mapping a safety culture in the victorian public health care sector

A research report into the relationship between culture and medical indemnity claims

State Government Victoria

vmia Risk Management and Insurance

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A research report into the relationship between culture and medical indemnity claims

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contact us
at the State Services Authority

Email: info@ssa.vic.gov.au
Phone: (03) 9651 1321
Fax: (03) 9651 0747

Postal Address:
3 Treasury Place
Melbourne 3002

www.ssa.vic.gov.au

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abbreviations

ABS	Australian Bureau of Statistics
DRG	Diagnosis related group
LoS	Length of stay
HCM	Human capital management
HR	Human resources
L&D	Learning and development
PMS	People Matter Survey
RFQR	Risk Framework Quality Review
SEIFA	Socio-Economic Indexes for Areas
SSA	State Services Authority
VMIA	Victorian Managed Insurance Authority
WDC	Workforce data collection

executive summary

objective

Organisational practices are critical leverage points for improving claims performance due to their effect on employee attitudes and behaviours

This project examined the relationship between workplace culture and medical indemnity claims in Victorian hospital-based public health care services. The research proposition was that organisational culture influences employee behaviours which, in turn, affect the patient experience. Poor health outcomes and patient dissatisfaction are proposed to increase the risk of poor claims performance.

It is recognised that other factors will also affect organisational culture, employee behaviours and patient experience. Additionally, there may be reciprocal effects between these factors.

value proposition

Cost of medical indemnity claims was estimated by VMIA at approximately $360m (52% of total cost of claims) in the period 2003–04 to 2008–09

Findings from the project will assist with the development of lead indicators of poor claims performance and in the refinement of Victorian Managed Insurance Authority (VMIA)'s Risk Framework Quality Review (RFQR). This will assist in the identification of organisations that may be at higher risk of claims and therefore guide the prioritisation of interventions.

A reduction in the number and/or the cost of medical indemnity claims would represent a reduction in the number of preventable adverse events for patients and a significant cost saving. Reciprocally, failure to manage a growth in claims represents a significant financial risk to hospitals and a personal risk to patients.

Additionally, findings and proposed next steps will assist in the development of more effective human capital management (HCM) programs. Investments in HCM (for example, leadership development, job design and team cohesion) have been directly linked to improvements in organisational performance for measures such as workplace safety, sales revenue and return on investments. Ultimately this could lead to the reduction of preventable adverse events and their impact on patients and their families, and a reduction in insurance claims and premiums.

key findings and implications

Organisational culture can be used as predictive indicator of future claims performance risk

Hospitals vary in regard to both their claims performance and in employee perceptions of organisational culture. This research report examined the relationship between claims performance results and organisational culture measures. Initial findings indicate that:

- hospitals with more positive workplace cultures are less likely to have a medical indemnity claim (for example, 50% of hospitals above the median for 'leadership' had no claims compared to 20% for hospitals below the median);
- for those hospitals with at least one claim, hospitals with more positive workplace cultures have fewer medical indemnity claims (for example, for the

obstetrics speciality, 24% of hospitals above the median for ‘leadership’ had at least one claim compared to 50% for hospitals below the median); and

- the average cost of claims was lower for hospitals with more positive workplace cultures (for example, for the obstetrics speciality, the average cost of claims was $43,306 for hospitals above the median for ‘workgroup’ compared with $92,520 for hospitals below the median).

Confirming the relative impact of culture measures on claims performance will enable focused monitoring, reporting and management interventions

Generally these relationships were consistent across the various specialty areas investigated.

These findings support the use of organisational culture metrics as indicators of claims performance risk.

The strength of the relationship of different organisational culture measures to claims performance varies. An improved focus for monitoring and reporting claims performance risk can be achieved through improving VMIA and health services’ understanding of those elements of organisational culture which have the greatest impact on claims performance.

Management interventions that target key elements of organisation culture could assist in reducing the level of preventable adverse events (and therefore reducing patient trauma and improving claims performance). These management interventions can be developed through an improved understanding of the causal links between organisational culture and impacts on the patient experience.

research limitations

Organisational culture has potential as an indicator of claims performance risk despite limitations regarding the identification of causality and direction, and level of analysis and sample size

Finding a correlation between claims performance measures and employee attitudes does not prove causality or establish the direction of the relationship between organisational culture and claims performance. This limitation does not negate the potential value of employee attitudes as an indicator for claims performance. Organisation culture would be useful as a “red flag” of potential claims performance risk regardless of the direction of the relationship.

The unit of analysis for this project was the organisation (that is, hospitals). There are some methodological limitations associated with analysis at this level. That is, the limited number of units of analysis (in this case hospitals that have both claims data and have recently participated in the People Matter Survey) limits the options for statistical analysis.

further research

Findings from this and future partnership projects focussing on the relationship between organisational culture and performance measures will contribute to understanding why some organisations perform better than their peers and will assist with the identification of lead indicators and the development of intervention strategies.

