Practice follows structure: QM in Malaysian public hospitals

Abd Manaf Noor Hazilah

Abd Manaf Noor Hazilah is based in the Department of Business Administration, Faculty of Economics and Management Sciences, International Islamic University Malaysia, Kuala Lumpur, Malaysia.

Summary

Purpose – *The main aim of this study is to provide an empirical analysis on the practice of quality management among employees of Malaysian public hospitals at the district, state and national level hospitals. This paper aims to perform a comparative analysis on quality management practices among the three levels of hospitals.*

Design/methodology/approach – *The main method of data collection was self-administered questionnaire, and cluster sampling was used to select the respondent hospitals, while respondent employees were selected by stratified random sampling. Altogether 23 public hospitals throughout Peninsular Malaysia participated in the survey.*

Findings – *Practice of quality management was found to be significantly higher in district hospitals than in the national referral centre. However, there was no significant difference in perception on implementation outcome between the three levels of hospitals. Among the factors of quality management, teamwork was found to be significantly higher in district hospitals than in state hospitals and the national referral centre. Leadership and management commitment were found to be significantly higher in district and state hospitals than in the national referral centre. The effect of organizational structure could have an effect on practice of quality management.*

Originality/value – *Empirical studies on the effect of organisational structure on practice of quality management among employees of Malaysian public hospitals have never been conducted before and this thus contributes to the body of knowledge in this discipline of research.*

Keywords *Quality management, Hospitals, Public health, Public sector organizations, Malaysia*

Paper type *Research paper*

1. Malaysian health care delivery

The main provider of health care services in Malaysia is the Ministry of Health (MOH), through its network of 134 hospitals and extensive health clinic facilities (Ministry of Health Malaysia, 2006a). The country has a fairly equal distribution of health centres, which are highly subsidised by the Government. More than 90 percent of the population in the urban areas live within 3 km of a static health facility while, while in the rural areas, almost 70 per cent of the population do so (Manaf, 2005). Public health care services are increasingly being complemented by private providers, particularly the general practitioners' clinics. Health care strategies adopted by the country since independence has been successful in raising the health status of the population, particularly its emphasis on primary health care through the rural health services and family health services. The country has managed to reduce its infant mortality rate from 75.5 per 1,000 live births in 1957 when it gained independence from Britain (Suleiman and Jegathesan, 2000) to 6.6 per 1,000 live births by 2006 (Ministry of Health Malaysia, 2006b). To that effect, it is acknowledged that Malaysia's health service is one of the best in the Asia-Pacific region (Omar, 2000).

The country has also seen a burgeoning of private health care services over the last two decades largely due to the Government's privatisation policy. However, the profit-oriented

approach of private health care self-limits the service to the more affluent urban areas, while the rest of the country's health care needs are still being catered for by the public sector. Although the MOH is the largest provider of health care services in the country, the increasing role of the private sector has been significant. It is now providing about 50 per cent of healthcare services in the country (Ghani and Yadav, 2008).

Although the private sector has played an important role in complementing public health care services, the public-private mix has also led to a number of problems; the main one being the migration of trained health professionals from the public to the private sector (Manaf, 2006). On average about 300 physicians resign from government service each year to join the private sector (Lim, 2002). The question of manpower remains a significant issue in Malaysian public hospitals. Grievances regarding the heavy workload and long working hours are common among Malaysian doctors (Ai, 2001). Apart from this, the large salary gap between private and public hospitals serves as a push factor for the migration of doctors from the public to the private sector. In order to ease the shortage, the MOH has been employing foreign health professionals such as medical specialists, medical officers and nurses on a contract basis. Malaysia currently has a doctor to population ratio of 1:1,465. However, disparities between the states remain high with the Federal Territory of Kuala Lumpur at 1:372, in comparison with Sabah at 1:4,120 (Economic Planning Unit (EPU), 2001).

