Innovative Medicines
South Africa

Expanding Health Insurance Coverage

This is the second in a series of policy briefs on National Health Insurance (NHI). Their purpose and the related IMSA web-site is to put in the public domain material and evidence that will progress the technical work of developing a National Health Insurance system in South Africa. This includes tools for costing NHI and evidence on where savings could be achieved in moving to a future mandatory system with universal coverage.

The first policy brief dealt with the critical importance of working by age and gender when considering the population for universal coverage and when pricing healthcare. This policy brief builds on that work to consider the demographic characteristics at various stages of a phased introduction of NHI. The relative impact on the price of healthcare is shown of increasing the number of people covered by health insurance and resources are provided to enable these effects to be explored by policy-makers, technical advisors and other researchers.

1. Public-Private Mix of Healthcare Coverage

The graph below summarises the existing coverage for healthcare in South Africa and shows estimates of the expenditure per person, from work by Prof Di McIntyre and Alex van den Heever [1]. The graph shows a more complex picture than simply a public-private split, with some 20.9% of the population using public hospitals but private primary care. This is funded out-of-pocket and a proportion of this group may be able to afford but have chosen not to join any medical scheme.
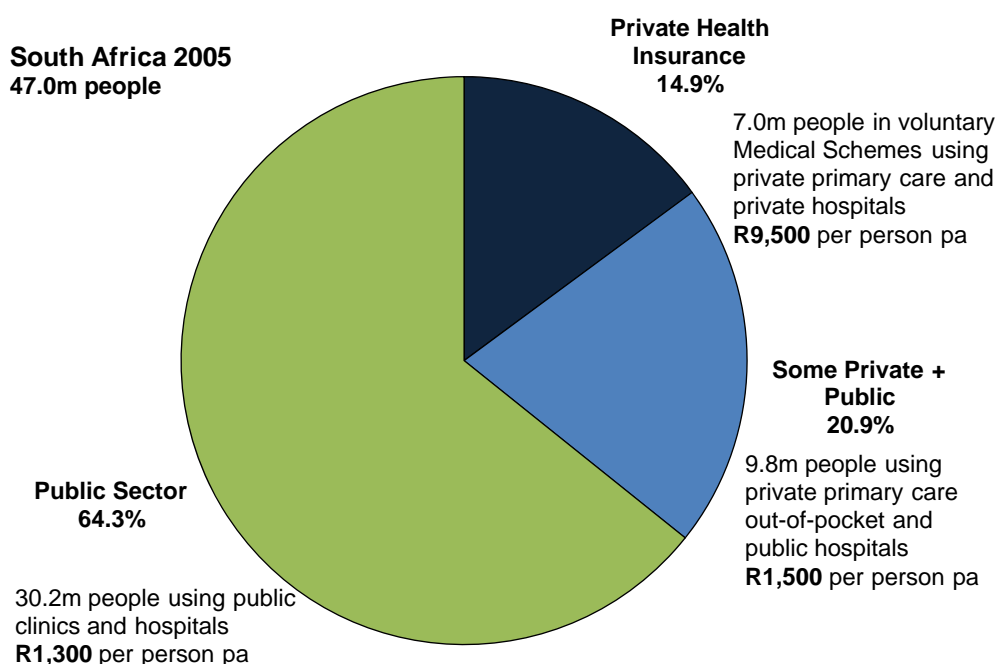

South Africa 2005
47.0m people

Private Health Insurance
14.9%

7.0m people in voluntary Medical Schemes using private primary care and private hospitals
R9,500 per person pa

Some Private + Public
20.9%

9.8m people using private primary care out-of-pocket and public hospitals
R1,500 per person pa

Public Sector
64.3%

30.2m people using public clinics and hospitals
R1,300 per person pa

Figure 1: Coverage for Healthcare in South Africa in 2005 [1]

2. Beneficiaries Covered by Medical Schemes

Determining the number and proportion of people in medical schemes over time needs to be done with some care. A common source for this information is StatsSA publications but from 2005 onwards these estimates have been too low. The most recent StatsSA historic estimates [2] are contrasted with the better information available directly from the Council for Medical Schemes (CMS) in the two graphs below. CMS collects the exact number of members and beneficiaries[a] in medical schemes while the StatsSA figures are from surveys of a relatively small number of households.
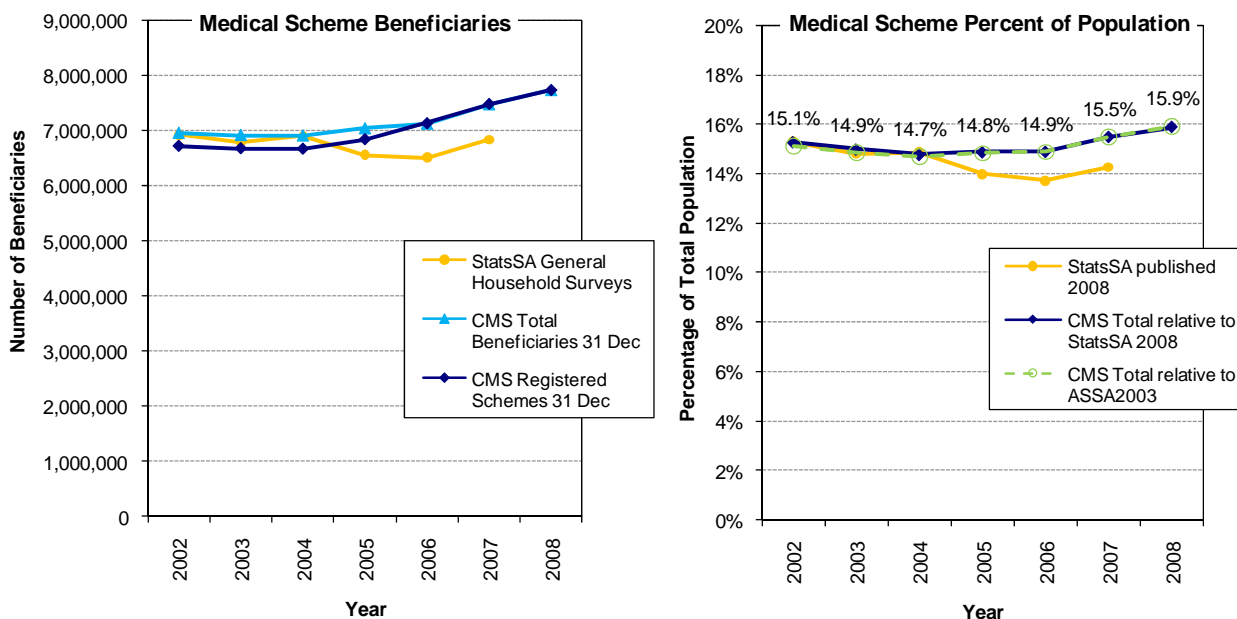

