

## **Does Management Matter in Healthcare?**

Nicholas Bloom

Centre for Economic Performance, NBER and Stanford

Raffaella Sadun

Centre for Economic Performance, NBER and Harvard

John Van Reenen

Centre for Economic Performance, NBER and LSE

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### **Abstract**

We collect comparable data on core management practices in 1,700 hospitals across 8 countries (Canada, France, Germany, India, Italy, Sweden, UK and US). In all countries where we have data, management quality is strongly correlated with better financial and clinical outcomes, such as heart attack survival rates. Exploiting within-country variation, we show that hospitals with more clinically trained managers, that are larger and that are non-government owned appear to have significantly higher management scores. Unlike other sectors such as manufacturing, almost half of the variation in management scores is between country rather than within country. We speculate that the higher management scores in leading countries (like the US and UK) are due to relatively politically independent appointment of hospital leaders and stronger accountability mechanisms.

**Keywords:** Management, healthcare, hospitals

**JEL Classification:** M1, I1

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## 1 Introduction

For decades, healthcare systems have been under severe pressure all over the world due to an aging population, rising costs of medical technologies and increased demand as countries grow richer. In the US, for example, healthcare now absorbs 18% of GDP. In the wave of the Great Recession austerity programs have intensified pressures to arrest the growth of health spending since a large fraction is taxpayer funded.

An attractive way to tackle these problems is through improving hospital productivity. There is evidence of enormous variations in efficiency levels across different hospitals and healthcare systems. For example, the “Dartmouth studies” (<http://www.dartmouthatlas.org/>) showing substantial variation in healthcare costs have received wide publicity, for example, and have influenced the Affordable Care Act.<sup>1</sup> Some commentators have focused on technologies such as IT as a key reason for such differences, but others have focused on management practices such as checklists. In this paper we follow the latter approach and seek to measure management practices across hospitals in the US and 7 other nations using a tool originally developed by Bloom and Van Reenen (2007) for the manufacturing sector. The underlying concepts of the tool are fairly general and provide a metric to measure the adoption of best practices over operations, monitoring, targets and people management.

We show that there is considerable variation in management between and within countries. The US obtains the highest management score and India the lowest. Exploiting the within country variation in the data we show that: (i) hospital level management scores are strongly correlated with hospital performance outcomes such as heart attack survival rates in all countries where we have data; and (ii) there are key features of hospitals that are associated with better management quality. First, both in the cross section and in a panel of UK providers, hospitals with a greater fraction of managers who are clinically trained obtain higher scores. Second, larger hospitals have higher scores than smaller ones. Third, government owned hospitals have significantly

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<sup>1</sup> For example, annual Medicare spending per capita ranges from \$6,264 to \$15,571 across geographic areas (Skinner, Gottlieb, and Carmichael 2011), yet health outcomes do not positively covary with these spending differentials (e.g. Fisher et al 2003a, 2003b; Baicker and Chandra, 2004; Chandra, Staiger, Skinner, 2010; Skinner 2011).

lower management scores than private hospitals (both for-profit and not-for-profit). Fourth, greater competition is associated with better management. The correlation between these four factors – skills, scale, competition and state ownership – and management is congruent with what is found outside healthcare, such as manufacturing, retail and schools. In the final section of the paper, we show that *unlike* manufacturing or retail, but similarly to schools, almost half of the variation in our management data is between countries rather than within countries. We discuss institutional factors that could cause this pattern and suggest that it is linked to greater accountability (e.g. from the publication of data) and the independent appointment of hospital leaders.

Our paper relates to several literatures. First, there is the large literature in health and economics that seeks to understand the determinants of improved medical care. Second, there is the literature on productivity differences between organizations in general summarized in Syverson (2011) and hospitals in particular. Chandra et al (2013) is closely related to our work showing large variations in “hospital TFP” just as there is in other sectors suggesting that healthcare is not so exceptional as might be thought. On one level this is a puzzle as imperfect competition, asymmetric information (e.g. between patients and physicians), government regulations over insurance and so on are thought to make health fundamentally different from other sectors (Arrow, 1963; Cutler, 2010, Skinner, 2011). But both Chandra et al (2013) and our work imply that these problems of incentives and information may be common. Finally, this paper is related to the ongoing work on measuring management practices across countries and sectors (e.g. Bloom et al, 2013).

The structure of the paper is as follows. In section 2 we provide an overview of the methodology used to collect the management data. Section 3 describes the basic summary statistics emerging from the data. Section 4 looks at the correlation between management and AMI mortality rates and other hospital outcomes. Section 5 examines the correlation between management and hospital specific characteristics (size, skills, ownership and exposure to competition) controlling for country fixed effects. Section 6 provides some possible explanations behind the differences in hospital management across countries. Section 7 concludes.

## 2. Methodology

### *Measuring Management Practices*

To measure management practices in hospitals, we adapted a survey methodology described in Bloom and Van Reenen (2007), previously employed in the manufacturing, retail and education sectors. Our interview-based evaluation tool defines and scores a set of 20 basic management practices on a grid from one (“worst practice”) to five (“best practice”). A high score represents a best practice in the sense that a hospital that adopts the practice will, on average, improve hospital efficiency and quality of care outcomes. Our main measure of management practices represents the average of these 20 scores<sup>2</sup> In the regressions we standardize the questions by z-scoring each individual question, take the unweighted average and then z-score this average. This management index has a standard deviation of one and mean of zero, thus enabling us to interpret regression coefficients more easily.

To ensure comparability across sectors, we retained most of the questions included in our previous studies of private sector firms, with obvious modifications due to the different organizational context (the full list of questions can be found in Appendix A). This evaluation tool can be interpreted as attempting to measure management practices in four broad areas: operations (5 questions), monitoring (3 questions), targets (5 questions) and human resource management (7 questions).

### *Obtaining Interviews with Hospital Managers*

We used a variety of procedures to obtain a high response rate and to remove potential sources of bias from our estimates. First, we monitored interviewers’ performance in contacting hospitals and scheduling interviews. The interviewers were encouraged to be persistent, that is, they run on average two interviews a day lasting approximately 65 minutes each and spend the remainder of their time repeatedly contacting hospital leaders to schedule interviews. Second, we presented the study as a “piece of work” (never using the word “survey” or “research”) and the interview as a confidential conversation about management experiences. Third, we never asked hospital

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<sup>2</sup> Sixteen of these basic practices are considered to be relevant and applicable across all industries previously surveyed while the remaining four are specific to the management of hospitals.

managers about the hospital's overall performance during the interview. Instead, we obtained such data from other sources (data and sources described in Appendix B). Fourth, we always sent informational letters, and, if necessary, copies of country endorsements letters as well.

### *Collecting Accurate Responses*

To ensure the collection of accurate responses, we hired MBA and PhD students with some business experience and training to conduct the interviews. Our interviewees were clinical service leads in hospitals that due to their leading position and active role in the management team, have an overview of the hospital's overall management practices without being detached from its day-to-day operations.

During the interview itself, we used a double-blind technique by:

- 1) Conducting a telephone survey without informing the hospital managers that their answers would be evaluated against a scoring grid and thus, gathering information about actual management practices (as opposed to the hospital manager's aspirations and perceptions or the interviewer's impressions).
  
- 2) Not informing the interviewers about the hospital's performance. Interviewers are only provided with the hospital's name and telephone number. We randomly sampled hospitals that offered acute care and had at least fifty employees, that is, these hospitals are large enough that the type of systematic management practices chosen are likely to matter; however, they are small enough so the interviewers generally have not heard of them before and, therefore, have no preconceptions about the hospital's performance.

We also followed several other steps to guarantee the quality of the data such as:

- 3) Asking open-ended questions until an accurate assessment of the actual management practices could be made, for example, on the first performance monitoring dimension we start by asking the open question "What kind of main indicators do you use to track hospital performance? What sources of information are used to inform this tracking?", rather than closed questions such as

“Do you use indicators for hospital performance tracking?” which may lead to a yes/no answer. The second question on the performance monitoring dimension is “how frequently are these measured? Who gets to see this data?” and the third is “If I were to walk through your hospital what could I tell about how you are doing against your indicators?” The combined responses to this dimension are scored against a grid which goes from 1 which is defined as “*Measures tracked do not indicate directly if overall objectives are being met. Tracking is an ad-hoc process (certain processes aren’t tracked at all).*” up to 5 which is defined as “*Performance is continuously tracked and communicated, both formally and informally, to all staff using a range of visual management tools.*” During their training session, the interviewers are also encouraged to ask follow-up questions beyond the ones we give them as guides, whenever necessary.

4) Ensuring that each interviewer conducted a minimum amount of interviews in order to correct any inconsistent interpretation of responses.

5) Double-scoring, i.e. having another interviewer silently listening and scoring the responses provided during the interview to be discussed with the primary interviewer.

6) Collecting a series of noise controls on the interview process itself (such as the time of day and the day of the week), characteristics of the interviewee and the identity of the interviewer. We include these controls in the regression analysis to help improve the precision of our estimates by reducing some of the measurement error.

Appendix A contains more details of the data and methodology. Table 1 presents some characteristics of the hospital sample. As can be seen there are certainly differences in the characteristics of hospitals across countries. For example, French hospitals tend to be much larger than Canadian hospitals (they employ about 752 people on average compared to 139). However, we found no evidence that these differences were due to non-random sample biases in the response rates of hospitals in different countries. The hospital characteristics look different because the healthcare systems of different nations are different, and our sample reflects this.

### 3. How does management vary across and within countries?

We begin by describing some of the variation in the management data. Figure 1 presents the cross-country averages of the unweighted average of management scores across all questions. The average management scores vary widely across countries with the US at the top, then the UK, then two Northern EU countries (Sweden and Germany). India has the lowest score. The rankings remain unchanged when controlling for size, specialty and interview “noise”, although the scores bunch some more.

Given that the US outspends all the other nations in healthcare, it is unsurprising it tops the list. By the same token, finding the lowest score in India, the poorest country in our sample might be expected. The US obtains the highest management scores and India the lowest in manufacturing as well (Bloom, Sadun and Van Reenen, 2013).

The management ranking differs from some other health system rankings by international organizations as we are measuring only one aspect of healthcare (secondary care) and within hospitals only one input into overall performance (management). We do not, for example, measure cost, life expectancy, equity or access to care.<sup>3</sup> Furthermore, one advantage of our management scores is that the survey is administered in a homogenous way across countries, whereas existing rankings are based on comparing administrative records or patients/experts perceptions across countries, which can often be difficult.

Interestingly 46% of the variation across hospitals is across countries and 54% across hospitals within country. The country specific component is greater than for manufacturing where only 13% of the variation is across countries and similar to schools where the comparable figure is 52%. This suggests that country specific institutions may be a very important factor in accounting for the overall heterogeneity in hospital and school management. We return to these

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<sup>3</sup> For example, a WHO (2000) ranking of health system effectiveness was based on five criteria including the overall level of population health; health inequalities within the population; overall level of health system responsiveness; distribution of responsiveness with the population; and the distribution of the health system’s financial burden within the population. More recently, Bloomberg (2013) ranked countries in terms of their health care systems efficiency used as weights life expectancy (60%); relative per capita cost of healthcare (30%); and absolute per capita cost of healthcare (10%).

issues in section 7, where we discuss some of the potential institutional factors behind the cross country variation in management.

