and 2004. Again they find that government health spending per capita is increased (13-15% in this case) without improvement to health outcomes. They do however find an increase to the salaries of health professionals, inpatient admissions and bed occupancy rates, but decreasing average hospital length of stay (an indication of explicit rationing<sup>20</sup>).

17. See footnote 14. (p.4)

18. Wagstaff, A., 2009. "Social Health Insurance vs. Tax-Financed Health Systems – Evidence from the OECD," Policy Research Working Paper Nr. 4821, The World Bank (p.26, 29)

19. Wagstaff, A. & Moreno-Serra, R., 2008. "Europe and Central Asia's great post-communist social health insurance experiment: impacts on health sector outcomes," *Journal of Health Economics*, Vol. 28(2), pp.322-40

20. See Econex NHI Note 5 and Econex Health Reform Note 5 for more information on this topic). Available at: [www.econex.co.za](http://www.econex.co.za)

The authors explain that part of the increased spending may be due to cost incurred as a result of new activities (mostly administrative activities such as collecting contributions, contract design and negotiations, etc.) and/or existing activities that became more costly (additional admissions and so forth).<sup>21</sup>

### 3.4.3 Canada and the United States of America

In another study, health outcomes in the USA and Canada are compared;<sup>22</sup> the authors find that there is not much difference in health status between the two countries. Canada has a universal healthcare system which is mostly publicly funded through general taxes, although care is mainly provided by the private sector. Private insurance may only be bought for services not covered by the public health system. The USA government on the other hand, only provides public health coverage for the elderly and low-income families. Although the majority of US citizens have private health insurance (mostly through their em-

ployers), many people do not have health insurance of any kind.<sup>23</sup> There is however large differences in the overall costs between the two systems. Canada's health expenditure per capita is half of that of the USA – as one would expect based on the evidence discussed above: public service models are usually cheaper than insurance-based models (albeit largely privately funded in this case), without any significant differences in health outcomes. Also confirming previous findings, "free" care in Canada often results in long waiting lists, certain services being unavailable and unmet demands which cause Canadians to be less satisfied with the national healthcare systems. The US population is found to be very satisfied with the system and quality of care received in most instances.<sup>24</sup>

The question therefore, is whether the USA is getting that much more in terms of health outcomes, efficiency and satisfaction for spending double that which Canada spends on healthcare per capita. Conversely, how much more should Canada be spending to im-

prove satisfaction and reduce waiting lines, for instance. Up to what point, in other words, can the USA perhaps decrease its total spending on healthcare without sacrificing too much in terms of quality and satisfaction, or how much more should Canada be spending before it is no longer worthwhile increasing the budget? <sup>25</sup>

These questions get to the heart of our discussion on different health systems. What would be the most efficient allocation of limited resources in South Africa and is there any specific healthcare system that outperforms the rest?

## 4 Application to South Africa

Part of the reason for proposing an insurance-based solution for SA, is the fact that the entire population will be grouped in one risk pool. This makes sense, as the more affluent people currently belonging to medical schemes are theoretically also healthier than the rest of the population (the so-called health-income gradient<sup>26</sup>). Presumably then, cross-subsidi-

21. See footnote 19.

22. O'Neill, J.E. & O'Neill, D.M., 2007. "Health status, health care and inequality: Canada vs. the U.S.," NBER Working Paper Series, Nr. 13429. Available at: <http://www.nber.org/papers/w13429>

23. Suarez, R. & Miller, T., 2009. "Comparing international health care systems," PBS NewsHour, Background Report, October 6. Available at: [http://www.pbs.org/newshour/globalhealth/july-dec09/insurance\\_1006.html](http://www.pbs.org/newshour/globalhealth/july-dec09/insurance_1006.html)

24. See footnote 18.

25. See footnote 18.

26. According to the WHO the health-income or social gradient in health is explained as follows: "The poorest of the poor, around the world, have the worst health. Within countries, the evidence shows that in general the lower an individual's socioeconomic position the worse their health. There is a social gradient in health that runs from top to bottom of the socioeconomic spectrum. This is a global phenomenon, seen in low, middle and high income countries." Quoted from: [http://www.who.int/social\\_determinants/thecommission/finalreport/key\\_concepts/en/index.html](http://www.who.int/social_determinants/thecommission/finalreport/key_concepts/en/index.html)

sation between the rich and the poor, as well as the healthy and the sick, would be more effective – possibly leading to reduced spending on healthcare overall. However, with medical schemes not expected to disappear overnight<sup>27</sup> – mainly because of large quality differences between the public and private sectors – one might be inclined to think that this rationale no longer applies.

