

# **The analysis of REF shadow returns**

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## Executive summary

The purpose of the REF shadow period is to provide an opportunity for the CMS office and medical schemes to prepare for a system of risk equalisation. During this period, the CMS assesses consolidated monthly REF data submissions and reports on the quality of these submissions as well as the potential financial impact of the REF at a high level.

During 2005, many REF submissions were of very poor quality, while during 2006 there were changes to the entry and verification criteria and the REF weighting tables. The analysis of 2007 submissions indicated an impressive improvement in data quality over the three-year period. This trend was not continued and it appears that there is a reduction in the quality of data submitted during 2008.

Similar to the techniques applied in 2007, the CMS has applied techniques that classify benefit options as “high”, “medium” or “low” risk options to develop scheme-specific expected rates, and has applied these as benchmarks during the evaluation of REF data submissions in 2008.

The report indicates that data was analysed for 99.7% of medical scheme beneficiaries. The proportion of schemes submitting fair data ranged from 71% - 78% during the year, with 18% - 25% of schemes submitting poor data and 2% - 4% of schemes having applied CDL definitions inadequately. Of concern is that there may be a trend developing whereby more schemes are submitting poor quality data, particularly when considering September and December submissions.

However, the report shows that there has been an impressive improvement in the quality of data over the four years of the shadow period:

- The clinical credibility of submissions has improved dramatically and there are only a few submissions with totally unrealistic REF risk factors reported;
- In 2008, the total financial impact of deviations from expected levels has increased to 3% of the total estimated cost of the PMBs (opposed to 0.5% in 2007, 3% in 2006 and 11% in 2005);
- The price by age curves for REF submissions are close to the expected curves, but deviate more from the expected than in 2007;
- The industry community rate remained stable and shows very little month-to-month variation;
- The highest and lowest community rates observed in schemes have come closer together, showing that some of the previous extreme rates were due to data errors.

The CMS will invite schemes that have submitted poor data in 2008 to meet with the REF team to work towards solutions.



# 1 Introduction

## 1.1 The REF shadow period

As part of the Risk Equalisation Fund (REF) shadow period, which started in January 2005, schemes submit consolidated monthly REF returns to the Council for Medical Schemes (CMS) on a quarterly basis. The main purpose of the shadow period is to give schemes and the CMS an opportunity to prepare for a system of risk equalisation and to test the risk equalisation formula. This entails the development of specific skills and development of systems to administrate the REF.

## 1.2 Purpose of the report

The purpose of this report is to assist individual schemes to interpret the scheme-specific results given on the statutory returns portal on the CMS website<sup>1</sup>. Schemes should consider this report to assist in the adjustment of processes and systems to meet the requirements of the REF before submitting future REF returns.

This report contains high-level information with more details provided in the various annexures.

# 2 REF data and methods: 2008 REF submissions

## 2.1 Case definitions and benchmarks

### 2.1.1 Entry and verification criteria

Similar to the situation in 2007, there were no major changes in the REF entry and verification criteria affecting REF submissions during 2008. Version 3<sup>2</sup> was effective from 1 January 2008. Due to adjustments for inflation<sup>3</sup>, the weight ascribed to

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<sup>1</sup> The CMS statutory returns portal is available at:  
<https://www.medicalschemes.com/Returns/login.aspx> Note that a username and password is required to access scheme-specific information

<sup>2</sup> 30 October 2007, "Guidelines for the Identification of Beneficiaries with REF Risk Factors in Accordance with the REF Entry and Verification Criteria Version 3"  
[http://www.medicalschemes.com/publications/ZipPublications/Risk%20Equalisation%20Fund/Entry\\_And\\_Verification\\_Guidelines\\_Version\\_3.pdf](http://www.medicalschemes.com/publications/ZipPublications/Risk%20Equalisation%20Fund/Entry_And_Verification_Guidelines_Version_3.pdf)

<sup>3</sup> 21 April 2008, "Methodology to Determine the REF Weighting table for 2008"



cardiomyopathy (CMY) has become larger than the weight ascribed to bipolar mood disorder (BMD) in the 2008 REF weighting table. (Previously BMD had a larger weight). Version 3 made provision for the revised weighting hierarchy. In addition, this version clarified a number of uncertainties, specifically addressing the differences between the REF entry and verification criteria and the PMB regulations, improved clarity on version control, and introduced 5-digit ICD10 codes. Version 3.1<sup>4</sup> corrected the incorrect ICD10 code for Parkinson's disease, and version 3.2<sup>5</sup> made corrections to ICD10 codes for rheumatoid arthritis, ATC codes are in accordance with WHO 2008 guidelines and the document contains improved definitions for diabetes type 1 and 2.

In consultation with the Risk Equalisation Technical Advisory Panel (RETAP), the office has made a few other less significant technical corrections to the guidelines (see Annexure A, page 22 for details).

### 2.1.2 2008 REF weighting table

The 2008 REF weighting table<sup>6</sup> is based on the 2005 REF study<sup>7</sup>. The method applied to adjust the table for inflation has been described previously<sup>8</sup>.

### 2.1.3 Estimation of expected values (CDL benchmarks)

In the evaluation of scheme submissions, the CMS compares the reported values against benchmarks. Since 2007, the CMS applied a clustering method that grouped

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<http://www.medicalschemes.com/publications/ZipPublications/Risk%20Equalisation%20Fund/Methodology%20to%20Determine%20the%20REFWT%20for%202008.pdf>

<sup>4</sup> 6 December 2007, "Guidelines for the Identification of Beneficiaries with REF Risk Factors in Accordance with the REF Entry and Verification Criteria Version 3.1"

[http://www.medicalschemes.com/publications/ZipPublications/Risk%20Equalisation%20Fund/07\\_12\\_06\\_V3\\_1\\_EV\\_Guidelines.pdf](http://www.medicalschemes.com/publications/ZipPublications/Risk%20Equalisation%20Fund/07_12_06_V3_1_EV_Guidelines.pdf)

<sup>5</sup> 27 March 2008, "Guidelines for the Identification of Beneficiaries with REF Risk Factors in Accordance with the REF Entry and Verification Criteria Version 3.2"

[http://www.medicalschemes.com/publications/ZipPublications/Risk%20Equalisation%20Fund/V3.2\\_of\\_Entry\\_and\\_Verification\\_Guidelines.pdf](http://www.medicalschemes.com/publications/ZipPublications/Risk%20Equalisation%20Fund/V3.2_of_Entry_and_Verification_Guidelines.pdf)

<sup>6</sup> 21 April 2008, "REF Weighting and COUNT Tables 2008"

<http://www.medicalschemes.com/publications/ZipPublications/Risk%20Equalisation%20Fund/REFWT%20and%20COUNT%202008.xls>

<sup>7</sup> 3 May 2006, "Recommendations by the Risk Equalisation Technical Advisory Panel to the Council for Medical Schemes - Proposed Methodology for the Risk Equalisation Fund Contribution Table 2007: RETAP Recommendations Report No. 8 (20 April 2006)"