Malaysia's expenditure on health care as a percentage of GDP is considerably lower than in other developing countries as shown in Table I. The relatively low expenditure can be attributed to the emphasis given to rural health development and infrastructure; and the promotional and preventive approach to health care taken by the MOH. Malaysia is one of the few countries in which public spending are biased towards the poor, and this has greatly reduced inequity in access to health care. The extensive network of health care services provided by the government through its hospitals and clinics throughout the length and breadth of the country has led the population at large to enjoy a health status that is almost comparable to the developed countries (Suleiman and Jegathesan, 2000).

Malaysian public hospitals are organised into national level hospitals, state level hospitals, and district level hospitals. Hospital Kuala Lumpur, which is the largest hospital in the country with more than 2,000 beds and situated right in the centre of the nation's capital city, is the main national level hospital. It provides a comprehensive range of tertiary care services. State level hospitals are those, which are situated in the capital city of each of the 13 states in the country. These are also large hospitals with bed capacity ranging from 800-1200, and provide a comprehensive range of secondary care services. Some also provide tertiary care services such as Hospital Pulau Pinang for the northern region. District level hospitals on the other hand, provide basic inpatient care services. For those with resident specialists, some secondary level specialty services are also provided. District hospitals without specialists are generally smaller with beds ranging from 30 to 150, while those with specialists may have beds ranging from 200 to 500.

Table I Health expenditure as percentage of GDP and health status in selected Asian countries, 2004

Country	*Health expenditure (% GDP)*	*Life expectancy at birth (years)*	*Infant mortality*	*Population per physician (per 1,000 population)*
Korea	5.5	76.5	NA	1.6
Hong Kong	5.3	81.6	NA	NA
Thailand	3.5	72	7	0.4
Papua New Guinea	3.6	62	54	0.1
Sri Lanka	4.3	72.5	11	0.5
China	4.7	73.5	20	1.5
Malaysia	3.8	71.5	6.6	0.7
Philippines	3.4	67.5	24	1.2
Indonesia	2.8	67.5	26	0.1

Source: World Health Organization, WHO Statistical Information System (2007)

2. Quality management in health care

Goetsch and Davis (2006) define quality management as an approach to doing business that attempts to maximise the competitiveness of an organisation through the continual improvement of the quality of its products, services, people, processes and environment. Besterfield *et al.* (1999) defines quality management as both a philosophy and a set of guiding principles that represent the foundation of a continuously improving organisation. The emphasis that quality management is a management philosophy was also echoed by Dahlgaard and Dahlgaard-Park (2006) who stressed that the aim of the philosophy is to change corporate cultures from a passive and defensive culture to a pro-active and open culture where the basic principles include customer satisfaction, continuous improvement and employee involvement at all levels of the organisation. Evans and Lindsay (2006) further suggest that it is the total, company-wide effort that is achieved through the full involvement of the entire workforce, and a focus on continuous improvement that companies use to achieve customer satisfaction. Thus, quality management is both a comprehensive managerial philosophy as well as a collection of tools and approaches for its implementation.

Much of the earlier development on quality management took place in the industrial sector, particularly through the efforts of Deming and Juran in rebuilding the Japanese industries after the Second World War. Nonetheless, similarities between the industries and health care quality have been emphasised by proponents of health care quality management. The need for greater emphasis on consumer requirement and expectations, greater attention to the design of systems and processes in health care, management responsibility in assuring the quality of clinical care, the need to develop appropriate applications of statistical control methods to health care monitoring, and the need for quality to permeate all levels of the organisation through effective training and education, has been cited as some of the similarities that health care can adopt and adapt from manufacturing (Donabedian, 1993).