Figure 2: Comparison of Medical Scheme Coverage from StatsSA and derived from Council for Medical Schemes

The CMS data is not without difficulties: until 2005 the numbers in registered medical schemes were shown as well as those covered under bargaining council schemes (the definition of these "exempt" schemes has changed over the years, particularly from 2000 onwards). However even in the absence of bargaining council scheme data for 2006 to 2008, there is a clear increase in the officially reported figures, which are shown as at 31 December each year. This is largely due to the introduction of the Government Employees Medical Scheme (GEMS) from January 2006 which has brought many previously uncovered lives into medical schemes. The StatsSA estimates are from General Household Surveys of typically around 30,000 households which are then re-weighted to the total population. The first graph clearly shows that since 2005 the StatsSA figures have under-estimated the numbers of people covered by medical schemes.

The proportion of the population covered depends on the base population figure used. The historic StatsSA figures reported in 2008 [2] use the mid-year population figures before the 2008 revisions [3]. Using the ASSA2003 mid-year population estimates [4] and the CMS figures [b], the graph on the right shows the likely proportion on medical schemes. The best estimate of the proportion of the population on medical schemes is 15.9% in 2008. There is very little difference between using the revised StatsSA mid-year population and the ASSA2003 population over this small range.

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[a] See IMSA Glossary of Healthcare Financing Terms on the web-site: www.imsa.org.za
[b] Technically, the CMS beneficiary figures are at 31 December, except for the 2008 figure which is at June 2008. In this analysis the mid-year medical scheme population has not been estimated for 2002 to 2007.

Bargaining council schemes are set up by collective decisions of employer organisations and trade unions under the Labour Relations Act [c] rather than the Medical Schemes Act. There have been extensive discussions between the Council for Medical Schemes, the Department of Labour and bargaining council stakeholders over the extent to which these schemes should be treated as part of the medical schemes environment [5]. CMS reported on results for 12 bargaining council schemes in 2004 but has subsequently ceased publishing information on the number of schemes and beneficiaries [6]. It has been reported that there were 34 such schemes in 1994 [7] but more recent data is very difficult to find.

If it is assumed that bargaining council schemes cover at least 250,000 beneficiaries (the levels reported in 2002 to 2004 by CMS), then the overall proportion of the population covered by pre-paid health insurance would increase from 15.9% to **16.4%** in 2008. Note that these figures are higher than quoted by researchers who have relied on the StatsSA figures which showed coverage dropping as low 13.7% in 2006. The use of survey data is a less reliable estimate of medical scheme coverage over time.

It is strongly recommended that coverage in medical schemes is derived from Council for Medical Schemes figures and the ASSA2003 mid-year population. An alternative acceptable methodology is the CMS data with the StatsSA mid-year population, as re-estimated in 2008.