<http://www.medicalschemes.com/publications/ZipPublications/Risk%20Equalisation%20Fund/REFCT%202007%20Methodology%20March%202006%20vFinal.pdf>

<sup>8</sup> 21 April 2008, "Methodology to Determine the REF Weighting table for 2008"

<http://www.medicalschemes.com/publications/ZipPublications/Risk%20Equalisation%20Fund/Methodology%20to%20Determine%20the%20REFWT%20for%202008.pdf>



scheme options as “low”, “medium”, or “high” risk options (see the 2007 REF report for details on the clustering technique<sup>9</sup>). Based on the clusters, the CMS adjusted the raw rates from the 2005 REF study data, smoothed the expected rate curves and adjusted the rates to the respective “low”, “medium”, and “high” risk demographic profiles to ensure that the total average of these is the same as the raw rates for the total industry. The CMS published the expected rates for the respective clusters in the scheme specific reports on the CMS website<sup>10</sup>.

Based on these expected rates, the CMS calculated DIN<sup>11</sup> scores for each of the risk factors included in the REF submissions. The CMS office applies DIN scores to flag submissions that may represent unrealistic values.

## 2.2 REF data submitted for analysis

Table 1 indicates that by December 2008, 99.7% of the total number of beneficiaries reported in the statutory returns were accounted for in REF submissions.

**Table 1: Percentage of beneficiaries included in 2008 REF returns**

	<i><b>Statutory returns submissions</b></i>	<i><b>REF submissions</b></i>	<i><b>REF Beneficiaries as % SR Beneficiaries</b></i>
Mar 08	7 441 199	7 425 174	99.8%
Jun 08	7 523 213	7 483 560	99.5%
Sep 08	7 770 419	7 730 862	99.5%
Dec 08	7 832 544	7 812 388	99.7%

## 2.3 Categorisation and the assessment of submitted data

Similar to the previous analyses of REF returns, in assigning submissions to categories, the CMS considered the deviation from expected count values, deviations from statutory returns, and the evaluation of clinical credibility. At least two analysts manually evaluated each of the submissions. In instances where the analysts

<sup>9</sup> 8 August 2008, “The analysis of REF shadow returns. 2007”

<http://www.medicalschemes.com/publications/ZipPublications/Risk%20Equalisation%20Fund/REF%20Report%202007%20submissions.pdf>

<sup>10</sup> “Expected count rates by cluster 2008”, available at:

[http://www.medicalschemes.com/publications/ZipPublications/Risk%20Equalisation%20Fund/Expected\\_count\\_rates\\_by\\_cluster\\_2008.xls](http://www.medicalschemes.com/publications/ZipPublications/Risk%20Equalisation%20Fund/Expected_count_rates_by_cluster_2008.xls)

<sup>11</sup> DIN scores refer to scores assigned to REF submissions based on the particular dataset’s Deviation from the Industry Norm.



assigned discordant categories to a scheme, the REF team evaluated the submission.

### 2.3.1 Categorisation

REF submissions were categorised by REF analysts in accordance with the categories listed in Table 2 below. The table groups categories as representative of “fair data”, “CDL definitions applied poorly”, or “poor data”, in accordance with the definitions in Annexure B on page 25.

**Table 2: Categories and groups used in the analysis of REF returns**

<b>Category<sup>12</sup></b>	<b>Short description</b>	<b>Group</b>
<b>3 L</b>	Some concerns, CDLs are reported at very low levels	<b>Fair data</b>
<b>3</b>	Some concerns	
<b>3 H</b>	Some concerns, CDLs are reported at very high levels	
<b>4</b>	Many more beneficiaries in REF returns than in statutory returns	<b>Poor data</b>
<b>5</b>	No REF data or substantially less than in statutory returns	
<b>6</b>	Much lower than expected CDLs	<b>CDL definitions applied poorly</b>
<b>7</b>	Much higher than expected CDLs	
<b>8</b>	Maternity data unlikely	<b>Poor data</b>
<b>9</b>	Combinations of the above or other serious errors in submitted data	

Table 3 shows the percentage of analysed schemes where a specific analyst’s initial categorisation is in agreement with the final categorisation agreed to by the team. A similar analysis of the categorisation of 2007 submissions showed agreement with the final categorisation in less than 70% of cases. The above values represent an improvement in the inter-observer differences and are indicative of much more consistent application of the categorisation definitions.

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<sup>12</sup> Note that categories 1 and 2, which were previously used to identify “good” datasets with minor and no concerns respectively, have been discontinued.



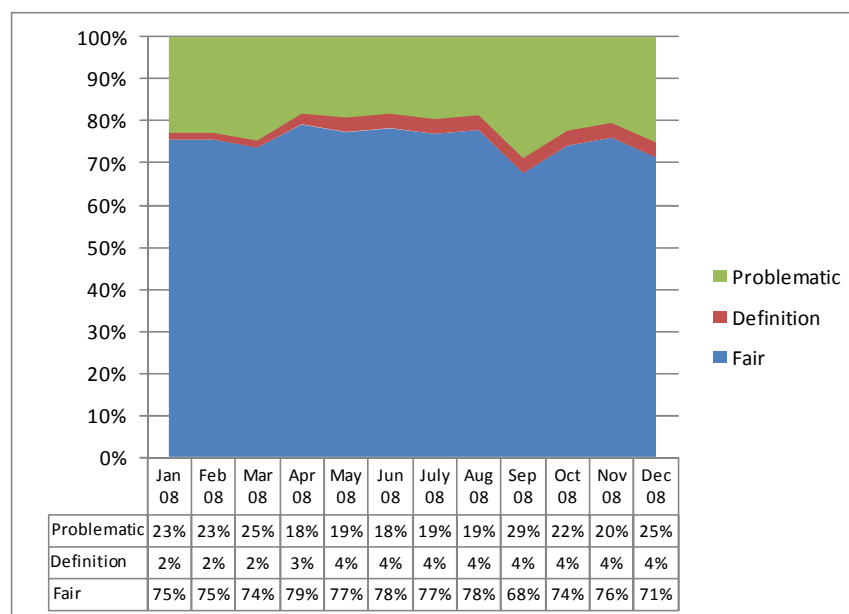


**Table 3: REF analyst performance: Percentage of schemes where an analyst's initial categorisation is the same as the final category agreed to by the REF team**

<i>Analyst</i>	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>	<i>Jul</i>	<i>Aug</i>	<i>Sep</i>	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>
1	93	93	91	98	98	93	96	96	100	94	94	94
2	96	98	98	89	89	93	81	81	81	81	81	81
3	89	89	89	92	92	92						
4	95	97	97	100	92	95	92	92	86	84	86	84
5	93	91	95	98	96	98	78	80	80	85	83	77
6							72	72	60	68	68	60

Figure 1 indicates that the proportion of schemes submitting fair data ranged from 71% - 78% during the year, with 18% - 25% of schemes submitting poor data and 2% - 4% of schemes having applied CDL definitions inadequately. Of concern is that there may be a trend developing whereby more schemes are submitting poor quality data, particularly when considering September and December submissions.