In Figure 2 we break down the management index in two sub indices – operations (which includes all questions measuring management practices related to operations, monitoring and target settings) and people management (including questions related to the use of systematic appraisal systems and monetary and non-monetary incentives, as well as practices to attract valuable employees, address under-performance or, conversely, reward for superior performance). This shows that the variation across OECD countries is slightly more pronounced for people management than the other parts of the survey. In particular, the gap with the US in the people management metric is particularly evident for Canada, Italy and France. India, on the other hand, lags behind across all areas.

We can also benchmark the average country management scores for hospitals with those we found for other sectors, namely manufacturing and education (secondary high schools, see Bloom, Lemos, Sadun and Van Reenen, 2013 for details). Table 2 provides the average management scores for each sector using the 16 survey questions that are common across all sectors (see Appendix A for details). Columns 1, 2 and 3 report the raw scores, while columns 4 and 5 show the average hospital and school scores relative to that of manufacturing. Management scores in hospitals are 84% of the average country score in manufacturing, with the gap being largest in India (70%) and smallest in the UK (96%). In most countries the hospital sector looks on average better than schools (US, Italy and to a smaller extent Germany), but in others it is similar (UK, Sweden) or even worse (Canada).<sup>4</sup>

Looking beyond the average country scores, there is also substantial variation in the management score within countries, as shown in Figure 3. Very well-run and badly run hospitals co-exist in

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<sup>4</sup> In Table A1 we investigate this further by repeating the same type of comparison between hospital and manufacturing individually for each of the comparable questions in the survey. This shows that the management gap between hospitals and manufacturing is similar across questions: the largest discrepancy can be found in the questions related to promotions and firing of employees, but (75% and 78% of manufacturing respectively), but large gaps can be found also in questions measuring processes related to targets (whether they are interconnected over time, and whether the goals are stretched yet realistic). On the other hand, the discrepancy with manufacturing is relatively smaller for questions related to the reward of good performance (which can be monetary but, in this case, more typically non monetary), the presence of systematic processes to document failures and improve on them, and the focus on attracting talent and having a suitable employee value proposition.

all countries. The within country heterogeneity is substantial across all sectors as shown in Figure 4, where we plot the distribution of the management scores for hospitals, schools and manufacturing plants (focusing on the average of the 16 questions that are common across sectors). This shows that although within country heterogeneity exists, the whole distribution of scores in hospitals is clearly to the left of the manufacturing distribution across all countries except the US and the UK. The school distribution is also dominated by manufacturing, but its position in relation to hospitals varies by country.

Although comparing across sectors is difficult, it is tempting to speculate that the generally worse performance of schools and hospitals may be because these are dominated by public sector provision. We will find some suggestive evidence for this when we examine the within country variation in section 5.

#### **4. Do differences in management matter?**

Is this variation in the management score meaningful? To investigate this we examine the correlation of the hospital management scores with hospital outcomes.

A standard measure of clinical quality in health economics is death rates from hospital AMI admissions (acute myocardial infarction, commonly called heart attacks). AMI is a common emergency condition, recorded accurately and believed to be strongly influenced by the organization of hospital care (e.g. Kessler and McClellan, 2000, Propper and Van Reenen, 2010).

Table 3 contains regressions where the outcome is whether a patient died within 30 days of being admitted to a hospital with AMI. Case-mix adjusted AMI data is available for only half of the countries in our data (US, UK, Canada and Sweden). We standardize the dependent variable to be z-scored by country as is the management index, so these are conditional correlation coefficients. We include in all regressions country dummies to control for the different methods used to compute the mortality rates data, and include hospitals with at least 20 annual AMI discharges. The first column looks at the correlation between AMI rates and management,

including as additional control only the country dummies, while in column 2 we include a richer set of controls, such as hospital size (log number of employees), age, specialty, percentage of managers with a clinical degree, region (absorbing the country dummies), noise controls (interviewer dummies, the seniority and tenure of the manager who responded, the duration of the interview, and an indicator of the reliability of the information as coded by the interviewer, interviewee type). The results show that there is a statistically significant correlation between management and AMI mortality. Better management is associated with significantly lower death rates on average. The magnitudes are sizable in quantitative terms as well as statistically: a one standard deviation increase in management is associated with a quarter of a standard deviation lower mortality rates in column 2. Given a standard deviation of the AMI mortality rate of 1.78 for the US hospitals in our sample, this implies a reduction in death rates of .45 percentage points, or 3% of the mean (the average AMI mortality rate is 16%). The final four columns of Table 2 present results for each country separately. Reassuringly there is a negative relationship that is statistically significant at the 5% level or more in each of the four countries with the exception of the UK, where it is significant at the 10% level. The point estimate on the correlation is weakest in the US (0.21) and strongest in Canada (0.71).<sup>5</sup>

Table A2 breaks down the management score into different components and shows that all aspects of management seem to be important (e.g. both people and operations). Furthermore, using the 16 of the 20 questions that are identical in the manufacturing management survey also has a correlation of similar magnitude.

Table 3 only contains basic controls for case mix so a concern is that the well managed hospitals may screen out the more difficult patients with complex conditions that are more likely to die from AMI hence biasing the coefficient on management in Table 2 downwards. Fortunately, we can do better than this in the US and UK. Chandra et al (2013) use the US AMI data to construct a hospital “TFP” measure that is more robust to this concern. They use data on inputs to deal with the patient's specific AMI based on the Medicare cost-weighted procedures used to treat the

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<sup>5</sup> Although no hospital-level AMI is available in France, Gobillon and Milcent (2012) have generated data which ranks French regions in terms of their case-mix adjusted AMI mortality rates. A standard deviation increase in management is associated with an increase of 4.10 positions in the quality ranking (where higher positions imply lower AMI mortality rates), significant at the 10% level.

patient (e.g. patients with more severe heart attacks will have more invasive and expensive treatments). They find that our management scores are significantly correlated with this case-mix adjusted AMI measure (see Figure 5). Bloom, Propper, Seiler and Van Reenen (2013) use measures of case mix based on the demographic characteristics of AMI patients admitted to UK hospitals. They show that management is significantly correlated with AMI after these controls. Further, they show that the management scores are also correlated with other “good” hospital-level outcomes such as lower death rates from other surgical procedures, lower staff turnover rates, shorter lengths of stay and higher productivity. Finally, using the same survey questions and interview technique, McConnell et al. (2013) show the presence of a statistically significant relationship between management and lower 30-days risk adjusted AMI mortality rates using a sample of 597 cardiac units in the US.

Finally, financial performance also seems to be better when management scores are higher. In the US a one standard deviation increase in management is associated with a 9% increase in revenues per employee (significant at the 10% level), controlling for the same set of hospital and regional characteristics included in Table 2.

In summary, there is strong evidence that these hospital management scores are correlated with clinical and non-clinical hospital performance measures. This is only an association but it does indicate that there is some informational content to the management questions.

## **5. What drives differences within countries?**

In Table 4 we turn to examining what factors influence the adoption of management practices. The dependent variable is the management z-score and in all columns we control for region, hospital characteristics (hospital age, specialty) and noise.

Column (1) presents the size coefficient as measured by the  $\ln(\text{number of employees})$ . A doubling of hospital size is associated with a 0.15 increase in the standard deviation of the management index. The size-management correlation could reflect economies of scale in

management as it is likely that many of the formal management procedures we look at (like systematic appraisals, hiring and decisions, etc.) have a fixed cost element. However, it may also reflect a competitive reallocation force whereby better managed hospitals attract more patients and expand their size. Given that ability and incentives to expand are weaker in the hospital sector than less regulated private sector markets, it is likely that the scale economy explanation dominates.<sup>6</sup>

Column (2) of Table 4 includes a variable indicating the proportion of managers who have a clinical degree. This is positively and significantly correlated with better management. Moving from a hospital where no managers are clinically trained to one where all are clinically trained is associated with a 0.25 standard deviation increase in the management score. As noted in the data section, we have access to 40 hospitals which were surveyed both in 2006 and 2009 from the UK. There is also a positive association between the log change in the management score over these years and the log change in the proportion of managers who are clinically trained. The coefficient was 0.31 (standard error of 0.003)

The finding that having leaders who are trained in the same profession as the people they manage has also been found in other contexts. Goodall (2011) also finds that hospital CEOs who were medics are associated with better hospital outcomes than those who were not. Our result is consistent with this, except we are examining a larger cadre of senior managers than just the CEO. Similar results have been found in other sectors where expertise is very important.<sup>7</sup> The finding may be due to better communication when managers and workers are trained in the same profession. It could also be because information asymmetries are reduced which may reduce agency problems, such as physicians claiming a management practice cannot be implemented because it would “risk patients lives” when in fact it might just lead to closer monitoring of doctors (e.g. checklists over frequent hand washing and other surgical protocols).

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<sup>6</sup> Nor could we find systematic evidence that this managements-size correlation was stronger in more free market environments like the US compared to more heavily regulated countries like Canada.

<sup>7</sup> For example, Goodall (2009) finds that universities whose Deans are academics out-perform those whose leaders are non-academic professionals. Goodall et al (2011) and Bridgewater et al (2009) find similar results for basketball and soccer respectively.

Column (3) includes two ownership dummies: (i) whether a hospital is private for profit and (ii) if the hospital is non for profit. The omitted category is if the hospital is government run. Both dummies enter positively and significantly with similar coefficients indicating that management is significantly worse in government run hospitals. This is consistent with the descriptive findings between manufacturing (mainly private) and schools and hospitals (mainly public) discussed around Table 2 and Figure 4.

Column (4) includes a self-reported competition measure (number of rival hospitals). This is positively associated with improved management scores. This is consistent with a recent literature, which tends to find positive effects of competition on management (and therefore) productivity. Bloom et al (2013) find a similar result among UK hospitals in 2006 using various measures of competition and argue that the relationship is causal after using political marginality as an instrumental variable for competition.<sup>8</sup>

Column (5) includes all the covariates simultaneously and shows that their coefficients remain individually significant when they are included together, with the exception of the competition variable which turns insignificant. One concern with these results is that India is a much poorer country than the other OECD nations so we split the sample into OECD in column (6) and India in column (7). None of the results are driven by India, indeed the results in column (6) strengthen the qualitative findings of the previous columns (e.g. the competition measure was insignificant in column (6) but is now significant at the 5% level, due to the fact that competition appears to have no effect in India). The Indian results on scale and skills are the same as for the OECD, but the ownership dummies change. In India, government run hospitals have significantly higher management scores than other hospitals. This is because in India only 8% of our hospitals are government run and these are the best paid and most prestigious where top managers and physicians wish to work.

In summary, and bearing in mind the usual caveat that we cannot be sure of causality, we find that there are certain observable hospital characteristics consistently associated with better

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<sup>8</sup> In Britain as in many other countries, hospitals are rarely closed down in politically marginal districts. Hence, other things being equal, there tends to be more hospitals per head (and therefore more competition) in politically marginal areas.

management in the healthcare sector. Interestingly, many of these are exactly the same that have been found to be important for manufacturing – size, skills, public ownership and competition. Human capital is important, but in a more subtle way than manufacturing where simply the proportion of employees with college degrees seemed to be most important. Having more managers who are clinically trained appears to be a feature of the best run hospitals. This is interesting since many countries (like the UK) have moved in the opposite direction in recent years encouraging many CEOs who are professionally trained outside medicine to take leading roles. It suggests the MD/MBA may be a desirable qualification for hospital leaders.

