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# Review of VHI Claims Cost Control

Prepared for:  
**Department of Health & Children**

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## 1. INTRODUCTION

Milliman was commissioned by the Department of Health & Children to conduct a review of VHI's claims costs control, comprising:

- Interviews with stakeholders
- An onsite operational review
- A claims analysis and benchmarking exercise

This report sets out the results of our analysis and our recommendations. The report is laid out as follows:

- Section 2 provides our executive summary
- Section 3 sets out our analysis of VHI's historic claims experience
- Section 4 outlines various actions taken by VHI in relation to claims control costs
- Section 5 provides our observations on VHI's claims control processes and our benchmarking of VHI's admission rates and average length of stay
- Section 6 summarises our opinions and recommendations
- Section 7 contains reliances & limitations
- Appendix A provides an overview of our review process and methodology for our benchmarking analysis
- Appendix B provides additional background information
- Appendix C provides some additional detail on the results of our claims and benchmarking analysis

The overall conclusions drawn in our report are based primarily on the operational review carried out and the interviews with stakeholders and are supported by the results of our benchmarking exercise.

It is important to note that this report focuses primarily on VHI's claims experience, in the context of the risk profile of its insured population. In other words, this report addresses the issues relating to VHI's management of its claims costs, given the risk profile it has, and the options available to VHI in that context. This report does not assess the necessity, or potential calibration and design of a new Risk Equalisation Scheme. In addition, it was not part of our scope to assess VHI against Solvency 2 standards and no part of this report should be interpreted as a gap analysis of VHI's compliance with, or readiness for, the Solvency 2 regime.

Some of our analysis and recommendations are based on specific data we received from VHI to validate the observations we gathered during the interviews and operational review. In other cases, we did not receive specific data to add weight to our remarks and we have commented where this is the case.

**In preparing this report, we have reproduced some of the information provided by VHI, which we note for the avoidance of doubt is commercially sensitive information where it is not already in the public domain.**

## 2. EXECUTIVE SUMMARY

VHI has seen significant increases in claims over the last two years, despite a declining membership, leading to a worsening financial performance as premiums have not increased accordingly. VHI believes the key reasons for the increase in claims costs have been (i) an increased supply in private hospital beds, leading to supplier-induced demand (ii) higher prices for private beds in public hospitals (iii) increased primary care claims and (iv) the ageing and worsening health status of its population.

It is important to make the distinction between absolute increases in claims incurred, increases in claims incurred per person and increases in the loss ratio, which drive the underwriting profit/loss. Most of the analysis we were shown by VHI concentrated on explaining increases in absolute claims costs. Absolute claims costs mask the impact of changing membership levels and are only one component of underwriting performance; we also need to consider whether the claims costs could have been anticipated and therefore whether premium levels have been set at a level which keeps pace with forecast and actual claims cost increases.

Between 2008 and 2009, claims costs per person rose by 19%, while premiums per person rose only 13%, which led to a deterioration in loss ratio and hence a poor underwriting performance in 2009.

Premium increases have been inevitably constrained by the competitive landscape in which VHI operates. This report concentrates on reasons for claims cost increases and our analysis of 2008 and 2009 data shows increases in claims costs per person have been driven by:

- Material increases in utilisation in high-tech hospitals, which generally have higher unit costs than normal acute private hospitals. A large part of the trend can be attributable to two high-tech hospitals, which had substantial increases in utilisation, combined with high unit costs increases. This increased the average cost of an inpatient stay overall by a significant amount.
- High trend rates for day case utilisation at acute private hospitals, combined with substantial increases in average costs for inpatient procedures and more modest increases in costs for day case procedures at these hospitals. Some of the increase in average costs for inpatients appears to be driven by one or two hospitals, where inpatient unit costs have increased by 10%.

While the increase in public hospital per diem prices *did* contribute to inpatient claims cost trends, the effect of the per diem increases was offset by lower inpatient admission rates and shorter average lengths of stay. In addition, ageing of the portfolio was a reasonably significant factor driving claims cost increases, but it was not the most important factor.

While it is undoubtedly true that VHI has an older and (arguably) sicker population than its competitors, we believe limited focus has been given to utilisation management and investing in ways to manage claims that can yield savings regardless of the risk profile of its population. We believe there is a considerable opportunity to improve the management of care delivery and hence financial performance, and our benchmarking analysis provides some indication for the scale of some of the *potential* savings that could be made, by both reducing inpatient admission rates and reducing average length of stay.

Given our analysis showing that average costs have driven a large part of the claims cost increases, we are impressed with the improvements VHI has made in 2009 and 2010 to the contracting process and the reductions in unit costs. It appears to have been relatively effective at managing provider unit cost trends and this should be reflected in the 2010 financials. However, we believe there has been little effort expended to control utilisation beyond some pilot programmes. In all our discussions with VHI, there was minimal emphasis on issues around managing the quality of care given to patients and hence reducing claims cost by limiting inappropriate treatment with no proven medical benefit. Our experience in other markets and our data analysis leads us to believe this is likely to be a source of considerable potential savings.

VHI has a number of competing stakeholders, including insured members, dependent health care providers, and Society/Government. This leads to confusion on what VHI's role should be in the Irish healthcare system and we believe that VHI's poor financial performance is partly due to this confusion. If VHI takes a more pro-active role in managing quality and limiting inappropriate treatment, there are likely to be significant consequences for financially precarious private hospitals and cash strained public hospitals. In addition, because of its role as a complementary insurer to citizens who are entitled to public treatment in the Irish system, it faces two key issues:

- It must remain attractive to policyholders and offer benefits that they cannot get in the public system or there is no incentive to buy private insurance; and
- It relies on the public system to deliver some aspects of care, e.g. primary care, which limits its ability to set up integrated delivery systems in the manner seen in other markets such as the US.

Although VHI has made some efforts in the direction of integrated care models, these have been extremely limited. We recognise that there are significant systemic and financial disincentives to implementing many of these programmes, however, because of its leading position within the private health insurance market, VHI's leadership on these issues could provide significant impetus for change.

Rather than concentrating on better care management, VHI is moving towards a product segmentation strategy to better match revenue and expenses of various products. While this may be a rational response to the current market dynamics in Ireland (notwithstanding that it does not support intergenerational solidarity), we do not believe it is the only response and diverts attention away from investing in utilisation management.

Most international health insurers either have a suite of standard reports (or are readily able to extract from their information systems reports) that are granular and monitor emerging experience (utilisation and unit cost) against budget for both revenue and expenses, forming the foundation for managing all the health insurers' functional areas. VHI initially appeared unable to readily provide Milliman with any reports for identifying and analysing drivers of claim cost increases. Subsequent to our onsite operational review and shortly prior to finalising our report, we received some utilisation reports comparing numbers of procedures at a procedure code level. We also received some management information reports from a new reporting package implemented in July 2010, but we were not provided with any reports comparing rates of utilisation and average costs by service category and risk factor which would enable the user to easily pinpoint and monitor drivers of claims cost increases. While these may exist, we did not receive claims reports in anything other than a summary level, focused around total increases in claims and claims amounts by member age. We do not believe that reports at this summary level will allow management to understand drivers of claims costs in detail and take timely and effective steps to address emerging issues.

Our analysis of the claims experience across VHI's 20 most significant hospitals indicates a significant variation in average lengths of stay and average costs per day even when adjustments were made to take account of differences in the severity of conditions treated. A more granular level of regular reporting would allow VHI to better monitor providers whose costs and average length of stay figures are at odds with their peers, giving greater control over provider management and ultimately over claims costs.

A move towards more effective reporting, more intensive medical management and attempts to encourage models of integrated care will likely require additional investment by VHI in staff and other resources, which will inevitably increase administration expenses and may even increase short term claims costs as VHI pays for more outpatient /primary care services. Targeted correctly, we do not believe this is a cause for concern *if* it can be demonstrated that increases in administration costs are more than offset by claims costs savings. This will require modelling of the cost-benefit of these programmes in a robust way and close interaction between the actuarial and financial control functions and the medical management and claims departments.

To give an indication of what could be achieved with better utilisation management, we compared VHI's claims to our Milliman best practice benchmarks. These benchmarks are based on insured health systems in the US and we categorise them into Loosely Managed (LM) and Well Managed (WM). The LM benchmarks are broadly indicative of a US health plan carrying out very little active medical management. The WM benchmarks are indicative of results from integrated health systems in the US with a robust and efficient provider infrastructure, strict medical management and good adherence to evidence-based guidelines. We adjusted our benchmarks for demographic differences to ensure they are not distorted by differences in population structure between the US and VHI. We are aware that VHI has carried out its own internal benchmarking against OECD statistics, but we do not believe this is an appropriate comparison for reasons that are set out in the report.

The key results from our benchmarking analysis show that at an aggregate level, VHI's admissions were slightly higher than our LM benchmarks for medical and surgical categories, but substantially higher when compared with our WM benchmarks. In addition, average lengths of stay are generally significantly higher than both our LM and WM benchmarks, suggesting significant potential savings from a focused utilisation management program, either concentrating on reducing length of stay, reducing inpatient admissions or both.

Our analysis by DRG indicates some of the clinical areas which have the greatest potential savings. However, we recognise that there are some coding issues within the data at individual DRG level and so care should be taken in drawing firm conclusions at DRG level. A more detailed exercise would need to be carried out, including chart reviews against evidence-based criteria, in

order to more precisely quantify savings at individual DRG level and to assess the likelihood of being able to achieve these, taking into account the internal and external factors.

The benchmarking analysis at an aggregate level provides a meaningful picture of the potential savings in our view and supports the conclusions we have drawn from the operational review and interviews with stakeholders. Furthermore, the results of our benchmarking exercise are similar to analyses we have carried for other European health insurers with limited utilisation management capabilities.

We conclude that investment in utilisation management and a greater focus on evidence based medical necessity, particularly targeted at conditions where higher levels of savings are possible, could provide VHI with significant reductions in overall claims levels, albeit with some initial investment. We have drawn this conclusion based on the operational review and the interviews with stakeholders and it is supported by the results of our benchmarking exercise. This is also consistent with our experience of similar reviews of other companies with a limited focus on utilisation management across different health systems. It is important to note that the purpose of the benchmarking exercise is not to suggest that VHI could improve its ALOS or admission rates in every area, and across every DRG. There will be situations where external factors will make change difficult or impossible, or where the investment required to effect change will be prohibitive. However, notwithstanding any issues relating to inaccurate coding in the underlying data, our analysis clearly highlights the fact that there are significant potential areas where savings could be achieved. Further analysis would be required to model both the likely savings and initial investment requirement and therefore the return on investment for specific clinical areas.

### 3. VHI CLAIMS EXPERIENCE

#### 3.1 VHI Financial Results

Table 3.1-1 shows VHI's profit and loss account for the twelve month periods ending 28 February 2008 (effectively its 2007 year) and 31 December 2009 (its 2009 year) respectively<sup>1</sup>:

**Table 3.1-1 Summary of VHI's P&L account (€'ms)**

	12 MONTHS TO FEB-08	12 MONTHS TO DEC-09
Earned Premium Income	1,153.0	1,313.6
Claims incurred	(1,005.0)	(1,339.0)
Change in Unexpired Risk Reserve	64.9	13.1
Age related tax credits less Insurance stamp duty	-	29.8
Administration Expenses	(91.4)	(92.4)
Underwriting Profit / (Loss)	121.5	(74.9)
Investment Returns	16.3	26.7
Profit / (loss) before tax	137.8	(48.2)
Corporation Tax	(18.2)	6.5
Profit / (loss) after tax	119.6	(41.7)
Claims Ratio (Claims Incurred/Earned Premium)	87%	102%

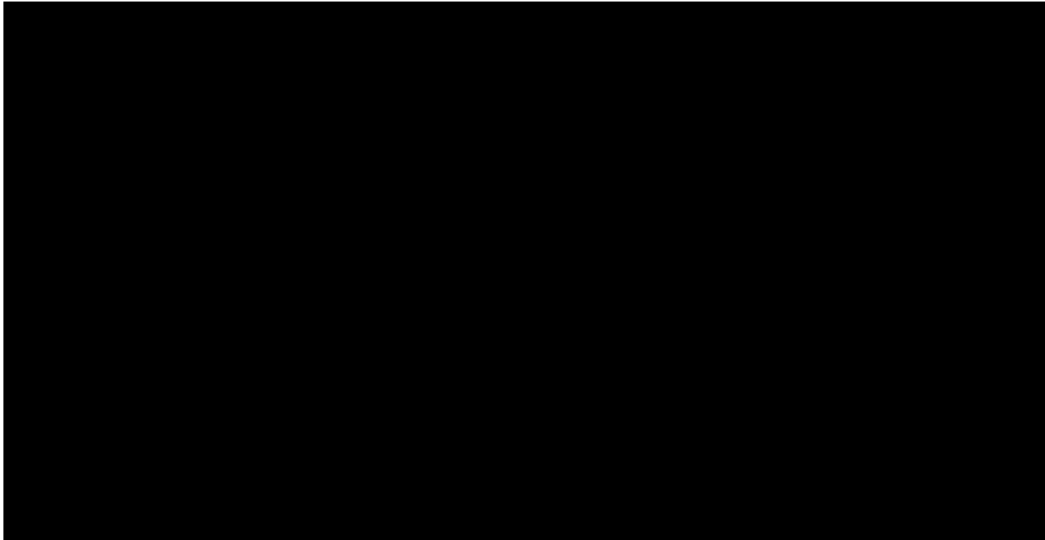
VHI's financial position changed over this period from recording an underwriting profit of €122m over the year to end February 2008 to recording an underwriting loss of €75m over the year to end December 2009. VHI's annual claims incurred increased from €1,005m to €1,339m between the two periods (over 22 months), representing an increase of €334m or 33%. VHI's earned premiums only increased by 14% over this period however, resulting in a deterioration in VHI's financial result. This is also evident from the deterioration in the Claims Ratio from 87% to 102% between the two periods (i.e. earned premiums did not cover claims incurred in the year to end December 2009). Furthermore, the increase in claims was against a backdrop of falling membership for VHI as can be seen from section 3.3, which shows that VHI's membership fell by 9% from 1 January 2008 to 1 January 2010.

<sup>1</sup> noting that VHI changed its financial year from an end February year-end to an end December year-end from the end of 2008



VHI provided a high level explanation for the €334m increase in claims costs over the 22 month period above, which they attributed to the following drivers:

**Table 3.1-2: TABLE REDACTED**



It should be noted that we have not received any back up for these numbers, or any explanation of how they have been calculated and so we are unable to comment on their accuracy or the reasonability of the calculation methodology. For example, it is possible that the cost of new facilities has been simply calculated as the claims amounts paid to these facilities, without taking into account the effect of patients switching from an existing private or public facility to these new facilities. If this is the case, the 10% increase because of new facilities is likely to be overstated as a measure of supplier-induced demand.

### 3.2 Milliman's Analysis of Change and Claims Cost Trends

While the absolute amount of claims incurred is important, it does not separate the effects of changes in membership from the effects of claims and premium increases. To determine the underlying reasons for underwriting deterioration, we analysed VHI's experience in 2008 and 2009 by the amount of premium received and claims incurred Per Member Per Month (PMPM), and present all our results in terms of incremental PMPM, or "contribution to trend". Our analysis is designed to understand the causes of claims cost increases and isolate each of the measurable effects separately.

This section presents summary results of our analysis. For further details on methodology, see Appendix A. For more granular results, see Appendix C.

#### 3.2.1 ANALYSIS OF CHANGE IN PMPM BY CHANGE IN PORTFOLIO MIX

For the first part of our analysis, we separated out the effect of changes in the age/sex structure of the population, changes in the mix of members in different plan types (Plans A to E and Lifestage B and Company B plans) and the effect of utilisation on different claim types. Table 3.2.1-1 shows the actual PMPMs and rates of inpatient and day case utilisation and Table 3.2.1-2 shows the percentage changes in PMPMs and utilisation. We only received 2008 and 2009 data in sufficient detail for this analysis but changes from 2007 to 2008 could be analysed using the same method.

**Table 3.2.1-1 PMPMs from 2008 to 2009**

	PREMIUM PMPM	IP/DC* ADMITS PER 1,000	IP/DC* PMPM	OUT-PATIENT PMPM	PRIMARY CARE PMPM	TOTAL CLAIMS PMPM	LOSS RATIO	INCR. PMPM
2008 Actual	€65.31	227.8	€61.06	€0.60	€1.04	€62.70	96.0%	
2009 with 2008 age/sex/plan structure	€74.03	237.7	€69.60	€0.50	€1.88	€71.99	97.2%	€9.29
2009 with 2008 age/sex structure	€73.65	237.3	€68.11	€0.48	€2.49	€71.08	96.5%	-€0.91
2009 Actual	€73.94	242.8	€71.46	€0.50	€2.55	€74.51	100.8%	€3.43
								€11.81

\*IP/DC = In-patient / Day Case

**Table 3.2.1-2 Percentage Changes in PMPM**

	PREMIUM PMPM	IP/DC ADMISSIONS PER 1,000	INPATIENT PMPM	OUTPATIENT PMPM	PRIMARY CARE PMPM	TOTAL CLAIMS PMPM
Contribution of factors other than age/sex/plan mix	13.4%	4.3%	14.0%	-16.0%	81.3%	14.8%
Contribution of plan mix	-0.6%	-0.2%	-2.4%	-4.3%	58.2%	-1.5%
Contribution of ageing	0.4%	2.4%	5.5%	2.7%	6.3%	5.5%
<b>Overall Change 2008 to 2009</b>	<b>13.2%</b>	<b>6.6%</b>	<b>17.0%</b>	<b>-17.6%</b>	<b>145.8%</b>	<b>18.8%</b>

Consistent with VHI’s own analysis, the largest contribution to the claims increases was *not* ageing, although this has had a reasonably significant impact on claims cost. Of the total incremental PMPM claims cost of €11.81, only €3.43 was due to ageing. Changes in plan mix actually decreased PMPM by €0.91. This leaves €9.29 PMPM in incremental claims cost which must be explained by factors other than ageing or plan mix.

When the effect of ageing and plan mix is removed, there is a 4.3% trend in hospital admissions from 2008 to 2009. This is not as high as we would expect if there were a) a large amount of selective lapsing, where healthier members leave VHI and sicker members remain or b) a high degree of overall system pure supplier-induced demand, where hospital admissions are driven up when the supply of hospital facilities increases. While it does not definitely prove or disprove these effects, it is worth noting that we would have expected to see a much greater utilisation trend rate if either of these effects was the main factor in increasing claims costs.

Instead it appears initially that average cost increases are a more important driver than utilisation increases. While hospital utilisation increased by a modest amount (6.6%), hospital PMPMs grew by 17%, implying that the average cost of a hospital stay increased by 10% in one year; this may either be because the unit costs at each hospital have increased, or because patients substituted stays at more expensive hospitals for stays at cheaper hospitals. This could point to a selected supplier-induced demand effect, where increased capacity in newer high-tech hospitals leads to supplier-induced demand for those hospitals, crowding out older or cheaper hospitals, but the system does not experience significant supplier-induced demand as a whole. We investigate this in more detail later in this section.

Overall claims amounts per member per month increased by nearly 19% between 2008 and 2009, while premium PMPM amounts increased only 13%. This is the key cause of the loss ratio deterioration between 2008 and 2009. It may be that while VHI was able to raise premiums sufficiently to cover increases in costs due to factors other than ageing (perhaps because these cost pressures would also have been experienced by competitors), it was unable to remain competitive in the market and increase premiums to the extent necessary to compensate for all the factors driving claims costs trend.

We did not receive similar detailed data for 2010 to date, but VHI's own analysis shows that the portfolio has continued to age between December 2009 and May 2010, although at a slightly slower rate than during 2009.

Exhibit 2 in Appendix C breaks down the analysis above by Plan type. This shows that the contribution of ageing in some plans (particularly Plan B) is quite significant, but this is offset by decreases in the average age elsewhere.

### 3.2.2 ANALYSIS OF PMPM BY FACILITY TYPE

The previous section demonstrates that hospital inpatient, day case and side room claims are by far the most significant contributor to cost increases. Therefore, a logical step was to analyse hospital PMPMs by type of hospital, with facility and professional fees shown separately by year. **Table 3.2.2-1** shows that the increases in PMPM for hospital claims are primarily a function of facility rather than professional, fees and also that increases in claims spend have been significantly higher in the high-tech and acute private hospitals. Facility costs in public hospitals are also a contributor to trend, although this is partially offset by lower professional fees (unlike in the private facilities, where professional fees also increased substantially). Note this analysis combines both inpatient and day case/side room claims.

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**Table 3.2.2-1 TABLE REDACTED**

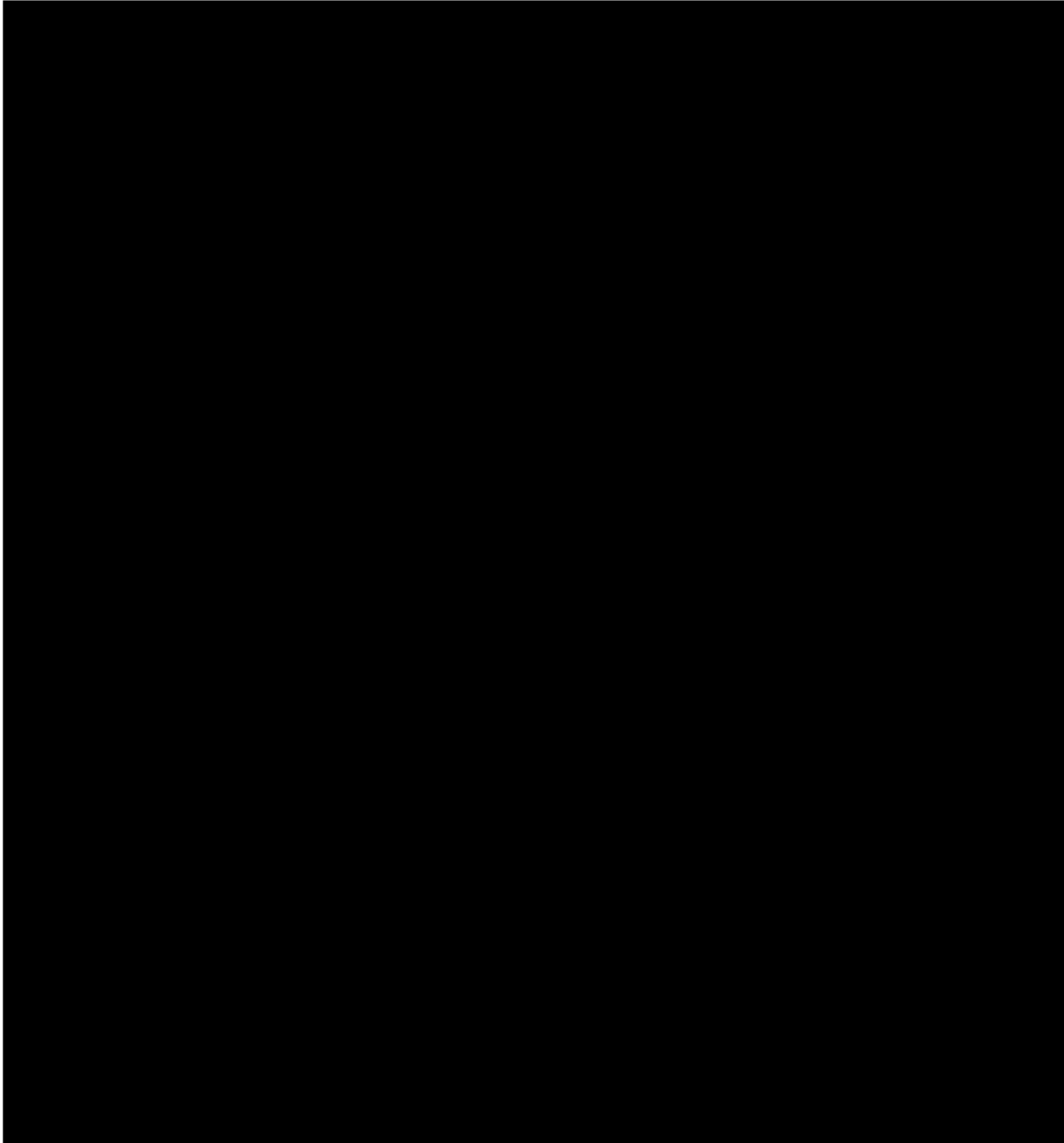


Exhibit C.3 in Appendix C contains a more detailed analysis, split by plan type.

As noted previously, some of the increases shown may result from increased unit costs in certain types of facility and some may result from patients substituting stays in cheaper public or private hospitals for stays in more expensive private hospitals. Therefore, we need to separate out utilisation from average cost in each facility type. To gain more insight, we also need to know

whether the average cost increases are as a result of patients moving to more expensive facilities or whether the average patient is becoming more severely ill (increases in casemix) over time.

### 3.2.3 ANALYSIS OF PMPM SPLIT BY INPATIENT/DAY CASE

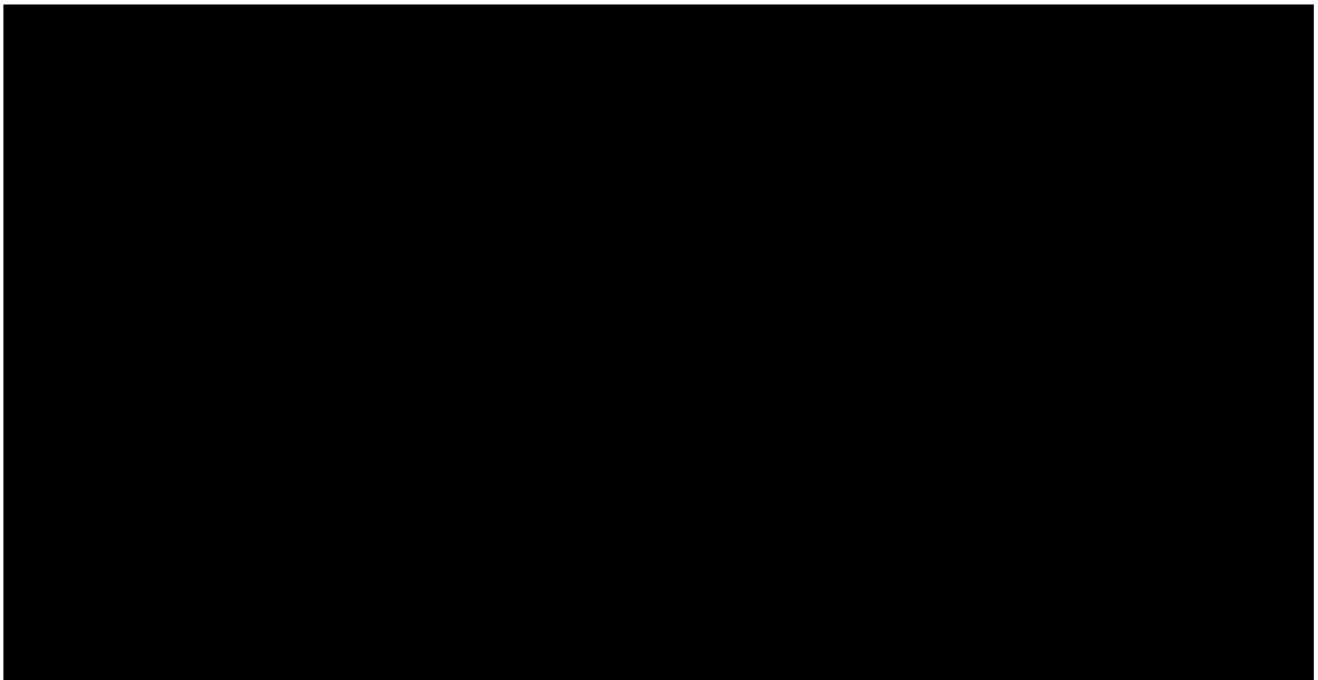
To determine whether it is day cases and side room procedures, or inpatient stays that are contributing to the PMPM trend, we have split these out in the table below for the main facility types. Note that the data in this analysis, unlike the analysis so far in this section, is based on the data supplied by VHI categorised by Diagnostic Related Group (DRG<sup>2</sup>), which is paid, rather than incurred data and only includes facility fees and not professional fees. Therefore, the numbers are not directly comparable with the previous tables. Nonetheless, the table gives a broad indication of the key reasons for claims cost trend by facility type. The most significant limitation is likely to be that public hospital claims take longer to settle than private claims and therefore public hospital data, relative to private hospital data is likely to be understated if the analysis is based on paid claims.

