Innovative Medicines South Africa

National Health Insurance
Policy Brief 3

The Impact of Chronic Disease on a Future NHI

The purpose of this series of policy briefs on National Health Insurance (NHI) 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.

This policy brief builds on the first two dealing with the population to be covered in order to estimate the impact of 25 chronic diseases on a future NHI. The important topic of HIV is not dealt with fully here and is the subject of a separate policy brief.

1. Evidence of the Prevalence of Chronic Disease in Medical Schemes

The process of developing a formula for risk adjustment between medical schemes [1-3] has provided exceptionally good data on the prevalence of chronic disease in medical schemes by age and gender. The study to develop the risk adjustment tables from 2007 onwards (the REF Study 2005)[3] was done on data from 2005 from the four largest administrators[a] who provided services to 4.249 million lives or 63.4% of the medical scheme beneficiaries in that year. The study had 49.847 million member months of data or the equivalent of 4.154 million full member years of data. This was described as "an extraordinary data set to work with" and provided many new insights into disease prevalence in medical schemes. The graph below illustrates the rates of total chronic disease, multiple chronic disease and HIV on anti-retroviral medicine (ARVs).

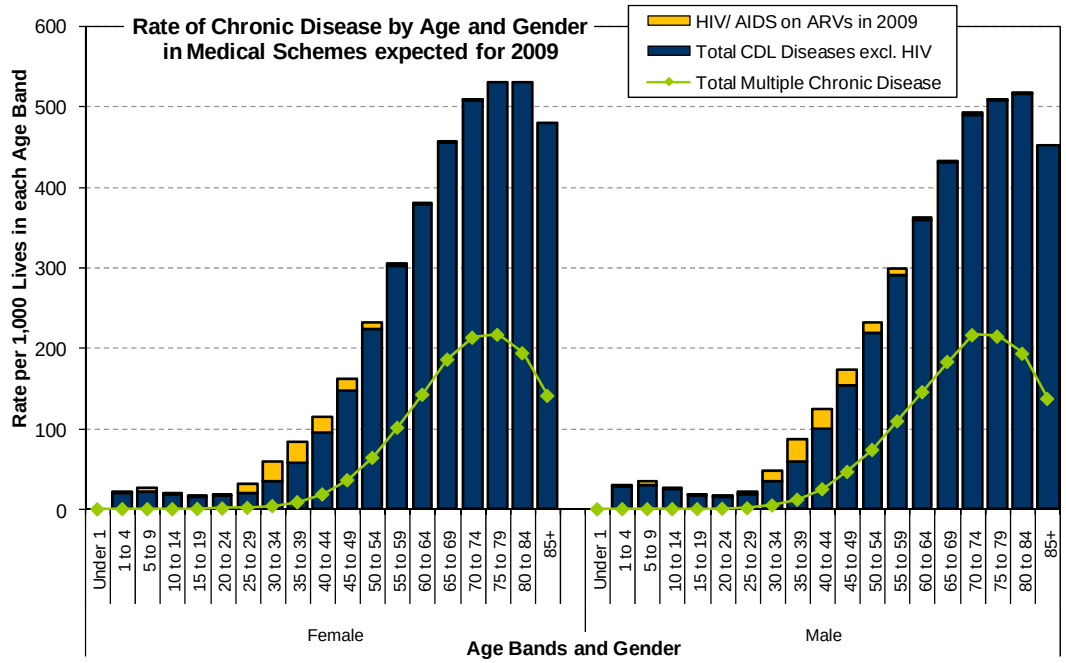

Figure 1: Rate of Chronic Disease in Medical Schemes Expected for 2009

[a] Discovery Health (Pty) Ltd, Medscheme (Pty) Ltd, Old Mutual Healthcare (Pty) Ltd and Metropolitan Health Group (Pty) Ltd.

The diseases covered in the graph above are the Chronic Disease List (CDL) diseases that must be covered by medical schemes as part of the Prescribed Minimum Benefit package. These numbers of people with these 25 diseases (listed in Table 1) and numbers with HIV who are on treatment with anti-retroviral medicines are among the risk factors used in the design of the Risk Equalisation Fund (REF).[4] Since the inclusion of these diseases in PMBs and the REF data collection, the understanding of these diseases in medical schemes has been greatly improved.

The choice of the 25 diseases for the minimum package remains contentious[5]. The original philosophy underlying the PMBs used a clear method for rationing and determining the package[6]. The initial package of diagnosis-treatment pairs was perceived by many funds to cover only hospital-based treatment and several funds altered their chronic medicine benefits to reduce or completely remove cover for chronic diseases[5]. The policy response was legislation in 2002 to mandate a package of diagnosis, treatment and medicine for 25 chronic conditions but implementation was delayed to enable the industry to develop therapeutic algorithms which came into effect from January 2004. However the methodology for determining which diseases were included in the Chronic Disease List was not published and has been described as 25 "common conditions". Even this is in doubt[5] as diseases like Addison's are more rare and less costly than cystic fibrosis which was not included. Research on the prevalence and cost of the CDL diseases[7] showed that 77.1% of registrations for chronic medicine in 2001 were for at least one of the CDL conditions.

Data has been collected on a monthly basis on the 25 CDL diseases (plus HIV) in medical schemes since January 2005. Concern was expressed in the original formula report[1] about the ability to reliably measure the chronic disease factors and about the ability to audit this data. It was seen as critical that there was a trusted and fair way to determine the numbers with chronic disease[5]. The Risk Equalisation Technical Advisory panel and a clinical team drawn from the Council for Medical Schemes and industry experts developed a comprehensive manual of Verification Criteria that is now in its fourth iteration[8].

