# Quality management in Malaysian public health care

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## Abstract

**Purpose** – The main aim of the study is to provide an empirical analysis of quality management practice among Malaysian Ministry of Health hospital employees, ranging from medical specialists to health attendants.

**Design/methodology/approach** – Self-administered questionnaires collected data and cluster sampling used to select hospitals, while stratified random sampling selected employee respondents. The research was limited to peninsular Malaysian public health care.

**Findings** – A total of 23 public hospitals participated in the survey, including the National Referral Centre, which is based in Hospital Kuala Lumpur. Eight quality management practices were identified in Malaysian public hospitals: continuous improvement, strategic planning, quality assurance, teamwork, leadership and management commitment, employee involvement and training, management by fact, and supplier partnership. Support for quality management was found to be lowest among the physicians.

**Originality/value** – The article fills a lacuna in the health care quality management empirical research literature. The main recommendation is for the Malaysian Ministry of Health to garner physicians' support in its quality endeavours.

**Keywords** Quality management, Hospitals, Health services, Public sector organizations, Malaysia

**Paper type** Research paper

## Introduction

The Ministry of Health Malaysia (MOH) principally provides public healthcare in Malaysia, although other ministries such as the Ministry of Education (through its university hospitals) and the Ministry of Defence (through its army hospitals) also provide health care services. However, health care services provided by these ministries are limited. Taken as a whole, the Ministry of Health is the main provider of public health care services in the country and accounts for 53 per cent of the government's total health funding allocation (Yon, 2002).

An extensive network of public hospitals and clinics throughout the length and breadth of the country provide Malaysia's public health care services. In the urban areas, 92 per cent of the population live within 3 km of a health facility, while in the rural areas, 69 per cent of the population do so (Suleiman and Jegathesan, 2000). Public health care services are also being increasingly complemented by the private sector, particularly general practitioners' clinics. This has led the population at large to enjoy a health status that is almost comparable to that in developed countries. While private health care services tend to concentrate in the urban areas to cater for the affluent population, public health care services have been biased towards the poor, and this has greatly reduced inequity and access to health care among the population. Malaysia has managed to reduce its infant mortality rate from 75.5 per 1,000 live births in 1957

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(when the country gained independence) to 9.1 per 1,000 live births in 1996 (Suleiman and Jegathesan, 2000).

Malaysian public hospitals are organized into national, state and district levels. National level hospitals provide a comprehensive range of tertiary care services: an example is Hospital Kuala Lumpur, which serves as the National Referral Centre. State level hospitals, with one located in the capital of all 13 states in the country, provide a comprehensive range of secondary services. District level hospitals, on the other hand, provide basic inpatient care services, and those with resident specialists also provide some specialty services. In rural areas, health care services are provided by an extensive three-tier rural health system consisting of three types of health facility:

(1) Main Health Centres (MHCs);

(2) Health Sub-Centres (HSCs); and

(3) Midwife Clinics cum Quarters (MCQs).

This system is being gradually changed into a two-tier system by upgrading HSCs and MHCs into Health Centres. This will reduce the coverage from 50,000 to 30,000 per health facility (AlJunid, 2002).

## Quality improvement in Malaysian public hospitals

Quality management practices have been implemented in Malaysian public hospitals since the early 1990s when a directive for implementation in the public sector was issued via Development Administration Circular No. 1/1992, entitled "Guidelines for Total Quality Management in the Public Service". Since then, quality management has been actively pursued in Ministry of Health (MOH) hospitals. To date, a number of MOH hospitals have won national level quality awards, and the highest award, which is the Prime Minister's Quality Award, has been won twice by state level public hospitals. A myriad of quality improvement activities have also been in place in MOH hospitals. Its quality assurance programme (QAP) was initiated in 1985, ahead of the Government's directive on the implementation of quality management. Based on Donabedian's (1998) "structure-process-outcome" quality triad, quality assurance (QA) has since been widely implemented in MOH organizations. It is well established in MOH hospitals, with the Quality and Standards Unit of the Medical Development Division of the MOH as the secretariat.

In line with the shift in emphasis from a quality assurance focus to a broader quality management perspective, the MOH has also implemented a host of other quality initiatives. Efforts at inculcating a unifying Corporate Culture were launched in 1991, with core values identified as caring services, teamwork, and professionalism. This was followed by launching the Ministry's Client's Charter in 1993. The Client's Charter and Corporate Culture are seen as complementing the technical aspects of quality assurance by focusing on the needs of patients for service quality. MOH hospitals have also been encouraged to seek accreditation from the Malaysian Society for Quality in Health (MSQH). At the employee level, quality circles (QC) and innovation projects have been actively carried out in MOH hospitals.