The analysis shows that for acute private hospitals, the increase in day case and side room procedures is the biggest contributor to PMPM claims cost trend, although the increase in the average cost of an inpatient stay is also a factor. However, for high-tech hospitals, inpatient admissions are driving the trend more than day case/side room procedures. For public hospitals, the increase in facility costs is significant, although partially offset by the fall in admissions.

The analysis also clearly demonstrates the large difference between average costs per inpatient admission in high-tech hospitals versus acute private or public hospitals. This combined with the big increases in utilisation rates in high-tech hospitals provides some clues on why the overall portfolio average cost has increased so significantly. It appears this increase is partly due to changes in provider mix (a greater proportion of utilisation taking place in expensive high-tech hospitals), rather than necessarily unit cost increases in particular hospitals.

Exhibit C.4 in Appendix C contains more detail on these results.

**Table 3.2.3-1: TABLE REDACTED**



<sup>2</sup> DRGs group together admissions with related diagnosis and similar resource usage. Note that VHI grouped admission data into DRGs.

### 3.2.4 ANALYSIS OF CASE MIX BY FACILITY TYPE: INPATIENT

The previous section demonstrates contributors to trend by facility type, but does not give much insight into why average costs are increasing so significantly in acute private hospitals, while apparently staying static in high-tech hospitals, or why utilisation has increased so much in high-tech hospitals.

By analysing the casemix, or average severity, over time for each facility type, we can identify whether changes in average costs are due to unit cost increases, or increasing average severity. To look at casemix over time by facility type, we split the inpatient admissions by DRG. We then assigned weights to each group of admissions by DRG. The weights represent the relative severity of each DRG. By calculating the average weight (casemix index) for each facility type using the distribution of admissions by DRG, we can estimate a severity-adjusted average length of stay (ALOS) and severity-adjusted average cost. Please see Appendix A for more details on this methodology.

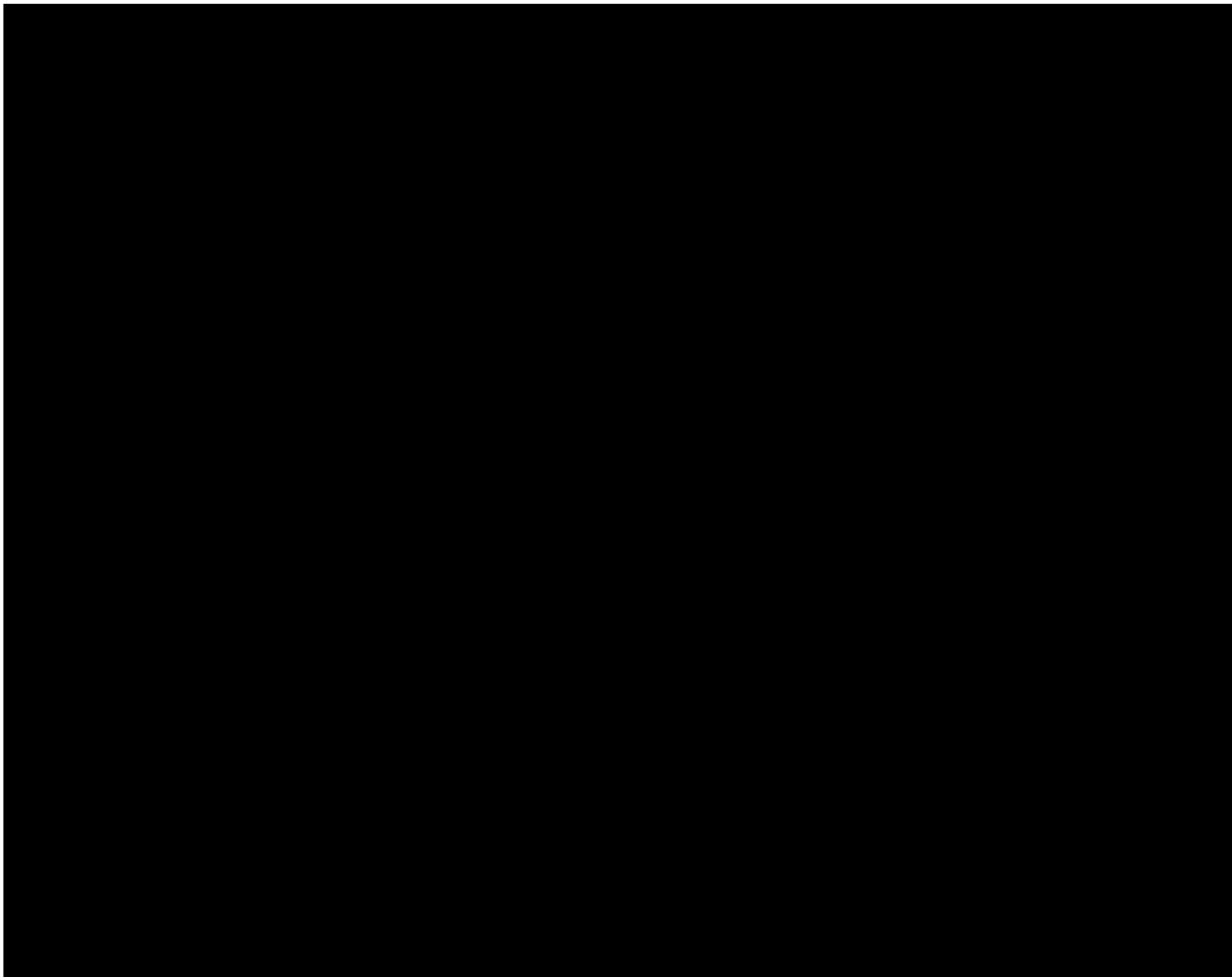
Again this part of the analysis relies on 2008 and 2009 paid data from VHI without adjustment for reserves in respect of claims events which have occurred but for which a claim payment has not yet been made. While we would not expect a material reserve addition to 2009 admissions (as our data was extracted at 30 June 2010), our analysis may slightly understate the true 2009 average costs and therefore the true increases from 2008 to 2009, particularly for public hospitals which take longer to settle claims. This analysis is also dependent on VHI assigning the correct DRG coding to inpatient records. However, while we understand there may be some issues with the DRG coding, we believe this analysis is robust enough to give some valuable insights into the drivers of claims costs and is indicative of the type of analysis we would expect to see carried out at a best practice health insurer on a regular basis.

Table 3.2.4-1 illustrates the effect of changes in utilisation, average length of stay, severity adjusted length of stay, average cost and severity-adjusted average cost from 2008 to 2009 by main facility type<sup>3</sup>. Some points to note from this table:

- The average inpatient casemix index has changed little from 2008 to 2009: in effect the data shows that VHI's inpatient stays show no increase in average severity overall.
- Although the average length of stay fell slightly overall, the average cost per admission increased by 11%.
- In high-tech hospitals, while the average cost per stay remains the same from 2008 to 2009, the casemix index actually fell and therefore, on a severity-adjusted basis, the average cost per stay and ALOS rose.
- One of the reasons for increases in average inpatient stays in acute private hospitals was an increase in the average severity of cases. On a casemix adjusted basis, inpatient costs only rose 4%.
- The most significant rise in average cost per stay is in public hospitals, where costs per admission increased by 12%. However, this was partially offset by a reduction in ALOS of 9%.
- On a severity-adjusted basis, high-tech hospitals are slightly more costly per stay than normal acute private hospitals and have a lower average length of stay.
- Increases in utilisation in high-tech hospitals appear to have led to a decrease in average severity. There are a couple of possible reasons:
  - patients may be substituting stays in high-tech hospitals for stays in acute private hospitals for less serious procedures, leading to an increase in the casemix index of private acute hospitals, but a decrease in the casemix of high-tech hospitals
  - private acute hospitals may have become more adept at shifting utilisation from inpatient to day case than high-tech hospitals. As less severe patients have their procedures carried out as day cases, the average inpatient severity increases. However, we would expect this to be accompanied by an increase in ALOS and this does not appear to be the case.

<sup>3</sup> Note we have excluded Foreign, Transport and claims coded as facility type "Other" from this analysis

**Table 3.2.4-1 TABLE REDACTED**



It appears that the biggest contributor to increases in inpatient claims costs is the increase in patients in high-tech facilities, where average costs per stay and average lengths of stay on a severity-adjusted basis are actually increasing. While public hospitals have increased their cost per day, the combination of a decrease in admissions, combined with decreases in the ALOS means that overall PMPM inpatient costs for public hospitals increased very little from 2008 to 2009. It is difficult to know whether patients have replaced inpatient stays in public hospitals with stays in private hospitals, or whether the reduction in public hospital stays is independent of increasing admissions to private hospitals.

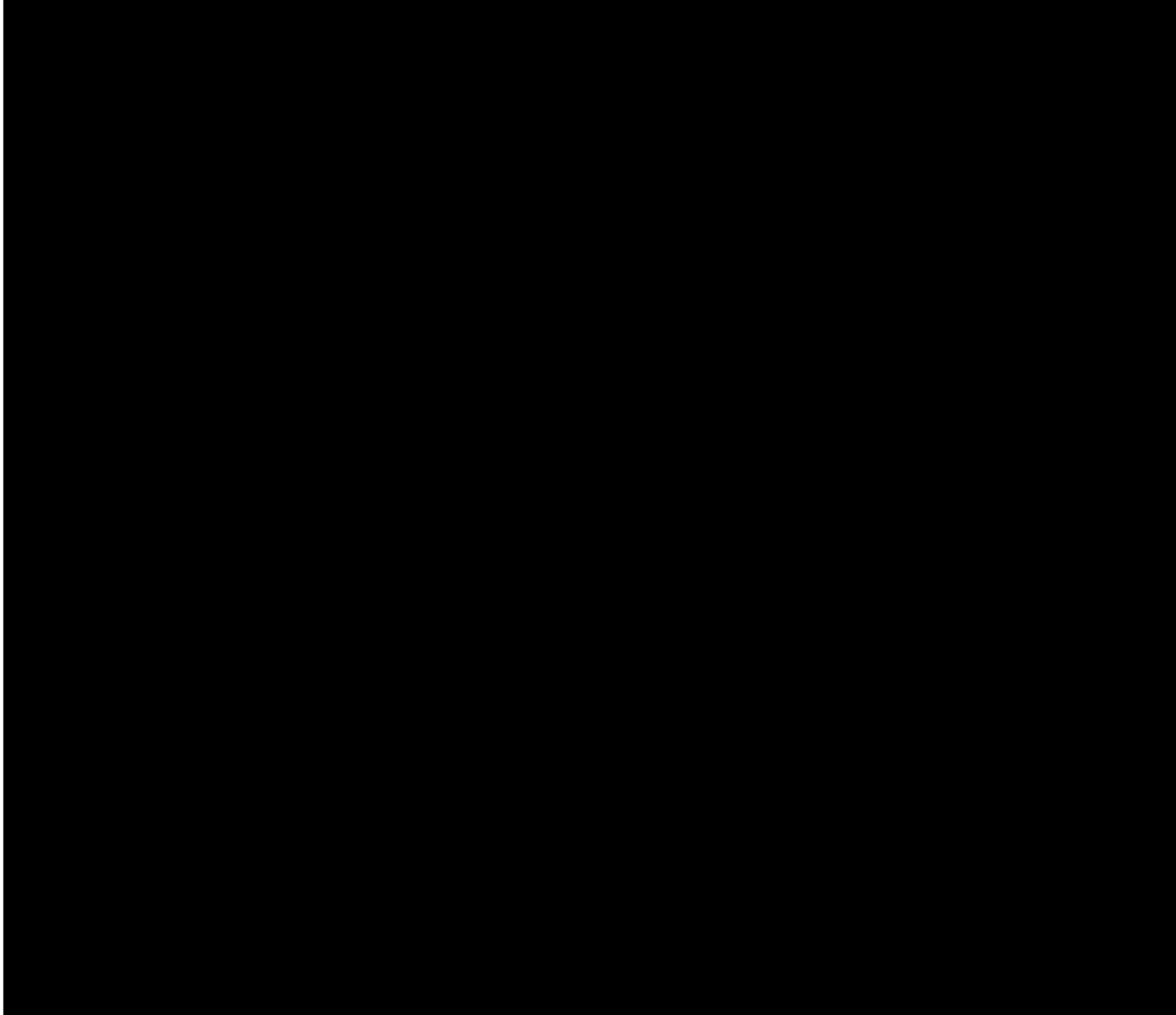
Exhibit C.5 in Appendix C contains more detail on this analysis, including a split by under and over age 65s.

### 3.2.5 ANALYSIS OF INDIVIDUAL HOSPITALS

To analyse the impact of individual hospitals, we asked VHI to provide us details of individual admissions by DRG for each hospital, so we could use our severity-adjusting methodology to compare the performance of specific hospitals. VHI provided us with hospital identification codes, but declined to provide the names of hospitals, due to confidentiality concerns.

We have replicated our analysis in the section for the 20 facilities to which VHI paid the most in 2009. A summary of the results for a selection of the 20 hospitals is contained in Table 3.2.5-1 below. Our full analysis covering all 20 hospitals is set out in Appendix C, Exhibit C.6.

**Table 3.2.5-1 TABLE REDACTED**



The most important points to note are:

- The two high-tech facilities id 625 and 146 were the most significant contributors to PMPM trend, with extremely high trends in inpatient admissions<sup>4</sup>. However, id 625 also had large increases in average costs, despite no changes in severity, and a fall in ALOS, implying that unit costs at this hospital increased materially from 2008 to 2009. Id 146 does not initially appear to have high average cost increases, but because the average casemix index fell, on a severity-adjusted basis, its costs rose almost 8%. However, it is worth noting that on a severity-adjusted basis, the average costs of both these facilities were below high-tech facility 603, which currently has a higher utilisation rate than the other two high-tech facilities.
- All the acute private facilities in this table had a similar contribution to PMPM trend, but for different reasons. Facility id 61 increased its average casemix index, and therefore had a large decrease in severity-adjusted ALOS, but still had a small increase in severity-adjusted average paid amount per admission. However, the bulk of the incremental PMPM appears to

<sup>4</sup> It is likely these facilities were recently added to VHI's list of approved providers, or had increases in the number of private beds available



come from the change in severity, rather than a change in unit costs. Despite the low increase in severity-adjusted paid amounts, it is worth noting that because the ALOS has fallen, there is a material increase in the costs per **day**.

- Acute private facility id 123 increased admissions slightly, but from a low base. The increase in PMPM is due to high increases in average costs, with severity-adjusted average costs rising 11%. This implies this hospital had large increases in unit costs.
- Acute private facility id 224 also had large increases in severity-adjusted average costs **and** a rise in ALOS that does not seem to be attributable to a rise in severity. The analysis in Appendix C demonstrates that a large part of the increase is due to day case procedures, which may explain the rise in ALOS, but we would also expect the casemix index to rise, rather than fall. Therefore it appears that this hospital was not necessarily efficient at shifting less severe inpatient procedures to day cases, but some other factor has increased the ALOS.

VHI do not have any data on occupancy rates and so we were unable to analyse whether there was a correlation between occupancy rates and increased utilisation in specific hospitals, which might have allowed us to better assess whether supplier-induced demand existed in specific hospitals.

To help identify whether any of the hospitals analysed were outliers, Table 3.2.5-2 compares the casemix adjusted average costs and ALOS at the top 20 facilities for 2009.

Table 3.2.5-2 Table Redacted

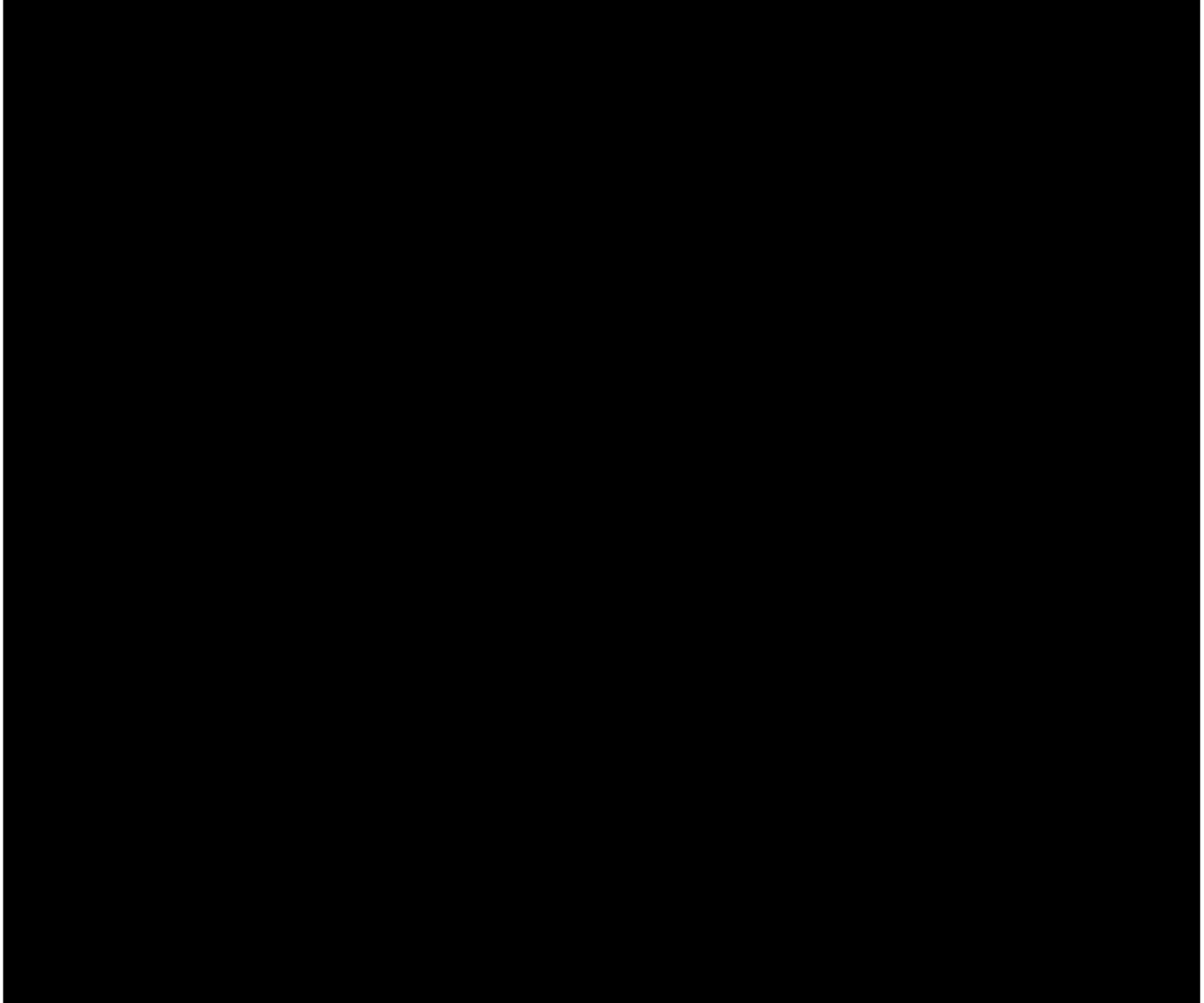


Table 3.2.5-2 shows that some hospitals appear to be outliers in terms of severity-adjusted average costs:

- Acute facility id 61 had the most expensive costs of all the acute facilities, and on a severity-adjusted basis had higher costs per inpatient admit than many of the high-tech hospitals, although its ALOS looked comparable and its day case costs relatively cheap.
- High-tech facility 129 has the highest severity-adjusted average costs, despite a relatively short ALOS. This implies it has very high unit costs per day. While it does not account for a large part of the claims cost trend from 2008 to 2009, VHI will need to be careful that utilisation doesn't increase in this hospital.
- On a severity-adjusted basis, most of the public hospitals look relatively good value, but two hospitals, id 213 and 214 have average costs comparable to the private facilities, partly because of their long ALOS. This indicates that VHI's stated aim of switching patients to private hospital from public hospital because it has more control over the contracting and costs may result in reduced costs if it can increase pressure on the private hospitals to lower unit costs.

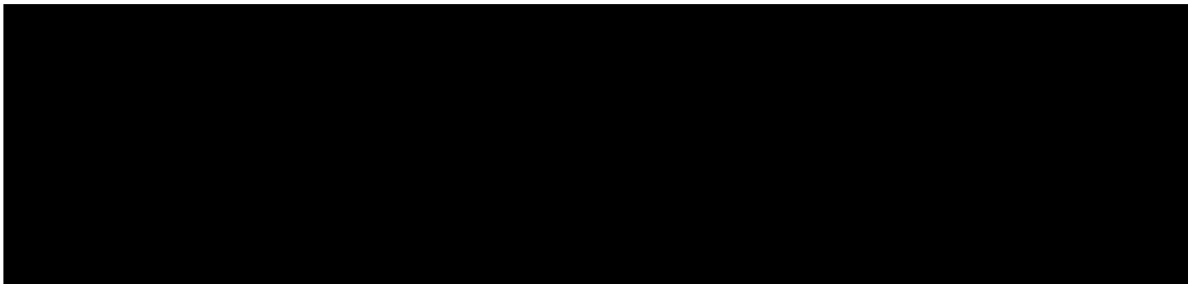
- The range of severity-adjusted ALOS is extremely wide, indicating there may be room for considerable improvement in efficiency in some hospitals.

### 3.3 Membership Trends

#### 3.3.1 MARKET TRENDS

Information returns provided to the HIA in respect of the *ultra vires* Risk Equalisation Scheme, and subsequently in respect of the age-related tax credit scheme, show a declining pattern in VHI's recent membership numbers. Table 3.3.1-1 summarises the census membership levels for the open private health insurers as at 1<sup>st</sup> January 2008, 2009 and 2010 respectively.

**Table 3.3.1-1 – TABLE REDACTED**



The figures indicate a significant decrease in the numbers of lives insured by VHI, with a modest increase for Quinn and a larger increase for Aviva over the period. At a total level, following a small expansion over 2008, the health insurance market has contracted somewhat between 1<sup>st</sup> January 2009 and 1<sup>st</sup> January 2010.

The reduction in membership for VHI may reflect both switches from VHI to other insurers and "pure" lapses, where members do not renew their health insurance with any insurer, but simply leave the market altogether. Other insurers also may have attracted more new market entrants than VHI, as well as attracting existing insured lives who have switched from VHI to another insurer.

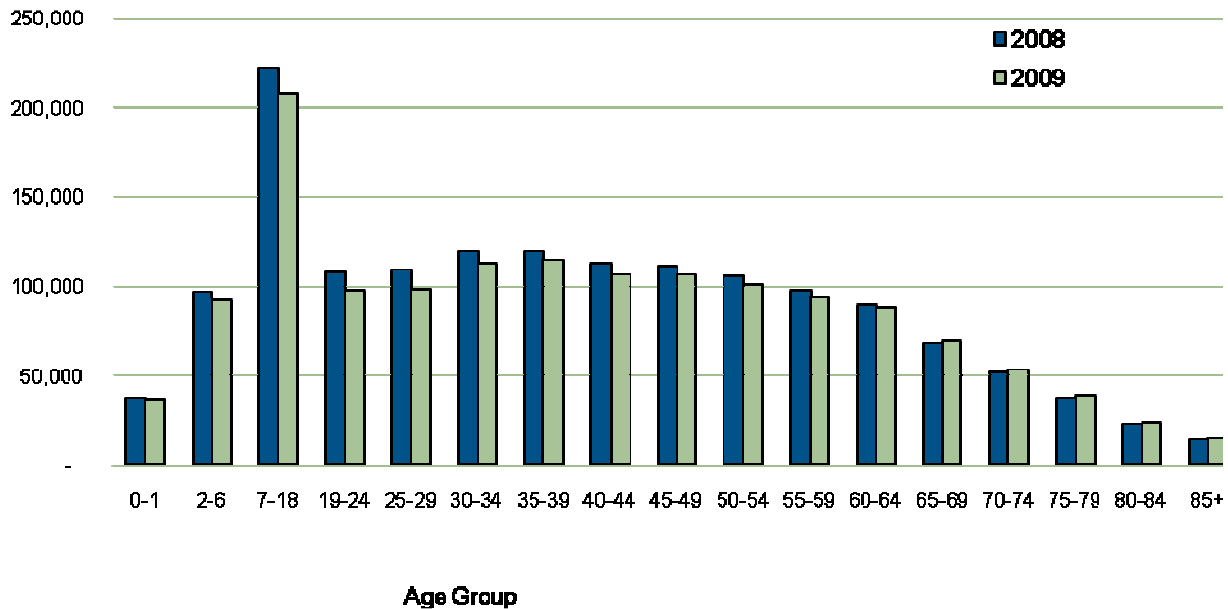
#### 3.3.2 VHI MEMBERSHIP STRUCTURE

We have received detailed data from VHI on the age/sex structure of the portfolio in 2008 and 2009 for each of the plan types and some summary figures as at May 2010. This demonstrates that the average age of VHI's portfolio did increase marginally from 38 to 38.5 from 2008 to 2009 and the portfolio has continued to age in 2010, albeit relatively slowly. However, while the overall age did not increase materially, the proportion of over 65s increased from 13% to 14% and the proportion of over 80s increased from 2.4% to 2.6%. VHI's own analysis, which we have not verified, shows that the proportion of members aged 80 and over as at May 2010 was 3%, compared with 2.8% for 31<sup>st</sup> December 2009.

While these may not seem like large increases, these small changes did drive overall costs per member up by nearly 6% in 2009 compared with 2008 (see Table 3.2.1-2 ). The graph below shows the membership structure in 2009 compared with 2008, using the average number of members in force in each year, as supplied to us by VHI. This shows that while the number of members in younger age groups decreased, the number of members in each age group over 65 increased.

Exhibit C.1 in Appendix C shows the demographics by each plan type for 2008 and 2009.

**Figure 3.3.2-1: VHI'S Average Number of Members by Age Group 2008 and 2009**



**3.3.2.1 Selective Lapsing**

VHI has suggested that the health status of those switching or leaving its book is significantly better on average than the health status of customers who remain with them. VHI provided us with an analysis which shows the average cost per person of leavers by age band in the year *before* leaving is lower than the average cost per person for the portfolio as a whole in that year. We have not received any data to verify this calculation independently and we would note that average cost is not always a good proxy for health status. In addition, the average cost in one year is not necessarily a good predictor of health costs in subsequent years and therefore it does not always follow that the people who renew would continue to be higher average cost, even if they were higher than average cost in the previous year.

Therefore, while the VHI analysis *possibly* indicates some degree of selective lapsing, our analysis of the 2008 to 2009 experience, as described in Section 3.2.1, does not seem to add much weight to this argument mainly because selective lapsing tends to lead to trends in claims costs which are primarily driven by large increases in *overall* utilisation rates for inpatient and day cases. Once we removed the effects of ageing, the overall utilisation trend is only 4.3% (see **Table 3.2.2-**). Selective lapsing is unlikely to lead to high utilisation increases in specific hospitals or types of hospitals, which appears to be the key reason for claims cost increases.

**3.4 Conclusions**

VHI believes their poor performance in 2008/9 relative to earlier years has been a result of supplier-induced demand, higher prices for public hospital beds, combined with higher benefits for primary care costs and an ageing and relatively sicker population. Its analysis is based on high level changes in total claims incurred, without reference to per member costs or changes in per member average premiums. The standard reports we reviewed did not provide a clear understanding of the drivers of claims costs split by portfolio mix changes, severity or provider mix changes, or utilisation and average costs increases.

Our analysis of 2008 and 2009 data shows increases in claims costs per person have been driven by:

- Material increases in utilisation in high-tech hospitals, which generally have slightly higher unit costs than other acute private hospitals. A large part of the trend can be attributable to two high-tech hospitals, which had substantial increases in utilisation, combined with high unit costs increases. This increased the average cost of an inpatient stay overall by a significant amount.

