

Bangkok Hospital Medical Center's Five-Year Experience with Patient Safety and Risk Management, 2006-2010



Duangnet C, MD
email: chatree.du@bgh.co.th

Chatree Duangnet, MD, FAAP, FACMQ¹

¹Chief Executive Officer, Bangkok Hospital Medical Center, Bangkok Hospital Group, Bangkok, Thailand.

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OBJECTIVES: Bangkok Hospital Medical Center (BMC) implemented the Patient Safety and Risk Management (PSRM) program in 2006 as an expansion of the Five-Year Quality Culture Development Program that aimed to emphasize the importance of a culture of quality and patient safety in the hospitals. The PPSRM program emphasizing the concept of managing risk covers clinical, emotional, proactive, and reactive dimensions of the management process of unexpected adverse events. To highlight the commitment of BMC to patient safety and to measure our progress, the PRSM program during 2006-2010 was evaluated.

MATERIALS AND METHODS: The trend of occurrence reports (filed by staff) and customer complaint reports, in addition to the severity level of quality concerns identified in those reports was analyzed. The impact of the program including customer satisfaction, cost of adverse events, and patient safety culture at BMC were evaluated.

RESULTS: Annual occurrences, customer complaints, and total adverse event report rates from 2006-2010 were consistent, with the average percent rate of 1.08 %, 0.19 % and 1.27% respectively. The proportion of quality concerns in those reports fell to around 40% in the first three years and rose to around 70% in 2009-2010. However serious quality concerns (i.e., severe adverse events, events impacting on reputation and sentinel events) were relatively small and remained constant. The study showed that PSRM program did help to improve customer satisfaction and reduce the costs of dealing with adverse events. In addition, results of the BMC employee survey indicated that BMC's culture was good in learning and communication in patient safety, teamwork, management support for patient safety, and overall perceptions of safety.

CONCLUSION: Implementation of the PSRM program was successful in part due to BMC's quality improvement and patient safety environment. Patient safety must be managed seriously, faithfully, and proactively to prevent and mitigate adverse events. Risk management needs to include not only clinical aspects but also emotional affects.

Bangkok General Hospital was established at Soi Soontijai, Bangkok, Thailand in 1972 by the Bangkok Dusit Medical Service Public Company (BDMS). Since then, BDMS has grown progressively and today the company operates 28 hospitals located in Thailand and Cambodia. Three of those hospitals, i.e., Bangkok Heart Hospital (BHT), Bangkok International Hospital (BIH), and Wattanosoth Cancer Hospital (WSH), were established in 2005 in addition to the Bangkok General Hospital at Soi Soontijai; and today they are called collectively the Bangkok Hospital Medical Center (BMC).

A. The Initiative of Safety and Quality Culture

One of the foremost goals of BMC is to provide safe and high-quality medical care. Therefore in 2005, BMC implemented the Five-Year Quality Culture Development Program, which aimed to emphasize the importance of a culture of quality and patient safety in BMC. The concepts of quality improvement and patient safety (QPS) were the most significant components of this initiative. The objectives of the program were as follows:

- Bring BMC up to the international benchmark for a culture of excellence in clinical quality
- Establish a service standard of traditional Thai hospitality and quality in a hospital setting
- Develop a more efficient organization

The yearly program goals were initiated and achieved as follows:

- In 2006, developing basic quality improvement and patient safety (QPS) standards in accordance with Thailand's hospital accreditation standards (HA) and the Joint Commission International hospital standards (JCI)
- In 2007, obtaining successful accreditation from both Thailand's HA and JCI
- In 2008, Benchmarking against Agency for Healthcare Research and Quality (AHRQ) safety culture data, as well as obtaining JCI's Disease and Condition-Specific Care Certification [now Clinical Care Program Certification (CCPC)]
- In 2009, scheduling tracers and using continuous quality improvement (CQI) techniques to ensure the consistency of patient care practices according to the standards, in order to transform the health care staff from "*following standards*" to a "*culture of quality and safety*". ("Tracer" or tracer methodology is an evaluation method in which surveyors selects a patient and uses that individual's record as a roadmap to trace that patient's journey through an organization, in order to assess and evaluate the organization's compliance with selected standards and the organization's systems of providing care and services.)
- In 2010, confirming continuous quality improvement and safety by passing the triennial reaccreditation surveys of Thailand's HA and JCI

Subsequently, to emphasize the concept of managing risk, BMC expanded the program to include Patient Safety and Risk Management (PSRM) program.