**Figure 1: Data quality groups by month**



The numbers presented in Figure 1 are not directly comparable to numbers reported previously. During the shadow period, there have been various incremental changes in the categorisation definitions with one major change in 2007. Figure 2 gives the details of each category over the four years for which schemes have submitted REF data. Note that with the introduction of scheme-specific expected values based on the clustering of schemes into “high”, “medium”, and “low” risk clusters, that the majority of schemes in category 6 and 7 during 2005 and 2006 were placed in either 3, 3 L or 3 H categories.



**Figure 2: Distribution of categories: 2005 - 2008**

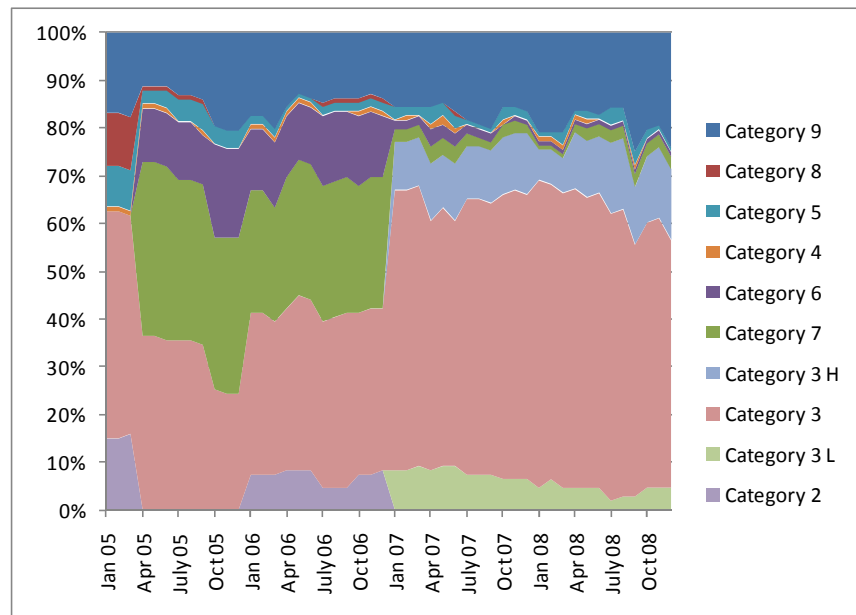
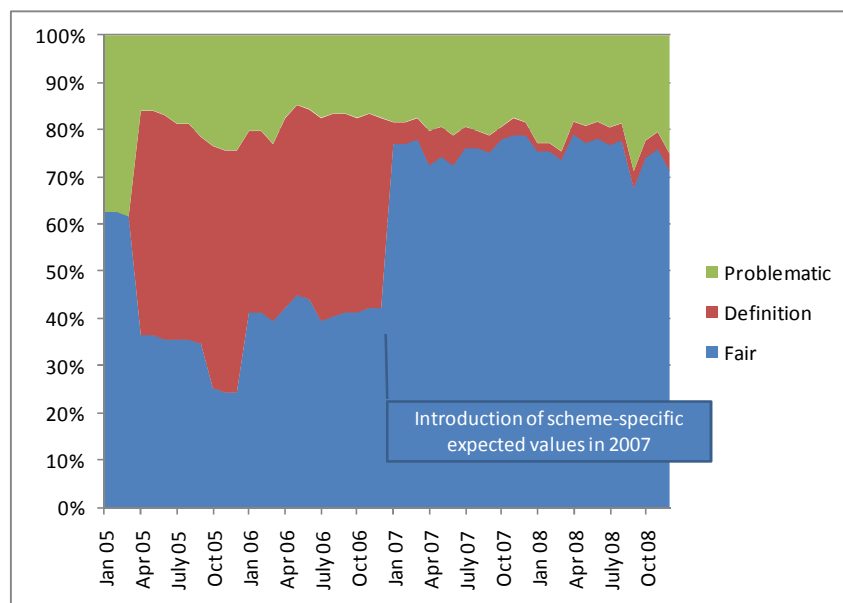


Figure 3 shows that the proportion of schemes with poor data has remained approximately 20% over the four-year period (with the exception of the data received in the first quarter of 2005, when almost 40% of schemes submitted poor quality data). It appears that there might be a slightly larger proportion of poor data submissions during 2008. This is probably the result of a continued refinement of the analytical process. Sections 2.3.3, 2.3.4 and 3 provide information that indicates the improvement in data quality over the four years that schemes have submitted REF returns.

**Figure 3: Distribution of data quality groups: 2005 - 2008**



### 2.3.2 DIN scores

The REF unit calculated DIN<sup>13</sup> scores for each scheme to estimate the quality of data submitted on the REF risk factors. The basis of DIN scores is the deviation from the scheme-specific expected level of REF risk factors (see section 2.1.3) and the statutory returns data for the same period. The DIN scores, therefore, make provision for variations in the expected values among schemes.

Statutory returns data were used to measure the reasonableness of the number of beneficiaries in the “below one” age band, the number of beneficiaries in the “85+” age band, and the total data submitted in the REF grids. The previous REF annual report contains a description of the DIN score methodology<sup>14</sup>.

### 2.3.3 Evaluation of clinical credibility of submissions

Figure 4 below indicates that the actual rate of reported CDL counts was lower than expected in January (96%) and showed a gradual increase of up to 107% of the expected by November 2008. Previous reports on REF submissions<sup>15</sup> noted similar upward trends in the level of CDLs; during 2007 the initial percentage of expected CDL was 96% in January and increased to 105% in December.

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<sup>13</sup> DIN scores refer to scores assigned to REF submissions based on the particular dataset's Deviation from the Industry Norm. A weighted average standard deviation of the mean is calculated.

