The Relationship Between Employee Engagement and Human Capital Performance

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ONTARIO HOSPITAL ASSOCIATION

Executive Summary

The Relationship Between Employee Engagement and Human Capital Performance report summarizes findings from the Ontario Hospital Association's (OHA) exploratory research project conducted in 2012 with three pilot hospitals (one acute teaching, one community, and one small). The project examines the relationship between employee engagement and several key human resources (HR) metrics. This is the first attempt by the OHA to link data from two of its major HR data initiatives: the OHA-NRC Picker Employee Experience Survey and the OHA-PricewaterhouseCoopers (PwC) Saratoga HR Benchmarking Survey.

The project developed a methodology for accurately comparing Employee Experience Survey engagement data with human capital metrics from hospital administrative data at the department level. It also identified three HR metrics – the full-time resignation rate, average sick days per full-time employee, and management span of control – which do appear to be related to employee engagement levels at the department level. This research will provide HR leaders with support to build the case for making investments in employee engagement. It appears that there are real costs associated with higher absence and resignation rates when engagement is low.

The project revealed four major technical issues organizations must consider when conducting this type of analysis. First, survey response rates affect the representativeness of the survey findings. Lower response rates introduce greater potential for non-response bias. A reasonable response target is 50% across the organization. However, for this research it is important that response rates in each of the departments are above average as well. In one of the pilot hospitals, the department response rates varied between 27% and 70%. Second, the accuracy of administrative data and the HR metrics used in the analysis is also a key consideration. Missing or inconsistently collected HR administrative data affects the accuracy of HR metrics, and therefore the accuracy of comparisons with engagement scores. The third technical issue is that small departments may not have sufficient numbers of survey responses to report engagement scores or HR metrics. Finally, the impact of extraneous factors must be considered. There are a number of factors not measured in an engagement survey or in other HR metrics that could introduce errors. For example, one hospital was undergoing major organizational change during the survey period.   Also, metrics such as turnover are influenced by a range of personal and contextual factors.

The methodology employed for this project was to a) compare HR metrics for departments with the highest and lowest engagement scores, b)combine all department engagement scores and associated HR metrics, and c)calculate correlation coefficients for relevant indicators. [Correlation coefficients range from +/- 1 to 0. Zero means there is no relationship between the two variables, and 1 means there is a perfect correlation so that if one increases (or decreases, if the correlation is negative), so does the other.] Observations from the pilot hospital with the most reportable results include:
- A correlation of -.45 between engagement scores and sick days for full-time employees, which is moderately strong and in the predicted direction (higher engagement is associated with fewer

sick days).

- A correlation of -.03 between engagement scores and resignation rates for full-time employees, which is very weak and not in the predicted direction.
- A correlation of -.68 between engagement scores and span of control for full-time employees, which is fairly strong (lower spans of control are related with higher engagement).

Introduction

Advancing the analysis and application of human resources (HR) data across the healthcare system, is one of the key priorities identified in the Ontario Hospital Association's (OHA) *Provincial Health Human Resources Work Plan 2011-2013*. Better HR data collection and analysis allows organizations to determine their priorities for improvement and investment and to conduct strategic planning. To meet this objective, the OHA engaged in a research project with three pilot hospitals examining the linkages between employee engagement and key organizational metrics.

For each of the pilot hospitals, the departmental results of the OHA-NRC Picker Employee Experience Survey were analyzed against key HR metrics (sick leave, retention, and management span of control) from the PricewaterhouseCoopers (PwC) Saratoga HR Benchmarking Survey results – also at the department level – to better understand the impact of engagement on human capital performance.

The following report is written by Dr. Graham Lowe, a workplace consultant who has advised the OHA on its Employee and Physician Experience Surveys and Quality Healthcare Workplace Awards. The OHA provided data collection and analysis support as well as significant input into the development of the report. The report outlines the findings of this exploratory look at the relationships between employee engagement and key organizational metrics.

With a methodology for accurately comparing Employee Experience Survey engagement data with human capital metrics from hospital administrative data, we have been able to identify three human capital metrics that appear to be related to employee engagement levels at the department level. We also uncovered a number of technical issues that, in future, hospitals can take into account when collecting and comparing Employee Experience Survey and HR data.

Objectives

This report examines the relationship between employee engagement and several key human capital metrics. It is the OHA's first attempt to systematically link data from two of its major human resource initiatives: the OHA-NRC Picker Employee Experience Survey (EES) and the PwC Saratoga HR Benchmarking (HRB) project. Each data source previously has been used independently to compare engagement levels and human capital performance across hospitals. This project is more ambitious, combining these two data sources and focusing on departments within hospitals as the unit of analysis.

The project had four objectives:

1. Develop a methodology for accurately comparing EES data with human capital metrics from administrative data.
2. Identify and address technical issues related to departmental-level comparisons within hospitals.
3. Determine which human capital performance metrics are most related to employee engagement.
4. Offer recommendations for future actions that will help OHA members make better use of combined EES data and HR metrics for purposes of performance improvement.

Three hospitals participated in the project: Hospital A, Hospital B, and Hospital C. These hospitals

represent three different OHA peer groups: small hospitals, teaching hospitals, and community hospitals.

The analysis presented in this report is guided by the OHA's Quality Healthcare Workplace Model (see Figure 1), which outlines how health system performance depends on a capable workforce in healthy and productive workplaces. The OHA's model suggests that the quality of the work environment for staff and physicians is a key determinant of a high-performing healthcare organization. By integrating healthy workplace, human resource, quality and patient safety goals within a performance focused framework, the model offers a useful guide to research and practice.

At the centre of the model is employee (and physician) engagement. The focus of the OHA's employee engagement and human capital performance project centred on the relationship between employee engagement levels and several organizational outcomes related to human capital performance, as measured by administrative data.

This research also follows the Healthcare Quarterly article, "How Employee Engagement Matters for Hospital Performance", which explores the OHA-NRC Picker Employee Experience Survey data (further discussed in the next section) and also written by Graham Lowe.