3. Provincial Medical Scheme Coverage

At a provincial level the proportion of the population covered by medical schemes is less certain. The graph below contrasts the StatsSA General Household Survey 2005 (GHS2005) figures with those derived from the Council for Medical Schemes with the ASSA2003 provincial population for 2005.
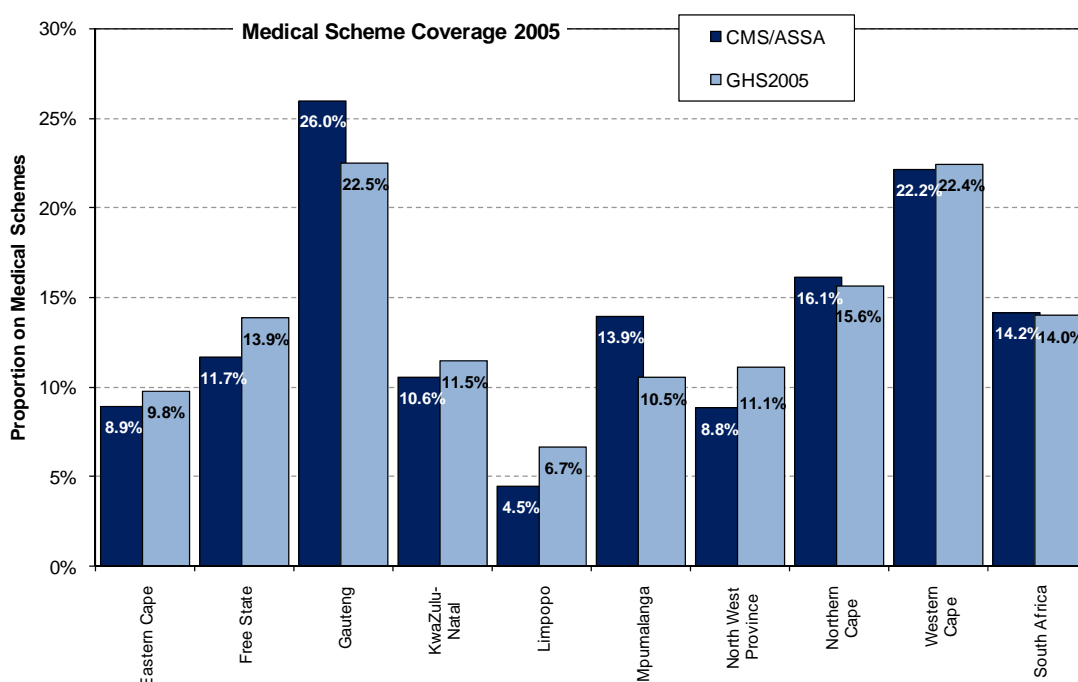

Figure 3: Comparison of Provincial Medical Scheme Coverage from StatsSA and derived from Council for Medical Schemes with ASSA2003 Population

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[c] See Department of Labour guides on Bargaining Councils:
 http://www.labour.gov.za/find-more-info/all-about-bargaining-councils/

The graph shows that the Western Cape and South Africa estimates are reasonably close from the two sources. Given that the StatsSA source is a survey, the differences for the Western Cape and South Africa are not meaningful. Of greater concern and interest is the very large difference reported for Gauteng. There are several possible reasons:

- The StatsSA figures are from a survey of only some 30,000 households. The extent of the difference in such a large province seems to be something more than the uncertainty from a survey.
- The quality of the Council for Medical Schemes data at a provincial level is untested. It is suspected that not all administrators deal with this in the same way and it is unlikely that they are reporting the province where the beneficiaries live.
  - For some employers, all the workers and their families may have been allocated to the province of the head office which is more likely to be Gauteng.
  - Where the administrator has postal code information on the member, the whole family is probably recorded as being at the same address. Schemes are unlikely to keep postal code information on beneficiaries.
  - Thus the whole family may be recorded as being in Gauteng when only the main member, the worker, is based there. This is reinforced by the information in Policy Brief 1 that the Gauteng age and gender profile is skewed heavily towards young working age men and has lower numbers of women and children, compared to nearby provinces.

The Council for Medical Schemes does not publish provincial profiles by age and gender, but only the total numbers of members and beneficiaries. GHS2005, while only being a survey, may have better information on where the beneficiaries are located than the CMS data. **Research is needed to produce authoritative age-gender profiles for medical schemes and bargaining council schemes at a national and provincial level.**

4. Phased Introduction of NHI based on Income

Two of the major unanswered issues in proposals for National Health Insurance and for proposals for mandatory retirement cover are who will contribute and who will be covered at each stage of implementation. While there is no doubt about the end goal of universal coverage, the implementation of mandatory insurance is likely to be spread over a number of years.

There is a strong pattern of medical scheme membership by income [6, 8] and it seems logical to begin to extend coverage by beginning with the higher income groups where coverage is already of the order of close to 80%, as shown below.

Table 1: Proportion on Voluntary Medical Schemes, using Insurable Families[d] Analysis on General Household Survey 2005

2005 Values	Informal workers	Formal farm and domestic workers	Formal workers below tax threshold	Worker just above tax threshold	Low-paid civil servants	Clerical and service	Supervisory and managerial	Professional	Unknown
Income range for phased National Health Insurance	Under R1,000 pm	R1,000 to R2,000 pm	R2,000 to tax threshold*	Above tax threshold* to R5,000 pm	R5,000 to R8,000 pm	R8,000 to R12,000 pm	R12,000 to R30,000 pm	Over R30,000 pm	Income unknown
Number of beneficiaries in Insurable Families	3,143,779	2,177,341	1,306,436	1,447,544	1,223,555	582,722	537,840	90,399	1,038,495
Number of beneficiaries on medical schemes	90,001	111,530	158,572	480,695	771,607	423,088	429,446	70,935	476,210
Proportion on voluntary medical schemes	**2.9%**	**5.1%**	**12.1%**	**33.2%**	**63.1%**	**72.6%**	**79.8%**	**78.5%**	**45.9%**

* tax threshold was R2,917 pm in 2005 for taxpayers under age 65.

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[d] See overleaf for definition.

Information on income levels in the population is generally derived from StatsSA surveys, as the South African Revenue Service (SARS) does not make detailed information on income publicly available. Some people choose not to respond to the income question in the survey, giving rise to a category of "unknown income" and income is generally understated in surveys. This is useful for performing calculations for the cost of National Health Insurance as total income[e], as determined by SARS, may well be higher and hence provide a margin or buffer in the calculations.