## Quality management in health care

Quality management has been described as both a philosophy and as guiding principles that represent the foundation of a continuously improving organization.

Evans and Lindsay (1996) suggest that quality management 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. Deming (1994), through his 14 points, emphasized that improvements in product and service quality can be achieved by reducing variation in the design and manufacturing process. He stressed that it is deficiencies in systems, rather than mistakes made by the workforce, that cause error and waste. Juran (1992), on the other hand, who is better known for defining quality as "fitness for use", propounded quality management through his "quality trilogy" of quality planning, quality control and quality improvement.

Despite its industrial origin, quality management found a footing in health care for a number of reasons. The rise in the cost of health care throughout the years, brought about by rapid technological advances in the medical field, has been phenomenal. Hospitals have evolved into highly complex organizations and physicians have become highly specialised and highly paid professionals. New advances in medicine have led to the discovery of new drugs, which are not cheap, as patent rights and the commercialisation of pharmaceutical products is an all too familiar landmark of the healthcare landscape. Health professionals have to be trained and retrained in order to keep abreast with rapid developments taking place in the medical world. On top of all this, medical litigation has also played a significant role in contributing to the burgeoning costs of health care.

Health care is a trillion-dollar business in the USA, at 13.7 per cent of GDP (World Health Organization, 2000), with an average US$4,226 spent per person in 1997 (Getzen, 1997). In the UK, the National Health Service (NHS), with nearly one million employees, ran on an overall budget of about £50 billion in 2000 (Henderson, 2002). This accounts for 5.8 per cent of the country's GDP (World Health Organization, 2000). However, spending is set to match the European average by the end of the decade. 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. Escalating costs in public health care expenditure have also been experienced by the Malaysian government. The operating expenditure of the MOH increased from RM 759m in 1980 to RM 2.491bn in 1996, an increase of nearly 230 percent (Yon, 2002). Malaysian public health care services are heavily subsidised, and the fees collected from government hospitals contribute to only about 5 percent of the total MOH expenditure (Yon, 2002). Spending on health care is about 2.4 percent of the country's GDP (World Health Organization, 2000).

Escalating health care costs have also raised the question whether higher costs lead to better quality of care, or whether better quality of care can actually be achieved at a lower cost. Milakovich (1991) pointed out that quality of care and cost containment can exist simultaneously, and are not necessarily incompatible. Ovretveit (2000) showed how waste in health care can be quantified through quality costing. Harkey and Vraciu (1992) provide empirical evidence on the link between the quality of health care and financial performance. But the notion that a *quality* health care service is equated to the provision of *more* services is deeply embedded in the health care industry. In fact, there is intense debate about the perceived trade-off between the quality of services and cost (Morrison and Heineke, 1992).

Though there is no agreement as to how to make the health care industry more efficient and effective, more and more leaders of health care organizations are turning to the tools and principles of quality management in order to achieve such goals. Quality management is appealing to health care managers because of its focus on improving and maintaining the quality of care, while at the same time containing costs. Chan and Ho (1997) quoted a study carried out in 1993 on 3,300 hospitals in the USA, which showed that about 70 per cent of the hospitals had implemented some form of quality management system. Wagar and Rondeau (1998) cited a study of 1,300 Canadian health care organizations which showed that more than half of the respondents had implemented or were considering implementing quality management in their organizations. However, casualties have also been high. A 60-67 per cent implementation failure rate was reported by Huq and Martin (2000), and was mainly attributed to ineffective implementation systems rather than basic flaws in the principles of quality management. Nonetheless, quality management found its footing within the health care industry.

While health care organizations have embraced quality management with fervour, concerns have been raised on the suitability of quality management to the health care environment, notably Arndt and Bigelow's (1995) argument that assumptions inherent in quality management, which are hierarchical management control over the technical core and dominance of rational decision-making, may not translate well in a hospital environment. Morrison and Heineke (1992) also argued that outcomes in health care are difficult to define, measure and control, in comparison to other manufacturing or service operations. Health problems also tend to be more complex and require a high degree of customised solutions, which is enhanced by the professional autonomy endowed by society on health professionals. This aspect of health care runs counter to the conventional quality management approach that relies on a high level of standardisation and control of variability. Despite the reservations, quality management continued to permeate the health care sector on a global scale, in a move by health care organizations to search for the panacea to their ills.