- High trend rates for day case utilisation at acute private hospitals, combined with substantial increases in average costs for inpatient procedures and modest increases in costs for day case procedures at these hospitals. Some of the increase in average costs for inpatients appears to be driven by one or two hospitals, where inpatient unit costs have increased by 10%.

While the increase in public hospital per diem prices did contribute to claims cost trends, the effect of the per diem increases was offset by lower inpatient admission rates and shorter average lengths of stay. In addition, ageing of the portfolio was a reasonably significant factor driving claims cost increases, but it was not the most important factor.

Between 2008 and 2009, claims costs per person rose by 19%, while premiums per person rose only 13%. This led to the significant deterioration in loss ratio and the poor underwriting performance in 2009.

## 4. VHI ACTIONS

### 4.1 Reduced Private Hospital Fees

VHI has operated a packaged pricing approach with private hospitals for a number of years which is more effective than a per diem remuneration model in encouraging hospitals to keep costs down. In addition, an Average Length of Stay (ALOS) incentive applies which is effectively a form of gain-sharing with hospitals. Further background is provided in Appendix B.

VHI recently reduced packaged prices paid to private hospitals by 3%, as of January 2010. This is the largest reduction VHI believes can be implemented without forcing many private hospitals into financial unsustainability. Some private hospitals are likely to be at risk of not achieving financial outcomes necessary for survival with the 3% fee reduction. Certain hospital services are not included in packaged pricing. Examples include implantable devices such as vascular stents, orthopaedic implants, high cost diagnostic imaging and high cost drugs. VHI has identified eight specific services for aggressive efforts to reduce fees paid to hospitals.

- Gain sharing of the efficiency rate reduction for specified package procedures.
- Reduction in fees for drug-eluting stents in line with market values.
- Re-designation of procedures from inpatient to day case and day case to side-room.
- Introduction of new package procedure prices for procedures that are currently not reimbursed on a packaged price basis.
- Push out the implementation timeline for outlier days associated with Hip and Knee Packaged price procedures.
- Rate reduction for cataract procedures.
- Application of reduction to the PET CT composite rate.
- Application of a reduction to the CT technical rate.

### 4.2 Reduced Consultant Fees

Consultant fees were reduced by 5% from mid 2009 and an additional 10% reduction has recently been negotiated, effective July 1, 2010, bringing the total reduction in consultant fees to 15%. This is an impressive reduction, which demonstrates the ability of VHI to effect significant change with concerted management effort. As consultants fees accounted for nearly 25% of claims spend in 2009, we believe these reductions will have a significant impact on claims cost trends *if* they are not offset by increases in utilisation. In most markets, our experience is that reductions in fee schedules have a limited impact on claims costs trends, as they are typically offset soon thereafter by general increases in utilisation and upcoding by consultants.

### 4.3 New Products

While our review is concerned with claims costs management, we note that VHI has redesigned its products with a view to segmenting the market and in effect quasi risk-rating its products. This strategy appears to be a key focus of management and resource usage (notwithstanding that it does not support intergenerational solidarity). In addition, VHI has enhanced the benefits on its standard plans by extending coverage to include the Beacon high-tech hospital which can be expected, all other things being equal, to increase claims costs.

### 4.4 Reduced Administrative Costs

These were listed by VHI as a source for future savings and VHI is forecasting a reduction in expense ratio to 7.9% in 2010. We were not provided with any information as to how this would be achieved. VHI is proud of its expense ratio, and sees a low expense ratio as an important measure of its efficiency. This is not directly relevant for our review but is indirectly relevant insofar as it may be at odds with increased spending on administrative services intended to improve claims cost control, such as utilisation management. In our experience, the expense ratio of an insurer is less important than the return on investment achieved by

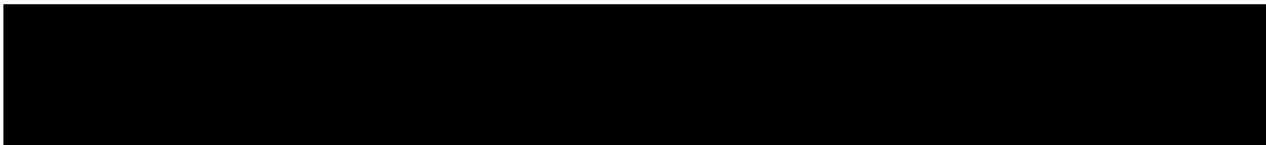
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investing in certain administrative functions and it is more critical to look at both the claims and expense ratios in conjunction with each other.

#### 4.5 Other Initiatives

##### 4.5.1 NO NEW PRIVATE HOSPITAL BEDS

VHI believes that the additional market bed capacity in private hospitals is a significant driver for the increase in claims it has experienced. In other markets it is well established that increased provider capacity without adding effective utilisation controls will result in increased utilisation of health services. This phenomenon is called supply-sensitive utilisation or supplier-induced demand.



##### 4.5.2 UTILISATION MANAGEMENT

VHI recently launched a new utilisation management initiative (May 2010). This consists of reviewing selected medical (non-surgical) admissions to several public and one private hospital. These facilities were identified as having a large number of unnecessary admissions or a large number of admissions with excessive lengths of stay for non-medical reasons. VHI recently acquired McKesson InterQual<sup>®</sup> criteria for determining medical necessity, primarily to use for reviewing potentially unnecessary admissions and excessive lengths of stay.

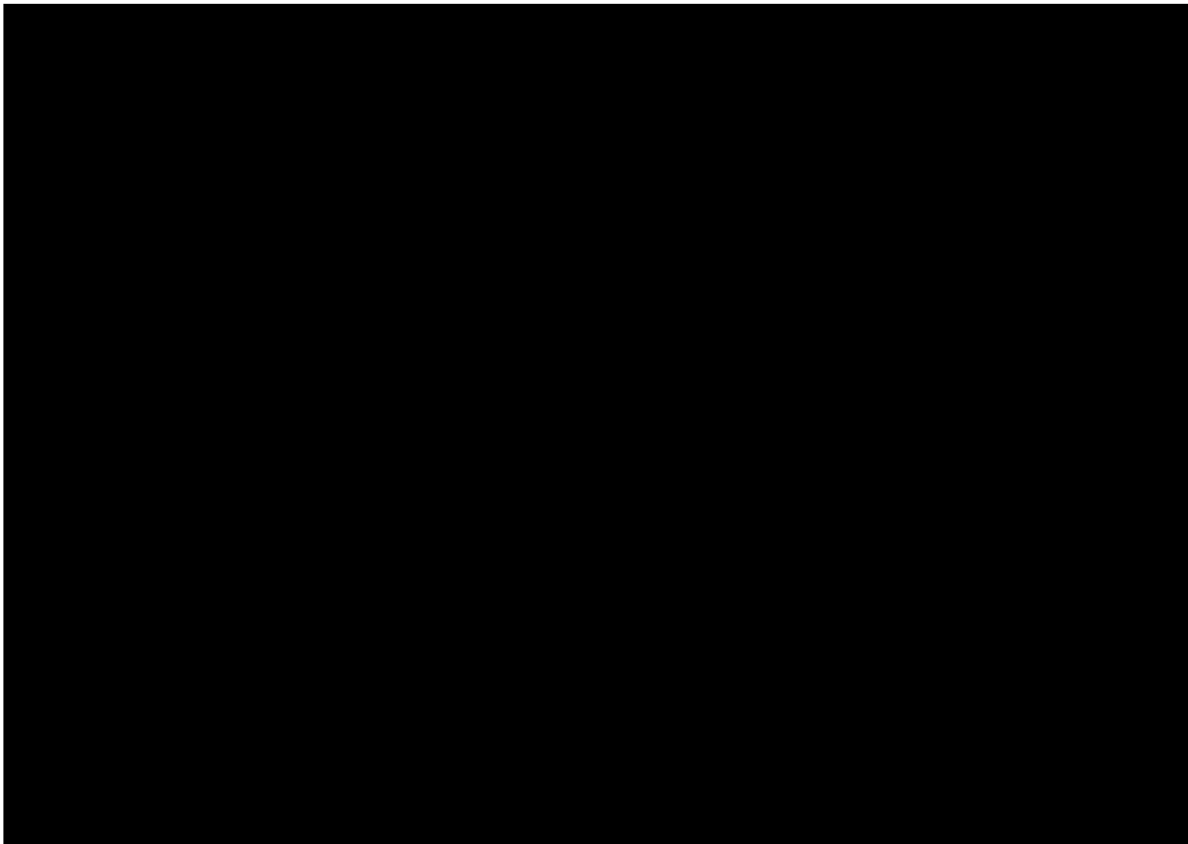
We understand that VHI previously announced plans to conduct medical necessity evaluations using InterQual<sup>®</sup> but stopped implementation due to objections from consultants.

We have included more details on VHI's utilisation management process in section 5.2.5.

#### 4.6 Forecast Claims Reduction for 2010

VHI is forecasting a net reduction in claims during 2010 of €22.3m or 1.6% of its claims for 2009. The following breakdown from VHI shows how this reduction is expected to be achieved.

Table 4.6-1 – TABLE REDACTED

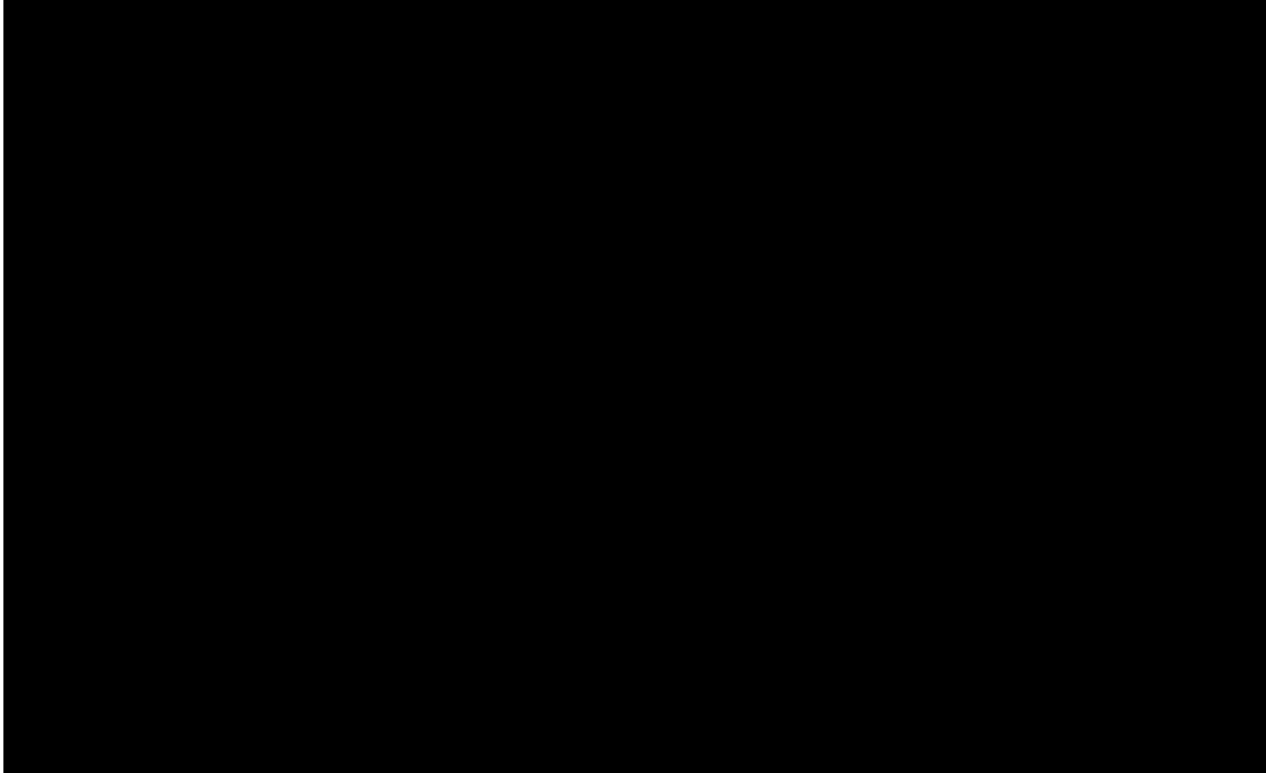


As can be seen from the table, while VHI is forecasting a reduction in claims of €22.3m overall, it still expects to see increases in claims costs due to increased private capacity and new facilities. This is more than offset by projected claims reductions of €76.8m to give a net reduction of €22.3m. However, almost half of the €76.8m reduction in claims is due to a forecast loss in membership which, all other things being equal, will lead to a reduction in revenues also. The bulk of the remainder of claims reductions is due to the impact of the unit cost reductions that VHI successfully negotiated with private hospitals and consultants with some reductions also in primary care benefits, reversing the trend seen over the previous 22 months for primary care benefits payments, albeit it at a much lower level.

We did not receive any back-up calculations for Table 4.6-1 above, however, we did receive a summary 2010 budget with year to date (May 2010) actual versus expected position and a full year forecast for 2010. The key figures are set out in Table 4.6-2 below.



**Table 4.6-2 TABLE REDACTED**



These show that despite the forecast reduction in claims and a slightly improving claims ratio as at May 2010, the full year claims ratio is still expected to be 98%, only four percentage points lower than 2009. However, VHI's budgeted position for 2010 was for a 99.4% loss ratio and a €30.9m underwriting loss, so its forecast 2010 results, based on the position as at May 2010, are actually better than budgeted.

#### **4.7 Forecasts for 2010**

We requested details and outputs from the forecasting models referred to by VHI but did not receive any detailed data on which to base a 2010 forecast of membership, revenue and claims costs.

From the P&L May 2010 information provided, we can compare the PMPM amounts for 2009 with the Year to date (May 2010).

**Table 4.7-1 VHI's PMPMs 2008, 2009 and YTD May 2010**

	2008	2009	2008 TO 2009 INCREASE	2010 YEAR TO DATE (MAY 31)	2009 TO MAY 2010 INCREASE
<b>Premium PMPM</b>	<b>€65.31</b>	<b>€73.94</b>	<b>13%</b>	<b>€77.79</b>	<b>5.2%</b>
<b>Claims PMPM</b>					
Private Hospitals	€30.11	€36.98	23%	€38.17	3.2%
Public Hospitals	€14.80	€16.98	15%	€16.53	-2.6%
Fees	€16.14	€17.51	8%	€17.22	-1.6%
Outpatient/Primary Care	€ 1.64	€ 3.05	86%	€ 3.60	18.3%
<b>TOTAL Claims PMPM</b>	<b>€62.70</b>	<b>€74.51</b>	<b>19%</b>	<b>€75.53</b>	<b>1.4%</b>
<b>Claims Ratio</b>	<b>96%</b>	<b>101%</b>		<b>97%</b>	

The loss ratio has improved as at May 2010, but is still high at 97%. While premiums appear to have increased by 5% already in 2010, claims are still 1.4% higher than in 2009, despite all the measure taken by VHI to reduce costs. However, some of the measure will have yet to take effect fully – in particular the additional 10% reduction in consultants fees effective July 1, 2010.

While we cannot provide a full detailed forecast of 2010 due to lack of data, we have the following comments:

- The continued ageing of the portfolio will increase PMPM claims costs. We do not know whether VHI has fully compensated for this by increasing average premiums, but it appears that as at May 2010, it had increased its average premium materially, which should go some way towards mitigating the effect of ageing.
- Our analysis of 2008 and 2009 data shows increases in claims costs have been driven by:
  - Material increases in utilisation in high-tech hospitals, which generally have higher average costs than normal acute private hospitals.
  - High trend rates for day case utilisation at acute private hospitals, combined with substantial increases in average costs for inpatient procedures and modest increases in costs for day case procedures.
- These trends should to some extent be mitigated by the measures VHI has taken to reduce packaged prices and consultants fees, although our analysis of increases in severity-adjusted costs and ALOS in individual hospitals illustrates that more could be achieved with specific hospitals which are outliers. However, to obtain a substantial reduction in claims costs, or even to mitigate the increasing utilisation trend, we believe VHI would need to take steps to control utilisation, both in terms of admissions to private hospitals and ALOS in public hospitals. We comment more on this in section 5.2.5.

## 5. VHI OPERATIONAL REVIEW AND BENCHMARKING

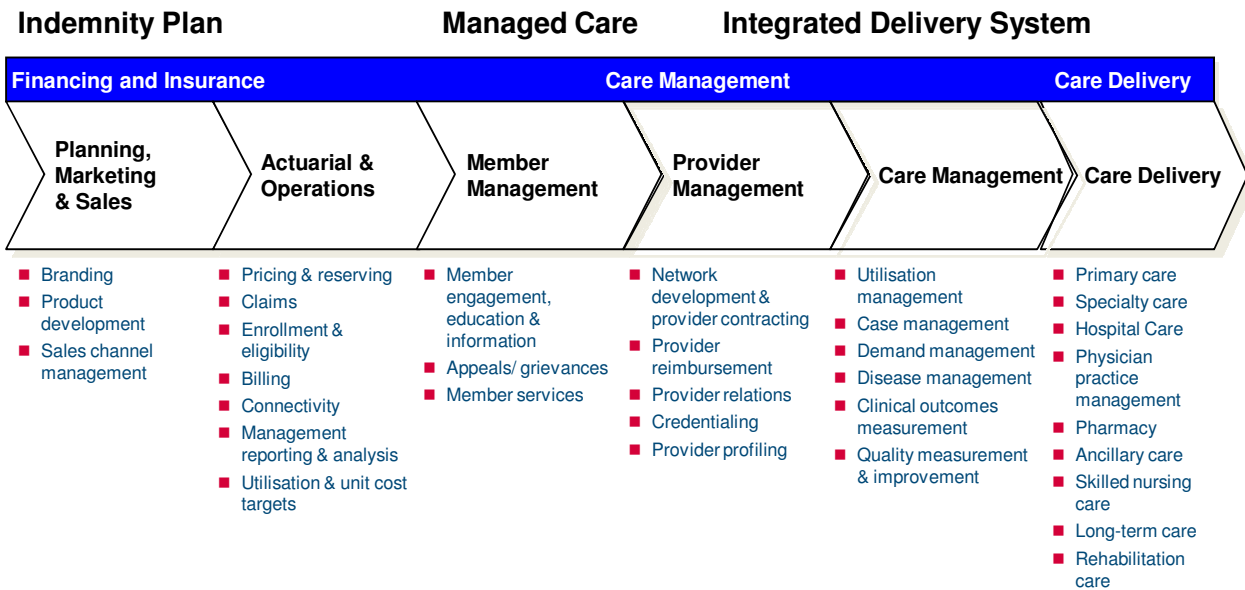
In this section, we set out initially a framework against which to consider potential areas of development for VHI in relation to claims management, followed by specific comments regarding VHI's operations.

### 5.1 General Framework

We believe health insurance companies can be characterised by where they fit on the health insurer value chain shown in Figure 5.1-1. Health insurers whose strategic goal is to finance healthcare as an indemnity insurer will limit themselves to those functions on the left hand side of Figure 5.1-1, while managed care plans will add the functions in the middle and Integrated delivery systems will have all the functions shown. Pure indemnity health insurers typically have all the functions required for financial control over true insurance related processes but lack the functions required to control unit cost or utilisation. Managed care plans have all the standard financial functions found in indemnity insurers and add functions for controlling unit costs and utilisation. Finally fully integrated delivery systems such as Kaiser Permanente in the US have all the functions found in managed care plans and add the ability to actually provide healthcare services.

Figure 5.1-1

# Health Insurer Value Chain



### 5.1.1 INDEMNITY INSURER FUNCTIONS

Most modern indemnity insurers have incorporated some of the functions found in managed care plans, the most common being provider management. But in general, indemnity insurers view themselves primarily as financial organisations whose role is to pay for delivered services and not to manage utilisation, cost or quality except through benefit design and claims payment. All of the functions indemnity insurers have are important and need to be managed properly to avoid financial losses.

Each of the functions on the diagram above is discussed in more detail below.

#### 5.1.1.1 Planning, Marketing and Sales

While all insurers must have effective strategic planning, marketing and sales functions in order to enjoy long term success these rarely are reasons for poor short term financial performance and are not an important component of our review of VHI.

#### 5.1.1.2 Actuarial and Operations

Actuarial processes, claims operations and management reporting are critical control points for health insurers including managed care plans and integrated delivery systems. Actuarial processes include product pricing, reserving and the development of actuarially sound utilisation and cost budgets and performance targets for medical management and network management. Claims departments adjudicate and pay claims in alignment with the insurer's operations policies and management reporting monitors performance.

#### 5.1.1.3 Member Management

Member management consists of services directed at members and includes education as well as helping to resolve problems. Member management was not within the scope of our review.

### 5.1.2 MANAGED CARE PLAN ADDED FUNCTIONS

Managed care plans have a wider scope of functions than indemnity plans. The purpose of the added functions is to allow more effective control over unit cost (provider management) and service utilisation (care management).

#### 5.1.2.1 Provider Management

Provider management's focus is to deliver effective control over unit costs for medical services and supplies. This is accomplished using contracts between the insurer and providers. Without contracts, effective provider management is difficult to achieve.

#### 5.1.2.2 Care Management

Care management consists of quality management and utilisation management. Poor quality management can result in significant cost to insurers but is generally not considered a claims control function. Utilisation management consists of active processes intended to control utilisation of medical services. The typical process consists of payers evaluating the medical necessity for selected services either planned (precertification) or actually rendered (retrospective review) by providers. Evidence-based clinical protocols such as Milliman's Care Guidelines<sup>®</sup> or criteria sets such as McKesson's InterQual<sup>®</sup> are used to determine medical necessity. These tools display best practice treatment recommendations for specific diagnoses and the evidence supporting these recommendations. Services or service settings determined to have no demonstrated medical necessity or not consistent with evidence-based best practice are not reimbursed.

In the US and other first world settings utilisation management can reduce inpatient hospital admissions by as much as 10% and total inpatient hospital bed days by as much as 30%. Outpatient services are also controllable. For example, it is well documented that utilisation management for high-tech diagnostic imaging (CAT scan, MRIs and PET scans) can reduce utilisation by up to 20%. Utilisation management is not without cost or problems. Properly performed, the medical necessity determination process requires using nurses and doctors in administrative roles, so it increases administrative costs. Utilisation management also creates system "noise" as providers often are highly vocal when they fail to be paid for rendered services. Utilisation management when performed correctly is generally accepted as improving quality while also reducing cost.

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### 5.1.3 INTEGRATED DELIVERY SYSTEM ADDED FUNCTIONS

Integrated delivery systems combine all the aspects of managed care plans with the actual resources required to deliver care. Kaiser Permanente is a well-known example of an integrated delivery system. Kaiser is both a managed care plan and a deliverer of care having its own hospitals and clinicians.

#### 5.1.3.1 Care Delivery

Care delivery was outside the scope of our review.

## 5.2 VHI Operations

### 5.2.1 VHI PLANNING, MARKETING AND SALES

This function was outside the scope of our review.

### 5.2.2 VHI ACTUARIAL AND OPERATIONS

The key functions of the actuarial department appear to be assessing the impact of risk equalisation, pricing of new contracts and reserving. We were informed by VHI that it does not envisage an organisational structure where the actuarial function would play a role in determining the future healthcare utilisation level targets. In our view, the technical and analytical skills evident in the actuarial function could be a significant contributor to healthcare utilisation management, working closely with the other functions of the business – finance, medical management and claims. In our experience, organisations which have the most effective utilisation management tend to have the actuarial function closely involved in setting and monitoring appropriate medical management targets.

Many of the routine utilisation management reports we would expect to see for a health insurer of VHI's size were not readily available and a considerable amount of bespoke analysis appeared to be required to meet our data request, the majority of which we would consider standard reports. However, we recognise this was in part because we requested specific age categories and DRG groupings. It is not clear to us if more granular standard reports exist and were not supplied to us, or whether they do not exist. Subsequent to the operational review and prior to finalising our report, we were supplied with detailed procedure counts by procedure code, but not rates of utilisation or average costs in detailed service categories. In other health insurers that we have reviewed, this monitoring activity would typically, although not exclusively, be carried out by the actuarial function. Similarly, the actuarial function would typically prepare regular (e.g. monthly) forecasts of premiums, utilisation and average costs and per member per month costs split by service category.

Under the current organisational structure, this type of information does not seem to be prepared regularly for the management team to review. It may be that any detailed analysis prepared by the actuarial function is limited to use by the actuarial function in fulfilling its core roles (principally pricing and reserving). We believe that an organisational structure which integrated the role and skill-set of the actuarial function with the claims management and utilisation management functions could prove significantly beneficial to VHI in controlling claims costs.

We did see some monthly reports containing claims information at a high budget-level, which were produced by the finance department. Following our operational review, but prior to finalising our report, VHI provided a report from July 2010 which reviewed overall loss ratios by month, although the level of detail present in the report was insufficient to understand the key drivers of trends. In particular, we believe that it is extremely difficult to manage a portfolio of short term medical business without detailed monthly reports of changes in exposure, claims and premium rates and per member per month costs, trends and changes in reserves. In an environment with community-rating, where a small change in portfolio mix carries substantial financial risks, it is even more important to understand the drivers of claims costs, produce detailed forecasts and monitor actual results against expected at a granular level. We have not seen any evidence that this is being done, by the actuarial function or any other function, and if the reports are being prepared, there is no evidence that they are escalated to management and used for decision-making.

As noted above, the current organisational structure does not appear to envisage a role for the actuarial function in healthcare utilisation management including in provider contracting, or the medical management functions. While this is typical of many European private health insurers, in the US it is considered best practice to solicit actuarial input in a number of areas, such as modelling the impact of new provider reimbursement mechanisms and methodologies and provider profiling. The VHI medical management department have their own statistical capability, but the reports produced by this team and the reports produced by

the actuarial department appear to be inconsistent. This is not unusual, but it is important that different functions work to a common set of data and a common understanding of that data. For example, in best practice organisations, the finance/actuarial department produces budgets and targets for medical management savings, to which the medical management and contracting staff are held accountable. If the two functions are operating with different systems and reports, there is little accountability and medical management savings are rarely realised in the financials of the organisation.

#### 5.2.2.1 VHI Claims

VHI's claims system has several layers of expert system logic to prevent over-payments, payments for non-eligible members and payments for non-covered services. The system also has embedded utilisation management protocols to manage claims for MRIs, day case surgical procedures and some high-cost drugs. Claims are received as paper documents and manually loaded and processed. Medical information on the claims is handwritten by the primary consultant. The loading process and coding of the claim is out-sourced and VHI then performs a quality audit on approximately 7% of claims (including all claims over €10,000) for accuracy. VHI then adjudicates the claims in-house. Approximately 96% of claims pass adjudication first time, with another 2% pending because of a lack of information from the claim form and 2% rejected because of ineligibility. VHI is piloting electronic claims submissions with selected providers.

VHI investigates about 3,000 claims annually for fraudulent billing, recovering payment in 30% to 50% of cases. These are claims where the member has alerted VHI to potential fraud after reviewing the invoices received by VHI for their treatment. Recoveries are €1.1m for 2010 year to date and are projected to be €2.5m for 2010 in total.

Approximately 2% of claims are referred to medical management for review. These include all services requiring prior authorisation (overseas treatment, PET scans, bariatric surgery, expensive drugs, cosmetic breast procedures and dental procedures), claims for procedures classified as day case but where the patient was admitted as an inpatient, inpatient admissions with excessive length of stay (LOS) and claims for providers identified as outliers based on claiming patterns (such as suspected up-coding). Savings from medical management reviews were estimated by VHI as slightly in excess of €500,000 for calendar year 2009.

Overall we found the Claims Department to be well-run and effective, given the scope of its operations. The Claims Department perform prior authorisation for selected services (this is discussed in more detail in the Care Management findings section below).

#### 5.2.3 VHI MEMBER MANAGEMENT

Member management typically contributes little to claims cost control and was not a focus for our review.