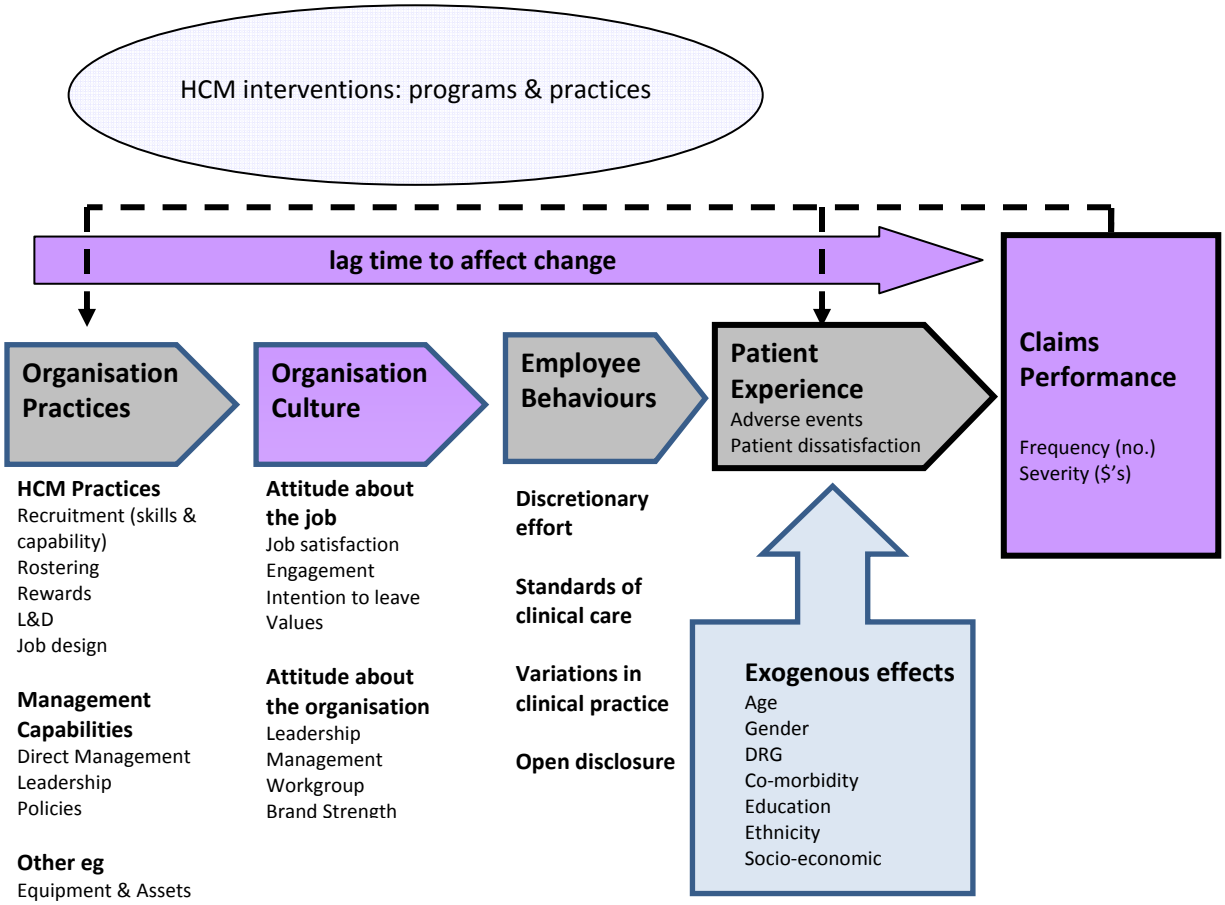
1 ssa and vmia partnership

This research partnership project between the State Services Authority (SSA) and the Victorian Managed Insurance Authority (VMIA) investigated the relationship between elements of workplace culture associated with a higher incidence and cost of medical indemnity claims within the Victorian public health care sector.

Following endorsement by Departmental Secretaries in August 2010, the SSA contacted a number of government agencies to identify key workforce drivers that contribute to performance outcomes in government industry sectors. This research report represents the first of these partnership projects and additional projects will aim to confirm and/or complement this SSA/VMIA project.

The project is based on the proposition that measures of organisational culture are indicators of subsequent employee behaviours. These behaviours are expected to affect patient outcomes. In turn adverse patient outcomes would result in increased cost of claims and premiums and additional costs of care. It is recognised that exogenous factors will also affect patient outcomes. Organisational practices are proposed as key drivers of organisational culture and are therefore critical leverage points for improving claims performance.

figure 1: Factors Affecting Claims Performance: a conceptual model



This project will assist the VMIA to build upon its existing knowledge regarding the key organisational risk factors for incidents and claims, by considering their relationship to organisational culture and workforce profile. The outcomes of this project will potentially facilitate the identification of lead indicators and the development of intervention strategies. Ultimately, this could lead to the reduction of preventable adverse events for clients/patients and a reduction in insurance claims and premiums.

2 methodology

This project utilised multiple datasets sourced from different Victorian Government agencies:

- the cost and number of medical indemnity claims within the Victorian health sector (VMIA)
- the number of separations (effectively the number of patients discharged from hospital) and emergency department presentations by publicly owned hospitals (that is, excludes denominational and privately operated public health care service providers) – Victorian Admitted Episodes Dataset and Victorian Emergency Minimum Dataset (Department of Health)
- organisational culture metrics including employee perceptions of leadership, management, workgroup, client responsiveness, employer brand strength and intention to leave – People Matter Survey (SSA)

Detailed data sources and fields are presented in Appendix a.

Separations and claims data was available for 81 hospitals in the Victorian health sector. Of these organisations, 68 had participated in the People Matter Survey in either 2009 or 2010. Only those hospitals that provided services in specialties of interest were included in the analysis. Analysis was limited to those hospitals where separations and claims data was available by specialty. The number of hospitals with separations data and claims data that participated in the People Matter Survey varies by specialty and is presented in Table 1. Availability of data is further discussed in the section *Research Limitations*.

Six specialties examined were:

- emergency medicine
- general medicine
- general surgery
- gynaecology
- obstetrics
- orthopaedics

These specialty groups were selected because VMIA reported these groups to account for more than half of all claims (53%) and have the highest number of claims over $7000.

Sourced data was examined to identify the appropriate structure, metrics and level of aggregation. Data was subsequently integrated at the organisation level to facilitate analysis.

Not surprisingly, there is a strong correlation between the number of claims and the number of patients treated within each hospital. The claims rate (number of claims per 1,000 separations) provides a performance metric for the frequency of claims that is standardised for the volume of patients. Additional measures were developed as part of this project to assess the relative cost impact/severity of claims, namely claim cost per separation and average cost per claim.

In summary, the following performance metrics were developed and calculated for each hospital by specialty:

- Claims rate – number of medical indemnity claims per 1,000 separations
- Claim cost per separation – cost of medical indemnity claims per separation
- Average cost per claim – average cost per medical indemnity claim

These performance metrics were calculated for the combined three year period ending 30 June 2010.

It should be noted that hospitals with an extreme value for any performance metric were excluded from the calculation of the group average. Only a small number of these outliers were identified.

The following indices of **workplace culture** from the People Matter Survey were examined:

- workgroup
- management
- leadership
- client responsiveness
- employer brand strength
- intention to leave

Appendix B describes the concept and provides the survey items for each of the People Matter Survey management indices (see State Services Authority *Research report: Alternative Reporting Frameworks for the People Matter Survey; and Empirical relationships between organisational culture, workforce and performance* for further details regarding the development of the indices). The time period of analysis for the People Matter Survey at the organisational level was the organisation's most recent year of participation, either 2009 or 2010.

Analysis was undertaken to explore the relationship between the incidence and cost of claims and identified organisational culture metrics as measured by the People Matter Survey. The average results for claims performance metrics (claims rate and cost per claim) was compared between hospitals in the upper 50% of each People Matter Survey metrics of interest with those in the lower 50%. The research hypothesis was that hospitals with higher scores on the People Matter Survey metrics, on average, will have a lower incidence and lower cost of claims.

A pragmatic recognition of potential data limitations was fundamental to the development of the project proposal. The position taken was that it is better to proceed with analysis of the data currently available and be transparent in its limitations than to scope a much more ambitious project premised on the collection of "ideal" data. A number of emergent benefits have materialised through the approach taken in relation to current data collection, potential future organisation reporting and potential future research partnership opportunities. For a more detailed description, please refer to section *Research Limitations*.

3 initial findings

variation in claims performance

Performance measures used in this analysis are concerned with the frequency and cost of medical indemnity claims.

Table 1 presents the number of hospitals with at least one claim over the three year period to 30 June 2010 for each specialty area investigated. The proportion of hospitals with at least one claim over this period varies by specialty with the highest being emergency medicine (21 of 26 hospitals), followed by obstetrics (30 of 75 hospitals). These rankings are retained when also taking into consideration the number of hospitals participating in the People Matter Survey (ie, emergency medicine, 15 of 26 hospitals and obstetrics, 24 of 75 hospitals).

table 1: Number of hospitals providing specialty services and the number of hospitals with at least one claim in the three year period to June 2010 by specialty and by the number of hospitals participating in the People Matter Survey

Specialty	No. of hospitals providing specialty services	No. of hospitals providing specialty services with at least one claim	
	Total	Total	With PMS data
Emergency medicine	26	21	15
General medicine	81	17	13
General surgery	79	27	21
Gynaecology	71	19	15
Obstetrics	75	30	24
Orthopaedics	80	23	19

Table 2 provides a summary of the claims performance metrics for organisations that had at least one claim over the three year period to 30 June 2010.