B. Patient Safety and Risk Management (PSRM)

The PSRM is a program that covers the management process of unexpected adverse events in four dimensions as follows:

1. Clinical dimension: aims to manage tangible legal aspects of adverse events.
2. Emotional dimension: aims to manage intangible patient or family feelings appropriately in order to obtain their cooperation, their co-decision, and thus their co-responsibility.
3. Proactive dimension: aims to develop BMC readiness for risk reduction and risk avoidance.
4. Reactive dimension: aims to develop rapid reporting, rapid responses, root cause analyses, and recovery or continuous quality improvement for adverse events.

The goal of the PSMR program is to complete each adverse event case while the patient is still in hospital care, and to encourage the patient not to seek care outside of BMC responsibility until the PSMR process is completed.

The response to adverse events is a key aspect of PSMR program. When an unexpected adverse event happens, the risk management team at BMC will categorize those events into the Five Levels of Quality Concerns and sentinel event. The severity levels in the Five Levels of Quality Concerns are comprised of Level 0 (near-miss event), Level 1 (no-harm event), Level 2 (mild adverse event), Level 3 (moderate adverse event), Level 4 (severe adverse event), and Level 5 (reputation event). The most severe adverse event is the sentinel event, which should be reported to JCI.

C. Patient Safety and Risk Management (PSRM) Program Evaluation

The purpose of PSMR program evaluation is to highlight commitment of BMC to patient safety through this program. The program during the period of 2006 – 2010 was evaluated in the following aspects.

- Reported rate of occurrences, customer complaints (direct complaints), and total adverse events (total occurrences) in BMC. The term "occurrence" used in these reports indicate an adverse event incident.
- Quality concerns and their severity level that were identified in the occurrences and customer complaints
- Impact of the program on patient satisfaction (i.e., Customer Satisfaction Index of overall experiences (CSI), HEART^a and HCAHPS^b score)
- Cost of adverse event or risk management, and
- Patient safety culture at BMC

Note: ^aHEART is a self-administered questionnaire to evaluate patient perception on five categories of BMC staff performance, i.e., Hearty Greeting (H), Empathy (E), Attention (A), Relation (R), and Trust (T).

^bThe questionnaire is developed by Hospital Customer Assessment of Healthcare Provider and System (HCAHPS) to evaluate patient satisfaction on 10 domains.¹

Results of the PSRM Program Evaluation

1. Occurrence and Customer Complaint Reports

From 2006 to 2010, the annual total number of outpatient visits and inpatient days at BMC gradually increased despite a period of slight decline of growth rate in 2009, due to the political unrest in Bangkok. The number of outpatient visits grew from 643,903 visits in 2006 to 704,646 in 2010 with a compound annual growth rate (CAGR) of 2.28%. Inpatient days grew from 110,324 days in 2006 to 114,824 in 2010 with CAGR of 1% (Figure 1).

Meanwhile, across the five years of PSRM program implementation, the annual occurrence and customer complaint report rates of both OPD and IPD at BMC were consistent. The average percent (rate per 100 patient visits) of annual occurrence and customer complaint reports were 1.08% (with range of 1.02 – 1.12%) and 0.19% (with range of 0.14 – 0.23%) respectively (Figure 2).

The combination of occurrences and customer complaint reports is called “*total adverse events*”. At BMC, the percentage rate of total adverse event reports

less than 1% are considered “*under reporting*”, the cause of which should be investigated. However the annual percentage rates of total adverse events reported at BMC from 2006 to 2010, with average of 1.27% and range of 1.25 – 1.31%, were not under reported.

The annual percentage rates of total adverse events reported by outpatient services were very low and remained relatively constant, with a slight increase of the report rates in the last two years. In the meantime, the annual report rates of total adverse events by inpatient services were 7 – 10 times greater than outpatients but also remained relatively constant. The average annual report rate of inpatients was 3.55% (with range of 3.24 – 3.94%) (Figure 3). Therefore BMC has focused on improving inpatient interventions as opposed to outpatient interventions.

In outpatient services, the annual occurrence report rate was 3 – 7 times higher than the annual report rate of customer complaints. This ratio for inpatient services was higher than for outpatients. In the inpatient, the ratio of occurrence report rate to customer complaint report rate was 6 – 16 times. It declined to around 7 times in 2009 – 2010.