## **6. What explains the variation in management across countries?**

As briefly discussed in section 3, the cross-country variation in the management data is larger in hospitals than it is for the manufacturing data (46% vs. 13%). This suggests that country specific characteristics may have a large role in determining the adoption of managerial best practices in hospitals. The limited number of countries in the sample prevents us from studying this question through a careful empirical investigation. We thus offer some qualitative reflections based on a broad overview of the structure of the health systems that appear in our sample.

First of all, it is worth noting that total expenditure in healthcare seems to explain little of the country variation we observe in the management data. For example, Sweden spends approximately 15% less than France in healthcare (as a % of gross domestic product), yet its management scores are on average 18% higher (Figure 1, using the averages with controls). The same is true of universal coverage offering, which is present in most of the countries in the sample except the US and India, either via National Health Systems (Canada, Italy and Sweden) or insurance schemes (France and Germany). Finally, countries are also similar in terms of the pervasiveness of not for profit governance structures (either public or private), which represents the majority of hospitals in all countries except India, where most of the hospitals are privately owned.

Countries in our sample, however, differ in two critical dimensions relating to the overall accountability and governance of hospitals, which we speculate might play an important role for the adoption of the management practices examined in this paper.

First, there are large differences in the extent to which hospital quality metrics (e.g. survival rates, infection rates, patient satisfaction etc.) are made visible to central authorities and patients, and are easily comparable across hospitals. RAND (2011) reports the existence of wide variations across countries in terms of a) type of metrics collected; b) ways in which these metrics are made available to the public; c) ways in which these metrics are used by public authorities. For example, in Germany, Sweden, US and UK, hospital level data on clinical processes, quality of care and patient satisfaction are widely available, fully comparable (less so in Germany since this is mostly provided as individual reports), and may have funding implications (for example, in the UK). In contrast, countries such as Canada and France provide a much smaller set of hospital level metrics (e.g. in France the data relates to capacity, adherence to protocols, but no mortality rates), which have limited implications for funding. In Italy hospital level data of this type does not even exist, with few regional exceptions, such as Tuscany. The presence of comparable performance indicators may be a potentially important driver of hospital management via their effects on demand (patients) or supply (pressures on executives). For example, Hollenbeak et al. (2008) showed evidence of differential improvement in treatments that were subject to intensive public reporting relative to those with limited or no public reporting.<sup>9</sup>

Second, countries differ widely in terms of governance, and more specifically the factors influencing the appointment of hospital CEOs. In France and Italy local politicians are in charge of the appointment of the CEOs (local mayor in France and by the head of the regional government in Italy) of public hospitals, which represent the vast majority of acute care providers (see Table 1). This introduces a channel through which local political cycles may interfere with the day by day management of hospitals and the selection of the managerial talent at the head of these organizations. For example, Clark and Milcent (2010) show that hospitals in regions led by

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<sup>9</sup> Hibbard et al. (2005) show evidence improvements in procedures tracked by the Hospital Compare dataset in the US. Reporting may however also be associated with gaming.

left-wing politicians tend to be larger and to grow relatively more than comparable private not for profit hospitals in election years, especially in contested areas. In Italy there is evidence that regional electoral cycles have a direct effect on turnover of hospital managers, irrespective of their prior performance (Ballardini and Fabbri, 2012). In contrast, in countries such as the US and Germany political influence on CEO nominations is weakened by the higher prevalence of private owned hospitals, whose employees are not directly employed by the government. Sweden and the UK are interesting examples since they combine almost exclusive public ownership of hospitals with limited political influence on CEO nominations. In Sweden this is achieved through an extreme purchaser/provider split, with 20% of public hospitals run by private organizations. (e.g. Capio – a private equity backed healthcare organization – successfully runs Stockholm’s largest hospital). In the UK NHS, the governance of hospitals is primarily managed through local hospital boards, which are largely made of non political appointees. Non-executive directors of the board formally appoint CEOs, and their decision has to be approved by the board of governors, who can also veto the appointment.

Since these institutional features are for the most part country specific, empirically disentangling the importance of these factors from other unobservable country characteristics is far from trivial. For example, the presence of accessible and comparable metrics may proxy for other initiatives aimed at improving quality of care correlated with the provision of publicly accessible metrics. Nevertheless, looking into the effects of information and governance on hospital management exploiting within country institutional variation or experimental settings is a promising area for further research.

## **7. Conclusions**

Healthcare is a large and growing fraction of the national income of nations over the world. As a consequence there is an enormous interest in improving healthcare productivity. Our paper suggests that management practices may be one factor in causing the enormous heterogeneity in hospital productivity and improved management, therefore, could play a part in alleviating the pressure on healthcare systems.

We develop a survey for measuring some core hospital management practices over operations, monitoring, targets and incentives that has been used successfully in other sectors of the economy. This is then implemented through interviews of 1,700 hospitals in the US and 7 other countries. We uncover huge variations in our measures of management quality within and between countries. Management scores are informative as they are significantly correlated with performance measures such as survival rates from heart attacks.

Although we have no compelling way to establish causality, our econometric results show that there are systematic features of hospitals that are robustly correlated with improved management. Hospitals that are larger, who face greater competition and who not owned by the government are significantly better managed. Interestingly, these are similar to what has been found in other sectors like manufacturing suggesting common factors in the economy may be driving management and productivity. One novel finding (in cross section and panel) is that hospitals with a greater fraction of clinically trained managers seem to have better overall management practices which could be due to reducing information asymmetries within hospitals. Finally, we found that almost half of the variation in management scores is between countries rather than within countries (46% was between countries as opposed to 13% in manufacturing). We speculate that the key institutional differences explaining this relate to the appointment of hospital leaders (i.e. whether politically independent or not) and accountability structures.

There is a great deal of work to do in the future understanding the underlying drivers of better management and what policy levers can be pulled to improve productivity in the sector. We believe that, in a small way, these management measures may be a useful tool to analysts and practitioners in advancing this agenda.

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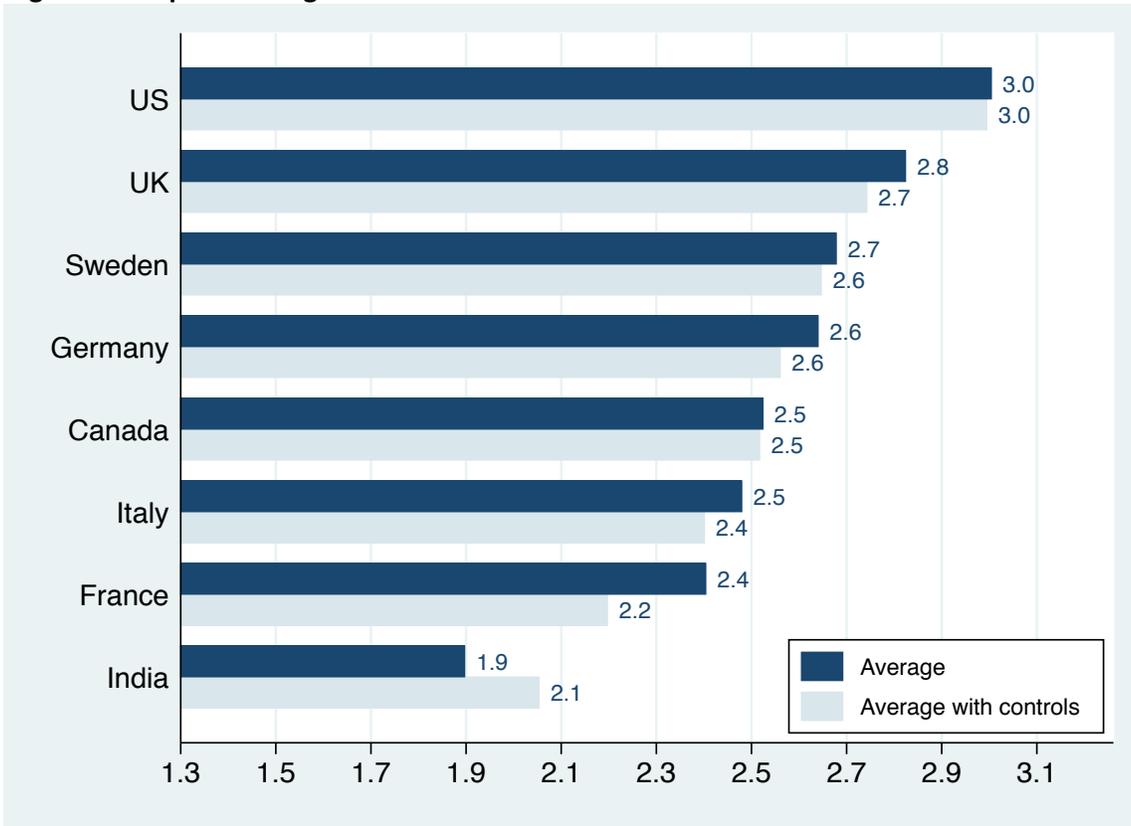
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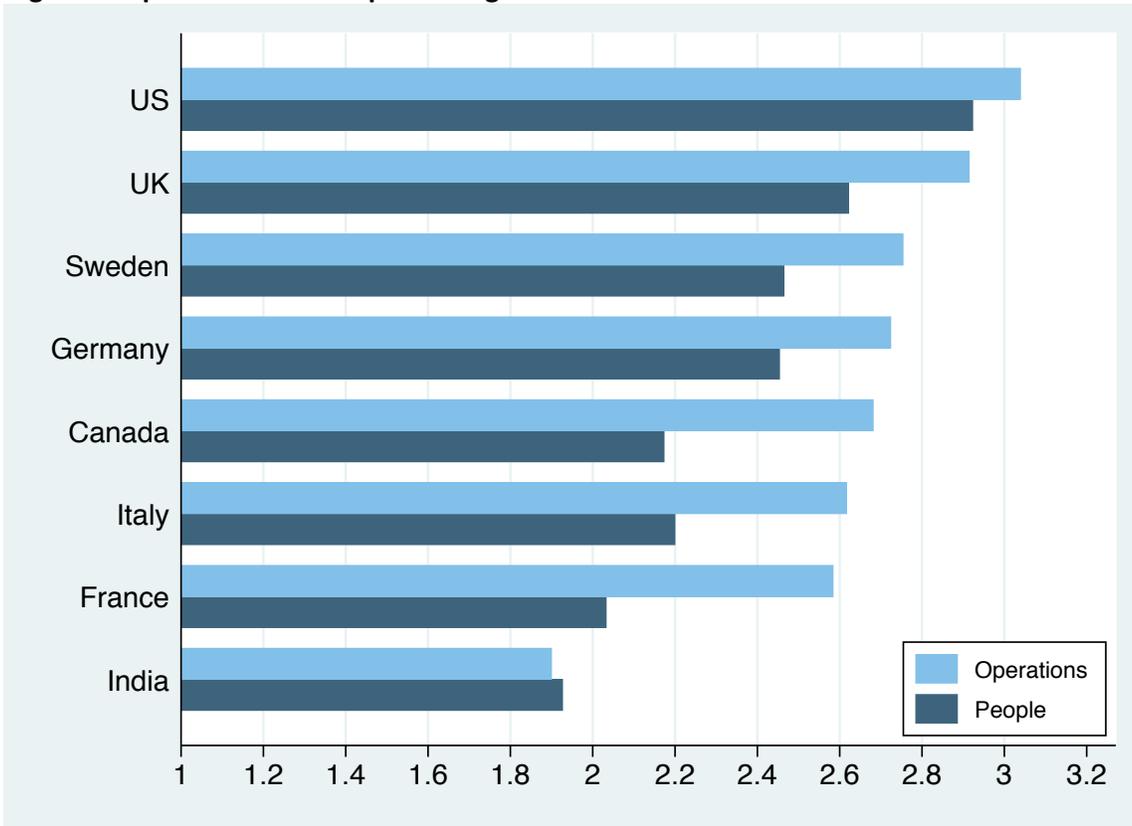
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**Figure 1: Hospital Management Across Countries**