The Verification Criteria have been developed with the emphasis on the verifiability of cases of chronic disease[5]. There are two elements to the criteria:

- the **diagnosis** of a particular disease, which includes specification of applicable ICD-10[b] codes and limitations on the practitioners that may diagnose certain complex conditions. here may be mandatory tests to differentiate between diseases and results must be retained by the fund; and
- a **proof of treatment** element which is based on paid claims data. Data for at least two of the three calendar months prior to the month of submission is typically required in order to demonstrate proof of treatment. The applicable medicines that can be used as proof are classified using the Anatomical Therapeutic Chemical (ATC) classification[c] and payment must have been made from the risk pool, not personal medical savings accounts.

For the REF Study 2005[3] two sets of data were extracted: the first used Version 2 of the Verification Criteria and was called the "Treated Patient" data"; the second set was extracted without the test for "treated patient" and can be called the "Diagnosed Cases" data. This provided a powerful tool to investigate the impact if more people in future fall within the definition of "treated patient".

Each disease has its own unique pattern by age and gender. The patterns from the "Treated Patient" data were compared to the original study in 2002 and found to be very close for most diseases. This was a useful finding in that the original study occurred before there were incentives to inflate chronic disease and the effect of the Verification Criteria were shown to produce similar results.[5]

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[b] ICD-10 means the International Classification of Diseases, version 10. This alpha-numeric diagnosis coding standard is owned and maintained by the World Health Organization and is a standard diagnostic classification system used internationally. See http://www.who.int/classifications/icd/en/
It is used in both the private and public sectors in South Africa and since July 2005 it has been mandatory for accounts from healthcare practitioners to medical schemes to contain ICD-10 codes.

[c] The ATC Index is issued annually by the WHO Collaborating Centre for Drug Statistics. See http://www.whocc.no

One of the most interesting findings from the REF Study 2005 was the number of people who are diagnosed with a chronic disease but who are not receiving treatment at the levels required for "treated patient" status. Figure 2 illustrates the data available using one disease, diabetes mellitus Type 2. This condition is more prevalent in males than females, as clearly illustrated.

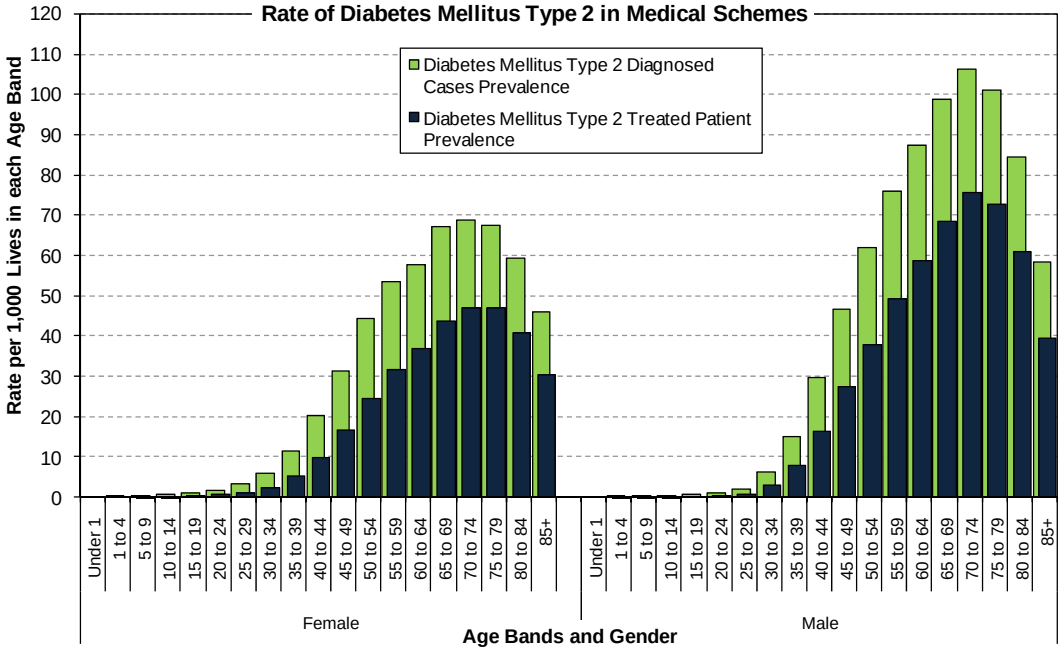

Figure 2: Rate of Diabetes Mellitus Type 2 in Medical Schemes

The authors of the REF Study 2005[3] argued that the prevalence that should be used in the normal context of prevalence data should be the "treated patient" prevalence. The "diagnosed cases" data is critically dependant on the correct ICD10 code being allocated by the doctor or treating specialist. For "treated patient" status there is the additional confirmatory evidence that a particular class of drugs (relevant to that disease) was dispensed on a regular basis. Compulsory ICD10 coding was in its introduction phase during the REF Study 2005 and there may be some diseases where the diagnosed cases are over-reported. However studies in medical scheme administrators have for many years shown that people diagnosed with a chronic condition do not always continue on the medicines prescribed. This is particularly the case in diseases where the symptoms are not readily apparent, like hypertension. There may also be only intermittent drug use for asthma so that the person does not meet the "treated patient" criteria of using the drug for one out of every three months.[8]

Each of the CDL diseases has a unique shape by age and differences by gender. The graph above shows that with a very large study, the shapes for a disease form smooth curves. Slides for each of the CDL diseases and spreadsheets of the values are given on the IMSA NHI web-site[d]. These shapes can be used with other populations (like the public sector by age and gender) to estimate the possible prevalence in the new population. Epidemiological data is often reported as a total prevalence rate for a particular population (not by age and gender) but this total could be compared to that from the estimate in order to calibrate the shapes to the new population[e].

