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Patient Engagement – creating the wow factor

Narottam Pun², Satish Kumar¹

Objective:

Hospitals exist to care for their patients (customers). As the demands of the customers increase in a growing economy like India, many hospitals find themselves short, particularly in service quality. Faced with this challenge, one of our network hospitals (Fortis, Noida) used innovative techniques to enhance patient engagement and satisfaction. A review revealed that there were the following major issues:

• Low Patient Satisfaction Index - lack of any consistent and sustainable patient-centric efforts had resulted in a dip in patient satisfaction levels over a period of time
• Lack of structured system to address patient and attendant complaints
• Limited scope of function for the Patient Welfare Department as it only addressed the complaints and temporarily rectified / fixed the issue at hand
• Lack of proper Root Cause Analysis (RCA) of the issue and no identification of gap analysis for Structure, Process and Outcome measure which are an essential part of Quality System and Design
• No defined methodology for ensuring follow-up, closure or monitoring post implementation of action taken
• No alignment of all stakeholders towards patient-centric approach

Methods:

1. Re-structuring of Patient Welfare Officers as Floor Managers
2. Daily meetings with all HODs and Director of the hospital
3. Structured metrics established for all patient related departments
4. Daily collection of patient feedback on above metrics and analysis of feedback
5. Weekly FOS Scorecard meeting / Monthly Departmental Review on Patient Service Metrics
6. Buddy Programme, Patient Mania, Manager on Duty, Green Angels & Spl programmes on Patient Education

Results:

• Comparatively the average satisfaction for the year 2010 at an average occupancy of 88% has increase of 2% in IPD, 4% in OPD and 1% in FHM as compared to an average satisfaction for the year 2009 with occupancy level of 71%. This clearly established that despite a huge increase in patient load, with these innovative patient-centric measures in place, we have been successful in increasing the Patient Satisfaction and thus creating WoW Factor for the patients.

• 24 x 7 facilitation for coordination of all service / care related matter also now there is one point contact person dedicated for resolving any/all issues of care (MOD, Buddy, In-patient facilitator, Floor Manager)

• Structured system has improved employees understanding of role & responsibilities, ensuring better working relationships; also the positive patient feedback has resulted in high morale

• Structure loop closure system put in place for better coordination, thus reduced TAT of service delivery

• Community Initiative : Green Angels- the aim of this program is to raise awareness in the society towards two vital ‘Elements of our Existence’ - our environment and the girl child

Conclusions:

Sustained and structured approach supported by innovative ideas has resulted in higher patient satisfaction and better business returns. While the project has achieved its objective, the work will remain in progress and analysis of the novel ideas such as Buddy programme, Patient Mania and Green Angels shall be available for a longer term perspective. There has been a significant increase in patient satisfaction as regards to the services we now offer which clearly indicates that the methodology adopted has benefited the system. The structured approach has allowed not only better auditing of patient care service metrics but has also benefitted all the stakeholders in the system.
A Clinical Nurse Specialist in Urology: What can be achieved

Surayne Segaran, Ruaraidh MacDonagh, Angus MacCormick

Objective:

To demonstrate the potential service provision that can be delivered by a well-trained and highly motivated Clinical Nurse Specialist (CNS) in Urology.

Methods:

Initially, a structured training programme suitable for our CNS was drawn up after discussions between the candidate and consultants in the department. Formal courses were attended for flexible cystoscopy and trans-rectal ultrasound (TRUS) guided prostate biopsy. At least 50 of each of these procedures were performed under supervision by a consultant urologist. In addition to this, we carried out continuous mentoring and supervision for outpatient and andrology clinics, cystodiathermy and suprapubic catheter (SPC) insertion. Once the CNS was appropriately experienced and trained he progressed to more independent practice, with the duty consultant available for assistance or opinions if required.

Results:

From January to June 2010 our CNS saw a total of 416 new outpatients and 719 follow-ups, inserted 64 SPCs, performed 515 TRUS + biopsies, 913 flexible cystoscopies, 67 bee-sting cystodiathermies and 98 ureteric stent removals.

No complications have been noted to date with SPC insertion, flexible cystoscopy or cystodiathermy. The complication rate for TRUS + biopsy was below 0.5%, well below accepted figures. In addition to this, our CNS has contributed significantly to establishing and running a one-stop haematuria service as well as a dedicated SPC clinic.