#### 5.2.4 VHI PROVIDER MANAGEMENT

We focused on provider profiling reporting and future plans to reduce fees, remove providers from the network or place providers at risk. These are all primary tools that provider management functions have to help control claims cost. VHI plans to obtain further fee reductions for services outside packaged prices and we believe this is an effective tactic for controlling claims cost. We did not see any routine provider profiling reports and we believe there is little routine profiling. VHI investigates patterns of care by providers on an ad hoc basis, when they are alerted by outliers in billing practice or investigation of a particular claim. We recommend VHI implement a process to profile utilisation and quality outcomes for hospitals and doctors using a risk-adjusted methodology. This will allow VHI to identify local best practices and use these as benchmarks for profiling all network providers.

We suggest that VHI should consider re-basing the packaged prices as these have been in place for several years and were originally based on unit charges submitted by hospitals and driven by the then prevailing consultant practice patterns. As practice has changed VHI may find it possible to reduce selected packaged prices further. In addition, when the packaged prices were introduced certain systemic inefficiencies were permitted such as paying for bed holds when patients are not in hospital and paying consultants for attending births whether they are actually present or not. There are likely other similar inefficiencies that have historically been built into the packaged pricing model.

VHI's have also pursued a programme of designating procedures as day case or side room instead of inpatient and paying providers the appropriate fixed price for these admissions, rather than paying providers for the inpatient stay. However, its approach to the designation has been to consider procedures as day case when at least 60% of the procedures occur in this setting. While commendable that VHI would deny payment to providers who still continue to admit patients for these procedures, this approach demonstrates that VHI is following, rather than leading the market towards more efficient care delivery.

We believe that the absence of formal contracts with public hospitals is an obstacle to effective management of care and utilisation of VHI members in public hospitals. Our analysis shows that public hospital costs are driven by excessive lengths of stay and until VHI develop more robust methods of utilisation management, it will be difficult to reduce costs significantly. As well as significant excessive lengths of stay, we also believe that medically unnecessary admissions are likely to be an issue. The lack of contracts with appropriate member protection (such as not permitting balance billing of members when services are adjudicated as medically unnecessary) is a significant barrier to the use of financial penalties to drive providers to improve efficiency.

We were informed that VHI has contracts with the majority of its private providers, but we were not given a sample copy to review and so we are unable to comment on the robustness of the contract terms.

### 5.2.5 VHI CARE MANAGEMENT

Apart from unit cost control, utilisation management is the most important tool insurers have to control claims cost.

To give a broad indication of what better care management might achieve, we compared VHI’s claims to our Milliman best practice benchmarks. These benchmarks are based on insured health systems in the US and we categorise them into Loosely Managed (LM) and Well Managed (WM). The LM benchmarks are broadly indicative of a US health plan carrying out very little active medical management. The WM benchmarks are indicative of results from integrated health systems in the US with robust and efficient provider infrastructure, strict medical management and good adherence to evidence-based guidelines.

The purpose of the benchmarking exercise is to give an indication of what is potentially possible for a health system prepared to invest the necessary resources in monitoring the medical necessity of inpatient admissions and extended lengths of stay. Our WM benchmarks assume that the necessary health system infrastructure is in place, along with the cultural environment and provider levers that are required to implement a strict medical management programme. We recognise that many of these factors are not in place as yet in Ireland and would require investment in infrastructure and people to realise savings from utilisation management. Nevertheless, the point of the benchmarking exercise is to provide an idea of the magnitude of the potential opportunity for improvement and give a starting point for a more detailed review of the clinical areas that may yield the greatest savings. In order to quantify the savings and investment required, a detailed chart review would be required in specific clinical areas, along with a feasibility study and an analysis of the investment required. Note that while US insurers have wide variances in costs for administration, in our experience there is often limited correlation between administration costs and how loosely or how well a system is managed.

The Milliman benchmarks are adjusted to take account of VHI’s demographics and we have separate benchmarks for under and over 65s. The <65 benchmarks are for a US commercial (working) population, which is broadly analogous to VHI’s population. The age 65+ benchmarks are for a US Medicare population.

We compared all VHI’s inpatient admissions by DRG to our benchmarks and also aggregated our results into broad “Medical”, “Surgical”, “Maternity” and “Psychiatric” categories. The results of this aggregate analysis are set out in Exhibit C.7, but are summarised below in Table 5.2.5-1 for Medical and Surgical inpatient admissions. Note that the data provided to us by VHI separated out inpatient admissions with overnight stays from day case and side room procedures and this benchmarking exercise excludes day case and side room procedures.

**Table 5.2.5-1 - Benchmarking Results**

DESCRIPTION	VHI TOTAL PAID AMOUNTS (2009) €000	VHI ACTUAL ADMITS (2009)	LM ADMITS	WM ADMITS)	VHI ACTUAL ALOS (2009)	LM ALOS	WM ALOS)
Medical Inpatient Admits	€ 320,461	77,423	69,088	46,210	10.6	4.6	3.7
Surgical Inpatient Admits	€ 317,176	41,333	40,982	28,484	7.5	4.7	3.7

We also compared VHI’s inpatient admissions to our benchmarks in each of the individual DRG categories, split by under and over age 65s. There is some uncertainty about the reliability of the individual DRG assignment the VHI has made to inpatient

admissions in its coding and therefore the individual DRG results should be interpreted with caution, but they give an indication of the clinical areas where VHI should concentrate any further detailed analysis to try and quantify potential savings.

The top 20 DRGs for medical admissions (by VHI 2009 paid amount), the top 20 DRGs for surgical admissions (by VHI 2009 paid amount) and the maternity and psychiatric admissions are set out in Exhibit C.8 in Appendix C. Some key points to note from the analysis:

- For almost all the DRGs where VHI has a significant inpatient spend, there is evidence of considerable excess admissions, even against our LM benchmark. This was true for both surgical and medical admissions and for all ages.
- There appears to be significantly greater excess utilisation for working age people (compared with ages 65+) for medical admissions, despite the fact that VHI covers few emergency admissions.
- Average lengths of stay are significantly higher than our benchmarks. Generally the ALOS for medical admissions were higher relative to our benchmarks than surgical admissions, but in many cases even surgical admissions had ALOS more than double our LM benchmark. This may be partly due to lack of rehabilitation or step-down/intermediate care facilities in Ireland.
- VHI's ALOS for maternity admissions was 3.2 days for normal delivery and 5.5 days for C-section delivery in 2009. Our LM benchmarks were 2.2 days and 3.7 days respectively and our WM benchmarks were 1.4 days and 2.5 days. In addition, our WM benchmarks have a percentage of C-section deliveries of 24%, compared to 37% for VHI.

The analysis shows considerable opportunity to manage both admission rates and ALOS for some key types of inpatient admissions and procedures. This is consistent with the results we have seen in other countries when comparing experience to our benchmarks. While the magnitude of the opportunity in the short to medium term is likely to be less than shown in this analysis, because of infrastructure constraints, it demonstrates that considerable savings could be made by concentrating on a few high utilisation, high cost procedures for particular segments of the population. While outpatient and community care infrastructure in Ireland may have gaps, we believe that VHI can be a more active leader in the use of financial penalties and incentives to drive better use of existing services and also the development of new resources to close infrastructure gaps. We recognise that VHI can only do so much without the active support of the Department as well as other insurers but our analysis of the potential opportunity for savings suggests that it may make financial sense for VHI to be the leader in this area.

Some of the differences illustrated by our detailed DRG analysis are likely due to inadequate coding in VHI's data. VHI does not pay its providers based on DRGs, but using its own codes. The DRGs were assigned by VHI before providing the data to us and therefore it is difficult for us to judge the accuracy of the DRG assignment. In addition, we were informed by VHI that some of the DRG coding logic incorrectly assigned some inpatient stays as ambulatory DRGs, but this was in less than 10% of cases. Therefore, it should be noted that the VHI inpatient admission rates are actually slightly **higher** than listed in the tables and therefore the percentages of excess days and admits may be understated slightly.

However, despite any limitations, we believe the analysis gives a valuable insight into the scale of the opportunity available to VHI. When considering where to target utilisation management in the future, VHI should use some of the admission types highlighted in our analysis for further review, as it gives a broad indication of where the greatest potential for savings may lie. Whether or not these savings can be realised will depend on the investment required as well as the practicality of reducing admissions or ALOS for specific diagnosis. Some admission types have potentially high savings, but require investment in alternative infrastructure and insurer resources, while for other admission types it is relatively straightforward to engage clinicians and employ financial penalties to reduce admission rates and/or ALOS.

Utilisation management comprises a range of functions, including prior authorisation, inpatient concurrent review and retrospective review. Some of these are targeted at reducing admission rates and some at reducing ALOS. Each of these is discussed below. We also consider feedback from other insurers and the use of OECD benchmarks.

#### 5.2.5.1 VHI Prior Authorisation

VHI has a dual prior authorisation process:

1. VHI's claims department adjudicates claims for services such as MRIs and day case procedures, following protocols developed by VHI's medical management function<sup>5</sup>. We would usually regard all prior authorisation as a medical

<sup>5</sup> VHI does not refer to this as prior authorisation but technically it is a form of prior authorisation carried out at the point of claim



management function, but VHI performs this function as part of the claims process. Approximately 8% of pre-authorised claims are denied at this stage. The denial rate of 8% is considerably lower than we would expect, but VHI's claims staff informed us that providers rarely submit prior authorisation requests that fail to meet criteria. It is not clear if this is due to overly lenient criteria or highly compliant providers.

2. VHI's medical management department prior authorises claims for overseas treatment, PET scans, bariatric surgery, expensive drugs, cosmetic breast procedures and dental procedures. The medical management department receive 200 referrals on average per month for PET scans alone and in 2009 rejected 261 out of a total of 2,046 (a denial rate of 13%, with a claimed saving of €467k)

Combining the protocol-based prior authorisations done by the claims department and the medical review prior authorisations carried out by the medical management department, it appears that approximately 3% of claims are subjected to some kind of medical necessity authorisation. This is low in our opinion, but since it is difficult to find a suitable benchmark for comparison VHI should test the Return on Investment (ROI) for expanding the percentage of claims reviewed. We would suggest focusing on services with a combination of excessive utilisation and high unit cost, using our benchmarking analysis as a starting point to identify some potential services. Beyond the PET scan savings listed above, the medical management department do not track decisions or savings due to prior authorisation protocols. We recommend they start to collect this data in order to track the ROI for some of the services currently requiring prior authorisation.

In our experience, a provider community that only submits compliant claims is very unusual, but it is certainly possible that this is the case in the Irish market, because of its unique characteristics and the significance of one large insurer, which means that providers do not have to grapple with a large number of different insurers, each with their own policies and claims criteria. However, given the results of our benchmarking analysis, we also believe that VHI's pre-authorisation criteria could be tighter. This is however, likely to mean implementing a more evidence-based definition of medical necessity, rather than the current consensus-based definition.

We received copies of the protocols used by the Claims Department for MRIs, PET scans and a listing of procedures classified as Day Care. Overall the MRI protocol list seems appropriate, although it excludes some services done routinely as day cases in the US, such as arthroscopic repair of knee ligament injuries. In addition, we suspect that the documentation sent by providers submitting a claim may be limited to a stated diagnosis, which may not be supported by the clinical facts of the case. Without further details on the claim form supporting the stated diagnosis, VHI will be limited on the actual savings realised using the protocols.

#### 5.2.5.2 VHI Inpatient Concurrent & Retrospective Review

We were unable to meet with the Medical Officer in charge of hospital utilisation management during our onsite visit, but we had a telephone discussion with her subsequently to discuss this process. We found little evidence of any attempt by VHI to control hospital utilisation effectively, or otherwise impact inpatient care delivery, until the introduction of hospital reviews in early 2010. Since then, VHI has been retrospectively reviewing inpatient cases in two ways:

1. At public hospitals for unnecessary LOS. The criterion used to select cases for review at public hospitals is exceedingly long LOS (over 60 days) and VHI cited cases with LOS of several months. VHI stated they did deny additional per diem payments in hospital for unnecessarily prolonged lengths of stay, but savings or percentage of days denied statistics are not captured. This review process covers around 30 claims a month.
2. Claims at one private hospital for medical unnecessary admissions. For this private hospital under review, patient age is used as the key criterion in selecting cases, as it appears the hospital had been admitting relatively young patients for diagnostic work-ups with no real demonstrated need for acute inpatient hospital care. VHI admitted that it was extremely rare to deny payment for whole admissions, but it would pay the day case fixed price procedure if it felt admission was inappropriate.

We were not provided with any data on the number or percentage of days denied overall, but we were informed that the current average number of claims reviewed as part of the utilisation management process which focuses on specific procedure codes and/or doctors was 800. VHI has to calculate the savings manually, but it estimates savings of €136k for Q1 2009 and €544k for 2009 in total.

To determine medical necessity, VHI relies on the opinion of its own Medical Directors on generally accepted practice, along with evidence reported in the medical literature. We would not consider this best practice and this definition of medical necessity would not be acceptable in the US, or for the larger UK private insurers. Instead, these organisations would use evidence-based clinical

guidelines such as NICE<sup>6</sup> or other readily available sources. We are aware that VHI announced plans in 2009 to use McKesson InterQual<sup>®</sup> (IQ) criteria to determine the medical necessity of hospital admissions as a qualifier for payment, but we believe this was never implemented due to objections by consultants. However, VHI has acquired a licence for InterQual<sup>®</sup> but has only just begun to use it as part of the utilisation review process to adjudicate the medical necessity of hospital admissions for the one private hospital they are currently reviewing. Based on our conversations with VHI, we understand the Medical Officer will use InterQual<sup>®</sup> only to provide additional evidence for medical management denials primarily based on prevailing Irish market practice.

However, we note that we received subsequent communications from VHI stating they intend to use InterQual<sup>®</sup> in their utilisation review processes to adjudicate the medical necessity of the hospital admission and for the length of stay of those admissions. This implies they intend to use it to review all the admissions for which they currently carry out utilisation reviews and not just for one hospital. We have not seen any written details of an operational plan to use InterQual<sup>®</sup> widely.

VHI reports that acute hospital admissions and total inpatient bed days have increased steadily over the past several years but there was no utilisation spike in 2008 or 2009 and this is consistent with our analysis. However, generally, VHI does acknowledge there is opportunity to manage utilisation more effectively, although VHI's plan for improvement appears to place little emphasis on utilisation management as a tool to improve both quality of care and financial performance.

While utilisation trends may not have spiked significantly in 2008 or 2009, our analysis illustrates there is opportunity to reduce paid hospital utilisation by performing medical necessity reviews for inpatient hospital admissions and provides some useful insight into the areas where this is likely to be most fruitful. Pending a pilot programme testing this we cannot be certain of the magnitude of this opportunity but our experience in other markets leads us to estimate that a minimum of 5% to 10% of all inpatient hospital admissions may prove to be medically unnecessary and hospitals should not therefore be paid to perform these procedures. As a reference point, some UK NHS Primary Care Trusts have used InterQual<sup>®</sup> to perform retrospective audits on admissions to NHS hospitals through Accident and Emergency Departments and discovered that up to 1/3<sup>rd</sup> of admissions are medically unnecessary. We would expect the position of private hospitals performing elective procedures to be somewhat different, but this statistic gives an order of magnitude of the size of the issue. We also believe there is considerably opportunity to reduce ALOS in both the public and private hospitals.

While some medically unnecessary admissions for procedures may be converted and paid as day cases or side room procedures, we would expect that a significant number of medically unnecessary medical cases would simply have payment denied and there would be no or only a relatively small offsetting cost for outpatient services rendered in lieu of admission. One important observation is that VHI's focus on having minimal administrative costs may inhibit care management development. While low administrative costs are commendable, improving care management's impact on controlling claims cost will require VHI to invest in resources and staff which is likely to increase administrative expenses. However, we believe that return on investment could be achieved through lower claims costs, if the care management is focused in the right areas. For example, prior authorisation could be required for every claim, but this will increase administrative costs enormously and lower claims costs are unlikely to compensate. However, there are certain key preference sensitive procedures which benefit from prior-authorisation, and we believe it is worth investing in care management in these areas.

#### **5.2.5.3 VHI Chronic Disease Management, Wellness and Screening/Preventative Services**

VHI does not currently undertake any traditional disease management or wellness programmes, although we understand they are investigating starting chronic disease management programmes for a selected number of chronic diseases. Chronic disease management initiatives found in other markets would include protocols for actual care delivery and patient education for these conditions. However we would like to make it very clear that chronic disease management is a clinical quality of care process and will not necessarily reduce claims cost. In many markets, it increases claims costs and therefore VHI should model the likely costs and benefits of any suggested programme before making a significant investment.

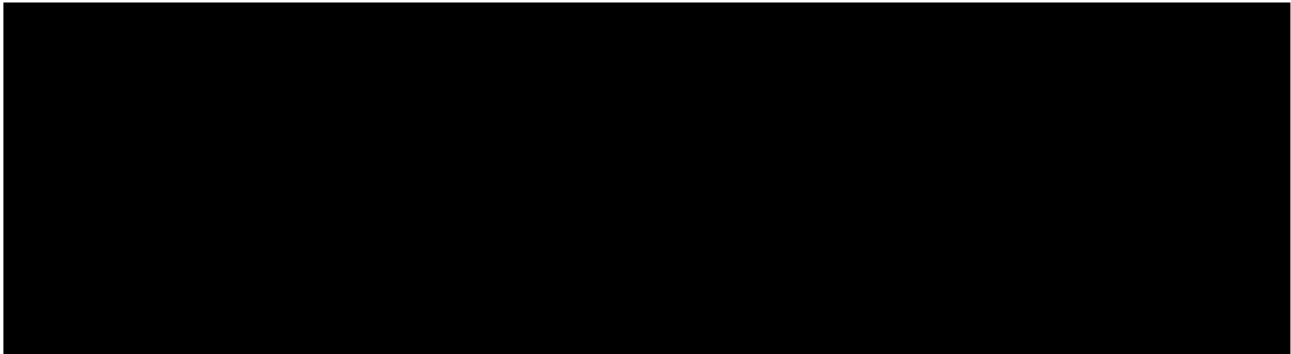
VHI covers screening for diabetes and colorectal cancer at employer sites. They do not view this as part of a disease management initiative, but rather as an additional employer benefit and service.

The evidence from the US and other countries shows that chronic disease management programmes can improve clinical outcomes but not reduce medical claims cost for most diseases and most patients. A primary reason for not reducing total claims cost is that while specific high cost events may be avoided, such as hospital admissions for asthma, this is achieved by increasing compliance for using prescription drugs for asthma and primary care office visits. The resulting higher drug and primary care costs

<sup>6</sup> NICE is the National Institute for Health and Clinical Excellence which is an independent body which provides guidance for the payment and provision of medical services by the England NHS

usually are much larger than the savings produced from avoiding cost for adverse events. This leads to an outcome of no net claims cost savings as well as higher administrative costs due to the expenses associated with running the programme. Typically prescription drug costs are the major source for additional claims expense due to chronic disease management programmes. Since VHI's standard benefit plans do not include coverage for prescription drugs it is feasible that VHI might be able to design and implement chronic disease management programmes that improve clinical quality of care without increasing VHI's costs. Obviously cost would increase for the entity providing coverage for drug and or primary care services. A successful VHI strategy for introducing effective chronic disease management programmes will require close coordination with Government and other healthcare organizations to avoid wasted efforts, duplicated services and unintended adverse consequences.

#### 5.2.5.4 Feedback from Other Insurers - SECTION REDACTED



#### 5.2.5.5 OECD Benchmarks

VHI has carried out its own benchmarking analysis of key procedures against OECD data. We do not believe the OECD data provides an appropriate comparison.

1. Firstly, it compares general population data with insured population data. In the case of the US, the OECD data is an amalgam of data from privately insured workers, data from government funded programmes for the elderly and the very poor and from a range of systems, including those with open fee for service reimbursement arrangements. In the case of other countries, the OECD data is either a mixture of public and private sector data and often the public sector data has low utilisation because of substantial capacity constraints, rather than due to effective utilisation management.
2. Secondly it makes no adjustment for demographic differences between populations, which can be substantial. Thirdly, it does not attempt to distinguish between inpatient and day case admissions.
3. Finally we do not consider it meaningful to view either average length of stay or inpatient admissions in isolation from each other. Health systems with short average length of stay often have inappropriately high inpatient admission rate because less complex cases which should be treated as ambulatory cases are instead admitted for 1 or 2 night stays.

## 6. CONCLUSIONS AND RECOMMENDATIONS

VHI has an older, and possibly sicker, population of insured members than its competitors. It has focused a great deal of its management time and resources on assessing the contribution of this risk difference to its claims trend and financial results and a significant part of the presentations to Milliman by VHI were focused on this difference and its impact. As a result, we believe VHI may have missed opportunities to manage claims and thus limit premium increases and improve financial performance.

Health Insurers have to satisfy a number of stakeholders including insured members, health care providers, (shareholders) and Society/Government. We believe that there is confusion within VHI and elsewhere (HSE, Government) as to VHI's role in balancing these competing stakeholder interests and this may have led to management decisions that have contributed to VHI's poor financial performance.

The Department of Health and Children's "Report of the Expert Group on Resource Allocation and Financing in the Health Sector" identified many challenges of providing health care at an affordable cost to a population that is ageing and has greater expectations of the health care system. The report also recognises the considerable scope for improvements in efficiency in the delivery of health care both within Ireland and other industrialised countries.

The Expert Group identified a number of responses in many developed countries to meeting these challenges and improving efficiency, including:

- Models of integrated care focused on prevention and disease management
- Inclusion of quality, cost effectiveness and evidence based guidelines/protocols in clinical practice
- Alignment of financial incentives and resources with optimal outcomes.

Many of these were included in recommendations by the Expert Group for achieving policy objectives related to health reform within Ireland.

Health insurers/healthcare payers in other markets have led the development of integrated care models designed to align provider incentives, improve efficiency and deliver higher quality and have also driven the application of more aggressive utilisation management programmes using medical necessity guidelines. As by far the largest purchaser of private healthcare services in Ireland, VHI "sets the rules of the game" (Competition in the Private Health Insurance Market – January 2007, The Competition Authority) and has the opportunity to lead the market with the development of programmes that potentially offer lower claims volume and improved quality of care.

VHI has made significant progress recently in controlling the (unit) price paid for services purchased from Private Hospitals and Consultants. We were impressed with the speed and effectiveness with which VHI implemented a substantial reduction in fees paid to both consultants and private hospitals. We have not observed such an effective and swift implementation of a reduction of this magnitude before in any other market. However, while this will be valuable in reducing claims cost trend in 2010, in order to make a significant impact on claims costs and hence loss ratio, we believe VHI will need to focus more on controlling utilisation.

VHI appears to be moving towards a product segmentation strategy to better match revenue and expenses of various products, but we found little evidence of approaches designed to reduce claims volumes through effective utilisation management programmes and encouraging more integrated models of care. In common with many indemnity insurers, there was limited focus on improving quality outcomes and achieving cost reductions through reducing interventions which are of poor or dubious health value. We sense there is a willingness to consider these opportunities, but a lack of robust thinking about how these can be achieved and a lack of modelling to determine the financial cost-benefit of utilisation management programmes. Our analysis shows there is considerable opportunity to reduce utilisation, both through avoiding unnecessary admissions and reducing length of stay. However, we are concerned that VHI staff lack the resources necessary to implement a utilisation management programme on a wider basis. We also view VHI's corporate culture as being overly provider friendly, which may prove to be an obstacle to increasing the intensity of utilisation management. Implementing a more aggressive utilisation management programme may also require VHI staff to receive training in order to develop the necessary competencies.

VHI discussed with Milliman its intention to begin using, on a trial basis, commercially available evidence-based medical necessity criteria. This is an encouraging first step but we did not see any evidence of a clear assessment of how to use the criteria or any

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analysis of their possible impact. We believe that a previous attempt to introduce evidence-based criteria was abandoned late in 2009 because of push back from Consultants<sup>7</sup>.

Also we found little evidence of a sustainable strategy for encouraging more integrated models of care through, among other things:

- greater use of primary care
- greater compliance with evidence based care pathways
- disease management and wellness programs.

In addition VHI did not share with us any programmes that attempt to improve the quality of care delivered to its members or indeed any reports that measure and monitor the quality of care delivered to its members.

VHI has a number of current initiatives that could provide the building blocks for programmes encouraging models of integrated care. These include SwiftCare clinics, a limited home health care programme and providing some cover for primary care ("Day to Day" benefits). To a large extent, these initiatives did not appear to be part of an overall strategy designed to address increase in claims costs and/or improve the quality of care delivered to members.

- SwiftCare clinics were described to Milliman as a revenue-generating separate business unit and investment in the delivery system.
- The introduction of 'Day to Day' benefits was described to Milliman in terms of an attempt to increase market share and possibly a risk selection/market segmentation approach in response to actions from competitors.
- The programme attempting to reduce inpatient hospital utilisation through the use of home health services were described to Milliman as unsuccessful.

We recognise that there are significant systemic and financial disincentives to implementing many of these programs, but because of its leading position within the private health insurance market, VHI's leadership on these issues could provide significant impetus for change. The power of VHI's leadership position in the private health insurance market was clearly demonstrated by its implementation of the recent substantial reduction in fees for health care providers.

VHI appeared unable to easily provide Milliman with detailed reports for identifying and analysing drivers of claim cost increases. Most health insurers we work with either have a suite of standard reports or are able to extract from their information systems reports that are extremely granular and monitor emerging experience for both revenue and expenses. These form the foundation for managing all the health insurers' functional areas including actuarial and pricing, sales and marketing, care and utilisation management and network management.

The standard reports provided to Milliman were at a summary level and mostly focused around total increases in claims and claims amounts by member age, with little detail around other potential claim drivers such as place of service, product, treatment/condition etc. We do not believe that reports at this summary level will allow management to understand drivers of claims costs and thus implement steps to address issues promptly. While we did receive more granular data from VHI, it took a considerable amount of time and specialised data queries to extract reports that we believe should be part of a standard reporting suite.

We believe that the actuarial function could be a significant contributor to an effective healthcare utilisation management process, working closely with the other functions of the business – finance, medical management and claims. VHI does not currently envisage an organisational structure where the actuarial function would determine the future healthcare utilisation level targets and so if it is to become a contributor to healthcare utilisation management, a review of organisational structure and responsibilities would be required.

A move towards more effective reporting, more intensive medical management and attempts to encourage models of integrated care will likely require additional investments by VHI in staff and other resources, which will likely increase administration expenses. Targeted correctly, we do not believe this is a cause for concern if it can be demonstrated that increases in administration costs are more than offset by claims costs savings.

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<sup>7</sup> "VHI Rethinks Asthma Care" - The Irish Times, Tuesday July 21, 2009

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As noted by the Competition Authority “by virtue of its buyer power VHI Healthcare has significant influence over the level of private hospital capacity in Ireland” (Competition in the Private Health Insurance Market – January 2007, The Competition Authority). Improved utilisation management which is effective in reducing claims volume will have significant impact on private hospitals which are already under financial stress. It may also reduce revenue to public hospitals from the VHI.

Further moves towards encouraging integrated models of care such as greater coverage for primary care services and the development of more disease management and wellness service could increase VHI’s claims cost in the short run as it pays for more services across the care continuum. This may be offset in the longer term by reduced hospital and consultant costs, improved quality of care and a more sustainable model of health care delivery with reduced claim cost trends. In addition it is likely that these increased costs (and member premiums) may be largely a replacement for out of pocket payments currently made by members and payments by government.

## 7. RELIANCES AND LIMITATIONS

This memo has been prepared for the internal use of and is only to be relied upon by the Department of Health and Children. No portion of this report may be disclosed to any other party without Milliman's prior written consent. In the event such consent is given, the memo must be provided in its entirety and the same restrictions regarding distribution of any portion of this report will apply to that third party. Milliman does not intend to benefit any third party recipient of its work, even if Milliman consents to the release of this work to such third party.

Judgments as to the conclusions contained in our report should be made only after studying the report in its entirety. Furthermore, conclusions reached by review of a section or sections on an isolated basis may be incorrect. Any reader must possess a certain level of expertise in areas relevant to this analysis to appreciate the significance of the assumptions and the impact of these assumptions on the illustrated results.