The number of claims per 1,000 separations is highest for the gynaecology and obstetrics specialties: the average across hospitals is 1.3 claims for every 1,000 separations. The gynaecology and obstetrics specialties also have the highest claim cost per separation (on average, $142 and $137 per separation, respectively).

The average cost per claim is highest within gynaecology ($156,274) and general surgery ($104,613). However, the claim cost per separation is relatively low for general surgery ($38).

The minimum and maximum values for each of the performance metrics provide valuable information on the variation in claims performance across hospitals. For example, the lowest cost per claim in obstetrics for an individual hospital is $2,055 and the highest is $287,423 (the average across all hospitals is $77,452).

table 2 : Summary of claims performance metrics by specialty – minimum, maximum and average

Metric	Number of hospitals[1]	Minimum	Maximum	Average
Claims rate (claims per 1,000 separations)				
Emergency medicine	20	0.01	0.10	0.05
General medicine	16	0.07	1.23	0.38
General surgery	26	0.16	0.91	0.44
Gynaecology	16	0.12	3.58	1.31
Obstetrics	30	0.25	3.26	1.34
Orthopaedics	20	0.11	1.42	0.66
Claim cost per separation ($)				
Emergency medicine	20	0.42	8.97	3.20
General medicine	13	1.35	43.86	12.71
General surgery	24	1.50	92.88	37.99
Gynaecology	16	1.22	479.51	141.58
Obstetrics	30	2.38	472.27	136.63
Orthopaedics	20	1.89	193.11	43.36
Average cost per claim ($)				
Emergency medicine	17	7,000	106,538	46,707
General medicine	16	5,903	285,288	82,456
General surgery	26	3,734	311,231	104,613
Gynaecology	19	4,819	385,499	156,274
Obstetrics	26	2,055	287,423	77,452
Orthopaedics	22	2,036	276,242	66,648

variation in organisational culture

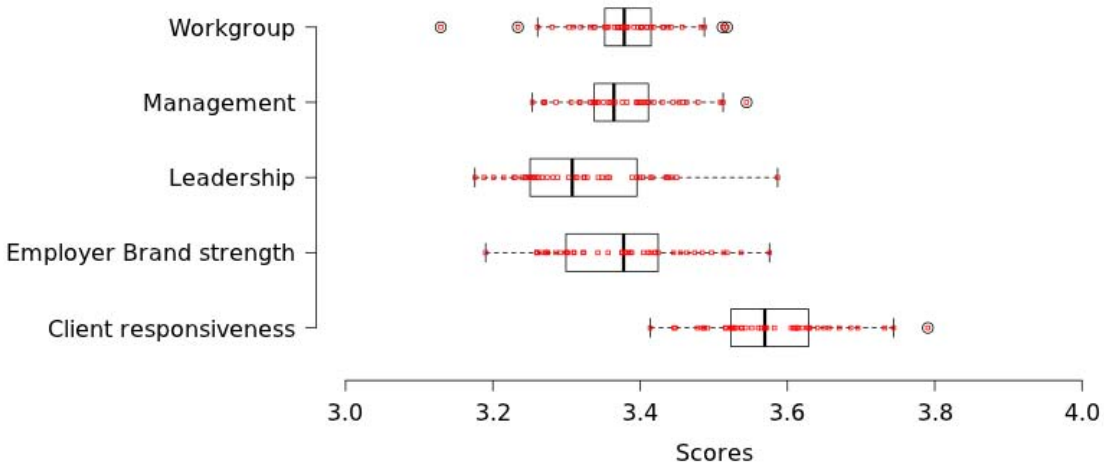
Figure 2 shows the range of organisation results for selected People Matter Survey indices: the second and third quartiles are within the box; the median is the bold line separating the two quartiles; and the dots represent individual organisation scores. The scale presented for the People Matter Survey indices scores is based on the four point Likert scale from the People Matter Survey

[1] As described in the Methodology section, hospitals were excluded where there were extreme values (outliers) present. Therefore, the number of hospitals reported in Table 2 may be less than in Table 1.

questionnaire where a score of *3* on an individual question represents a response of *Agree* and *4* is *Strongly Agree*.

There is relatively less variation between organisations on the measures of Workgroup and Management and higher variation with regard to Leadership and Employer Brand Strength. Findings from other analyses have shown that results vary for different sectors. Further work is required to determine the relationship between the indices: for example it is of interest that Client Responsiveness scores are consistently higher than the other People Matter Survey metrics presented?

figure 2: Variation in People Matter Survey indices across hospitals in the Victorian public health sector[2]



Relationship between claims performance and organisational culture

The analysis found a relationship between claims performance results and organisational culture measures. Initial findings indicate that:

- hospitals with a more positive workplace cultures are less likely to have a medical indemnity claim
- for those hospitals with at least one claim, hospitals with a more positive workplace cultures have fewer medical indemnity claims
- the average cost of claims was lower for hospitals with a more positive workplace cultures.

These findings were consistent for most of the specialties examined.

To illustrate these findings, the relationship between claims performance and culture metrics is presented for obstetrics only. Obstetrics was chosen because it was identified by VMIA as the specialty with the highest proportion of costs. In addition, obstetrics had the most robust data for analysis: that is, it had the largest number of hospitals with at least one claim and the largest number of hospitals that participated in the People Matter Survey (refer to Table 1).

[2] The Intention to leave index cannot be meaningfully presented in this chart as the score range for the component questions is lower than the 3.0-4.0 range.

Following the methodology used by Bassi & McMurrer (2007) in relation to comparing American Standard Companies' performance with some HCM drivers, hospitals were divided into two groups on each of the management indices, above and below the median, to compare their claims performance.

The illustration commences with claims performance in relation to a single culture metric, leadership. The definition of the leadership index and questions used to survey employees is presented in Appendix B.

It is apparent that there is a consistent relationship between better claims performance and employee perceptions of better leadership. Hospitals with lower employee perceptions of leadership (below the median) have a higher incidence of claims. They were twice as likely to have had at least one claim in the three years to 30 June 2010.

Amongst hospitals that had a claim over this period, those with lower employee perceptions of leadership had a slightly higher frequency of claims as measured by the claims rate (number of claims per 1,000 separations).