If people were allowed to opt out of the NHI, and belong to medical schemes only, these richer, generally healthier people would not be part of the overall risk pool, and the benefits of an insurance-based system would diminish substantially. However, according to the ANC NHI proposal, contributions will be mandatory and no-one will be able to opt out. Those people still belonging to medical schemes in addition to contributing to the NHI, would then still form part of the overall risk pool even though they will not be using NHI accredited facilities. Hence, while subsidising the poorer, less healthy part of the population, they will not place any additional burden on resources in terms of utilisation – an ideal situation from a risk pooling perspective.

This situation would however increase wastage in the system, specifically around administration costs. While a national insurance fund would already be very costly to administer (and more expensive than a tax-based system as the evidence suggests), there would be additional administration costs associated with the remaining medical scheme market.

It might thus be worthwhile considering the implementation of a tax-based (NHS-type) health system in SA, as opposed to the suggested insurance-based solution. According to the comparison between these two types of systems discussed above, there does not seem to be major differences in health outcomes. It is only in terms of overall costs and patient satisfaction that we witness significant differentiation – and there seems to be a trade off between these two factors. A tax-based system might be better suited for SA at the moment since it entails only an expansion of the current public sector system and not the overall restructuring of the entire health system that may turn out to be very costly and without similar improvements in health outcomes. Patients may however be less sat-

isfied with a tax-based system, but if one faces the same possible gains in terms of health outcomes, the less expensive alternative might not be a bad choice.

Of course tax-based systems also face a number of challenges, “including the challenge of introducing a purchaser-provider split and giving providers and appropriate degree of autonomy. But these are not insuperable. And a tax-financed system has the three great merits of not leaving a large portion of the population with inferior insurance coverage while the health system staggers slowly down the road to universal coverage, of avoiding many of the labour market distortions associated with payroll financing, and of raising revenues in an equitable fashion. These are important pluses, the first especially so for developing and transition economies.”<sup>28</sup>

## 5 Conclusion

After a high level discussion of various types of health systems, we briefly considered the differences between tax-based and insurance-based public health models. It was shown that there

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27. See Econex Health Reform Notes 11, 12 & 13. Available at: [www.econex.co.za](http://www.econex.co.za)

28. Wagstaff, A., 2010. “Social Health Insurance Re-Examined,” *Health Economics*, Vol. 19, pp.503-17. (p.515)

is only very small variation in terms of health outcomes between the two systems, if any. More significant differentiation is observed when the total costs of the systems and patient satisfaction are compared. Tax-based systems appear to perform better when it comes to cost containment, whereas patient satisfaction rates are generally higher in insurance-based systems.

Whether a NHI system would be best for South Africa and why this is the preferred model at the moment, may be questioned in light of the above evidence. The additional financial burden that could potentially be much larger than

that associated with a public service model, could distort the market and may be too costly for the South African economy at this stage. While potentially similar improvements in health outcomes are to be gained, upgrading and expanding the existing public health system (which is tax-based) may prove to be more efficient than implementing an insurance-based system.

However, in most middle- and low-income countries (often with higher levels of inequality), tax revenue alone is not sufficient to provide health services at a level that is acceptable to both the wealthy and the poor. Countries such as

Colombia, Mexico, Thailand and Chile that have increased the financing for health through pay-roll taxes, still have different risk pools with varying levels of benefits – as a result of financial constraints and in order to cater for both groups. Having only a tax-based system may therefore not be sustainable in SA. Health systems such as those in Hong Kong, Sri Lanka and Malaysia use the tax-funded system to target the poor, while the wealthy purchase private health services (after paying taxes). Indeed, the solution for SA may not be a choice between one of the two systems discussed in this note, but could well be a mix of pluralistic financing mechanisms.

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