

# **Report on the Shadow Submissions by Medical Schemes to the Risk Equalisation Fund in Quarter 3 2005**

**Prepared for the Department of Health and the Council  
for Medical Schemes**

**25 March 2006**



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## Executive Summary

The purpose of this second report on the REF submissions submitted to the Council for Medicals schemes by Medical Schemes during the first three Quarters of the REF Shadow period is to highlight the areas where data quality must to be improved. Financial transfers will not commence before legislation to this effect has been adopted and the data quality is of a sufficient high standard.

The report indicates that the submission of REF returns has improved greatly, being done over a much shorter time span with the rate of re-submissions reducing from 74% for January 2005 to 10% in August 2005.

An automated scoring system that will replace the previously reported on fault index has not been completed at the time of publication and the revised fault index scores will therefore be reported on at a later stage.

Adjustments were made to that the nine point categorisation scale used previously. In this analysis no schemes were assigned to category 1 or 2 (no concerns, and some minor concerns with submission) while categories 6 and 7 have now been used (Low or high CDL and multiple disease prevalence,

Fifty six per cent of beneficiaries were assigned to category 3 (some concerns with submission) and a further 30.7% to categories 6 and 7, bringing the total of beneficiaries with fair usable data to 87%. This is a major improvement from a corresponding 73% in Quarter 1. However, there still are 13% of beneficiaries with serious data errors.

Overall, the problem of over reporting beneficiaries in the below one year age band (127% reported), and the under reporting of beneficiaries in the above 85 year age band (only 94% reported), has persisted. In both instances this leads to an overestimation of the risk of the particular schemes where this has occurred.

The problems related to the reporting of maternity cases experienced in the first quarter have been resolved to a large extent. There seems to be underreporting of maternity in the last month of each quarter, probably relating to claims not yet submitted to schemes at the time the grids were prepared. No adjustment will be made to previous quarters during the shadow period, but the IT systems currently under development will make provision to adjust all risk factors retrospectively to allow sufficient time for claims to be processed. Reported HIV cases on antiretroviral treatment has increased from 25 000 in January to 32 000 in September. This represents an improvement but is still lower than the estimated 50 000 cases.

Haemophilia, Chronic Renal Disease, Bronchiectasis and Cardiomyopathy have all been over reported on. With the exception of Cardiomyopathy, where the data will improve once

Cardiomyopathy is combined with chronic heart disease, many of these problems occur in isolated instances within specific schemes or administrators.

There occurred up to three times as many multiple chronic conditions as expected. This problem should be addressed as the Entry and verification criteria has been applied, whereby for REF purposes, certain chronic conditions that are closely related, may not co-occur. The report indicates that if these new rules are applied, the number of beneficiaries with three or more chronic conditions will decline by 21% and those with 4 or more conditions will decline by 60%.

The report contains a section where the data quality is discussed by administrator that should provide guidance to those administrators whose schemes have submitted poor data.

Section 5.5 of the report indicates that among schemes with fair data, the observed industry community rate varied from R194 per beneficiary per month in January 05 to R206 in March 05, opposed to the estimated R193.90 per beneficiary per month. Details are provided indicating the need to calculate the REF industry community rate on a monthly basis once financial transfers are commenced.

Major problems were encountered in the quality of the prevalence data, which is presented here for the first time. Schemes are urged to review this data before submitting it to the Council.

# 1. Introduction

## 1.1 REF in the Shadow Period

Cabinet has approved the establishment of the Risk Equalisation Fund (REF) that will equalise the risk with regard to the age and disease profile of medical scheme beneficiaries in relation to the Prescribed Minimum Benefit (PMB) conditions. Following the introduction of PMBs, community rating, and open enrolment, the establishment of the REF will further aid to stabilise risk pooling in medical schemes and provide a vehicle for implementing Social Health Insurance (SHI).

The REF operates as a conduit for net financial transfers, calculated using a risk-adjustment formula, between schemes to achieve this equalisation. Scheme specific risk profiles are equalised as a result such that each option in the scheme and the total scheme faces the industry risk profile. Each scheme is measured by applying a formula on the age and disease profile of its beneficiaries in each option each month.

In April 2005, the Honourable Minister of Health requested the Council for Medical Schemes to test the risk equalisation formula and to create the appropriate infrastructure for the implementation of the REF. The EXCO of the Council for Medical Schemes has the responsibility to oversee the shadow period which is funded by the Department of Health. Instructions to schemes are given in the form of circulars from the Registrar of Medical Schemes.

The purpose of the shadow period is to ensure that medical schemes and the Council for Medical Schemes are able to handle the technical and administrative requirements of the full implementation of the Risk Equalisation Fund. This includes the testing of data submission and the systems that are being developed to facilitate the financial transfers between medical schemes. During the shadow period reports on possible financial transfers are given to medical schemes but no money changes hands.

## 1.2 Purpose and Outline of the Report

A first report was submitted to the Council for Medical Schemes and the Department of Health on the experience gained during and after the submission of the quarter 1 REF returns by schemes in July 2005. The data in respect of the second quarter of 2005 was received before detailed feedback was given to schemes about the quality of the submissions and

concerns arising from the analysis of the data. The data for the third quarter (Q3) data of 2005 was submitted between 7 and 18 November and analysed immediately thereafter. This report covers the Q3 data and comments on changes over the first nine months of data submission. The graph below shows the periods of data submission in 2005.

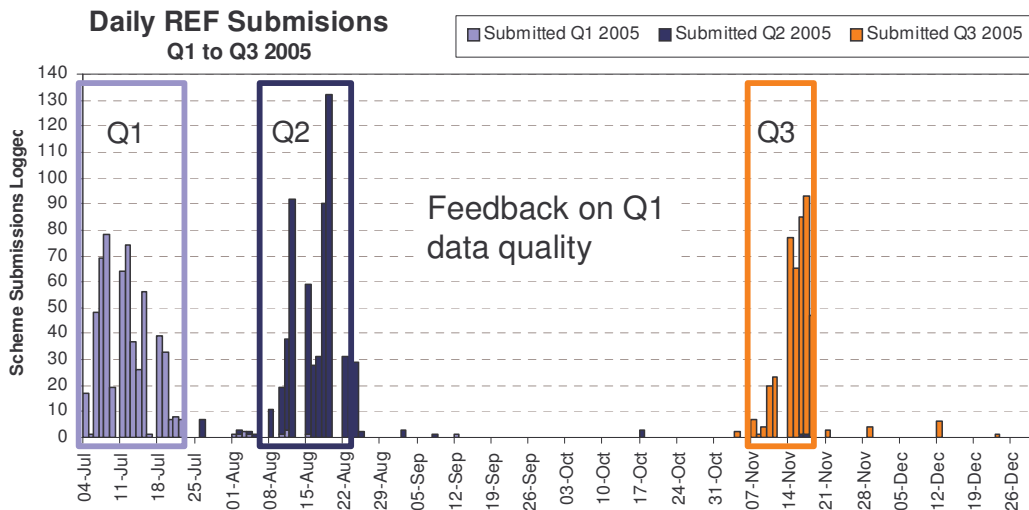


Figure 1: Daily REF Submissions for Q1, Q2 and Q3 of 2005

In the graph above it is noticeable that some schemes continue to submit data beyond the cut-off dates. In this report only the data received up to the cut-off date of 18 November 2005 is analysed.

Section 2 provides detail on the submission of the data, the subsequent analysis thereof and feedback to medical schemes. Section 3 deals with specific areas of concern highlighted by the Q1 analysis and the extent to which problems have been resolved by Q3. Section 4 discusses the patterns peculiar to each administrator.

Section 5 discusses the usable data received in Q3 and reports briefly on the implications of that data for the pricing of the REF Contribution Table (REFCT). This data was used in the pricing of the REFCT 2006 which was the subject of a separate report released in January 2006. Section 6 discusses the first analysis of the REF prevalence data and section 7 concludes with comments on the data quality issues raised in the report.

## 2. Third Quarter Shadow Submissions to REF

Schemes provide consolidated information on the age and chronic disease profile of beneficiaries to the Council for Medical Schemes in the form of the REF Grids. These provide for the number of beneficiaries by gender and in five-year age bands. The number of beneficiaries is shown separately for each of the chronic diseases in the PMBs; those with multiple conditions; those with none of the chronic conditions; the number of maternity cases and the number being treated with anti-retroviral treatment for HIV/AIDS. The REF Grid Prevalence gives the number of beneficiaries in each category while the REF Grid Count allocates each beneficiary to only one cell of the table. The REF Grids need to be submitted for each option in the scheme and for each month of the quarter.

### 2.1 Submission of Data by Medical Schemes

The period for the submission of third quarter (Q3) data for 2005 was between 7 and 18 November 2005. A major improvement over the data submission was the use for Q2 and Q3 of electronic submission of the data using to the automatic extraction of data from e-mailed files. The impact on the rate of submission is shown graphically below.

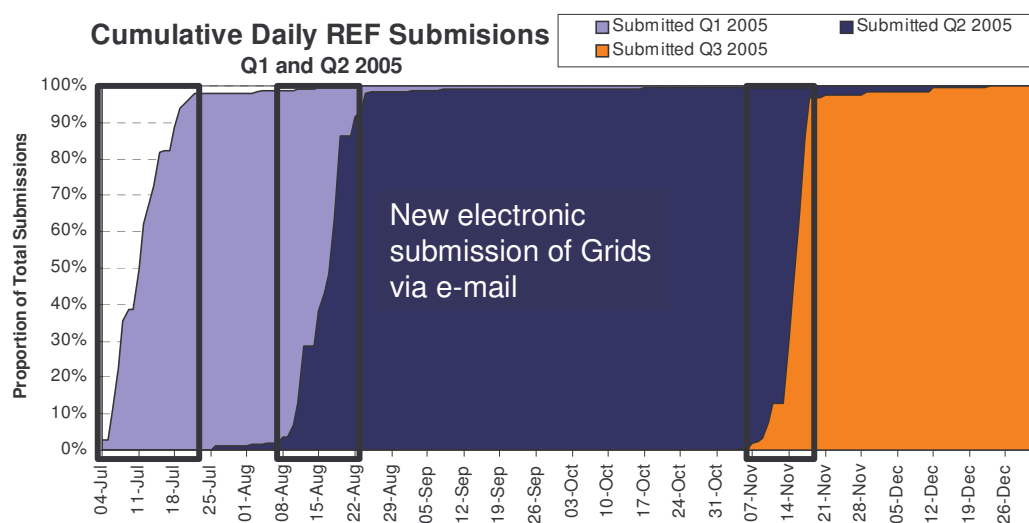
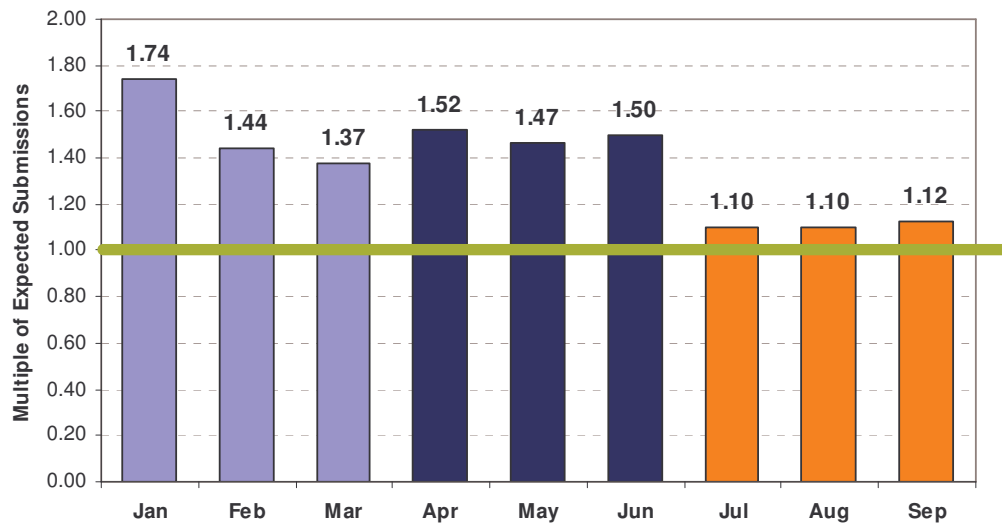


Figure 2: Cumulative REF Submissions in Q1, Q2 and Q3 of 2005

It was found that many schemes made multiple submissions in Q1 and Q2 of 2005. However as schemes became more practiced at collating and submitting the REF Grids the number of multiple submissions has declined significantly, as illustrated below.

### Multiple REF Grid Submissions Q1 to Q3 2005



**Figure 3: Multiple REF Submissions in Q1, Q2 and Q3 of 2005**

By the cut-off date for Q3, 125 of the 131 schemes or 95.4% of all Registered Schemes had submitted data. Bargaining Council Schemes are not required to submit quarterly Statutory Returns or REF Grids. Bargaining Council Schemes could submit REF Grids if they wished but none chose to do so in 2005.

There are two registered schemes that have not yet been able to submit any REF Grid data (administrator given in brackets) in 2005:

- **Baymed** (Supreme Health Administrators (Pty) Ltd)
- **Food Workers Medical Benefit Fund** (Self-Administered).

In Q3 the following four schemes that did not make the cut-off date for data submission:

- **Pro Sano Medical Scheme** (Sigma Health Fund Manager (Pty) Ltd)
- Spectramed (Rowan Angel (Pty) Ltd.)
- Gen-Health Medical Scheme (Hall Administrators (Pty) Ltd) This scheme was put under curatorship during the fourth quarter.
- Polprismed was merged with Hosmed (both with Allcare Administrators (Pty) Ltd.) Polprismed did submit Statutory Return information on beneficiaries for August 2005 but did not submit REF Grids for that month.



## 2.2 Categorisation of Submissions

In Q1 2005 submissions were categorised into a nine point scale. Some adjustments were made to that scale during the Q2 and Q3 analysis. Most importantly, no schemes now receive a category 2 rating and categories 6 and 7 have now been brought into use, as described below:

- **Category 1:** There are no concerns with the submission, and the payment is shown. No schemes have been assigned this score in 2005.
- **Category 2:** There are some minor concerns with the submission, but the probable payments are shown. This category was not used in Q2 and Q3 as it is not possible in the current shadow process to verify the data submitted.
- **Category 3:** There are some concerns with the submission that need to be addressed. Illustrative payments are shown using the REF Grids as submitted. These may not be the correct values once the concerns are addressed.
- **Category 4:** Substantially more beneficiaries were submitted in the REF Grids than in the Statutory Returns. The data is inadequate to support any payments from REF until the concerns have been addressed. Illustrative payments are shown using the REF Grids as submitted. These will not be the correct values once the concerns are addressed.
- **Category 5:** No data submitted, or there are many beneficiaries missing on the REF submission. No payments from REF (“REF Contributions”) are possible although illustrative payments are shown using the REF Grids as submitted. Payments from REF may be higher once the missing data is supplied.
- **Category 6:** The CDL and/or multiple disease data submitted appears low for this age profile or is missing. This seems to be a data collection and reporting issue rather than a real difference in risk factors. Illustrative payments are shown using the REF Grids as submitted. Payments from REF may be higher once the missing data is supplied.
- **Category 7:** The CDL and multiple disease data submitted appears high for this age profile. This seems to be a data definition issue rather than a real difference in risk factors. Illustrative payments are shown using the REF Grids as submitted. Payments from REF may be lower once the Verification Criteria are correctly applied.
- **Category 8:** The maternity data submitted appears extremely unlikely - no REF Contributions are possible until the data is verified. Illustrative payments are shown using the REF Grids as submitted. Payments from REF are likely to be lower if the maternity data is corrected.
- **Category 9:** The submission contains gross irregularities for particular CDLs which affects payment - no REF Contributions possible until the data has been verified.

Illustrative payments are shown using the REF Grids as submitted. Payments from REF are likely to be lower if the CDL data is corrected.

The table below shows the categorization and the number of schemes and beneficiaries as at the end of Q3.

**Table 1: Result of the Categorisation of REF Submissions in September 2005**

Decision Category	Number of Schemes	Beneficiaries in September 2005			
		Statutory Returns	Percentage of Total Beneficiaries	REF Grids Submitted	REF Beneficiaries as % SR Beneficiaries
Category 1	0	-	-	-	-
Category 2	0	-	-	-	-
Category 3	45	3,825,336	56.3%	3,785,006	98.9%
Category 4	1	2,881	0.0%	4,239	147.1%
Category 5	11	413,590	6.1%	12,997	3.1%
Category 6	13	234,058	3.4%	231,319	98.8%
Category 7	42	1,856,509	27.3%	1,856,466	100.0%
Category 8	0	-	-	-	-
Category 9	19	462,807	6.8%	458,490	99.1%
<b>Total</b>	<b>131</b>	<b>6,795,181</b>	<b>100.0%</b>	<b>6,348,517</b>	<b>93.4%</b>
<b>Usable Grids</b>	<b>100</b>	<b>5,915,903</b>	<b>87.1%</b>	<b>5,872,791</b>	<b>99.3%</b>
<b>Serious Errors</b>	<b>31</b>	<b>879,278</b>	<b>12.9%</b>	<b>475,726</b>	<b>54.1%</b>

In Q1 of 2005 fair data was submitted in respect of 4.8 million or 72.8% beneficiaries. This improved in Q3 so that usable REF Grids were received in respect of 5.9 million beneficiaries. This represents 87.1% of the beneficiaries reported in the Statutory Returns for the same date. The discrepancy between Statutory Return beneficiaries and those submitted in the REF Grids is discussed in section 3.1. The difference in financial results for the various categories of scheme is explored more fully in sections 5.4 and 5.6.

## 2.3 Feedback to Schemes and Administrators

Detailed scheme-specific information is available to the respective schemes only on a secure website, where schemes have restricted access to their own reports only. The following feedback has been made available to schemes:

- Revised data quality score for Q1, Q2 and Q3.
- Categorization of results for Q1, Q2 and Q3.
- Scheme-specific comments for Q1 and Q3.
- Financial transfers per option and for the scheme for Q1, Q2 and Q3.