However, the greatest difference was observed in relation to the cost of claims, with hospitals with lower employee perceptions of leadership having a higher claim cost per separation and cost per claim when compared to those hospitals with more positive employee perceptions of leadership.

table 3: The effect of leadership on claims performance - obstetrics

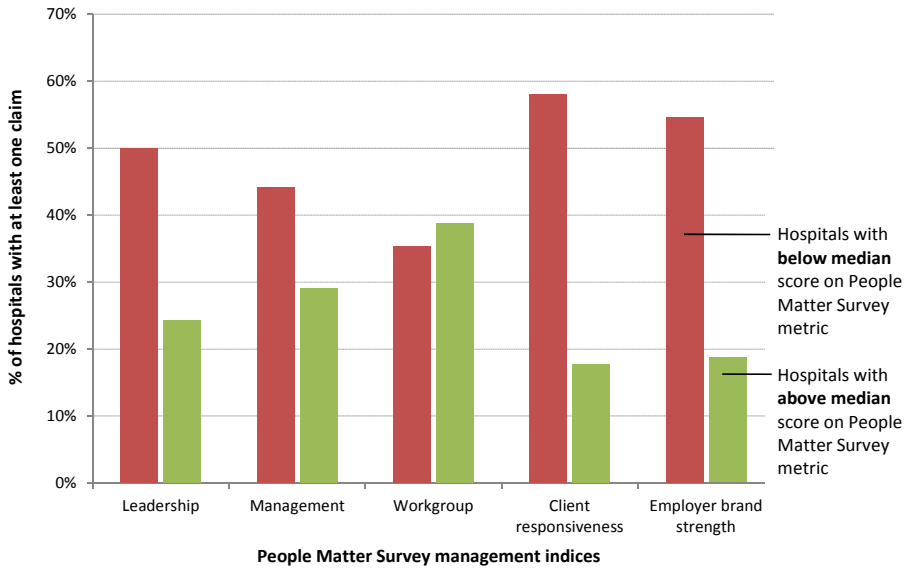
	Leadership index	
Claims performance - obstetrics	*Lower employee perceptions (Below median)*	*Better employee perceptions (Above median)*
Hospitals with at least one claim (%)	50	24
Claims rate (claims per 1,000 separations) (no.)	1.5	1.1
Claim cost per separation ($)	135	63
Average cost per claim ($)	75,855	54,014

The following figures (figures 3-6) expand upon the findings in relation to the leadership index by illustrating the relative contribution of a range of management indices (ie leadership, management, workgroup, client responsiveness and employer brand strength) on claims performance for obstetrics.

The greater the difference in the average score of a performance metric between lower and higher scoring hospitals on the People Matter Survey metric, the stronger the relationship between claims performance and that aspect of organisational culture: hence the greater the potential use of the people metric as an indicator of the likelihood of poor claims performance. In contrast, if there is a weak relationship between claims performance and an aspect of organisational culture, one would expect to observe little difference in the average score of the performance metric between the lower and higher scoring hospitals on the People Matter Survey.

Figure 3 compares hospitals with lower (below median) and higher (above median) scores across various People Matter Survey metrics with the proportion of hospitals with at least one obstetrics claim. It should be noted that larger hospitals are more likely to have had at least one claim due to higher patient volume.

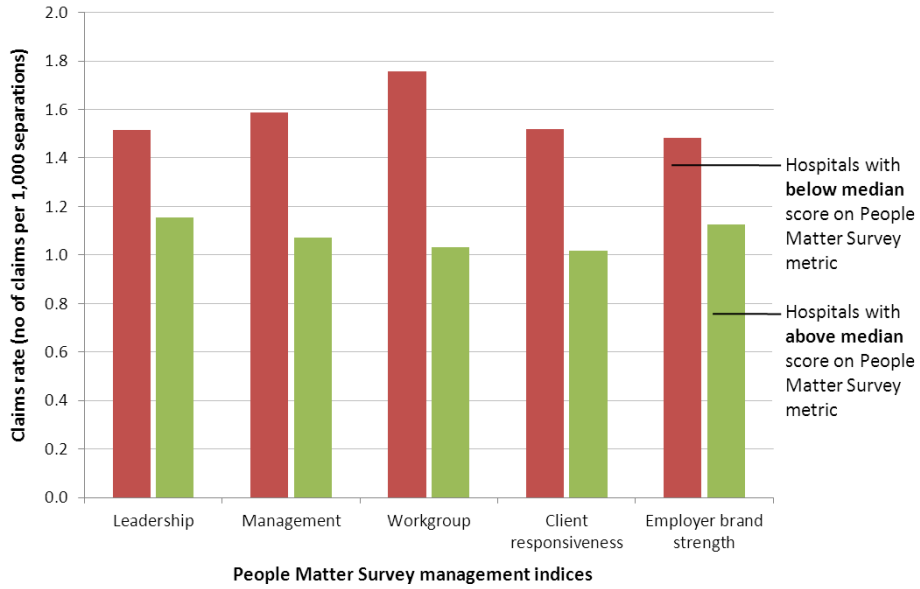
figure 3: Percentage of hospitals with at least one obstetrics claim



Hospitals with above median scores on key People Matter Survey metrics were less likely to have had at least one obstetric claim over the three year period ending 30 June 2010.

Figure 4 compares hospitals with lower (below median) and higher (above median) scores across various People Matter Survey metrics by the frequency of claims for those hospitals with at least one claim. This performance metric has been standardised for patient volume.

figure 4: Claims rate (number of claims per 1,000 separations) - obstetrics



Employee perceptions of client responsiveness has the strongest relationship with the likelihood of having an obstetrics claim followed by employer brand strength.

There does not appear to be evidence of a relationship between the incidence of claims and employee perceptions of their workgroup. This finding is inconsistent with other research that has found a positive relationship between workgroup culture and patient safety. This result requires further investigation.

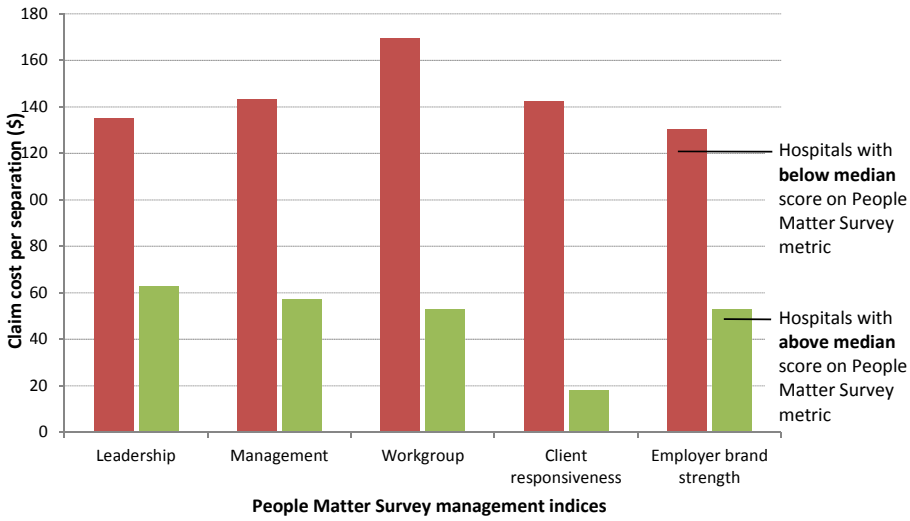
The frequency of claims is consistently higher for those with lower scores across all People Matter Survey metrics.

Employee perceptions of the integrity, efficiency and cohesiveness of their workgroup displays the strongest relationship between frequency of claims and organisational culture.

Hospitals with above median scores on key People Matter Survey metrics have a lower incidence of obstetrics claims over the three year period ending 30 June 2010 as measured by the claims rate.

Figure 5 compares hospitals with lower (below median) and higher (above median) scores across various People Matter Survey metrics by the cost of claims per separation, for those hospitals with at least one claim.