Figure 1: Ontario Hospital Association Quality Healthcare Workplace Model
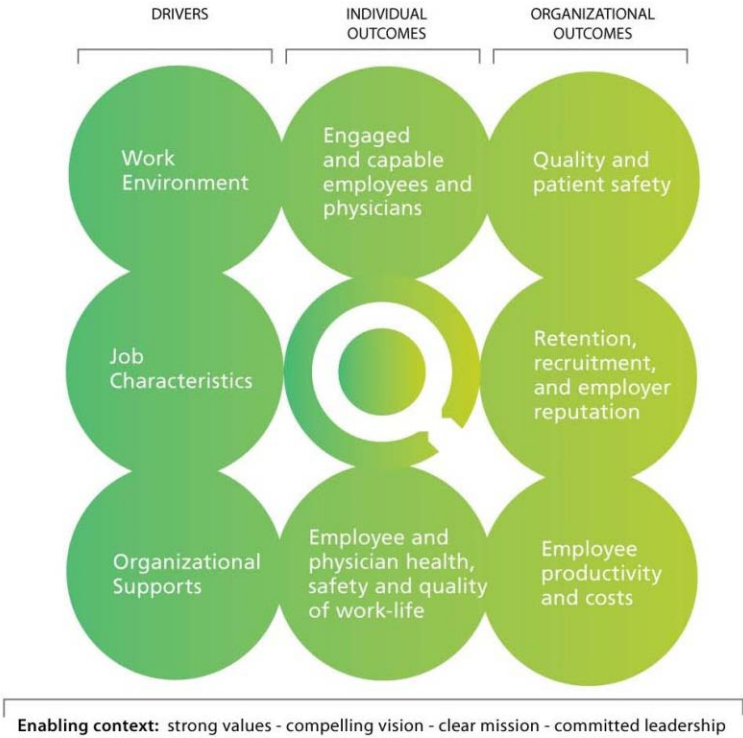
Employee Engagement

This section describes a multi-dimensional engagement scale derived from 10,702 employees at 16 Ontario hospitals who completed the EES. The 16 hospitals administered the EES in late 2010 or early 2011. Details of this 16-hospital study can be found in the author's recent *Healthcare Quarterly* article (Volume 15 No. 2 2012).[1] To access this report, visit http://www.longwoods.com/publications/healthcare-quarterly (log-in required).

Defining engagement

While job satisfaction has long been a commonly used measure of employees' quality of work life, engagement is a broader gauge of employees' overall work experience. A high level of engagement is a strategic goal for a growing number of organizations in many industries, including healthcare. Engaged employees are committed to their employer, satisfied with their work, and willing to give extra effort to achieve the organization's goals. Evidence suggests that engagement influences other major human resource goals, such as retention, job performance, absenteeism, and (indirectly through the employer's reputation) recruitment.

Human resource practitioners now prefer a multi-dimensional approach to measuring engagement. This combines a number of questionnaire items into a scale, yielding a single engagement score. A composite engagement metric can be useful to employers for tracking progress on actions taken to improve employee engagement.

Employee engagement scales typically combine job satisfaction, organizational commitment and other performance-related signs of an engaged employee. A recent synthesis of approaches to measuring employee engagement identified three dimensions of engagement: emotional, rational, and behavioural.[2] Statistical analysis (correlations, factor analysis, and internal reliability testing) of EES data identified a multi-item engagement scale.

Standard social science practices were followed to ensure validity and reliability in constructing the EES engagement scale.[3] Scale items were selected based on frequency distributions, correlations, face and construct validity considerations, and factor analysis.[4] The scale has high internal reliability.[5] Equally important, the items measure the key concepts identified in the research literature as central to employee engagement. Specifically, the engagement scale developed for the EES measures three dimensions of engagement, using the following six items:

- **Emotional:**
    - I am proud to tell others I am part of organization.
    - I find that my values and the organization's values are similar.
- **Rational:**
    - Satisfied with (my) job overall.
    - Rating of organization as a place to work.
- **Behavioural:**
    - Look forward to going to work.

— This organization really inspires the best in me in the way of job performance.

This scale provides a validated and comprehensive measure of employee engagement, captured in a single metric.[6]
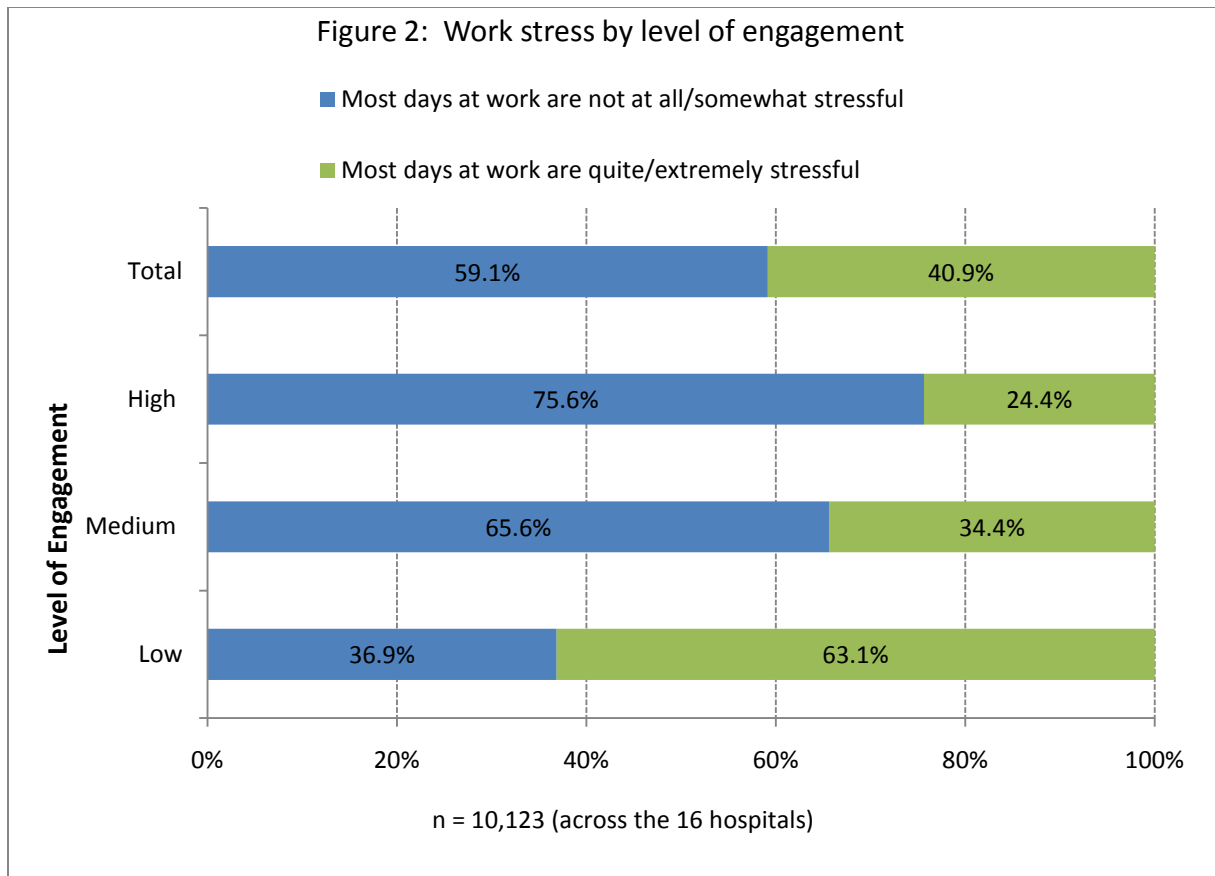
Individual engagement scale scores can be grouped into low, medium and high categories based on the distribution of scale scores.[7] The High Engagement group consists of individuals who responded 4 or 5 on the 5-point items and 3 or 4 on the 4-point item (their score was 23 or higher out of 29). The Medium Engagement group had scale scores between 19 and 22 (note that the scale mean is 20.3 and the median is 21, both falling within this group). The Low Engagement group scored 18 or lower.