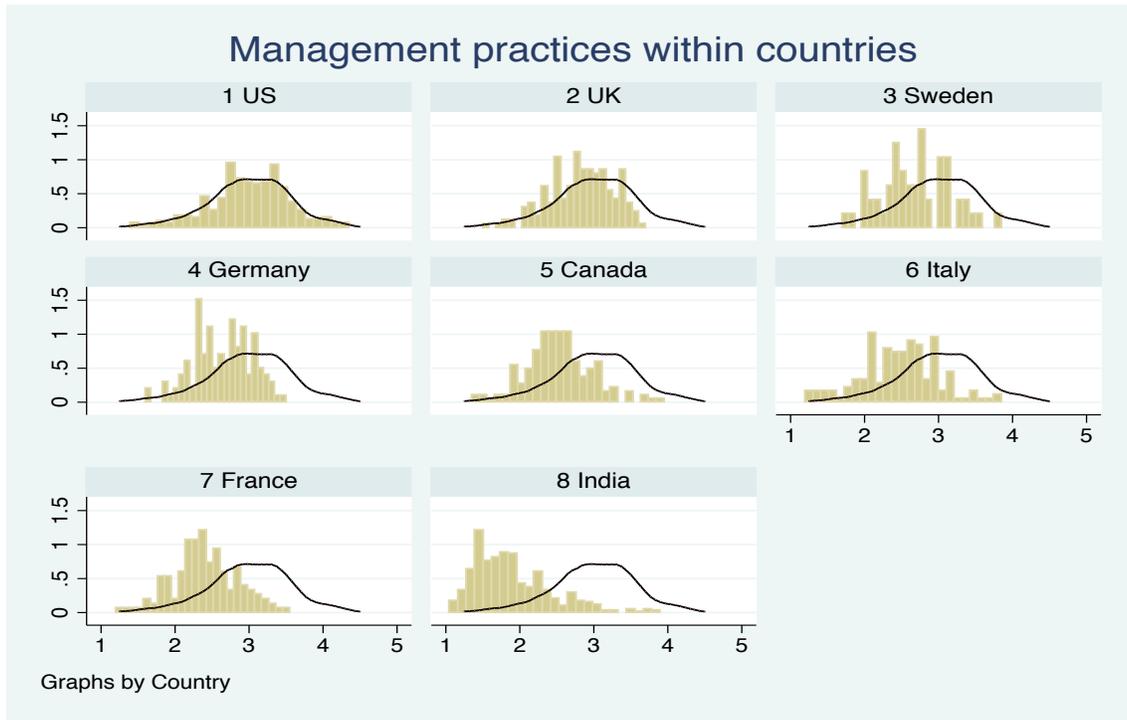
Notes: The bars represent the average management scores by country. The upper bar represent the raw data. The lower bar shows the averages controlling for hospital size (number of employees), age, specialty, percentage of managers with a clinical degree and interview noise. The noise controls are 13 interviewer dummies, the seniority and tenure of the manager who responded, the duration of the interview, and an indicator of the reliability of the information as coded by the interviewer, interviewee type (nurse, doctor or non clinical manager). Number of observations: 175 Canada, 158 France, 130 Germany, 493 India, 166 Italy, 56 Sweden, 184 UK and 327 U.S.

**Figure 2: Operations and People Management: RAW DATA**



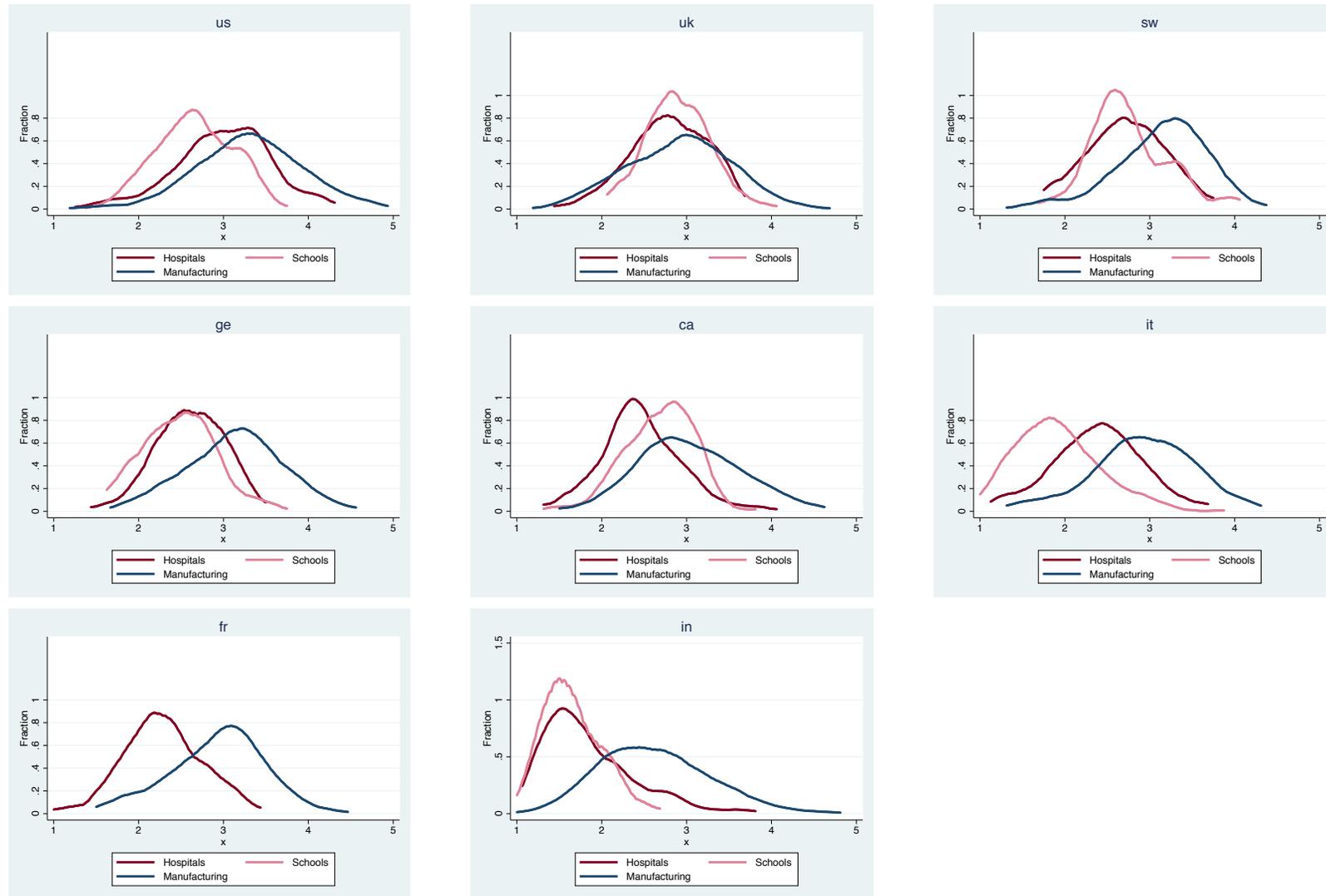
Notes: The bars represent the raw average management scores by country. The upper bar represent the averages for the 14 questions related to operations, monitoring and targets (defined as operation questions in the text) and the lower bar represents the averages for the 6 people management questions (see Appendix for more details on the questions). Number of observations: 175 Canada, 158 France, 130 Germany, 493 India, 166 Italy, 56 Sweden, 184 UK and 327 U.S.

**Figure 3: Management practices within countries**



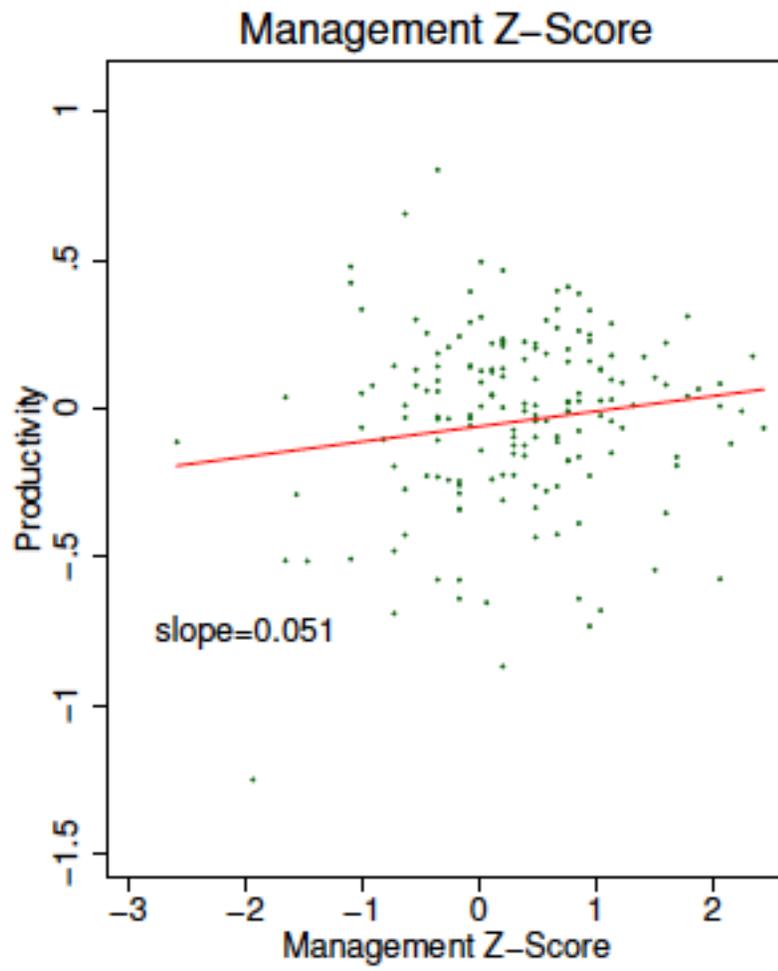
*Notes:* These are the distributions of the raw management scores (simple averages across all 20 practices for each hospital). 1 indicates worst practice, 5 indicates best practice. We overlay the outline of the US distribution across all countries for comparison. The countries are ordered according to their average country management score (from highest to lowest). Number of observations: 175 Canada, 158 France, 130 Germany, 493 India, 166 Italy, 56 Sweden, 184 UK and 327 U.S.