Schemes were urged in the Q1 feedback to review their results and discuss these with the concerned administrators, managed care organisations and clearing houses. Schemes were requested to take the necessary steps to ensure that, where appropriate, the quality of the data was corrected for future submissions.

It has been apparent to the Council for Medical Schemes that few administrators provided clear feedback to medical schemes about the quality of data submitted. Trustees that have approached the Council have said that they were unaware of the feedback given and that they did not have access to the comments for their scheme on the secure web-site. Of greater concern were attempts by certain administrators to cover up data submission problems and instead to lay blame with the Council in the shadow period.

Whereas in Q1 the CEO's of some of the administrators had been called in to discuss concerns about data quality, problems will in future be discussed with the trustees of the schemes as well as those administrators. This report also provides more direct information on the quality of data submitted by administrators. This is to ensure that trustees, consultants, actuaries and auditors have a clear understanding of the likelihood of REF payments as reported by particular administrators as they prepare for the implementation of REF in 2007.

A presentation on the third quarter results was made to stakeholders at a meeting of RETAP on 26 January 2006. A summary of the third quarter results was provided to the Department of Health and National Treasury.

### 3. Progress with Quality of Data Submitted

This section deals with particular concerns that arose during the evaluation of the REF Grid Counts for the first quarter of 2005 and progress made on resolving the issues.

#### 3.1 Beneficiaries Compared to Statutory Returns

Medical schemes submit the number of beneficiaries in each option each month as part of their Statutory Returns to the Registrar of Medical Schemes. They also submit the numbers if beneficiaries in each age band as at the end of each quarter. The surprising discrepancy between REF Grid data and Statutory Return data for the same date was much better in Q2 but deteriorated again in Q3, as shown below.

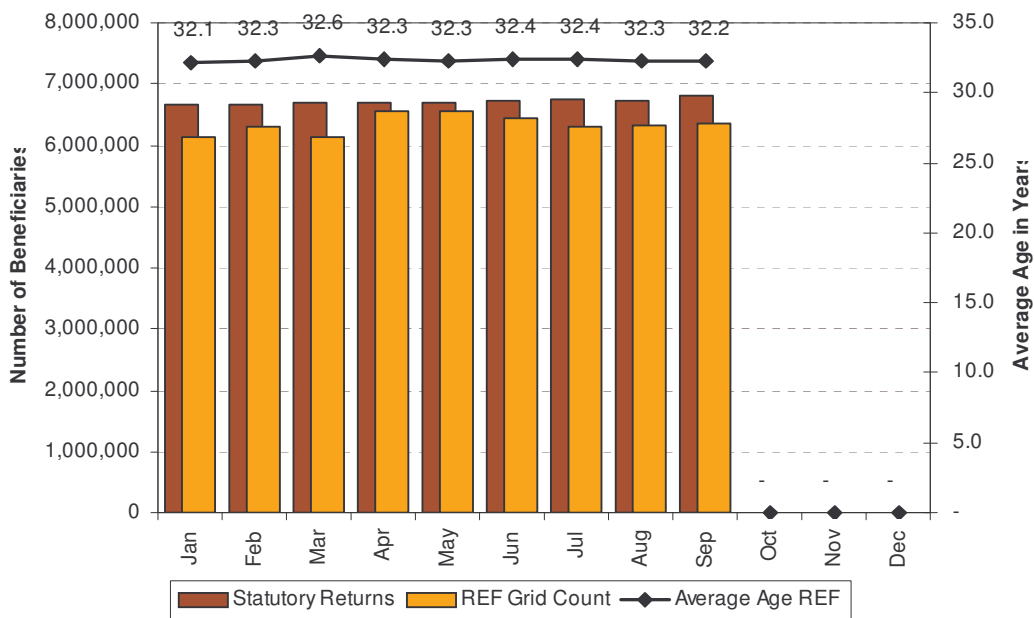


Figure 4: Submission of Data by Registered Option in Q1, Q2 and Q3 of 2005

At scheme level there was general improvement in the relationship between the Statutory Return profiles and REF Grid profiles in the middle age bands. Fewer schemes were found to have age profiles that differed significantly from their Statutory Return profiles. Problems where only the beneficiaries with some PMB event or a chronic condition were reported (i.e. under-reporting in the NON column) have all been resolved. Differences in gender profile which appeared to be an inability by one administrator to extract female lives in the age group 20-24 in Q1 have been resolved.

However, the problem with lower numbers of beneficiaries in the 85+ age category has persisted. Schemes with this problem have re-categorised beneficiaries in the age band 80-84 which has higher amount payable by the REF. The REF Grids submitted report only 94% of the beneficiaries in the age 85+ category when compared to the numbers reported in the Statutory Returns for September 2005. It seems extraordinary that schemes persist in sending though two sets of age profile data to the Council for Medical Schemes.

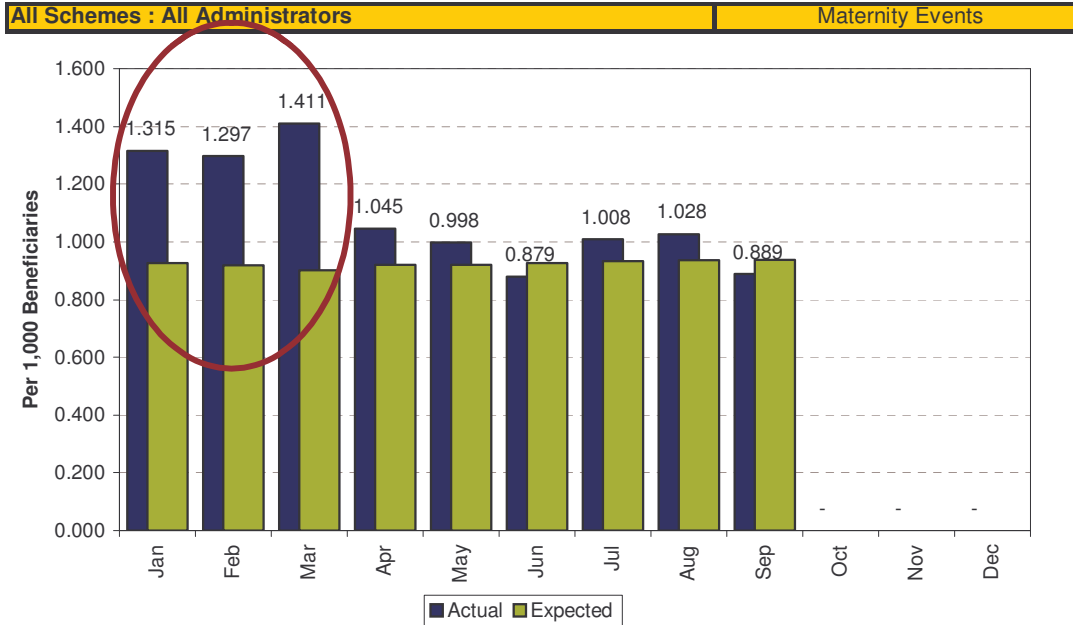
At the other end of the age curve, there is an even greater problem with beneficiaries being classified as Under 1 instead of in the age category 1-4 years. The amount paid from REF for an Under 1 is very much higher as expensive premature baby claims are incorporated in the Under 1 cells of the REF Contribution Table. It was found that the REF Grids submitted had 127% of the Under 1 beneficiaries reported in the Statutory Returns for the same month, namely September 2005.

The problem of beneficiaries being re-classified to an age band which has a higher payment from REF is a cause for some concern. It was pointed out by the stakeholder meeting after the Q1 results that there was previously no incentive to get the ages correct for the Statutory Returns and so errors were allowed to continue. Now that the possibility of money is attached to the numbers, there is now a great effort to ensure the proper classification. However one cannot but continue to have a degree of suspicion when the re-classification occurs in the direction of greater payments from REF.

## **3.2 Maternity Cases and Relationship to Under 1s**

It was found that maternity cases were not reported in Q1 2005 by 22 schemes. Maternity cases not reported by 22 schemes in Q1. There was a major improvement by Q3 and now only four schemes who have not submitted any maternity cases at all. The problem typically occurs where the REF Grid data has been obtained from a clearing house which captures chronic disease drug usage but not the maternity events. It is worrying that in these cases neither the administrator nor the scheme seems capable of extracting maternity cases and adding them to the clearing house data.

Maternity cases substantially exceeded the possible numbers for the age and gender profile in 13 schemes in Q1. These definitional problems were almost all in one administrator and the issue was fully resolved by Q2. There is one ultra-small self-administered scheme where the maternity case numbers submitted could be cumulative. This issue will be taken up with the scheme.



**Figure 5: Maternity Events per 1,000 Beneficiaries in 2005**

The graph above clearly shows the impact of the 13 schemes on the Q1 results and how the resolution of the problem has brought the number of maternity events more closely in line with those expected. There have however been changes in the relationship between maternity events reported and the number of Under 1s, as illustrated in the table below.

**Table 2: Maternity Events compared to Under 1's in 2005**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Beneficiaries Under Age 1	71,874	78,851	83,489	94,957	101,690	106,088	115,933	123,340	128,504
Expected Maternity Cases	5,685	5,779	5,512	6,050	6,034	5,979	5,884	5,927	5,948
Total Maternity Cases Reported	8,076	8,152	8,629	6,863	6,540	5,664	6,352	6,511	5,645
Expected per 1,000 beneficiaries	0.926	0.919	0.901	0.921	0.921	0.928	0.934	0.935	0.937
Actual per 1,000 beneficiaries	1.315	1.297	1.411	1.045	0.998	0.879	1.008	1.028	0.889
Adjusted Maternity Cases	6,179	6,148	6,631	6,863	6,540	5,664	6,352	6,511	5,645
<b>Adjusted Actual / Expected</b>	<b>109%</b>	<b>106%</b>	<b>120%</b>	<b>113%</b>	<b>108%</b>	<b>95%</b>	<b>108%</b>	<b>110%</b>	<b>95%</b>
Cumulative Births		12,327	18,958	25,821	32,361	38,025	44,377	50,888	56,533
Cumulative New Under 1s		6,977	11,615	23,083	29,816	34,214	44,059	51,466	56,630

In Q1 and Q2 there was a lag between cumulative births and cumulative new Under 1s. This is reversed in Q3 where new Under1's exceed cumulative births in the previous month. It had been identified in Q1 that some schemes had an unrealistically low starting point for Under 1's as they had not taken into account births in the previous year. It is thus possible that the Q3 relationship between births and Under 1's represents a period of catching up to the correct

Under 1 numbers. It is also possible that administrators are now making greater efforts to register all births and record the new beneficiaries more quickly. Given that the REF Contribution Table allows for a payment of ten times the amount for a child under 1 compared to a child aged 1 to 4, the issue will remain under close scrutiny.

Of interest in both the graph and the table above is the pattern of maternity events in each month of Q2 and Q3. There was a decrease in the number of maternity events recorded in the last month of Q2 and Q3. This risk factor is retrospective in that schemes need to receive evidence of a live or still-birth in order to submit numbers in the REF Grid. Thus in the last month of the quarter, not all the hospital bills may yet have been received and the numbers reported are artificially low. There is a need for schemes to be able to adjust their REF Grids in the next quarter once the correct number of maternity events is known. This has been taken into account in the planning of the REF data reporting cycle.

### 3.3 HIV Cases Submitted

In Q1 of 2005 it was found that 34 schemes had submitted no HIV cases. This has improved substantially with only 13 schemes not doing so by Q3. The graph below shows the number of cases per 1,000 lives in month, compared to the number expected in the REF Contribution Table 2005. The expected data is derived from estimates by the Centre for Actuarial Research at UCT. The definition used for REF submissions and thus in this report is that the person must be on anti-retroviral treatment.

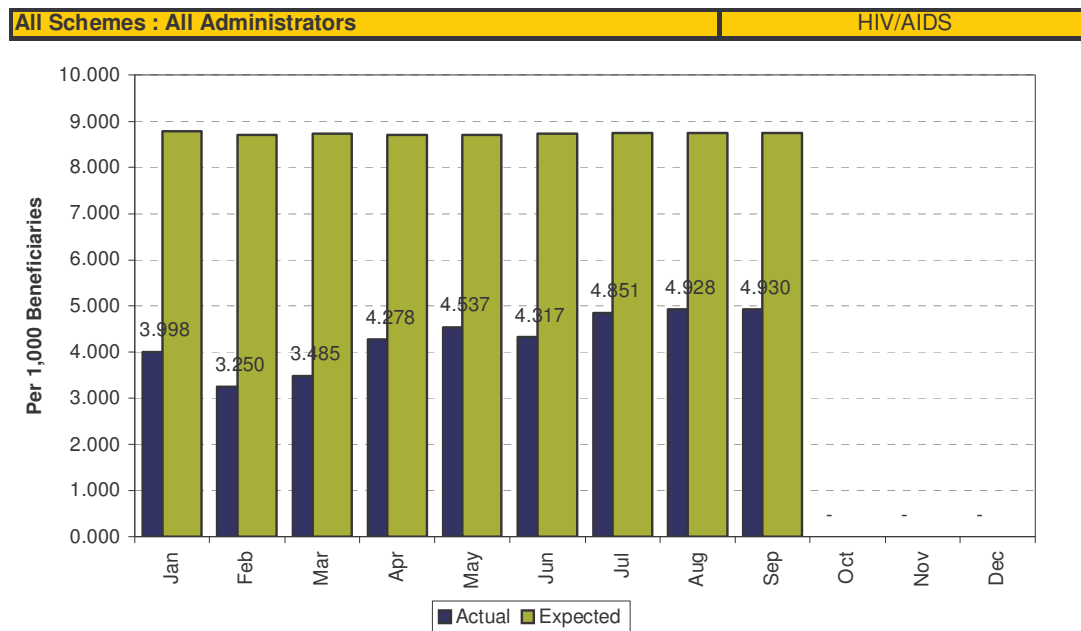


Figure 6: HIV Counts per 1,000 Beneficiaries in 2005

Only two small administrators submitted no HIV data for any of their schemes. Other non-submission is by single scheme administrators or self-administered schemes. For large administrators, non-submission seems to occur at a scheme level for confidentiality reasons rather than be a problem of administrator ability.

The total number of beneficiaries on anti-retroviral treatment in terms of the REF definition was found to be 31,297 in September 2005. Making allowance for missing REF Grid data at scheme level, the best estimate is 31,778 cases in September 2005.

The graph shows the progression of the HIV cases over the year, compared to the expected figures for each month. While there has been a substantial increase in the number of cases reported from 24,546 in January 2005 to the estimate of 31,778 cases in September 2005, the numbers are still lower than originally estimated for 2005. The Centre for Actuarial Research estimated 51,667 people and the HIV Clinicians Society estimated some 45,000 people would be receiving antiretroviral drugs in the private sector this year.

## **3.4 Problems with Specific CDL Conditions**

### **3.4.1 Haemophilia (HAE)**

In Q1 the research team was initially shocked to find that schemes had reported 2,975 cases of Haemophilia whereas estimates derived from discussion with the Haemophilia Society has suggested there would be only 245 cases for this age profile. The magnitude of the discrepancy was too great to be realistic and further detailed analysis followed, revealing that the problems were concentrated in specific administrators.

The graph below shows that over-reporting by nine schemes was resolved after Q1 and that this substantially improved the overall industry result. However, severe problems with one scheme remain that are sufficient to still push the industry HAE numbers to 203% of those expected. Community Medical Aid Scheme (COMMED), administered by Allcare Administrators (Pty) Ltd has reported some 400 HAE cases per month since January 2005, giving a rate of over 13 per 1,000. The expected rate per 1,000 beneficiaries is only 0.04. The expected number of cases for this age profile for this scheme is only 1 per month.

The total cases reported in the industry in March 2005 were nearly 3,000. By September 2005 the number was 516 but COMMED accounted for 392 of these cases. It seems probable that once the data issues have been resolved that the number of cases in the industry will be 125.



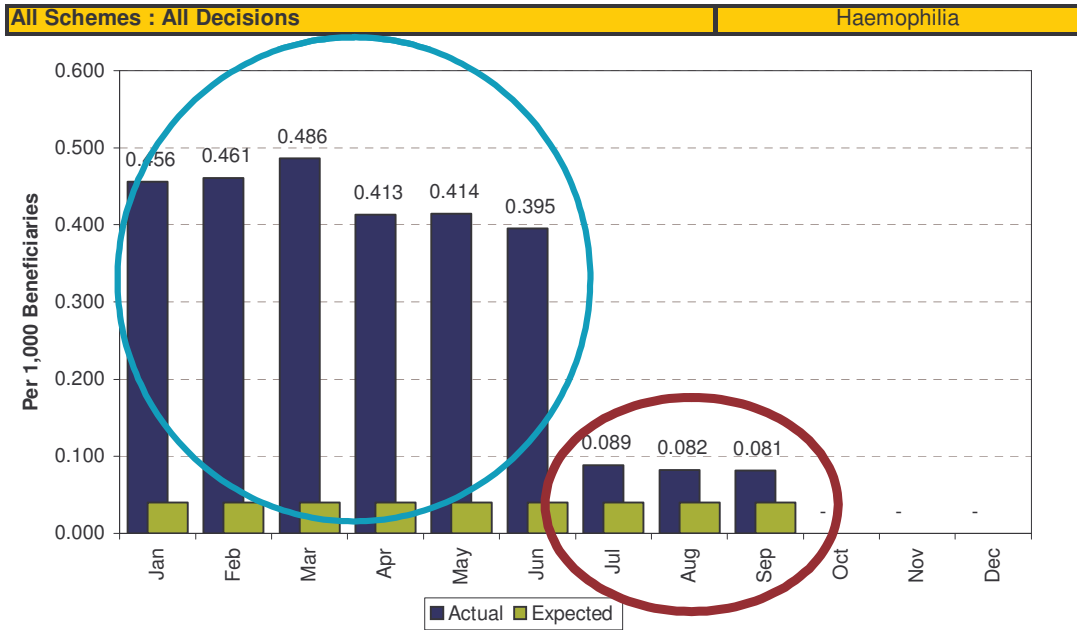


Figure 7: Haemophilia Counts per 1,000 Beneficiaries in 2005

### 3.4.2 Chronic Renal Failure (CRF)

Over-reporting in Q1 by six schemes has been resolved but problems with two schemes remained in Q2. A further two schemes emerged with problems in Q3, as illustrated below.