There are no doubt limitations to the industrial model when applied to health care, in that it ignores the complexities of the patient-practitioner relationship. It also downplays the knowledge, skills and motivation of the practitioner, ignores the trade-offs to quality, emphasises supportive activities rather than clinical ones, and provides less emphasis on improving professional performance (McLaughlin and Kaluzny, 1990). The differences, however, do not dissuade proponents of quality management in health care. Rising health care costs and its associated wastes have often been cited as one of the reasons for quality management to permeate the health care sector. Costs associated with waste and errors in health care are estimated to be between 20 to 40 per cent of the total costs of the industry (McLaughlin and Kaluzny, 1999). Excessive medical cost is also one of the deadly diseases cited by Deming (1994), which, according to him, stands in the way of a complete transformation of western management to quality management. His concern may be exemplified in the medical care expenditure of the USA which was estimated at a staggering USD 1.175 trillion in 1997 or 15 per cent of GDP (Getzen, 1997).

Whether a country's health care system is market-driven or funded by the state, nations the world over are grappling with the problem of cost-containment in health care services. Americans spend the highest amount per capita on health care among industrial countries; yet, their health well-being is among the lowest relative to other industrialised countries (Yasin *et al.*, 1999) This raises the question whether higher cost leads to better quality of care, or whether better quality of care can actually be achieved at less cost. Milakovich (1991) pointed out that the quality of care and cost-containment can exist simultaneously, and are not necessarily incompatible. Stressing both need not result in lower quality of care and increased cost. Thus, given the circumstances, quality management became an attractive option for both policy-makers and managers of health care.

3. Research problem

Various measures taken by the Malaysian government from the 1980s onwards were aimed at increasing the efficiency of the public service by strengthening the importance of quality management in the public sector (Karim, 1994). Thus, quality management was actively

pursued by the Malaysian public sector and this was formalised with the release of Development Administration Circular No. 1/1992 entitled ''Guidelines for Total Quality Management in the Public Sector''; and Development Administration Circular No. 4/1991, entitled ''Guidelines on Strategies for Quality Improvement in the Public Sector''. With the release of these two government circulars, implementation of quality management became obligatory for the public sector. Under the Ninth Malaysia Plan, quality management will continue to be reinforced as one of the policy thrusts towards service excellence in the public sector (Economic Planning Unit (EPU), 2006).

Apart from government directive, the implementation of quality management in Malaysian public hospitals has also been fuelled by the rising concern for quality in order to control excessive waste and inefficiency in health care services the world over. Efforts carried out in health care organisations in the USA, Britain, Canada and Australia provided the drive for such moves to be carried out in Malaysia. The influential work of Avedis Donabedian for example, has been instrumental in raising the awareness for quality in health care services, and such efforts have also predisposed policy-makers in Malaysia. Thus, the Ministry of Health (MOH) was already initiating quality improvement efforts in Malaysian public hospitals during the 1980s. Its Quality Assurance Programme (QAP) was started in 1985, ahead of any Government directives on quality management. Today, apart from the Quality Assurance Programme (QAP), a whole host of quality initiatives are taking place in MOH hospitals such as Clinical Practice Guidelines (CPG), incident reporting, nosocomial infection control, Peri-operative Mortality Review (POMR), Quality Circles, and clinical audit. A number of public hospitals have also won national quality awards. The country's coveted Prime Minister's Quality Award was won twice by state level hospitals. Given the emphasis on quality within the public health care delivery system, it is therefore timely that an assessment is made on the implementation of quality management among employees of the MOH hospitals. Empirical studies on practice of quality management in health care have been found to be wanting, and the emphasis is still very much anecdotal (Bigelow and Arndt, 1995). It is thus anticipated that this study will fill the lacunae.

The main objective of the study is to assess the practice of quality management in Malaysian public hospitals at the district, state and national levels. Comparative analysis on quality management practices is made among the three levels of hospitals. Barriers to the implementation of quality management are also assessed and again, comparison is made between the three groups of hospitals. Lastly, perception of outcome of quality management implementation between employees of district, state and national level hospitals is also analysed. Comparative analysis between the three levels of hospitals can also shed some light onto the effectiveness of the Malaysian penchant for large organisational structures. The national referral centre is a case in point where it is among the largest hospitals in Asia.