Figure 4: Comparison Across Sectors (only comparable questions included in all three surveys)



Notes: These are the distributions of the raw management scores (simple averages across all 16 comparable practices for each hospital, school or manufacturing plant!). 1 indicates worst practice, 5 indicates best practice. Number of observations for hospitals: 175 Canada, 158 France, 130 Germany, 493 India, 166 Italy, 56 Sweden, 184 UK and 327 U.S. Number of observations for schools 147 Canada, 143 Germany, 319 India, 341 Italy, 89 Sweden, 93 UK and 280 U.S. Number of observations for manufacturing: 273 Canada, 258 France, 323 Germany, 739 India, 244 Italy, 236 Sweden, 652 UK and 840 U.S.

Figure 5 - Management and Hospital TFP (Chandra et al, 2013)



(4b)

**Table 1 - Hospital Characteristics Across Countries**

**Panel A. Hospital Size**

| Country      | Hospital Beds | Hospital Employment | Hospital Age | Number of Hospitals |
|--------------|---------------|---------------------|--------------|---------------------|
| Canada       | 138.76        | 980.21              | 48.13        | 175                 |
| France       | 751.99        | 2244.68             | 75.33        | 158                 |
| Germany      | 406.43        | 947.32              | 98.74        | 130                 |
| India        | 174.99        | 439.86              | 17.65        | 493                 |
| Italy        | 399.87        | 1312.61             | 58.98        | 166                 |
| Sweden       | 306.98        | 2308.65             | 75.07        | 56                  |
| UK           | 370.37        | 2344.52             | 46.77        | 184                 |
| US           | 159.26        | 1120.54             | 56.67        | 327                 |
| <b>Total</b> | <b>293.24</b> | <b>1212.52</b>      | <b>50.73</b> | <b>1689</b>         |

**Panel B. Hospital Specialty**

| Country      | Cardiology  | Multi-Specialty | Orthopedics | Surgery     | Other       | Teaching Hospital |
|--------------|-------------|-----------------|-------------|-------------|-------------|-------------------|
| Canada       | 0.08        | 0.60            | 0.10        | 0.17        | 0.06        | 0.11              |
| France       | 0.41        | 0.13            | 0.20        | 0.15        | 0.11        | 0.23              |
| Germany      | 0.02        | 0.86            | 0.05        | 0.04        | 0.02        | 0.41              |
| India        | 0.11        | 0.55            | 0.34        | 0.00        | 0.00        | 0.18              |
| Italy        | 0.03        | 0.68            | 0.28        | 0.01        | 0.00        | 0.09              |
| Sweden       | 0.04        | 0.05            | 0.84        | 0.07        | 0.00        | 0.18              |
| UK           | 0.20        | 0.32            | 0.32        | 0.13        | 0.03        | 0.14              |
| US           | 0.16        | 0.52            | 0.09        | 0.19        | 0.04        | 0.16              |
| <b>Total</b> | <b>0.14</b> | <b>0.50</b>     | <b>0.24</b> | <b>0.09</b> | <b>0.03</b> | <b>0.18</b>       |

**Panel C. Hospital Ownership**

| Country      | Private, For Profit | Private, Not For Profit | Public      |
|--------------|---------------------|-------------------------|-------------|
| Canada       | 0.01                | 0.02                    | 0.98        |
| France       | 0.11                | 0.02                    | 0.87        |
| Germany      | 0.15                | 0.38                    | 0.48        |
| India        | 0.81                | 0.11                    | 0.08        |
| Italy        | 0.15                | 0.04                    | 0.81        |
| Sweden       | 0.04                | 0.00                    | 0.96        |
| UK           | 0.26                | 0.09                    | 0.65        |
| US           | 0.13                | 0.37                    | 0.50        |
| <b>Total</b> | <b>0.31</b>         | <b>0.15</b>             | <b>0.54</b> |

**Table 2: Management Comparisons across Countries and Sectors**

|                | <b>(1)</b>       | <b>(2)</b>     | <b>(3)</b>           | <b>(4)</b>                          | <b>(5)</b>                        |
|----------------|------------------|----------------|----------------------|-------------------------------------|-----------------------------------|
|                | <b>Hospitals</b> | <b>Schools</b> | <b>Manufacturing</b> | <b>Hospitals/<br/>Manufacturing</b> | <b>Schools/<br/>Manufacturing</b> |
| <b>Canada</b>  | 2.46             | 2.68           | 3.04                 | 0.81                                | 0.88                              |
| <b>France</b>  | 2.29             |                | 2.93                 | 0.78                                |                                   |
| <b>Germany</b> | 2.61             | 2.47           | 3.13                 | 0.83                                | 0.79                              |
| <b>India</b>   | 1.84             | 1.65           | 2.62                 | 0.70                                | 0.63                              |
| <b>Italy</b>   | 2.39             | 1.91           | 2.92                 | 0.82                                | 0.65                              |
| <b>Sweden</b>  | 2.72             | 2.76           | 3.15                 | 0.86                                | 0.88                              |
| <b>UK</b>      | 2.79             | 2.90           | 2.91                 | 0.96                                | 1.00                              |
| <b>US</b>      | 3.00             | 2.66           | 3.31                 | 0.91                                | 0.80                              |
| <b>All</b>     | 2.51             | 2.43           | 3.00                 | 0.84                                | 0.81                              |

Notes: These are the averages of the raw management scores (simple averages across all 16 comparable practices for each hospital, school or manufacturing plant). 1 indicates worst practice, 5 indicates best practice. Number of observations for hospitals: 175 Canada, 158 France, 130 Germany, 493 India, 166 Italy, 56 Sweden, 184 UK and 327 U.S. Number of observations for schools 147 Canada, 143 Germany, 319 India, 341 Italy, 89 Sweden, 93 UK and 280 U.S. Number of observations for manufacturing: 273 Canada, 258 France, 323 Germany, 739 India, 244 Italy, 236 Sweden, 652 UK and 840 U.S.

**Table 3: Management and Hospital Performance (AMI mortality rates)**

|   | (1)                  | (2)                  | (3)                 | (4)                | (5)                 | (6)                  |
|---|----------------------|----------------------|---------------------|--------------------|---------------------|----------------------|
| Dependent Variable: Case mix adjusted AMI 30 days mortality rates (z-scored by country) | All                  |                      | US                  | UK                 | Canada              | Sweden               |
| Countries   | All                  |                      | US                  | UK                 | Canada              | Sweden               |
| <b>Management (z-score)</b>   | -0.162***<br>(0.056) | -0.246***<br>(0.075) | -0.211**<br>(0.100) | -0.416*<br>(0.224) | -0.717**<br>(0.316) | -0.543***<br>(0.193) |
| <b>R-squared</b>  | 0.023                | 0.230                | 0.242               | 0.193              | 0.690               | 0.689                |
| <b>Observations</b>   | 324                  | 324                  | 178                 | 74                 | 24                  | 48                   |
| <b>Country dummies</b>  | y                    | y                    | y                   | y                  | y                   | y                    |
| <b>Hospital controls</b>  | y                    | y                    | y                   | y                  | y                   | y                    |
| <b>Region dummies</b>   |                      | y                    | y                   | y                  | y                   | y                    |
| <b>Noise controls</b>   |                      | y                    | y                   | y                  | y                   | y                    |

*Notes.* All columns estimated by OLS. In all columns standard errors are in parentheses under coefficient clustered by hospital. Hospital controls are hospital size (number of employees), age, specialty, percentage of managers with a clinical degree. "Noise controls" are 13 interviewer dummies, the seniority and tenure of the manager who responded, the duration of the interview, and an indicator of the reliability of the information as coded by the interviewer, interviewee type (nurse, doctor or non clinical manager). AMI mortality rates data refer to 2009 in the US and UK, to 2008 in Sweden and the average between 2007 and 2009 in Canada (See Appendix A for details). All regressions except column 1 include a full set of regional dummies.

**Table 4: What affects Hospital Management?**

| Dependent Variable                       | (1)                 | (2)                 | (3)                 | (4)                   | (5)                 | (6)                 | (7)                 |
|--|---------------------|---------------------|---------------------|-----------------------|---------------------|---------------------|---------------------|
|  |                     |                     |                     | Management (z-scored) |                     | OECD                | India               |
| Sample                                   | All                 |                     |                     |                       |                     |                     |                     |
| Ln(Hospital Employment)                  | 0.149***<br>(0.015) | 0.149***<br>(0.015) | 0.180***<br>(0.015) | 0.148***<br>(0.015)   | 0.178***<br>(0.015) | 0.148***<br>(0.018) | 0.268***<br>(0.028) |
| Ln(% of Managers with a Clinical Degree) |                     | 0.249**<br>(0.102)  |                     |                       | 0.253**<br>(0.101)  | 0.315**<br>(0.133)  | 0.244*<br>(0.139)   |
| Dummy private for profit                 |                     |                     | 0.333***<br>(0.061) |                       | 0.326***<br>(0.061) | 0.420***<br>(0.069) | -0.223*<br>(0.126)  |
| Dummy private not for profit             |                     |                     | 0.288***<br>(0.056) |                       | 0.282***<br>(0.055) | 0.298***<br>(0.059) | -0.314**<br>(0.151) |
| Number of competitors                    |                     |                     |                     | 0.064**<br>(0.029)    | 0.045<br>(0.029)    | 0.073**<br>(0.034)  | -0.010<br>(0.053)   |
| N  | 1689                | 1689                | 1689                | 1689                  | 1689                | 1196                | 493                 |
| Country dummies                          | y                   | y                   | y                   | y                     | y                   | y                   | y                   |
| Hospital controls                        | y                   | y                   | y                   | y                     | y                   | y                   | y                   |
| Region dummies                           | y                   | y                   | y                   | y                     | y                   | y                   | y                   |
| Noise controls                           | y                   | y                   | y                   | y                     | y                   | y                   | y                   |

Notes. All columns estimated by OLS. In all columns standard errors are in parentheses under coefficient clustered by hospital. Hospital controls are hospital size (number of employees), age, specialty, percentage of managers with a clinical degree. "Noise controls" are 13 interviewer dummies, the seniority and tenure of the manager who responded, the duration of the interview, and an indicator of the reliability of the information as coded by the interviewer, interviewee type (nurse, doctor or non clinical manager). Number of competitors is constructed from the response to the survey question on number of competitors, and is coded as zero for none (16% of responses), 1 for less than 5 (59% of responses), and 2 for "5 or more" (25% of responses). All regressions include a full set of regional dummies.