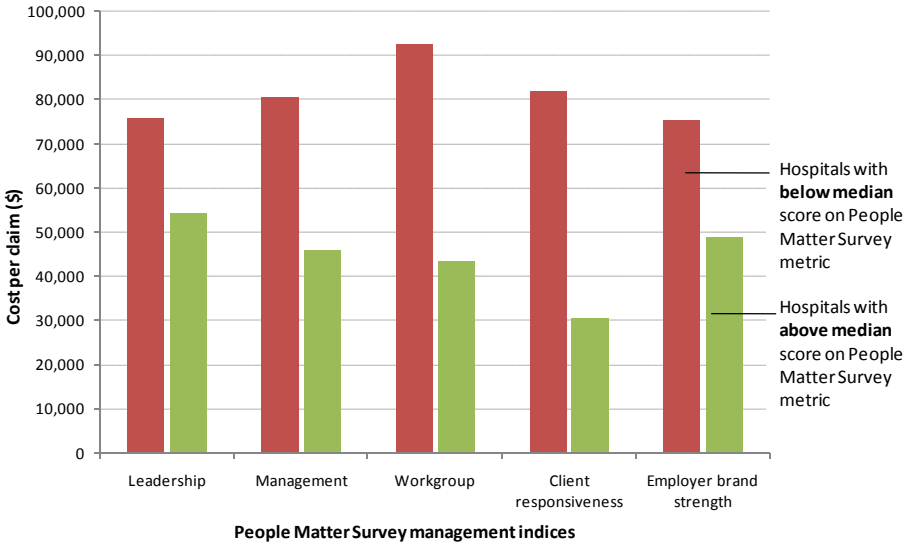
figure 5: Claim cost per separation - obstetrics



Hospitals with above median scores on key People Matter Survey metrics have a lower claim cost per separation over the three year period ending 30 June 2010.

Figure 6 compares hospitals with lower (below median) and higher (above median) scores across various People Matter Survey metrics by the average cost per claim for those hospitals with at least one claim.

figure 6: Average cost per claim - obstetrics



Hospitals with above median scores on key People Matter Survey metrics have a lower average cost per claim over the three year period ending 30 June 2010.

Hospitals with lower scores across various People Matter Survey metrics have a much higher cost of claims per separation and average cost per claim.

Hospitals with lower employee perceptions of workgroup behaviour have a much higher cost of claims per separation and average cost per claim.

This finding is consistent with the literature which suggests workgroup cohesiveness has a strong correlation with claims performance.

Employee perceptions of client responsiveness also appears to be strongly associated with the severity of claims with hospitals with higher scores on client responsiveness index having the lowest claims cost per separation and average cost per claim.

Table 4 shows the cost difference for obstetrics between better and poorer performers on the People Matter Survey metrics. There is a significant cost difference between organisations that have higher scores on the metrics and those with lower scores. These findings also highlight the relative importance of different aspects of organisational culture in minimising claims risk. For example, Workgroup and Client responsiveness each appear to have a stronger relationships with claims cost.

table 4: Obstetrics claims cost by PMS Management Indices

	Leadership	Management	Workgroup	Client responsiveness	Employer brand strength	Intention to leave
Claim cost per separation						
Below median	$135	$143	$169	$142	$130	$83
Above median	$63	$57	$53	$18	$53	$123
Difference: (below median – above median)	$72	$86	$116	$124	$77	-$40
Average cost per claim						
Below median	$75,856	$80,545	$92,520	$81,939	$75,099	$52,667
Above median	$54,014	$45,808	$43,306	$30,512	$48,751	$75,028
Difference: (below median – above median)	$21,842	$34,737	$49,214	$51,427	$26,348	-$22,361

Appendix C provides the claims performance results by the People Matter Survey metrics for all six specialties examined.

Appendix D presents the data shown in Appendix C as a measure of the percentage difference in claims performance for organisations that are above the median (compared to those below the median) for selected organisation culture indices.

Generally, findings were consistent with the hypothesis that hospitals with better scores on the People Matter Survey metrics have a lower incidence and lower cost of claims across all of the performance metrics and specialties. The bolded scores in Appendix D highlight results that are consistent with this hypothesis (that is, 27 of 36 observations for *% of hospitals with at least one claim*, 22 of 36 observations for claims rate, 31 of 36 observations for *claim cost per separation* and 22 of 36 observations for *average cost per claim*).

A major anomaly was the relationship between intention to leave and claims performance. It was expected that organisations where employees have a lower intention to leave would have better claims performance. This relationship was confirmed with regard to the incidence of claims (that is, the number of hospitals with at least one claim) with the exception of emergency medicine. However, this was not the case for all specialties with regard to the rate and cost of claims.

Other relationships inconsistent with the hypothesis which were specific to a single specialty include:

- Emergency medicine with regard to the relationship between management, workgroup and employer brand strength and claim cost per separation
- General surgery with regard to the majority of People Matter Survey metrics and cost per claims.

4 related research and possible next steps

Measurement and analysis of the contribution of workforce factors to organisational strategic objectives has led to the development of causal models that inform more effective and efficient investments in HCM and improved performance outcomes.

Essentially the development of a causal model involves empirical research and statistical analysis to reveal a core set of drivers that predict performance. The effectiveness of strategic HCM interventions to drive improved performance outcomes has been demonstrated in a range of organisations and operations. The most widely known examples of the development of causal models include:

- Sears, Roebuck and Company's employee-customer-profit chain (Rucci, Kim & Quinn, 1998). Sears created a model with a logical set of connections between employee attitudes and store financial performance, including customer behaviour as a critical intervening variable. Sears' model was rigorously tested and refined iteratively over a number of years. Among other things it showed that a 5 point improvement in employee attitudes (as measured by an employee climate survey) would drive a 1.3 point improvement in customer satisfaction in the next quarter, which in turn would drive a 0.5% improvement in revenue growth.

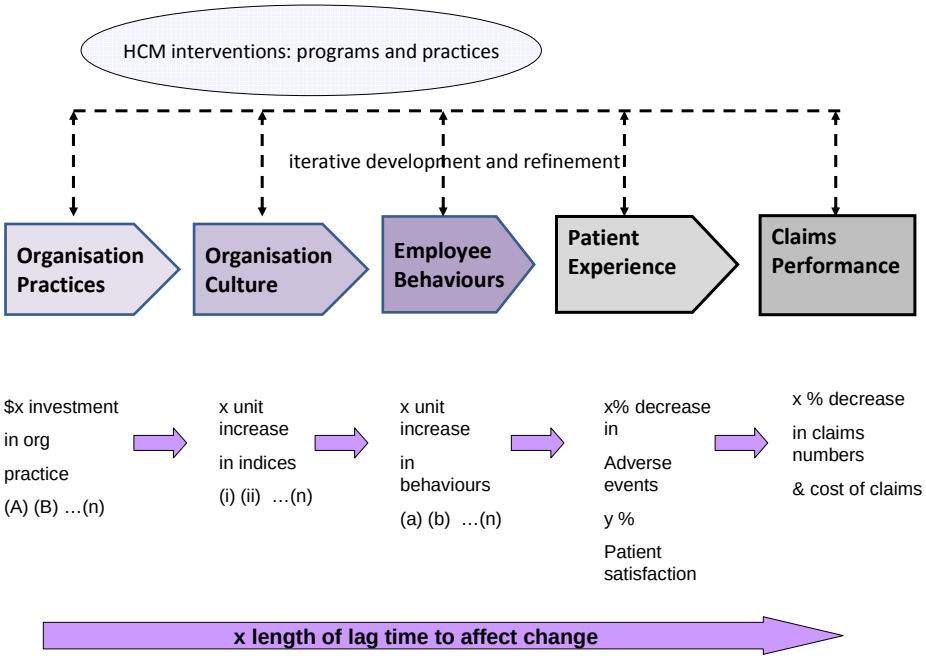
- American Standard Companies conducted a study that identified a strong relationship between HCM practices and plant accident rates (Bassi & McMurrer, 2007). The mean accident rates of plants with high scores in identified HCM indices (above the median) was between 10%-30% lower than accident rates for plants with low HCM index scores. Analysis then identified HCM practices associated with low accident rates; using this information American Standard prioritised its management intervention programs resulting in more effective and efficient resource allocation and improved accident rates.