In carrying out our work and producing this report, we relied on data provided by VHI and on information gathered during our interviews with stakeholders. We have not audited or verified this data and other information. If the underlying data or information is inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete. In particular, our benchmarking results and analysis of casemix adjusted average costs and average lengths of stay rely on VHI's grouping of hospital admissions into DRGs. If this has not been carried out correctly, or if VHI's data contains an insufficient level of coding for accurate grouping, our results may be invalid.

We did not perform our own reserving calculations, but were supplied with both paid and incurred data from VHI and we have relied on the incurred data and hence implicitly on VHI's reserving factors without analysis of their appropriateness. If VHI's reserving factors for 2009 significantly under or over estimate the incurred claims, our analysis of inflation trends may be similarly under or over-stated. Generally we would expect 2009 claims to be substantially complete by the date of our data extract (June 2010), therefore we do not believe this is a material factor.

With the exception of David Mirkin, who is a physician healthcare management consultant, we are Consulting Actuaries with Milliman. Joanne Buckle and Rob Parke are members of the American Academy of Actuaries and meet the Qualification Standards of the Academy to render the actuarial opinion contained herein. To the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices.

Jim Murphy and Kevin Manning are Fellows of the Society of Actuaries in Ireland and in preparing this report we have taken account of the requirements of Actuarial Standard of Practice ASP GI-1 v1.1 issued by the Society of Actuaries in Ireland. We do not consider that this report represents a *Quantitative Formal Report* as envisaged by the ASP, but we have nevertheless had regard to the general requirements of section 4 onwards of the ASP in preparing this report.

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## APPENDIX A – METHODOLOGY AND DATA

Our review relied on data from three sources:

- Meetings with key stakeholders
- An onsite operational review of VHI
- A data and benchmarking analysis

Each of these is discussed in more detail below:

### A.1 Meetings with Key Stakeholders

During the week beginning 28 June 2010, Milliman met with a number of key stakeholders to discuss their observations on claims drivers for the health insurance market. These stakeholders were as follows:

- The Department of Health and Children
- The Health Services Executive (HSE)
- The Independent Hospitals Association of Ireland (IHAI)
- The Health Insurance Authority (HIA)
- AVIVA Health
- Quinn Healthcare<sup>8</sup>

### A.2 Onsite Operational Review

The second part of our analysis consisted of conducting an onsite operational review of VHI. This comprised:

- An initial meeting with members of the senior management team including the Chief Executive, Jimmy Tolan
- Meetings with the following VHI staff:
  - Dr Bernadette Carr, Chief Medical Officer
  - John Armstrong, Chief Actuary
  - John Creedon & Mark Byrne, Claims
  - Seamus Corry, Andrew Smith, Contracting.
- A job shadow of a member of claims staff to review the claims process
- A telephone call with Dr Bernadette Carr, Chief Medical Officer and Dr Jacinta O'Halloran, Medical Officer
- Review of an information pack provided by VHI, containing:
  - Table 1: Distribution of member claim sizes by size, age band and number of members
  - Tables 2A – 2C : Relative cost and profile of members leaving and most likely joining competitors
  - Table 3: Reported average cost per member in statutory returns
  - Table 4: Membership profile for VHI Healthcare 2000- 2010

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<sup>8</sup> By way of conference call



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- Table 5: Index of claims cost increases arising from ageing impact on VHI Healthcare
  - Table 6: Market forces and impact on community rating
  - Claims cost comparison of health insurers
  - 2007-2010 sources of claims cost movement exhibit
  - Summary of P&L for May 2010
  - Claims volume trends
  - McKinsey analysis of the impact of new private bed capacity
  - Administration cost comparison of health insurers
  - IPH report: Making Chronic conditions count
  - NCRI cancer projections 2005 - 2035

### A.3 Data Analysis and Benchmarking

The last part of our analysis consisted of conducting a data analysis and benchmarking exercise to validate the observations from our onsite review and provide an indication of the savings likely to be possible if VHI were more stringent in its medical management. Listed below is the data we received for this part of the analysis and our methodology.

#### A.3.1 DATA

We received the following items from VHI:

1. Inpatient & day case claims split by age group (age at admission), gender, county, inpatient/day case, plan type, hospital, hospital category and DRG for 2007 to 2009. VHI used IRDRG v 2.2 in assigning DRGs to admissions. VHI also categorised plans into 7 plan types.
2. Members split by age group and gender, county and plan type for 2007 to 2009
3. Copy of VHI fee schedule & benefit schedule.
4. Claims rates and average incurred and paid amounts by age/sex and plan for 2008 and 2009.
5. Loss ratios by plan type, age and sex for 2008/9, with reserves added and including primary care data.
6. Utilisation and average costs by type of service, age group, sex and plan type for 2008/9, excluding primary care benefits.
7. Copy of 2010/11 budgets and projections and an analysis of year to date 2010 budget and actual claims and premiums.
8. List of areas for contracting focus for 2010
9. List of rejection reasons for claims.
10. Membership numbers at each year end 2007, 2008 and 2009
11. Report on savings from the Special Investigations Unit
12. Report on the savings from the utilisation management work.
13. Outline of home health service
14. Financial Statements for 2008/2009.
15. Utilisation reports with counts of procedures by procedure code
16. A suite of management reports dated July 2010, including monthly loss ratios, sales figures, membership levels, P&L accounts and aggregate claims costs

### A.3.2 METHODOLOGY

We performed an analysis of change on the 2008 and 2009 data to isolate the effects of changes in portfolio mix from other factors driving the claims cost PMPM trend. Firstly we estimated the actual claims and premium costs PMPM in 2008 and 2009 by dividing the actual total claims incurred (split by inpatient, outpatient and primary care) and actual earned premiums by the number of members and dividing by 12 (to get monthly costs). We performed this analysis separately for each age group, sex and plan type and year. Secondly, we recalculated the 2009 costs using the 2008 age/sex/plan structure – in effect for each age group/sex/plan cell we recalculated the costs that would have been incurred and premiums that would have been earned in 2009 in total if the 2008 number of members were in force in that cell, but the 2009 average claims costs and premium applied. We then summed over all the age/sex/plan cells to estimate the total 2009 costs and premiums with the 2008 portfolio structure. Lastly we calculated costs for each plan separately using the 2008 age/sex structure and then adding together the costs for each plan, so that we calculated estimated 2009 costs for the 2009 plan type mix, but with 2008 demographics *within* each plan. We then calculated the incremental PMPM claims and premiums from each part of the analysis of change. This shows the contribution of age/sex mix and the contribution of plan mix to the PMPM trends, separately from other factors, such as supplier-induced, demand, other portfolio mix trends and changes in benefits. This analysis of change is set out in Exhibit C.2.

For the second part of our analysis, we split incurred claims into facility and professional fees and by type of facility to estimate the incremental PMPM impact of each type of facility to the overall claims cost PMPM trend for each plan type. This is set out in Exhibit C.3.

To determine the contribution made by each facility for inpatient and day case/side room separately and also investigate whether some facilities were more or less expensive on a casemix-adjusted basis, we estimated average severity for each facility type using DRG weights for 2009 from the Centres for Medicaid and Medicare Services (CMS) in the US. These weights are intended to reflect the relative resource use of each DRG. By using the data VHI supplied on inpatient admits by DRG split by facility to calculate a weighted average of the DRG severity weights, we were able to calculate a casemix index for each facility which reflected the average severity of inpatient admissions. We then calculated the number of admits per 1,000 population, average cost of each admit and average length of stay for each facility. By dividing the average cost and average length of stay by the casemix index, we can estimate a severity-adjusted average cost and severity-adjusted average length of stay that is independent of casemix, allowing us to compare both facility types and individual hospitals on a like for like basis (exhibits C.4 and C.5). This is extremely helpful in identifying outliers, both in terms of cost and average length of stay and is a standard analysis we would perform where possible to investigate whether a particular hospital is truly inefficient, or just has a different casemix to another hospital. For the analysis by facility type in Exhibit C.4, we used data from all hospitals, but for the individual facility analysis, we extracted the 20 facility codes in 2009 where VHI had the highest spend.

VHI used a DRG grouper that was different from the CMS DRG system. Based on a review of the description of each DRG we manually mapped these into CMS DRGs. It should be noted that there was not always a one to one mapping between the two codesets. Therefore, in some cases, we have grouped together DRGs for the purposes of our analysis. Therefore the accuracy of the DRG analysis relies both on the quality of VHI's DRG data groupings and the mapping of the codesets. VHI has a significant number of medical admissions which were grouped into the DRG "Other factors influencing health status", which indicates that for a large number of admissions, there was insufficient data on the record for correct assignment of DRGs.

Although VHI also grouped its day case procedures into DRGs, the CMS resource weights are specifically designed to be applicable to inpatient stays only and therefore we did not adjust the day case admits for severity.

Finally, for each DRG, we compared VHI's inpatient admissions and average length of stay with the Milliman Loosely-Managed (LM) and Well-Managed (WM) benchmarks. The LM benchmarks are broadly indicative of a US health plan carrying out very little active medical management. The WM benchmarks are indicative of results from integrated health systems in the US with robust and efficient provider infrastructure, strict medical management and good adherence to evidence-based guidelines. Our results are shown in Exhibit C.7.

The Milliman benchmarks are adjusted to take account of VHI's demographics and we have separate benchmarks from under and over 65s. The <65 benchmarks are for a US commercial (working) population, which is roughly analogous to VHI's population. The age 65+ benchmarks are for a Medicare population.

We then selected the top 20 medical admissions (by VHI 2009 paid amount), the top 20 surgical admissions (by VHI 2009 paid amount) and the maternity and psychiatric admissions to compare VHI's admissions and average lengths of stay to the benchmarks in more detail. This is shown in Exhibit C.8.

## APPENDIX B - ADDITIONAL BACKGROUND INFORMATION

### B.1 Hospitals

In broad terms the hospital network in Ireland can be split into two categories – public hospitals which are funded by the State through the Health Service Executive (HSE), and Private Hospitals, which are not directly funded by the State. This section sets out some background information in relation to each category.

#### B.1.1 PUBLIC HOSPITALS

The HSE was established in January 2005 as the single body responsible for delivering public health services in Ireland. There are 50 acute public hospitals in Ireland, most of which are publicly owned and directly run by the HSE. A number of voluntary public hospitals exist, which are funded through the HSE but run by private organisations (typically religious orders). A patient can choose to be a private or public patient of a public hospital. A proportion of the beds in public hospitals are designated as private beds for use by private patients. It is Government policy to reduce the proportion of private beds in public hospitals, with a 20% maximum target envisaged.

There is a general entitlement to public treatment in a public hospital subject to a charge of €75 per day (with a maximum total charge of €750 in one calendar year). The cost of private or semi-private accommodation in a public hospital is considerably higher, and the vast majority of patients electing to be treated privately have private health insurance policies, although patients without insurance could elect to be treated privately and pay the additional costs out of pocket.

The vast majority of the funding for public hospitals comes from the HSE. The HSE's total expenditure in 2009 amounted to €14.7bn. By comparison the total amounts of claims paid by private health insurers are of the order of €1.5bn to €2bn with approximately a quarter of this amount paid directly to public hospitals in respect of private accommodation.

The HSE's annual report for 2009 indicates that 75.5% of all inpatient stays in that year were in respect of public patients. In total 3.7m bed-days were used with an average length of stay of 6.2 days; 60% of hospital bed-days were related to chronic illnesses and associated complications. There were 3.3m attendances at out-patient departments.

##### B.1.1.1 Increase in Public Fees

The principal cost for insurers arising from the public system is the cost of private and semi-private accommodation in a public hospital. In VHI's case, approximately one quarter of its claims costs in the calendar year 2009 fell into this category. The charges in respect of private accommodation in public hospitals are set by the Minister for Health and Children and depend on the category of accommodation and the type of hospital. Table 1.1 summarises the current level of charges.

**Table B.1-1 – Charges for private patients in public hospitals**

HOSPITAL CATEGORY	PRIVATE	SEMI-PRIVATE	DAYCARE
HSE Regional Hospitals, Voluntary and Joint Board Teaching Hospitals	€910	€713	€655
HSE County Hospitals and Voluntary Non-teaching Hospitals	€607	€488	€434
HSE District Hospitals	€260	€222	€193

Source – HSE. Figures apply from 1 January 2009, and remain valid as at 13 July 2010.

The costs listed above are charged in addition to the €75 per diem cost for a public patient. There was no change in the level of charges at 1 January 2010. The 2009 levels are 20% higher than those that applied in 2008. In turn, the charges that applied from 1 January 2008 were 10% higher than the 2007 levels, meaning that in total, the charges for private beds in public hospitals increased by 32% from 2007 to 2009.

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## B.1.2 PRIVATE HOSPITALS

The private hospital market in Ireland has grown, particularly in recent years, and there are now approximately 40 private hospitals or clinics in the Republic which are routinely covered by health insurers. Ability to access a private hospital is a strong incentive for taking out private health insurance in Ireland (given the universal right to public health care), so for insurers, there is a marketing incentive to provide a wide range of coverage. The counter balance to this is the potential for additional private hospitals to result in an increase in the supply of private hospital beds, which gives rise to the potential for supplier-induced demand, resulting in claims inflation for insurers. Because private hospitals currently only have occupancy rates of 60% to 80%, it is extremely likely that additional capacity will result in additional, potentially unnecessary, utilisation.

Private hospitals rely heavily on insurers for their funding. In broad terms, funding for private hospitals comes from three main sources – private health insurers, the National Treatment Purchase Fund, and out of pocket payments by individuals. However, the payments by health insurers account for the vast majority of monies received by private hospitals.

Interviews with representatives of the Independent Hospitals Association of Ireland (IHAI) indicated that the level of payments from VHI were the single most significant source of income for most private hospitals and that hospital solvency depends heavily on VHI as a result

Treatments in private hospitals are primarily elective with the demand for unplanned/emergency services satisfied by the public system. For public hospitals a significant proportion of admissions come through the Accident and Emergency Departments. Since 2005, some private hospitals have started to develop quasi- A&E departments, which may result in emergency patients entering a private facility rather than a public hospital, with consequent cost implications for insurers.

The IHAI indicated that there was considerable competition between private hospitals but that this was primarily focused on attracting consultants, as consultants effectively act as the portal through which private hospitals can access customers.

Health insurers generally divide private hospitals into two categories, with one category often referred to as the “high-tech” hospitals. Typically the “high-tech” hospitals include the Mater Private, the Blackrock Clinic, and in some cases, the Beacon Hospital, the Galway Clinic and the Hermitage Medical Clinic. The extent to which “high-tech” hospitals are covered by insurers will depend on the plan or product chosen. VHI has extended its coverage of some of the hospitals in a number of plans, but coverage of the Blackrock Clinic and the Mater Private remain limited. The IHAI suggested that one result of the current economic downturn has been a downgrading of cover levels by individual which has had a greater impact on the finances of those particular hospitals.

### B.1.2.1 Packaged Pricing & Fixed Price Procedures

Remuneration by insurers to private hospitals is typically on the basis of fixed prices for specified benefit packages. There are limited “carve-outs” for specific items (e.g. medicated stents) with specified costs per item, but for the most part the remuneration of the private hospitals is based on packaged pricing for inpatient admissions (although there are some additional payments for outlier days) and fixed price procedures for day case admissions. The packaged pricing approach is more effective than a per diem remuneration model in encouraging hospitals to keep costs down.

The packaged prices are negotiated between the hospitals and the relevant insurers. It is evident from discussions with the IHAI and the VHI as well as press coverage that the most recent negotiations between the parties led to reductions in packaged prices across the board, with average reductions of around 3%. It is not clear to what extent the packaged prices other insurers negotiate will mirror those negotiated by VHI, but it is likely that VHI’s stronger purchasing power allows it to negotiate prices which are lower than its competitors.

### B.1.2.2 Average Length of Stay (ALOS) Incentive

Negotiated packaged prices for inpatient procedures are based on median average lengths of stay (ALOS) for each procedure and the average utilisation of diagnostic tests such as radiology and pathology. In the event that a private hospital can achieve lower ALOS, then there is a clear financial incentive for them to do so, as they will benefit fully from the cost saving. However, if the result of this would be that fixed prices for the following year were re-negotiated based on the lower ALOS, then this would act as a disincentive for private hospitals to reduce ALOS. To ensure that the interests of private hospitals are aligned with its own interests in terms of cost reductions, VHI applies a gain-sharing approach where ALOS levels are below those underlying the fixed packaged price, with the gain shared equally between the insurer and the hospital.

For example, a procedure price may be based on an ALOS of 5 days. If a hospital can achieve an ALOS of 4 days, it will benefit financially from this for that year. When prices are renegotiated, the following year's price will be based on an ALOS of 4.5 days, so that both the hospital and VHI benefit from the reduction in ALOS.

## B.2 Consultants

There are currently approximately 2,350 hospital consultants in Ireland with around 1,650 of those represented by the Irish Hospital Consultants Association (IHCA) with the remaining 700 or so represented by the Irish Medical Organisation (IMO) which also represents almost 5,000 non-consultant hospital doctors.

The majority of hospital consultants derive income from both the private system and the public system and are the effective gatekeepers for inpatient admissions in hospitals. Commonly patients are referred to consultants through their GP.

### B.2.1 CHANGE IN CONSULTANT CONTRACT

After a lengthy period of negotiation, the HSE and the Department of Health has brought about a significant reform of consultants' contracts. The new measures have resulted in three categories of consultant:

- Type A – Consultants are limited to public only practice and will have salaries of up to €240,000.
- Type B – Consultants must devote at least 80% of their time to treating public patients in public hospitals, and are allowed to spend the remaining 20% of their time treating private patients in public hospitals. They will have salaries of up to €220,000 in the public system, plus reimbursement for their private work.
- Type B\* – Consultants will be entitled to treat private patients offsite and will have salaries of up to €175,000 in the public system, plus reimbursement for their private work.

Under the old regime there were basically two categories of consultants – those who worked solely in public hospitals, albeit with the capacity to treat patients privately in public hospitals, and those who worked in both public and private hospitals. Broadly speaking, we understand that two thirds of consultants fell into the first category, although almost all consultants based in Dublin fell into the second category.

The changes in the consulting contracts may bring about an increase in the extent to which consultants focus on public patients. We understand, however, that the majority of consultants moving into Type A contracts are those who are approaching retirement, on the basis that the higher salary and consequent higher pension benefits make financial sense. Analysis of figures from September 2009 showed that around 37% of consultants signed up had opted for Type A contracts, 42% had signed Type B contracts, allowing them to continue some private work and the remainder (21%) had opted for Type B\* contracts (these figures do not include consultants operating exclusively in private practice). Typically remuneration for consultants in respect of private practice (whether in a public or private hospital setting) will come from the insurers. VHI in recent years has negotiated significant reductions in the level of fees it pays to consultants.

### B.2.2 DECLINING CONSULTANT FEE SCHEDULE FOR ADMISSIONS

Consultants providing medical services to patients admitted to acute hospitals receive a declining per day fee for inpatient attendance. The longer the patient remains in hospital the lower the daily fee paid to the consultants for attendance in each subsequent day. The intent is not to financially reward the consultant for long inpatient stays.

## B.3 Advance Payment to Public Hospitals

The process for hospitals to receive payment from insurers is quite manual, although we understand that the insurers in collaboration are developing an electronic system that will help make the process more efficient. There may seem to be an incentive for insurers to maintain a manual system which would result in slower claims payments, and the potential for some claims not to be paid. The advent of Solvency II is likely to result in higher capital requirements for insurers if their liabilities in respect of claims are settled slowly, so there is now a significant incentive on insurers to speed up the process.

Based on discussions with VHI and other stakeholders, it appears that the claims process, and the remuneration process for providers, is reasonably fast in respect of claims made to VHI by private hospitals. There is an important requirement from VHI's

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perspective that all claim forms are signed by the relevant consultant, and for the most part this is performed in a reasonably efficient manner by consultants in private hospitals.

In public hospitals this is less efficient and delays are typically longer. This may in part be due to the difference in incentive at provider level. For a private hospital, payment of claims by VHI is crucial to the financial health of the hospital. In the public system, amounts paid by insurers are small relative to overall funding. Whatever the reason, it appears that public hospitals have difficulty in achieving the necessary sign-offs from consultants in a timely manner.

To alleviate the cash-flow difficulties that this can cause in the public system, and following a request from the Minister for Health and Children, VHI made an advance payment of €50m to the HSE in November 2009. We understand that the payment was made on the basis that it would be recovered from claim amounts submitted by hospitals over the five month period from July to November 2010. In exchange for the advance payment, the HSE has undertaken to take specific actions to speed up the claims administration process – including allowing secondary consultants sign the claim form, and possibly directly billing patients where an insurance claim form has not been completed within 30 days of a claim event.

#### **B.4 Competition**

Prior to 1996, VHI operated as an effective monopolist in the Irish PHI market. The opening of the single European market in 1994 and the arrival of BUPA to the Irish market in 1996 led to VHI facing competition for the first time. The market continues to be competitive, with BUPA's place in the market taken by Quinn, and a third insurer, Aviva, growing market share steadily.

A key challenge for a competitive insurance market in Ireland is the incentive that can exist in a community rated market for competition to be primarily based on risk selection, and there is evidence of competition in the Irish market operating in this way. Product innovation and marketing campaigns undertaken by health insurers have primarily focused on benefits that would be likely to appeal to younger customers. For example, banner advertising on the websites of all three insurers currently focuses on products designed to appeal to families with children.

VHI currently insures approximately 63% of the covered members in the market, but maintains that it pays out around 80% of the total claims cost, mainly because of its higher proportion of older members. VHI's market share by membership has reduced rapidly in recent years, but as noted above, it is still the most significant source of income for private hospitals and currently vital to the financial viability of many of these.

#### **B.5 Corporate Business**

VHI commented that its margins from corporate business have declined over the last two years. In many markets, corporate business is a loss-leader and subsidised by more profitable individual members. However, in Ireland, it is unlikely this has been the case historically given the requirement for community rating, as corporate members are likely to be healthier and younger than average. It is unclear the extent to which corporate business drives profits, or has driven profits at VHI in the past, but is possible that an increase in aggressive competition from AVIVA and QUINN for previously profitable corporate business has undermined the performance of VHI, both because it may have lost the most profitable schemes, but also because market profitability as a whole has declined because of price competition and this may have had a disproportionate effect on VHI.

VHI asserts that it is required to tender competitively for sizeable corporate schemes or face reputational risk and this may place it at a competitive disadvantage compared with other insurers. According to VHI, corporate schemes account for around 15% of their portfolio by membership.

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## APPENDIX C – EXHIBITS & DETAILED RESULTS OF ANALYSIS

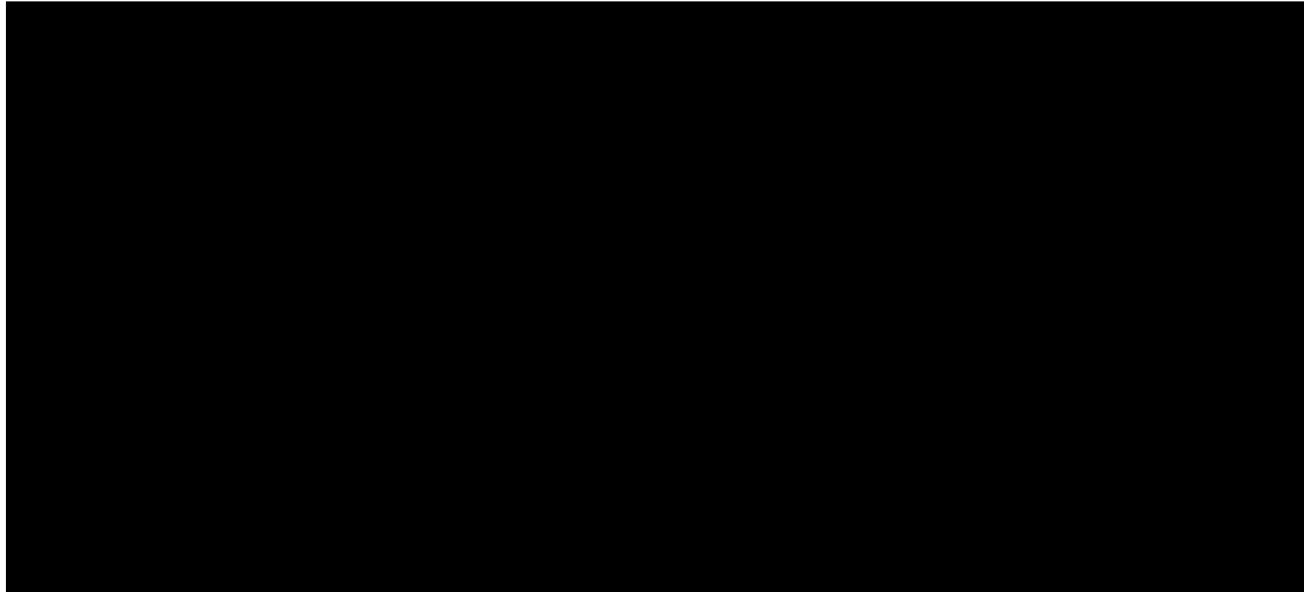
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### Review of VHI Claims Costs Control

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September 16, 2010

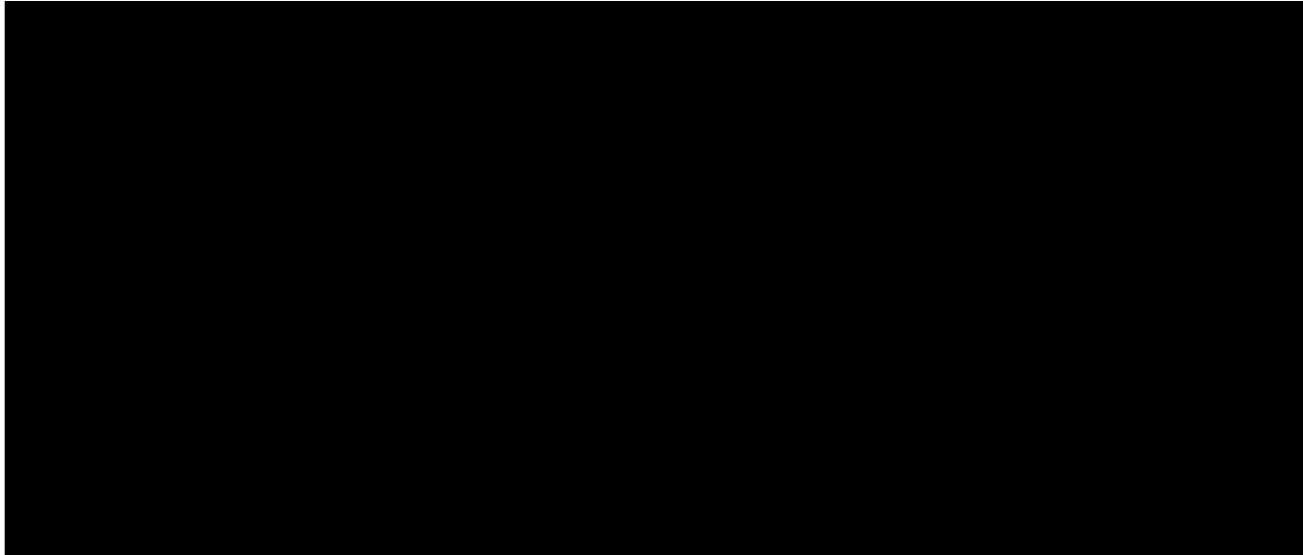
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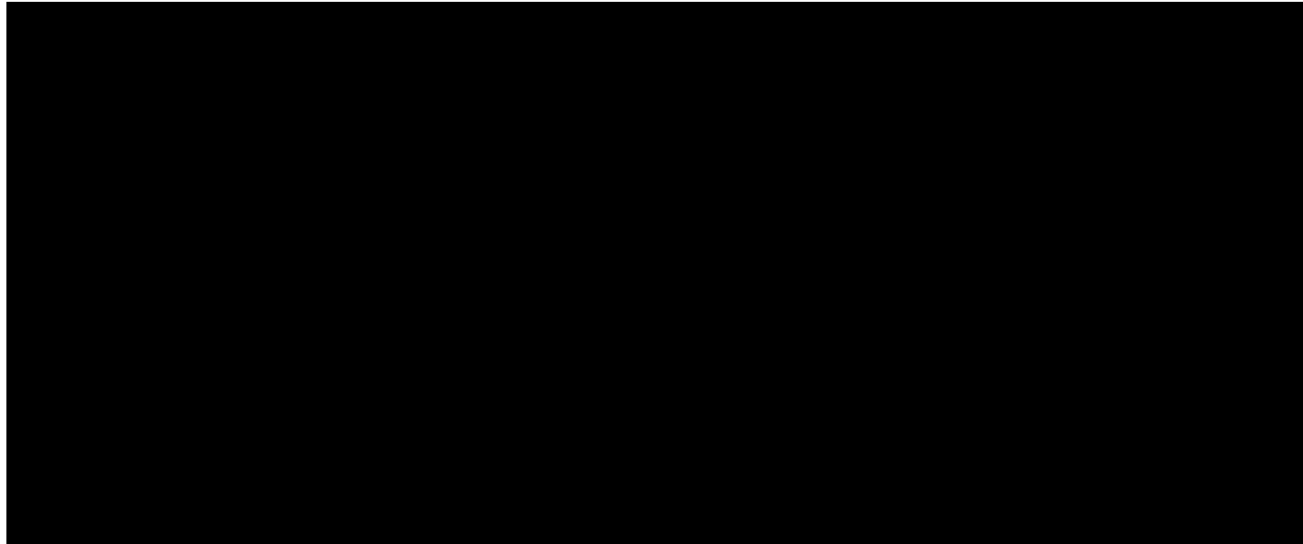