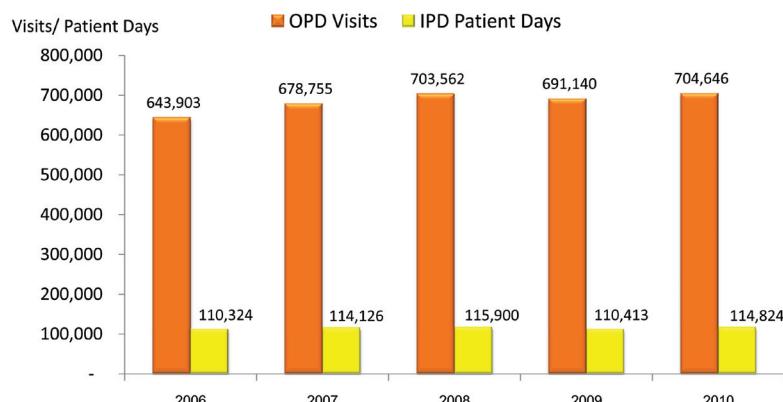


Figure 1: The total annual outpatient (OPD) visits and inpatient (IPD) days at BMC from 2006 to 2010

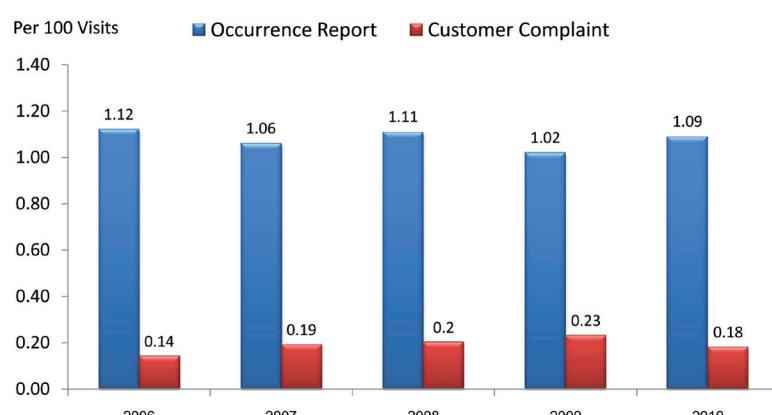


Figure 2: Rate of annual occurrence and customer complaint reports per 1,000 visits of both OPD and IPD at BMC from 2006 to 2010

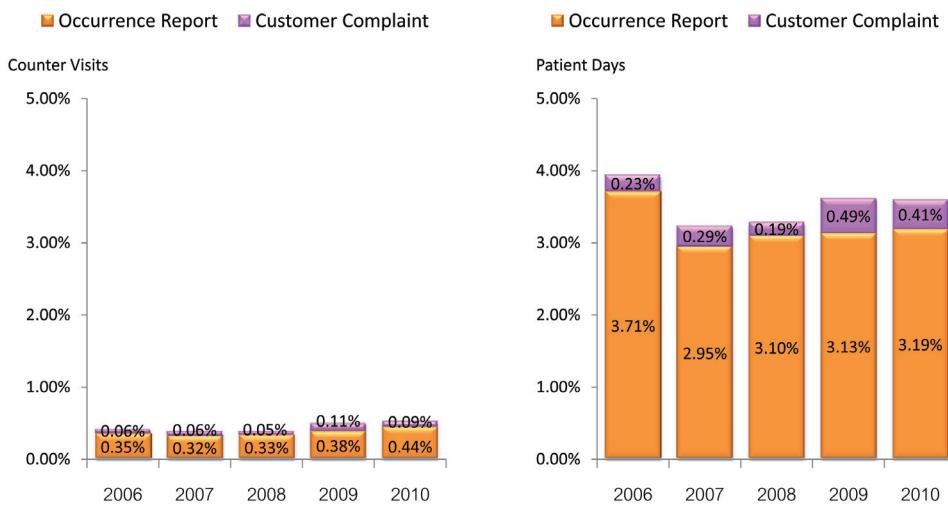


Figure 3: Percent rate of annual outpatient and inpatient experience of occurrences and customer complaints at BMC from 2006 to 2010

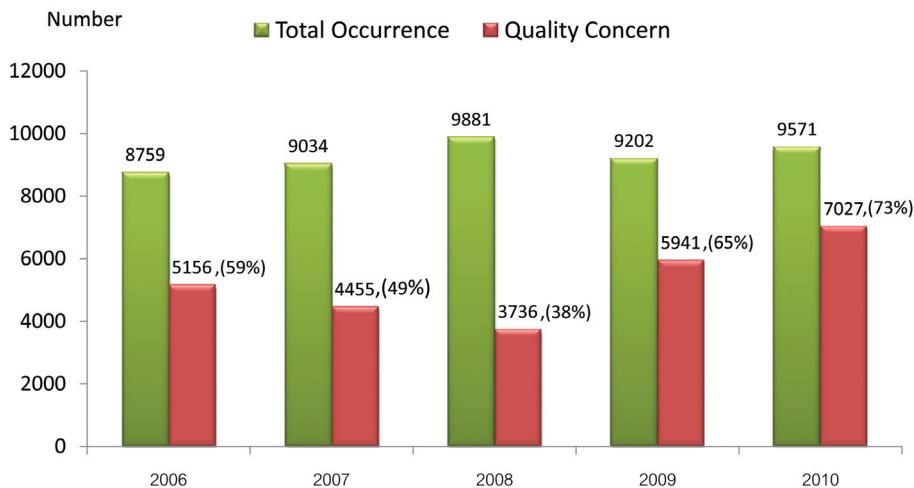


Figure 4: Annual proportion of quality concerns to annual total occurrences (combination of occurrence and customer complaint reports) at BMC from 2006 to 2010