Linking Engagement and Key Outcomes Using EES Data

The OHA Quality Healthcare Workplace Model suggests that the more engaged employees feel, the better able they are to achieve personal wellbeing and organizational goals. This section briefly explores these relationships in the OHA model, providing confirmation that this indeed is the case. To do this, we compare employees in the low, medium and high-engagement groups described above. While the indicators we can derive from the EES allow us to measure a range of individual quality of work life and organizational performance-related outcomes, we will focus on the following three areas because of their central importance to all healthcare organizations:

- Work stress
- Injuries or illness resulting from patient handling or contact
- Retention

While the results presented in this section show a consistently strong relationship between employee engagement, on one hand, and quality of work life and organizational performance, on the other hand, we should be careful not to infer causation. Further modeling with the EES data is required to test the direction of causation in these relationships. For now, we can conclude that engagement levels are positively related to a range of mission-critical individual and organizational outcomes in the 16 hospitals being studied (which includes Hospital A, Hospital B, and Hospital C).

Figure 2: Work stress by level of engagement

■ Most days at work are not at all/somewhat stressful

■ Most days at work are quite/extremely stressful

Level of Engagement	Not at all/somewhat stressful	Quite/extremely stressful
Total	59.1%	40.9%
High	75.6%	24.4%
Medium	65.6%	34.4%
Low	36.9%	63.1%

n = 10,123 (across the 16 hospitals)

Work stress

We focus on two individual outcomes that measure different aspects of quality of work life. The first is self-reported work stress, using a measure adapted from Statistics Canada's Canadian Community Health Survey. Respondents were asked: "In the past 12 months, would you say that most days at work were…not at all stressful, somewhat stressful, quite stressful, or extremely stressful?" Figure 2, above, combines these four response categories into two, showing that 4 in 10 of all respondents experience most days as quite or extremely stressful. However, those employees in the high-engagement group are far less likely to experience stress (24%), especially compared with their coworkers who have low engagement. Indeed, more than 6 out of 10 low-engagement employees experience most workdays as quite or extremely stressful.

These data sets do not reveal how engagement may contribute to stress. However, given the considerable costs that stress can impose on employers in the form of increased absenteeism and presenteeism, experts in the field could further probe such a relationship.

Injuries and illness

An equally important concern for both employees and employers is the prevention of injuries and illnesses that may result from caring for patients. Figure 3 selects one indicator from the EES – having been injured or felt unwell as a result of moving or handling patients in the past 12 months – to see if basic safety and health outcomes are in any way related to engagement. Examining this involved a look only at EES respondents who have frequent direct interaction or contact with patients, because this group of employees is the most exposed to health and safety risks associated with patient care.

Figure 3: Been injured or felt unwell as a result of moving and handling patients or clients in past 12 months by level of engagement*

■ Yes   ■ No

Level of Engagement	Yes	No
Total	35.8%	64.2%
High	19.8%	80.2%
Medium	32.3%	67.7%
Low	50.1%	49.9%

* Figure includes only respondents with frequent direct patient contact (n=5,000).
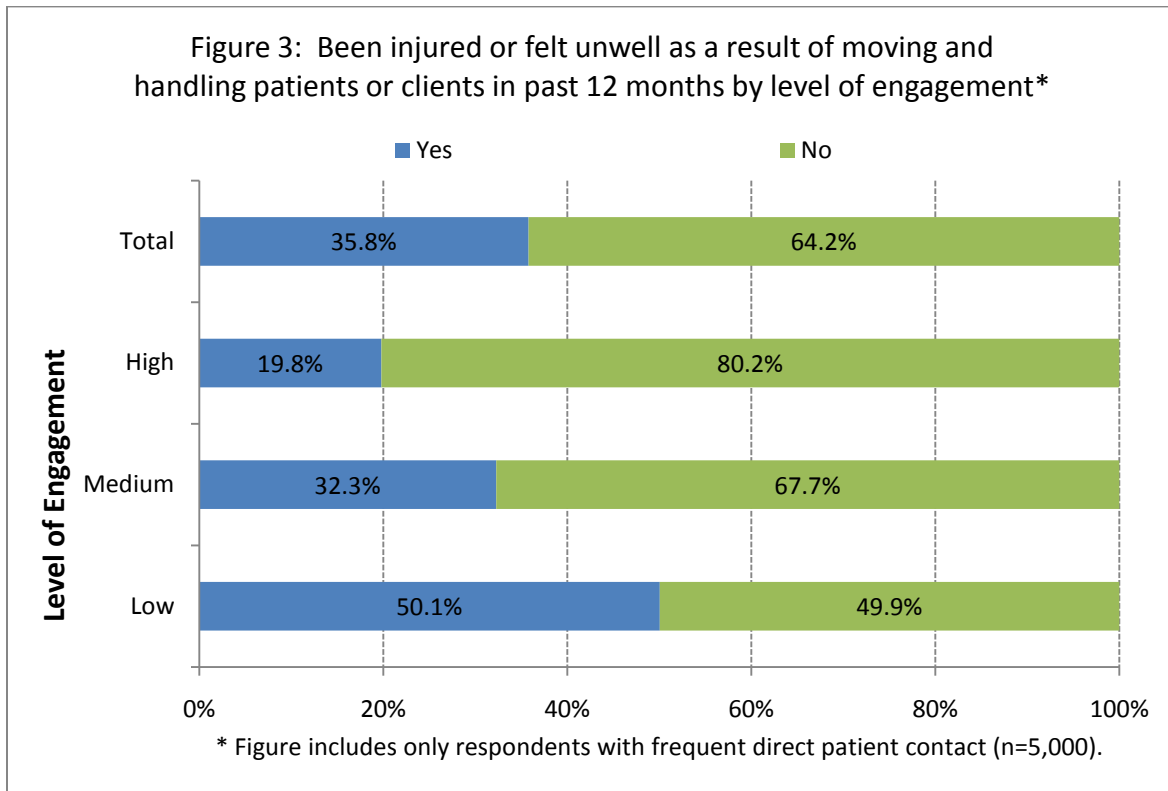
Figure 3 documents that 64% of those providing direct patient care experienced no injuries or illness as a result of moving or handling patients. Interestingly, this increases to 80% among survey respondents who are highly engaged, and falls to 50% among those with low levels of engagement. One could argue that such injuries or illness contribute to disengagement. Yet by the same token, it also is possible that the same working conditions that contribute to engagement also enable patient care providers to better manage the risks inherent in that role.