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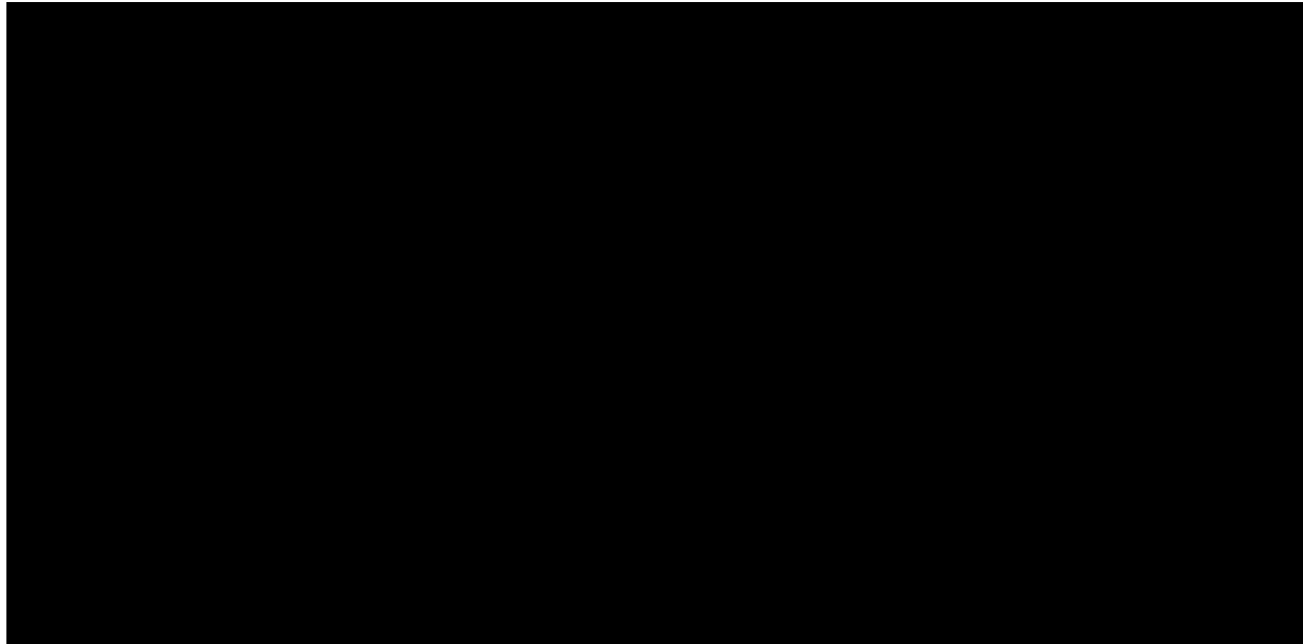
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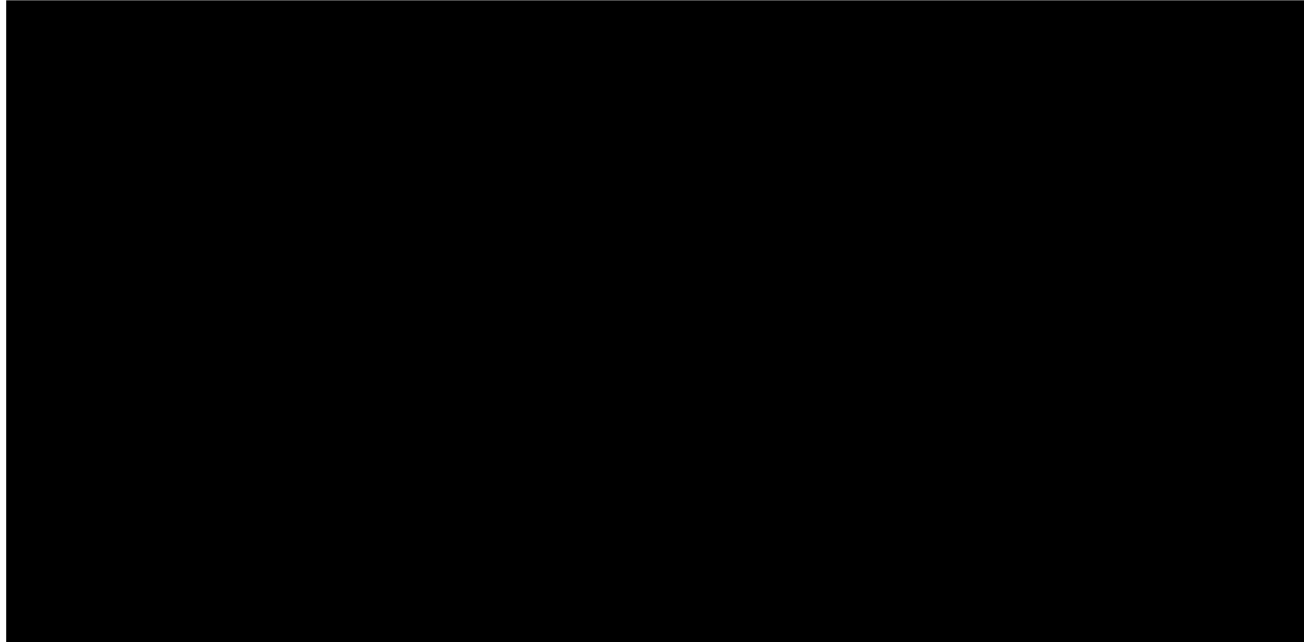
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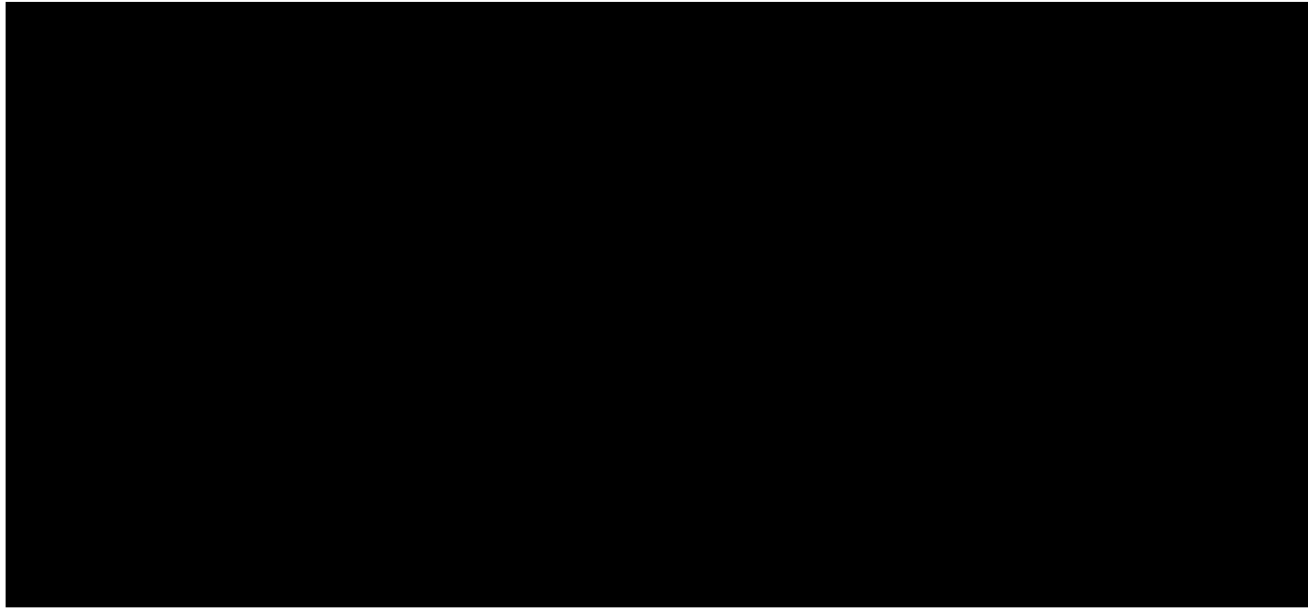
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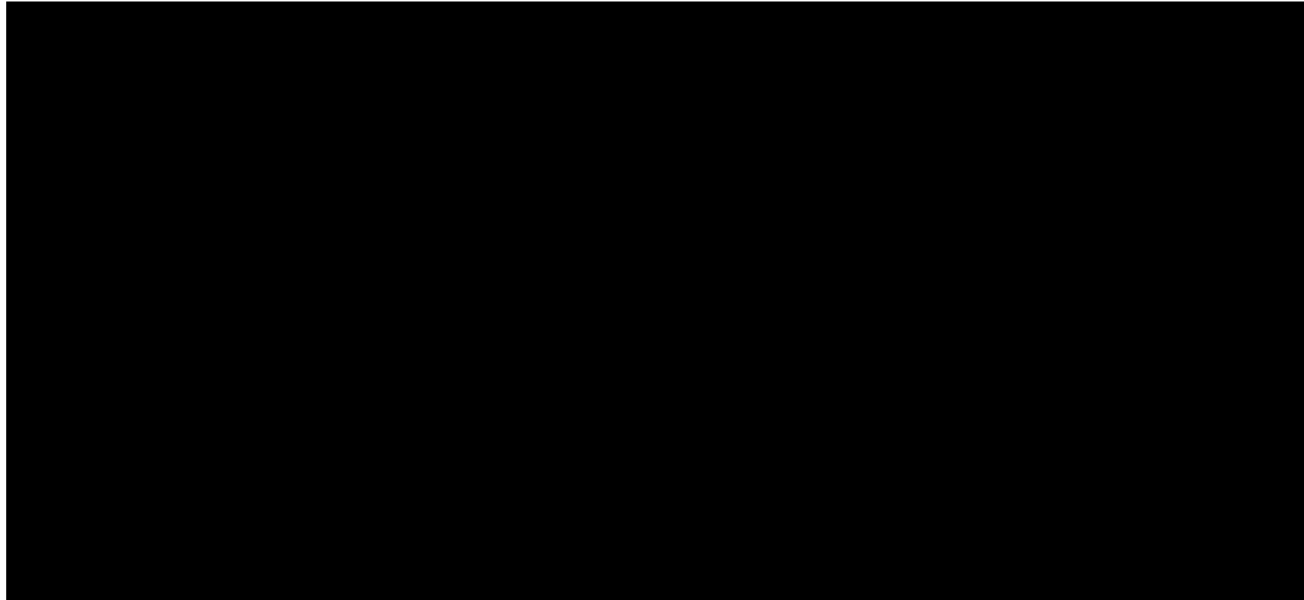
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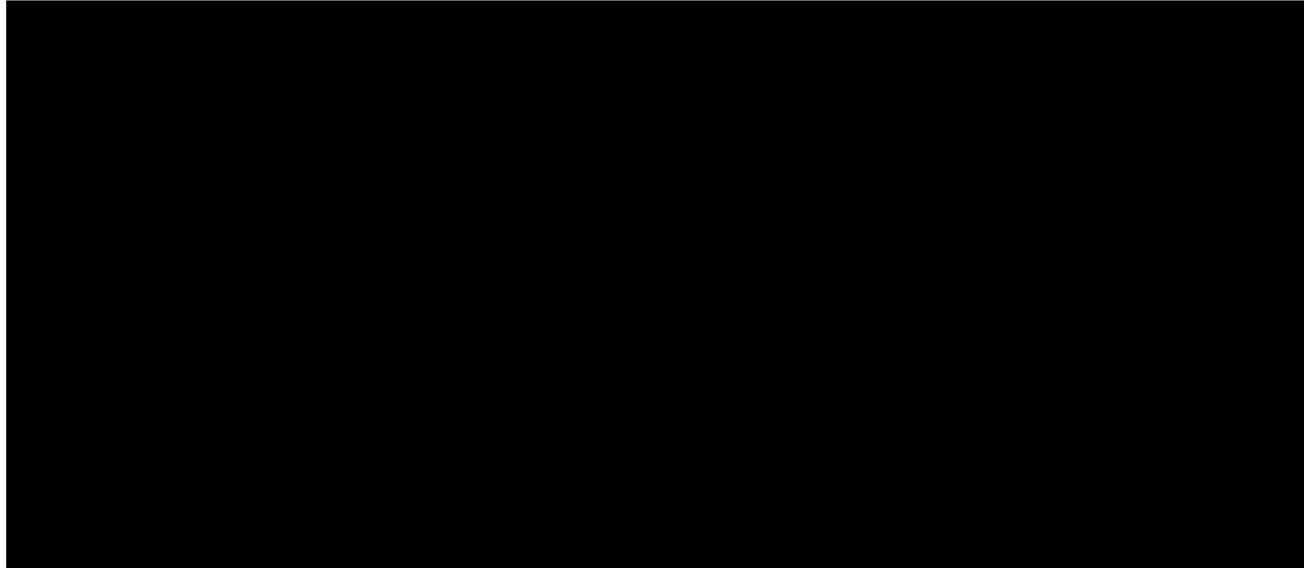
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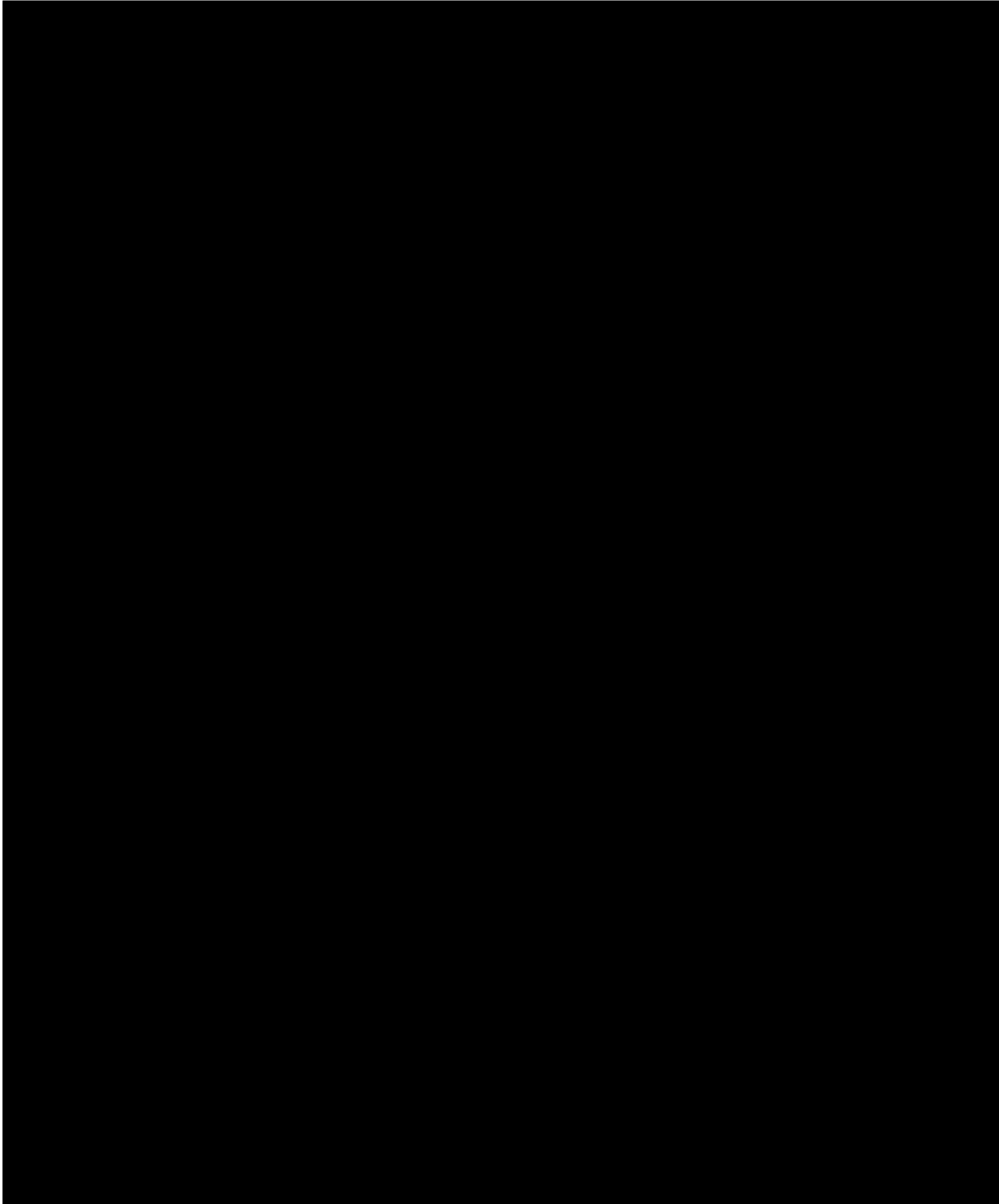
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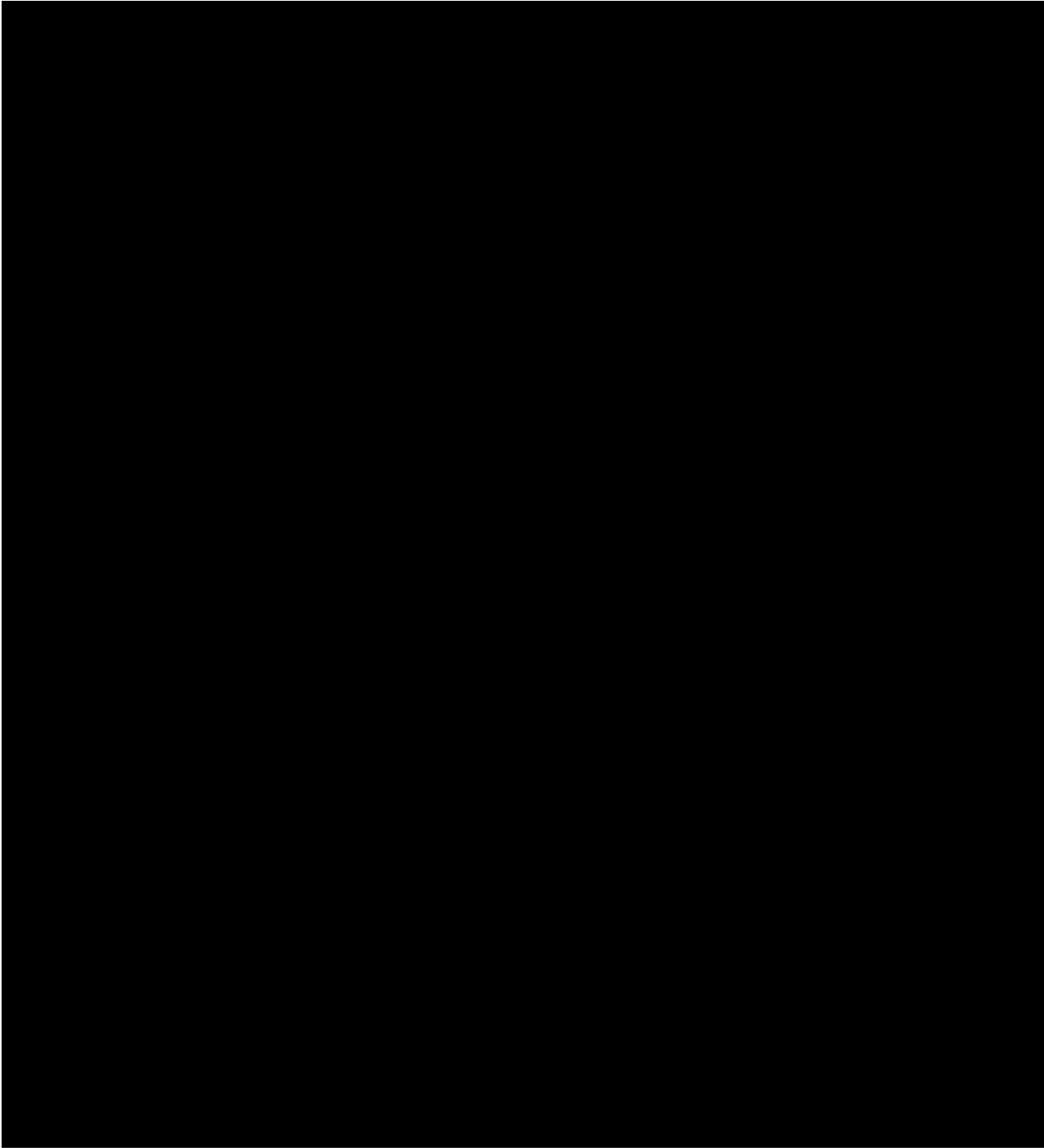
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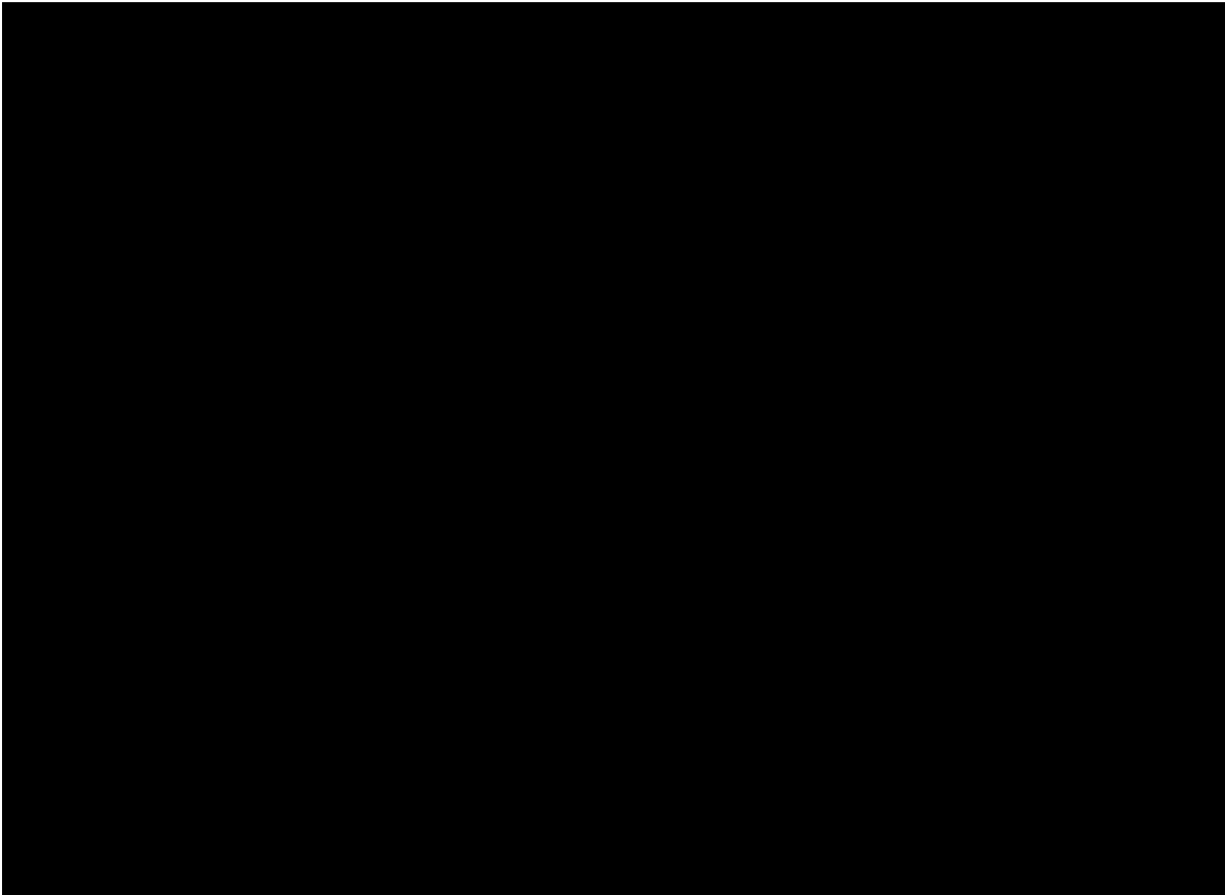