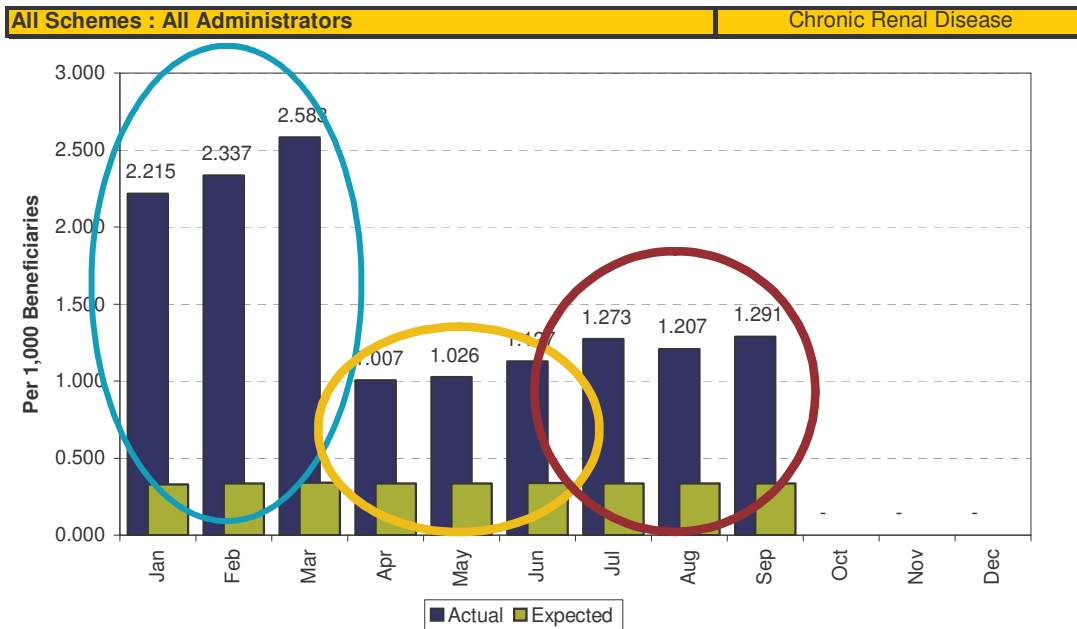


Figure 8: Chronic Renal Failure Counts per 1,000 Beneficiaries in 2005

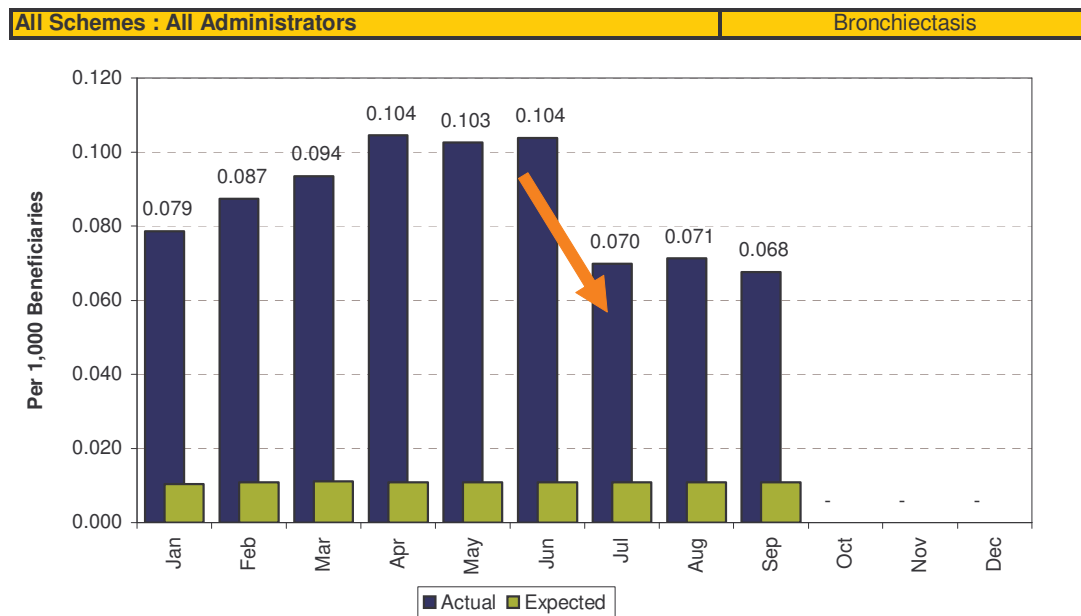
The total cases reported in the industry in March 2005 were some 15,800. By June 2005 this was some 7,300 and by September 2005 the number was 8,198. The cases in September were made up as follows:

- COMMED (Allcare Administrators (Pty) Ltd) accounted for 1,604 cases.
- Telemed (self-administered) accounted for 1,831 cases.
- Since June, Cape Medical Plan (self-administered) has reported some 700 cases each month and now accounts for 707 cases.
- Since July, Naspers (self-administered) has reported some 730 cases each month and now accounts for 734 cases.

These four schemes account for 4,876 cases which is 60% of the industry total. The age profiles in these schemes suggest that only 42 CRF cases are expected across all four. The probable number of cases in the industry once data issues are resolved is 3,364.

### 3.4.3 Bronchiectasis (BCE)

The counts for Bronchiectasis have reduced in Q3 but the overall rate is still exceptionally high compared to that expected, as illustrated below.

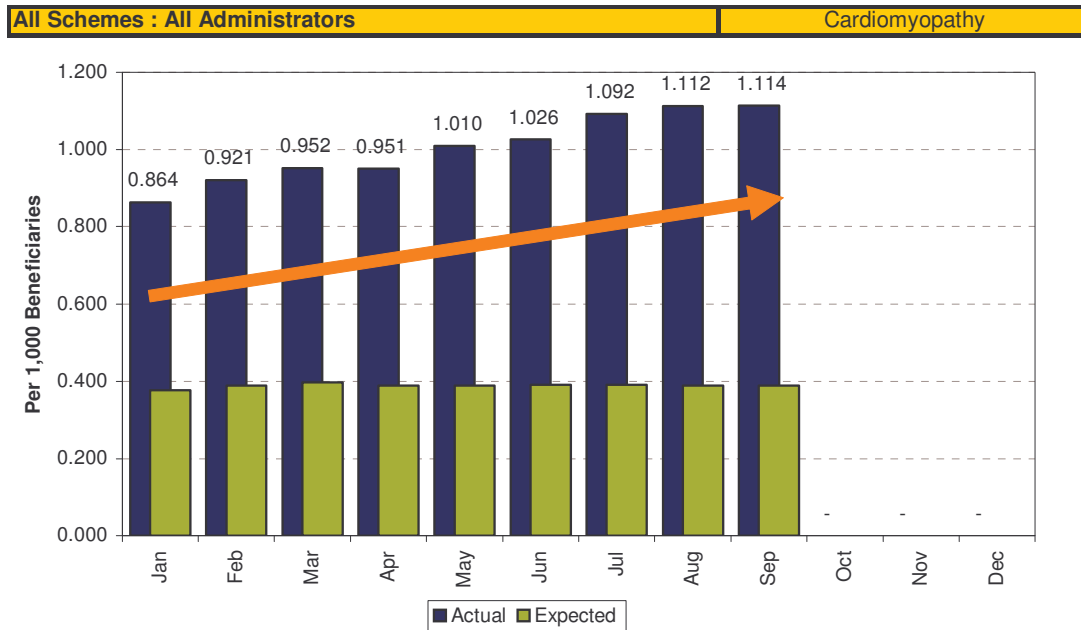


**Figure 9: Bronchiectasis Counts per 1,000 Beneficiaries in 2005**

Again it was found that Community Medical Aid Scheme (COMMED), administered by Allcare Administrators (Pty) Ltd. overstates BCE cases by 130,000% compared to those expected for the age profile.

### 3.4.4 Cardiomyopathy (CMY)

A problem with Cardiomyopathy counts is worsening, as illustrated below.



**Figure 10: Cardiomyopathy Counts per 1,000 Beneficiaries in 2005**

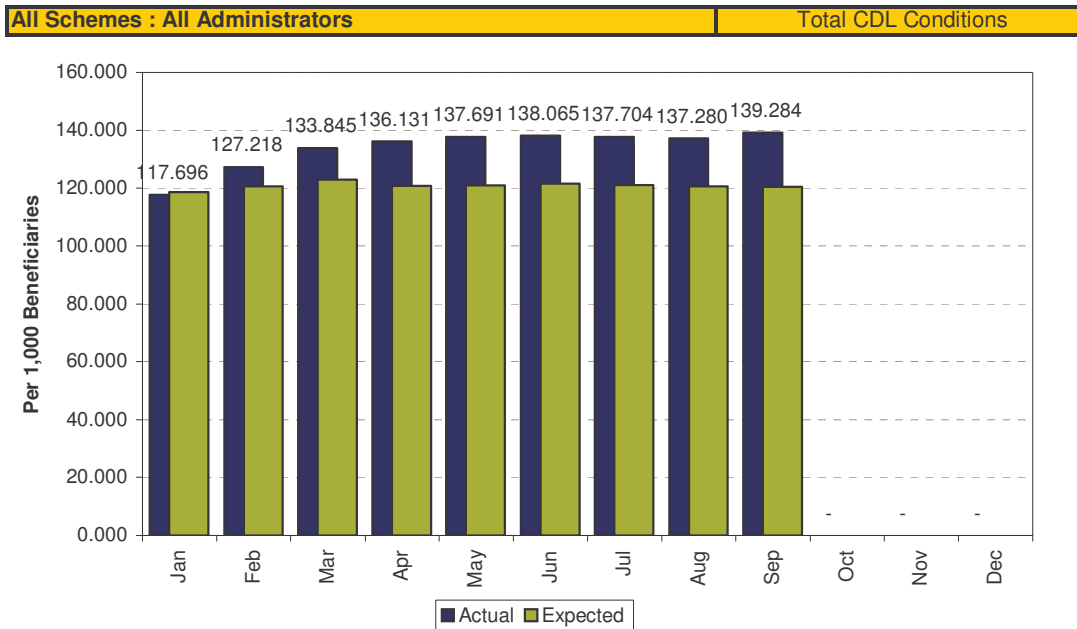
There was a widespread increase in the number of cases reported with 5,304 cases in January 2005 and 7,070 cases in September 2005, an increase of 33%. New rules were released in November 2005 to deal with the overstatement of Cardiomyopathy and other cardiac conditions (see section 3.5).

### 3.4.5 Other CDL Diseases

Community Medical Aid Scheme (COMMED), administered by Allcare Administrators (Pty) Ltd. significantly over-states several other diseases and has continued to do so for nine months despite a meeting with the CEO of the administrator and detailed comments being made available to the scheme after Q1:

- Bipolar Mood Disorder by 1,500%
- COPD by 1,500%
- Multiple Sclerosis by 8,000%
- Rheumatoid Arthritis by 4,300%
- Systemic Lupus Erythematosus by 4,600%.

Despite this problem scheme, the overall CDL counts are becoming much more stable, as illustrated below.

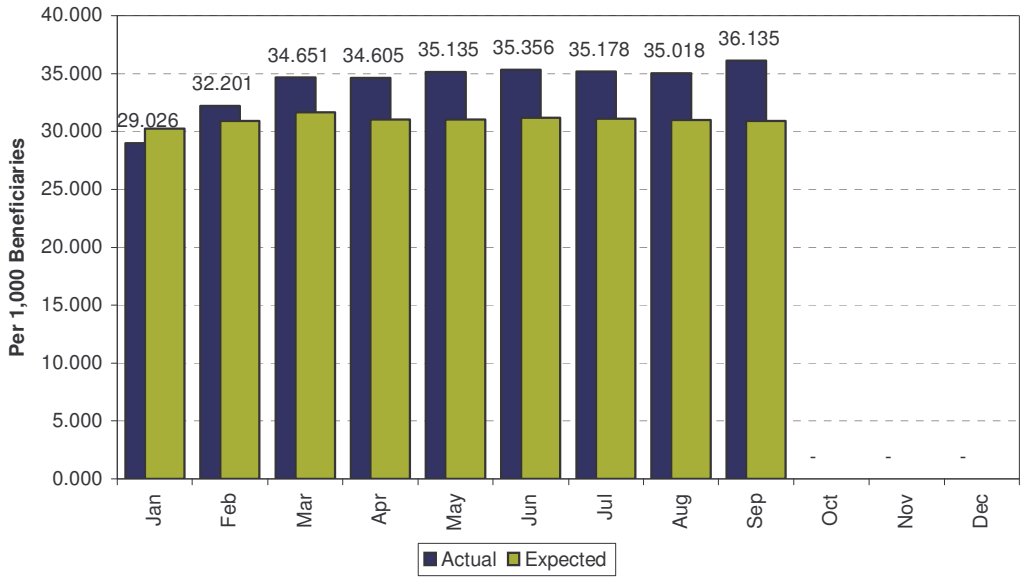


Q1 seems to have been a period of learning for most schemes and administrators and hence the CDL counts climbed rapidly during that period. The counts submitted in Q2 and Q3 appear to be much more stable, except for the problems already noted. There is an increase in counts submitted in September whereas the expected numbers of cases should have declined slightly.

### 3.5 Multiple Chronic Disease

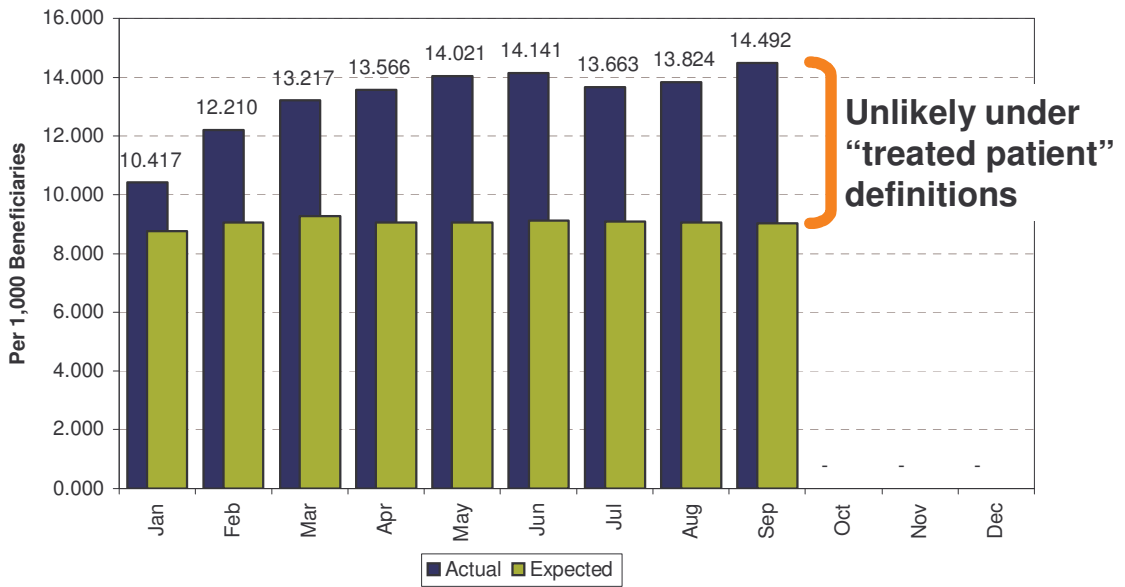
The three graphs below show the experience with data submitted for two, three and four or more chronic conditions over the first nine months of REF Grid submission. The shape for two chronic conditions is similar, if a little higher than that for total CDL conditions illustrated above. However it is the three and four or more chronic conditions that are cause for concern.

**All Schemes : All Administrators** **Two simultaneous conditions**



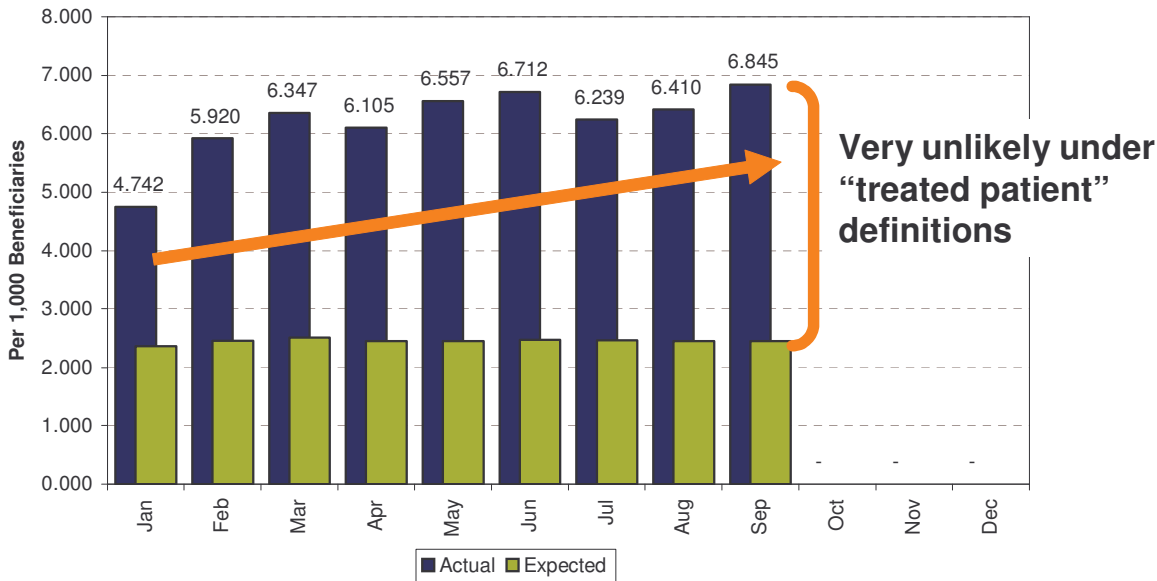
**Figure 11: Beneficiaries with Two Chronic Conditions per 1,000 Beneficiaries in 2005**

**All Schemes : All Administrators** **Three simultaneous conditions**



**Figure 12: Beneficiaries with Three Chronic Conditions per 1,000 Beneficiaries in 2005**

The graph above shows what might charitably be called a steep “learning curve” in Q1 and Q2. Although a major administrator revised figures downwards in Q3 the rate continues to increase off a very high base.