[d] IMSA NHI web-site: http://www.innovativemedicines.co.za/national_health_insurance_library.html

[e] For example, we may want to increase the prevalence of respiratory diseases in the public sector above that of medical schemes or increase the prevalence of diabetes in some population groups. Cardiac disease for the population as a whole may decrease relative to that found in medical schemes. A simple percentage increase or reduction to the age-gender shape would be a reasonable starting point until more is known about the age-gender shape in the new population.

2. Evidence of the Prevalence of Chronic Disease in South Africa

A useful source of data on chronic disease prevalence for South Africa as a whole is that collated from several sources by Candy Day and Andy Gray for Health Systems Trust and reported annually in the South African Health Review[9,10]. Included in the report are tables by province and sometimes by ethnic group, but only a few of the CDL diseases are covered.

The 2007 version of the publication[9] contained a comparison of the medical scheme prevalence data described in the section above to the national prevalence for hypertension, hyperlipidaemia, asthma and diabetes mellitus (type 2). The comparison for one disease is shown below, while the others are part of the slides for this policy brief on the IMSA web-site.

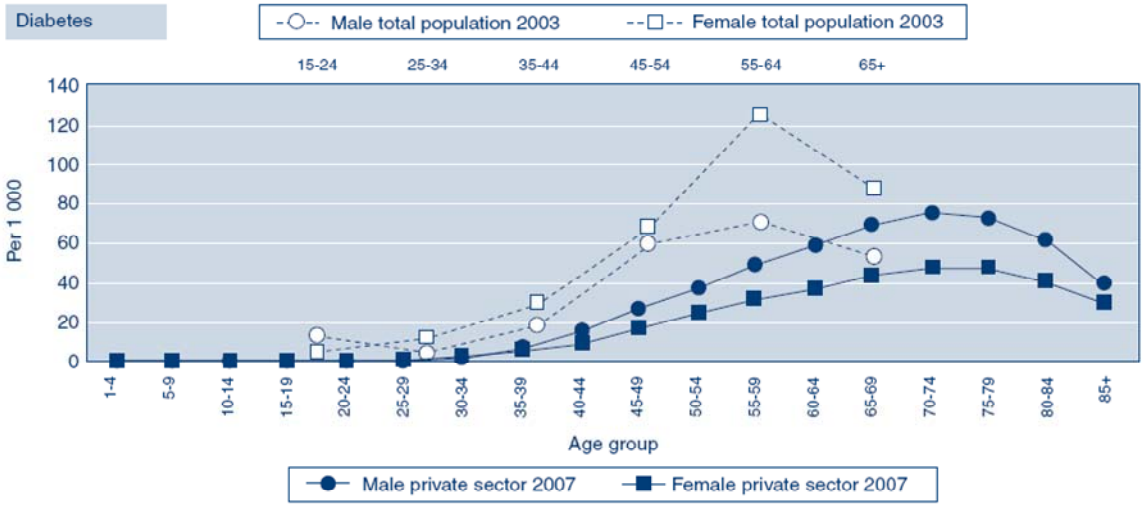

Figure 3: Comparison of Rates of Diabetes Mellitus Type 2 in Medical Schemes and the South Africa Demographic and Health Survey 2003 (Source: SAHR2007[9])

Day & Gray found that[9] "although the age group, time period and measurement methods from the two sources are quite different, some interesting broad correlations and deviations can be seen." The national prevalence was the self-reported prevalence in the preliminary report from the South Africa Demographic and Health Survey of 2003 (SADHS 2003).[11] SADHS 2003 was based on a survey of 7,756 households. The prevalence of chronic disease is reported as the percentage of respondents age 15 and above who were told by a doctor nurse or health worker at a clinic or hospital that they have this condition.

Reviewing the full report a year later, Day & Gray found that[10] "apart from the obvious difference in time period, caution should also be exercised in comparing these two sources, as the methods used are very different. The SADHS data are based on self-reported diagnoses and some measurements (blood pressure and peak flow, for example) and the full report indicates substantial quality concerns regarding the measurement of blood pressure." Nevertheless, this is the first comparison of the medical scheme prevalence data to that for South Africa as a whole, using age and gender.

The Burden of Disease Research Unit[f] at the Medical Research Council of South Africa produces valuable reports on the total burden of disease in South Africa. The work includes measuring the burden of disease by mortality, years of life lost (YLLs), years lived with disability (YLDs) and disability adjusted life years (DALYs). The first burden of disease report for South Africa[12] was released in 2003.

[f] Burden of Disease Research Unit: http://www.mrc.ac.za/bod/bod.htm

The authors, lead by Dr Debbie Bradshaw, said: "Although the South African epidemiological database has improved, there remains a paucity of reliable morbidity information. The notification data for tuberculosis, malaria and sexually transmitted diseases are incomplete. The National Cancer Registry provides incidence data on a number of cancers but the limitation here is that submissions are based on the histologically confirmed cases and therefore rates must be interpreted cautiously. Some morbidity data have been collected in surveys such as the 1998 Demographic and Health Survey. These include respiratory diseases, self-reported work-related illness and injury. These fragmented data do not provide the detail required to accurately estimate the YLDs".

In 2006 the Medical Research Council Chronic Diseases of Lifestyle Unit produced a comprehensive technical report "A Perspective on Dealing with Chronic Diseases of Lifestyle in South Africa". Specific chapters on hypertension[13], hyperlipidaemia[14], diabetes mellitus[15] and respiratory diseases[16] provide information on what is known about the epidemiology of each condition in South Africa.

3. Estimate of Future Prevalence of Chronic Disease in South Africa

The difficult technical issue in projecting future levels of chronic disease in South Africa is to what extent the excellent shapes by disease found in the medical schemes data can be applied to the public sector or to groups joining under a phased introduction of NHI.