It seems highly likely that all people earning above the tax threshold[f] will be contributors to mandatory healthcare and retirement. It would be logical to limit contributors to those below age 65 as the tax regime for those aged 65 and older is different. However the current age for receiving he social old age grant is 60 for women and that for men is being equalised at age 60 over a number of years, following court challenges on gender equality. While there are some teenagers earning an income, it would also be logical to use age 20 as the minimum age for contributions.

The analysis which follows uses income patterns from the General Household Survey 2005, together with the population in 2009 from ASSA2003 and the most recently available age-gender profile in medical schemes. The number of contributors[g] and their related insurable families[h] and households[i] are discussed in the following groups:

- The existing voluntary medical scheme environment;
- All people earning more than the tax threshold become contributors. The insurable families of contributors become members of medical schemes, together with those who were members in the voluntary environment.
- Add as contributors all those earning below the tax threshold but above the Low Income Medical Scheme (LIMS) [8] threshold of R2,000 per month[j].
- Add as Contributors all those earning below R2,000 but above R1,000 per month. These are typically formal sector workers. There may need to be a wage subsidy or other support to cover the cost of social security contributions for the group.
- Add as Contributors all those earning below R1,000 per month. This group is typically farm and domestic workers and informal traders. They will require almost complete subsidization.
- Inclusion of all people in the country as members of the National Health Insurance System. This phase will see an extension of beneficiaries but with no added contributors.

The graphs below show the number of people in insurable families that could be covered in the groups as defined above at various phases of a mandatory National Health Insurance system. The impact at provincial level varies with Gauteng and the Western Cape seeing the greatest impact.

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[e] Income as reported in surveys is not taxable income as reported to SARS. A crucial decision in mandatory insurance calculations is the exact definition of income that will be used for determining any income-related contributions. Estimates made with survey data need to be improved at a later stage with data from SARS using the chosen definition of income.

[f] The level from which income tax applies. This was R46,000 per annum or R3,833 per month in the 2008/9 tax year and R2,917 pm in 2005, for taxpayers under age 65. The level is announced in the annual budget speech by the Minister of Finance and tends to keep pace with inflation.

[g] A contributor is a person between age 20 and age 64, excluding foreign workers, earning in the appropriate age band. Some families may have dual contributors if the spouse is also working.

[h] An insurable family includes the insurable spouse and insurable children. The insurable spouse would include wife, husband or same-sex partner and there may be multiple spouses in traditional marriages. Insurable children for this analysis are all children under age 20 plus all children between age 20 and 30 who are living in the household and who are not earning in their own right.

[i] Surveys are generally conducted at household level and this includes all people in the same household. Some may be part of the insurable family (as defined above) but will also include brothers, sisters or parents in the same house, as well as non-family members staying in the household. There may be multiple insurable families in one household.

[j] The LIMS process confirmed an upper income limit of R6,500 in 2005 Rand terms. A lower limit is not mentioned but the original terms of reference expected a lower limit of R2,000 for products of this type. Affordability below that level is difficult without significant subsidies.
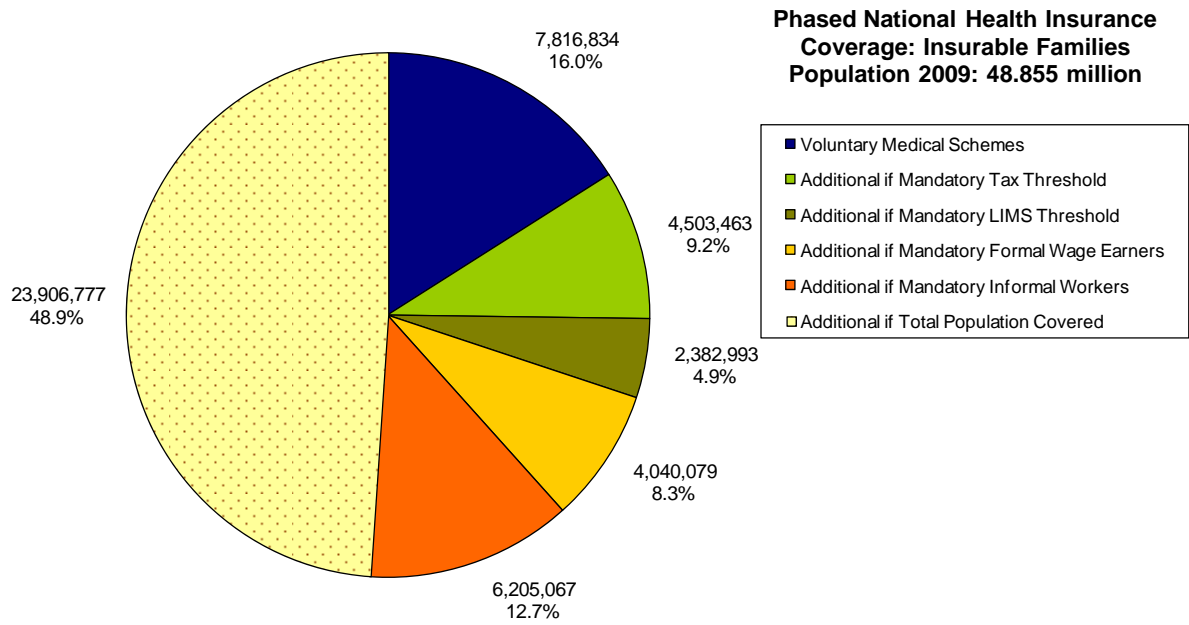
Phased National Health Insurance Coverage: Insurable Families Population 2009: 48.855 million