4. Research method

The survey covered the whole of the Malaysian peninsula and given the large geographical area to be covered, self-administered questionnaire was used as the main method of data collection. In constructing the questionnaire, a number of instruments was consulted, particularly those developed for measuring quality management practices. These included the work of Saraph *et al.* (1989), Flynn *et al.* (1994), Powell (1995), and Dow *et al.* (1999). Although these instruments were not developed specifically for health care organisations, nevertheless the items were generic enough for adaptation towards health care services. In designing the format of the questionnaire, the hectic working environment of the respondents was taken into account. Thus, the questionnaire comprised only of closed questions, as opposed to open-ended questions. A total of 60 items were grouped under practice of quality management. Items such as ''Top management is fully committed to quality activities'' were reflective of leadership and management commitment while items worded ''Superiors always take suggestions seriously'' represented the employee involvement aspect of quality management.

The questionnaire also comprised items on barriers to the practice of quality management. The time consuming nature of quality improvement efforts, the lack of knowledge of the

management to successfully implement quality management, difficulties in implementing quality improvement efforts, and mindset barriers such as quality improvement efforts do not benefit the individual employee, and that quality management is only a passing fad, were some of the barrier statements posed to the respondents.

Performance of quality programme implementation outcomes was assessed subjectively by having four items, which gauged the perception of the respondents of the resultant effect of the quality improvement efforts on the working environment, sense of belonging among the staff and better facilities for customers. The subjective assessment of quality management outcome has been used in the work of Powell (1995); Zeitz (1996); and Saraph *et al.* (1989). All these items were presented in a Likert-scale format with responses ranging from 1 (strongly disagree) to 5 (strongly agree).

The respondents of the survey comprised health care employees throughout the organisational hierarchy, ranging from the medical specialists until the health aides. The Ministry of Health is one of the largest employees in Malaysia, with over 100,000 employees. Due to the size of the population and the large geographical area to be covered, cluster sampling was used in the selection of respondent hospitals. Altogether, 23 hospitals participated in the survey. The hospitals were grouped into national referral centre, state level hospitals and district level hospitals. In order to offset the loss in precision due to cluster sampling, selection of sample was stratified at both the design and field stage of the survey. In the designing stage, the number of respondents required from each designation group for each hospital was stratified according to the population of each designation. Precision was further improved during the fieldwork by stratifying the selection of respondents at the cluster level. Here, the number of respondents required for each stratum of designation from each department was proportionately stratified against the whole population of each hospital.

Once the number of respondents from each category of staff was identified for each department, systematic sampling was used to finally select the respondents from the sampling frame. For the nursing staff, the nurses' duty roster provided the sampling frame while for other categories of staff, the personnel list obtained from the Director's Office provided the sampling frame. A total of 1,118 cases were analysed. On average, the response rate from each hospital was 90 per cent. Analyses of data were done using SPSS and post hoc test carried out for analysis of variance was done by the LSD method.

5. Reliability and validity

Reliability analysis was conducted on all 60 items of the questionnaire. The instrument was found to have Cronbach's coefficient alpha of 0.96, which exceeds the acceptable lower limit of 0.7 (Hair *et al.*, 1998). All except one of the items were found to have item-total correlation greater than the acceptable limit of 0.3 (Nunnally and Bernstein, 1994). The statement which states ''my hospital relies on reasonably few dependable suppliers'' had an item-total correlation of 0.2536, and if deleted, would increase the alpha to 0.9576. Since the increase in alpha was marginal if this item were to be deleted, it was therefore retained for further analysis. Furthermore, this item was also deemed important to the study since supplier relationship is one of the important dimensions of quality management.