2. Levels of Quality Concern in Occurrences and Customer Complaint Reports

There is an increasing trend in quality concerns as a proportion of annual total occurrences (total adverse events). The proportion increased from 59% in 2006, to 65% in 2009 and 73% in 2010 although it gradually declined to 38% in the first three years of PSRM program (Figure 4). The factors affecting this increasing trend are multifarious. Although not all of these factors have been fully identified, BMC hypothesizes that the main features are as follows:

I. Heightened awareness by clinical personnel of real quality problems. For the first three years of the program implementation, the BMC personnel were undergoing a learning process. In the last two years, they started to become more experienced in identifying quality issues and their severity level.

II. Increased patient awareness of the quality standard of patient care in BMC. This would indicate the increasing role of patients and/or their families in ensuring patient safety through providing feedback where gaps or deviation of the quality standard were noticed.

In order to appropriately handle occurrences/customer complaints with quality concern, the severity of adverse concerns has been categorized into levels 0-5 and sentinel events. The levels 4-5 and sentinel events are considered as serious occurrences, which require immediate action to correct the damage and prevent its further extension. Across the five years of PSRM program implementation, the proportion of serious occurrences in both OPD and IPD services at BMC was relatively small and remained constant (Figure 5 and 6).

The most reported levels of quality concerns in customer complaints from both OPD and IPD were level 1

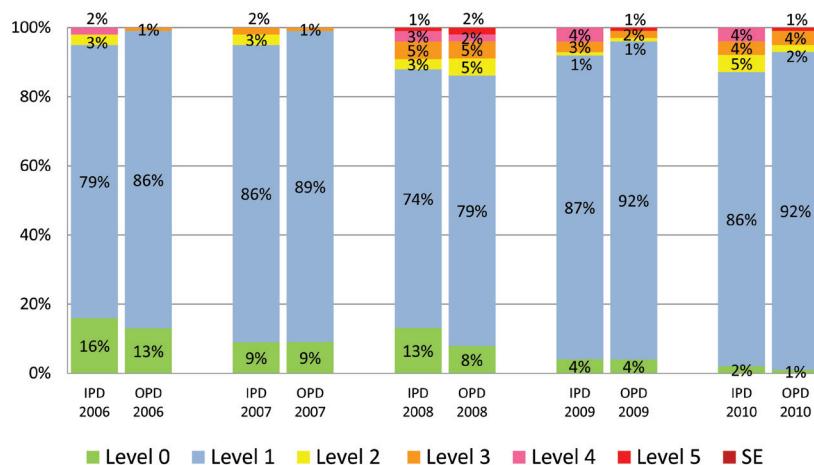


Figure 5: Proportion of severity levels of quality concerns in outpatient and inpatient complaint reports at BMC from 2006 to 2010 (SE is sentinel event)

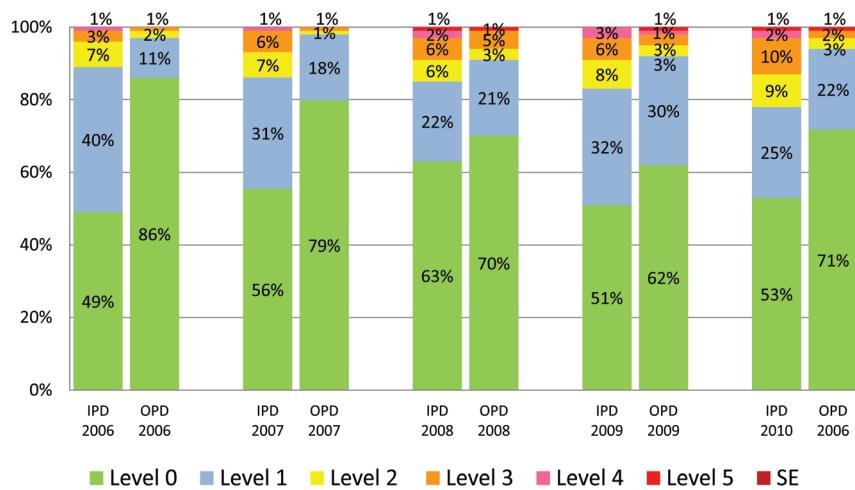


Figure 6: Proportion of severity levels of quality concerns in outpatient and inpatient occurrence reports at BMC from 2006 to 2010 (SE is sentinel event)

(no harm event) and level 0 (near miss event). The severity level 1 as reported by OPD was slightly greater in number than IPD although both had approximately the same annual proportion (80-90%) over the course of the program (Figure 5). Meanwhile reports of quality concern level 0 (near miss event) in both OPD and IPD were declining steadily (Figure 5).