## Research problem

The main aim of the study is to assess empirically the practice of quality management among Malaysian public hospital employees, ranging from medical specialists to health attendants. It also aims to explore the effect of service factors such as job designation and supervisory status, and organizational factors such as hospital level, on the extent of practice of quality management. A number of instruments have been developed for measuring quality management practices, and the study is guided by these instruments, notably those developed by Saraph *et al.* (1989), Flynn *et al.* (1994), Powell (1995), and Dow *et al.* (1999). While these instruments are not specific to health care, they nevertheless provide a pool of items for the development of the instrument used in this survey (available from the author). Within the Malaysian context, studies carried out by the Institute of Public Health on the key success factors of award-winning Malaysian public hospitals were also consulted in the development of the survey questionnaire.

Questionnaire development was guided by quality management factors derived from the literature, i.e. leadership and management commitment, strategic planning, management by fact, customer focus, quality assurance, continuous improvement,

employee involvement and teamwork, supplier partnership, and training. Empirical studies of quality management in health care organizations have been found to be wanting, and as noted by Bigelow and Arndt (1995), the emphasis of the literature in health care studies is still on anecdotal. For example, interviews with CEOs on the implementation of quality management in their organizations predominate. It is thus anticipated that the study will fill the lacuna.

A number of hypotheses were developed in an attempt to meet the study's main aim. The Ministry of Health has been actively pursuing the path of quality in its endeavours. It has laid down its Strategic Plan for Quality in Health (Ministry of Health Malaysia, 1998), and part of the vision of the Strategic Plan is to make quality the culture of all its personnel. The deep involvement of the MOH in quality improvement leads to the following hypothesis:

*H1*. There is a strong perception among employees that quality management is practised in Malaysian public hospitals.

Quality management efforts in health care have not been well received by physicians, who are protective of their professional autonomy and have an aversion to outside interference in their work (Morgan and Murgatroyd, 1994; Zabada *et al.*, 1998; Huq and Martin, 2000). Unavailability of time, the belief that they are already doing quality work, and their relative inexperience and unwillingness to work as team members are some of the other contributing factors to their indifference to quality management (Zabada *et al.*, 1998). From these observations, the following hypothesis is formulated:

*H2*. Physicians tend to have a lower perception of the practice of quality management than other employees.

Hospitals are organised along hierarchical lines, which operate within a stratified culture that develops owing to the presence of distinct groups of health professionals, with each group having a highly developed sense of professionalism and professional identity. The hierarchical nature of health care organizations exemplifies bureaucratic cultures that are not conducive towards employee empowerment, which in turn is central to the successful implementation of quality management. In a quality management environment, supervisors need to assess their authoritarian leadership styles and instead encourage employee participation and group decision-making. Many supervisors and middle managers resist this, as they are often afraid that the practice will lead to the erosion of their authority (Reeves and Bednar, 1993). This leads to the following hypothesis:

*H3*. Lower to middle-level managers tend to have a lower perception of the practice of quality management than other employees.

Lower ranking employees who have routine jobs tend to support quality management initiatives that encourage employee involvement. In QCs, for example, a small group of six to ten employees from the same work unit meet regularly to identify and analyse work-related problems. Juran (1992) argues that today's workers receive more education and are better informed than their Taylorian counterparts, where workers were not expected to think, but merely perform the work assigned. Therefore, their potential problem-solving ability should be capitalised on by the management. Employee participation and empowerment in quality management confer increased

status to lower ranking staff, and give them increased intrinsic satisfaction (Zeitz, 1996). This leads to the following hypothesis:

*H4.* Lower ranking employees tend to have a higher perception of quality management practice than other employees.

Under Malaysian public health care, state level hospitals are larger hospitals with bed capacities ranging from 400 to 900, while district hospitals are generally smaller, with bed capacities between 200 and 600. Chow-Chua and Goh (2000) suggested that smaller hospitals tend to lag behind larger hospitals in implementing quality improvement programmes because these smaller hospitals have limited resources to implement quality improvement efforts. Quality management implementation requires serious commitment, not only in terms of leadership, but also time and financial resources. The financial investment can be substantial, while the results may take a while to appear. Thus, smaller hospitals may not be as enthusiastic as larger hospitals in implementing quality management. This leads to the following hypothesis:

*H5.* The magnitude of quality management practices in state level hospitals is higher than that in district level hospitals.