<sup>14</sup> 8 August 2008, “**The analysis of REF Shadow returns 2007**”, available at: <http://www.medicalschemes.com/publications/ZipPublications/Risk%20Equalisation%20Fund/REF%20Report%202007%20submissions.pdf>

<sup>15</sup> For January 2006 CDLs were reported at 97% of the expected and increased to 117% of the expected by December 2006, from: “**The analysis of REF Shadow returns 2006**”, available at: [http://www.medicalschemes.com/publications/ZipPublications/Risk%20Equalisation%20Fund/REF\\_Shadow-Report\\_2006\\_Main\\_Report.pdf](http://www.medicalschemes.com/publications/ZipPublications/Risk%20Equalisation%20Fund/REF_Shadow-Report_2006_Main_Report.pdf)



**Figure 4: All Schemes: Total CDL count per 1 000 lives (2008)**

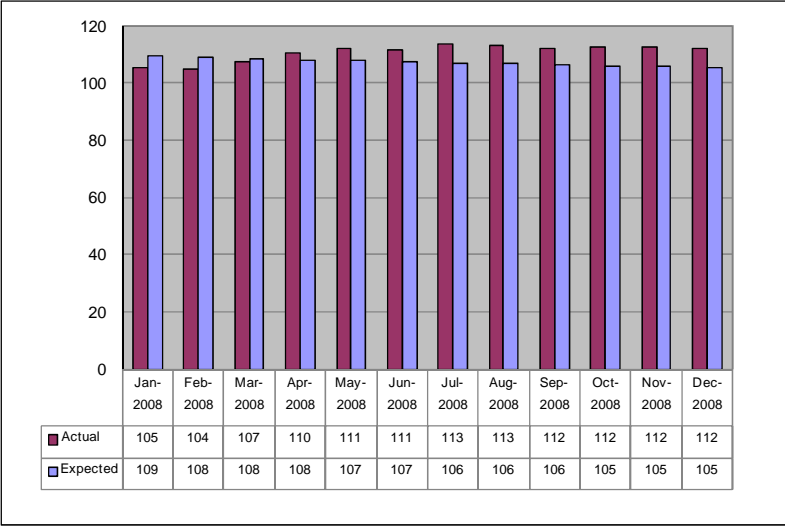
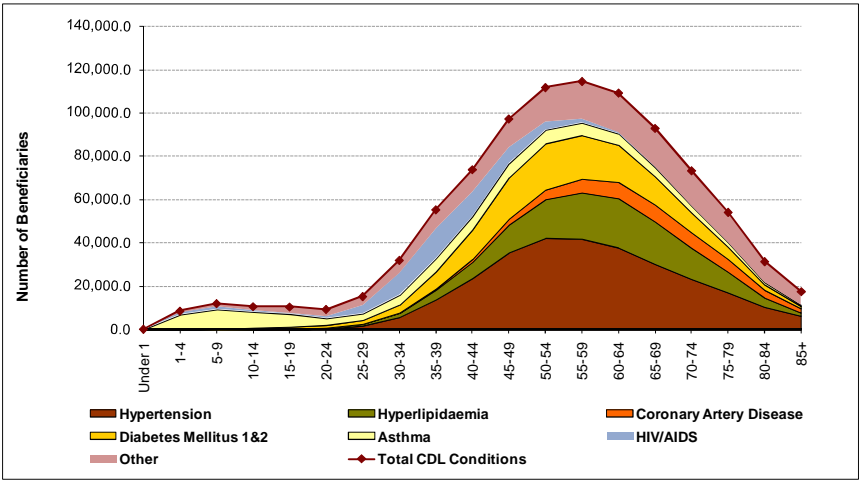


Figure 5 below graphically shows the large burden of cardiac and associated conditions, highlighting that lifestyle diseases are prevalent, while Table 4 below displays the count rates for the 10 most common chronic conditions.

**Figure 5: Distribution of chronic disease (December 2008)**



**Table 4: The 10 most frequently occurring chronic diseases (December 2008)**

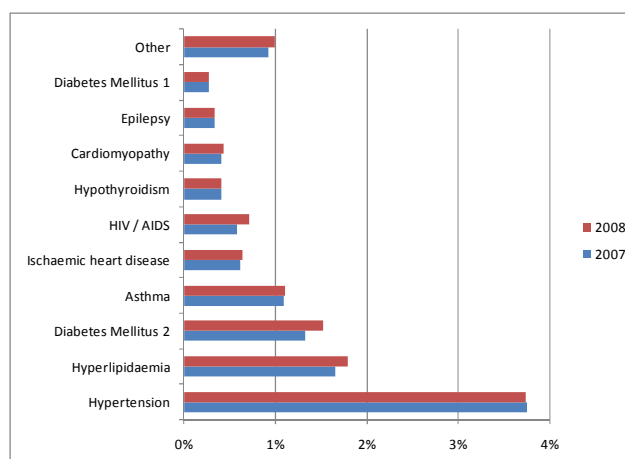
Top 10 CDL conditions 2008				
Order	Name	Number	% of CDL	% of population
1	Hypertension	292 304	31.4%	3.7%
2	Hyperlipidaemia	139 866	15.0%	1.8%
3	Diabetes mellitus 2	118 468	12.7%	1.5%
4	Asthma	86 241	9.3%	1.1%
5	HIV / AIDS	55 774	6.0%	0.7%
6	Ischaemic heart disease	49 670	5.3%	0.6%
7	Cardiomyopathy	33 260	3.6%	0.4%
8	Hypothyroidism	31 677	3.4%	0.4%
9	Epilepsy	26 018	2.8%	0.3%
10	Diabetes mellitus 1	21 456	2.3%	0.3%
Other*		77 191	8.3%	1.0%
Total		931 925	100%	11.9%

\*Other: Addison's, bronchiectasis, congestive heart failure, chronic renal failure, chronic obstructive pulmonary disease, Crohn's disease, diabetes insipidus, dysrhythmias, glaucoma, haemophilia, multiple sclerosis, Parkinson's disease, rheumatoid arthritis, schizophrenia, systemic lupus erythematosus, ulcerative colitis

Table 4 shows the 10 most commonly occurring conditions by December 2008, indicating that 11.9% of the population had chronic diseases. The corresponding percentage in 2007 was 11.3%.

Figure 6 shows the count percentage of the top 10 chronic conditions in 2007 and 2008 respectively. The graph shows that hyperlipidaemia, diabetes mellitus 2 and HIV / AIDS increased markedly. From 2006 to 2007, HIV / AIDS has moved up from position seven to position six. In the following year, this condition moved up from position six to position five. This is probably indicative of the increasing national HIV / AIDS prevalence influenced by the increasing uptake of antiretroviral medication.

**Figure 6: The top 10 CDL conditions in 2007 and 2008**



**Figure 7: Relative weight of the top six REF risk factors (December 2008)**

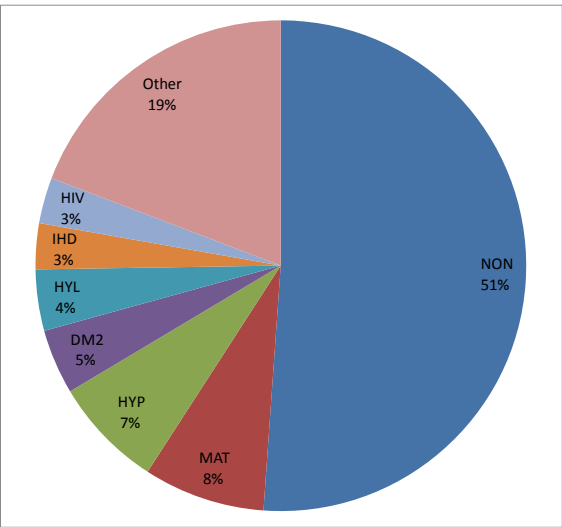


Figure 7 shows that the bulk of REF risk factor costs<sup>16</sup> are included in the “NON” column (51%), indicating the importance of age as a risk factor in REF. Note that “maternity” is responsible for 8% of the REF risk factor costs.