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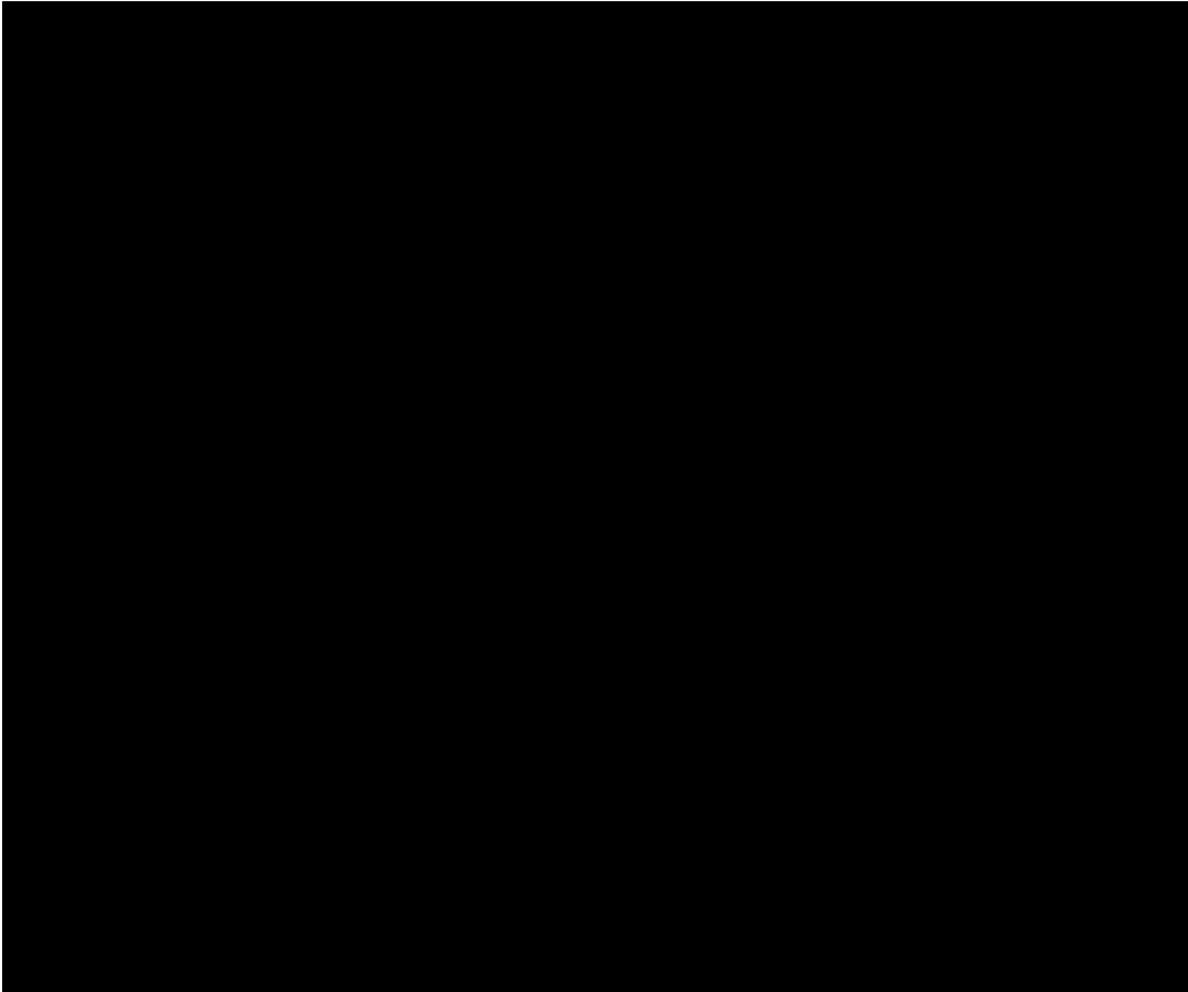
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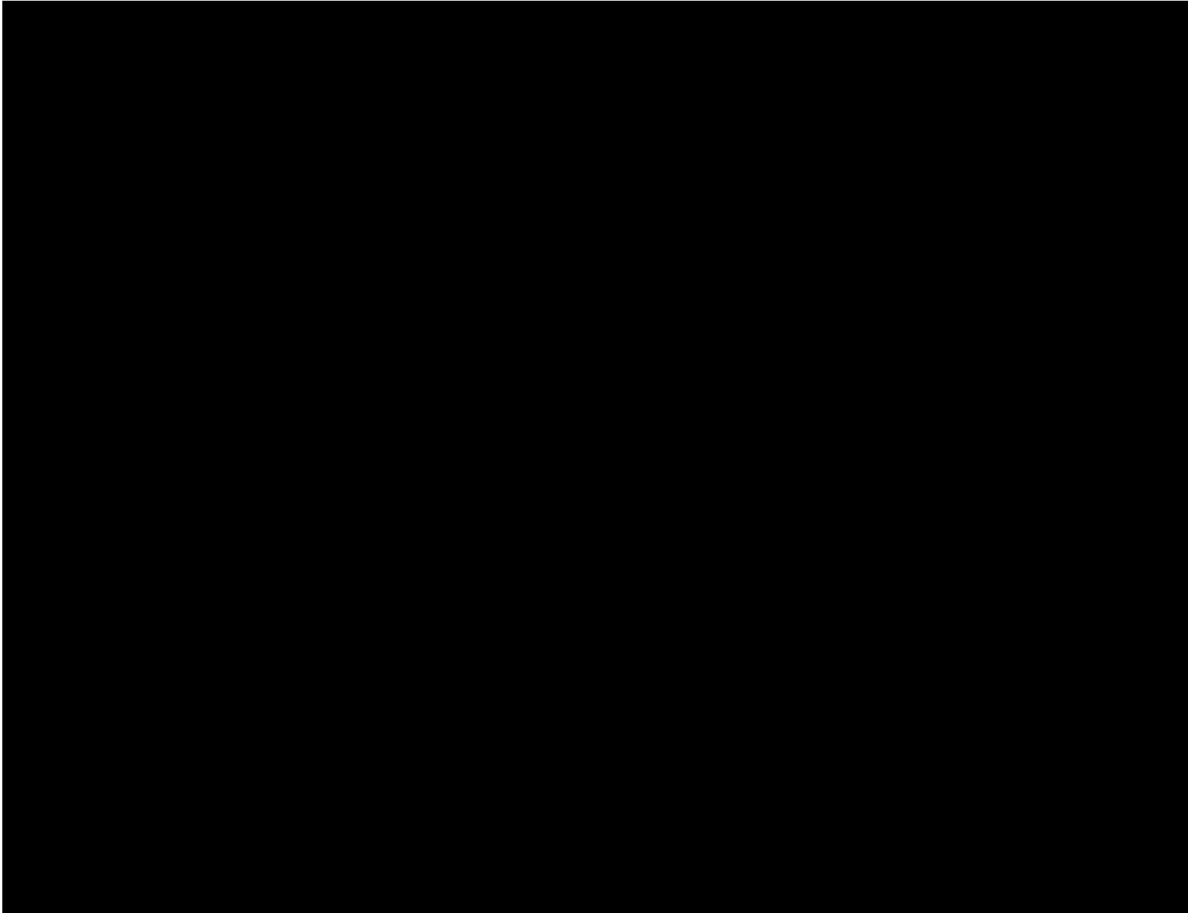
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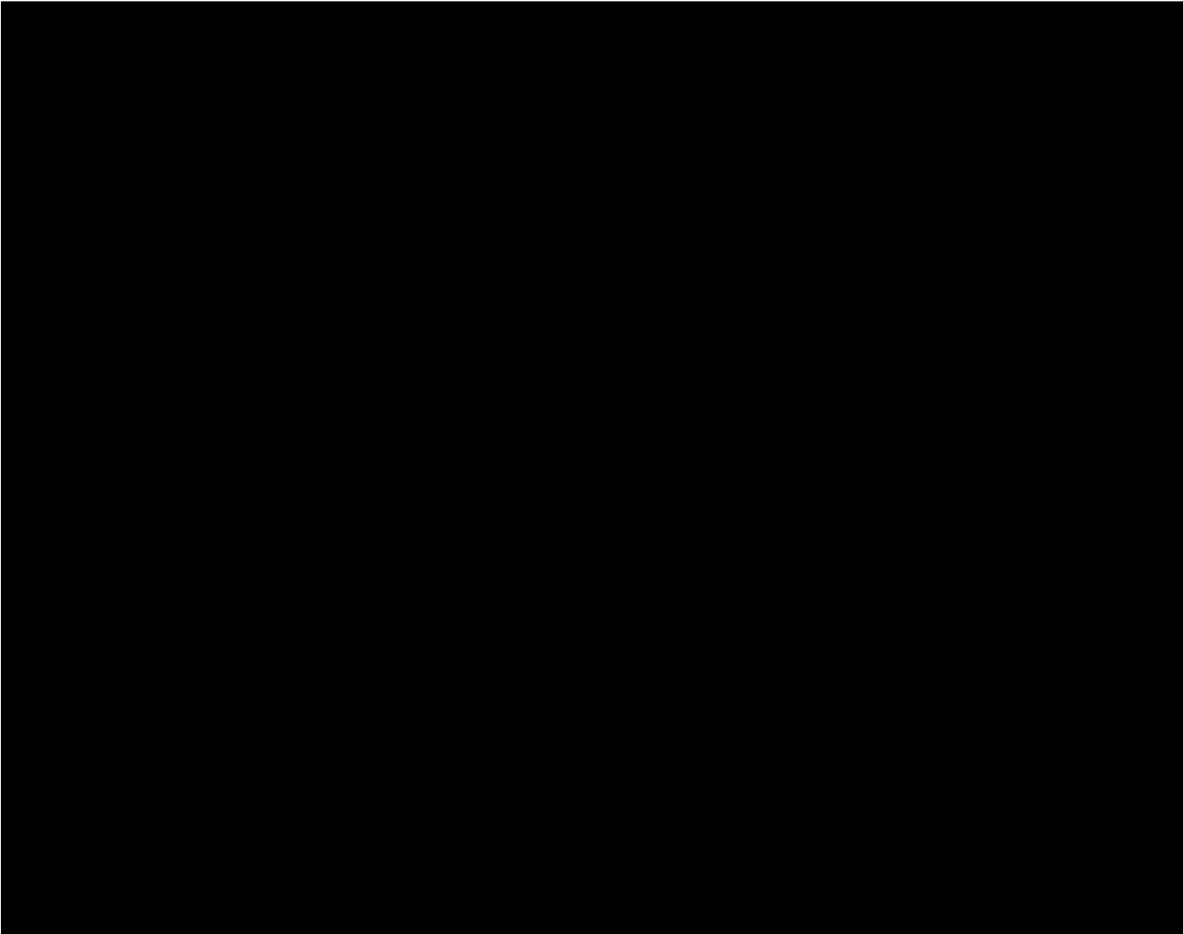
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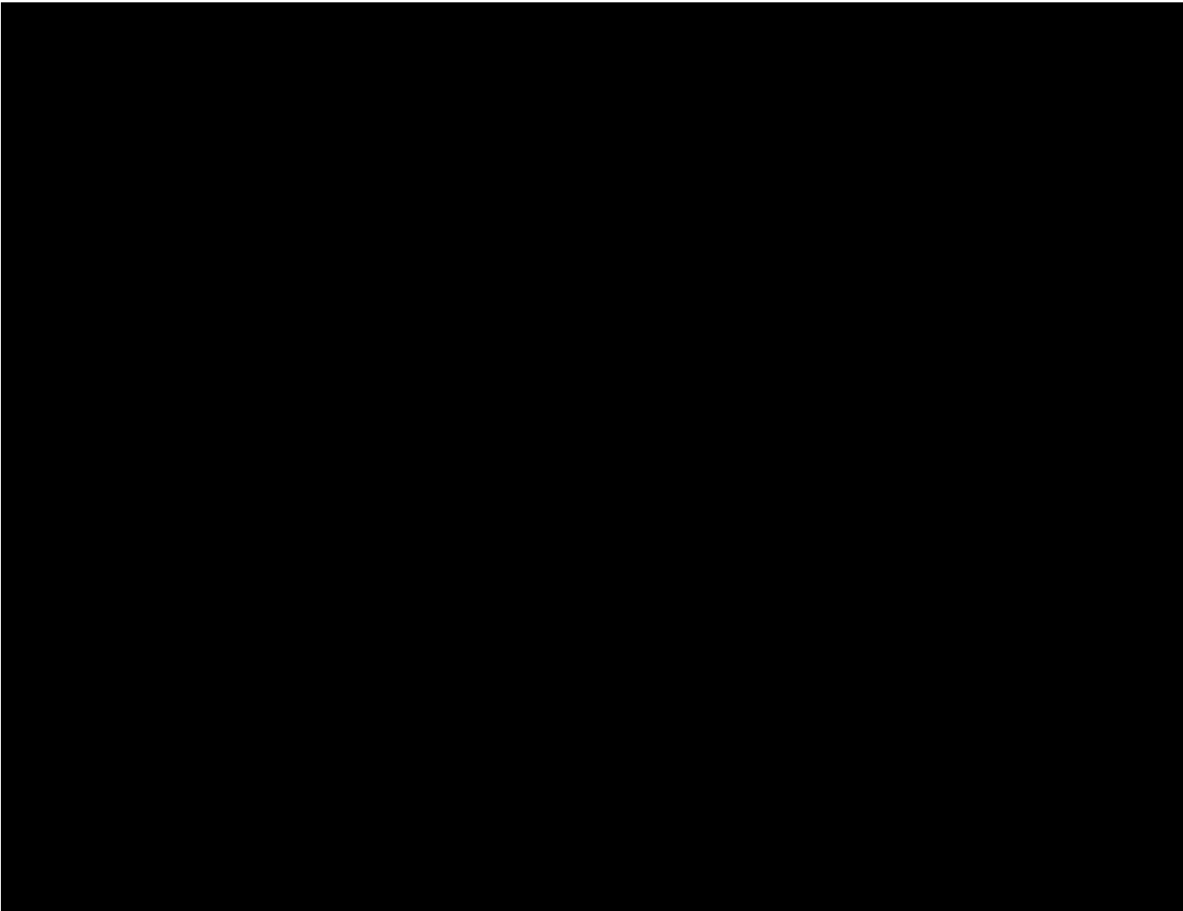
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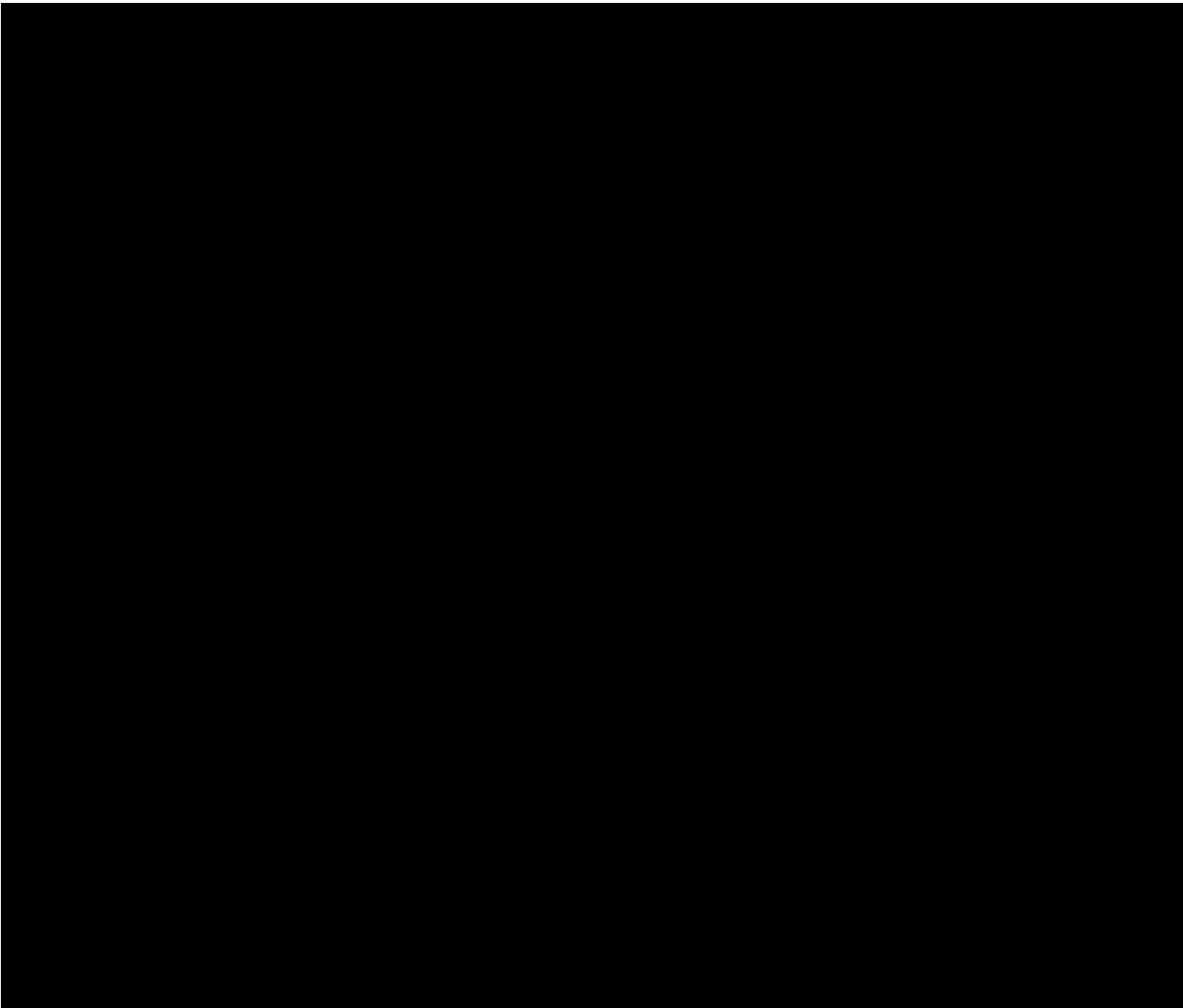
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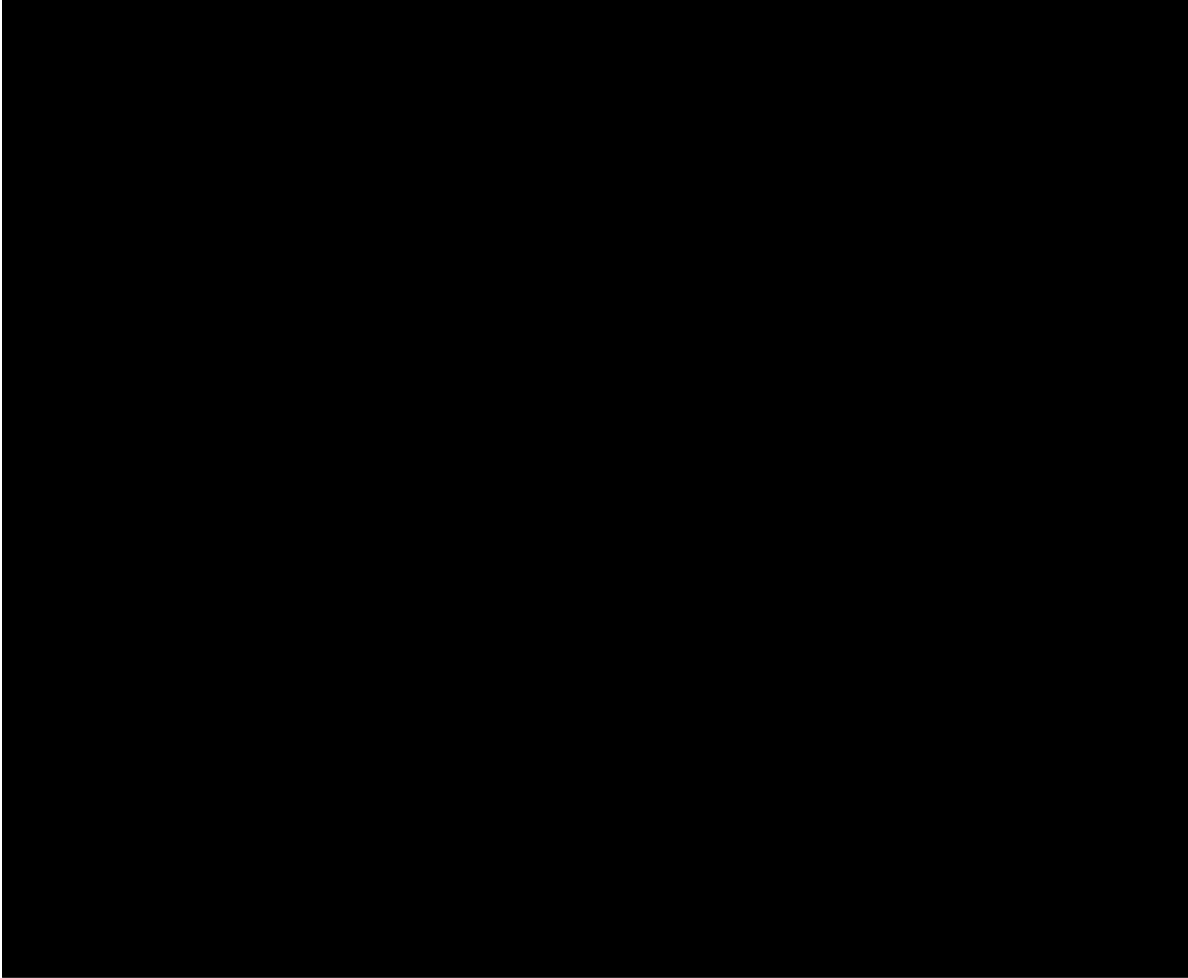
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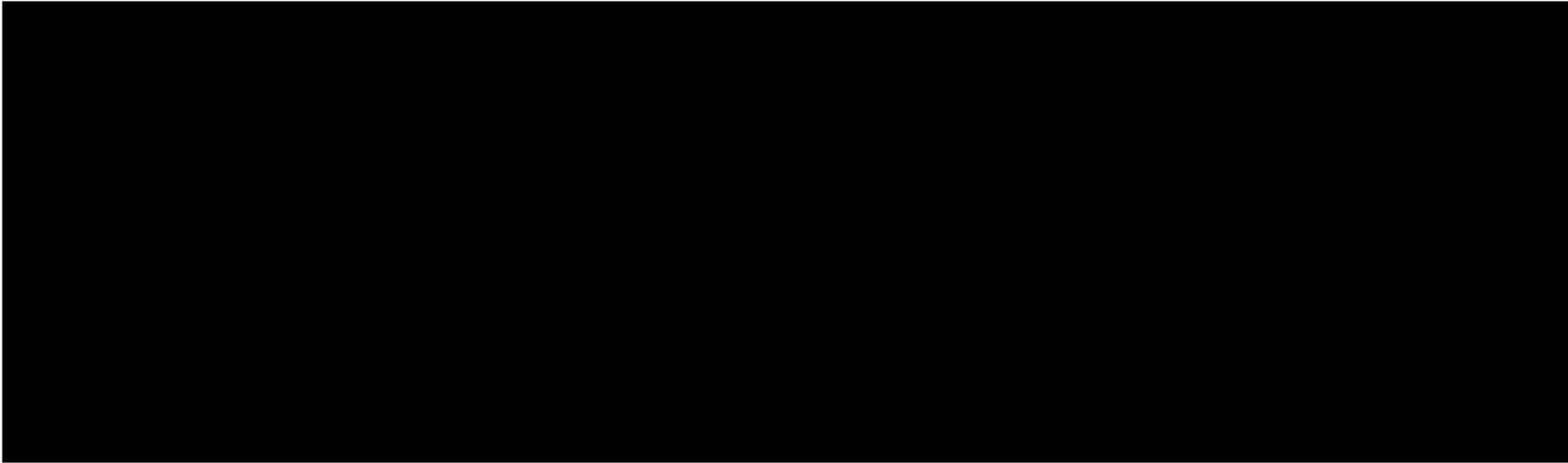
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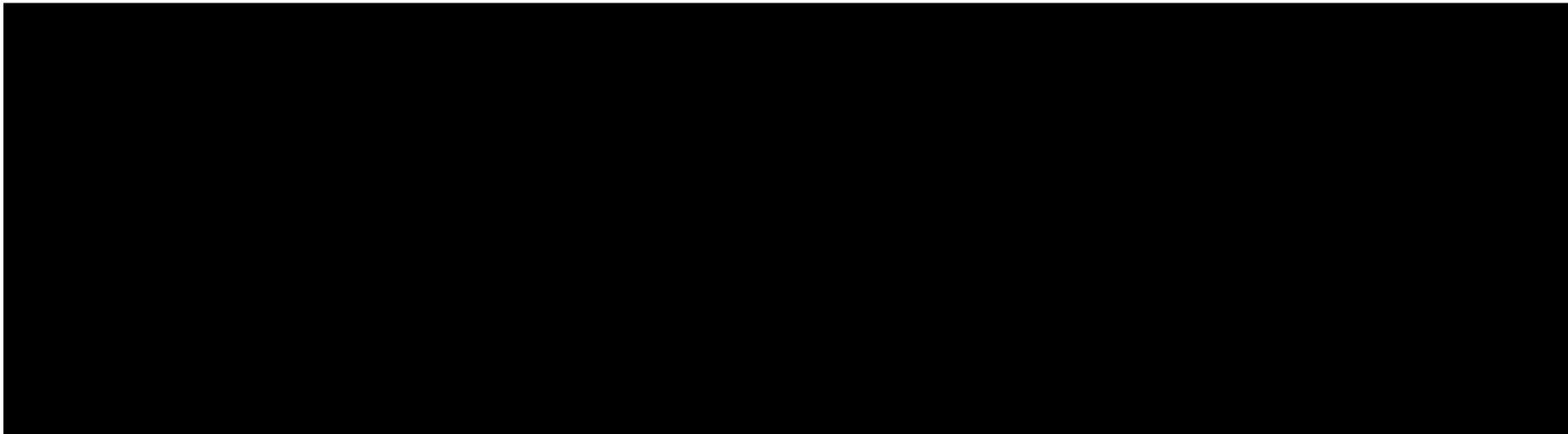


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Exhibit C.4 - redacted

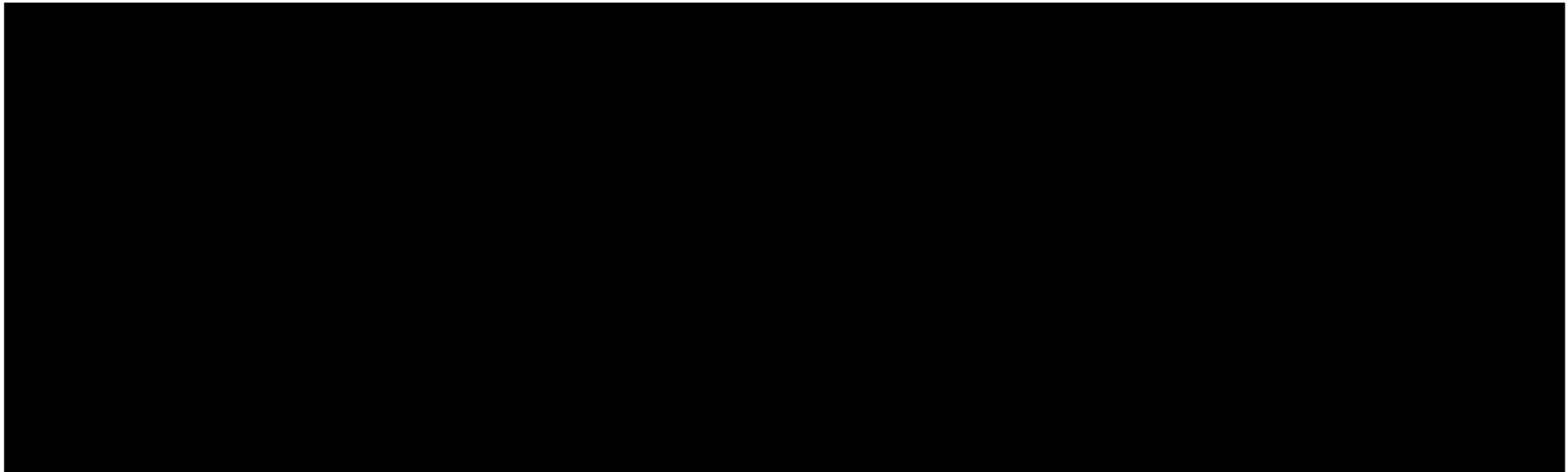


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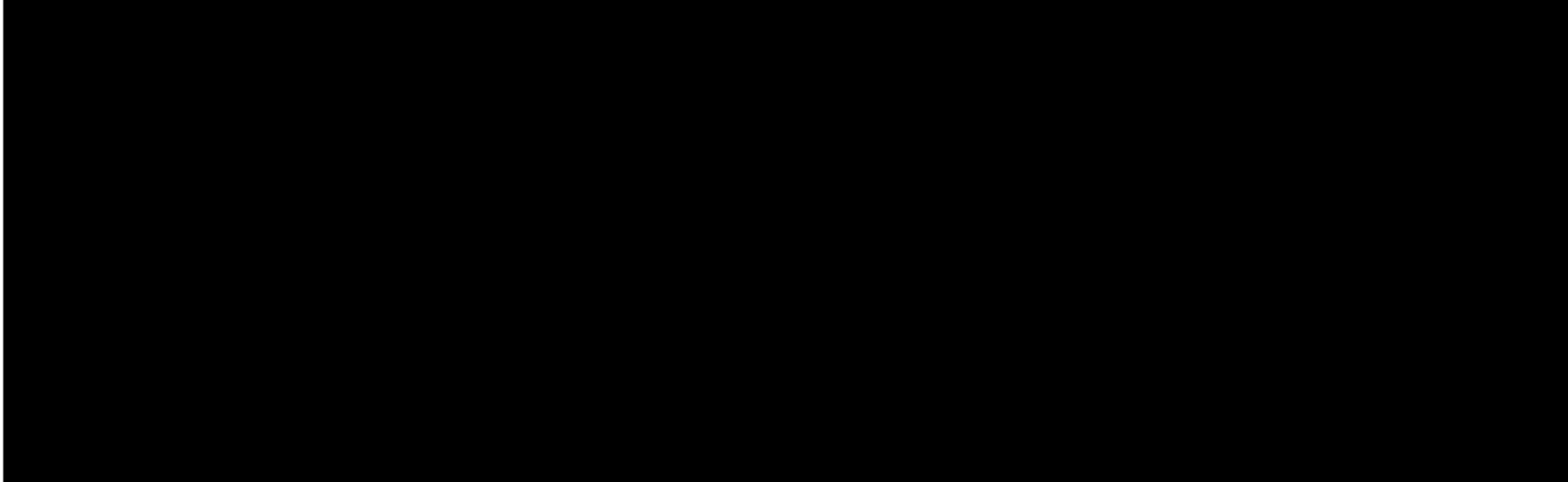