**Table A1: Management Comparison Across Countries: Hospital average score relative to Manufacturing**

| Question                                       | Description   | Canada | France | Germany | India | Italy | Sweden | UK   | US   | All countries |
|--|---|--------|--------|---------|-------|-------|--------|------|------|---------------|
| <b>1 Continuous Improvement</b>                | Tests processes for and attitudes towards continuous improvement, and whether learnings are captured and documented | 0.94   | 0.90   | 0.85    | 0.80  | 0.87  | 0.89   | 1.00 | 0.96 | 0.90          |
| <b>2 Performance Tracking</b>                  | Tests whether performance is tracked using meaningful metrics and with appropriate regularity                       | 0.88   | 0.75   | 0.85    | 0.71  | 0.83  | 0.86   | 0.96 | 0.92 | 0.84          |
| <b>3 Performance Review</b>                    | Tests whether performance is reviewed with appropriate frequency and communicated to staff                          | 0.80   | 0.69   | 0.82    | 0.72  | 0.85  | 0.73   | 0.97 | 0.90 | 0.81          |
| <b>4 Performance Dialogue</b>                  | Tests the quality of review conversations   | 0.83   | 0.78   | 0.83    | 0.72  | 0.84  | 0.89   | 0.97 | 0.89 | 0.84          |
| <b>5 Consequence Management</b>                | Tests whether differing levels of performance (NOT personal but plan/ process based) lead to different consequences | 0.74   | 0.76   | 0.81    | 0.70  | 0.86  | 0.85   | 0.89 | 0.84 | 0.80          |
| <b>6 Target Balance</b>                        | Tests whether targets cover a sufficiently broad set of metrics   | 1.03   | 0.74   | 0.86    | 0.66  | 0.80  | 0.94   | 1.03 | 0.97 | 0.88          |
| <b>7 Target Inter-Connection</b>               | Tests whether targets are tied to hospital objectives and how well they cascade down the organisation               | 0.85   | 0.83   | 0.77    | 0.64  | 0.92  | 0.95   | 1.01 | 0.89 | 0.86          |
| <b>8 Time Horizon of Targets</b>               | Tests whether hospital has a '3 horizons' approach to planning and targets  | 0.79   | 0.73   | 0.76    | 0.58  | 0.64  | 0.74   | 0.91 | 0.88 | 0.76          |
| <b>9 Target Stretch</b>                        | Tests whether targets are appropriately difficult to achieve  | 0.80   | 0.81   | 0.77    | 0.59  | 0.71  | 0.81   | 0.93 | 0.85 | 0.78          |
| <b>10 Clarity and Comparability of Targets</b> | Tests how easily understandable performance measures are and whether performance is openly communicated             | 0.74   | 0.80   | 0.87    | 0.58  | 0.80  | 1.01   | 0.92 | 0.90 | 0.83          |
| <b>11 Managing Talent</b>                      | Tests what emphasis is put on talent management   | 0.91   | 1.00   | 0.96    | 0.79  | 1.04  | 0.91   | 1.05 | 0.99 | 0.96          |
| <b>12 Rewarding High Performers</b>            | Tests whether good performance is rewarded proportionately  | 0.82   | 0.68   | 0.72    | 0.81  | 0.87  | 1.27   | 1.05 | 0.96 | 0.90          |
| <b>13 Removing Poor Performers</b>             | Tests whether hospital is able to deal with underperformers   | 0.62   | 0.73   | 0.84    | 0.77  | 0.74  | 0.82   | 0.84 | 0.88 | 0.78          |
| <b>14 Promoting High Performers</b>            | Tests whether promotion is performance based  | 0.65   | 0.60   | 0.80    | 0.71  | 0.66  | 0.66   | 0.98 | 0.90 | 0.75          |
| <b>15 Attracting Talent</b>                    | Tests the strength of the employee value proposition  | 0.90   | 1.03   | 0.95    | 0.68  | 0.92  | 0.83   | 0.97 | 0.93 | 0.90          |
| <b>16 Retaining Talent</b>                     | Tests whether hospital will go out of its way to keep its top talent  | 0.68   | 0.68   | 0.88    | 0.79  | 0.75  | 0.91   | 0.90 | 0.87 | 0.81          |

Notes: The table shows the average country scores for each of the questions relative to the manufacturing averages for the same question and country. Number of observations for hospitals: 175 Canada, 158 France, 130 Germany, 493 India, 166 Italy, 56 Sweden, 184 UK and 327 U.S. Number of observations for schools 147 Canada, 143 Germany, 319 India, 341 Italy, 89 Sweden, 93 UK and 280 U.S. Number of observations for manufacturing: 273 Canada, 258 France, 323 Germany, 739 India, 244 Italy, 236 Sweden, 652 UK and 840 U.S. Number of observations for manufacturing: 273 Canada, 258 France, 323 Germany, 739 India, 244 Italy, 236 Sweden, 652 UK and 840 U.S.

**Table A2: Management and Hospital Performance, Additional Results**

|  | (1)                  | (2)                  | (3)                  | (4)                | (5)                  |
|--|----------------------|----------------------|----------------------|--------------------|----------------------|
| <b>Dependent Variable: Case mix adjusted AMI 30 days mortality rates (z-scored by country)</b> |                      |                      |                      |                    |                      |
| <b>Management (z-score)</b>  | -0.246***<br>(0.075) |                      |                      |                    |                      |
| <b>Operations management (z-score)</b>   |                      | -0.197***<br>(0.067) |                      | -0.125*<br>(0.075) |                      |
| <b>People management (z-score)</b>   |                      |                      | -0.212***<br>(0.082) | -0.153<br>(0.093)  |                      |
| <b>Comparable Management</b>   |                      |                      |                      |                    | -0.256***<br>(0.078) |
| <b>R-squared</b>   | 0.230                | 0.223                | 0.226                | 0.232              | 0.233                |
| <b>Test Operations=People</b>  |                      |                      |                      | 0.847              |                      |
| <b>Country dummies</b>   | y                    | y                    | y                    | y                  | y                    |
| <b>Hospital controls</b>   | y                    | y                    | y                    | y                  | y                    |
| <b>Region dummies</b>  | y                    | y                    | y                    | y                  | y                    |
| <b>Noise controls</b>  | y                    | y                    | y                    | y                  | y                    |

*Notes.* All columns estimated by OLS. In all columns standard errors are in parentheses under coefficient clustered by hospital. Hospital controls are hospital size (number of employees), age, specialty, percentage of managers with a clinical degree. "Noise controls" are 13 interviewer dummies, the seniority and tenure of the manager who responded, the duration of the interview, and an indicator of the reliability of the information as coded by the interviewer, interviewee type (nurse, doctor or non clinical manager). AMI mortality rates data refer to 2009 in the US and UK, to 2008 in Sweden and the average between 2007 and 2009 in Canada (See Appendix A for details). All regressions include a full set of regional dummies. Operations management is the average for the 14 questions related to operations, monitoring and targets (defined as operation questions in the text). People management is the average for the 6 people management questions (see Appendix for more details on the questions). Comparable management is the average for the 16 questions that are common across manufacturing and schools.

**A. Data Appendix [\*\*\*to be completed\*\*\*]**

2009 Healthcare Survey Instrument

| Interview Details  | Hospital and Manager's Information   |
|--|--|
| Hospital ID: _____   | a) Position: _____   |
| Hospital Name: _____   | b) Specialty:    Cardiology <input type="checkbox"/> Orthopedics <input type="checkbox"/> Other <input type="checkbox"/> |
| Interviewer Name: _____  | c) If "Other", what is his/her specialty? _____  |
| Date (DD/MM/YY): _____   | d) Tenure in post ( <i>number of years</i> ): _____  |
| Time (24 hour clock): _____  | e) Tenure in hospital ( <i>number of years</i> ): _____  |
| Running interview <input type="checkbox"/> Listening to interview <input type="checkbox"/> | f) How old is your hospital ( <i>number of years</i> )? _____  |
|  | g) Country: _____  |
|  | h) Region: _____   |
|  | i) Number of other hospitals within 30 minutes drive with the same specialty: ____                                       |

Management Questions\*

|  |   |  |  |  |
|--|---|--|--|--|
| <p><u>1) Layout of Patient Flow</u></p> <p><i>Tests how well the patient pathway is configured at the infrastructure level and whether staff pro-actively improve their own work-place organisation</i></p>            | <p>a) Can you briefly describe the patient journey or flow for a typical episode?</p> <p>b) How closely located are wards, theatres, diagnostics centres and consumables?</p> <p>c) How often do you run into problems with the current layout and pathway management?</p>  |  |  |  |
| <p>Score:</p> <p>1 <input type="checkbox"/>    2 <input type="checkbox"/>    3 <input type="checkbox"/>    4 <input type="checkbox"/>    5 <input type="checkbox"/> -99 <input type="checkbox"/></p>                   | <table border="1"> <tr> <td>Score 1: Lay-out of hospital and organisation of workplace is not conducive to patient flow (e.g. ward is on different level from theatre or consumables are often not available in the right place at the right time)</td> <td>Score 3: Lay-out of hospital has been thought-through and optimised as far as possible; work place organisation is not regularly challenged/ changed (or vice versa)</td> <td>Score 5: Hospital layout has been configured to optimize patient flow; workplace organization is challenged regularly and changed whenever needed</td> </tr> </table> | Score 1: Lay-out of hospital and organisation of workplace is not conducive to patient flow (e.g. ward is on different level from theatre or consumables are often not available in the right place at the right time) | Score 3: Lay-out of hospital has been thought-through and optimised as far as possible; work place organisation is not regularly challenged/ changed (or vice versa) | Score 5: Hospital layout has been configured to optimize patient flow; workplace organization is challenged regularly and changed whenever needed  |
| Score 1: Lay-out of hospital and organisation of workplace is not conducive to patient flow (e.g. ward is on different level from theatre or consumables are often not available in the right place at the right time) | Score 3: Lay-out of hospital has been thought-through and optimised as far as possible; work place organisation is not regularly challenged/ changed (or vice versa)  | Score 5: Hospital layout has been configured to optimize patient flow; workplace organization is challenged regularly and changed whenever needed  |  |  |
| <p><u>2) Rationale for Introducing Standardisation/ Pathway Management</u></p> <p><i>Tests the motivation and impetus behind changes to operations and what change story was communicated</i></p>                      | <p>a) Can you take me through the rationale for making operational improvements to the management of the patient pathway? Can you describe a recent example?</p> <p>b) How often do you challenge/ streamline the patient pathway?</p> <p>c) What factors led to the adoption of these practices?</p> <p>d) Who typically drives these changes?</p>   |  |  |  |
| <p>Score:</p> <p>1 <input type="checkbox"/>    2 <input type="checkbox"/>    3 <input type="checkbox"/>    4 <input type="checkbox"/>    5 <input type="checkbox"/> -99 <input type="checkbox"/></p>                   | <table border="1"> <tr> <td>Score 1: Changes were imposed top-down or because other departments were making (similar) changes; rationale was not communicated or understood</td> <td>Score 3: Changes were made because of financial pressure and the need to save money or as a (short-term) measure to achieve government and/ or external targets</td> <td>Score 5: Changes were made to improve overall performance, both clinical and financial, with buy-in from all affected staff groups; the changes were communicated in a coherent 'change story'</td> </tr> </table>                                | Score 1: Changes were imposed top-down or because other departments were making (similar) changes; rationale was not communicated or understood  | Score 3: Changes were made because of financial pressure and the need to save money or as a (short-term) measure to achieve government and/ or external targets      | Score 5: Changes were made to improve overall performance, both clinical and financial, with buy-in from all affected staff groups; the changes were communicated in a coherent 'change story' |
| Score 1: Changes were imposed top-down or because other departments were making (similar) changes; rationale was not communicated or understood  | Score 3: Changes were made because of financial pressure and the need to save money or as a (short-term) measure to achieve government and/ or external targets   | Score 5: Changes were made to improve overall performance, both clinical and financial, with buy-in from all affected staff groups; the changes were communicated in a coherent 'change story'                         |  |  |