Figure 8 presents the total cost load by REF risk factor groups, indicating the importance of lifestyle diseases, maternity, and multiple chronic diseases<sup>17</sup>. Figure 9 demonstrates the risk factor group costs per beneficiary per month by age.

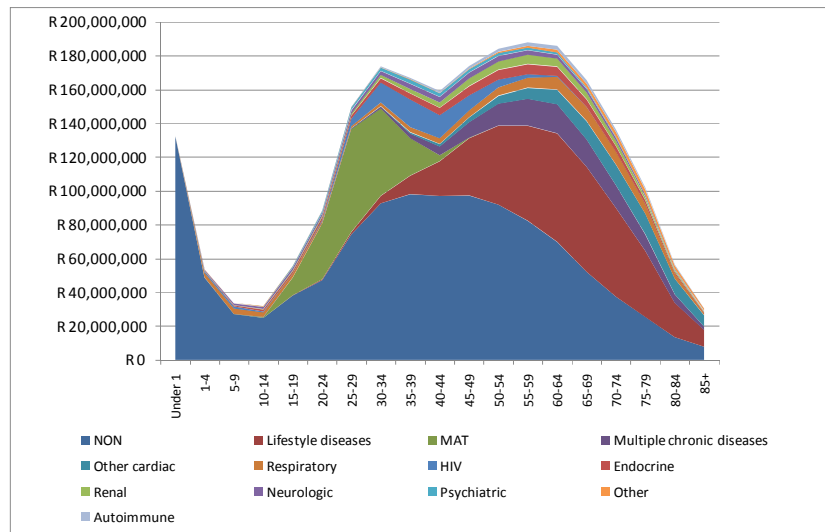
<sup>16</sup> Note that REF risk factor costs are based on the weights published in the REF weighting tables, and that the weight of a specific risk factor (E.g. Hypertension), includes the costs included in the “NON” column. The cost estimates published here are the numbers of actual cases reported in the industry in December 2008, multiplied by the values in the REF weighting table.

<sup>17</sup> For the purposes of the illustration, CDL are grouped together as follows:

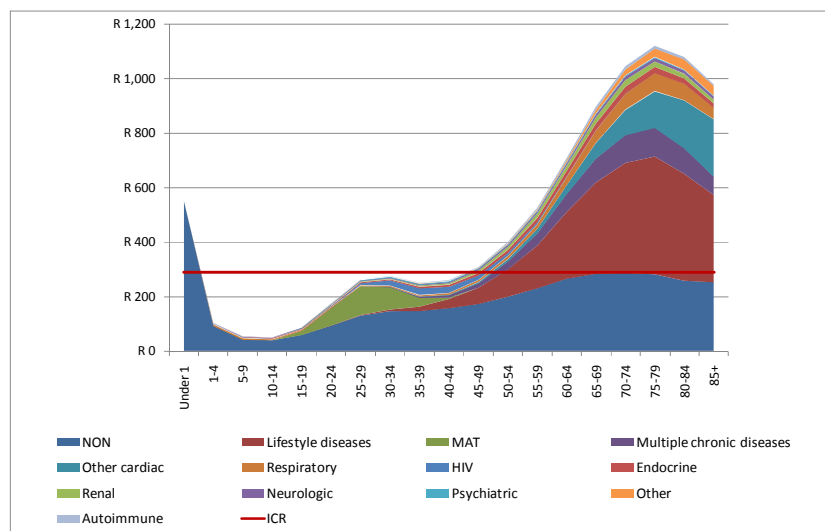
Lifestyle diseases	HYP, IHD, HYL, DM2
Other cardiac	CMY, CHF, DYS
Multiple chronic diseases	CC2, CC3, CC4
Psychiatric	BMD, SCZ
Respiratory	AST, COP, BCE
Endocrine	DM1, TDH, ADS, DBI
Neurologic	EPL, MSS
Autoimmune	RHA, SLE, CSD, IBD
Other	HAE, PAR, GLC



**Figure 8: Total cost load by REF risk factor group (December 2008)**



**Figure 9: Age-specific REF risk factor cost pbpm (December 2008)**



#### 2.3.4 REF risk factors with deviations with significant financial impact

Table 5 lists the expected as well as the estimated REF risk factor costs along with the actually reported count numbers. The table shows the degree of deviation from the expected values. These are highlighted in red or blue in the A / E table below. Schemes have reported asthma and chronic obstructive pulmonary disease (COPD) consistently below expected values at 20% and 40% of the expected respectively. This might reflect the appropriate application of the entry and verification criteria by schemes. Alternatively, the data used in the calculation of expected values in 2005 represents an under-estimation of these rates.



Risk factors that are highlighted in red are reported above expected levels and the trend increases year on year. The numbers might be a true reflection of the industry's risk profile, a true epidemiologic shift, or PMB 'diagnosis creep' by providers. Schemes reported Addison's disease at 243% of expected levels in December 2007, but at close to expected values in December 2008.

Financially relevant conditions are asthma, chronic obstructive pulmonary disease, diabetes mellitus, hyperlipidaemia, and three simultaneous conditions highlighted in red and blue in the column titled 'Diff A-E'. These are defined by deviations larger than 0.5% of the total expected cost of the respective risk factors. Asthma and chronic obstructive pulmonary disease are at lower than expected levels, with diabetes mellitus 2, hyperlipidaemia, and three simultaneous conditions at higher than expected levels.