It is difficult to get good income data in medical schemes to be able to produce curves of disease prevalence by income. However, using data from the first pricing of PMBs in medical schemes[17], an analysis of disease categories for higher and lower socio-economic groups or "clusters" was done. In essence, there was more respiratory and gastro-intestinal disease and obstetric events in the lower cluster and more cardiac-related conditions in the higher cluster, when patterns were considered by age and gender. This work was also partially reported in an appendix of the design of the Risk Equalisation Fund formula[1].

Prof Alan Rothberg, who led the data extraction for the PMB pricing in 2001[17], argued that there were several forces at work in the differences in disease patterns. Age profile differences explain roughly two-thirds of difference in raw cluster prices. Other differences are probably due to a combination of what he called "the four P's":

- variation in **Prevalence** rates of important conditions;
- **Presentation** or manifestation of conditions (the severity by the time the person was seen);
- **Provider** choice (GP vs. specialist and the management or prescribing habits of each); and
- benefits available within the health care **Plan**[g].

After nearly two years of working with disease profiles by age and gender submitted by medical schemes in the REF shadow process[h], the overall sense is that the while there are differences amongst benefit options for each disease in isolation, the overall level of CDL chronic disease is about the same in each option. It is usually the age profile differences which make an option look like it has less disease, but when the shapes by age and gender are compared to the industry average, there are few differences. The cases where there are differences have on investigation turned out to be administration issues in the identification of chronic disease, like the so-called "auto-chronic" processes[i] for identifying disease which have now been prohibited for REF data[3].

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[g] There are often reduced benefits for benefit options designed for lower income groups which has the appearance of making the plan more affordable.

[h] From January 2005, medical schemes submitted data on the REF risk factors to the Council for Medical Schemes. Monthly data was submitted on a quarterly basis. The data contained the aggregate number of beneficiaries in each benefit option by age, gender, numbers with the 25 CDL chronic diseases, numbers with HIV on anti-retroviral medication, numbers with multiple chronic conditions and the number of births.

[i] Using medicine information to determine the diagnosis rather than capturing the diagnosis directly.

A critical issue to consider is that poorer communities may experience a greater burden of disease. A comprehensive technical report on the relationship between poverty and chronic disease has been produced by the Medical Research Council [18-20]. These findings will be taken up again in Policy Brief 5. This issue has also received attention in work relating the need for health funding to deprivation by health district.[21]

Any attempt to use current public sector epidemiological data to calibrate the medical scheme curves has several pitfalls: the public sector has become increasingly strained and under-resourced by nurses, doctors and pharmacists. Shortages of drugs were a problem at the beginning of the period after 1994[j] and have again been a problem in 2009, with provinces running out of budget to pay suppliers. On that basis, any published public sector prevalence figures may be understating the real prevalence of disease.

A further complication is evidence that as the public sector service levels fall, there is increasing ant-selection against medical schemes with more people with severe chronic diseases joining schemes. This may mean that the medical scheme disease prevalence figures are too high. However, the CDL disease curves understate total chronic disease. In section 1 the research was noted that showed that in medical schemes, the CDL conditions accounted for only 77.1% of all chronic conditions. The same research showed that people registered for any CDL condition accounted for 76.8% of people who claimed for any chronic condition. An adjustment of the order of 1/.77 or 130% is thus not unreasonable to estimate total chronic disease. It would not be correct to apply this to the whole age-gender curve and more research is underway to determine how to make the adjustment.

A longer term concern is the extent to which changes in mortality are accompanied by changes in the amount of disease or timing of disease experienced. This issue will be taken up in more detail in Policy Brief 5.

The graph below makes a simple assumption: that the overall level of CDL chronic disease by age and gender, as shown in Figure 1, can be applied to the historic and future population structure of the country as a whole. Some sensitivity in this assumption is shown by producing lines for a 10% increase and a 10% decrease in the prevalence curves by age and gender.

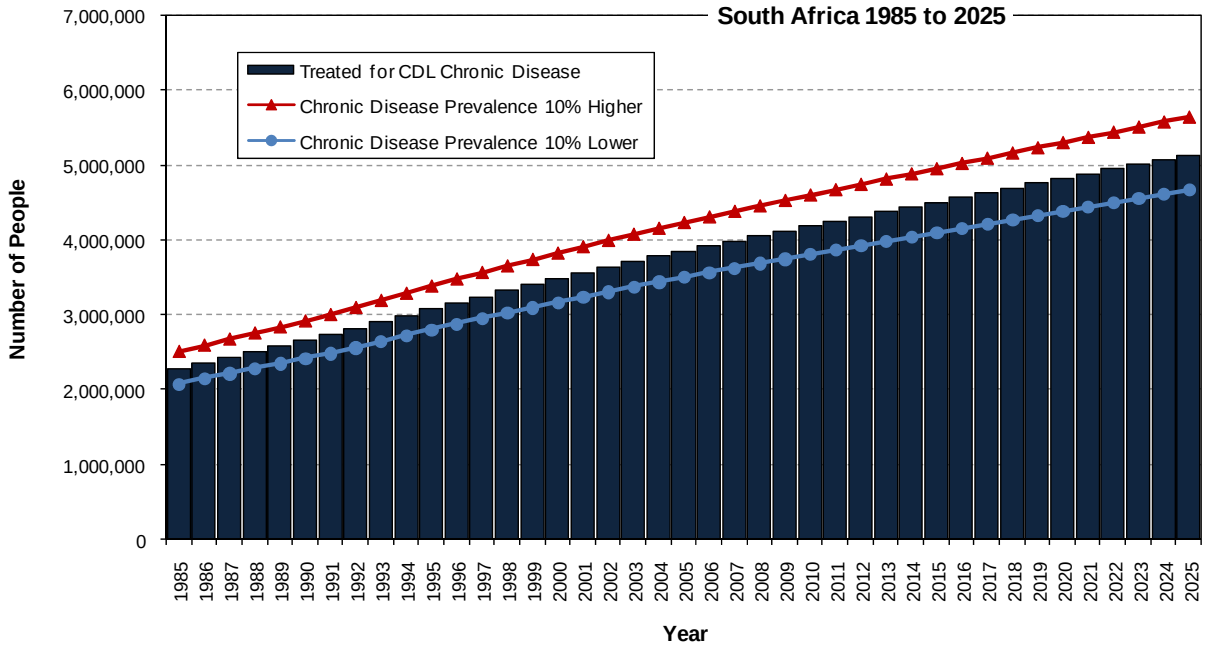

Figure 4: Estimated Numbers with Treated CDL Chronic Disease 1985 to 2025 showing Sensitivity to Prevalence Assumption