Conclusions:

Outpatient and minor urological procedures can be safely delivered by a highly-motivated, well-trained and appropriately supervised CNS. Consultant workload can be substantially reduced, which in turn allows greater consultant presence and input for emergency and complex cases. The presence of the CNS in our team has facilitated delivery of a high-quality and efficient service.
Nursing Clinical Leadership Development Program – An Evaluation Study

Harry Leung, Man King Kwong, Lindy Sum, Winnie Chow

Objective:
This study aimed at examining the effectiveness of Nursing Clinical Leadership Development Program (NCLDP) for the Advanced Practice Nurse (APN) and senior Registered Nurse (RN).

Methods:
The instrument used in the study was a self-administered questionnaire, which has been used to evaluate the structured training programs that were organized by Central Nursing Division, Queen Elizabeth Hospital, Kowloon Central Cluster, Hospital Authority. The questionnaire consisted of three sections. Section One was the general information of the nursing staff. Section Two consisted of 18 items to be rated in a five-point Likert scale, ranging from “Strongly Disagree” to “Strongly Agree”. Section Three collected the overall narrative comment on the program.

The 18 items of Section Two were organized into 6 categories: Organization, Relevance, Breadth of Coverage, Depth of Coverage, Learning in the Program and Resources. The content validity of the categorization of the items was verified with the matching rate over 80% at the previous study. A Cronbach Coefficient Alpha reliability coefficient of $r=0.91$ obtained as the measurement of internal consistency of the 18 items. It reflected that the instrument achieved at an acceptable level of reliability.

Results:
57 full course participants have been recruited and 39 of them have attended most of the lectures of the program and returned the documents. 36 participants have fulfilled all the requirements of the program. They were awarded with a Certificate of Achievement. There were 29 participants who returned the questionnaire. The response rate was 51%. 7 respondents were senior RN who had at least 5 years of clinical working experience. Another 22 respondents were the newly promoted APN. The working experience and area of the respondents were various.

The means between the ranks has been compared. The significance of differences of two groups mean was analyzed by One-way ANOVA. With reference to the critical values at F table ($F=0.021, p=0.05$), the F ratio was smaller than the critical value at the F table, there was no statistically significant difference between the ranks. These findings reflected a general positive perception of the effectiveness of the program among the participants. Further, the figures implied that the program could fulfill their expectation.

<table>
<thead>
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<th>Organization</th>
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<tr>
<td>RN</td>
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<td>APN</td>
<td>3.73</td>
<td>3.86</td>
<td>3.73</td>
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The narrative comments have been categorized into the six categories. All the feedbacks in the narrative comment would be treated as positive and constructive suggestion. There were a total of 29 comments collected. Most of the comments (44.8%) were related to “Organization”. The course participants proposed suggestions on the organized manner and administration matter of the program. The organization of the future program will be more pliable to meet the learning needs of the course participants. However, the arrangement should balance with manpower constraint of clinical areas.

Conclusions:
The NCLDP provided a systematic and flexible training program for newly appointed APN and senior RN. The program helped them to enhance their potential on management and leadership, which was crucial for effective adaptation and competency development. Although there was no statistical significant difference found in RN and APN comparisons, it reflected that the feedbacks of the respondent were united and consistent. The clinical projects of the program have enlightened the quality improvement of the hospital. Some clinical projects were worthwhile for further follow up and study. In addition, the narrative comments provided a wide range of suggestions and recommendations, which served as a rich source of reference for future program development and refinement.
The Accreditation Collaborative for the Conduct of Research, Evaluation and Designated Investigations through Teamwork (ACCREDIT) project: developing the evidence base

Jeffrey Braithwaite, David Greenfield, Marjorie Pawsey, Johanna Westbrook

Objective:
To describe the development process and detail the topics and questions in a large scale, integrated research design examining three mature, national accreditation programs in Australia.

Methods:
The study development process encompassed three phases. Phase one involved a review of the accreditation literature to analyse and summarise topics, findings and gaps in the knowledge base. Phase two comprised a workshop with healthcare accreditation stakeholders to identify a comprehensive research agenda. Phase three formalised the research collaboration, prioritized a multiple studies and secured research funding.

Results:
In 2007 we systematically reviewed over 3000 papers to identify 66 empirical research studies. The results, examining the effectiveness and impact of accreditation, were classified into ten categories: professions’ attitudes to accreditation; promote change; organisational impact; financial impact; quality measures; program assessment; consumer views or patient satisfaction; public disclosure; professional development; and surveyor issues.