Factor analysis was then carried out with the extraction done by principal component analysis and oblique rotation. This is consistent with the general agreement that quality management factors are not unrelated to one another, that is, not orthogonal (Black and Porter, 1996; Zeitz *et al.*, 1997). The minimum acceptable level of significance of 0.3 was applied to the factor loading, and this criterion reduced the number of items to 43 from the original 60. Eight factors were extracted which were leadership and management commitment, supplier partnership, continuous improvement, employee involvement and training, management by fact, strategic planning, teamwork, and quality assurance. This is as shown in Table II.

6. Research findings

The finding, as shown in Table III, suggests that factors of quality management that are practised in Malaysian public hospitals are leadership and management commitment,

Table II Results of factor analysis

Factor	*Labels*	*Eigenvalue*	*Percentage of variance*	*Cumulative percentage of variance*
1	Leadership and management commitment	13.914	34.8	34.8
2	Supplier partnership	2.037	5.1	39.9
3	Continuous improvement	1.567	3.9	43.8
4	Employee involvement and training	1.484	3.7	47.5
5	Management by fact	1.217	3	50.5
6	Strategic planning	1.118	2.8	53.3
7	Teamwork	1.057	2.6	56
8	Quality assurance	1.001	2.5	58.5

Table III Practice of quality management

Factors	*Mean*	*Std. dev.*	*t*-value	*p*-value
Continuous improvement	4.33	0.47	59.64	0.00
Strategic planning	4.10	0.57	35.19	0.00
Quality assurance	4.10	0.50	40.47	0.00
Teamwork	4.07	0.53	35.18	0.00
Leadership and management commitment	3.84	0.57	19.93	0.00
Employee involvement and training	3.80	0.57	17.39	0.00
Management by fact	3.76	0.58	14.91	0.00
Supplier partnership	3.34	0.53	21.39	0.00
Practice of quality management	3.88	0.43	68.23	0.00

supplier partnership, continuous improvement, employee involvement and training, management by fact, strategic planning, teamwork, and quality assurance. All items in the eight factors, when collapsed to form a single variable for practice of quality management, have a mean score of 3.88. A one-tailed *t*-test with test value of 3, provides statistical evidence. This indicates that the employees of MOH hospitals agree that quality management is being practised in their organisations.

Practice of quality management and level of hospital

Analysis of variance was also carried out in order to find out if there is any significant difference in the practice of quality management between the national referral centre, state level and district level hospitals. The result shows that there is significant difference between district level hospitals and the national referral centre. The finding suggests that practice of quality management is higher in district hospitals than in the national referral centre, which is Hospital Kuala Lumpur (HKL). As mentioned above, district level hospitals are smaller entities in comparison to the state and national level hospitals. Larger hospitals face more difficult challenges in implementing quality improvement efforts due to the more bureaucratic nature that are not conducive to the progress of quality management (Shortell *et al.*, 1995). Smaller hospitals, on the other hand, are more likely to have group/developmental culture that is supportive of teamwork, empowerment and risk-taking which are important attributes for successful implementation of quality management.

The finding also suggests that although the state level hospitals are smaller than the national referral centre, however, the structure of these hospitals are more similar to HKL than the district hospitals. Therefore, the size difference do not seem to make much impact on practice of quality management between the two levels of hospitals. The researcher also observed the vast difference in the ambience between the district hospitals and HKL. The district hospitals are much less crowded in comparison to HKL. The environment of the state hospitals however, do not differ much from HKL, as observed from the level of activity and crowd. Thus although size of organisation do seem to have an effect on practice of quality management, nonetheless the difference must be large enough in order to detect any significance difference. Table IV shows the result of the one-way ANOVA carried out and Table V shows the *post hoc* test carried out.