7,816,834
16.0%

4,503,463
9.2%

2,382,993
4.9%

4,040,079
8.3%

6,205,067
12.7%

23,906,777
48.9%

- ■ Voluntary Medical Schemes
- ■ Additional if Mandatory Tax Threshold
- ■ Additional if Mandatory LIMS Threshold
- ■ Additional if Mandatory Formal Wage Earners
- ■ Additional if Mandatory Informal Workers
- ■ Additional if Total Population Covered

Figure 4: Health Insurance Coverage for Phased Introduction of Mandatory Insurance in South Africa (estimated for 2009)

Coverage: Insurable Families

- □ Additional if Total Population Covered
- ■ Additional if Mandatory Informal Workers
- □ Additional if Mandatory Formal Wage Earners
- ■ Additional if Mandatory LIMS Threshold
- ■ Additional if Mandatory Tax Threshold
- ■ Voluntary Medical Schemes

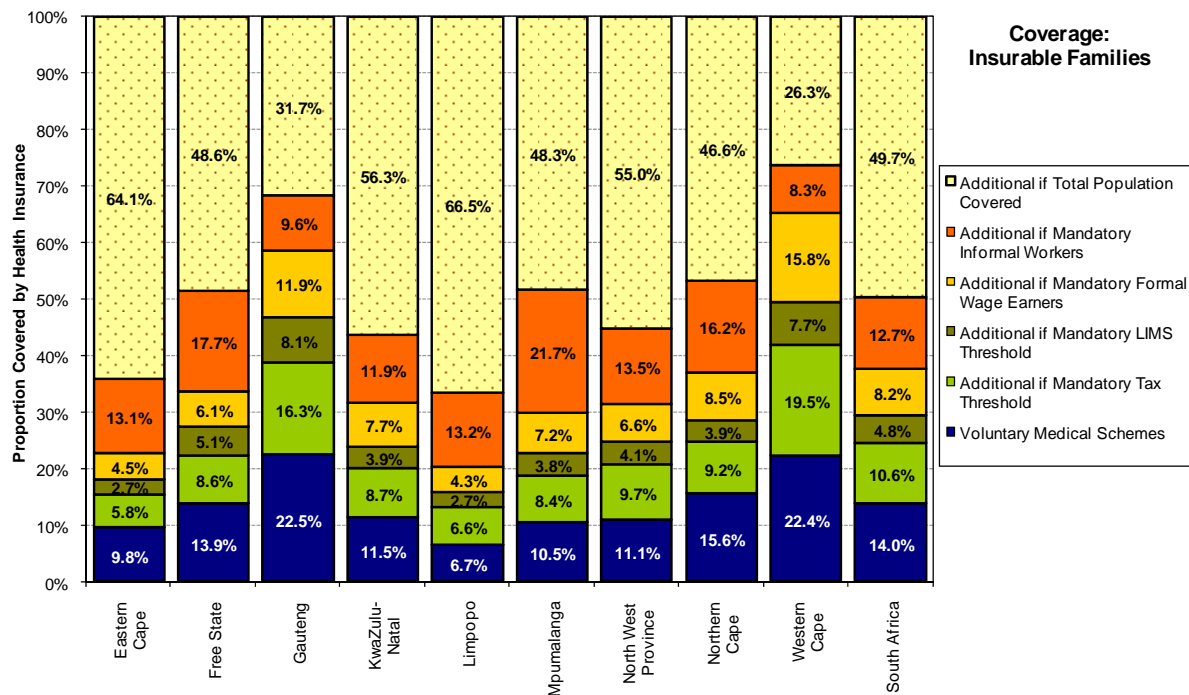| Province	Total Pop	Informal	Formal Wage	LIMS	Tax	Voluntary
Eastern Cape	64.1%	13.1%	4.5%	2.7%	5.8%	9.8%
Free State	48.6%	17.7%	6.1%	5.1%	8.6%	13.9%
Gauteng	31.7%	9.6%	11.9%	8.1%	16.3%	22.5%
KwaZulu-Natal	56.3%	11.9%	7.7%	3.9%	8.7%	11.5%
Limpopo	66.5%	13.2%	4.3%	2.7%	6.6%	6.7%
Mpumalanga	48.3%	21.7%	7.2%	3.8%	8.4%	10.5%
North West Province	55.0%	13.5%	6.6%	4.1%	9.7%	11.1%
Northern Cape	46.6%	16.2%	8.5%	3.9%	9.2%	15.6%
Western Cape	26.3%	8.3%	15.8%	7.7%	19.5%	22.4%
South Africa	49.7%	12.7%	8.2%	4.8%	10.6%	14.0%

Proportion Covered by Health Insurance

Figure 5: Health Insurance Coverage by Province for Phased Introduction of Mandatory Insurance (unadjusted proportions from GHS2005)[k]

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[k] The provincial graph has not been altered to reflect more recent provincial coverage, given the difficulty nf reconciling the CMS and StatsSA provincial percentages discussed earlier. Hence the "South Africa" figures in the provincial graph are slightly different to those for the national pie which has been updated for the growth in medical scheme members in recent years.