[j] There was a rapid expansion of clinics that was not always met with an expansion in staffing or there were initial logistical problems.

The graph above thus illustrates the effect that the aging of the population might have on the burden of chronic disease experienced in South Africa. The aging, combined with population growth since 1985, is significant: the total number with CDL chronic diseases might be:

- 1985: 2.28 million
- 1994: 2.99 million (131% of 1985 figure)
- 2009: 4.12 million (138% of 1994 figure)
- 2025: 5.13 million (172% of 1994 figure).

The implications of more people with chronic disease mean an increase in visits to clinics and GPs, an increase in the use of chronic medicine, an increase in the use of specialists and an increase in hospital events. Note that this analysis does not yet include the substantial additional burden from HIV which is dealt with in Policy Brief 4. The table below summarises the numbers expected in an NHI system for each of the CDL diseases, if the public sector prevalence is identical to that in medical schemes.

Table 1: Estimate of People Needing Treatment for Chronic Disease under National Health Insurance in South Africa

People Needing Treatment for Disease		Calendar Year						
REF code	**Disease**	**1994**	**2000**	**2005**	**2009**	**2015**	**2020**	**2025**
ADS	Addison's Disease	1,612	1,870	2,049	2,173	2,378	2,543	2,712
AST	Asthma	624,993	694,005	734,875	757,859	784,608	802,272	816,733
BCE	Bronchiectasis	1,946	2,185	2,362	2,491	2,685	2,816	2,941
BMD	Bipolar Mood Disorder	17,648	20,753	22,705	23,819	25,215	26,264	27,097
CMY	Cardiomyopathy	133,323	161,799	182,606	198,566	224,171	247,582	273,046
COP	Chronic Obs. Pulmonary Disea	72,565	83,704	92,776	100,323	112,414	123,598	135,196
CRF	Chronic Renal Disease	6,971	8,139	9,013	9,621	10,518	11,232	11,894
CSD	Crohn's Disease	5,276	6,188	6,789	7,198	7,754	8,171	8,516
DBI	Diabetes Insipidus	492	561	603	628	654	669	678
DM1	Diabetes Mellitus 1	78,689	91,129	99,345	104,456	111,268	116,612	121,489
DM2	Diabetes Mellitus 2	310,861	365,116	408,500	439,719	484,514	522,174	559,928
DYS	Dysrhythmias	35,437	41,561	46,494	50,610	57,173	63,187	69,689
EPL	Epilepsy	121,925	139,608	150,792	157,389	165,914	172,379	178,213
GLC	Glaucoma	49,142	58,529	65,774	71,683	81,170	89,932	99,286
HAE	Haemophilia	623	692	736	752	764	768	774
HYL	Hyperlipidaemia	615,850	714,785	798,635	864,608	965,408	1,052,327	1,137,312
HYP	Hypertension	1,388,731	1,638,462	1,842,501	1,996,843	2,223,052	2,410,396	2,593,482
IBD	Ulcerative Colitis	8,577	10,058	11,080	11,794	12,751	13,483	14,167
IHD	Coronary Artery Disease	160,955	188,525	211,021	229,341	258,067	284,262	311,976
MSS	Multiple Sclerosis	3,778	4,486	4,926	5,173	5,467	5,664	5,821
PAR	Parkinson's Disease	15,534	18,693	21,057	22,963	26,196	29,231	32,787
RHA	Rheumatoid Arthritis	62,963	74,375	83,554	90,228	99,592	107,090	114,015
SCZ	Schizophrenia	8,863	10,495	11,600	12,273	13,174	13,895	14,534
SLE	Systemic Lupus Erythematosu	5,145	6,103	6,753	7,140	7,582	7,880	8,146
TDH	Hypothyroidism	283,965	336,336	379,349	413,268	462,897	502,178	537,987
CC2	Two simultaneous conditions	663,945	777,774	872,288	946,116	1,057,414	1,152,591	1,247,208
CC3	Three simultaneous conditions	151,224	176,103	197,502	214,950	242,077	265,992	289,560
CC4	Four or more simultaneous co	20,425	23,695	26,585	29,041	32,960	36,469	39,901
Sum of all CDL Diseases (including multi		4,015,863	4,678,156	5,195,894	5,580,920	6,145,386	6,616,605	7,078,417
Number of People with CDL Diseases		**2,987,745**	**3,476,626**	**3,848,285**	**4,117,082**	**4,503,996**	**4,821,470**	**5,131,046**
Number of People with Multiple Diseas		**835,594**	**977,571**	**1,096,375**	**1,190,107**	**1,332,451**	**1,455,052**	**1,576,670**
Proportion of People with CDL Diseases		9.7%	10.1%	10.6%	11.0%	11.7%	12.4%	13.0%
Proportion of People with Multiple Diseas		2.7%	2.8%	3.0%	3.2%	3.5%	3.7%	4.0%

In preparing estimates at provincial level, a further complication arises. It is known that certain diseases are more prevalent in certain population groups, for example, diabetes mellitus is much more prevalent in the Indian community which should mean that KwaZulu-Natal has higher diabetes prevalence by age and gender than other provinces. This is offset though by very low diabetes prevalence amongst rural African Black lives. Much work still needs to be done to attempt to integrate the findings of the MRC report[13-16] with the private sector data for those diseases where there is some differentiation by age and gender or population group in the survey data.