Retention

Regarding organizational outcomes, we focus on one of the major human resource goals of any healthcare organization: to retain competent staff (for a more detailed analysis of how engagement is related to a wider range of organizational outcomes, see the author's recent *Healthcare Quarterly* article[8]). Turnover is costly. It is widely assumed that more engaged employees – who are more satisfied

with their jobs and the organization – will stay and continue contributing. As Figure 4 shows, this is certainly the case among the healthcare employees who responded to the EES. Indeed, there are striking differences in intentions to look for a new job between the low and high engagement groups. While close to half of disengaged employees will be job-hunting in the next 12 months, only 1 in 10 of those who are highly engaged will be looking for a new job with a different employer. In other words, 90% of highly engaged employees plan to stay with the organization, at least for the near future.

Figure 4: Retention by level of engagement

n = 10,053 (across the 16 hospitals)
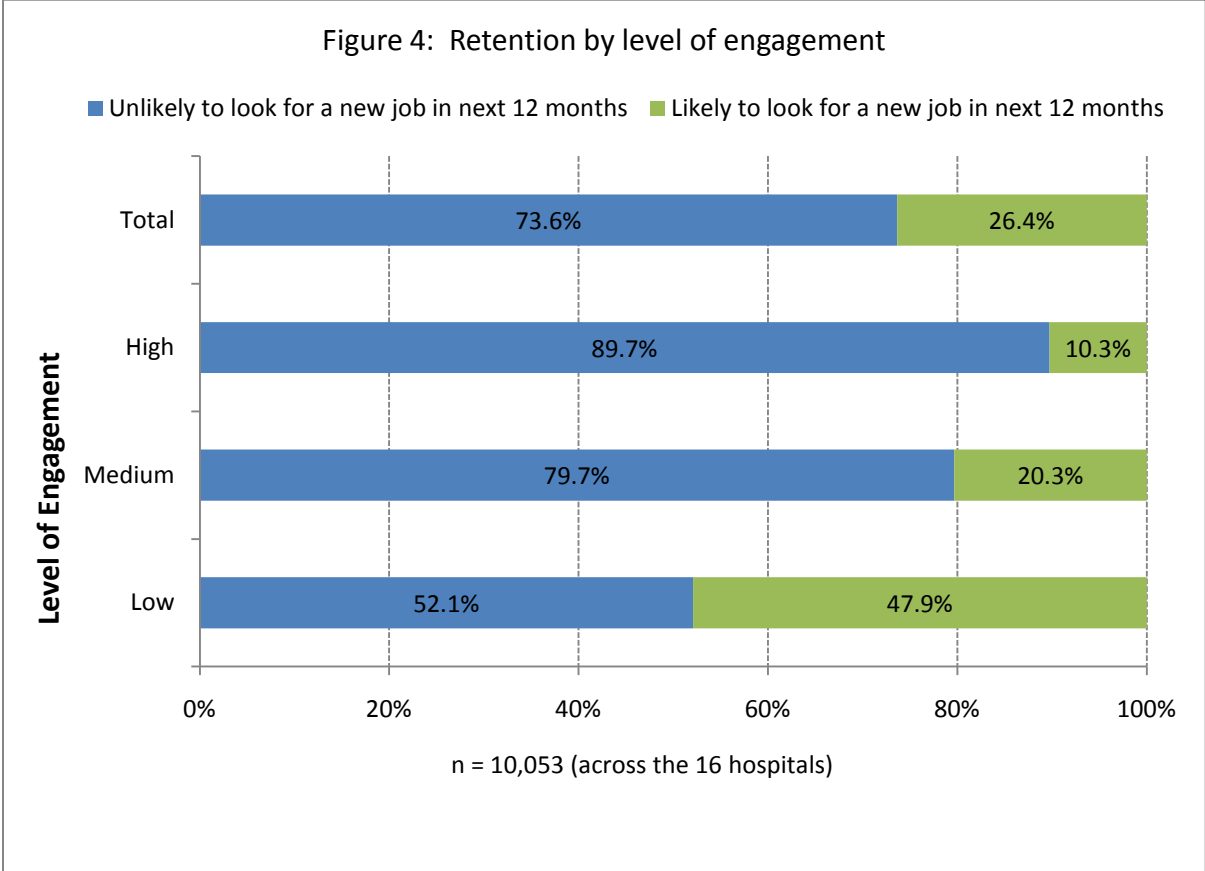
Department-level variations in engagement, retention and job stress

Is there evidence of department-level variations in engagement, retention and job stress? To answer this question, we conducted more in-depth analysis using EES data from Hospital A, Hospital B, and Hospital C.

Looking first at Hospital C, three of the four departments with the lowest engagement scores also have between 40% and 51% of their employees planning to look for another job in the next 12 months. All of the departments in which 75% or more of respondents plan to stay with Hospital C have average or above-average numbers in the high-engagement group. There also is a relationship between engagement and self-reported work stress. For example, three departments with high engagement scores have low work stress levels. And two of the lowest-scoring engagement departments have high stress levels.

At Hospital B we find a broadly similar pattern. Three of the four departments with the lowest engagement scores have between 31% and 55% of their employees planning to look for another job in the next 12 months. All but one of the departments in which 75% or more of survey respondents plan to stay with the hospital have higher than average engagement scores. The department with the highest engagement score also has the highest percentage of employees planning to stay (88%). In terms of job stress, employees in the two departments with the highest engagement levels report the lowest stress levels. And employees in the four departments with the lowest engagement scores have above-average levels of job stress.

There are some interesting exceptions to note. For example, at Hospital B, one department has only slightly above-average employee engagement, yet survey respondents from that department are among the most likely to be planning to stay with the hospital – perhaps a function of the local labour market for that area of work. Another department at Hospital B has a below-average engagement score, yet is well above-average in terms of intention to remain with the hospital and has low job stress. Clearly, there likely are unique dynamics influencing these findings.

In sum, this analysis provides Hospital C and Hospital B with an important diagnostic that can be used to plan interventions: departments that have the lowest engagement also tend to be more stressful places to work and are at risk of high turnover. Similar analysis was attempted for Hospital A. However, this is a small hospital with only 106 EES respondents. Consequently, three of the four departments have too few respondents to permit an accurate analysis of the relationship between engagement and, respectively, retention and job stress. Furthermore, if we look just at each of these three measures – engagement, retention, and job stress – we do not find statistically significant differences by department. Such a finding may not be surprising given that Hospital A rates very positively on all these measures compared to the other 15 hospitals exampled in the author's 2012 *Healthcare Quarterly* article.