A one-day workshop, held in 2008, brought stakeholders together from across Australia. Representatives and participants were: one consumer representative; seven accreditation service providers; eight representatives from Federal, State and Territory health departments and government agencies with responsibility for safety and quality in healthcare; one private sector funder; and 10 health service researchers and academics. Through discussion, negotiation and agreement a comprehensive research agenda was compiled. There were distinct researchable topics: understanding accreditation models; examining the critical elements of accreditation programs; the impact of standards, including particularly consumer participation standards; the patient experience (tracer methodology); cost-benefit analysis; public disclosure of accreditation results; unannounced surveys; reliability of surveyors and survey teams; accreditation driving change in healthcare; and the ongoing reform of accreditation across the health sector.

An integrated industry, policy and research group, with the necessary capability and sufficient capacity to execute the research agenda, was formed: the ‘Accreditation Collaborative for the Conduct of Research, Evaluation and Designated Investigations through Teamwork’ (ACCREDIT). Four key themes were conceptualised to unite the research proposal: does accreditation make a difference to quality of care and performance?; what are accreditation’s cost implications and what benefits are realised?; how can accreditation be improved?; and, how can consumer involvement be improved? The ACCREDIT collaboration committed funds, expertise and personnel into developing an investigator-driven, grant proposal in early 2010. The collaboration secured an Australian Research Council Linkage Grant in mid-2010, to implement the studies between 2011 and 2015.

Conclusions:
The ACCREDIT collaboration is implementing a large scale research project to address current questions of interest to policymakers, managers, clinicians, consumers and researchers. The funding of a researcher-industry partnership has the benefit of ensuring research processes are consistent and integrated across health sector accreditation agencies and research fragmentation and duplication are minimized. Significant time and energy was expended in developing the collaboration’s capacity and in securing the grant. This extended process highlights the investments needed and long term vision necessary to develop the evidence base of the accreditation field.
Key Role Players in Health Care Quality: Who are they and what do they think? An Experience from Saudi Arabia

Mohamed Mahrous

Objective:

The objective was to identify the key role players and to assess their views regarding the improvement of the quality of healthcare in Saudi Arabia. The definition of and strategy for achieving an effective high quality healthcare service is still controversial, despite the fact that its achievement is an international goal. In developing countries such as Saudi Arabia, healthcare providers and planners face even more challenges as a result of the increased cost of health services and the need for clear vision in the planning of quality health care services.

Methods:

A cross-sectional qualitative design was used to analyze data collected from a survey carried out in 2009. This laid the foundation for the selection and identification of key role players. In this study key role players were chosen depending on their previous experience in providing feedback in the healthcare-related areas. They were grouped into 6 groups that consisted of 9 to 13 members each and included a representative from the department of health. Each group was formed to include people from the same area of interest and expertise.

Each group was to discuss one of the following topics: health and community, health and media, planning for health, female staff views, role of the private health sector, and the role of other governmental agencies.

Focus group (FG) discussions were used to generate ideas for improving health services quality and minimizing the gap between what is being provided and the public’s needs and expectations. Each group documented its views separately and the outcomes were collected and analyzed.

Results:

The results suggested that the selection and classification of key role players used in this study was valid and the results were consistent with issues related to the improvement of healthcare quality inside Saudi Arabia. The FG discussions highlighted the importance of health facilities to improve their infrastructures, implement, monitor and improve staff training and education, initiate quality assurance and safety standards and extend the scope of primary care and community health educational programs. Moreover, the results from the discussions emphasized the role of the public to maintain efficient communication with health facilities to improve the quality of health services. To improve health services, the FG discussions emphasized the necessity to attract and recruit highly qualified healthcare professionals. All of the groups stressed the importance of utilizing a health information technology system to improve the record-keeping and management of patient files, which would reduce the cost and improve the efficiency of health services.