4. The Burden of Disease on the Health System

In a paper entitled "Conceptual Framework for Chronic Diseases of Lifestyle in South Africa.", Steyn argues[22] that "The quadruple burden of diseases in South Africa has serious consequences for the prevention and cost-effective management of chronic diseases and the unhealthy lifestyles and risk factors that precede them. The disease patterns in this region are characterised by a combination of poverty-related diseases together with the emerging chronic diseases associated with urbanisation, industrialisation and a westernised lifestyle. This double burden of diseases is exacerbated by high injury rates associated with the social instability of violence or high crime rates, and by the exploding epidemic of HIV/AIDS across the African continent. This multiple burden represents a demand on the health services of South Africa far beyond those experienced in developed countries and what the limited resources can accommodate."

"Because little recognition is given to the magnitude of the burden of chronic diseases of lifestyle (CDoL[k]) in South Africa, and prevention of unhealthy lifestyles, early diagnosis and cost-effective management of CDoL risk factors are low on the list of priorities in relation to the other competing groups of diseases." "The consequences for health care are inadequate preventive measures and care for CDoL. Therefore, it has become critical that South Africa utilise its limited resources optimally and implement cost-effective health-promotion interventions to prevent the predicted epidemic of CDoL in the face of all the other health needs in this region"

Units attached to the Medical Research Council of South Africa that focus specifically on chronic disease issues are:

- Burden of Disease Research Unit: http://www.mrc.ac.za/bod/bod.htm
- Chronic Diseases of Lifestyle Research Unit: http://www.mrc.ac.za/chronic/chronic.htm
- Interuniversity Cape Heart Research Group: http://www.mrc.ac.za/capeheart/capeheart.htm
- National Collaborative Research Programme (NCRP) for Cardiovascular and Metabolic Diseases: http://www.mrc.ac.za/cvdmd/index.htm

An interesting public sector initiative to understand and reduce the burden of disease was commissioned in the Western Cape[l]. In his foreword to the project, Professor Craig Household, the Head of the Western Cape Department of Health, said[23]: "The Western Cape Province currently experiences a multiple burden of disease including infectious diseases (such as tuberculosis and AIDS, injuries from interpersonal violence and motor vehicle accidents), and chronic disease (such as diabetes, heart disease, and cancer). Mental-health disorders provide a further, unseen burden of disease, which are not generally reflected in mortality data but result in a major load on health facilities, especially with the burgeoning abuse of substances and in particular with regard to alcohol and "tik" in the Western Cape."

[k] CDL in the original paper but termed CDoL here to differentiate to the Chronic Disease List (CDL) in Prescribed Minimum Benefits (PMBs).

[l] The set of reports, in seven volumes, is available from http://www.capegateway.gov.za/eng/pubs/reports_research/W/157844

"Understanding the burden of disease is fundamental to the planning and decision-making processes in health departments. Rather than being reactive to the pressures placed upon the health system, information is actively sought that will enable Government to act in a manner that begins to address - and indeed reduce - the burden of disease. The challenge remains as to whether, by intervening "upstream", it is possible to reduce the burden of disease and significantly influence the disease profile in the province for the better. Seen from a health-sector perspective, if such actions are successful, it will enable resources to be directed to address diseases that currently cannot be managed because of resource constraints." "This first report from the Burden of Disease study ... also indicates a commitment on the part of the Department of Health both to institutionalise the measurement and monitoring of the burden of disease ...".

5. Multiple Chronic Disease and Disease Management Programmes

It is not only the numbers with chronic disease that are important, but the complexity and severity of disease that can be expected. Figure 1 showed the strong shape by age of the rate of multiple chronic disease. The data from the REF Study 2005[3] enables a detailed picture of the patterns of multiple disease to be extracted. The graphs below include all 25 CDL disease combinations but exclude anyone with HIV (as this is the subject of a separate policy brief).