Factors affecting the comparability of survey and administrative data

An employee survey provides a single data source that is ideally suited to examining the relationship between engagement and HR-relevant outcomes. That is because the same people who answered the engagement questions also answered questions about stress and retention, so we are able to compare their responses on all these indicators. However, when different data sources are combined at the department level, the analysis becomes more complicated. Four technical issues are relevant to consider: survey response rates; accuracy of administrative data; small departments; and the impact of extraneous factors.

Survey response rates

Survey response rates affect the representativeness of the survey findings. Lower response rates to the survey introduce greater potential for non-response bias. Low response rates result in inaccurate comparisons with HR (administrative) databases, which typically include all employees. So the accuracy of the comparisons suffers. If the survey response rate is low, it is possible that HR metrics such as turnover, absenteeism, or overtime could include only or mostly employees who did not respond to the EES. In some departments, this is the majority of employees. Also possible is that the most engaged employees are disproportionally represented among survey respondents.

As recommended in the OHA's *Action Planning Guide for the Employee Experience Survey**, a reasonable target response rate is 50% across the organization.[9] Ideally, all departments should be achieving similar response rates, but as we can see from Appendices 1 and 2, there are often wide variations in department response rates. A low response rate for a department makes it difficult to accurately examine the relationship between engagement (based on EES data) and human capital metrics.

EES response rates for the three hospitals are close to, or exceeding, the OHA target of 50% (see top row in Figure 5, below). This would be good news if our only purpose was to analyze the EES data.

*For hospitals utilizing the OHA-NRC Picker Employee Experience Survey, contact OHA or NRC Picker to obtain a copy of the guide.

Figure 5: EES response rate calculations for Hospital A, Hospital B, and Hospital C			
	Hospital A	Hospital B	Hospital C
Total survey response rate as reported by NRC-Picker for the 16 hospital study reported in *Healthcare Quarterly*	59.7%	47.7%	48.7%
Total EES respondents identified as employed in the departments examined for this project, using department headcount as denominator (Total EES responses / Total headcount)	73.3%	27.7%	48.2%

Because we are interested in linking EES and administrative data at the department level, we recalculated response rates using the more granular HR data for those departments included in the EES-HR metrics comparisons. Full details of these calculations are provided for Hospital A and Hospital C in Appendices 1 and 2 respectively. The second row in Figure 5, above, summarizes the response rates using total EES responses divided by total headcount from administrative data, for departments on which there is complete data available. Hospital C's two response rate calculations are similar. The discrepancy in the two Hospital B response rates is because Hospital B used a sample for the EES, not the entire population of employees. When total headcount is used as the denominator, this reduces the EES response rate. Hospital A's response rate discrepancy results from the fact that there are fewer "headcounts" in the administrative data than the total number of EES questionnaires sent out (150 versus 187) – a discrepancy for which there is no ready explanation.

It also is instructive to briefly observe the departmental variations in response rates presented for Hospitals A and C in Appendices 1 and 2. For example, among the 16 departments at Hospital C response rates vary between 27% and 70%. As already noted, this may affect the accuracy of department—level analysis of EES data in departments with below-average response rates.

Accuracy of administrative data

A further consideration is the accuracy of the HR metrics. While testing the quality of the HR administrative data collected by hospitals is beyond the scope of this project, it is possible that errors or inconsistencies in data coding, data entry, or other features of the HRIS being used could impact the quality of the HR metrics overall. That said, that is a standard concern and potential problem with any administrative data.

Missing or inconsistently collected data for HR metrics affects the accuracy of the indicator, and therefore the accuracy of any comparisons with engagement scores. In this regard, the issues identified in the three hospitals participating in this project are illustrative of more general challenges faced when combining administrative and survey data. One common example is how hospitals record sickness absences for part-time employees, which varies due to differences in employment policies. For example, some part-time employees are not paid for sick time, so it is not officially recorded. The upshot of these complications is that we excluded part-time employees from our analysis.

Linking EES and administrative data at the department level requires hospitals to provide NRC-Picker each employee's department affiliation, otherwise it is not possible to calculate engagement scores for all respondents in a department. For example, Hospital B was unable to provide department designation for 638 respondents. Furthermore, Hospital B was not able to provide HR data on resignations or sick leave for three of the departments due to organizational change. These three departments account for 176 survey respondents, substantially reducing the potential for cross-department comparisons with the EES data.

Small departments

Small departments may not have sufficient numbers of survey responses to report engagement scores. Furthermore, the frequency of some of the HR metrics decreases with department size. This makes it difficult to statistically measure the relationship between infrequent events, such as turnover, and engagement. It also is difficult to discern statistical patterns if a number of departments have few or no incidents recorded, such as turnover. To address this issue for Hospital C we reduced the number of departments from 33 to 16. This was accomplished by combining some smaller departments, which from an HR perspective may be quite different. Each of the combined departments has a minimum of 30 EES respondents, 20 of whom are full-time employees. So while this aggregation is necessary for data analysis, it may confound results by combining units with quite different employee experiences and HR metrics.

The impact of extraneous factors

Extraneous factors – those things which aren't measured by HR metrics or the EES – can affect survey and administrative data, possibly introducing additional sources of error. For example, if major organizational change is occurring during the time that an employee survey is in the field, respondents' answers likely will be influenced by the immediate changes they are experiencing. Organizational restructuring can affect administrative data by altering the reporting units. Such change also may affect staffing numbers and turnover in certain departments, and not others.

These issues are visible in the Hospital B data. The hospital underwent leadership restructuring in April of the calendar year for which administrative data are reported and in which the EES was conducted. This is the reason for missing HR data for some of the departments. It also explains why some administrative reporting units for the HR metrics do not correspond with the departmental grouping used in the EES.

Other extraneous factors can influence the comparison of EES data and certain HR metrics. The comparison is based on the assumption that both sets of data measure features of the workplace and workforce that management can influence. However, at least one of the HR metrics – turnover (i.e., voluntary resignations) – is affected by a range of personal and contextual factors. These include an employee's family situation, local labour market conditions, the overall demand for their particular skills, their relationships with team members, and their social networks (an important source of information about new employment opportunities). These factors account for a person's degree of "job embeddedness," which can have an even greater influence on their decision to quit than their level of engagement.[10] For example, the local labour market for healthcare professionals will provide far more opportunities in large cities than in small communities. Hospitals need to consider these local contextual factors when interpreting their turnover data in specific departments or specialties.

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The comparative methodology

The EES data for all three hospitals were good quality and, on their own, suitable for detailed analysis. However, attempting to link EES and HR data introduces new complexities as noted above. Where possible, we have attempted to address these challenges. Because this project is a first-time attempt to link EES and HR administrative data, we took it one step at a time, beginning with an investigation of HR metrics in departments scoring highest and lowest on the Engagement Scale. Note that for all of the EES – HR metrics comparisons reported below, we use the mean Engagement Scores at the department level for the six-item engagement scale described earlier (the scale scores range from 5 to 29). Hospital C is used to illustrate this because of the three hospitals in the study, both its EES and HR data are best suited for comparative analysis.