**Figure 13: Beneficiaries with Four or More Chronic Conditions per 1,000 Beneficiaries in 2005**

The graph above is cause for great concern as the four or more chronic conditions are now nearly three times the expected value for the industry as a whole.

### 3.6 New Combination Rules for Multiple Diseases

The RETAP meeting of 31 May 2005 considered several diseases where the possibility of gaming the REF Grids was problematic and proposed several rules with regard to the REF Grids. These were then incorporated and expanded in the REF entry and verification criteria of November 2005 . Section 3.9 of that report reads as follows:

**Exclusion of Specific Diseases as Multiple Chronic conditions**

3.9.1 Note that, for REF Grid Count purposes, certain CDL diseases will not be considered if they do co-occur in the same patient. (However, if these conditions do co-occur, it must be reflected in the REF Grid Prevalence tables). Cases encountered with more than one of the conditions listed below are not eligible to be counted as multiple diseases. The conditions are arranged in descending cost order.

Schemes must assign the most expensive condition to these cases; these co-occurring conditions must not be counted as multiples in the disease count grids:

3.9.1.1 Only one of the following chronic respiratory diseases can be assigned to the same patient: Chronic Obstructive Pulmonary Disease, Asthma and Bronchiectasis.

3.9.1.2 Only one of the following cardiovascular diseases can be assigned to the same patient: Cardiomyopathy and Cardiac Failure, Coronary Artery Disease, Dysrhythmias; and Hypertension.

3.9.1.3 Only one of the following Gastro Intestinal conditions can be assigned to the same patient: Crohn's disease or Ulcerative Colitis.

3.9.1.4 Note that, in accordance with the Diabetes Mellitus table in section 6, Diabetes Mellitus Type 1 and Type 2 cannot co-occur.

An analysis was performed of the change in the rules for these four groups of diseases. A simple analysis of the impact of each of the rules is given in Appendix A of the report on the methodology for the REF Contribution Table for 2006.

The issue is however complex to analyse as the loss of a two-pair set of diseases (like Diabetes Type 1 and Diabetes Type 2) does not necessarily mean that the CC2 (two multiple conditions) column will decrease. Some of these people may have had three, four or five multiple diseases and when the rule is applied, the person migrates downwards in the listing of multiple conditions to a lower level. Some people are also affected by more than one of the rule changes which makes for even greater complexity.

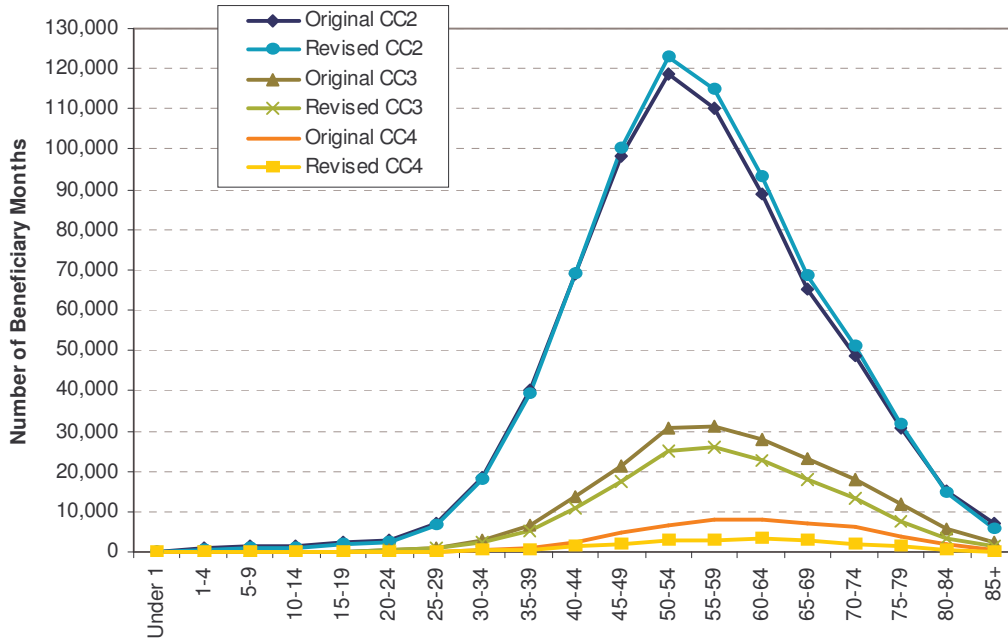
It was found that the only viable methodology was to use the original 2002 REF study prevalence and insert the new rules in each line of that database. The revised CC2, CC3 and CC4+ groups (two, three and four or more multiple conditions) were then determined. The old and new figures, based on the 2002 REF Study data, are shown below.

**Table 9: Impact of New Rules for Multiple Chronic Conditions**

Beneficiary months of Exposure	CC2	CC3	CC4+	CC4	CC5	CC6	CC7	CC8	All Multiple Chronic
Original CC	726,263	197,684	50,652	41,493	7,715	1,239	162	43	974,599
Removed	53,343	68,162	35,543	27,461	6,674	1,215	150	43	157,048
Added	69,941	25,668	4,793	4,362	407	24	-		100,402
Revised CC	742,861	155,190	19,902	18,394	1,448	48	12	-	917,953
<b>Percentage of Original</b>	<b>102.3%</b>	<b>78.5%</b>	<b>39.3%</b>	<b>44.3%</b>	<b>18.8%</b>	<b>3.9%</b>	<b>7.4%</b>	<b>0.0%</b>	<b>94.2%</b>

It turns out the CC2 increases by 2.3% while CC3 decreases to 78.5% of the original exposure. CC4+ is substantially decreased to only 39.3% of the original exposure, due more than 80% decreases in CC5, CC6 and CC7 and the removal of any exposure in CC8.

This table also shows that the people most affected are those with the most diseases. These are typically at higher ages and the graph below confirms that the CC3 and CC4 (containing four or more conditions) lines show a reduction in exposure at older ages. Some of this exposure at older ages is added to the new CC2 line.



**Figure 14: Impact of New Multiple Condition Rules on Exposure by Age**

The REF Prevalence and Count Grids submitted each month do not have data to enable the impact of the rule changes to be investigated across the whole industry. It was shown in section 3.4 that the CC3 and CC4 counts were much higher than expected from the original 2002 REF Study. It is thus likely that the new rules will have a major impact on the numbers shown in section 3.4 for multiple chronic conditions. The first data that should begin to illustrate the impact of the rules will be that received in respect of Q1 for 2006.



## 4. Impact of Administrators on Data Quality

### 4.1 Caution for Trustees and their Advisors

After the Q3 data analysis it is still not yet possible to determine with accuracy the differences in risk profiles across the whole industry. Many of the differences being observed between schemes are not a true reflection of the difference in risk. We continue to find that patterns appear systemically by administrator, as was first identified in the Q1 analysis.

The differences between administrators are due to the application of different entry criteria for access to chronic disease benefits. While there are some differences in these criteria at scheme level, it is more common for the administrator to propose and implement a particular “house” set of criteria. Other reasons for the maintenance of the different patterns are as follows:

- Designated service providers (DSPs) that cannot submit data on CDLs.
- Clearing houses that cannot “see” certain conditions such as maternity.
- Clearing houses that impose their own criteria for the identification of chronic disease.
- Clearing house data passed through the administrator without additional checking.
- Trustees and Principal Officers who have not checked their own scheme data adequately before signing it off.

In Q1 these patterns were illustrated with the names of the administrators masked. Each of the major and problem administrators was however shown their own labelled data in meetings held with their respective CEO’s. As we approach the expected implementation in 2007 many consultants, accountants and actuaries will begin relying on the REF Grid data in order to make projections of the effect on each scheme. Accordingly we have chosen to show the patterns by administrator in more transparent detail to facilitate the work of trustees and their advisors.

It is still beholden on individual consultants, accountants and actuaries to determine from the administrator how the particular scheme compares in the universe for that administrator, We have examined the range of results in each administrator and in most cases, these do represent a true reflection of risk differences between schemes. The advisors should in the first instance enquire as to the values assigned on the nine-point scale to the data submitted (see section 2.3). They should then adjust their estimates of the REF Grid accordingly and use the new REF Contribution Table for 2006 to estimate the likely impact on the scheme for 2006. Advisors are cautioned to consider in detail the report on the methodology for REFCT 2006 so as to be aware of likely future “twisting” in the REF Contribution Table and influences on the calculation of the industry community rate.

## 4.2 Usable Data by Administrator

The table below provides details of the usable REF Grids submitted by each of the large administrators and administrator groups. Where data for an option is in the category “exclude data” it means that the data was categorised as category 4, 5, 8 or 9. Usable data in September 2005 was designated as category 3, 6 or 7 (see section 2.3).

**Table 9: Data Quality by Administrator Group**

Administrator Group	Status in REFCT 2006 Study	Number of Schemes	Number of Options	Number of Beneficiaries Sep 2005
Discovery Health (Pty) Ltd	Use data	8	31	1,814,093
	Exclude data	1	1	5,983
Medscheme (Pty) Ltd	Use data	21	51	969,340
	Exclude data	-	-	-
Metropolitan Health Group (Pty) Ltd	Use data	16	43	939,760
	Exclude data	1	2	2,617
Old Mutual Healthcare (Pty) Ltd	Use data	11	42	415,353
	Exclude data	-	-	-
Sovereign Health (Pty) Ltd	Use data	10	47	246,153
	Exclude data	-	-	-
Allcare Administrators (Pty) Ltd	Use data	4	8	179,419
	Exclude data	3	9	46,652
Other Code RED	Use data	1	4	33,026
	Exclude data	6	17	171,163
	No data submitted Q3	1	1	-
Other Administrators	Use data	19	81	804,668
	Exclude data	6	20	26,516
	No data submitted Q3	3	11	-
Self Administered	Use data	10	25	470,979
	Exclude data	8	20	222,795
	No data submitted Q3	1	1	-
<b>Total</b>		<b>130</b>	<b>414</b>	<b>6,348,517</b>

Use [Category 3, 6 and 7]

Exclude [Category 4, 5, 8 and 9]

One scheme amalgamated in Q3.

One new option registered in Q3.

The so-called “Code RED” administrators where significant problems remain in the REF Grids submitted are:

- Benmed Medical Scheme Administrators (Pty) Ltd.
- Integrated healthcare (Pty) Ltd.
- MULTIMED
- Providence Healthcare Risk Managers (Pty) Ltd.
- Supreme Health Administrators (Pty) Ltd.

### 4.3 Impact of Administrator on REF Price by Age

A rapid way to assimilate the impact of the REF Grids submitted is to consider the shape of when the contribution due from REF is reflected per age band and compared to the expected amount, if the scheme had the chronic profile expected in the industry. This analysis is referred to in this report as the “REF Price by Age” and the price curve has a characteristic shape by administrator.

Where the data was fair, it is generally found that the price by age is very close to the expected line, except at the older ages. This may be a reflection that the REF Study in 2002 had proportionately fewer people in the older ages than was found in the industry at that time. It is also known that multiple conditions predominate at the older ages and this is where the issues of definition become most apparent. It is too early to say that there is genuinely a larger amount of chronic disease in the industry than originally expected as some of the multiple conditions may fall away when more stringent criteria are applied.

#### 4.3.1 Discovery Health (Pty) Ltd

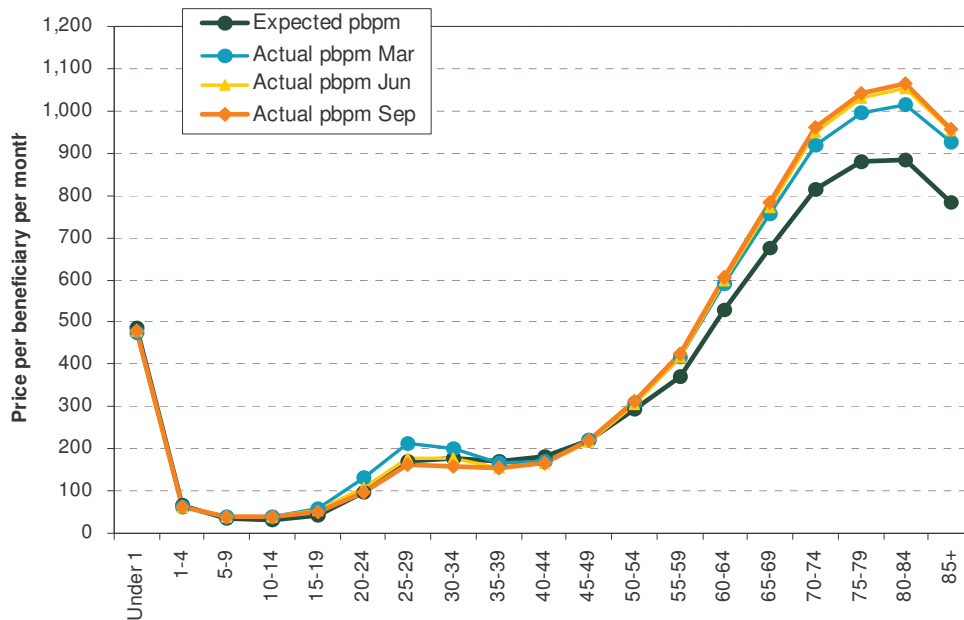


Figure 15: REF Price by Age for All Schemes using Discovery Health (Pty) Ltd in 2005

Discovery Health schemes were part of the original REF Study in 2002. In 2005 the REF price by age has a very similar shape in Q2 and Q3 to that predicted from the 2002 study. The Q1 shape is impacted by one very large missing option. There is a somewhat heavier tail of chronic conditions than expected. Only one scheme shows a pattern significantly different to the others. It was found that this scheme insists on using data from Mediscor to determine beneficiaries with chronic disease, rather than the standard Discovery Health clinical rules.

This is a good example to illustrate that trustees and their advisors need to be aware of the impact not only of the administrator but also of the contracted clearing house on the quality of the data submitted.

### 4.3.2 Medscheme (Pty) Ltd

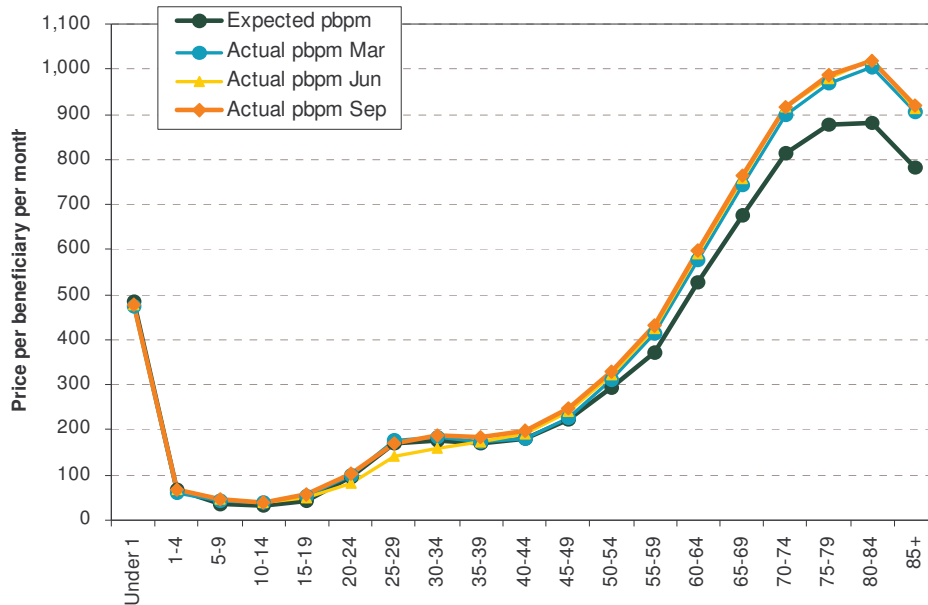


Figure 16: REF Price by Age for All Schemes using Medscheme (Pty) Ltd in 2005

Medscheme schemes were part of the original REF Study in 2002, although a number of these are now with other administrators. The REF price by age has a very similar shape in all three quarters to that predicted from the 2002 study. There is a somewhat heavier tail of chronic conditions than expected but the new rules for entry and verification had not yet been applied in Q3.

### 4.3.3 Metropolitan Health Group (Pty) Ltd

MHG experienced significant problems with data submission in Q1, as illustrated below. The number of maternity cases submitted ranged from four times those expected to seven times those expected for the age and gender profile of the schemes. There was also difficulty in many schemes extracting female lives in the age group 20-24 in Q1. All of these issues were corrected for the Q2 and Q3 submissions. A different set of criteria were applied to identify chronic disease in Q3. Although this does reduce the unusually high tail noted in Q1 and Q2, the tail remains much higher than at the other major administrators. This is believed to be a

true reflection of the difference in risk characteristics and further analysis will be carried out once the Entry and Verification criteria have been uniformly applied.