- Heskett, Jones, Loveman, Sasser Jr & Schelsinger (1994) demonstrated some of the drivers in the service-profit chain using examples from some large American companies, including Taco Bell and South West Airlines. Of particular interest in relation to this report was the result from MCI Inc customer service centres where employee satisfaction was directly linked to customer satisfaction.

- Deery & Iverson (2005) developed a causal model of organisational performance and, in surveying staff members from an Australian bank, determined that organisational commitment has a positive effect of productivity and customer service.

Further work is required to develop a HCM model for medical indemnity claims risk performance to assist in monitoring, reporting, developing and implementing effective management interventions. Figure 7 illustrates the potential application of a causal model.

figure 7: Culture – behaviour – claims chain

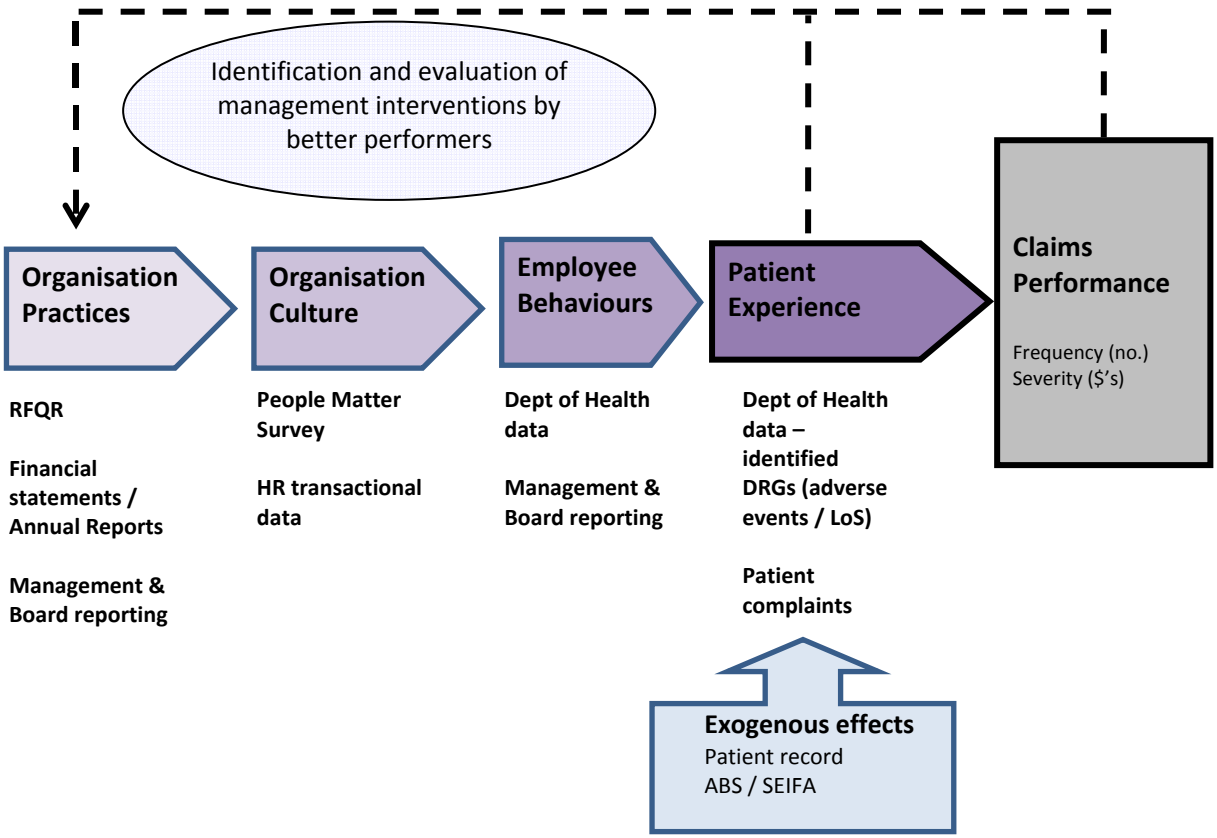


Analysis is required to establish the strength and direction of relationship and to subsequently develop effective interventions based on a cost benefit basis. Ideally the unit of analysis would be the specialty level within individual hospitals. This outcome could be achieved by including additional questions relating to staff speciality area within future People Matter Survey health questionnaires.

Following refinement of the conceptual model, a recommended first step is the identification of available data and testing its appropriateness for analysis. Figure 8 identifies possible data-sources for the development of a causal model. Further work would be required to confirm and expand possible data sources; identify relevant data fields; collect, assess and test the appropriateness of the data; and to identify appropriate analytic techniques.

An initial area of investigation is to consider the relationship(s) between claims performance, organisational culture and workforce characteristics such as FTE, employment type, employee demographics, separation rate, sick leave utilisation. This information is available through the SSA's Workforce Data Collection (WDC). The SSA collects an annual census of the Victorian public sector workforce based on information collected from all Victorian public sector organisations that employ staff. In 2010, the WDC contained approximately 288,000 records on Victorian public sector employees. The WDC includes information on employee's age, gender, occupation, salary, location, employment type and time fraction.

figure 8: Possible data sources for the development of a causal model



Causal chain analysis focuses on measuring the specific links between organisational practices and business outcomes. The development of a causal model provides the framework for data collection and analysis that measures the intervening links between organisational capacity and employee behaviours on patient experience.

A drawback is that all models simplify reality and at the same time they may be so compelling that they might motivate oversimplification: overlooking the effect of exogenous factors or overemphasising the effect of modelled factors. However, the development of a causal model creates a logical framework that can reveal new paths and relationships as they emerge.

5 research limitations

unit of analysis

This project matched specific claims performance data at the business unit level (ie specialty area) with culture data at the organisation level. Literature indicates that there may be significant variations in organisational culture within organisations. For example, analysis at the organisational level does not account for variation in employee perceptions of workgroup performance within an individual hospital. In mapping the effect of organisational culture on claims risk, it may be insightful to investigate the existence and effect of possible sub-cultures.

sample size

Separations and claims data was available for 81 hospitals in the Victorian health sector. Of these organisations, 68 had participated in the People Matter Survey in either 2009 or 2010.

Only those hospitals that provided services in a particular specialty, as indicated by the separations data, were included in the analysis of the incidence of claims.

The higher the number of units of analysis (that is, the number of hospitals) available for statistical analysis, the more reliable the results will be. Increasing the number of hospitals participating in the People Matter Survey will increase the power of the analysis. Potentially, given the finite and relatively small number of hospitals of interest to the VMIA, data could be collected from the complete population of hospitals.

response rate for the people matter survey

The People Matter Survey is a survey of employees and the higher the response rate for the survey the greater the confidence that the results are representative of the attitudes of all employees within the organisation.