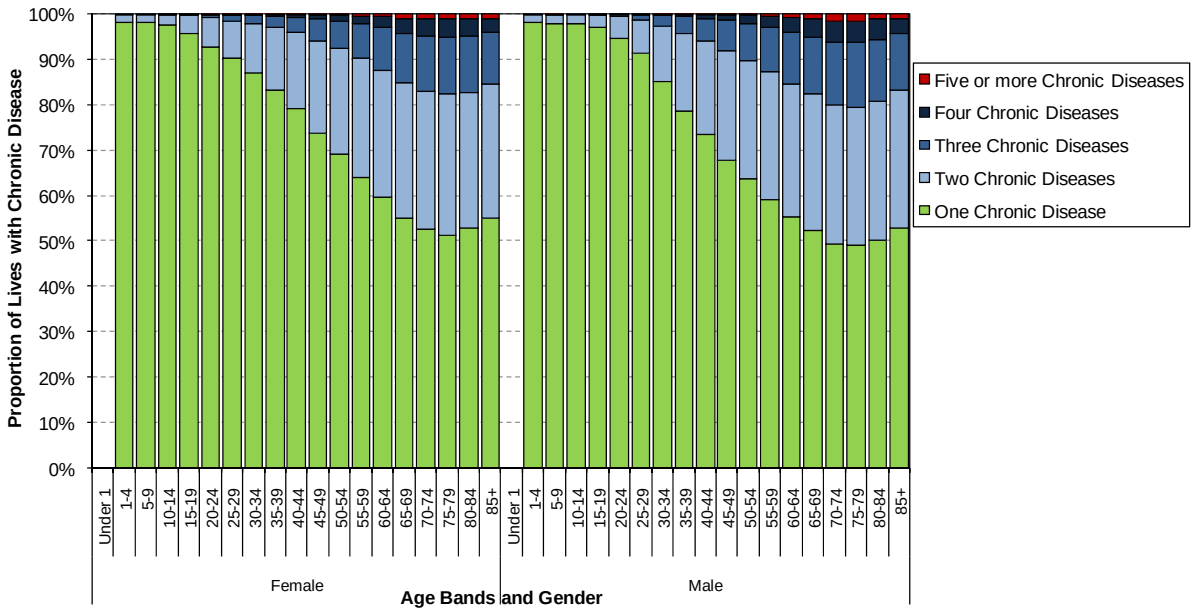

Figure 5: Proportion of Multiple CDL Diseases by Age and Gender in Medical Schemes

The graph above shows that at older ages, nearly half the beneficiaries on medical schemes with chronic disease have more than one chronic disease. While the graph shows that there are very few lives with five or more simultaneous CDL diseases, the data showed people being diagnosed for up to eleven simultaneous conditions and treated for up to nine simultaneous conditions. The most common combinations of conditions in the REF Study 2005[3] are shown in Figure 6 below.

There is a very distinctive pattern by age and gender of the chronic conditions and combinations shown in Figure 6. When combined with the medical scheme population expected in 2009, the most common chronic disease for those under age 20 is asthma. While the rate of chronic disease rises very strongly with age, as shown in Figure 1, there are fewer people at older ages in medical schemes and thus the greatest number of people with chronic disease are in the age group 50-64 for both females and males, as shown in Figure 7.