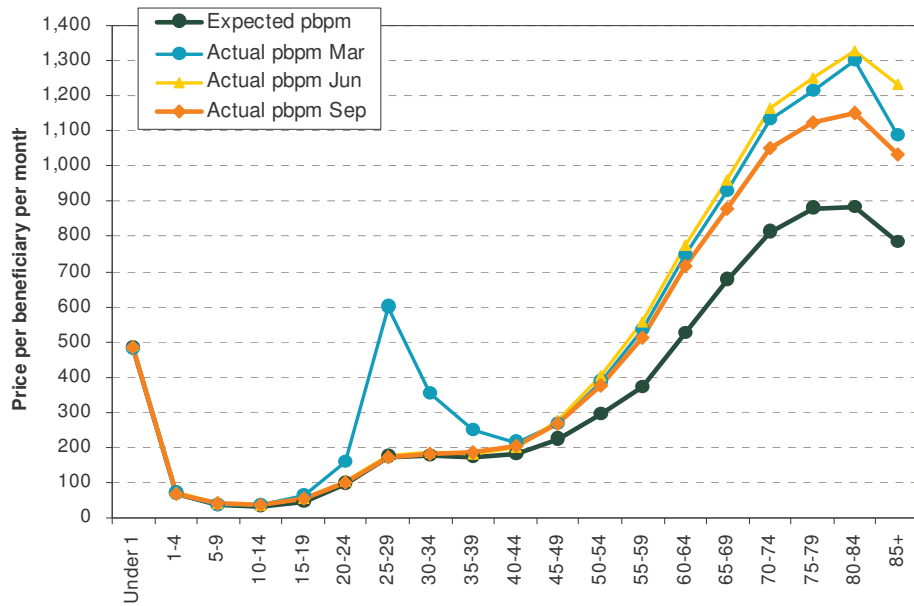


Figure 17: REF Price by Age for All Schemes using Metropolitan Health Group in 2005

#### 4.3.4 Old Mutual Healthcare (Pty) Ltd

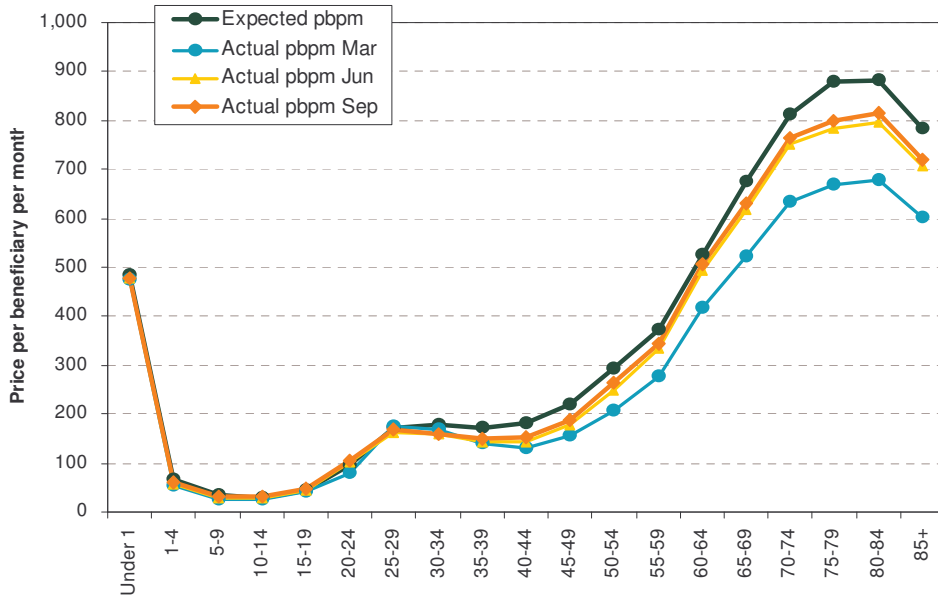


Figure 18: REF Price by Age for All Schemes using Old Mutual Healthcare in 2005

Old Mutual Healthcare experienced problems identifying chronic conditions in Q1 which was much improved by Q2 and Q3. This also involved obtaining chronic disease data from designated service providers who initially were unable to submit information. The tail of the price by age curve is still much lighter than for other major administrators and it is not believed that this represents a real difference in risk profile of the schemes administered.

### 4.3.5 Sovereign Health (Pty) Ltd

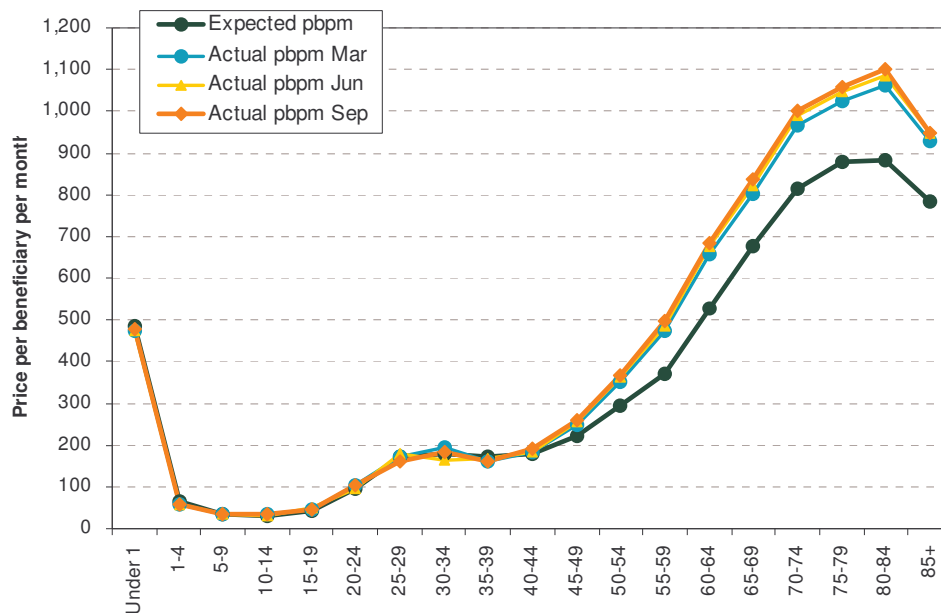


Figure 19: REF Price by Age for All Schemes using Sovereign Health in 2005

Sovereign Health submitted increasing numbers of chronic conditions in Q2 and Q3. The tail of the price curve is higher than expected and seems to be related to definitional issues to do with multiple chronic conditions. This will be evaluated again once the Entry and Verification Criteria are uniformly applied.

### 4.3.6 Allcare Administrators (Pty) Ltd

The first graph below shows that there were significant errors and in fact impossible data submitted by Allcare Administrators in Q1.

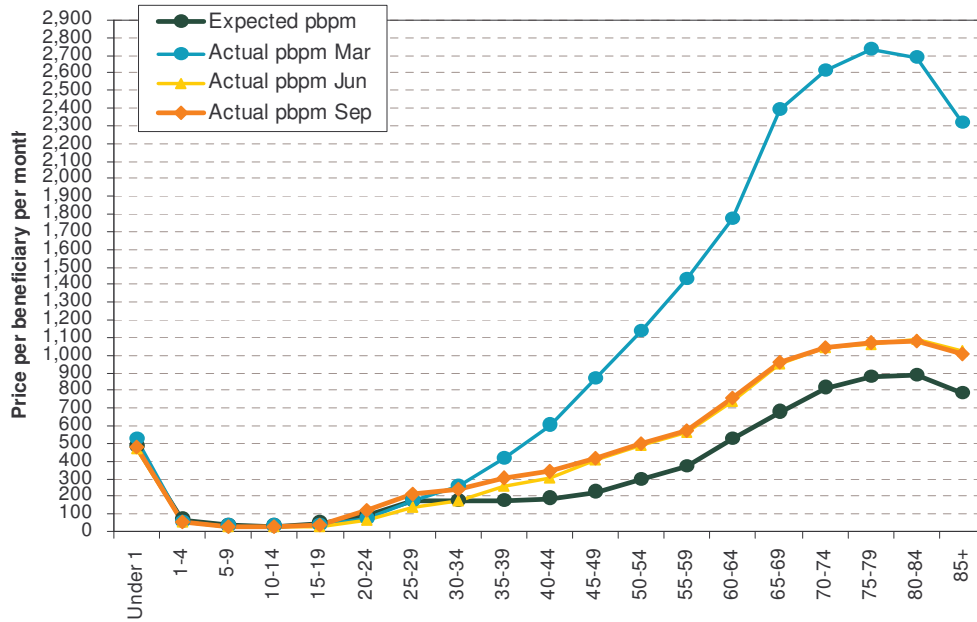


Figure 20: REF Price by Age for All Schemes using Allcare Administrators in 2005

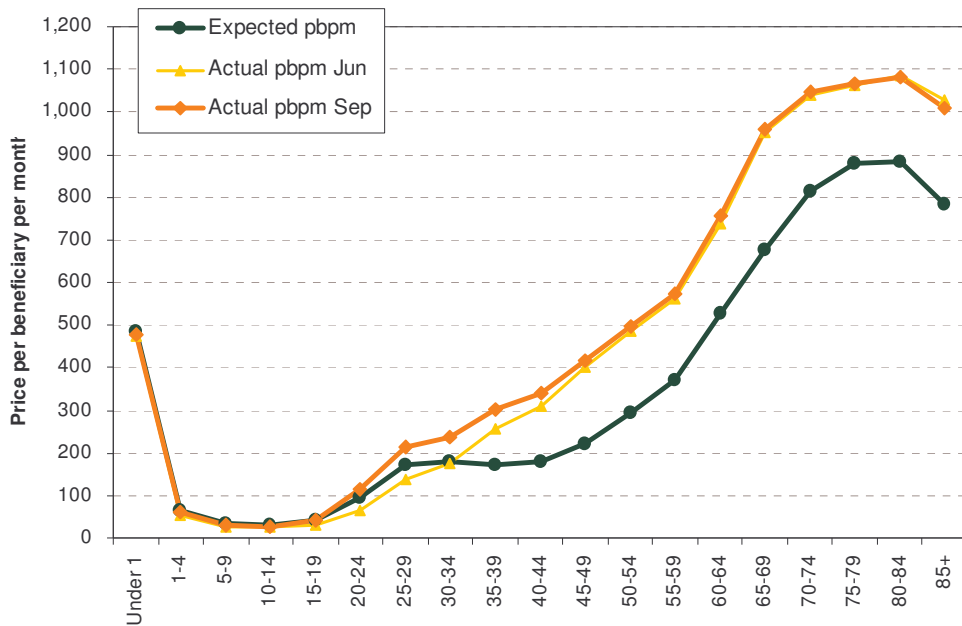


Figure 21: REF Price by Age for All Schemes using Allcare Administrators in Q2 and Q3 in 2005

While some of the most serious errors were corrected on four schemes, serious definitional problems remain on three schemes, including those in COMMED, as previously discussed.

### 4.3.7 Other Code RED Administrators

One administrator which had been treated as Code RED in Q1 is no longer considered to be part of this group. Despite some improvement in the shape of the REF curve in Q3, the Code RED administrators where significant problems remain are:

- Benmed Medical Scheme Administrators (Pty) Ltd.
- Integrated healthcare (Pty) Ltd.
- MULTIMED
- Providence Healthcare Risk Managers (Pty) Ltd.

All four administrators have yet to receive anything better than a category 9 for any REF Grid submitted in the nine months to date (in other words, impossible CDL data has been submitted). Supreme Health Administrators (Pty) Ltd is also part of this Code RED group as it has not yet submitted any REF Grids for the scheme it administers.

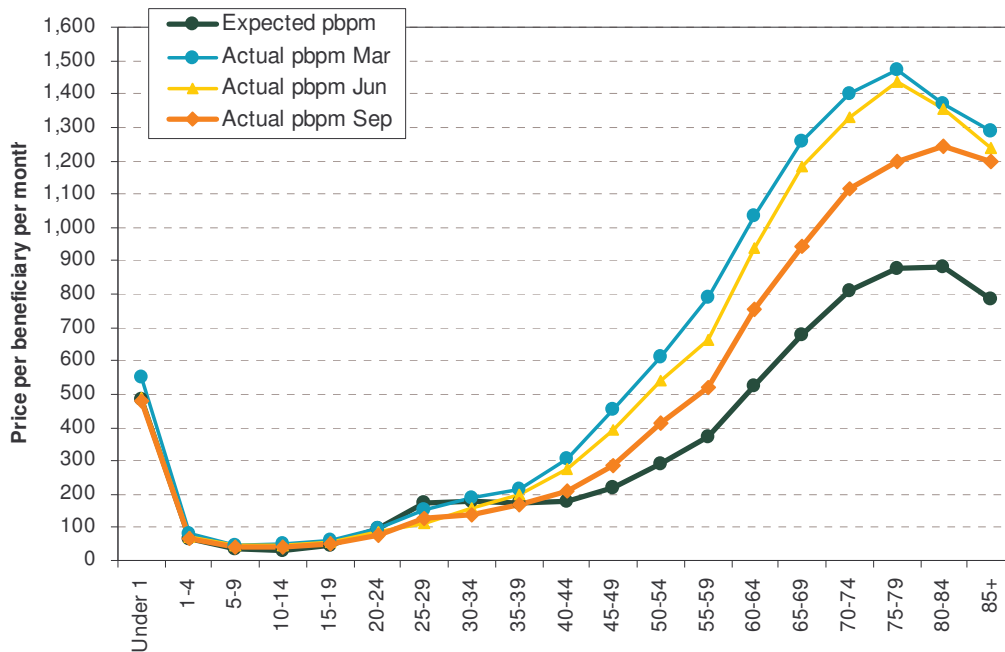
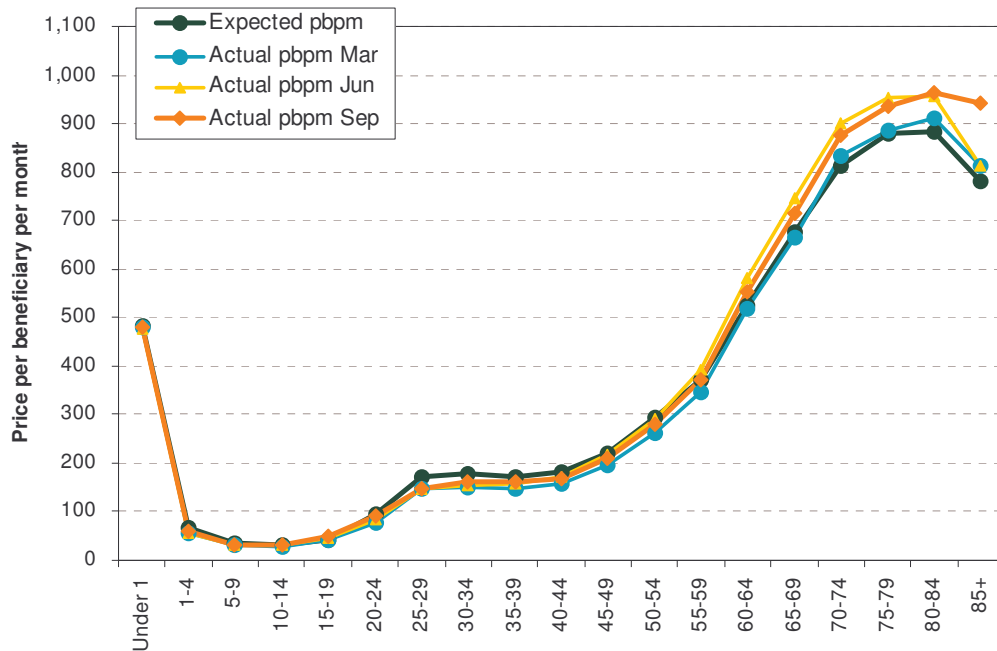


Figure 22: REF Price by Age for Schemes using Other Code RED Administrators in 2005

### 4.3.8 Other Administrators

In contrast to the Code RED group, the REF price by age curve for other administrators closely approximates the expected curve. Increasing numbers of beneficiaries with chronic conditions are being reported over time and will be carefully watched.





**Figure 23: REF Price by Age for All Schemes using Other Administrators in 2005**

The administrators in this group include (alphabetically):

- Active Health
- Amanzi Health Administrators (Pty) Ltd
- Definiti Medical Fund Managers (Pty)Ltd
- Eternity Private Health (Pty) Ltd
- Exclusive Health (Pty) Ltd
- Medical Aid Administration Experts (Pty)Ltd
- Mpumalanga Managed Health Care (Pty) Ltd
- Mx Network Systems (Pty) Ltd
- PPS INSURANCE CO LTD
- Private Health Administrators
- Prosperity Health Managers (Pty)Ltd
- SIZWE MEDICAL SERVICES (PTY) LTD
- STATUS MEDICAL AID ADMINISTRATORS (PTY) LTD
- Thebe ya Bophelo Healthcare Administrators

Three additional administrators have been unable to submit all the REF Grids on time:

- Hall Administrators (in Q3)
- Rowan Angel (Pty) Ltd. (in Q3)
- Sigma Health Fund Manager (Pty) Ltd (in Q1 and Q3).