## Research method

The Ministry of Health is one of the largest ministries in the Malaysian government, with a total of 118 public hospitals spread throughout the country. Given the size of the population and the large geographical area to be covered, data collection was done by means of self-administered survey questionnaire (available form the author). Questionnaire development was guided by the literature. The views of health care quality experts from the Institute of Health Management, Ministry of Health Malaysia were also sought in designing the questionnaire. A pilot study was also carried out at two public hospitals in order to explore further the strength and weaknesses of the questionnaire. Feedback received from the pilot study further improved the content of the questionnaire.

In designing the format of the questionnaire, the hectic working environment of the respondents was taken into account, and in the circumstances closed questions were used throughout in order to boost the response rate. Sixty items relating to the practice of quality management were presented in a Likert scale format with responses ranging from 1 (strongly disagree) to 5 (strongly agree). The items were arranged in a random manner and not according to the factors that they represented. This allowed the respondents to ponder the items before answering. It also avoids the tendency of respondents to mechanically tick the answers if the factors behind the items are known. Items such as "Top management is fully committed to quality activities" were reflective of leadership and management commitment, while items such as "Superiors always take suggestions seriously" represented the employee involvement aspect of quality management.

### *Sampling*

All the state level hospitals were included in the survey as there is only one state level hospital in each state. Hospital Kuala Lumpur, which is the sole representative of national level hospitals, is also included in the survey. However, cluster sampling was used for the selection of district hospitals. Altogether, 23 hospitals participated in the

survey. In order to offset the loss of precision from cluster sampling, selection of the sample was stratified at both the design and field stages of the survey. At the design stage, the number of respondents required from each designation group for each hospital was stratified according to designation and numbers. 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 nurses, the duty roster provided the sampling frame, while for other categories of staff, personnel lists obtained from the Director's Office provided the sampling frame. Medical assistants and health attendants were also selected from their duty rosters.

A total of 1,181 returned questionnaires were received from all the 23 hospitals, and of these 63 were found to have missing data. Hair *et al.* (1998) suggested that one remedy in dealing with missing data is to delete the offending cases. Accordingly, cases with missing data were deleted and the remaining 1,118 cases were analysed. On average, a 90 per cent response rate was received from each hospital from the target number of respondents. Table I shows the distribution of the respondents according to designation. Table I shows that the largest number of respondents were staff nurses, who make up 38 percent of the sample, followed by health attendants, who make up 21 per cent of the respondents. Medical officers form a sizeable percentage at 11 percent, while medical specialists make up 2 per cent of the respondents. Pharmacists and assistant laboratory technologists make up the smallest number of respondents at 0.4 and 0.8 percent of the total respondents, respectively. Stratifying helped the respondent numbers to mirror the population from which they were drawn.

*Analysis*

Reliability analysis was conducted on all 60 items of the questionnaire. The instrument was found to have a Cronbach's coefficient alpha of 0.96, which exceeds the acceptable

| Designation | Sample[a] | Percentage | Population[b] | Percentage |
|---|---|---|---|---|
| Medical specialist | 27 | 2.40 | 822 | 1.40 |
| Medical officer | 126 | 11.27 | 5,147 | 8.71 |
| Pharmacist | 4 | 0.36 | 381 | 0.64 |
| Assistant pharmacist | 18 | 1.61 | 1,697 | 2.87 |
| Radiographer | 14 | 1.25 | 590 | 1.00 |
| Physiotherapist | 12 | 1.07 | 357 | 0.60 |
| Medical assistant | 58 | 5.19 | 3,968 | 6.71 |
| Laboratory technologist | 34 | 3.04 | 1,977 | 3.35 |
| Assistant laboratory technologist | 9 | 0.81 | 698 | 1.18 |
| Matron/sister | 23 | 2.06 | 1,083 | 1.84 |
| Staff nurse | 426 | 31.10 | 19,567 | 33.11 |
| Assistant nurse community nurse/midwife | 131 | 11.72 | 9,683 | 16.38 |
| Health attendant | 236 | 21.11 | 13,124 | 22.21 |
| Total | 1,118 | 100.0 | 50,094 | 100 |

**Sources:** [a]Survey data; [b]Human Resource Division, Ministry of Health Malaysia

**Table I.**
Distribution of respondents by designation

lower limit of 0.7 (Hair *et al.*, 1998). All except one of the items were found to have item-total correlation which exceeded Nunnally and Bernstein's (1994) acceptable limit of 0.3. However, the item "Hospital relies on reasonably few dependable suppliers" was retained for analysis since the increase in alpha was marginal if the item was deleted.