Examining Hospital C departments with the lowest and highest engagement

A preliminary step in our analysis of Hospital C was to compare the highest and lowest engagement departments, based on rank-ordered mean engagement scores (see Figure 6). For hospital leaders, this is a useful exercise because it focuses attention on high-performing units that can provide lessons for the rest of the organization, and at the same time identifies those units requiring remedial interventions to improve a range of outcomes for both staff and patients/clients.

Figure 6: Hospital C department categories by engagement scores			
DEPARTMENT CATEGORIES	**Mean Engagement Score**	**n**	**Std. Deviation**
Department 9	23.3729	59	4.49865
Department 5	23.3505	97	3.82438
Department 15	22.3582	67	4.39939
Department 14	22.0678	59	4.88440
Department 10	21.9140	93	4.73345
Department 12	21.8542	48	4.19721
Department 4	21.7451	51	5.00337
Department 1	21.4624	93	4.91351
Department 6	21.3654	52	5.19815
Total	*21.1916*	*1117*	*5.01834*
Department 3	20.8718	78	4.13210
Department 8	20.5741	54	6.12635
Department 16	20.1032	126	4.85276
Department 7	19.9000	50	5.36903
Department 11	19.5529	85	5.23383
Department 13	19.0513	39	5.95575
Department 2	18.8615	65	5.31765

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Figure 7: Comparison of Hospital C departments with lowest and highest engagement scores on key HR metrics

METRICS	4 lowest engagement departments						4 highest engagement departments				
	Department 2	Department 7	Department 11	Department 13	Low engagement means		Department 5	Department 9	Department 14	Department 15	High engagement means
Management Span of Control	28.00	42.67	48.75	141.00	65.10		6.90	14.14	58.50	36.25	28.95
Voluntary Separation Rate (%)	7.14	3.91	5.13	4.26	5.11		8.28	2.02	2.56	4.14	4.25
Full-time resignation rate (%)	6.59	4.05	0	0	5.32		7.38	0	3.28	5.81	5.64
Learning & Development Hours per FTE	4.47	3.85	3.58	7.12	4.76		4.09	1.75	0.62	5.13	2.90
Full-Time Sick Days per Employee (Headcount)	8.16	15.34	14.19	12.59	12.57		4.77	6.97	11.25	12.27	8.81
Part-Time Sick Days per Employee (Headcount)	0.92	2.60	4.31	3.15	2.75		1.65	7.16	1.29	4.78	3.72
Overtime Hours per FTE	12.34	71.34	0.00	1.99	21.42		11.17	0.00	37.01	36.67	21.21
ENGAGEMENT SCORES (out of 29)*	18.86	19.9	19.55	19.05	19.34		23.35	23.37	22.07	22.36	22.79
Percent High Engagement (%)	30.8	30	30.6	30.8	30.5		64.6	61	54.2	53.7	58.4
Total EES Response Numbers	66	52	88	43	62		101	63	62	73	75
Total Headcount	140	128	195	141	151		145	99	117	145	127
EES Response Rate (%)	47.1	40.6	45.1	30.5	40.9		69.7	63.6	53.0	50.3	59.2

*An explanation of the 29-point engagement score is provided on page 7.

There are several important observations we can make about the Hospital C departments included in the lowest and highest engagement groupings (see Figure 7):

- The four lowest engagement departments are clinical units providing direct patient care. This contrasts with the four high-engagement departments, three of which provide internal support services.
- Response rates in the low-engagement group are considerably lower than in the high-engagement group (41% vs. 59%).
- Average head count is slightly higher among low-engagement departments.
- The differences in engagement scores between the low and high engagement groups are clearly reflected in the percentage of EES participants in each group that can be classified as "high-engagement", using the three-category engagement typology. In fact, the high-engagement departments have almost double the proportion of highly engaged employees (58% vs. 31%).

Looking specifically at HR metrics, these high and low engagement department groupings are further distinguished in the following ways:

- The management span of control in the low-engagement group is more than double that in the high-engagement group (65 direct reports vs. 29).
- Because we have maximized the differences between the low and high engagement comparison groups, we can clearly see that high-engagement departments have lower voluntary separation and full-time employee absenteeism. This is an important finding, given the impact turnover and absenteeism has on costs and performance.
- Learning and development hours per full-time equivalent (FTE) are slightly higher in the low-engagement group (4.7 vs. 2.9). This suggests that learning and development opportunities have no direct positive association with employee engagement. This may reflect the occupational composition of some of the low-engagement departments (e.g., nurses whose profession requires them to take regular training may nonetheless be disengaged).
- Sick days among part-time employees are slightly higher in the high-engagement group (3.7 vs. 2.7). There is no obvious explanation for this, other than the possibility that high-engagement departments more accurately track part-time employees' absences.
- Overtime does not vary across these two groups. One reason for this is the wide variation within the departments' overtime use, reflecting the unique functions performed by different departments (e.g., food services can plan its work load in advance, resulting in zero use of overtime, while emergency relies on overtime to meet the unpredictable demands on its services).

Hospitals considering conducting similar research should contact their employee engagement survey vendor to see if this type of analysis is possible. For tips on making linkages between employee engagement and key organizational metrics, please refer to Appendix 3.

Focusing on Full-time employees

In light of the above findings, we narrowed the focus to only full-time employees, using two of the HR metrics: average sick days for full-time employees and the resignation rate for full-time employees. The findings regarding sick days, above, confirmed its importance as an engagement-related HR outcome. And while high and low engagement departments differ in their voluntary turnover rates, we determined that focusing on full-time employees would offer a more accurate assessment of the relationship between engagement and resignations and sick days. The unexpected finding related to management span of control also was included in this next step of the analysis. However, it is important to emphasize that span of control is a possible influence on engagement levels within departments, rather than an "outcome."

Figure 8, below, reports correlations between engagement scores and the three HR metrics for Hospital A, Hospital B, and Hospital C. All data were combined in Excel worksheets and correlation coefficients calculated for the relevant indicators (using the CORREL function in the AutoSum menu).

How Engagement Scores correlate with HR metrics

Among full-time Hospital C employees who responded to the EES, there is a correlation of -.45 between engagement scores and sick days, which is moderately strong and in the predicted direction (see Appendix 2). That is, higher engagement is associated with fewer sick days. The engagement-resignation correlation for full-time employees is very weak and not in the predicted direction (-.03). This is perhaps not surprising, given all the other influences on decisions to quit, in addition to the smaller numbers we are now working with.