5. Anti-selection in Voluntary Medical Schemes

In considering the price of healthcare for a National Health Insurance system, evidence from the voluntary environment and the current public sector needs to be used with extreme caution if it is not analysed by age and gender. There is substantial evidence of anti-selection[i] by members of medical schemes in the voluntary environment. The graph below compares the age and gender profile of medical schemes with the shape of the total population and the families that could be covered at various phases of mandatory health insurance.
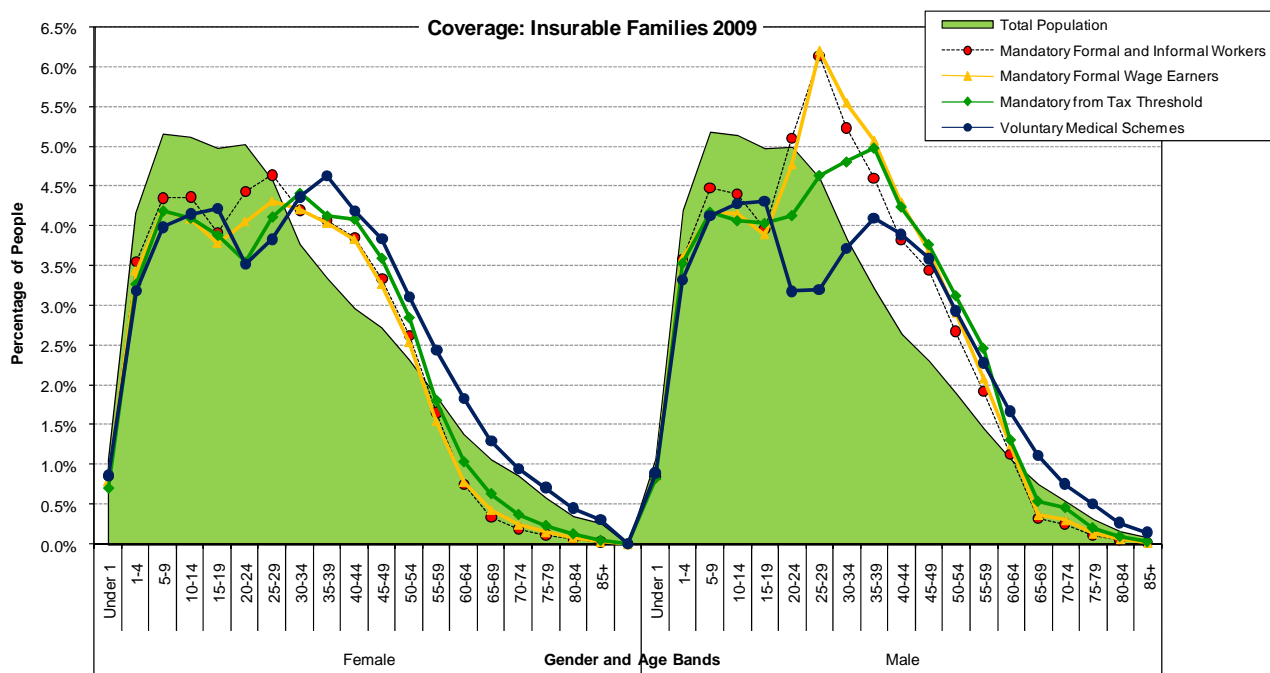
Figure 6: Standardized Age Profiles for Phased Implementation of Mandatory Insurance

Medical schemes have a "twin-peak" age profile, showing that young working age people have remained outside the voluntary health insurance system while older working age and retired people have joined medical schemes in significant numbers. The effect of remaining outside the system is very marked for young working men. The introduction of GEMS since 2006 has increased the numbers of working women covered as the State employs significant numbers of women as teachers and nurses.

The graph shows that the age profile will alter substantially as the reforms to create a mandatory system of National Health Insurance are implemented. The impact differs substantially by gender with many more young working men becoming eligible for health insurance if there is mandatory cover from the tax threshold. This are also a significant number of young men earning below R2,000 pm in 2005 Rand terms who do not currently have health insurance cover.

Figure 7 shows clear evidence of anti-selection in the voluntary environment by women in the child-bearing years. The minimum benefit package includes almost all maternity care and thus it has become a common phenomenon for women to join a medical scheme to have their children and to leave if the children are healthy.