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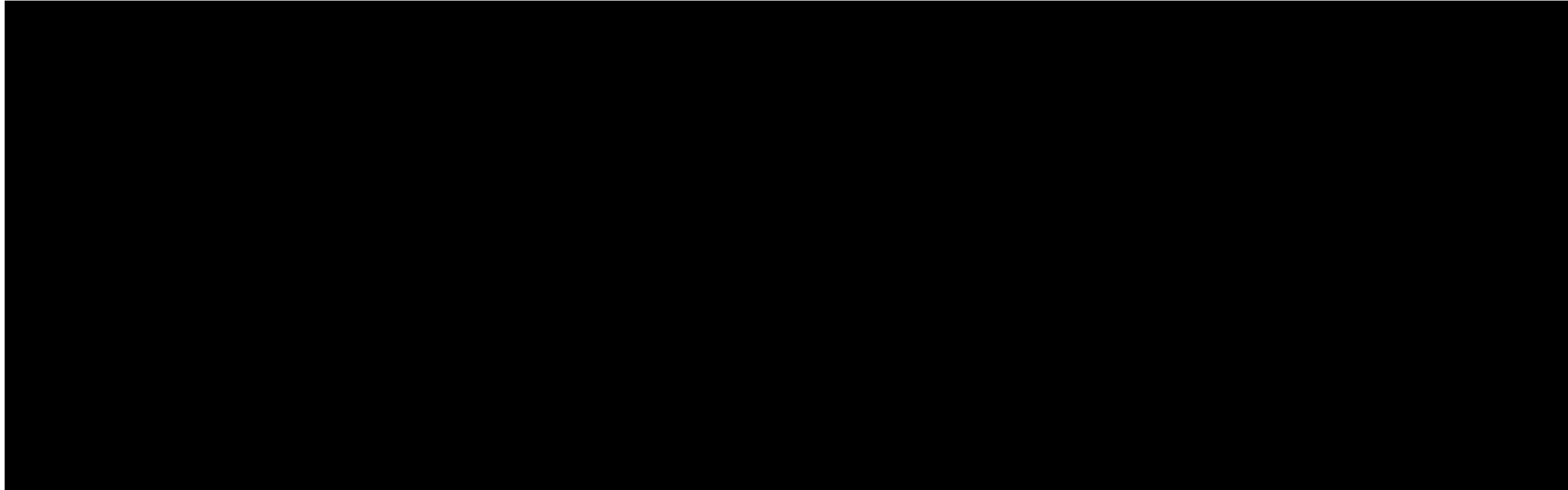


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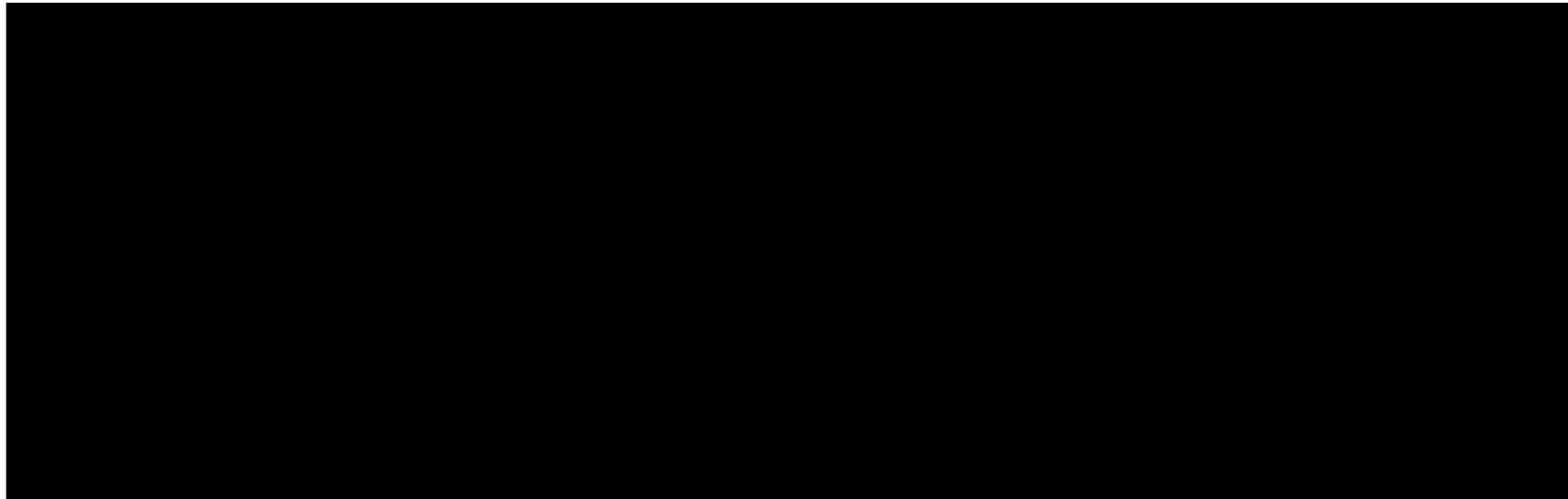


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**DEPARTMENT OF HEALTH AND CHILDREN  
VHI OPERATIONAL ANALYSIS: BENCHMARKING**

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**Exhibit C7  
Inpatient DRG Category Benchmarks - 2009 Data (by Paid Amounts)**

<b>All Ages - Against LM Benchmark</b>								<b>Against LM benchmark</b>		
	<u>Bmark Admits</u>	<u>Bmark Days</u>	<u>Actual Admits</u>	<u>Actual Days</u>	<u>Actual Paid 000s</u>	<u>Bmark ALOS</u>	<u>Actual ALOS</u>	<u>% Excess Admits</u>	<u>% Excess Days</u>	<u>% Excess ALOS only</u>
All Medical Admits	69,088	319,086	77,423	821,077	€ 320,461	4.6	10.6	12%	157%	145%
All Surgical Admits	40,982	194,082	41,333	308,827	€ 317,176	4.7	7.5	1%	59%	58%
Psychiatric / Substance Abuse Admits	7,502	66,933	5,080	191,193	€ 59,232	8.9	37.6	0%	186%	218%
<b>Subtotal</b>	<b>117,572</b>	<b>580,101</b>	<b>123,836</b>	<b>1,321,097</b>	<b>€ 696,869</b>	<b>4.9</b>	<b>10.7</b>	<b>5%</b>	<b>128%</b>	<b>122%</b>
Maternity Normal Delivery	10,921	23,846	8,388	26,862	€ 21,803	2.2	3.2	N/A	N/A	36%
Maternity C Section	5,586	20,752	4,895	27,099	€ 22,487	3.7	5.5	N/A	N/A	43%
<b>Subtotal Deliveries</b>	<b>16,507</b>	<b>44,598</b>	<b>13,283</b>	<b>53,961</b>	<b>€ 44,290</b>	<b>2.7</b>	<b>4.1</b>	<b>N/A</b>	<b>N/A</b>	<b>41%</b>
<b>% C Section</b>	<b>34%</b>		<b>37%</b>							

<b>All Ages - Against WM Benchmark</b>								<b>Against WM benchmark</b>		
	<u>Bmark Admits</u>	<u>Bmark Days</u>	<u>Actual Admits</u>	<u>Actual Days</u>	<u>Actual Paid 000s</u>	<u>Bmark ALOS</u>	<u>Actual ALOS</u>	<u>% Excess Admits</u>	<u>% Excess Days</u>	<u>% Excess ALOS only</u>
All Medical Admits	46,210	168,708	77,423	821,077	€ 320,461	3.7	10.6	68%	387%	319%
All Surgical Admits	28,484	106,322	41,333	308,827	€ 317,176	3.7	7.5	45%	190%	145%
Psychiatric / Substance Abuse Admits	3,221	16,526	5,080	191,193	€ 59,232	5.1	37.6	58%	1057%	999%
<b>Subtotal</b>	<b>77,915</b>	<b>291,556</b>	<b>123,836</b>	<b>1,321,097</b>	<b>€ 696,869</b>	<b>3.7</b>	<b>10.7</b>	<b>59%</b>	<b>353%</b>	<b>294%</b>
Maternity Normal Delivery	12,500	18,077	8,388	26,862	€ 21,803	1.4	3.2	N/A	N/A	81%
Maternity C Section	4,009	10,151	4,895	27,099	€ 22,487	2.5	5.5	N/A	N/A	145%
<b>Subtotal Deliveries</b>	<b>16,509</b>	<b>28,228</b>	<b>13,283</b>	<b>53,961</b>	<b>€ 44,290</b>	<b>1.7</b>	<b>4.1</b>	<b>N/A</b>	<b>N/A</b>	<b>111%</b>
<b>% C Section</b>	<b>24%</b>		<b>37%</b>							

**Note: % excess ALOS is the percentage of days saved if excess LOS is eliminated, but no excess admits are eliminated**

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Exhibit C8  
Top Inpatient DRGs Benchmarks - 2009 Data (by Paid Amounts)

	Against LM benchmark												
	<u>LM Bmark</u> <u>Admits</u>	<u>LM Bmark</u> <u>Days</u>	<u>WM Bmark</u> <u>Admits</u>	<u>WM Bmark</u> <u>Days</u>	<u>Actual</u> <u>Admits</u>	<u>Actual</u> <u>Actual Days</u>	<u>Actual Paid</u> <u>000s</u>	<u>LM Bmark</u> <u>ALOS</u>	<u>WM Bmark</u> <u>ALOS</u>	<u>Actual</u> <u>ALOS</u>	<u>% Excess</u> <u>Admits</u>	<u>% Excess</u> <u>Days</u>	<u>% Excess</u> <u>ALOS only</u>
<b>-65s only</b>													
<b>VHI DRGs</b>													
<b>Surgical</b>													
Bilateral or multiple major joint procs of lower extremity w/o MCC, inc hip/femur replacement or revision	1,873	6,600	1,257	3,101	1,954	14,732	€ 25,704	3.5	2.5	7.5	4%	123%	119%
Arthroscopy, biopsies of musculoskeletal system/conn tiss., or other proc w/o CC	91	259	65	141	1,840	6,814	€ 10,107	2.8	2.2	3.7	1922%	2531%	609%
Major small & large bowel procedures w/o CC/MCC	284	1,412	212	789	745	10,116	€ 8,473	5.0	3.7	13.6	162%	616%	454%
Uterine,adnexa procs w/o CC	2,543	5,393	2,006	3,125	1,417	7,549	€ 7,506	2.1	1.6	5.3	0%	40%	84%
Other circulatory system O.R. procedures	38	352	20	141	1,342	8,759	€ 6,486	9.3	7.1	6.5	3432%	2388%	0%
Perc cardiovasc proc w/o MCC	1,491	2,950	1,087	1,564	638	2,695	€ 6,131	2.0	1.4	4.2	0%	0%	49%
Laparoscopic cholecystectomy w/o c.d.e. w/o CC/MCC	675	1,610	450	790	1,102	3,640	€ 5,016	2.4	1.8	3.3	63%	126%	63%
Mastectomy or other breast procs w/o CC	132	247	71	107	871	4,194	€ 4,995	1.9	1.5	4.8	560%	1598%	1038%
Vagina, cervix & vulva or other femal reprod. sys procedures w/o CC	297	590	212	334	954	4,487	€ 4,821	2.0	1.6	4.7	221%	661%	439%
Spinal fusion	1,050	3,035	585	1,064	286	2,231	€ 4,116	2.9	1.8	7.8	0%	0%	46%
Other ear, nose, mouth & throat O.R. procedures w/o CC/MCC	192	339	114	163	1,338	4,118	€ 3,685	1.8	1.4	3.1	597%	1115%	518%
Coronary bypass w/o cardiac cath w/o MCC	135	769	91	375	141	1,689	€ 2,814	5.7	4.1	12.0	4%	120%	115%
Major joint & limb reattachment proc of upper extremity w/o CC	212	392	141	211	840	2,852	€ 2,443	1.8	1.5	3.4	296%	628%	331%
Knee or lower extrem & humer procs (exc hip, foot, femur) w/o CC	570	1,402	439	847	645	2,497	€ 2,337	2.5	1.9	3.9	13%	78%	65%
kidney & ureter procs w/o CC	183	541	111	271	370	2,687	€ 2,330	3.0	2.1	7.3	102%	397%	294%
Appendectomy w CC	144	639	137	340	882	3,028	€ 2,128	4.4	2.9	3.4	513%	374%	0%
Transurethral prostatectomy or other male repro sys proc w/o CC	66	108	42	53	300	1,380	€ 1,893	1.6	1.3	4.6	355%	1178%	823%
Major small & large bowel procedures w CC	401	3,198	294	1,895	111	2,169	€ 1,843	8.0	6.4	19.5	0%	0%	40%
Tracheostomy or other resp sys procs	338	7,773	215	4,084	230	2,066	€ 1,832	23.0	19.0	9.0	0%	0%	0%
Craniotomy/endovascular intracranial procs w/o CC	222	950	152	523	262	2,922	€ 1,813	4.3	3.4	11.2	18%	208%	190%
<b>SUBTOTAL SUR</b>	<b>10,937</b>	<b>38,559</b>	<b>7,701</b>	<b>19,918</b>	<b>16,268</b>	<b>90,625</b>	<b>€ 106,473</b>	<b>3.5</b>	<b>2.6</b>	<b>5.6</b>	<b>49%</b>	<b>135%</b>	<b>86%</b>
<b>Medical</b>													
Other factors influencing health status	65	286	17	31	6,793	54,468	€ 8,516	4.4	1.8	8.0	10351%	18945%	8594%
Radiotherapy	13	61	5	16	662	28,897	€ 5,350	4.7	3.2	43.7	4992%	47272%	42280%
Esophagitis, gastroent & misc digest disorders w/o MCC	2,180	5,919	1,371	2,807	2,000	8,827	€ 5,308	2.7	2.0	4.4	0%	49%	57%
Chemotherapy	548	2,706	358	1,094	825	9,865	€ 4,418	4.9	3.1	12.0	51%	265%	214%
Other respiratory system diagnoses or resp signs and symptoms	504	3,616	363	1,910	1,195	6,585	€ 4,212	7.2	5.3	5.5	137%	82%	0%
Medical back problems w/o MCC	349	1,073	234	494	1,042	9,624	€ 3,575	3.1	2.1	9.2	199%	797%	598%
Other digestive system diagnoses w/o CC/MCC	171	430	126	251	1,124	7,189	€ 3,552	2.5	2.0	6.4	557%	1572%	1015%
Fx, sprn, strn & disl except femur, hip, pelvis & thigh or signs/symptoms of ms sys. w/o MCC	212	485	151	268	867	6,628	€ 2,742	2.3	1.8	7.6	309%	1267%	958%
Inflammatory bowel disease w/o CC/MCC	130	530	79	271	613	3,576	€ 2,450	4.1	3.4	5.8	372%	575%	203%
Otitis media & URI w/o MCC	297	635	181	305	1,018	4,210	€ 2,401	2.1	1.7	4.1	243%	563%	320%
Lymphoma & non-acute leukemia w/o CC/MCC	27	112	23	80	395	4,251	€ 2,357	4.1	3.5	10.8	1363%	3696%	2333%
Cellulitis w/o MCC	966	3,385	576	1,495	778	4,267	€ 2,295	3.5	2.6	5.5	0%	26%	46%
Malignant breast disorders w/o CC/MCC	2	9	1	2	377	9,714	€ 2,221	4.5	2.0	25.8	18750%	107833%	89083%
Other myeloprolif dis or poorly diff neopl diag w/o CC/MCC	5	22	4	14	387	3,497	€ 2,099	4.4	3.5	9.0	7640%	15795%	8155%
Digestive malignancy w/o CC/MCC	14	49	8	24	365	3,480	€ 2,061	3.5	3.0	9.5	2507%	7002%	4495%
Simple pneumonia & pleurisy w/o CC/MCC	568	1,592	357	759	543	3,599	€ 1,960	2.8	2.1	6.6	0%	126%	130%
Hypertensive encephalopathy or other disorders of nervous system w/o CC	114	289	68	144	547	5,597	€ 1,866	2.5	2.1	10.2	380%	1837%	1457%
Angina Pectoris or Chest Pain	1,536	2,367	751	902	776	4,254	€ 1,853	1.5	1.2	5.5	0%	80%	129%
Other diagnosis or aftercare, musculoskeletal system & connective tissue w/o CC	40	115	25	51	550	4,789	€ 1,783	2.9	2.0	8.7	1275%	4064%	2789%
Kidney & urinary tract infections w/o MCC	508	1,584	349	870	567	2,953	€ 1,686	3.1	2.5	5.2	12%	86%	75%
<b>SUBTOTAL MED</b>	<b>8,249</b>	<b>25,265</b>	<b>5,047</b>	<b>11,788</b>	<b>21,424</b>	<b>186,270</b>	<b>€ 62,705</b>	<b>3.1</b>	<b>2.3</b>	<b>8.7</b>	<b>160%</b>	<b>637%</b>	<b>478%</b>
<b>MATERNITY</b>													
Normal Delivery	10,921	23,846	12,500	18,077	8,388	26,862	€ 21,803	2.2	1.4	3.2	0%	13%	36%
C Section	5,586	20,752	4,009	10,151	4,895	27,099	€ 22,487	3.7	2.5	5.5	0%	31%	43%
% C section	34%		24%		37%								
<b>PSYCHIATRIC</b>	<b>4,355</b>	<b>37,550</b>	<b>1,496</b>	<b>8,753</b>	<b>2,690</b>	<b>114,270</b>	<b>€ 37,345</b>	<b>8.6</b>	<b>5.9</b>	<b>42.5</b>	<b>0%</b>	<b>204%</b>	<b>243%</b>
<b>TOTAL</b>	<b>40,048</b>	<b>145,972</b>	<b>30,753</b>	<b>68,687</b>	<b>53,665</b>	<b>445,126</b>	<b>€ 250,813</b>	<b>3.6</b>	<b>2.2</b>	<b>8.3</b>	<b>34%</b>	<b>205%</b>	<b>171%</b>

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Exhibit C8  
Top Inpatient DRGs Benchmarks - 2009 Data (by Paid Amounts)

65+s only	LM Bmark	LM Bmark	WM Bmark	WM Bmark	Actual	Actual	Actual Paid	LM Bmark	WM Bmark	Against LM benchmark					
										% Excess	% Excess	% Excess			
	Admits	Days	Admits	Days	Admits	Actual Days	000s	ALOS	ALOS	Actual ALOS	Admits	Days	ALOS only		
<b>Surgical</b>															
462,467,468,470,956,0,0,0	SUR	Bilateral or multiple major joint procs of lower extremity w/o MCC, inc hip/femur replacement or revision	3,219	11,187	2,270	5,450	3,273	31,582	€ 43,388	3.5	2.4	9.6	2%	182%	181%
264,0,0,0,0,0,0		Other circulatory system O.R. procedures	67	683	39	318	2,038	17,921	€ 12,704	10.2	8.2	8.8	2942%	2524%	0%
331,0,0,0,0,0,0		Major small & large bowel procedures w/o CC/MCC	190	942	160	718	704	12,270	€ 9,807	5.0	4.5	17.4	271%	1203%	932%
247,249,251,0,0,0,0,0		Perc cardiovascular proc w/o MCC	1,749	3,592	1,347	2,166	709	3,477	€ 6,476	2.1	1.6	4.9	0%	0%	56%
236,0,0,0,0,0,0		Coronary bypass w/o cardiac cath w/o MCC	197	1,173	133	577	220	3,438	€ 4,752	6.0	4.3	15.6	12%	193%	181%
714,716,718,0,0,0,0,0		Transurethral prostatectomy or other male repro sys proc w/o CC	208	350	147	200	742	4,282	€ 4,435	1.7	1.4	5.8	257%	1123%	867%
221,0,0,0,0,0,0		Cardiac valve & oth maj cardiothoracic proc w/o card cath w/o CC/MCC	38	215	36	167	146	2,289	€ 3,368	5.7	4.6	15.7	284%	965%	680%
479,509,517,0,0,0,0,0		Arthroscopy, biopsies of musculoskeletal system/conn tiss., or other proc w/o CC	150	397	81	188	537	3,202	€ 3,298	2.6	2.3	6.0	258%	707%	449%
259,0,0,0,0,0,0		Cardiac pacemaker device replacement w/o MCC	35	89	18	33	312	2,854	€ 3,275	2.5	1.8	9.1	791%	3107%	2315%
330,0,0,0,0,0,0		Major small & large bowel procedures w CC	410	3,391	328	2,552	139	4,151	€ 3,002	8.3	7.8	29.9	0%	22%	89%
746,747,748,749,750,0,0,0		Vagina, cervix & vulva or other femal reprod. sys procedures w/o CC	223	432	140	227	485	2,758	€ 2,824	1.9	1.6	5.7	117%	538%	421%
117,0,0,0,0,0,0		Intraocular procedures w/o CC/MCC	5	9	2	2	478	2,688	€ 2,457	1.8	1.0	5.6	9460%	29767%	20307%
482,0,0,0,0,0,0		Hip & femur procedures except major joint w/o CC/MCC	228	975	204	719	263	4,304	€ 2,255	4.3	3.5	16.4	15%	341%	326%
454,455,460,472,473,0,0,0		Spinal fusion	538	1,818	257	582	128	1,659	€ 2,183	3.4	2.3	13.0	0%	0%	67%
670,672,675,0,0,0,0,0		Tranurethral, urethral or other kidney/UT procs w/o CC	109	217	84	138	460	2,189	€ 2,088	2.0	1.6	4.8	322%	909%	587%
220,0,0,0,0,0,0		Cardiac valve & oth maj cardiothoracic proc w/o card cath w CC	102	753	71	432	55	901	€ 1,892	7.4	6.1	16.4	0%	20%	66%
484,506,508,512,514,0,0,0		Major joint & limb reattachment proc of upper extremity w/o CC	210	431	131	226	466	2,164	€ 1,848	2.1	1.7	4.6	122%	402%	280%
419,0,0,0,0,0,0		Laparoscopic cholecystectomy w/o c.d.e. w/o CC/MCC	208	573	155	375	330	1,518	€ 1,805	2.8	2.4	4.6	59%	165%	106%
583,585,0,0,0,0,0		Mastectomy or other breast procs w/o CC	64	105	45	59	284	1,575	€ 1,751	1.6	1.3	5.5	344%	1400%	1056%
329,0,0,0,0,0,0		Major small & large bowel procedures w MCC	298	4,211	224	2,841	56	2,505	€ 1,719	14.1	12.7	44.7	0%	0%	41%
	<b>SUBTOTAL SUR</b>		<b>8,248</b>	<b>31,543</b>	<b>5,872</b>	<b>17,970</b>	<b>11,825</b>	<b>107,727</b>	<b>€ 115,329</b>	<b>3.8</b>	<b>3.1</b>	<b>9.1</b>	<b>43%</b>	<b>242%</b>	<b>198%</b>
<b>Medical</b>															
951,0,0,0,0,0,0		Other factors influencing health status	6	83	3	19	4,698	62,126	€ 12,394	13.8	6.3	13.2	78200%	74751%	0%
204,205,206,207,208,0,0,0		Other respiratory system diagnoses or resp signs and symptoms	883	8,726	593	4,392	1,517	14,001	€ 7,531	9.9	7.4	9.2	72%	60%	0%
849,0,0,0,0,0,0		Radiotherapy	8	59	3	18	666	25,201	€ 5,014	7.4	6.0	37.8	8225%	42614%	34389%
552,0,0,0,0,0,0		Medical back problems w/o MCC	414	1,648	303	1,050	858	9,868	€ 3,883	4.0	3.5	11.5	107%	499%	392%
837,838,839,846,847,848,0,0		Chemotherapy	191	942	108	453	634	8,094	€ 3,818	4.9	4.2	12.8	232%	759%	527%
395,0,0,0,0,0,0		Other digestive system diagnoses w/o CC/MCC	115	347	92	259	747	6,413	€ 3,467	3.0	2.8	8.6	550%	1748%	1199%
376,0,0,0,0,0,0		Digestive malignancy w/o CC/MCC	20	75	18	60	582	7,258	€ 3,260	3.8	3.3	12.5	2810%	9577%	6767%
603,0,0,0,0,0,0		Cellulitis w/o MCC	608	2,714	450	1,699	529	5,279	€ 3,256	4.5	3.8	10.0	0%	95%	108%
845,0,0,0,0,0,0		Other myeloprolif dis or poorly diff neopl diag w/o CC/MCC	4	14	4	12	573	7,048	€ 3,241	3.5	3.0	12.3	14225%	50243%	36018%
392,0,0,0,0,0,0		Esophagitis, gastroent & misc digest disorders w/o MCC	1,262	4,026	899	2,579	762	5,059	€ 3,019	3.2	2.9	6.6	0%	26%	65%
690,0,0,0,0,0,0		Kidney & urinary tract infections w/o MCC	1,025	4,036	770	2,374	620	5,804	€ 3,016	3.9	3.1	9.4	0%	44%	83%
554,558,0,0,0,0,0,0		Bone diseases, tendonitis, myositis & bursitis & arthropathies w/o MCC	201	930	127	443	723	8,794	€ 2,989	4.6	3.5	12.2	260%	846%	586%
292,0,0,0,0,0,0		Heart failure & shock w CC	1,032	4,677	729	2,618	419	5,054	€ 2,920	4.5	3.6	12.1	0%	8%	67%
310,0,0,0,0,0,0		Cardiac arrhythmia & conduction disorders w/o CC/MCC	863	2,071	598	1,185	750	4,958	€ 2,843	2.4	2.0	6.6	0%	139%	152%
195,0,0,0,0,0,0		Simple pneumonia & pleurisy w/o CC/MCC	646	2,356	462	1,431	443	4,573	€ 2,625	3.6	3.1	10.3	0%	94%	126%
315,316,287,0,0,0,0,0		Other circulatory system diagnoses or disorders	990	3,016	698	1,842	604	6,025	€ 2,591	3.0	2.6	10.0	0%	100%	139%
192,0,0,0,0,0,0		COPD w/o CC	894	3,219	575	1,703	502	4,370	€ 2,473	3.6	3.0	8.7	0%	36%	80%
194,0,0,0,0,0,0		Simple pneumonia & pleurisy w CC	1,210	5,869	995	4,057	411	5,396	€ 2,433	4.9	4.1	13.1	0%	0%	58%
303,0,0,0,0,0,0		Atherosclerosis w/o MCC	310	731	204	368	741	6,050	€ 2,376	2.4	1.8	8.2	139%	728%	589%
293,0,0,0,0,0,0		Heart failure & shock w/o CC/MCC	794	2,588	583	1,582	452	4,174	€ 2,314	3.3	2.7	9.2	0%	61%	104%
	<b>SUBTOTAL MED</b>		<b>11,476</b>	<b>48,127</b>	<b>8,214</b>	<b>28,144</b>	<b>17,231</b>	<b>205,545</b>	<b>€ 75,463</b>	<b>4.2</b>	<b>3.4</b>	<b>11.9</b>	<b>50%</b>	<b>327%</b>	<b>277%</b>
	<b>PSYCHIATRIC</b>		<b>875</b>	<b>9,292</b>	<b>402</b>	<b>2,357</b>	<b>1,114</b>	<b>41,288</b>	<b>€ 12,330</b>	<b>10.6</b>	<b>5.9</b>	<b>37.1</b>	<b>27%</b>	<b>344%</b>	<b>317%</b>
	<b>TOTAL</b>		<b>20,599</b>	<b>88,962</b>	<b>14,488</b>	<b>48,471</b>	<b>30,170</b>	<b>354,560</b>	<b>€ 203,122</b>	<b>4.3</b>	<b>3.3</b>	<b>11.8</b>	<b>46%</b>	<b>299%</b>	<b>252%</b>

Note: % excess ALOS is the percentage of days saved if excess LOS is eliminated, but no excess admits are eliminated

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