**Table 5: Expected and actual estimated REF risk factor costs**

<i>Amount from REF by Condition</i>			<i>Dec2008</i>	
	<b>Diff (A-E)*</b>	<b>Expected</b>	<b>Actual</b>	<b>A / E*</b>
No CDL disease	-31 930 909	1 193 087 321	1 161 156 412	97%
Addison's Disease	2 460	110 023	112 483	102%
Asthma	-11 290 581	58 274 568	46 983 987	81%
Bronchiectasis	-48 852	303 910	255 059	84%
Bipolar mood disorder	9 284 920	6 548 406	15 833 327	242%
Cardiac failure	40 178	-	40 178	0%
Cardiomyopathy	-6 934 625	66 010 291	59 075 666	89%
CHF & CMY	-6 894 447	66 010 291	59 115 844	90%
Chronic obs. pulmonary disease	-15 841 772	39 673 990	23 832 218	60%
Chronic renal disease	5 543 138	34 711 972	40 255 110	116%
Crohn's disease	-80 016	2 115 327	2 035 311	96%
Diabetes insipidus	42 596	98 553	141 149	143%
Diabetes mellitus 1	3 975 676	34 232 716	38 208 392	112%
Diabetes mellitus 2	32 041 806	65 467 691	97 509 497	149%
Dysrhythmias	5 536 116	11 259 627	16 795 743	149%
Epilepsy	1 091 391	24 912 260	26 003 651	104%
Glaucoma	729 969	6 801 547	7 531 515	111%
Haemophilia	351 222	1 190 082	1 541 304	130%
Hyperlipidaemia	15 843 034	75 537 475	91 380 509	121%
Hypertension	8 430 650	156 922 376	165 353 026	105%
Ulcerative colitis	10 977	1 456 939	1 467 916	101%
Coronary artery disease	4 811 037	64 083 203	68 894 240	108%
Multiple sclerosis	-1 618 212	9 556 926	7 938 714	83%
Parkinson's disease	1 161 514	6 326 219	7 487 733	118%
Rheumatoid arthritis	-1 295 724	11 611 161	10 315 437	89%
Schizophrenia	744 185	1 808 236	2 552 421	141%
Systemic LE	178 460	2 164 659	2 343 119	108%
Hypothyroidism	-342 891	13 504 785	13 161 894	97%
HIV / AIDS	5 014 893	63 583 908	68 598 801	108%
Two simultaneous conditions	9 697 805	41 871 662	51 569 467	123%
Three simultaneous conditions	18 368 249	25 974 882	44 343 132	171%
Four or more simultaneous conditions	9 104 896	6 978 287	16 083 183	230%
Maternity events	8 634 133	173 207 311	181 841 444	105%
Total CDL conditions	52 366 658	694 682 940	747 049 598	108%
Multiple CDL conditions	37 170 950	74 824 831	111 995 781	150%
<b>Total</b>	<b>71 255 724</b>	<b>2 199 386 312</b>	<b>2 270 642 036</b>	<b>103%</b>

\* "Diff (A-E)" means the difference between actual and reported values while "A / E" means actual divided by expected

#### 2.3.4.1 Asthma and chronic obstructive pulmonary disease

The reported respiratory conditions, notably asthma and chronic obstructive pulmonary disease, have persistently lower count rates than expected across



submissions throughout the REF shadow period. The levels range 50% - 95% of expected levels in most schemes.

#### *2.3.4.2 Diabetes mellitus 2*

Overall, the reported DM2 count rate across the scheme population is 49% above expected levels. Metropolitan Health Corporate (Pty) Ltd and Discovery Health administered schemes reported levels twice the expected levels. The financial impact would be substantial as the cost of DM2 is above 0.5% of the total PMB cost. The prevalence of DM2 needs to be closely studied and monitored in future to inform policy and benefit design direction.

#### *2.3.4.3 Bipolar mood disorder*

Levels of BMD are reported at rates two to four times higher than expected across most schemes. This trend has been steadily increasing year-on-year and may be the result of up-coding by the treating providers, or by a true increase in this condition.

#### *2.3.4.4 Three simultaneous conditions*

Schemes reported this indicator at levels 71% higher than expected with Metropolitan Health Corporate (Pty) Ltd administered schemes reporting the highest levels.

#### *2.3.4.5 Multiple CDLs*

Multiple disease counts represent one of the biggest financial risks to the schemes as they represent the cost associated with managing multiple chronic conditions. The Metropolitan Health Corporate (Pty) Ltd administered schemes reported the highest at 174% of expected levels, closely followed by Momentum Medical Scheme Administrators (Pty) Ltd administered schemes at 165%.

#### *2.3.4.6 Total CDL conditions*

The combined effect of these deviations results in a financial impact that translates to 3% above the expected levels compared to 0.5% above the expected levels in the previous year.



### **2.3.5 Evaluation of REF submissions by administrator**

#### *2.3.5.1 Categorisation by administrator*

Table 6 shows the number of schemes by administrator and category in December 2008. Twenty-six schemes (24%) were classified as category 9 schemes. Of the category 9 schemes, eight are self-administered. Old Mutual Healthcare (Pty) Ltd administered four; Full Circle Health (Pty) Ltd and Allcare Administrators (Pty) Ltd administered three each and Sechaba Medical Solutions (Pty) Ltd administered two. Each of the following administrators administered one category 9 scheme: Discovery Health (Pty) Ltd, Eternity Private Health Fund Administrators (Pty) Ltd, Resolution Administrators (Pty) Ltd, Rowan Angel (Pty) Ltd, Status Medical Aid Administrators (Pty) Ltd, and Thebe Ya Bophelo Healthcare Administrators (Pty) Ltd.



**Table 6: Scheme categories by administrator (December 2008)**

<i>Administrator</i>	<i>Category</i>							<b>Total</b>
Frequency Row Pct	<b>3L</b>	<b>3</b>	<b>3H</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>9</b>	
<b>ALLCARE ADMINISTRATORS (PTY) LTD</b>	0 0.00	2 40.00	0 0.00	0 0.00	0 0.00	0 0.00	3 60.00	5
<b>DISCOVERY HEALTH (PTY) LTD</b>	0 0.00	9 81.82	1 9.09	0 0.00	0 0.00	0 0.00	1 9.09	11
<b>ETERNITY PRIVATE HEALTH FUND ADMINISTRATORS (PTY) LTD</b>	0 0.00	0 0.00	1 50.00	0 0.00	0 0.00	0 0.00	1 50.00	2
<b>FULL CIRCLE HEALTH (PTY) LTD</b>	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	3 100.00	3
<b>MEDSCHEME HOLDINGS (PTY) LTD</b>	1 5.56	15 83.33	2 11.11	0 0.00	0 0.00	0 0.00	0 0.00	18
<b>METROPOLITAN HEALTH CORPORATE (PTY) LTD</b>	0 0.00	11 68.75	4 25.00	0 0.00	0 0.00	1 6.25	0 0.00	16
<b>MOMENTUM MEDICAL SCHEME ADMINISTRATORS (PTY) LTD</b>	1 10.00	6 60.00	3 30.00	0 0.00	0 0.00	0 0.00	0 0.00	10
<b>MULTIMED HEALTHCARE ADMINISTRATORS (PTY) LTD</b>	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 100.00	0 0.00	1
<b>OLD MUTUAL HEALTHCARE (PTY) LTD</b>	0 0.00	2 25.00	1 12.50	1 12.50	0 0.00	0 0.00	4 50.00	8
<b>PPS MEDICAL SCHEME ADMINISTRATORS (PTY) LTD</b>	0 0.00	1 100.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1
<b>PRIVATE HEALTH ADMINISTRATORS</b>	0 0.00	1 100.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1
<b>PROVIDENCE HEALTHCARE RISK MANAGERS (PTY) LTD</b>	0 0.00	2 40.00	3 60.00	0 0.00	0 0.00	0 0.00	0 0.00	5
<b>ROWAN ANGEL (PTY) LTD</b>	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 100.00	1
<b>RESOLUTION ADMINISTRATORS (PTY) LTD</b>	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 100.00	1
<b>SECHABA MEDICAL SOLUTIONS (PTY) LTD</b>	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	2 100.00	2
<b>SELF-ADMINISTERED</b>	0 0.00	6 40.00	1 6.67	0 0.00	0 0.00	0 0.00	8 53.33	15
<b>SIGMA HEALTH FUND MANAGERS (PTY) LTD</b>	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 100.00	0 0.00	1
<b>STATUS MEDICAL AID ADMINISTRATORS (PTY) LTD</b>	2 40.00	1 20.00	0 0.00	0 0.00	1 20.00	0 0.00	1 20.00	5
<b>THEBE YA BOPHELO HEALTHCARE ADMINISTRATORS (PTY) LTD</b>	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1 100.00	1
<b>V MEDICAL AID ADMINISTRATORS (PTY) LTD</b>	1 100.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	0 0.00	1
<b>Total</b>	<b>5</b>	<b>56</b>	<b>16</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>26</b>	<b>108</b>