For occurrence reports, the main severity levels of quality concerns found were level 0 and level 1 in both OPD and IPD. The severity level 0 was more frequent among outpatients than inpatients. The annual proportion of severity level 0 in OPD and IPD were around 60-90% and 50-60% respectively across the program period. In outpatient reports, the proportion of level 0 declined over

time, but in inpatients it remained within the same range. Reports for all other severity levels remained in the same range over the five-year span (Figure 6).

3. Patient Satisfaction Scores

In the BMC, the Customer Satisfaction Index (CSI) score of overall experience in both OPD and IPD improved. The annual average CSI score in OPD and IPD gradually increased from 4.16 out of 5.0 and 4.27 out of 5.0 in 2006 to 4.59 and 4.56 in 2009 respectively (Figure 7). However the scores slightly declined in 2010, which would probably be due to the change in collection method of CSI questionnaires (we outsourced in order to remain as objective as possible).

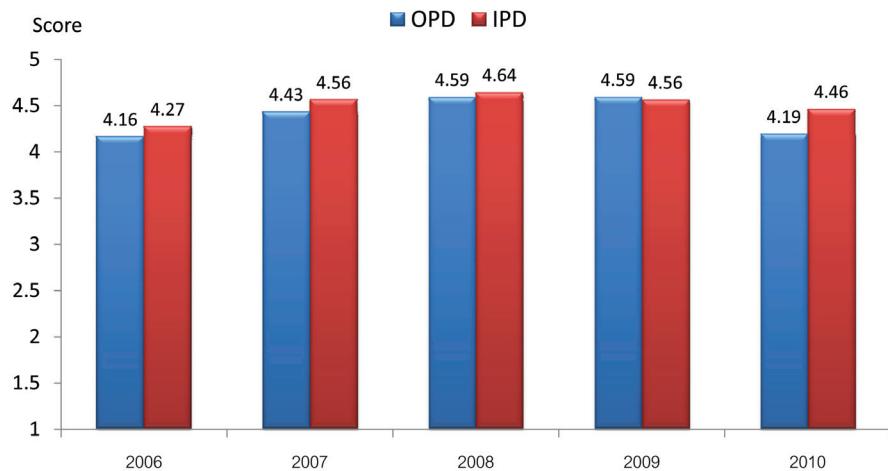


Figure 7: Annual average of Customer Satisfaction Index (CSI) scores of overall experiences in OPD and IPD at BMC from 2006 -2010.

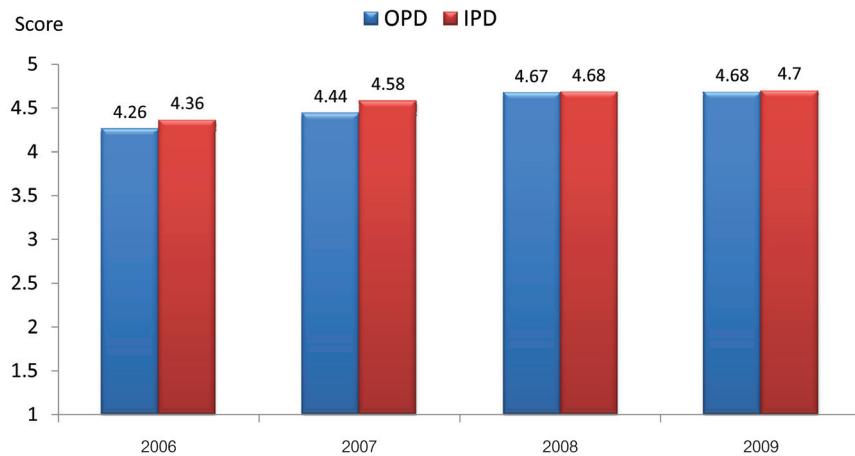


Figure 8: Annual average HEART scores for OPD and IPD services at BMC from 2006-2010.