To establish the validity of the instrument, factor analysis was carried out. Extraction was done by principal component analysis and oblique rotation. The latter was used because of the general agreement that quality management factors are related to one another, that is, not orthogonal (Black and Porter, 1996; Zeitz *et al.*, 1997). In interpreting the factor solution, the minimum acceptable level of significance of 0.3 was applied to the factor loading. Use of this criterion reduced the number of items to 43 from the original 60. Eight factors were extracted for the first factor, which accounted for 58 percent of the total variance. Table II shows the factors extracted, which were labelled accordingly.

## Findings and discussion

The findings suggest that the quality management factors practiced by Malaysian public hospital employees are:

- leadership and management commitment;
- supplier partnership;
- continuous improvement;
- employee involvement and training;
- management by fact;
- strategic planning;
- teamwork; and
- quality assurance.

One-tailed *t*-tests carried out on all the eight factors, with a test value of 3, provides statistical evidence. This lends support to *H1*, i.e. that quality management is practised in Malaysian public hospitals. Table III shows the mean, standard deviation, *t*-values and $\rho$-values of the factors in ranking order.

In testing *H2*, the employee designation was collapsed into two categories (i.e. physician and non-physician) and an independent sample *t*-test was carried out on quality management practice between the two groups of employees. The result shows

| Factor | Labels | Eigenvalue | Percentage of variance | Cumulative percentage of variance |
|---|---|---|---|---|
| 1 | Leadership and management commitment | 13.914 | 34.785 | 34.785 |
| 2 | Supplier partnership | 2.037 | 5.092 | 39.876 |
| 3 | Continuous improvement | 1.567 | 3.919 | 43.795 |
| 4 | Employee involvement and training | 1.484 | 3.711 | 47.506 |
| 5 | Management by fact | 1.217 | 3.042 | 50.548 |
| 6 | Strategic planning | 1.118 | 2.795 | 53.343 |
| 7 | Teamwork | 1.057 | 2.643 | 55.986 |
| 8 | Quality assurance | 1.001 | 2.501 | 58.487 |

**Table II.**
Results of factor analysis

| Factors | Mean | SD | *T*-value | *ρ*-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 |

**Source:** Survey data

**Table III.**
Factors of practice of quality management

that there is a significant difference between the two groups, which suggests that physicians have lower perceptions compared to other groups of employees. The indifference of physicians towards quality management is well documented in the literature (Morgan and Murgatroyd, 1994; Huq and Martin, 2000, Merry, 1997; Zabada *et al.*, 1998). However, the Malaysian situation could also have been influenced by other factors not mentioned in the literature. Grievances about heavy workload and long working hours are common among doctors in Malaysian public hospitals. Interviews conducted with hospital directors all point to the shortage of doctors and nurses as being a pressing problem faced by public hospitals. Low pay, unattractive working hours and conditions, the preference of doctors to serve in urban rather than rural areas, and the long period of time required to produce a medical specialist were cited as some of the factors affecting the supply of physicians in Malaysian public hospitals.

The large salary gap between private and public hospitals results in the migration of physicians from the public sector to the private sector. On average, some 300 doctors and specialists resign annually from the public hospital service (Lim, 2002). This in turn affects the supply of medical practitioners in public hospitals. The gross imbalance in human resources between private and public hospitals implies that the heavy workload of physicians in Malaysian public hospitals is telling. This could be a contributing factor to the lack of involvement of physicians in MOH hospital quality management. They are too busy with their work to have the option to consider managerial pursuits such as quality management in their work. Table IV shows the *t*-test results.