The engagement-span of control correlation is fairly strong (-.68) meaning that lower spans of control are related with higher engagement among full-time survey respondents. This is an interesting finding, although it does not reveal how span of control and engagement are related. For example, further analysis of the EES findings may shed light on whether the quality of supervision is affected by span of control.

Key Human Capital Metrics Defined

Sick Days per Full-Time Employee:
Full-Time Employee Sick Days/Full-Time Headcount
The total number of workdays core full-time employees are not on-the-job due to illness during the survey period (used to calculate the average per employee).
1. Add the total number of workdays core Full-Time employees are not on the job due to illness during the survey period. Include all workdays regardless of whether the employee was paid for the absence.
2. Include employees on short-term disability.
3. Exclude employees on employment insurance, long-term disability, family medical leave, compassionate care leave, bereavement days and other various temporary paid leave of absence programs. Also exclude paid time off such as vacation days, personal days, floating holidays, holidays, secondments, and military service.
4. Do not count calendar days, just workdays.

Full-Time Resignation Rate:
Full-Time Resignations/Full-Time Headcount
The number of full-time core employees who resigned from the organization during the survey period (used to calculate a resignation rate).
1. Add the number of full-time core employees who resigned from the organization during the survey period.
2. Do not include retirements.
3. Do not include voluntary exit option staff departures (i.e., with layoffs being the next step if voluntary exits were not accepted) in your resignation count.

Manager Span of Control:
Headcount/Manager Headcount
The average number of manager core employees in the organization during the survey period. Managers are defined as all core employees classified as Supervisor, Manager, etc., provided they are not in the top two tiers of your organization (i.e., the CEO and his/her direct reports). For smaller organizations who may have many roles reporting to the CEO, you should consider only those roles considered to be part of the top Executive / Management team, and the remaining roles as part of Manager headcount.
1. Add the total number of Manager core employees who have direct reports as of the beginning and as of the end of the survey period.
2. Exclude the top two tiers of your organization's Canadian operations (i.e., the CEO, and the next level of reports).
3. Exclude project managers.
4. Divide by two for an annual average headcount.

Figure 8: Correlations* between full-time employee engagement and key human capital metrics			
Human Capital Metric	Hospital A	Hospital B	Hospital C
Full-time resignations	1.0	0.01	- 0.03
Sick days per full-time employee	- 0.79	0.09	- 0.45
Management span of control	- 0.36	0.1	- 0.68
*Correlation coefficients range from +/- 1 to 0. Zero means there is no relationship between the two variables, 1 means there is a perfect correlation, so that if one increases (or decreases, if the correlation is negative) so does the other.			

The engagement-HR metrics correlations for Hospital B are more difficult to interpret. All of the correlations are very weak, suggesting there is no obvious relationship between engagement scores and each of the three human capital metrics. However, the reasons for this may have more to do with the data we are using for these comparisons than the actual influence of employee engagement on HR metrics. For example, the use of a sample survey for the EES results in fewer full-time employee engagement scores for each department and, furthermore, we do not have department information for 638 EES respondents. For these reasons, the EES-based estimates of department engagement levels may not be accurate.

The Hospital A correlations also need to be viewed with some caution, but for different reasons (also see Appendix 1). As already noted, this small hospital has only three departments for which data can be reported (the fourth department has too few respondents, so data are suppressed to protect confidentiality). Because of the small numbers of employees and departments involved, correlations can be influenced by very slight differences. For example, the reason there appears to be a perfect positive correlation (i.e., as engagement levels rise so does the full-time resignation rate) is that the department with lower engagement score had zero resignation, compared with one resignation in a second department and two in a third, both of which had higher and almost identical engagement scores. So this finding is a statistical anomaly and highlights the difficulty of conducting this type of analysis with small numbers of employees. The other correlations at Hospital A, for sick days per full-time employee and management span of control, are moderate to strong and in the predicted direction. In these respects, Hospital A's findings mirror those at Hospital C.

Conclusion

This project is an exploratory look at the relationships between employee engagement and key organizational metrics. It has been a learning experience for all involved. We have succeeded in developing a methodology for accurately comparing EES engagement data with human capital metrics from hospital administrative data. We also have been able to identify three human capital metrics – the full-time employee resignation rate, average sick days per full-time employee, and management span of control – which appear to be related to employee engagement levels at the department level. This research will provide HR leaders with support to build the case for making investments in employee engagement. It appears that there are real costs associated with higher absence and resignation rates when engagement is low. And finally, we also have been able to identify a number of technical issues that, in future, hospitals can take into account when collecting and comparing EES and HR data.

Moving forward, the following points should be considered by hospitals as they plan further steps to better understanding how employee engagement is connected to organizational performance:

- Hospitals can more fully mine their EES data to understand the relationship between engagement levels at the department level and important individual and organizational outcomes. This work could be usefully done on a collaborative basis, involving several hospitals. As the EES is repeated in future years, it also will be important to track how engagement and these other outcomes change over time.
- Small hospitals could benefit from a common, collaborative approach to linking EES and HR metrics. The OHA's small hospital peer group would be the ideal network for pursuing this work. It may require the use of common metrics and department classifications, issues that would need to be worked out by participating hospitals. Also useful would be benchmarking these metrics across the small hospitals, which would complement department-level comparisons.
- While hospitals require a range of HR metrics, for the purposes of understanding the influences of engagement it is clear that focusing on full-time employees and just a few metrics – particularly resignations and sick days – may be the most useful approach.
- The somewhat unexpected finding regarding management span of control requires further discussion since it could be an organizational influence on engagement levels that can be addressed by hospital workforce plans.
- Hospitals should take into account the influence of contextual factors on HR metrics and engagement levels. Organizational change can influence these measures and complicate reporting data at the department level. Ideally, linkage analysis should be conducted during a relatively stable period. Another contextual factor is the local labour market, which may affect resignation rates. So this too needs to be considered when interpreting correlations between engagement and retention.
- Hospitals should strive for high department-level response rates with a minimum target of 50%.
- Hospitals attempting the data linkage presented in this report must coordinate the dates of when the EES is conducted with HR metrics. Ideally, survey data should be collected toward the end of the 12 month reporting period for the HR metrics.

Hospitals considering conducting similar research should contact their employee engagement survey vendor to see if this type of analysis is possible. For tips on making linkages between employee engagement and key organizational metrics, please refer to Appendix 3.

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Definitions from the OHA-PwC Saratoga HR Benchmarking Survey were utilized for collecting the HR metrics.