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[i] Anti-selection in insurance arises from the insured knowing more about their condition than the insurer (or medical scheme in this case). An extreme example from short-term insurance is someone telephonically arranging cover for fire damage while a fire is approaching the house. In healthcare, anti-selection can occur if a diagnosis is suspected or expected and thus there is an almost certain need for healthcare at the time the person joins a medical scheme.
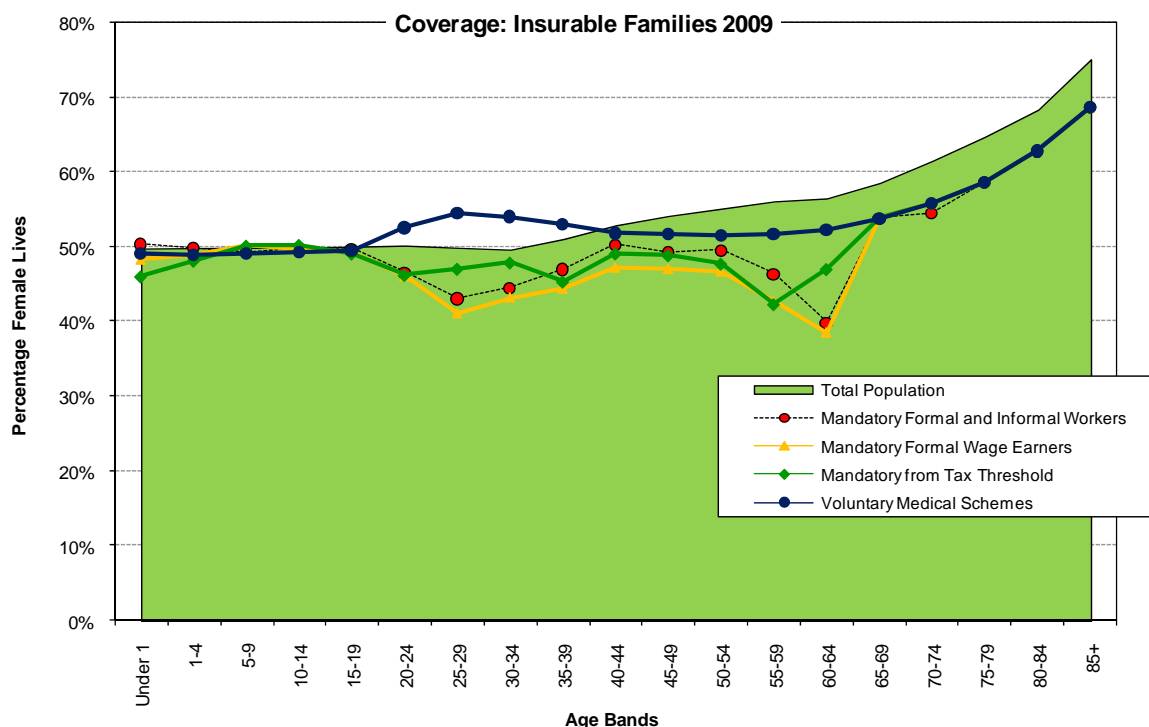
Figure 7: Proportion of Female Lives during Phased Implementation of Mandatory Insurance

McLeod & Grobler [9] found that the total number of children expected to be born in South Africa in 2005 was 22.8 per 1,000 women. In an extensive study covering 63% of the medical scheme beneficiaries in 2005 the number of children was found to be 26.4 per 1,000 women in medical schemes. This fertility in medical schemes has been found to be on the low side compared to actual experience since 2005, suggesting that anti-selection by pregnant women has been widespread.

The extent of anti-selection by those with chronic disease can only be speculated but the patterns of disease by age show unusual bulges in the young adult years for some severe diseases like multiple sclerosis, suggesting that families with someone with an expensive disease would try to join a medical scheme.

The Medical Schemes Act of 1998, effective from January 2000, instituted waiting periods[m] in medical schemes to provide some measure of protection against anti-selection but these do not seem to have been effective for disease requiring expensive treatment. There is anecdotal evidence that older people with chronic renal failure needing dialysis are encouraged to join medical schemes in order to get dialysis in the private sector, as limited resources in the public sector have meant severe rationing by age with dialysis not typically provided over age 60. Dialysis in the public sector is offered to bridge the known 12 month waiting period that the medical scheme will apply. The impact on a medical scheme is substantial: the industry community-rate for all medical scheme members was estimated using an age-gender profile from mid-2008 to be R310.50 [10]. A healthy 60-year old male is expected to cost R583.28 per month but one with chronic renal failure needing dialysis is expected to cost R19,291.96 per month. The net effect is that the community rate for all members of medical schemes must increase to cover the costs of this anti-selection.

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[m] The rules are complex but in essence someone who transfers from another medical scheme and joins a new one has no waiting periods for minimum benefits. Someone who has not been on a medical scheme recently is required to wait for a period of three months before receiving minimum benefits and there may be a 12 month exclusion for any pre-existing condition.

6. Impact of Mandatory Insurance on the Price of Minimum Benefits

In Figure 6 it was demonstrated that mandatory health insurance would substantially change the age and gender profile of current medical schemes, adding more children and more young working age people. Table 2 uses those age and gender profiles to illustrate the expected impact of the changes on the price of minimum benefits.

Table 2: Impact of Phased Implementation of National Health Insurance on the Price of Minimum Benefits for 2009

National Health Insurance Phase	Phase 0	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
	Voluntary Medical Schemes	Mandatory from Tax Threshold	Mandatory from LIMS Threshold	Mandatory Formal Wage Earners	Mandatory Formal and Informal Workers	Total Population Covered
Additional people covered		4,503,463	2,382,993	4,040,079	6,205,067	23,906,777
People Covered by Health Insurance	7,816,834	12,320,297	14,703,290	18,743,369	24,948,436	48,855,213
Percentage of Population with Health Insu	16.0%	25.2%	30.1%	38.4%	51.1%	100.0%
Minimum Benefits in 2009 Rand terms						
DTP Hospital	206.19	189.15	184.90	178.27	173.07	181.51
CDL Medicine	53.52	46.92	45.08	41.85	39.43	41.94
Visits and Related Costs	49.48	45.83	44.84	43.03	41.64	42.33
Total Prescribed Minimum Benefits	**309.19**	**281.90**	**274.82**	**263.15**	**254.14**	**265.78**
Change from Voluntary Medical Schemes due to age and gender		**91.2%**	**88.9%**	**85.1%**	**82.2%**	**86.0%**

The table shows that moving from the current voluntary environment to mandatory cover for the insurable families of all those earning above the tax threshold, the price of minimum benefits would fall to R281.90 per beneficiary per month (pbpm) or to 91.2% of the value expected in 2009[n]. If membership was mandatory from the LIMS threshold, then this would add younger working age members and children and the price would fall further to R274.82 pbpm. The price per head continues to fall with each added group until all those earning an income are covered, together with their insurable families. At this point, 51.1% of the population would be covered for health insurance and everyone earning any income would be a contributor (even if there were almost complete subsidies for the lowest income workers).