In testing *H3*, matrons and sisters were grouped as middle and lower managers, and their perceptions of the practice of quality management were tested against those of other employees by conducting an independent sample *t*-test. The result shows that contrary to expectations, there is no significant difference in the perception of practice of quality management between the lower and middle managers and other groups of

| Designation | Mean | SD |
|---|---|---|
| Physician | 3.61 | 0.45 |
| Non-physician | 3.97 | 0.39 |
| $T = -9.15$; $p = 0.00^{**}$ | | |

**Note:** $^{**}$Significant at 5 per cent confidence level

**Table IV.**
*T*-test on practice of quality management between physicians and non-physicians

employees. The finding could be attributed to the fact that quality management has been implemented for more than ten years in MOH hospitals, and therefore the matrons and sisters have already seen its benefits. Unlike physicians, who are more focused on the clinical aspect of their work, matrons and sisters perform managerial functions and normally lead quality management activities. This gives them greater exposure to quality management and leads them to accept it positively. Zeitz (1996) also found that middle managers have a relatively positive attitude towards quality management because they receive the most training in quality management, and they also have the authority over the quality management implementation process. Table V shows the independent sample *t*-test results.

In testing *H4*, the respondents were grouped into two categories – lower ranking staff and other employees. Those grouped as lower ranking staff are health attendants, assistant laboratory technicians, and assistant nurses, who are appointed to the job with lower academic qualifications than other groups of employees. *H4* was tested by conducting an independent sample *t*-test on the practice of quality management between the lower ranking staff and other employees. The result shows that there is a significant difference between the two groups of employees, which suggests that the practice of quality management is higher among lower ranking staff. Involving employees in quality improvement efforts gives them greater intrinsic satisfaction, and this is well received by lower ranking staff as it makes them feel that they are able to make a worthwhile contribution to the organization (Zeitz, 1996). Their involvement allows them to experience meaning in their work, and employees who find their work

**Table V.**
*T*-test on practice of quality management between lower and middle managers and other employees

| Designation | Mean | SD |
|---|---|---|
| Lower and middle managers | 3.94 | 0.50 |
| Other employees | 3.92 | 0.41 |
| $T = 0.19$; $p = 0.85$ | | |

**Table VI.**
*T*-test on practice of quality management between lower ranking staff and other employees

| Designation | Mean | SD |
|---|---|---|
| Lower ranking staff | 3.97 | 0.39 |
| Other staff | 3.88 | 0.42 |
| $t = 3.18$; $p = 0.002^{*}$ | | |

**Note:** **Significant at the 5 percent confidence level

**Table VII.**
*T*-test on practice of quality management and level of hospital

| Level of hospital | Mean | SD |
|---|---|---|
| State hospital | 3.91 | 0.42 |
| District hospital | 3.98 | 0.39 |
| $T = -1.9$; $p = 0.058^{*}$ | | |

**Note:** *Significant at the 10 per cent confidence level

meaningful are more likely to be motivated and have high job satisfaction (Connor, 1997). Table VI shows the *t*-test results.

In testing *H5*, an independent sample *t*-test was conducted on the practice of quality management and at hospital level. The study reveals that there is significant difference between employees in state level hospitals and those at district level hospitals. This finding suggests that employees at the district hospitals have better quality management practices compared to those serving at the state hospitals. The finding could have been influenced by hospital size. As already mentioned, the state hospitals are larger than the district hospitals, and they also have a more complex organizational structure. Work carried out by Carman *et al.* (1996) shows that smaller hospitals have an easier time implementing quality management as compared to large, complex hospitals. Their work highlighted the influence of hospital size on organizational culture, which in turn affects quality management outcome and performance. Table VII shows the result of the *t*-test carried out.

## Conclusion

The study shows that quality management is well practised in Malaysian public hospitals, with continuous improvement being most practised. At the policy level, strategic planning is also in place and this is epitomised by the Ministry of Health's Strategic Plan for Quality, which also laid down the Ministry's vision and mission for health. The finding shows that policies formulated at the top trickled down to the organizational level with regard to strategic planning. The finding that supplier partnership has the lowest ranking should stir the interest of policy-makers since this has implications for the Ministry of Health's privatization policy.

The study also reveals the poor response of the physicians towards quality management issues compared to other groups. As physicians form the most important and influential group of employees in a health care organization, it is therefore imperative for the Ministry of Health to garner their involvement in its quality endeavours. Responses from the lower and middle managers and the lower ranking staff should put quality management efforts in Malaysian public hospitals on track. The study also shows that quality management practice is higher among employees of the smaller district hospitals than the larger state hospitals. Quality management thrives better in smaller hospitals, which are less bureaucratic and more suited to the employee empowerment approach to quality management.

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