Appendix 1: Hospital A, engagement scores and selected HR metrics for full-time employees, by department

JANUARY 1, 2010 TO DECEMBER 31, 2010	Department 1	Department 2	Department 3	Department 4 *
Full-Time Equivalent (FTE) Count	28.82	29.34	53.34	6
Full-Time Headcount	21	17	49	6
Full-Time Resignations	1	0	2	
Full-Time Resignation Rate (%)	4.76	0	4.08	
Full-Time Employee Sick Days	223.46	244.00	363.29	
Full-Time Sick Days per Employee (by Headcount)	10.64	14.35	7.41	
Management Span of Control	5.14	25	35.25	
ENGAGEMENT SCORES - Full-time EES respondents only	24.11	19.00	23.13	
1. Full-time EES Responses (including only those who answered engagement items)	18	9	30	5
2. Total EES Responses	24	20	61	6
3. Total Headcount	36	37.5	70.5	6
4. Response Rate based on Totals (2 & 3, above)	67%	53%	87%	100%
* Data suppressed to protect confidentiality due to small number of respondents.				

Appendix 2: Hospital C, engagement scores and selected HR metrics for full-time employees, by department

JANUARY 1, 2011 TO DECEMBER 31, 2011	Department 1	Department 2	Department 3	Department 4	Department 5	Department 6	Department 7	Department 8	Department 9	Department 10	Department 11	Department 12	Department 13	Department 14	Department 15	Department 16
Full-Time Equivalent (FTE) Count	189.25	112.65	113.84	86.82	135.13	119.68	94.44	101.24	72.99	100.14	143.1	66.44	110.12	76.83	115.32	246.86
Full-Time Headcount	126	91	72	62	122	100	74	79	31	84	106	50	64	61	86	188
Full-Time Resignations	1	6	0	1	9	7	3	0		1				2	5	4
Full-Time Resignation Rate (%)	0.79	6.59	0.00	1.61	7.38	7.00	4.05	0.00		1.19				3.28	5.81	2.13
Full-Time Employee Sick Days	1115	743	977	721	582	1167	1135	673	216	612	1504	538	806	686	1055	2919
Full-Time Sick Days per Employee (Headcount)	8.85	8.16	13.57	11.63	4.77	11.67	15.34	8.52	6.97	7.29	14.19	10.76	12.59	11.25	12.27	15.53
Management Span of Control	34.71	28.00	61.67	50.50	6.90	41.25	42.67	23.00	14.14	33.25	48.75	32.00	141.00	58.50	36.25	44.71
ENGAGEMENT SCORES - Full-time EES respondents only	21.45	18.74	21.29	21.50	23.42	20.89	21.06	21.21	23.79	21.44	20.13	21.65	17.96	21.72	22.19	20.10
1. Full-time EES Responses (including only those who answered engagement items)	55	50	45	34	84	38	36	43	24	75	54	34	23	32	48	80
2. Total EES Responses	108	66	84	55	101	53	52	57	63	95	88	52	43	62	73	133
3. Total Headcount	243	140	185	101	145	165	128	115	99	133	195	96	141	117	145	313
4. Response Rate based on Totals (2 & 3, above)	44.4%	47.1%	45.4%	54.5%	69.7%	32.1%	40.6%	49.6%	63.6%	71.4%	45.1%	54.2%	30.5%	53.0%	50.3%	42.5%

Appendix 3: Tips to Making Linkages Between Employee Engagement and Key Organization Metrics

1. Before beginning analysis, consider the following:
    a. An organization-wide response rate of at least 50% is recommended for the employee experience/ engagement survey. The survey should be a 'census' of all employees, not a sample.
    b. Submit appropriate department identification for your employee population to your survey provider. Departments should be no smaller than 25 continuing employees (i.e., employees who would be included in your HR metrics) and should have a response rate of at least 40% (i.e., 10 completed surveys). Survey results and HR metrics for fewer than 10 employees should not be reported to protect confidentiality.
    c. Accurate HR metrics available over the same time period that your employee experience/ engagement survey was conducted.
2. Determine with your survey vendor the employee engagement measure that you will use in your analysis (e.g. % high engagement per department or average departmental engagement score). Average scores on multi-item engagement scales is the recommended measure.
3. For departments with employee experience/ engagement survey responses less than 10 people, consolidate like departments.
4. Obtain employee experience/ engagement survey levels/ scores by department from your survey vendor.
5. Identify the key HR metrics that your organization will use. If the HR metrics are for full-time employees (e.g. full-time resignation rate, full-time sick days, etc.), you will need to use engagement scores for full-time survey respondents only.
6. Collect data for the key HR metrics identified by department over the same time period that your employee experience/ engagement survey was conducted. If your survey was conducted in Q1 of a calendar year, use the pervious calendar year's HR metrics. Otherwise, use HR metrics from the year in which the survey was conducted.
7. Identify three or four departments with the highest engagement levels/ -scores and three or four departments with the lowest engagement levels/ scores. Compare survey response rates, engagement scores and key HR metrics in each of the two groups. Try to identify lessons to share across the organization from the high-engagement departments (how do they achieve this?), and work with managers in low-engagement departments to design appropriate interventions to improve engagement.
8. Using all departments which meet above data reporting criteria, calculate correlations between department-level engagement scores and each of the key HR metrics. Combine data in Excel worksheets and calculate correlation coefficients for the relevant indicators (In Excel, under the Formulas tab, using the AutoSum menu, there is a list of different mathematical functions available. Select CORREL which returns the correlation coefficient between two data sets.)

9. If the above analysis is helpful to your organization, repeat the analysis with the most important HR metrics when data from your next employee survey are available. This is how you can track changes over time, looking for positive trends in engagement and HR outcomes.

[1] Lowe, G. (2012). How employee engagement matters for hospital performance. *Healthcare Quarterly* 15 (2):29-39.

[2] Gibbons, J. & Schutt, R. (2010). *A Global Barometer for Measuring Employee Engagement.* Research Working Group Report 1460-09-RR. New York: Conference Board. Also see: Macey, W. H. & Schneider, B. (2008). The meaning of employee engagement. *Industrial and Organizational Psychology*, 3–30; Harter, J. K., Hayes, T. L., & Schmidt, F. L. (2002). Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis. *Journal of Applied Psychology*, 87, 268–79.

[3] Lowe, G. (2012). How employee engagement matters for hospital performance. *Healthcare Quarterly* 15 (2):29-39.

[4] Factor loadings for the 6 items range between .77 and .89 (i.e., these items measure the same underlying concept – engagement) and the Cronbach's reliability alpha is .92. The engagement scale has a range of 6 to 29 (5 items are measured on 5-point 'disagree-agree' scales, and one item is measured using a 4-point scale), a mean of 20.4, and a standard deviation of 5.2.

[5] Tested using Cronbach's alpha, a statistic that has a range of 0 to 1, with closer to 1 being better.

[6] Lowe, G. (2012). How employee engagement matters for hospital performance. *Healthcare Quarterly* 15 (2):29-39.

[7] 33% (n=3,323) of all respondents are in the low category, 39% (n=3,958) are in the medium and 29% (n=2,925) in the high engagement categories.

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