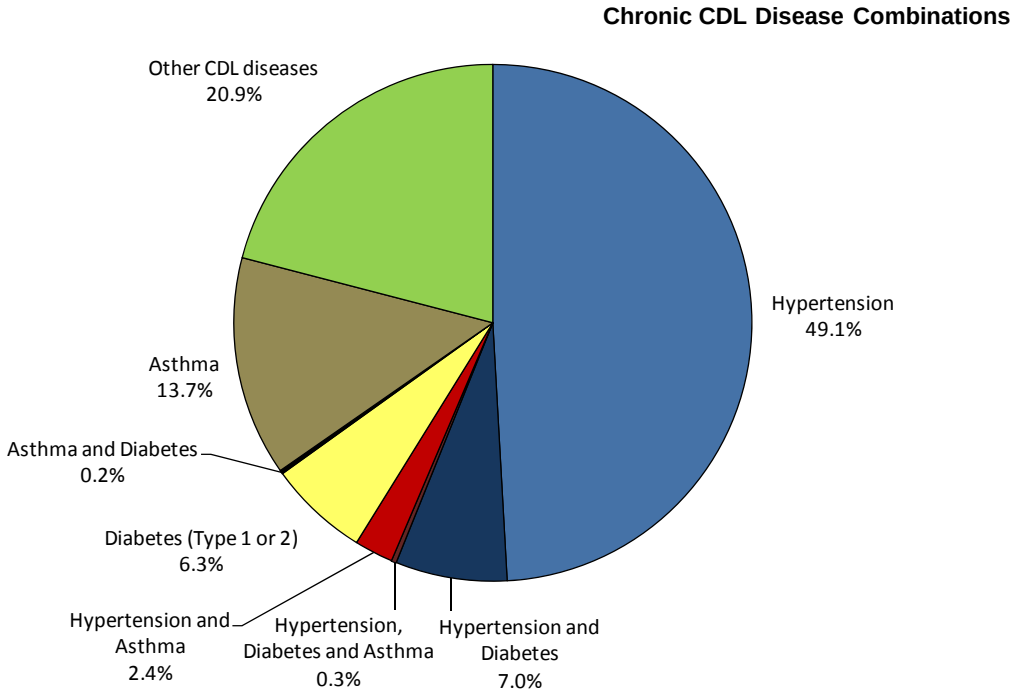

Figure 6: Most Common Combinations of Chronic Conditions in Medical Schemes

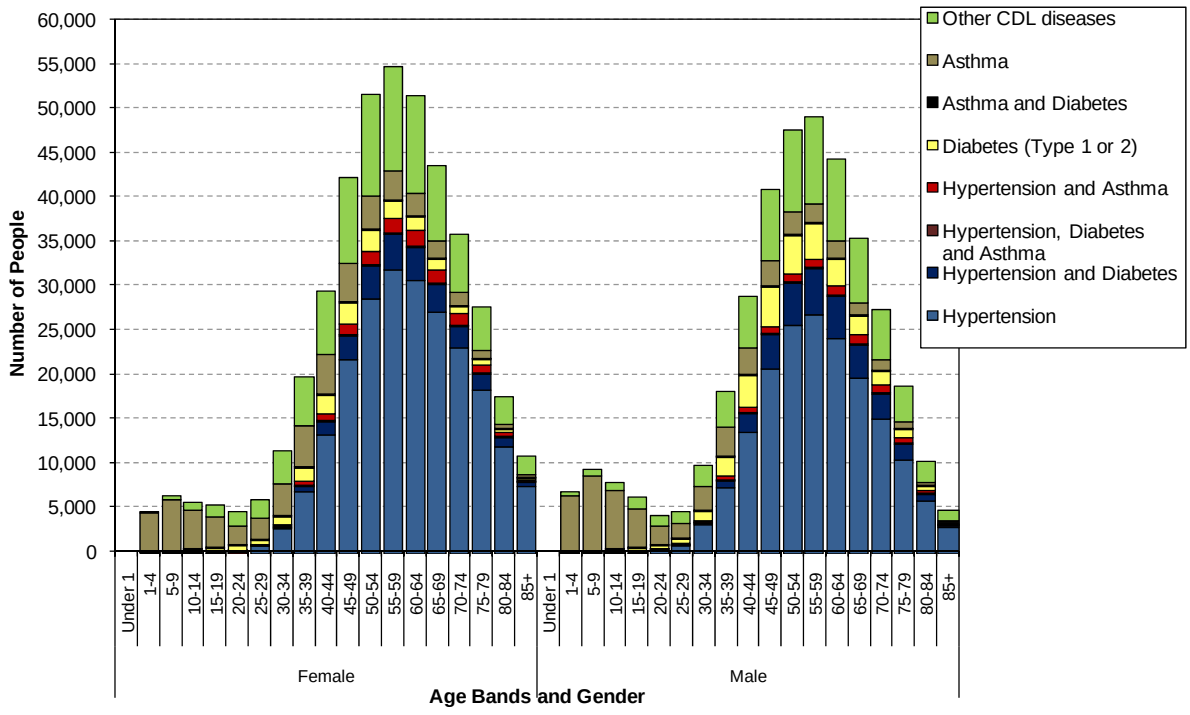

Figure 7: Numbers Expected with Combinations of Multiple Chronic Conditions in Medical Schemes in 2009

Many medical schemes in South Africa introduced disease management programmes during the 1990s. These have been described[24] as programmes that "involve active management by the scheme administrators of the prevention, diagnosis and treatment of specific conditions such as asthma, diabetes or pregnancy. Such programmes represent one of the more comprehensive mechanisms for managing costs. Typically they allow better collection of data on the beneficiary's medical condition, and dissemination of best practice information to providers caring for the patient. They also provide the basis for interventions directed by the administrators (such as preventive action)".

The Old Mutual Healthcare Surveys used to report on the extent to which various managed care practices were used by medical schemes. The last report to do so, that in 2003[25], showed that 59% of medical schemes had disease management programmes in place, up from 38% in 1999[26]. Questions about pharmacy management programmes[m] were no longer asked after 2001 as these were found in nearly all schemes.

The first chronic disease management programmes tended to be for asthma and diabetes, as these were tractable to intervention. Cardiac conditions, including hypertension, were more prevalent but programmes were less frequently seen. However these single disease programmes proved to be problematic for people with multiple diseases and the evidence above shows some of the complexity of the combinations. Some leading administrators and managed care companies have moved to programmes dealing with high-cost individuals who typically have multiple chronic conditions. The focus has rightfully become the person rather than the sum of the diseases.

6. Conclusions and Implications for National Health Insurance

There is excellent data on the prevalence of the Chronic Disease List chronic diseases and the combinations of multiple diseases in medical schemes. The CDL covers the majority of people with chronic conditions but would underestimate the total burden of chronic disease in medical schemes. There is some data on the prevalence of chronic disease in the public sector by broad age bands and gender but much work still needs to be done to calibrate the medical scheme data for the country as a whole.

Despite some reservations, a first estimate of the burden of chronic disease (excluding HIV) for the country as a whole can be made. This shows that a National Health Insurance system would be facing a growing burden of chronic disease, simply due to the growth in the population and the aging of that population (as explored in Policy Brief 1).

This concern is echoed in a paper on "Population Ageing and Health Challenges in South Africa" from the Medical Research Council[27]. The authors said: "Demographic change in South Africa has produced a rapidly ageing population that is expected to continue ageing at a rapid rate for at least the short- to medium-term future. The projection figures illustrate that we have entered an era with steep increases in the number of older persons and much slower growth in the cohorts younger than 60, resulting in little growth in the total population. This is particularly marked for women who comprise a significantly larger number of the older population."

"Of particular concern is the near doubling of the oldest-old (80 years or older) age group. ... it currently seems that the serious consequences of population ageing are not adequately planned for and responded to by government. ...." "The demographic projections pose clear challenges to the health sector. Not only is there a need to plan for the increase in the numbers in older persons but there is also the need to recognise and plan for an expected increase in chronic morbidity and disability."

[m] Typically including pre-authorisation of chronic medicines and consideration of drug interactions. May include advising on the use of formulary medicines which have been assessed for price and efficacy and which the medical scheme is willing to reimburse in full.

There are several ways a future NHI can tackle this problem other than simply increasing the budget for healthcare. The example of the Western Cape Department of Health was given and their attempts to intervene in the "up-stream" causes of disease. Germany implemented disease management programmes in their national system in 2002 and these have shown significant results in keeping patients healthier and reducing their use of the health system[n]. Other countries to introduce chronic disease management programmes include Singapore, Australia, Japan, Brazil, Argentina, France, Canada, Spain and India.[28]

Interventions in "up-stream" causes for chronic diseases have been developed by medical schemes in South Africa as wellness programmes. There are also programmes for those already diagnosed with a chronic condition, such as disease management programmes and high-cost patient programmes. South African medical schemes and managed care organisations are amongst the leaders worldwide in the growing field of disease management[o].

South Africa will face a growing burden of chronic disease. Disease management and wellness programmes are areas where the private sector can add significant value to a future National Health Insurance system, no matter the details of the funding design.

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Resources on the IMSA Web-site

The following are new resources 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 CDL disease prevalence by age and gender, for "diagnosed cases" and "treated patients" [Excel spreadsheet].
- Graphs of the "diagnosed cases" and "treated patients" for each CDL disease [PowerPoint slides].

[n] See for example: http://content.healthaffairs.org/cgi/content/full/23/3/56 and http://www.commonwealthfund.org/Content/Innovations/Case-Studies/2004/Aug/Caring-for-the-Chronically-Ill--Disease-Management-in-Germany.aspx

[o] See, for example, the International Disease Management Alliance web-site and regular electronic newsletter at: http://www.dmalliance.org/index.php?page=about

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