### 2.3.6 REF price by age and community rate analyses

The REF price by age curve demonstrates the combined risk of each of the reported REF risk factors on schemes in comparison to the expected risk attributable to the REF risk factors.

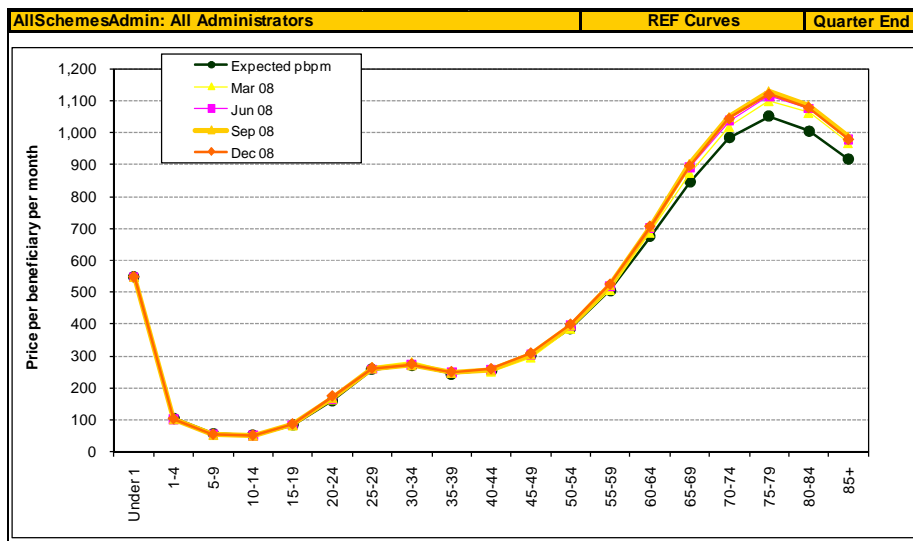
Figure 10 demonstrates that the price by age curves of the submitted REF returns closely follow the expected price by age curve for most age bands. In age bands above 65, the reported levels are higher than expected, and this trend is consistent



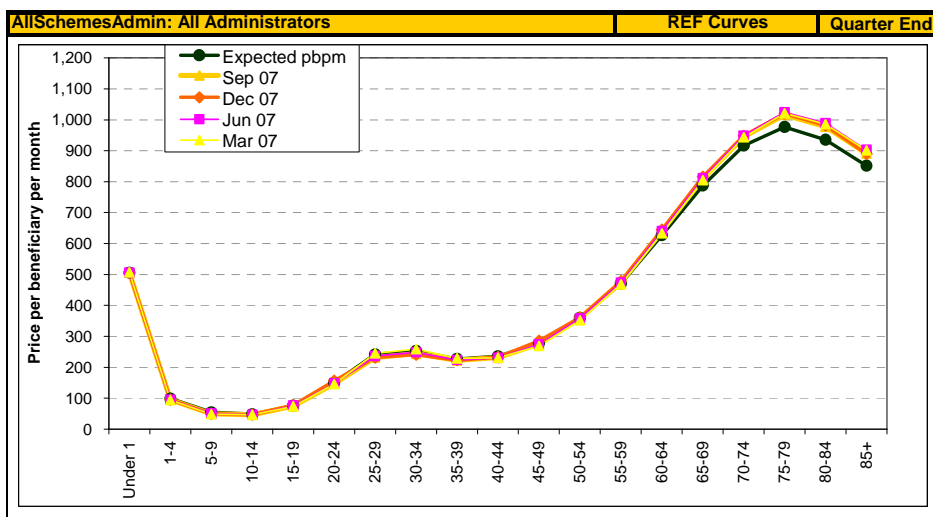
over the four quarters of 2008. The minor variations observed in 2007 in the 20 - 39 year age range, due to fluctuations in the reporting of maternity, are not apparent in 2008.

The remarkable improvement in the price by age curves for submitted data in 2007 compared to 2006 and 2005 was not noticeable when comparing 2007 with 2008 submissions (see Figure 10 - Figure 13).

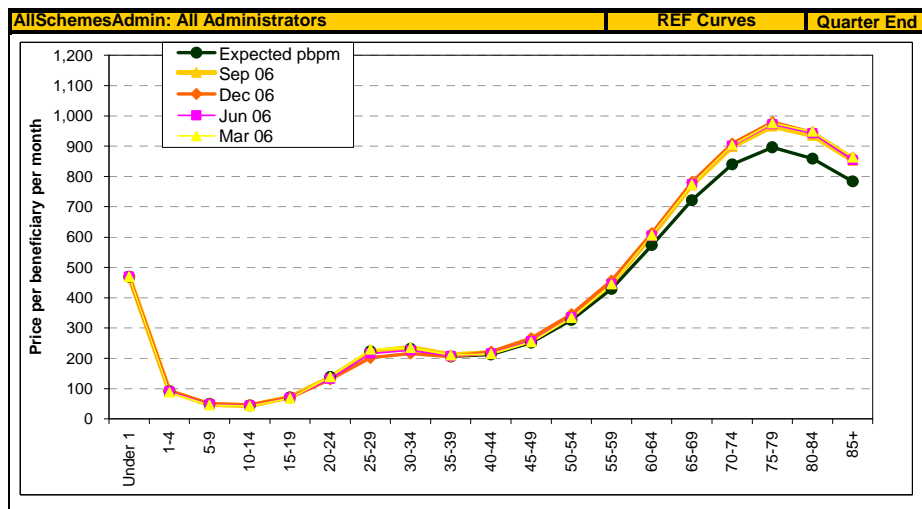
**Figure 10: Price by age: All administrators (2008)**