Table IV One-way ANOVA between level of hospital and practice of quality management

	Mean	*Std. dev.*	*F*-value	*p*-value
Practice of quality management			2.88	0.06*
National referral centre	3.87	0.42		
State level hospital	3.92	0.39		
District level hospital	3.98	0.41		

Note: * Significant at 10 per cent confidence level

Table V *Post hoc* test for level of hospital and practice of quality management

Practice of quality management	*Hospital attached to*	*Mean difference*	*Std error*	*Significance*
District	State	0.06	0.04	0.11
District	National	0.11	0.04	0.02*
State	National	0.04	0.03	0.14

Note: * Significant al 5 per cent confidence level

One-way ANOVA was also carried out between all the eight factors of quality management and the three levels of hospitals. The finding shows that there is significant difference in only two out of the eight factors, that is, teamwork, and leadership and management commitment. There is no significant difference between the level of hospital and supplier partnership, continuous improvement, employee involvement and training, management by fact, strategic planning, and quality assurance. Table VI shows the result of the ANOVA for teamwork, and leadership and management commitment, while Table VII shows the post hoc test carried out.

Table VI One-way ANOVA between level of hospital and factors of practice of quality management

Factors	*Mean*	*Std. dev.*	*F*-value	*p*-value
Leadership and Management Commitment			4.46	0.01*
District	3.96	0.52		
State	3.86	0.57		
National	3.78	0.58		
Teamwork			4.97	0.01*
District	4.18	0.48		
State	4.05	0.54		
National	4.00	0.53		

Note: * Significant al 5 per cent confidence level

Table VII *Post hoc* test for level of hospital and factors of practice of quality management

Practice of quality management		*Mean difference*	*Std. error*	*Significance*
Teamwork				
District	State	0.13	0.05	0.01**
District	National	0.18	0.06	0.00**
National	State	−0.05	0.04	0.23
Leadership and management commitment				
District	State	0.10	0.05	0.07*
District	National	0.18	0.06	0.00**
National	State	−0.08	0.04	0.05**

Note: * Significant at 10 per cent confidence level; ** Significant al 5 per cent confidence level

The *post hoc* test indicates that there is significance difference in teamwork between district and state level hospital, and between district and national level hospital. However, no significance difference is observed between state and national level hospital. The finding seems to suggest that teamwork is higher in district hospitals than in state and national level hospitals. The finding is not to the contrary, given the fact that district hospitals are smaller in size than state and national level hospitals. As noted earlier, Shortell *et al.* (1995) had pointed out that the culture in smaller hospitals is more conducive to the development of teamwork. The district hospitals are also located in smaller regional areas compared to the state level hospitals, which are located in the urban capital of each state, and the national referral centre, which is located in Kuala Lumpur itself. Thus, employees of the district hospitals probably comprise local people who know each other beyond the confines of the hospital, which can be a contributory factor in facilitating teamwork in the workplace. Smaller-sized hospitals are also less bureaucratic, an attribute that also facilitates teamwork (Shortell *et al.*, 1995).

The *post hoc* test also indicates that there is significant difference in leadership and management commitment between district and national level hospitals, and between state and national level hospitals. The finding is also significant between district and state level hospitals. The finding seems to suggest that leadership and management commitment is higher in district level hospitals than in state and national level hospitals. It also suggests that this factor is higher in state level hospitals than in the national referral centre. The organisational structure of the district level hospitals is less complicated and hierarchical than the state and national level hospitals. Most of the district hospitals also do not have a post for Deputy Director. As such, Directors in the smaller district hospitals tend to be more accessible to the employees, and because of the small number of employees, the Directors also tend to be more visibly involved in quality improvement efforts. Directors in the larger state and national level hospitals on the other hand tend to be more distanced from the employees due to the larger number of employees and consequently the increased administrative layers between them.