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| <p><b>3) Standardisation and Protocols</b></p> <p><i>Tests if there are standardised procedures (e.g. integrated clinical pathways) that are applied and monitored systematically</i></p> <p>Score:</p> <p>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p> | <p>a) How standardised are the main clinical processes?<br/>                 b) How clear are clinical staff members about how specific procedures should be carried out?<br/>                 c) What tools and resources does the clinical staff employ (e.g. checklists or patient bar-coding) to ensure that they have the correct patient and/ or conduct the appropriate procedure?<br/>                 d) How are managers able to monitor whether clinical staff are following established protocols?</p> |  |  |
| <p><b>4) Good use of Human Resources</b></p> <p><i>Tests whether staff are deployed to do what they are best qualified for, but nevertheless help out elsewhere when needed</i></p> <p>Score:</p> <p>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>       | <p>Score 1: Little standardisation and few protocols exists (e.g. different clinical staff have different approaches to the same treatments)</p>   | <p>Score 3: Protocols have been created, but are not commonly used because they are too complicated or not monitored adequately (e.g. may be on website or in manual only)</p> | <p>Score 5: Protocols are known and used by all clinical staff and regularly followed up on through some form of monitoring or oversight</p>   |
| <p><b>5) Continuous Improvement</b></p> <p><i>Tests processes for and attitudes towards continuous improvement, and whether learnings are captured and documented</i></p> <p>Score:</p> <p>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>                 | <p>a) How do problems typically get exposed and fixed?<br/>                 b) Can you talk me through the process for a recent problem that you faced?<br/>                 c) When processes do change, what is the main driver of change?<br/>                 d) Who within the hospital typically gets involved in changing or improving? How do/ can different staff groups get involved in this process? Can you think of any examples?</p>   |  |  |
| <p>d) Who decides how work is allocated across clinical staff?</p> <p>All managers <input type="checkbox"/>    Mostly managers <input type="checkbox"/>    About the same <input type="checkbox"/>    Mostly clinical leaders <input type="checkbox"/>    All clinical leaders <input type="checkbox"/>    -99 <input type="checkbox"/></p>  | <p>Score 1: Process improvements are made only when problems occur, or only involve one staff group</p>  | <p>Score 3: Improvements are made in irregular meetings involving all staff groups, to improve performance in their area of work (e.g. ward or theatre)</p>                    | <p>Score 5: Exposing problems in a structured way is integral to an individuals responsibilities and resolution involves all staff groups, along the entire patient pathway; exposing and resolving problems is a part of a regular business process rather than being the result of extraordinary efforts</p> |

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| <p align="center"><b>6) Performance Tracking</b></p> <p><i>Tests whether performance is tracked using meaningful metrics and with appropriate regularity</i></p> <p>Score:</p> <p>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>         | <p>a) What kind of performance or quality indicators would you use for performance tracking?<br/>                 b) How frequently are these measured?<br/>                 c) Who gets to see these data?<br/>                 d) If I were to walk through your hospital wards and surgical rooms, could I tell how you were doing against your performance goals?</p>                             |   |   |
| <p><b>7) Performance Review</b></p> <p><i>Tests whether performance is reviewed with appropriate frequency and communicated to staff</i></p> <p>Score:</p> <p>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>                             | <p>Score 1: Measures tracked do not indicate directly if overall objectives are being met (only government targets are tracked); tracking is an ad-hoc process (certain processes aren't tracked at all)</p>  | <p>Score 3: Most important performance or quality indicators are tracked formally; tracking is overseen by senior staff</p>   | <p>Score 5: Performance or quality indicators are continuously tracked and communicated against most critical measures, both formally and informally, to all staff using a range of visual management tools</p>                         |
| <p><b>8) Performance Dialogue</b></p> <p><i>Tests the quality of review conversations</i></p> <p>Score:</p> <p>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>  | <p>a) How do you review your main performance indicators?<br/>                 b) Can you tell me about a recent review meeting?<br/>                 c) Who is involved in these meetings? Who gets to see the results of this review?<br/>                 d) What is a typical follow-up plan that results from these meetings?</p>  |   |   |
| <p><b>9) Consequence Management</b></p> <p><i>Tests whether differing levels of performance (NOT personal but plan/ process based) lead to different consequence</i></p> <p>Score:</p> <p>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p> | <p>Score 1: Performance is reviewed infrequently or in an un-meaningful way (e.g. only success or failure is noted)</p>   | <p>Score 3: Performance is reviewed periodically with both successes and failures identified; results are communicated to senior staff; no clear follow up plan is adopted</p>  | <p>Score 5: Performance is continually reviewed, based on the indicators tracked; all aspects are followed up on, to ensure continuous improvement; results are communicated to all staff</p>   |
| <p><b>8) Performance Dialogue</b></p> <p><i>Tests the quality of review conversations</i></p> <p>Score:</p> <p>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>  | <p>a) How are these meetings structured? How is the agenda determined?<br/>                 b) During these meetings do you find that you generally have enough information for review?<br/>                 c) How useful do you find these meetings? What type of feedback occurs in these meetings?<br/>                 d) For a given problem, how do you generally identify the root cause?</p> |   |   |
| <p><b>9) Consequence Management</b></p> <p><i>Tests whether differing levels of performance (NOT personal but plan/ process based) lead to different consequence</i></p> <p>Score:</p> <p>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p> | <p>Score 1: The right information for a constructive discussion is often not present or the quality is too low; conversations focus overly on data that is not meaningful; a clear agenda is not known and purpose is not explicitly stated; next steps are not clearly defined</p>   | <p>Score 3: Review conversations are held with the appropriate data present; objectives of meetings are clear to all participating and a clear agenda is present; conversations do not, drive to the root causes of the problems; next steps are not well defined</p> | <p>Score 5: Regular review/ performance conversations focus on problem solving and addressing root causes; purpose, agenda and follow-up steps are clear to all; meetings are an opportunity for constructive feedback and coaching</p> |
| <p><b>9) Consequence Management</b></p> <p><i>Tests whether differing levels of performance (NOT personal but plan/ process based) lead to different consequence</i></p> <p>Score:</p> <p>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p> | <p>Score 1: Failure to achieve agreed objectives does not carry any consequences</p>  | <p>Score 3: Failure to achieve agreed results is tolerated for a period before action is taken</p>  | <p>Score 5: A failure to achieve agreed targets drives retraining in identified areas of weakness or moving individuals to where their skills are appropriate</p>   |

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| <p align="center"><b>10) Target Balance</b></p> <p align="center"><i>Tests whether targets cover a sufficiently broad set of metrics</i></p> <p>Score:</p> <p>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>  | <p>a) What types of targets are set for the hospital? What are the goals for your specialty?<br/>b) Tell me about goals that are not set externally (e.g. by the government, regulators)?</p>  |   |  |
| <p align="center"><b>11) Target Inter-Connection</b></p> <p align="center"><i>Tests whether targets are tied to hospital objectives and how well they cascade down the organisation</i></p> <p>Score:</p> <p>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p> | <p>a) What is the motivation behind these goals?<br/>b) How are these goals cascaded down to the different staff groups or to individual staff members?<br/>c) How are your unit targets linked to overall hospital performance and its goals?</p>   |   |  |
| <p align="center"><b>12) Time Horizon of Targets</b></p> <p align="center"><i>Tests whether hospital has a '3 horizons' approach to planning and targets</i></p> <p>Score:</p> <p>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>                            | <p>a) What kind of time scale are you looking at with your targets?<br/>b) Which goals receive the most emphasis?<br/>c) Are the long-term and short-term goals set independently?<br/>d) Could you meet all your short-run goals but miss your long-run goals?</p>  |   |  |
| <p align="center"><b>13) Target Stretch</b></p> <p align="center"><i>Tests whether targets are appropriately difficult to achieve</i></p> <p>Score:</p> <p>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>   | <p>a) How tough are your targets? How pushed are you by the targets?<br/>b) On average, how often would you say that you meet your targets? How are your targets benchmarked?<br/>c) Do you feel all specialties, departments or staff groups receive the same degree of difficulty in terms on targets? Do some groups perhaps have easier targets?</p> |   |  |
| <p>Score 1: Goals focused only on government targets and achieving the budget</p>  | <p>Score 3: Goals are a balanced set of targets (including quality, waiting time, operational efficiency, and financial balance); goals form part of the appraisal for senior staff only or do not extend to all staff groups; real interdependency is not well understood</p>   | <p>Score 5: Goals are a balanced set of targets covering all four dimensions (see Score 3); interplay of all four dimensions is understood by senior and junior staff (clinicians as well as nurses and managers)</p> |  |
| <p>Score 1: Goals do not cascade down the organisation</p>   | <p>Score 3: Goals do cascade, but only to some staff groups (e.g. nurses only)</p>   | <p>Score 5: Goals increase in specificity as they cascade, ultimately defining individual expectations for all staff groups</p>   |  |
| <p>Score 1: The staff's main focus is on achieving short-term targets</p>  | <p>Score 3: There are short and long-term goals for all levels of the organisation; goals are set independently and therefore are not necessarily linked to one another</p>  | <p>Score 5: Long-term goals are translated into specific short-term targets so that short-term targets become a 'staircase' to reach long-term goals</p>  |  |
| <p>Score 1: Goals are either too easy or impossible to achieve, at least in part because they are set with little clinician involvement (e.g. simply off historical performance)</p>   | <p>Score 3: In most areas, senior staff push for aggressive goals based on external benchmarks, but with little buy-in from clinical staff; there are a few sacred cows that are not held to the same standard</p>   | <p>Score 5: Goals are genuinely demanding for all parts of the organisation and developed in consultation with senior staff (e.g. to adjust external benchmarks appropriately)</p>                                    |  |

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| <p><u>14) Clarity and Comparability of Targets</u></p> <p><i>Tests how easily understandable performance measures are and whether performance is openly communicated</i></p> <p>Score:</p> <p>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p> | <p>a) If I asked someone on your staff directly about individual targets, what would he or she tell me?</p> <p>b) Does anyone complain that the targets are too complex?</p> <p>c) How do people know how their own performance compares to other people's performance? Is this published or posted in any way?</p>  |  |  |
|   | <p>Score 1: Performance measures are complex and not clearly understood, or only relate to government/ regulator targets; individual performance is not made public</p>  | <p>Score 3: Performance measures are well defined and communicated; performance is public at all levels but comparisons are discouraged</p>  | <p>Score 5: Performance measures are well defined, strongly communicated and reinforced at all reviews; performance and rankings are made public to induce competition</p>   |
| <p><u>15) Rewarding High Performers</u></p> <p><i>Tests whether good performance is rewarded proportionately</i></p> <p>Score:</p> <p>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>   | <p>a) How does your appraisal/ review system work? Can you tell me about your most recent round?</p> <p>b) How does your staff's pay relate to the results of this review? How does the bonus system work?</p> <p>c) Are there non-financial rewards for the best performers across all staff groups?</p> <p>d) How does your reward system compare to that at other comparable hospitals?</p>   |  |  |
|   | <p>Score 1: Staff members are rewarded in the same way irrespective of their level of performance</p>  | <p>Score 3: There is an evaluation system for the awarding of performance related rewards that are non-financial at the individual level; rewards are always or never achieved</p> | <p>Score 5: There is an evaluation system which rewards individuals based on performance; the system includes both personal financial and non-financial awards; rewards are awarded as a consequence of well-defined and monitored individual achievements</p> |
| <p>Manager's Bonus:</p> <p>What is your bonus as a percentage of salary? _____</p>  | <p>% of the bonus based on individual performance _____</p> <p>% of the bonus based on unit/specialty performance _____</p> <p>% of the bonus based on hospital performance _____</p> <p><i>Refused to answer</i> Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p><i>Bonus on individual, unit, and hospital performance MUST add up to 100</i></p>  |  |  |
| <p><u>16) Removing Poor Performers</u></p> <p><i>Tests whether hospital is able to deal with underperformers</i></p> <p>Score:</p> <p>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/></p>   | <p>a) If you had a clinician or a nurse who could not do his/her job, what would you do? Could you give me a recent example?</p> <p>b) How long is under-performance tolerated? How difficult is it to terminate a nurse/ clinician?</p> <p>c) Do you find staff members who lead a sort of charmed life? Do some individuals always just manage to avoid being fired?</p>   |  |  |
|   | <p>Score 1: Poor performers are rarely removed from their positions</p>  | <p>Score 3: Suspected poor performers stay in a position for more than a year before action is taken</p>   | <p>Score 5: We move poor performers out of the hospital/ department or to less critical roles as soon as a weakness is identified</p>  |
| <p><u>17) Promoting High Performers</u></p> <p><i>Tests whether promotion is performance based</i></p>  | <p>a) Can you tell me about your career progression/ promotion system?</p> <p>b) How do you identify and develop your star performers? What types of professional development opportunities are provided?</p> <p>c) How do you make decisions regarding progression/ promotions within the unit/ hospital?</p> <p>d) Are better performers likely to be promoted faster or are promotions given on the basis of tenure/ seniority?</p> |  |  |