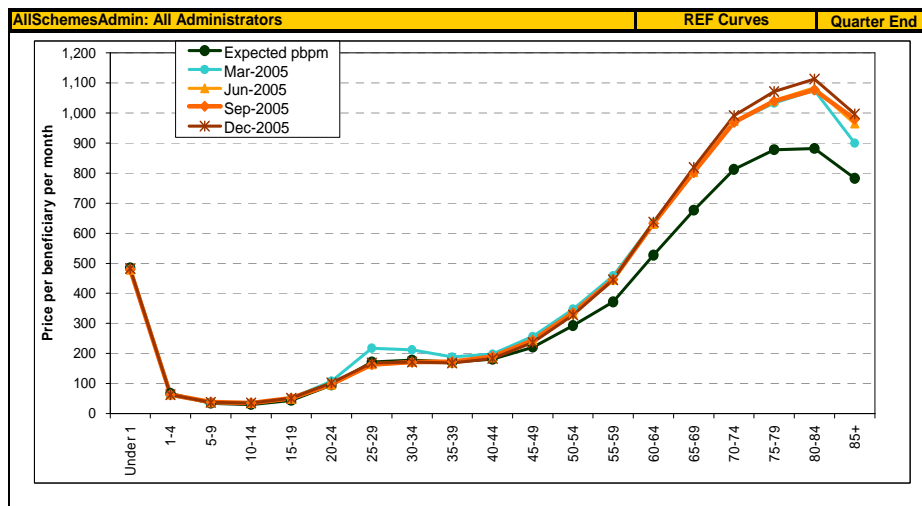
**Figure 11: Price by age: All administrators (2007)**



**Figure 12: Price by age: All administrators (2006)**



**Figure 13: Price by age: All administrators (2005)**



Price by age graphs and community rate analyses for the major administrators appear in Annexure E on page 65.

### 3 The potential financial impact on schemes

In spite of a clear improvement of the quality of data submitted over the past three years, approximately 20% of schemes are categorised as category 9 schemes. Even though the sensitivity analysis presented in Annexure C (section 4.3, page 44) indicates a small difference in the community rates of schemes with fair data and schemes with poor data, the exact financial impact of the REF on medical schemes will be known only when data quality has improved further.



The financial impact of REF on a particular scheme is dependent on the difference between the scheme's community rate and the industry community rate. This implies that even if a scheme did submit good data, but the rest of the industry submitted poor data, the scheme risk estimate will be incorrect.

Figure 14 demonstrates that in December 2008, about 200 000 beneficiaries would pay more than R75 pbpm to REF; while about 840 000 beneficiaries would receive more than R75 pbpm.

**Figure 14: Number of beneficiaries by payment band (December 2008): Alternative payment intervals**

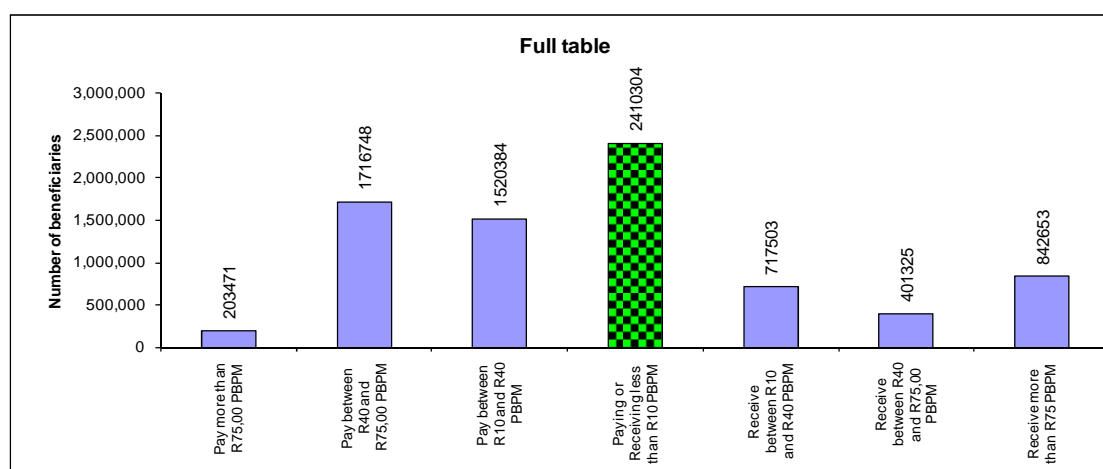


Table 7 presents the data supporting the graph in Figure 14.

**Table 7: Frequency distribution of the number of schemes by payment intervals**

<i>Scheme risk (December 2008)</i>	<i>Number of schemes</i>	<i>Percent (%)</i>	<i>Cumulative number of schemes</i>	<i>Cumulative percent (%)</i>
Pay more than R75 pbpm	8	7.41	8	7.41
Pay between R40 and R75 pbpm	14	12.96	22	20.37
Pay between R10 and R40 pbpm	19	17.59	41	37.96
Paying or receiving less than R10 pbpm	14	12.96	55	50.93
Receive between R10 and R40 pbpm	16	14.81	71	65.74
Receive between R40 and R75 pbpm	13	12.04	84	77.78
Receive more than R75 pbpm	24	22.22	108	100.00

Table 8 demonstrates a reduction in the standard deviation of the scheme's risk (the net amount payable to or from the REF) in the third and fourth quarters, because of amalgamation of outlier schemes.



**Table 8: Risk rates by month**

<b>Statistic</b>	<b>Full Contribution Table (Amount in rand)</b>			
	<b>March 2008</b>	<b>June 2008</b>	<b>September 2008</b>	<b>December 2008</b>
<b>Industry community rate</b>	283.81	286.72	289.41	290.66
<b>Minimum risk rate</b>	-907.82	-907.71	-237.61	-245.10
<b>Maximum risk rate</b>	111.86	113.00	117.68	109.15
<b>Standard deviation</b>	117.92	119.44	76.50	72.58

## 4 Conclusions

The report on the 2007 REF submissions reported a significant improvement in the quality of data submitted during 2007, above 2006 and 2005. This trend did not continue into 2008, and by the end of 2008, 24% of schemes submitted inadequate data.

### 4.1 Clinical credibility of submissions

Many of the serious problems with clinical data stated in previous reports have been resolved for most schemes. Only a small number of schemes continued to submit data sets that were not clinically credible. The combined effect of the differences in 2008 amounts to R71M or 3% of the total expected PMB cost. In the past three years (2005, 2006, 2007) the gap between the expected and actual reported levels has been declining steadily, at 10.7%, 2.9% and 0.5% respectively. This is largely attributed to improved quality of data submitted by the schemes. The upward trend observed in the 2008 data might not necessarily reflect deterioration in the quality of data submitted by the schemes, but a possible shift in the industry's risk profile. There is a need to review the scheme-specific expected values as these are based on the 2005 REF study.

### 4.2 REF price by age and community rate analysis

The impressive improvement reported on previously did not continue into 2008.

### 4.3 Potential financial impact on schemes

Section 3 (page 18) highlights the financial impact that REF may have on schemes. Clearly, the estimation of the impact relies on good quality data. Note that 24% of schemes are still categorised as category 9.