Along with the CSI, BMC collected HEART score, which is the patients' perception rating five categories of BMC staff performance, i.e., Hearty Greeting (H), Empathy (E), Attention (A), Relation (R), and Trust (T). In correlation with the CSI score, the annual average HEART scores at both OPD and IPD also gradually increased (Figure 8).

To compare patient satisfaction in BMC healthcare services with other international healthcare organizations, after careful research BMC concluded that the method by Hospital Customer Assessment of Healthcare Provider and System (HCAHPS)¹ survey is the most acceptable method due to its successful implementation in many parts of the world, including the United States and other western countries. HCAHPS was therefore implemented at BMC, along with a dedicated personnel-training program. With the aforementioned actions, the annual

average total top (top box) scores of BMC increased from 47% in 2009 to 52% in 2010 (Figure 9). The top box score is percentage of patient perception rating of highest level (8-10) for hospital performance.

4. Cost of Adverse Events/Risk Management

The total cost of reactive risk management to correct or mitigate damage to BMC's reputation by adverse events is comprised of the cost of discounts, rework, and settlements in arbitration processes. In 2004, before the implementation of the PSRM program, the total cost of risk management was 0.76% of total revenue. In 2005, the year that the PSRM program was started, this cost was reduced significantly to 0.26% of total revenue. After that time, the annual cost increased again but subsequently settled in an annual range of 0.37% to 0.57% of total revenue (Figure 10).

**Bangkok Hospital Medical Center's Five-Year Experience
with Patient Safety and Risk Management, 2006-2010**

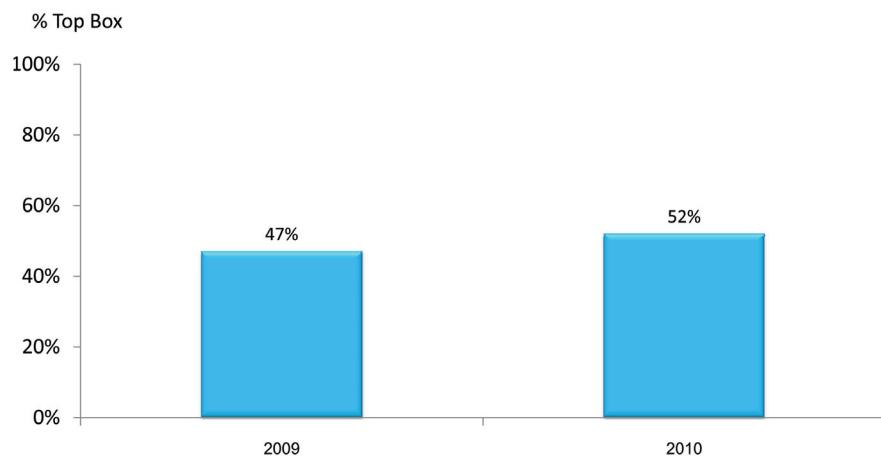


Figure 9: Annual average HCAHPS total top (top box) scores of BMC in 2009 and 2010.