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| Score:<br>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/>                         | Score 1: People are promoted primarily on the basis of tenure (years of service)   | Score 3: People are promoted upon the basis of performance  | Score 5: We actively identify, develop and promote our top performers   |
| <u>18) Managing Talent</u><br><i>Tests what emphasis is put on talent management</i>  | a) How do you ensure you have enough staff/ nurses of the right type in the hospital?<br>b) How do senior managers show that attracting talented individuals and developing their skills is a top priority?<br>c) Do senior staff members get any rewards for bringing in and keeping talented people in the hospital?   |   |   |
| Score:<br>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/>                         | Score 1: Senior staff do not communicate that attracting, retaining and developing talent throughout the organisation is a top priority  | Score 3: Senior staff believe and communicate that having top talent throughout the organisation is key to good performance   | Score 5: Senior staff are evaluated and held accountable on the strength of the talent pool they actively build   |
| <u>19) Retaining Talent</u><br><i>Tests whether hospital will go out of its way to keep its top talent</i>  | a) If you had a top performing manager, nurse or clinician that wanted to leave, what would the hospital do?<br>b) Could you give me an example of a star performer being persuaded to stay after wanting to leave?<br>c) Could you give me an example of a star performer who left the hospital without anyone trying to keep them?   |   |   |
| Score:<br>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/>                         | Score 1: We do little to try and keep our top talent   | Score 3: We usually work hard to keep our top talent  | Score 5: We do whatever it takes to retain our top talent across all staff groups   |
| <u>20) Attracting Talent</u><br><i>Tests the strength of the employee value proposition</i>   | a) What makes it distinctive to work at your hospital, as opposed to other similar hospitals?<br>b) If I were a top nurse/clinician and you wanted to persuade me to work at your hospital, how would you do this?<br>c) What do you think people may not like about working at your hospital?   |   |   |
| Score:<br>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/>                         | Score 1: Competing hospitals offer stronger reasons for talented people to join their organizations  | Score 3: Our value proposition is comparable to those offered by other hospitals  | Score 5: We provide a unique value proposition to encourage talented individuals to join our hospital before our competition                                |
| <b>Leadership Questions*</b>  |  |   |   |
| <u>21) Clearly Defined Accountability for Clinicians</u><br><i>Tests whether there is formal leadership roles and accountability among clinicians for delivery of hospital targets and objectives</i> | a) Can you tell me about the role that clinicians (e.g. doctors/ consultants) have in improving performance and achieving targets?<br>b) How are individual clinicians responsible for delivery of targets? Does this apply to cost targets as well as quality targets?<br>c) How do clinicians take on roles to deliver cost improvements? Are they selected for this role or do they volunteer? Can you think of examples? |   |   |
| Score:<br>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/>                         | Score 1: Formal accountability for clinical performance (quality) only   | Score 3: There is some accountability for delivery beyond clinical quality but this might be diffused within a team or not carry significant consequences; clinical performance still considered to be the main part of the job | Score 5: Formal accountability across quality service and cost dimensions with effective performance management and consequences for good/ poor performance |

Organization Questions

a) How many people work in the hospital? \_\_\_\_\_

b) How many doctors are employed by the hospital? \_\_\_\_\_

c) What is the average number of doctors on site each day? \_\_\_\_\_

d) How many nurses work in the hospital? \_\_\_\_\_

e) How many beds in the hospital? \_\_\_\_\_

f) How many beds are in your speciality? \_\_\_\_\_ (If Specialty Manager, please complete. Otherwise, leave blank.)

Please say "Can you walk me through the hospital's hierarchy?". Then iteratively ask "Who does a junior nurse report to?", "Who would [his/her boss] report to"...., Keep asking until you reach the CEO (head of hospital)

g) Number of levels in the school BETWEEN the nurse and the CEO/GM:: \_\_\_\_\_  
 For example a hospital with CEO, Head of Cardiology, Nurse Manager, Staff Nurse has 2 levels between the Nurse and CEO (the Head of Cardiology and Nurse Manager)

h) How many people DIRECTLY report to the manager of your speciality (e.g. the number of people DIRECTLY in the hierarchical layer below him/her)? \_\_\_\_\_

i) How many people DIRECTLY report to the hospital CEO/GM? \_\_\_\_\_

j) To hire a FULL-TIME PERMANENT nurse what agreement would your hospital CEO/GM need?

|   |   |   |   |
|---|---|---|---|
| Score:<br>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/> | Score 1: The hospital has no authority, even for replacement hires. | Score 3: Requires sign-off from outside the hospital based on the individual case. Typically agreed (i.e. about 80 or 90% of the time). | Score 5: Complete authority of the hospital - it is their decision entirely |
|---|---|---|---|

k) To the extent the hospital decides over hiring a FULL-TIME PERMANENT nurse, who within the hospital would make that decision?

|   |  |  |  |
|---|--|--|--|
| Score:<br>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/> | Score 1: The hospital CEO decides entirely | Score 3: The hospital CEO and the speciality the nurse is going to join decide jointly | Score 5: The speciality the nurse is going to join decides this entirely |
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l) Where are decisions taken on adding more beds to the speciality (for example 5% more bed spaces)?

|   |  |   |   |
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| Score:<br>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> -99 <input type="checkbox"/> | Score 1: The hospital CEO decides entirely | Score 3: The hospital CEO and the speciality decide jointly 90% of the time | Score 5: The speciality decides this entirely |
|---|--|---|---|

m) To the extent the hospital decides over adding more beds, who within the hospital would make that decision?

Score:

1  2  3  4  5  -99

Score 1: The hospital CEO decides entirely

Score 3: The hospital CEO and the speciality decide jointly

Score 5: The speciality decides this entirely

n) To what degree do individual departments have autonomy to set their own budget and make strategic investments?

Score:

1  2  3  4  5  -99

Score 1: Departments are seen as cost centres which are allocated pre-determined budgets; department leaders have limited autonomy for setting strategic direction and little/no authority to make strategic decisions.

Score 3: Departments function as business units where department leaders collaborate with senior management to set budgets and determine their strategic direction.

Score 5: Departments are seen as revenue centers which function as fully independent business units; department leaders have complete authority to make investment decisions and set their own strategic agenda.

o) What is the largest CAPITAL INVESTMENT your speciality could make without PRIOR authorization from CEO?  
*(ignore form filling) [PLEASE CROSS CHECK ANY ZERO RESPONSE BY ASKING "what about buying a new computer - would that be possible?", and then probe further.* \_\_\_\_\_

Ownership

a) Who owns the hospital? \_\_\_\_\_

b) What is the hospital's public/private status?

Public  Private  Other  -99

If other, what? \_\_\_\_\_

c) Is the hospital managed by a third-party management company?

Yes  No  -99

d) Is the hospital part of a network?

Yes  No  -99

e) TOTAL number of hospitals within the network? \_\_\_\_\_

f) Number of OTHER clinical sites affiliated with THIS hospital \_\_\_\_\_

g) How many OTHER clinical sites have a Cardio/Ortho unit? \_\_\_\_\_

h) Is CEO/GM of the hospital on the site being interviewed?

Yes  No  -99

| Human Resources   |  |
|---|--|
| <p>e) Percent of managers who have a CLINICAL degree? _____</p> <p>e) Percent of managers who have an MBA? _____</p> <p>e) Average actual hours worked per week by nurses _____</p> <p>e) Percent of nurses in the specialty who have left in the last 12 months _____</p> <p>e) Percent of nurses who are union members _____</p> <p>e) Percent of doctors who are union members _____</p> <p>f) Roughly how many times bigger is the CEO salary than a nurse's salary. That is, does the CEO earn twice as much, ten times as much, or 100 times as much?<br/>_____</p> <p style="text-align: right;">Refused to answer: Yes <input type="checkbox"/> No <input type="checkbox"/></p> | <p>h) Ignoring yourself, how well managed do you think the rest of the hospital is on scale: 1 to 10, where 1 is worst practice, 10 is best practice and 5 is average</p> <p>Overall _____</p> <p>Operations (patient care processes) _____</p> <p>Talent (people, promotions, incentives, etc.) _____</p> <p>Would you like me to send you a copy of this report when it is written? Yes <input type="checkbox"/> No <input type="checkbox"/></p> |

Post - Interview

|  |  |  |   |
|--|--|--|---|
| a) Interview duration (minutes) _____  |  |  |   |
| b) Interviewee knowledge of management practices   |  |  |   |
| Score:<br>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> | Score 1: Some knowledge his specialty, and no knowledge about the rest of the hospital                   | Score 3: Expert knowledge his specialty, and some knowledge about the rest of the hospital                               | Score 5: Expert knowledge about his specialty and the rest of the hospital                  |
| c) Interviewee willingness to reveal information   |  |  |   |
| Score:<br>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> | Score 1: Very reluctant to provide more than basic information   | Score 3: Provides all basic information and some more confidential information   | Score 5: Totally willing to provide any information about the hospital!                     |
| d) Interviewee patience  |  |  |   |
| Score:<br>1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> | Score 1: Little patience - wants to run the interview as quickly as possible. I felt heavy time pressure | Score 3: Some patience - willing to provide richness to answers but also time constrained. I felt moderate time pressure | Score 5: Lot of patience - willing to talk for as long as required. I felt no time pressure |

d) Did the manager mention that the hospital was a teaching hospital? Yes  No

f) Number of times mentioned overriding economic factors (e.g. recession)? \_\_\_\_\_

f) Number of times rescheduled (0=never rescheduled) \_\_\_\_\_

g) Seniority of interviewee

1 - CEO  2 - Multi-specialty manager

3 - Specialty Manager  4 – Within specialty management

5 - Technician without management role (e.g. nurse or junior doctor)

h) Age of interviewee (don't ask) - guess if not told \_\_\_\_\_

i) Gender of interviewee Male  Female

j) Did the interviewee have a degree - guess if not told  
\_\_\_\_\_

l) Interview language \_\_\_\_\_

\*The Management and Leadership questions were asked in the following order during the interview: 1,2,3,5,4,6,7,8,9,10,11,12,13,21,14,15,16,17,18,19,20.