### 4.3.9 Self-Administered Schemes

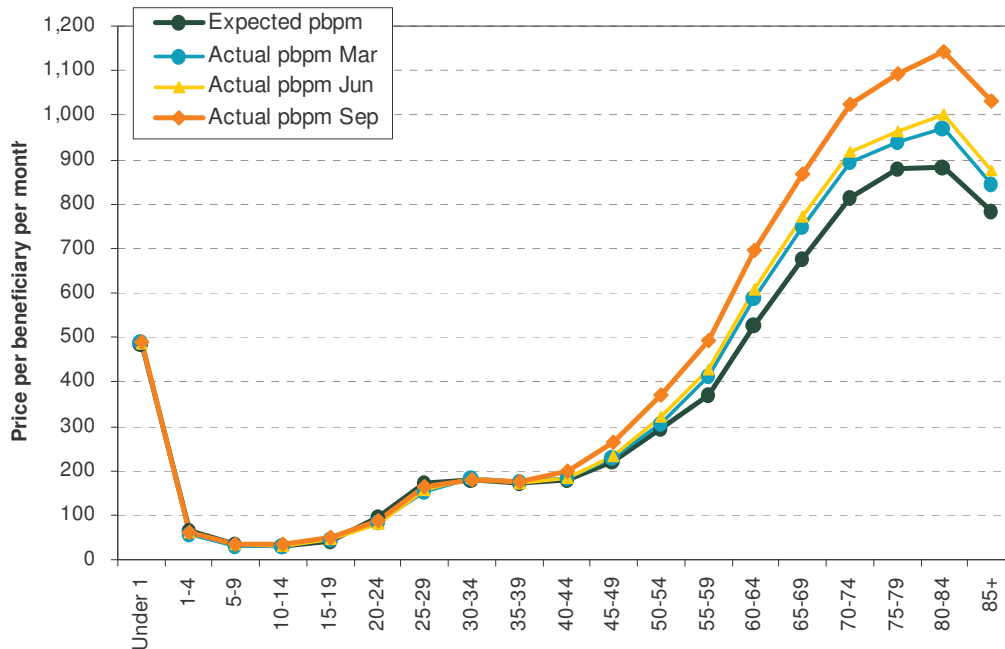
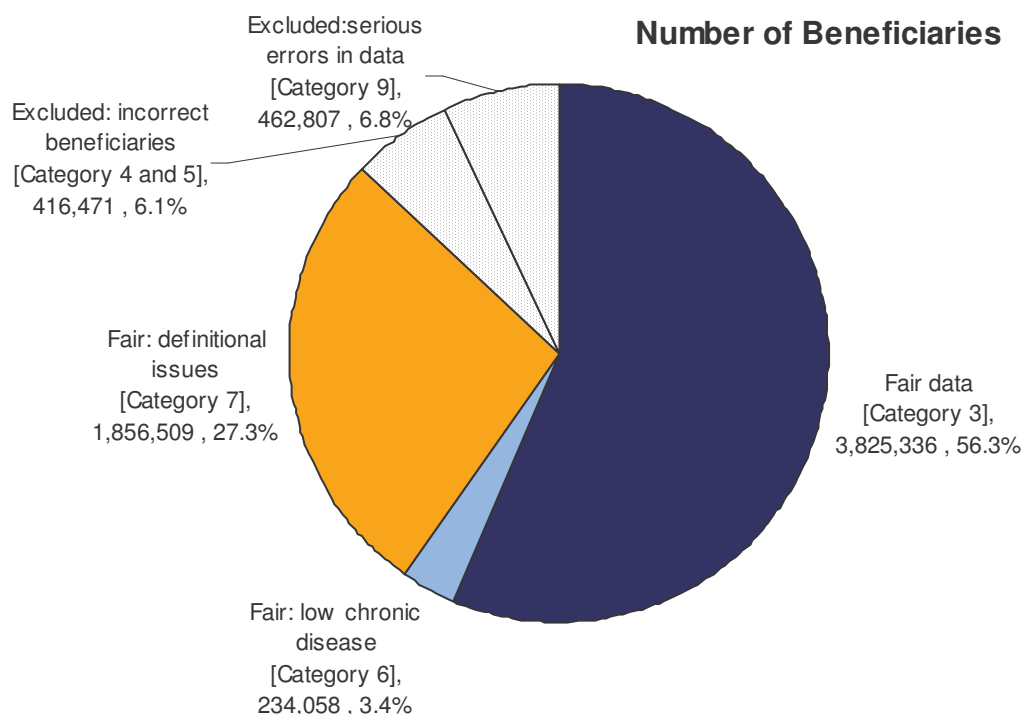


Figure 24: REF Price by Age for All Schemes that are Self-Administered in 2005

Some schemes in this group show consistent patterns from Q1 through Q2 and Q3. A few show deteriorating data with serious errors emerging for the first time in Q3, as discussed earlier in relation to Chronic Renal Failure. Advisors should consider the specific categorisation received by each scheme and act accordingly.

## 5. Age and Disease Profile of Medical Schemes

In this section the usable data from the REF Q3 submissions is analysed to report on the age and disease patterns in medical schemes. The categorisation of results was described in section 2.3 and is shown graphically below. Only category 3 (fair data), category 6 (fair data but low CDLs) and category 7 (fair data but definitional issues) data was used for this analysis. This excludes data in category 4 (over-reporting of beneficiaries), category 5 (incomplete data) and category 9 where there were serious errors in the disease counts.



**Figure 25: Usable Data for REF Contribution Table 2006, using Beneficiaries in Statutory Returns in September 2005.**

The category 3, 6 and 7 schemes identified in September 2005 were grouped as the REFCT 2006 study group. These schemes reported 5,915,903 beneficiaries in their Statutory Returns for September 2005. The REF Grid beneficiaries at 5,872,791 were thus 99.3% of those submitted in the Statutory Return data. This is the same percentage observed when a similar exercise was carried out at the end of Q1.

The REFCT 2006 study schemes were considered in developing the industry REF Grid for determining the industry community rate for the REF Contribution Table 2006. This analysis and the decisions are written up in a separate report on the methodology for REFCT 2006.

## 5.1 Age Profile

The graph below compares the standardised age profiles for the schemes according to decision group in September 2005. While the category 3 and 6 schemes have a similar tail at higher ages, the category 7 schemes have a much older tail. More children and early working age adults are found in category 6 schemes than in the other groups.

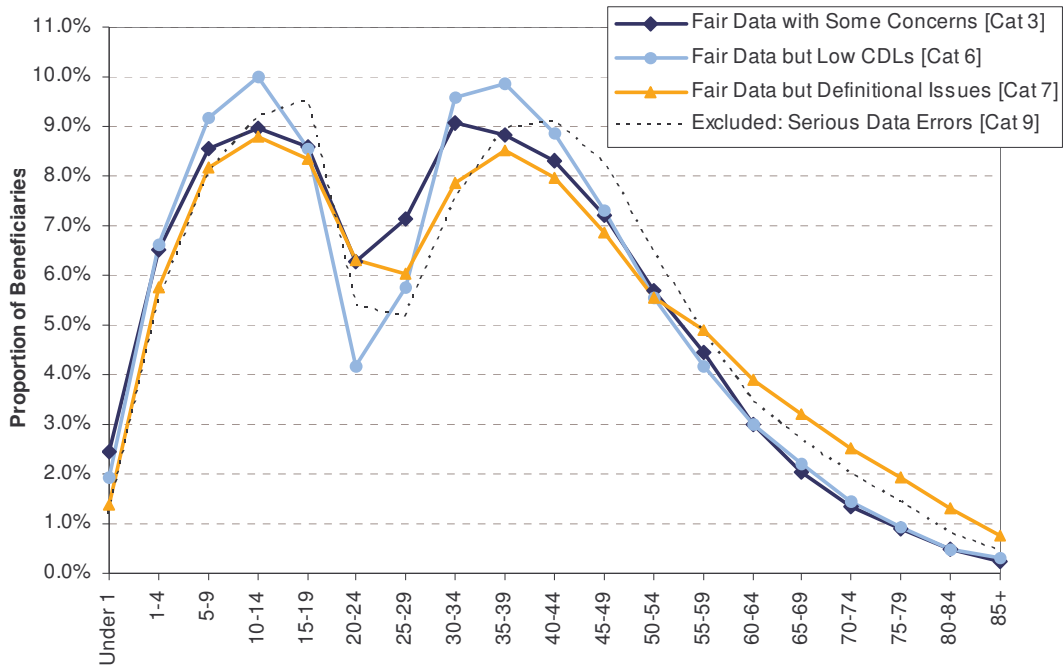


Figure 26: Age Profile of Schemes by decision Group in September 2005

## 5.2 Total Chronic Conditions and Multiple Disease

The first graph below compares the total chronic cases reported with those expected, given the age profile of the schemes and the disease patterns used in the REFCT 2005. The graph shows that there was a slight increase in cases over the year. The shape is as expected, with perhaps slightly more chronic disease in the age bands over age 55.

The second graph below compares the multiple chronic cases reported with those expected, given the age profile of the schemes and the disease patterns used for REFCT 2005. There has been a substantial increase in cases over the year but the shape is generally as expected. The graph shows that there were many more beneficiaries with multiple chronic diseases than expected in the older ages.

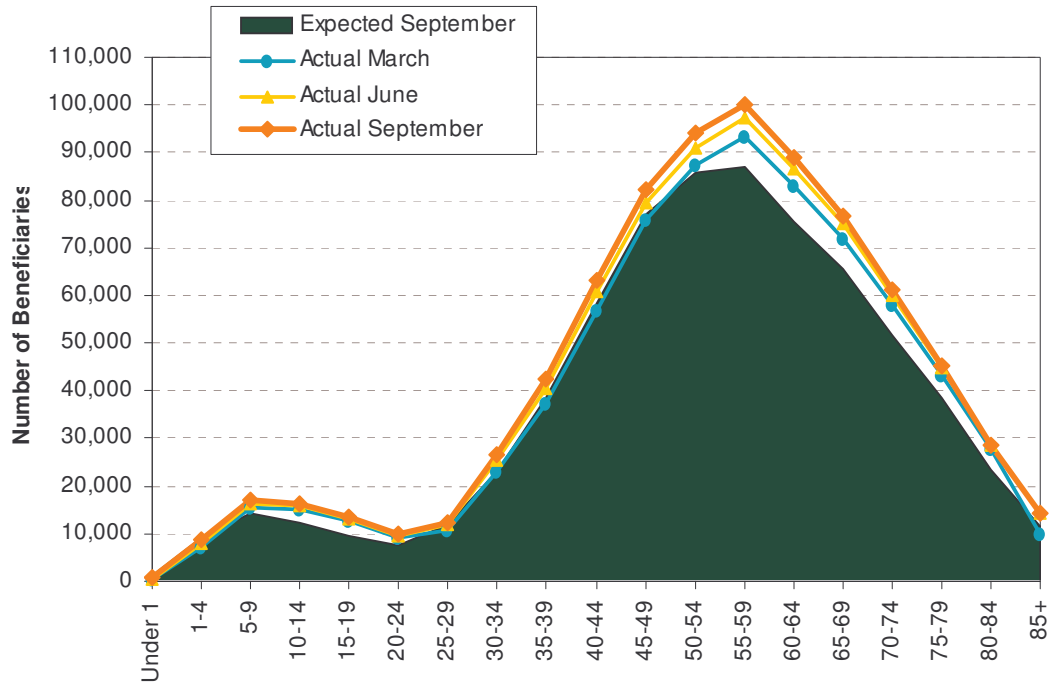


Figure 27: Actual and Expected Total Chronic Disease in Category 3, 6 and 7 Schemes

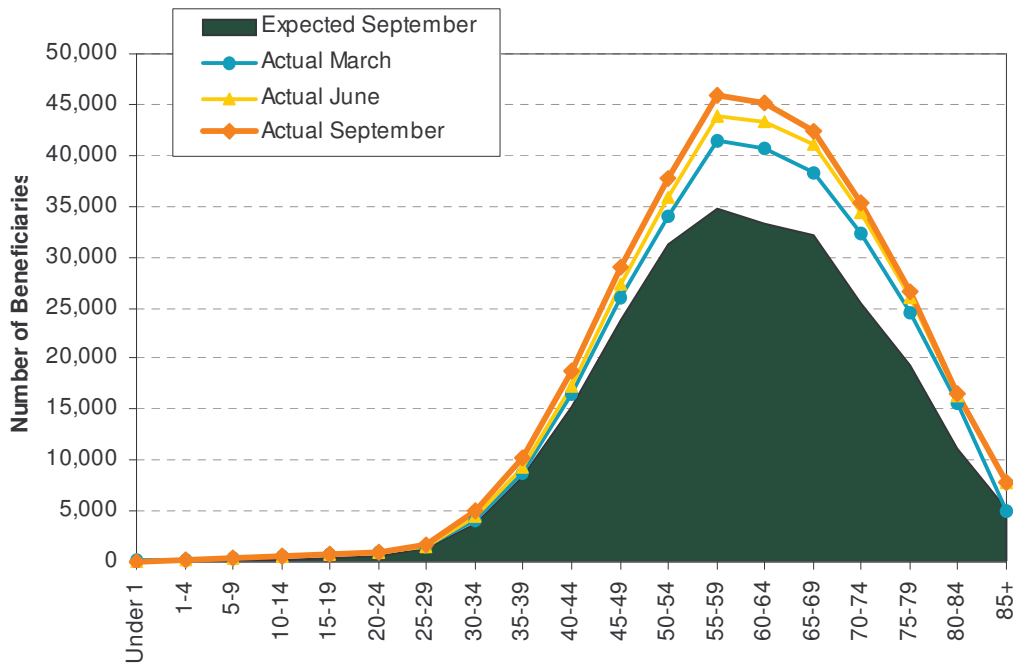


Figure 28: Actual and Expected Multiple Chronic Disease in Category 3, 6 and 7 Schemes

One possible explanation is that since the introduction of the PMB-CDLs, more medical scheme beneficiaries now have access to chronic medication from pooled benefits than was the case in the original 2002 Study. The definition of chronic disease used for the REF Grids in 2005 has been reported to be less stringent than that used in the 2002 study. The new rules for multiple chronic diseases (see section 3.5) are likely to have a substantial impact on the height of the curve at the older ages.

### 5.3 Disease Profile

The table overleaf shows the relationship between actual and expected cases for each condition and each decision group of schemes. The table is colour-coded to highlight unusually low or unusually high counts for each condition.

The light blue conditions are more than 50% lower than expected for the age profile. The category 6 schemes are shown to have very low actual to expected ratios for all diseases except Bronchiectasis. The ratios for multiple diseases are also much lower than expected.

Diseases that were reported as more than 200% of expected for the age profile are shown in red. The category 7 and 9 schemes are shown to have several diseases where the ratio is coloured red. CC4 (four or more simultaneous chronic conditions) is coded red for all groups except the category 6 schemes.

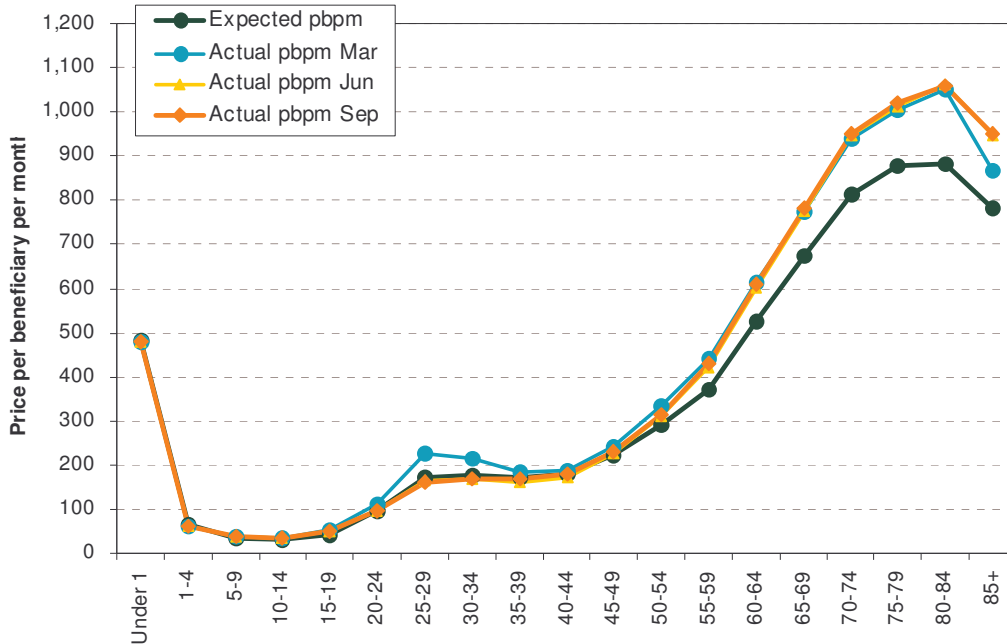
The conditions shown in gold have actual values between 150% and 200% of those expected for the age profile. The REFCT 2006 group (category 3, 6 and 7 schemes) has several gold conditions. Bronchiectasis and CC4 both exceed 200% of expected. Diabetes Insipidus and Haemophilia continue to be less than 50% of the expected values.

Table 3: Actual / Expected for Each Condition in September 2005

CODE	Actual/Expected September 2005				
	Category 3: Fair Data	Category 6: Low CDLs	Category 7: Definitional Issues	REFCT 2006 Study	Category 9: Serious Errors
1: NON	99%	110%	96%	98%	96%
2: ADS	203%	21%	133%	170%	171%
3: AST	123%	23%	125%	120%	115%
4: BCE	276%	700%	304%	302%	4459%
5: BMD	103%	31%	148%	115%	166%
6: CHF	109%	11%	131%	116%	114%
7: CMY	177%	62%	222%	190%	1278%
8: COP	92%	25%	70%	81%	134%
9: CRF	166%	16%	140%	151%	3445%
10: CSD	128%	18%	103%	115%	154%
11: DBI	27%	49%	56%	38%	87%
12: DM1	107%	31%	129%	112%	125%
13: DM2	138%	108%	131%	135%	82%
14: DYS	86%	13%	104%	91%	93%
15: EPL	124%	28%	132%	123%	163%
16: GLC	140%	80%	109%	125%	100%
17: HAE	53%	11%	43%	48%	2197%
18: HYL	107%	13%	137%	114%	97%
19: HYP	108%	43%	108%	106%	93%
20: IBD	130%	37%	147%	133%	113%
21: IHD	107%	13%	223%	151%	184%
22: MSS	152%	60%	205%	165%	729%
23: PAR	96%	35%	109%	100%	102%
24: RHA	108%	37%	137%	116%	396%
25: SCZ	136%	73%	196%	153%	685%
26: SLE	128%	32%	104%	117%	381%
27: TDH	129%	51%	131%	126%	121%
28: HIV	57%	14%	66%	58%	24%
29: TOTAL BENEFICIARIES	100%	100%	100%	100%	100%
30: CC2	111%	25%	130%	115%	136%
31: CC3	142%	24%	191%	157%	201%
32: CC4	209%	41%	320%	248%	658%
33: MAT	100%	58%	94%	97%	62%
34: TotalCDL	112%	33%	127%	115%	129%
35: MultipleCD	123%	26%	155%	132%	180%

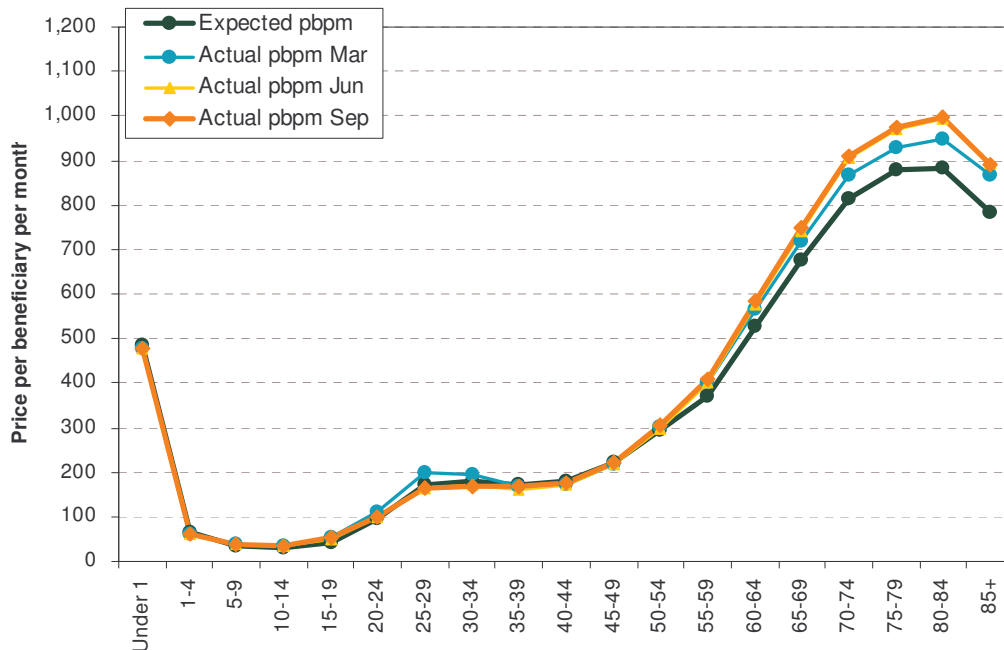
## 5.4 Impact of Decision Category on REF Price by Age

The graph below shows the REF price by age for the 5.9 million lives where the data was considered to be fair, i.e. the lives in the REFCT 2006 Study. The graph below shows the impact of the higher multiple chronic conditions on the shape of the REF price by age curve.