To add the remaining population to achieve universal coverage would effectively add many more children abut also a substantial number of elderly people. This would raise the price of healthcare from 82.2% to 86.0% of the current medical scheme community rate. This illustration has simplified the effects to consider only the impact of age and gender on the price of healthcare.[o]

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[n] The community rate published in the Preferred REF Contribution Tables for 2009 uses the most recently available age profile at that time, which was from mid-2008. In this policy brief, the age profile for 2009 has been estimated, taking into account growth reported in the quarterly reports from CMS. It is expected that growth is occurring in the children and working age years and not in those over age 65, hence the estimate that the community rate may have been R309.19 in Table 2 compared to R310.50 in the published tables.

[o] There are many other factors that could have an impact on the actual price of minimum benefits. Estimates of the differences in disease burden between the currently covered population and those who would be added can be made but there is seldom strong evidence to use in the calculations. Factors that require considerable judgement in the pricing include the issue of greater demand from moral hazard due to easier access and the impact of removing limits or co-payments on benefits included in the minimum package.

McLeod & Grobler [9] estimated the effect that the anti-selection by pregnant women and the ant-selection by those with serious chronic disease may have on the price of healthcare using 2007 data. While these estimates are more speculative, they argue that the price of minimum benefits for mandatory cover for all workers and their families might be 77.3% of the price in a voluntary environment, thus adding a further roughly 5% to the reduction in price. They conclude that "Another way to look at this phenomenon is that prices of minimum benefits in the voluntary environment are some 17% to 23% more expensive than they could be under this phasing of mandatory cover."

7. Conclusions and Implications for NHI

The proportion of people already covered by health insurance is shown to be at least 15.9% in 2008 and possibly 16.4% if bargaining council scheme beneficiaries are included. This is higher than the estimates produced by StatsSA which are from survey, not actual, data. The provinces have very different proportions of their population already on health insurance with Gauteng and the Western Cape having the highest proportions.

The extension of health insurance coverage to more people under a National Health Insurance system will in all likelihood need to proceed in phases. One possible phasing by income level is demonstrated and it is shown that even if all workers (earning any amount) become contributors and their insurable families thus receive cover, only 51.1% of the population would be covered for health insurance.

This will be the affordability dilemma for any National Health Insurance system: there are 48.9% of the population in families who are not reported to be earning any income. Previous analysis using the GHS2005 showed that 54.0% of the population are in households receiving one or more social security grants [11]. The old age pension and the child support grant have a major effect on the ability of households to survive.

The impact of increased numbers of people being covered by mandatory health insurance will be felt differently across the provinces. Gauteng and the Western Cape will have the greatest proportion of people eligible for health insurance due to the greater numbers of people earning incomes in those provinces. Others like Limpopo will not experience much effect from mandatory insurance in the early phases. This implies that the transfers to provinces for the lives remaining in the public sector will need to be carefully adjusted as mandatory insurance progresses.

The age and gender differences between existing medical schemes and the various phases of mandatory insurance are substantial. The price impact was demonstrated and generally, the more lives added under mandatory coverage, the lower the average price of healthcare for all. The age and gender effects alone mean that the price of minimum benefits in medical schemes is some 18% higher than it would be under mandatory insurance covering all income earners. There may well be additional price reductions under mandatory insurance due to the effect of anti-selection in the voluntary environment but the impacts are more difficult to estimate.

This reinforces the conclusions in Policy Brief 1 that it is critical to perform calculations for National Health Insurance by at least age and gender and preferably also by the burden of disease.

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Resources on the IMSA Web-site

The resources are available on the NHI section of the IMSA web-site: www.imsa.org.za

- The slides and tables used in this policy brief [PowerPoint slides].
- The tables of the population by age and gender for South Africa and the nine provinces, from 1985 to 2025 [Excel spreadsheet]
- The tables of the age and gender profiles of insurable families at various phases of mandatory health insurance, for South Africa and the nine provinces [Excel spreadsheet].
- The tables of PMB price for 2009 by REF risk factors and subsets [Excel spreadsheet].
- The tables of PMB price by age and gender and service type (hospital, medicine and visits and related costs) for 2009 [Excel spreadsheet].
- A glossary of healthcare terms with explanations which will be updated as further policy briefs are added.

As the purpose of this series is to put in the public domain material and evidence that will progress the technical work of developing a National Health Insurance system, we would be delighted if you make use of it in other research and publications. All material produced for the IMSA NHI Policy Brief series and made available on the web-site may be freely used, provided the source is acknowledged. The material is produced under a Creative Commons Attribution-Noncommercial-Share Alike licence.

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Innovative Medicines South Africa (IMSA) is a pharmaceutical industry association promoting the value of medicine innovation in healthcare. IMSA and its member companies are working towards the development of a National Health Insurance system with universal coverage and sustainable access to innovative research-based healthcare.

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