Barriers to implementation of quality management and level of hospital

The perception of the respondents on barriers to implementation of quality management was also elucidated between the three levels of hospitals. The finding indicates that the employees do no face much barriers in implementing quality improvement efforts in their work, as indicated by an overall mean of 2.36 for all the barrier items. This could be due to the fact that the quality improvement efforts in MOH hospitals have been carried out for quite some time, and that the staff have passed the adjustment period or overcome teething problems during the earlier stages of implementation. However, the respondents were close to agreeing that the quality improvement process is too time consuming as the mean for this item was 2.88. In comparing the perception to barriers of implementing quality management among employees of the three levels of hospitals, the finding indicates that the mean was lower for the district hospital than for the state and national level hospital, but the finding was not statistically significant, as shown in Table VIII.

Implementation outcome of quality management and level of hospital

The perception of the respondents on the outcome of quality management implementation also did not indicate any significance difference between the three levels of hospitals as

Table VIII One-way ANOVA between level of hospital and barriers to practice of quality management

	Mean	*Std. dev.*	*F*-value	*p*-value
Barriers to practice of quality management			0.87	0.42
National referral centre	2.35	0.64		
State level hospital	2.37	0.59		
District level hospital	2.30	0.58		

shown in Table IX. On the whole, the respondents were agreeable to the positive implementation outcome of the quality improvement efforts carried out which resulted in better facilities for the customers, more efficient and conducive working environment, and a sense of belonging among the staff. This was reflected in the overall mean of 4.03 for all the outcome items. However, there do not seem to be any significant difference in the outcome perception between the district, state and national level hospitals.

7. Conclusion and discussion

Greater challenges are faced by larger hospitals in implementing quality management due to the more bureaucratic structure and culture of the larger hospitals in comparison to smaller hospitals (Shortell *et al.*, 1995; Carman *et al.*, 1996). Hospitals today are complex organisations, which are technologically driven and manned by various professionals from various subgroups and subcultures. The smaller district hospitals particularly those without resident specialists are less complicated than the larger state and national level hospitals. Because of their smaller structure, which is also less bureaucratic, these smaller hospitals therefore tend to have a developmental culture (Shortell *et al.*, 1995), which is supportive of teamwork, and employee empowerment – two central pillars of quality management. Accordingly, findings from this study support the earlier works, which show that smaller hospitals are better disposed to quality management implementation than larger hospitals.

Other studies, however, have raised the question of the capability of smaller hospitals to effectively carry out quality management. Chow-Chua and Goh (2000) suggested that smaller hospitals tend to lag behind the larger hospitals in implementing quality management because they have limited resources to do so. The implementation of quality management requires serious commitment, not only in terms of leadership commitment, but also in terms of time and financial resources. Thus, the smaller hospitals may lack the resources to sustain and endure the quality improvement efforts over time. The finding from this study seems to suggest that although smaller hospitals may lack the resources, they nevertheless have the right structure and culture for successful implementation of quality management.

An analysis on practice of quality management between district, state and national level hospitals has never been conducted in Malaysian public hospitals before. The findings from this study shed light on the fact that the smaller district hospitals should not be ignored by policy-makers in their strategic move with respect to quality improvement efforts in the Malaysian public health care delivery system. Although the Prime Minister's Quality Award has been won twice by state level hospitals, however, the smaller district hospitals should not be dismissed altogether. The inverse relationship between organisational structure and size, and successful implementation of quality management cannot be ignored. The smaller hospitals may lack the human and financial resources to commit themselves to the extensive documentation, data collection and audit exercise required to meet the stringent award criteria, such as the Prime Minister's Quality Award. This should not, however, be taken at face value where in actual fact the smaller hospitals are more favourable ground for the successful implementation of quality management. Thus, practice follows structure.

Table IX One-way ANOVA between level of hospital and outcome of quality management implementation

	Mean	*Std. dev.*	*F*-value	*p*-value
Outcome of quality management implementation			0.91	0.40
National referral centre	4.00	0.58		
State level hospital	4.03	0.63		
District level hospital	4.09	0.60		

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Corresponding author

Abd Manaf Noor Hazilah can be contacted at: hazilah@iiu.edu.my