**Figure 29: REF Price by Age for Category 3, 6 and 7 Schemes in September 2005**

The curve above is very similar in Q2 and Q3. The Q1 curve includes the effect of the data errors on maternity for 13 schemes which has subsequently been resolved. The graph below shows the REF price by age for only the category 3 schemes, which is closer to the expected curve. The curves for the other categories are given in Appendix A.



**Figure 30: REF Price by Age for Category 3 Schemes in September 2005**



## 5.5 Impact of Age Profile Changes

The table below shows the impact on the community rate for 2005 of the changes only in the age profile. It is assumed that the chronic disease counts and maternity cases are as estimated for the REF Contribution Table in 2005.

The problems with the submission of correct beneficiary numbers are apparent in the table. The community rate would need to have been R204.14 in September 2005 using the REF Grids but only R201.37 using the Statutory Return age profile for the same date. Whereas the effect of the age profile seems to be higher in September than July using the REF Grids, it is lower when using the Statutory Returns.

**Table 4: Impact of Changes in Age Profile on Industry Community Rate**

	REF Grids Revised: Mar	REF Grids : Jun	REF Grids: Sep	Statutory Returns: Mar	Statutory Returns: Jun	Statutory Returns: Sep
Industry Community Rate in REFCT 2005	193.90	193.90	193.90	193.90	193.90	193.90
<b>Effect of age profile</b>	<b>7.77</b>	<b>9.53</b>	<b>10.24</b>	<b>9.03</b>	<b>9.20</b>	<b>7.47</b>
Age-adjusted Community Rate	201.67	203.43	204.14	202.93	203.10	201.37

It is surprising that the quarterly volatility in the effective community rate persists. The industry community rate needed to make REF a “zero-sum-game” has been found to be more sensitive and more volatile from month to month than was anticipated in the original work on the REF formula. This must call into question the original assumption that one industry community rate can be held constant from July through the whole of the next calendar year.

## 5.6 Impact of Reported Chronic Disease

The table below isolates the impact of the reported chronic disease counts and maternity cases on the industry community rate for each month in 2005.

**Table 5: Impact of Reported REF Risk Factors on Industry Community Rate**

2005	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
<b>Schemes with Fair Data in REFCT 2006 Study</b>									
Industry Community Rate in REFCT 2005	193.90	193.90	193.90	193.90	193.90	193.90	193.90	193.90	193.90
Expected CR from age profile	198.57	202.42	205.21	202.89	203.50	202.95	203.48	203.48	203.50
<b>Observed Community Rate</b>	<b>211.67</b>	<b>223.98</b>	<b>234.09</b>	<b>216.80</b>	<b>218.63</b>	<b>215.28</b>	<b>217.08</b>	<b>218.27</b>	<b>218.46</b>
Difference to Industry Community Rate	17.77	30.08	40.19	22.90	24.73	21.38	23.18	24.37	24.56
<b>due to Age</b>	<b>4.67</b>	<b>8.52</b>	<b>11.31</b>	<b>8.99</b>	<b>9.60</b>	<b>9.05</b>	<b>9.58</b>	<b>9.58</b>	<b>9.60</b>
<b>due to Disease</b>	<b>4.65</b>	<b>13.39</b>	<b>18.13</b>	<b>11.20</b>	<b>13.30</b>	<b>12.93</b>	<b>11.95</b>	<b>12.88</b>	<b>15.51</b>
<b>due to Maternity</b>	<b>8.45</b>	<b>8.17</b>	<b>10.75</b>	<b>2.71</b>	<b>1.83</b>	<b>-0.59</b>	<b>1.65</b>	<b>1.91</b>	<b>-0.55</b>
<b>Schemes with Fair Data excl. Low CDLs and Definitional Issues in REFCT 2006 Study</b>									
Industry Community Rate in REFCT 2005	193.90	193.90	193.90	193.90	193.90	193.90	193.90	193.90	193.90
Expected CR from age profile	192.33	191.96	195.70	192.30	193.17	192.49	193.36	193.42	193.51
<b>Observed Community Rate</b>	<b>194.03</b>	<b>195.11</b>	<b>206.21</b>	<b>200.46</b>	<b>202.44</b>	<b>197.72</b>	<b>203.65</b>	<b>205.08</b>	<b>201.62</b>
Difference to Industry Community Rate	0.13	1.21	12.31	6.56	8.54	3.82	9.75	11.18	7.72
<b>due to Age</b>	<b>-1.57</b>	<b>-1.94</b>	<b>1.80</b>	<b>-1.60</b>	<b>-0.73</b>	<b>-1.41</b>	<b>-0.54</b>	<b>-0.48</b>	<b>-0.39</b>
<b>due to Disease</b>	<b>-2.73</b>	<b>-0.50</b>	<b>3.24</b>	<b>3.83</b>	<b>5.72</b>	<b>5.13</b>	<b>7.25</b>	<b>7.89</b>	<b>8.12</b>
<b>due to Maternity</b>	<b>4.43</b>	<b>3.66</b>	<b>7.27</b>	<b>4.34</b>	<b>3.55</b>	<b>0.10</b>	<b>3.03</b>	<b>3.76</b>	<b>-0.02</b>

The table gives a sense of the volatility in the community rate from month-to-month. Two sets of data are considered separately: the schemes with fair data (category 3, 6 and 7) that make up the REFCT 2006 group and the schemes in category 3 only. In each set of data, the effect of the difference in age profile is isolated from the effect of the difference in disease profile and the difference due to maternity cases.

The two graphs below illustrate the components of the monthly community rate for the groups of schemes shown in the table above.

While it could be expected that maternity cases are a more volatile element from month-to-month, it is very surprising to see how the age profile and disease profile effects differ each month for the same list of schemes. This finding was not anticipated in the original work on the formula in 2002. Given the experience of the last nine months of data, we must seriously question the original suggestion that there is one community rate published in July and held constant for the whole of the next calendar year. A community rate determined for each payment period would be in line with risk equalisation systems in other countries.

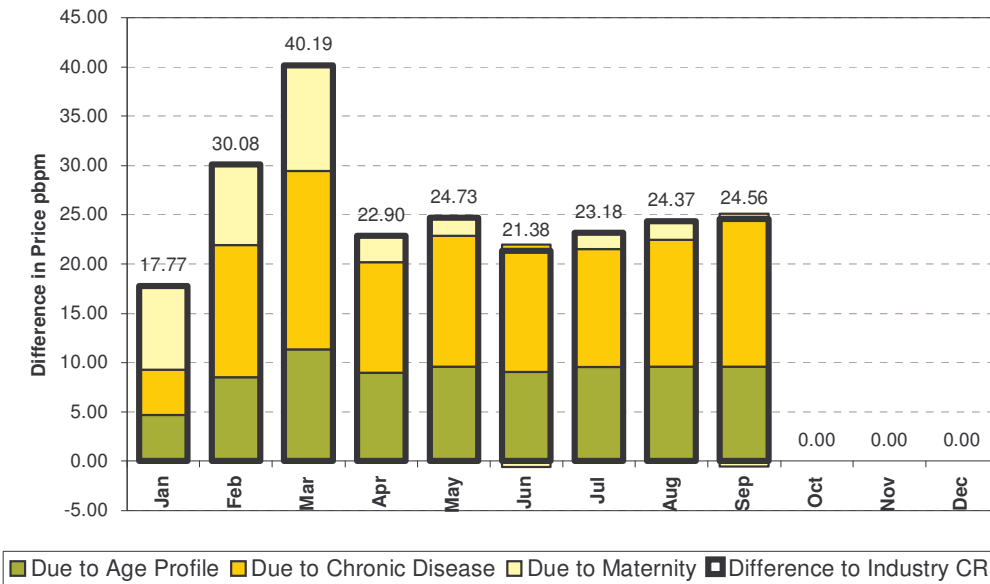


Figure 31: Monthly Community Rate for Category 3, 6 and 7 Schemes identified in September 2005

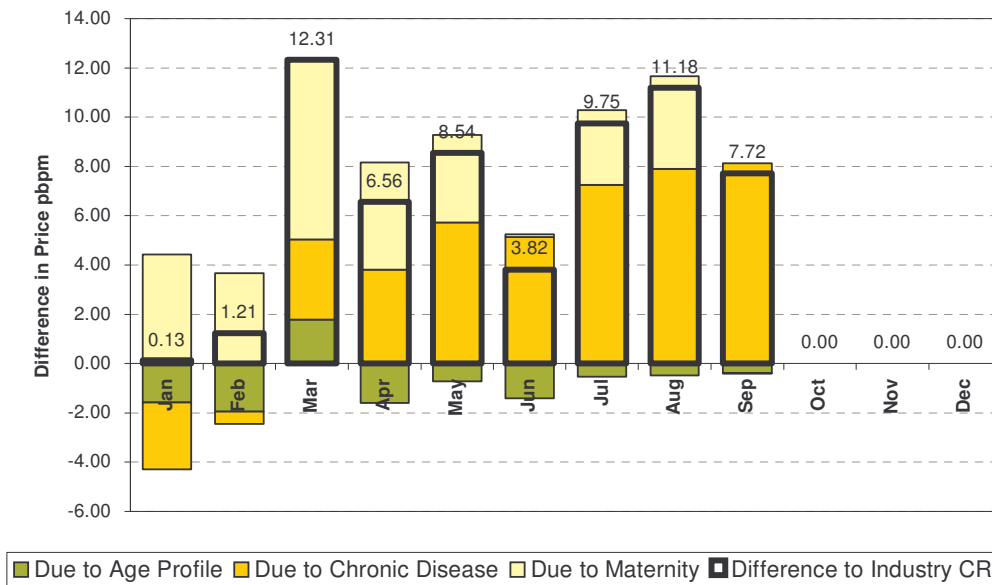


Figure 32: Monthly Community Rate for Category 3 Schemes identified in September 2005

## 6. Analysis of REF Grid Prevalence Data

### 6.1 Quality of REF Grid Prevalence Data

Given the problems encountered with the REF Grid Count data in Q1 2005, a decision was taken not to analyse the REF Grid Prevalence data in the same detail in that quarter. While all the data issues have not yet been fully resolved by Q3, a start has been made on analysing the prevalence data and comparing it to the count data.

While it was expected that the administrators that had trouble submitting count data would fare no better on the prevalence data, it was disappointing to find new errors in the prevalence data. The REFCT 2006 group of schemes (the “good data” in Section 5) was used for the initial prevalence study but the following additional data problems were found:

- Polmed (administrator Metropolitan Health Group (Pty) Ltd) did not submit the REF Grid Prevalence for the largest option in September 2005.
- Bankmed (administrator Metropolitan Health Group (Pty) Ltd) submitted impossible prevalence data for the Core option for September 2005. For example, this gave the option 10,310 new Addison’s Disease patients when the entire industry prevalence is only some 470 cases.
- Oxygen (administrator Old Mutual Healthcare (Pty) Ltd) submitted impossible prevalence data for the UDIPA option for July, August and September 2005. This option has 10,955 beneficiaries but prevalences were submitted for many more than this, for example 20,150 for AST, 22,401 for DM1 and 14,507 for DM2.

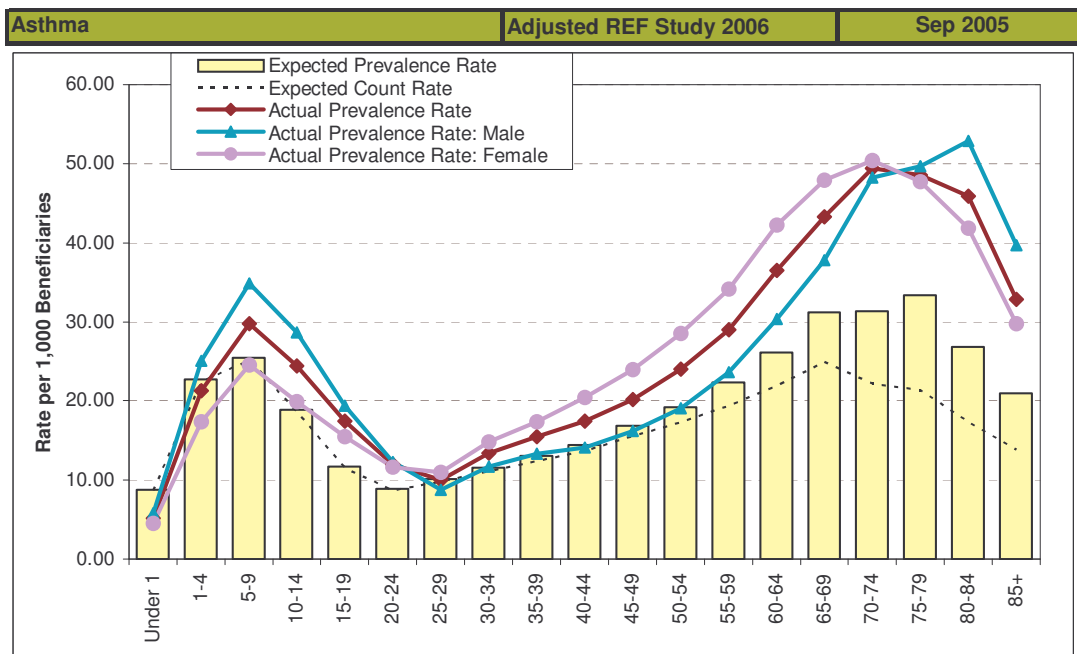
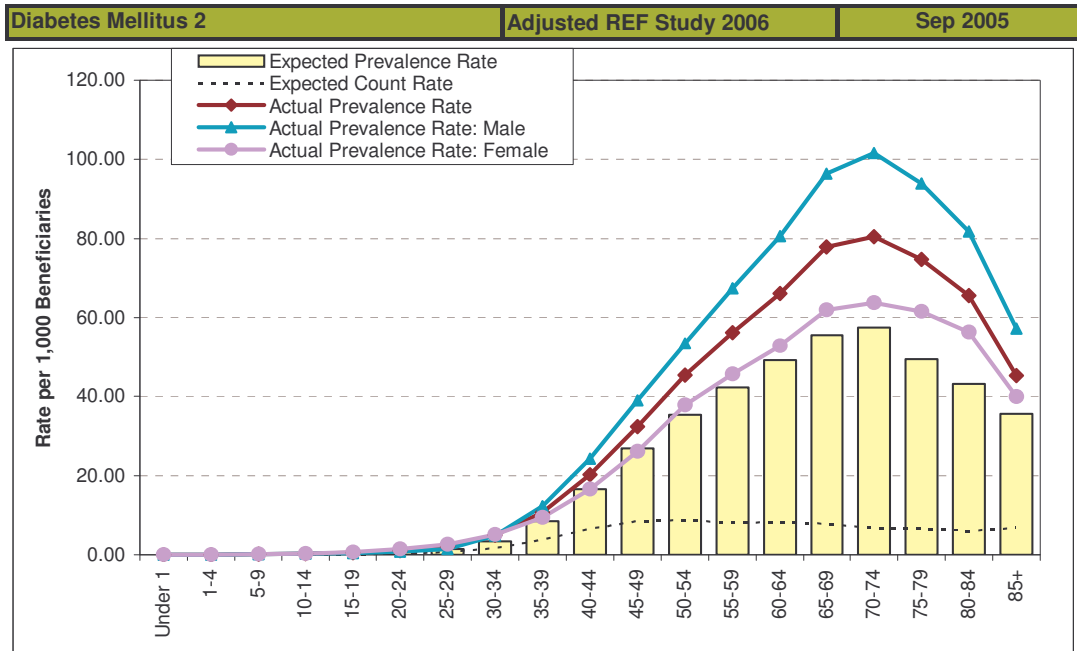
In all three cases an estimate has been made from previous or other data of what the correct submission might have been in order to perform initial analysis of the prevalence data. Administrators need to ensure that there are ways to check the reasonability of data submitted as even the most cursory checks should have highlighted the problems above.

A further area of concern in checking the HIV data in detail was that the count numbers submitted sometimes exceeded the prevalence numbers. As the REF Grid Count requires every beneficiary to be allocated to only one cell, the count must by definition be less than or equal to the prevalence. The problem was not sufficiently widespread nor of a great enough magnitude to delay processing the prevalence data. However we maintain that simple internal checks should be being performed before the data is submitted.

It was found that the NON column and the CC2, CC3 and CC4 columns were generally very poorly filled in on the REF Grid Prevalence submissions. These columns are identical to the REF Grid Count and an adjustment had to be made to the data analysed.