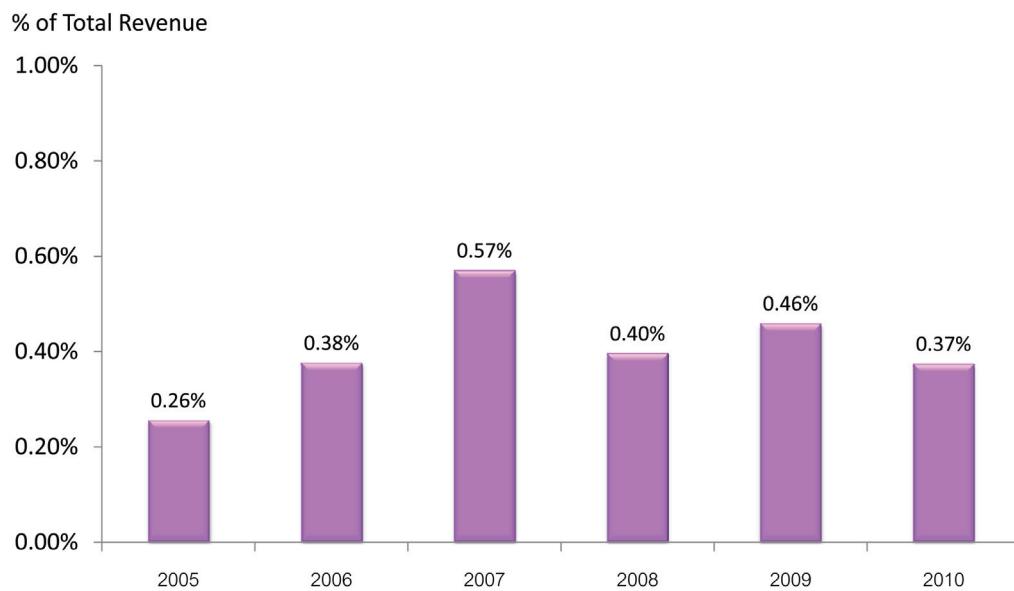


Figure 10: Annual cost of risk management versus total revenue from 2005 to 2010

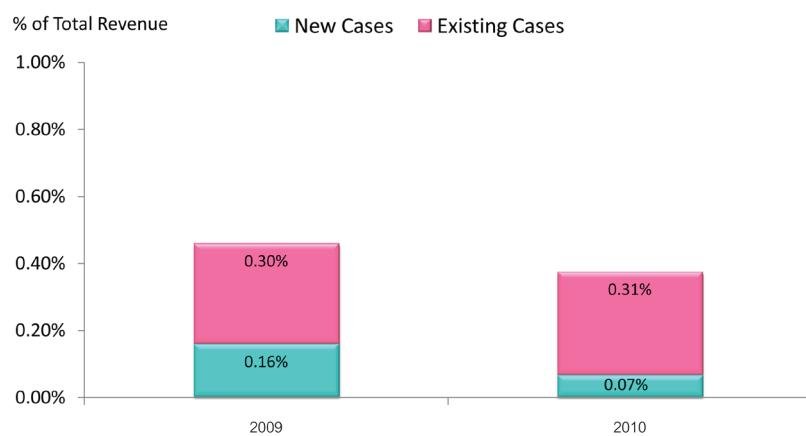


Figure 11: Cost of risk management by case type versus total revenue in 2009 and 2010

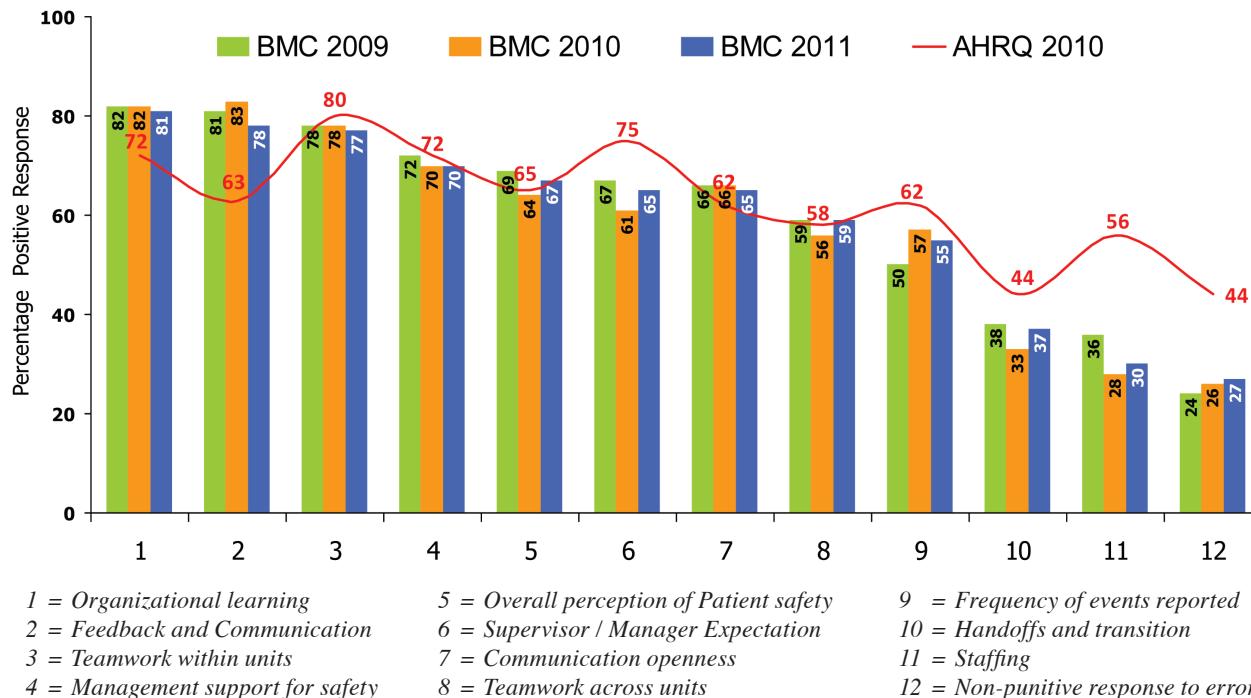


Figure 12: Employees' Opinions on BMC's Safety Culture versus AHRQ Benchmarks from 2009 to 2011

An independent factor is found in the Thai legal environment of the Consumer Protection Act², which allows consumers to petition for compensation from the consumer court for any adverse event. This factor could have negatively impacted the cost of risk management in PSRM program. To prevent this factor, in 2009, BMC started its Emotional Risk Management program. After implementation of the program, we discovered that the retrospective risk management costs in new cases declined significantly; from 0.16% of total revenue in 2009 to 0.07% in 2010 (Figure 11). Meanwhile the long-term expenses of the existing cases in both years (approximately 0.30% of total revenue) remained relatively constant (Figure 11). This resulted in a declining trend of total cost of risk management at BMC (Figure 10).