The overall response rate for participating hospitals was 24% in 2009 and 28% in 2010. The response rate for individual hospitals varies considerably, ranging from 10% to 75% in 2009 and from 17% and 94% in 2010.

However, the profile of the sample is reflective of the population with regard to key demographics and employment characteristics therefore reducing the likelihood of non-response bias.

causality and direction of relationship

Finding a correlation between claims performance and employee attitudes does not in itself prove causality. In addition, the direction of the relationship cannot be confirmed. In undertaking the analysis, the hypothesis that a positive organisational culture may reduce the risk of claims was tested. A plausible alternative explanation is that superior organisational performance in relation to patient safety leads to positive employee attitudes or there may even be a reciprocal relationship.

These limitations do not negate the potential value of employee attitudes as a lead indicator for claims performance. As reported above, organisation culture does appear to be useful as a red flag. Additional work will assist in developing a causal model to confirm the relationship of direction and/or causal factors to improve claims performance.

6 references

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appendix a data sources and data fields

VMIA data

The cost and number of medical indemnity claims for each Victorian public hospital from 2007-08 to 2009-10 was extracted from the claims database maintained by VMIA.

Data fields used for analysis:

- Date claim reported to VMIA
- Client level 1 (health service region)
- Client level 2 (health service name)
- Client level 3 (campus name)
- Specialty
- Claim indicator (status of claim)
- Gross claim total ($)

department of health data

Victorian Admitted Episodes Dataset (VAED)

The Department of Health collects morbidity data for all admitted patients at Victorian public and private hospitals including rehabilitation centres, extended care facilities and day procedure centres. VAED data are used for a range of activities including health services planning, policy formulation, casemix funding and epidemiological research.

Data fields for analysis:

All separations (discharges) from publicly owned hospitals in Victoria from 2007-08 to 2009-10 by:

- Financial year
- Campus code
- Campus name
- Clinical specialty

Victorian Emergency Minimum Dataset (VEMD)

The Victorian Emergency Minimum Dataset (VEMD) contains de-identified demographic, administrative and clinical data detailing emergency department presentations at particular Victorian public hospitals (i.e. those that receive the non-admitted emergency services grant and other hospitals as designated by the Department).

Data used for analysis:

All emergency department presentations from designated Victorian public hospitals 2007-08 to 2009-10 by:

- Financial year
- Campus code
- Campus name

SSA data

People Matter Survey (PMS)

The SSA conducts an annual employee climate and culture survey. Over a two year cycle, the majority of Victorian public sector entities are surveyed. The large sample size (19,000 respondents from 118 organisations and 43 schools in 2010) and relatively high response rate (32%) gives a high level of confidence in the validity and statistical significance of results.

The data fields examined from the People Matter Survey include several indices which are detailed further in Appendix B. These management indices are:

- Leadership
- Management
- Workgroup
- Client responsiveness
- Employer brand strength
- Intention to leave

appendix b survey items in people matter survey indices

Leadership

Concept: This index captures respondent's perceptions of the integrity of the organisation, particularly as modelled by the senior management team. It measures respondent's general perceptions of the quality of leadership displayed by senior managers within their organisation.

Items

Senior managers provide clear strategy and direction

Senior managers listen to staff

Senior managers keep staff informed about what is going on

Senior managers model the values

In my organisation, behaviour consistent with the values is acknowledged and rewarded

My organisation's decisions and actions are open to review

Management

Concept: This provides a single measurement of respondent's perceptions of the level of support and their manager.

Items

My manager listens to what I have to say

My manager keeps me informed about what's going on

My manager treats staff with dignity and respect

My manager provides adequate thanks or other recognition for the work I do

My manager takes into account the differing needs and circumstances of employees when making decisions

My manager encourages and values employee input

I can approach my manager to discuss concerns and grievances

Workgroup

Concept: This measures respondent's perceptions of the integrity, efficiency and cohesiveness of their workgroup.

Items

People in my workgroup are honest, open and transparent in their dealings

People in my workgroup use time and resources efficiently

Members of my workgroup treat each other with respect.

In my workgroup, people do not show bias in decisions affecting clients

There is good team spirit in my workgroup

I receive help and support from other members of my workgroup

Client Responsiveness

Concept: This index provides a measure of respondent's perception of how well their organisation performs in being responsive to its clients or stakeholders.

Items

My organisation strives to match services to customer needs

My organisation provides high quality services to the Victorian community

My organisation actively supports 'better practice' as the basis for more effective programs

My workgroup strives to achieve customer satisfaction

My workgroup uses research and expertise to identify better practice

My manger is committed to ensuring customers receive a high standard of service

Employer Brand Strength

Concept: This measures respondent's belief that their employer (organisation) is an employer of choice

Items:

I view my organisation as an employer of choice

Working for my organisation makes me proud

Working for my organisation is a good career choice

Intention to Leave

Concept: This measures respondent's intention to leave the organisation.

Items

I am actively looking for a job outside my current organisation

I often think about leaving this organisation

appendix c claims performance metrics by people matter survey metrics (above and below median)

Appendix C provides the claims performance results by the People Matter Survey metrics for all of the specialties examined (that is, emergency medicine, general medicine, general surgery, gynaecology, obstetrics and orthopaedics).

The following example focusing on obstetrics and the leadership metric may be useful in interpreting this table:

- for *"% of hospitals with at least one claim*": 50% of hospitals with the lower scores on the Leadership index have had at least one claim over the 3 year period to 30 June 2010 compared with 24% of hospitals above the median
- for "*claims rate*": those hospitals with the lower scores on the Leadership index have on average 1.5 claims per 1000 separations compared with 1.1 for those above the median
- for "*claim cost per separation*": hospitals with the lower scores on the Leadership index have an average cost per separation of $135 compared with $63 for those above the median
- for "*average cost per claim*" those hospitals with the lower scores on the Leadership index have an average cost per claim of $75,856 compared with $54,014 for those above the median

Claims performance metrics by specialty	Leadership		Management		Workgroup		Client responsiveness		Employer brand strength		Intention to leave	
	Below Median	Above Median	Below Median	Above Median	Below Median	Above Median	Below Median	Above Median	Below Median	Above Median	Below Median	Above Median
% of hospitals with at least one claim												
Emergency medicine	73	80	77	71	80	70	75	75	81	50	100	70
General medicine	24	15	24	15	18	21	29	9	32	6	12	26
General surgery	45	18	41	22	33	30	48	15	53	12	15	48
Gynaecology	32	17	32	17	37	13	37	13	32	17	9	43
Obstetrics	50	24	44	29	35	39	58	18	55	19	22	52
Orthopaedics	41	15	35	21	32	24	47	9	45	12	18	38
Claims rate (claims per 1,000 separations)												
Emergency medicine	0.5	0.4	0.5	0.4	0.5	0.4	0.5	0.4	0.4	0.5	0.3	0.5
General medicine	0.4	0.4	0.4	0.4	0.5	0.3	0.4	0.5	0.4	0.7	0.5	0.4
General surgery	0.5	0.3	0.5	0.3	0.5	0.4	0.5	0.5	0.5	0.4	0.5	0.5
Gynaecology	1.3	1.3	1.6	0.6	1.3	1.3	1.5	0.3	1.5	0.6	1.9	1.1
Obstetrics	1.5	1.1	1.6	1.1	1.8	1.0	1.5	1.0	1.5	1.1	1.5	1.3
Orthopaedics	0.7	0.9	0.8	0.6	0.7	0.7	0.7	0.9	0.7	1.0	0.8	0.7