## 6.2 Prevalence of Diseases by Age and Gender

The four graphs below are given as an indication of the analysis that is now possible of the prevalence of various chronic conditions. A separate REF analysis tool has been developed to compare prevalence and count data and to compare the prevalence of each disease by gender. There is a great richness in the data and the details for each disease should be published at least on an annual basis for use by the industry and researchers.



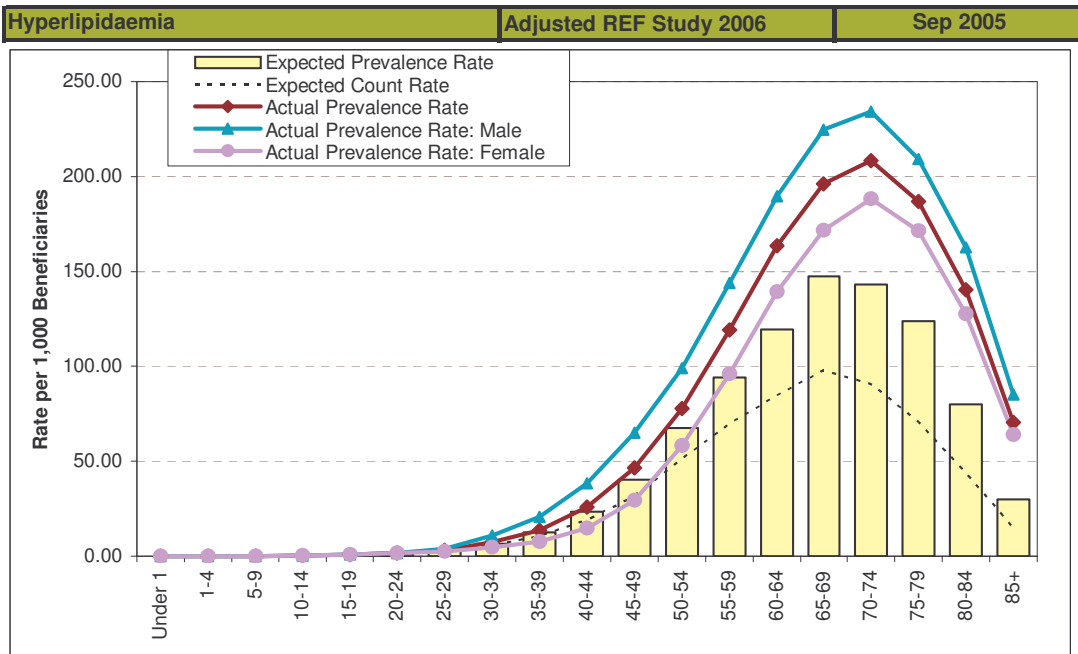
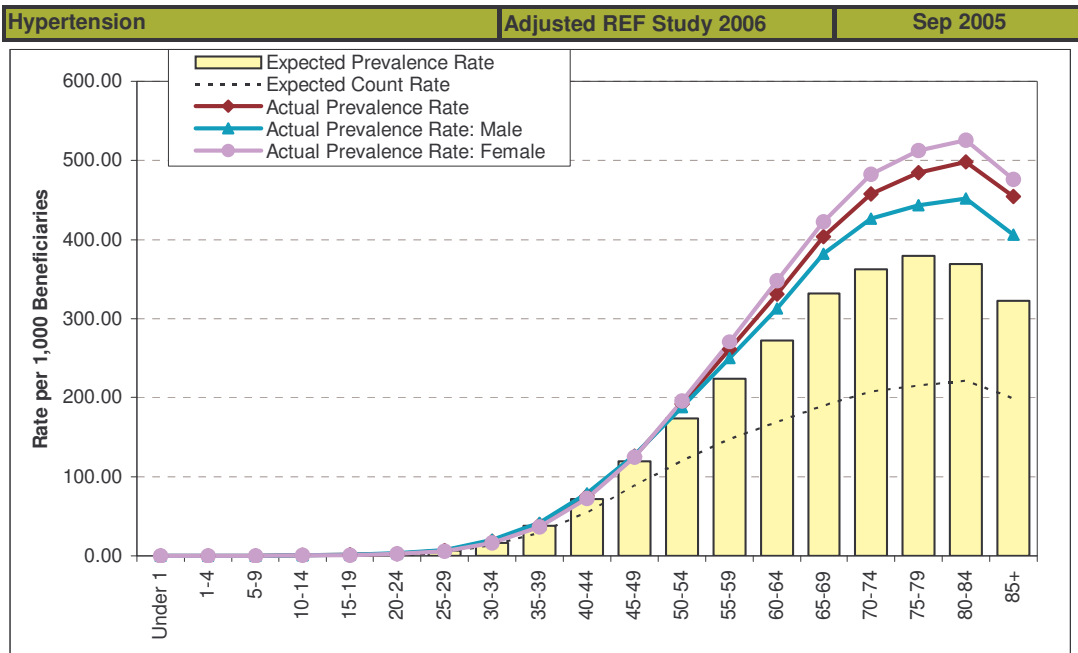


Figure 33: Examples from Prevalence Analysis Tool showing Prevalence of four Common Chronic Conditions by Age and Gender, September 2005

## 7. Summary of Findings on Data Quality

The findings indicate that a large degree in the variation in risk between schemes is not directly attributable to true differences in the risk profile of individual schemes, but that a large proportion of the differences are due to differences among administrators and clearing houses. It is likely that many of the differences are due to the application of differing Entry Criteria. These findings emphasise the importance of the uniform application of Entry and Verification criteria.

To assist with the standard definition of CDL cases across the industry, RETAP has developed a set of Entry Criteria for each of the CDL conditions. These criteria are based on the PMB algorithms and contain standard textbook definitions of the CDL conditions.

To prevent the free interpretation of these definitions, RETAP assisted the CMS in the development of Entry and Verification criteria that define the CDL conditions at a highly detailed level. The CMS has published Version 1 of the Guidelines for the Identification of Beneficiaries with REF Risk Factors in Accordance with the REF Entry and Verification Criteria in November 2005. An updated Version 2, for implementation from January 2007, will be published on the Website for comments on 27 March 06.

## Bibliography

Council for Medical Schemes (2005) *Guidelines for the Identification of Beneficiaries with REF Risk Factors in Accordance with the REF Entry and Verification Criteria. Version 1.* Dated 22 November 2005. Available on <http://www.medicalschemes.com>

Council for Medical Schemes (2005) *Report on the First Shadow Submissions by Medical Schemes to the Risk Equalisation Fund. Prepared for the Department of Health and the Council for Medical Schemes. Dated 31 October 2005.* Available on <http://www.medicalschemes.com>

RETAP (2006a) *Methodology for the Determination of the Risk Equalisation Fund Contribution Table 2006 [Base 2002, Use 2006]*. Recommendations by the Risk Equalisation Technical Advisory Panel to the Council for Medical Schemes. Recommendations Report No. 7, dated 26 January 2006. Available on <http://www.medicalschemes.com>



## Appendix A: REF Price by Age by Category

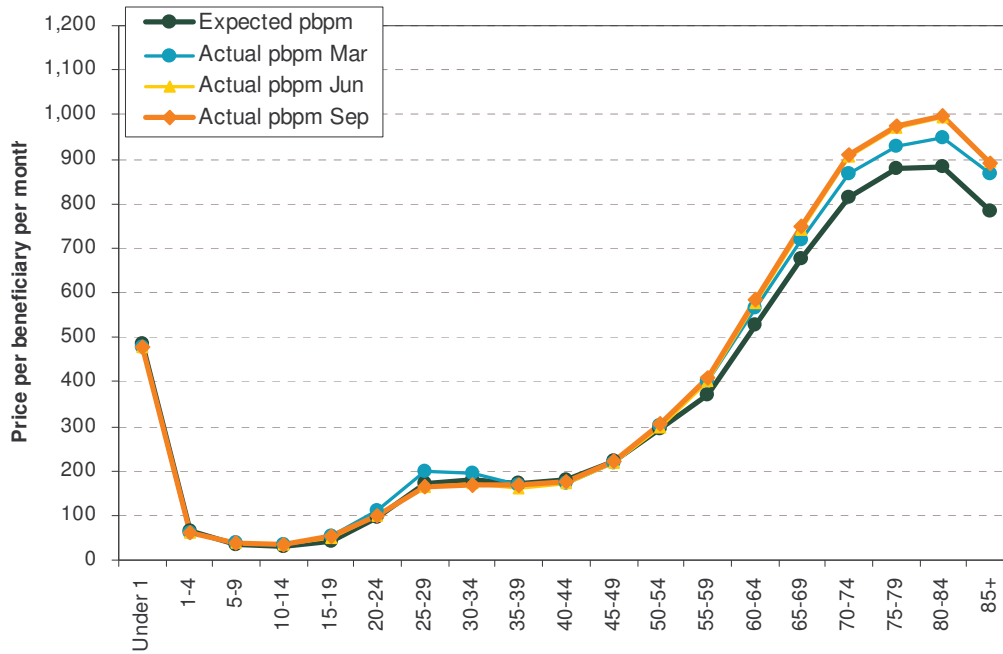


Figure A1: Category 3, September 2005  
Fair data with some concerns,(3,785,006 beneficiaries)

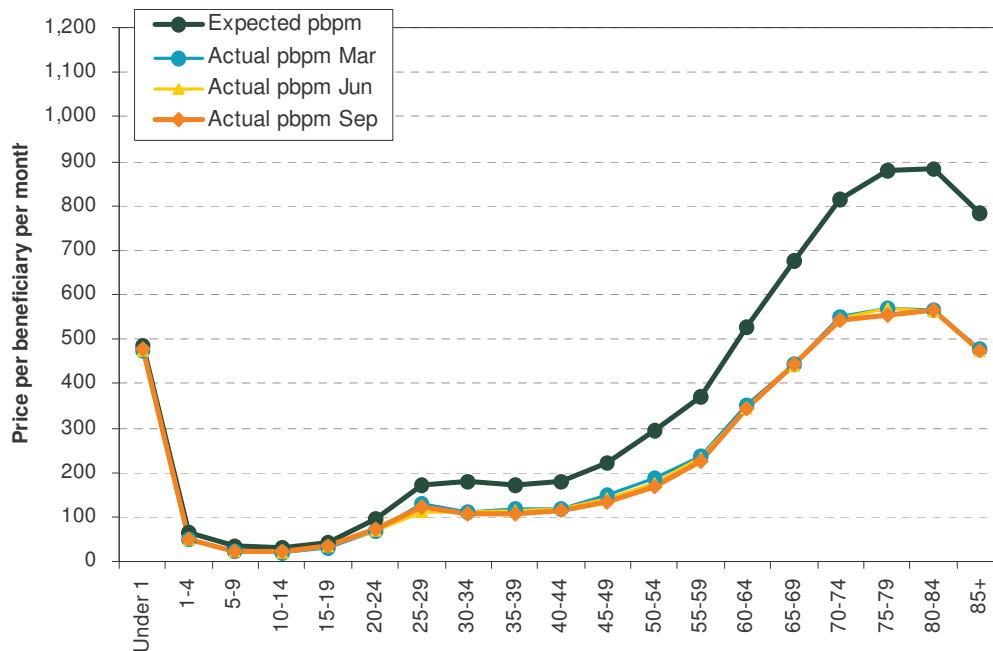


Figure A2: Category 6, September 2005  
Fair data but low CDLs (231,319 beneficiaries)

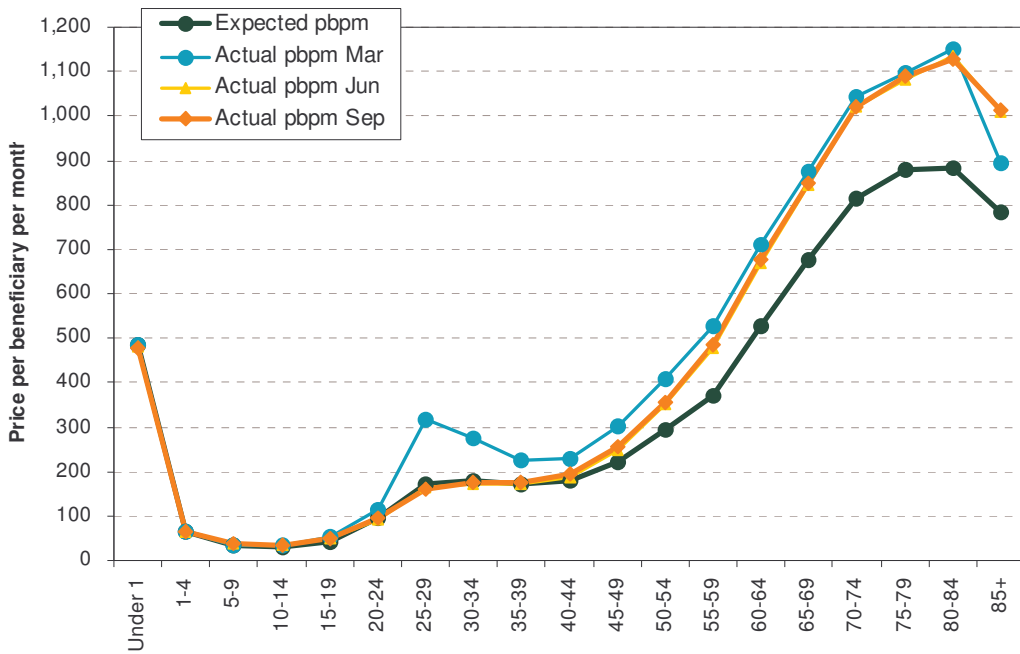


Figure A3: Category 7, September 2005  
Fair data but definitional issues (1,856,466 beneficiaries)

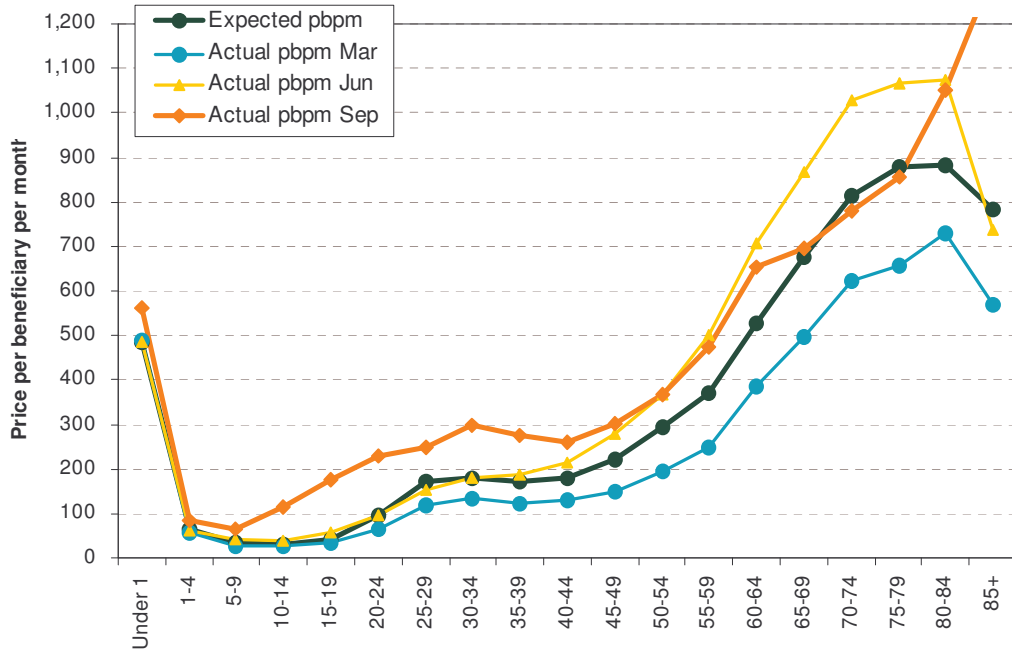


Figure A4: Category 4 and 5, September 2005  
Excluded: incorrect beneficiary numbers (416,471 SR vs. 17,236 REF Grid beneficiaries)

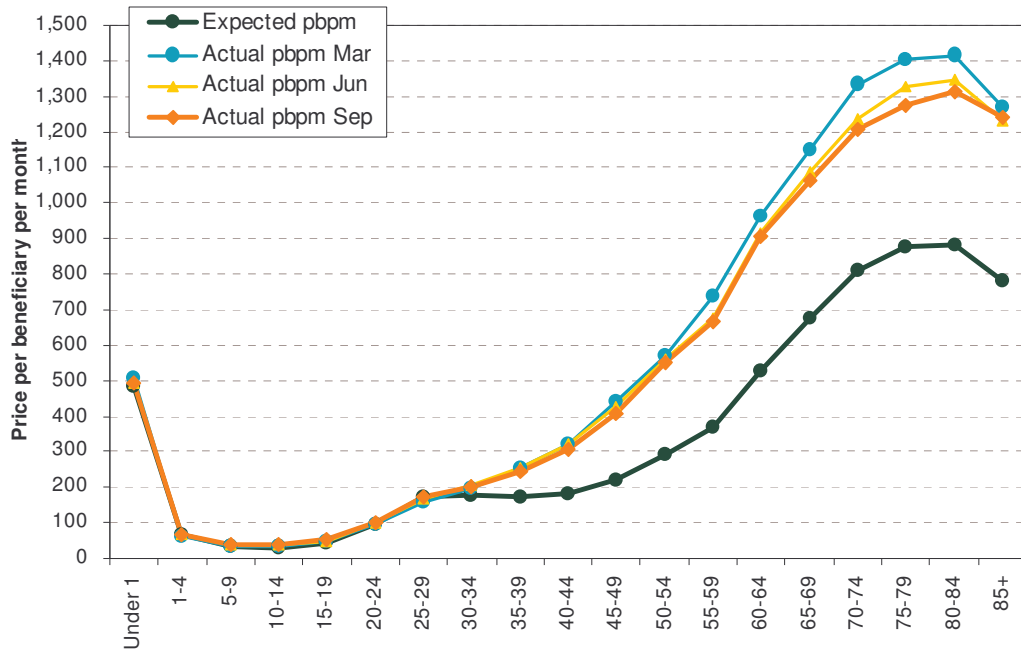


Figure A5: Category 9, September 2005  
 Serious Errors in Chronic Conditions Reported (458,490 beneficiaries)  
 [Note different scale]