Conclusions:

The selection and classification of key role players is a useful tool for the assessment of health quality issues and for generating constructive ideas. The FG approach is an applicable and appropriate tool for evaluating and generating suggestions and feedback for the improvement of quality of healthcare services. Many areas in health services in Saudi Arabia need to be improved in order to reach an acceptable standard of healthcare and customer satisfaction.
Improving communication among medical staff members by using ‘SBAR’ tool

Sung-Eun Kim, Da-Hyung Oh, Kyei-Sook Park, Jung-Lim Lee

Objective:
Communication among medical personnel is a critical element of patient outcome and quality of care. Especially, in the case of opening a new medical center, difficulties in communication come to be much heavier because the number of new healthcare members increases rapidly. Furthermore, if a ward is made up of more than medical departments, medical staff feel more frustrated with sharing patients’ information accurately and efficiently. One of the reasons is an increase in the number of staff to communicate with. These problems may cause serious issues in patients’ safety. Therefore, the object of this study is to deliver patients’ information precisely and effectively from nurse to doctor, from shift to shift and maintain the continuum of care and quality of care eventually. To do that, we chose the “SBAR” as our communication tool.

Methods:

Setting
Our project was implemented in 2 wards of Samsung Medical Center, located in Seoul, Korea which is Referral hospital with 1961 beds and opened in 1994. One ward consisted of thoracic surgery and respiratory medicine and the other was made of thoracic surgery and ENT (Ear, Nose, Throat).

Analysis of Current Difficulties in Communication
We investigated the difficulties in communication at present and the need of a new communication tool from 44 nurses and 10 doctors. 95% of nurses answered “I feel difficult to report to doctors” and 84% of nurses responded “it is necessary that we need a new standardized communication tool”. 80% of doctors were satisfied with the content of report but they thought that reports were lack of thorough patient assessment. Meanwhile, 70% of nurses thought that information getting during hand-offs was not enough to understand patients’ condition. And 79% of nurses pointed out the necessity of the standardization of clinical handover.

Implementation
Phase 1: Advertisement of the SBAR tool
We introduced the background of the project, the concept of the SBAR, and the results of literature review related to the SBAR to nurses. And staff had been informed throughout the project by posting the reminder cards on every computer in the wards.

Phase 2: Preparation of nurses
Two education programs were developed by the project team to ensure that nurses had the knowledge and skills needed to use the SBAR tools effectively. 1) Patient assessment program. Nurses with less than 2 year’s clinical experience attended the program. This program dealt with the wide variety of assessment skills and the length of the program was 8 days. 2) Self-assertive communication program. All nurses working at the wards participated in this study attended in the program to learn assertiveness through the lecture and role-plays.

Phase 3: Development and implementation of the report templates and the handover sheet
We selected the problems being reported frequently as following: arrhythmia, fever, imbalance in intake and output, hyperglycemia, pain, hypocalcemia, dyspnea and wound problem. We also developed a standardized hand-off sheet for lung cancer work-up patients.

Results:
After implementation, 92.6% of nurses thought that report templates based on the SBAR tool were an appropriate standardized report tool and 65.9% of nurses responded that the SBAR tool was effective. Throughout the use of the SBAR tool, nurses felt confident and less anxious when communicating with doctors. However, it is hard to evaluate the effect of the hand-off sheet because the duration of implementation was short.

Conclusions:
The results from this project suggest that the use of the SBAR tool is helpful for nurses to report to physicians and hand-off communication. The SBAR tool can deal with related data comprehensively and we also recommend using the SBAR tool in education programs for new staff.
Can't remember how to do your exercises at home? Look at them on the web or DVD!

Federica Baggi, Michele Marotta, Maria Claudia Simoncini, Leonardo La Pietra

Objective:
To provide an effective learning tool for patients who have undergone axillary dissection regarding: exercises to be carried out at home, the lifestyle to adopt to reduce exposure to common causes of lymphedema; and the ability to recognise early signs and symptoms of motor and lymphatic complications, in order to report them as soon as possible to a specialist.

Methods:
The project concerns physiotherapy administered to patients who have undergone axillary dissection. In our institute, these patients, from the first day following surgery, perform, under guidance of the physiotherapist, mobilization exercises of the upper arm affected by surgery, aimed at gradually restoring mobility. Physiotherapeutic intervention also includes patient education regarding the correct behaviours to adopt regarding the operated limb, and possible complications such as lymphoedema, its prevention and treatment.

For a long time, rehabilitation measures adopted for such patients have met with a variety of difficulties: it is necessary to provide patients with a great deal of information, in a short time, at a period when their level of anxiety is high and consequently their ability to process and understand such information is decreased. In order to avoid these problems, some years ago we produced an information booklet, so that patients could consolidate at home the information they had gained during their time in hospital.

During post-surgery outpatient treatments we noticed that patients were often not able to correctly perform the exercises taught during hospital stay and would tend to forget much of the information that had been imparted at the time.