5. Patient Safety Culture at BMC

To make sure BMC had created a culture of patient safety, BMC surveyed its employees from 2009 to 2011 on their perception of the BMC's patient safety culture. The findings were compared with the benchmarks from the United States-based Agency for Healthcare Research and Quality (AHRQ). The survey showed that staff believed BMC's culture was conducive to learning and communication in patient safety, teamwork, management support for patient safety, and overall perceptions of safety; however it did not meet AHRQ benchmarks for handoffs, supervisor/manager expectations, and non-punitive responses to errors (Figure 12).

Summary

BMC's five-year experience in PSRM program can be summarized as follows:

- The total adverse event reports consisted of occurrence reports and direct complaint reports. In BMC, the average annual report rate of occurrence reports was 1.08% and direct complaints was 0.19%. Thus the annual total adverse event report rate was 1.27%, which was not under-reported according to the criterion.
- All adverse event reports were investigated upon receipt. In 2006-2010, around 60-70 % of adverse events were found to be actual quality issues. The percentage of quality issues fell from around 60% to 40% in 2006-2008, but rose to around 70% in 2009-2010. BMC's analysis indicates this increasing trend was due to more than one factor, including increased awareness of BMC's emphasis on occurrence/complaint reporting by providers, patients and their families.
- The study showed that the inpatient total occurrence reports occurred around seven times more frequently than the outpatient reports; and that in inpatient services, occurrence reports were made around seven times more frequently than customer complaints in the last two years.
- After a review of the proportions of the severity of quality concern events, the study showed that the most frequently filed occurrences were at

severity level 0 (60%-90%) and the most frequently filed direct complaints were at severity level 1 (80%-90%). Severity level 1 direct complaints declined steadily from 2006 to 2010, most likely as the result of BMC establishing and promoting the concept of rapid reporting and rapid response.

- The study showed an improvement in customer satisfaction, both through its customer satisfaction index and the HCAHPS survey. Furthermore, the study indicated better outcomes when questionnaires were collected by BMC employees as opposed to when questionnaires were collected by outside personnel, which may indicate bias.
- The PSRM program helped to reduce the cost of risk management from 0.76% of total revenue in 2004 to 0.26% of total revenue in 2005. The cost rose to 0.57% of total revenue in 2007 and gradually declined afterwards due to the implementation of Emotional Risk Management in 2009. The study showed that the proportion of cost from new cases declined from 0.16% of total revenue in 2009 to 0.07% of total revenue in 2010, while the cost from old cases stayed at 0.3% of total revenue for both 2009 and 2010.
- Employees' opinions of safety culture indicated that staff believed BMC's culture was good in the areas of learning and communication in patient safety, team work, management support for patient safety, and over all perceptions of safety, but needed improvement in the areas of handoffs, supervisor/manager expectations, and non-punitive responses to errors.

Recommendations for Other Organizations

- As crucial as a patient safety program is for patients and families, a risk management program is critical for the entire health care organization.

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- Organizations must manage patient safety seriously, faithfully, and proactively to prevent and mitigate adverse events.
- Organizations must perform risk management not only in clinical terms, according to the proper standards of care, but must also consider risk management in emotional terms in order to be able to resolve events with the most favorable outcome.
- Implementation of the PSRM program was successful in part due to BMC's Quality Improvement and Patient Safety environment, achieved by implementation of standards by Hospital Accreditation Thailand and JCI standards.
- The PSRM program may also be supported by regularly scheduled tracers until they become part of the organizational culture. For BMC, this process took approximately 3.5 years. BMC follows the theory that continuous practice leads to expertise, ("deliberate effort to improve performance") as espoused in the theory of 10,000 hours by psychologist K. Anders Ericsson.³
- BMC believes that Clinical Risk Management mitigates tangible consequences like direct complaints and legal due process, but the BMC also strives to attend to intangible consequences with Emotional Risk Management.
- BMC is not seeking "win-loss solutions"; instead, it is seeking "peaceful win-win solutions."

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