Claims performance metrics by specialty	Leadership		Management		Workgroup		Client responsiveness		Employer brand strength		Intention to leave	
	Below Median	Above Median	Below Median	Above Median	Below Median	Above Median	Below Median	Above Median	Below Median	Above Median	Below Median	Above Median
Claim cost per separation ($)												
Emergency medicine	35	31	30	42	25	45	35	31	34	38	38	33
General medicine	19	9	17	15	22	11	17	13	18	11	19	15
General surgery	38	27	39	27	38	32	38	25	36	29	42	33
Gynaecology	178	33	163	64	178	33	145	53	161	38	40	160
Obstetrics	135	63	143	57	169	53	142	18	130	53	83	123
Orthopaedics	56	21	67	21	59	34	56	21	56	4	76	44
Average cost per claim ($)												
Emergency medicine	46,857	46,238	49,789	37,442	42,774	54,558	48,684	36,791	50,312	7,000	55,065	45,030
General medicine	126,210	63,116	86,217	119,107	109,523	93,062	99,597	100,893	104,933	74,861	26,192	136,785
General surgery	88,724	100,219	89,902	96,389	83,286	101,059	81,571	123,978	87,825	109,562	104,928	87,921
Gynaecology	189,883	137,220	174,344	168,297	196,342	106,291	133,743	278,438	158,874	199,238	31,953	207,422
Obstetrics	75,856	54,014	80,545	45,808	92,520	43,306	81,939	30,512	75,099	48,751	52,667	75,028
Orthopaedics	80,390	44,157	81,297	58,260	77,883	63,624	81,628	25,888	65,560	96,060	98,061	62,445

appendix d claims performance for hospitals above the median on organisation culture indices as a percentage of those below the median

Appendix D presents claims performance for hospitals above the median for selected organisation culture indices as a percentage of those below the median.

The following example focusing on obstetrics and the leadership metric may be useful in interpreting this table:

- for *"% of hospitals with at least one claim*": the figure of 48% indicates that those hospitals with the higher scores on the Leadership index are half as likely to have had at least one claim when compared to those below the median on the Leadership index
- for "*claims rate (claims per 1,000 separations)*": the figure 73% indicates that on average those hospitals with the higher scores on the Leadership index have a claims rate approximately three-quarters (73%) of that for hospitals below the median on the Leadership index
- for "*claim cost per separation*": the figure 47% indicates that on average those hospitals with the higher scores on the Leadership index have costs per separation which are approximately half (47%) of that for hospitals below the median on the Leadership index
- for "*average cost per claim*": the figure of 71% indicates that on average those hospitals with higher scores on the Leadership index have costs per claim which are 71% of that for hospitals below the median on the Leadership index

The bolded scores highlight those that are consistent with the hypothesis that hospitals with better scores on the People Matter Survey metrics will have a lower incidence and lower cost of claims. Generally, findings were consistent with this hypothesis across all of the performance metrics and for most of the specialties.

Claims performance metrics by specialty	Leadership	Management	Workgroup	Client responsiveness	Employer brand strength	Intention to leave
% of hospitals with at least one claim						
Emergency medicine	110%	92%	88%	100%	62%	70%
General medicine	63%	63%	117%	31%	19%	217%
General surgery	40%	54%	91%	31%	23%	320%
Gynaecology	53%	53%	35%	35%	53%	478%
Obstetrics	48%	66%	111%	31%	35%	236%
Orthopaedics	37%	60%	75%	19%	27%	211%
Claims rate (claims per 1,000 separations)						
Emergency medicine	80%	80%	80%	80%	125%	167%
General medicine	100%	100%	60%	125%	175%	80%
General surgery	60%	60%	80%	100%	80%	100%
Gynaecology	100%	38%	100%	20%	40%	58%
Obstetrics	73%	69%	56%	67%	73%	87%
Orthopaedics	129%	75%	100%	129%	143%	88%

Claims performance metrics by specialty	Leadership	Management	Workgroup	Client responsiveness	Employer brand strength	Intention to leave
Claim cost per separation ($)						
Emergency medicine	89%	140%	180%	89%	112%	87%
General medicine	47%	88%	50%	76%	61%	79%
General surgery	71%	69%	84%	66%	81%	79%
Gynaecology	19%	39%	19%	37%	24%	400%
Obstetrics	47%	40%	31%	13%	41%	148%
Orthopaedics	38%	31%	58%	38%	7%	58%
Average cost per claim ($)						
Emergency medicine	99%	75%	128%	76%	14%	82%
General medicine	50%	138%	85%	101%	71%	522%
General surgery	113%	107%	121%	152%	125%	84%
Gynaecology	72%	97%	54%	208%	125%	649%
Obstetrics	71%	57%	47%	37%	65%	142%
Orthopaedics	55%	72%	82%	32%	147%	64%

appendix e peer review comments

This research report was peer reviewed by two independent parties. One reviewer is a practicing organisational psychologist and the other a current staff member at the Department of Health possessing a strong statistical background.

The organisational psychologist said “as practitioner, I am very excited about this piece of work. The main value I see in this research is

- The link between soft and hard indicators with ‘real’ (and valuable) outcomes
- The possibility of using this paper to inform practice is huge. In particular, the use of the statistics and $’s to inform ROI or build a business case to support practitioners to get buy in from management around interventions. The indicators links with claims can also be used as lead indicators to inform interventions and identify groups/ organisations that are at risk.”

SSA/VMIA Response: Delighted the practical value of this preliminary research has been recognised.

The Department of Health staff member took a more theoretical approach in their review and questioned the “over-simplified” nature of the statistical analysis method in dividing the hospitals into two groups (above and below the median on the management indices). In addition to suggesting three groups would be more valid, the reviewer stated “proper statistical test methods must be used to test whether there is a significant difference between the two groups. This is similar to the calculation of 95% confidence intervals, which are not mentioned in the report. Without a proper statistical test for a p-value or a 95% confidence interval, it is impossible to draw a conclusion about the difference between the two groups.”

SSA/VMIA Response:

The methodology of dividing the organisations of interest into two groups by the score on a measure of organisational culture has been used in other published studies investigating the relationship between culture and organisational performance [see Bassi & McMurrer (2007) and Denison (1984)].

The limitations of this current research presented in chapter 4, particularly sample size, mean that achieving a 95% confidence interval as an outcome of testing the differences between two means is highly improbable.

However, in response to the peer review, t-tests were performed but no significant results at 95% confidence level were achieved for any of the management indices. However, when the confidence interval was lowered to 70%, statistical significance was achieved for several, but not all, of the indices.

The results of this collaborative research report are highly persuasive and of practical importance. However, SSA is hoping to undertake further research in the area of risk management in the public hospital setting and would envisage having access to larger data sets. Should this occur, more rigorous analysis methods may be applied.