We therefore decided to produce a video demonstrating the correct way to carry out the exercises necessary for the patient’s therapeutic programme which they could also use to revise what had been taught during their hospitalisation.

This video is on the European Institute of Oncology website and “youtube”. It is also recorded on a DVD, which is given out to patients during their hospital stay along with the booklet. An off-screen narrator provides commentary and explains how to do the exercises.

The contents are subtitled in Italian and English, for both the hearing-impaired and non-Italians. Subtitles have yet to be inserted, but this project is ongoing.

Results:
We gave user satisfaction questionnaires about the video to 35 patients. All of them declared themselves very satisfied regarding the clarity of content and its appropriateness to their own needs. All of them would recommend the video to a friend who had undergone the same operation; 30 patients considered that the video did not need any extra sections added.

Conclusions:
In the published literature there is much scientific evidence in different therapeutic fields that demonstrates the greater educative efficacy of viewing images as opposed to listening to verbal material or studying written material, in terms of improvements in comprehension, compliance and satisfaction.

We therefore consider video to be a valid tool to guarantee the optimal continuity of care of patients, whereby patient empowerment is enhanced. We believe that it offers a valid solution to meet a clear need expressed by patients. The choice of putting the videoclips on the IEO website was taken so as to make it available not only to patients of our own institute, but also to those attending other institutes. This thereby enables our protocol to be shared with other rehabilitative centres.

Furthermore, we believe that a video offering clear explanations and demonstrations is a tool that can successfully be applied in other healthcare fields.
A method for ensuring consistency in assessment of accreditation standards post external survey in The Danish Health Care Quality Programme (DDKM)

Kasper Hjulmann, Mads Jessen, Marie Jänichen

Objective:
Ensuring objective and consistent assessments of identical or similar findings across institutions within a given healthcare sector

Background:
The Danish Healthcare Quality Programme (DDKM) is a nationwide quality development system for the publicly funded health care sector in Denmark. The DDKM is developed and administered by The Danish Institute for Quality and Accreditation in Healthcare (IKAS).

The evaluation of the accreditation standards in DDKM is based on an external survey, which includes document analysis, interviews and tracers. The subsequent ratings are determined on the basis of a number of rating principles that are qualitative in nature. An accreditation standard may be met, partially met, not met or not relevant.

Before submitting the survey teams’ survey report to the accreditation awards panel, dedicated IKAS staff review the report for use of rating principles. Moreover, assessments of partially met or not met accreditation standards are compared with those of previous survey reports in an incremental manner, in order to ensure consistency.

Methods:
During external survey the assessment of accreditation standards is documented in the web-based IT-system TAK, which also generates the final survey report. A facility in TAK enables IKAS staff to compare assessments of accreditation standards across survey reports in a simple quantitative manner. If a pattern of partially met or not met standards emerges across survey reports, assessments are analysed qualitatively in order to ensure that identical or similar findings lead to the same assessments of the accreditation standard. The method may thus be regarded as an extra quality assurance check post survey.

Results:
The comparison of assessments of accreditation standards across survey reports has:

- Identified inconsistencies in assessments of partly met or not met accreditation standards across survey reports
- Aided the establishment of an assessment practice regarding any given accreditation standard
- Indicated whether some accreditation standards are particularly difficult to measure

Moreover, patterns of partially or not met accreditation standards may inform future revisions of the accreditation standards as well as feedback to surveyors.

Conclusions:
The presented method of comparing assessments of accreditation standards is a practical and pragmatic tool for promoting consistency in a qualitative accreditation model, rather than being a scientifically developed quantitative method that ensures consistency. While still in its infancy, the method has been shown to be valuable in identifying inconsistencies in assessments across survey reports as well as informing other important aspects of DDKM.

Future challenges include how to handle the analysis of the ever-increasing amount of qualitative data and to realise the potential of informing other aspects of DDKM.
E-paging to speed up Internal Communication

Benedict Fu, Vivian Wong

Introduction:
Telephone operator (TO) in hospitals usually plays the role of the main exchange for all internal and external public calls. It is a common practice for hospital staff to call TO for paging other colleagues like duty medical officers. Telephone operator console has been so busy that would keep callers including those at emergent or urgent situations waiting for a long time.

Fig. 1 illustrates that the internal calls are the major portion of the total daily calls handled by TO every day from 9:00-18:00. There were about 1400 internal calls per day found in a 5-day study conducted in August 2009. Fig. 2 shows that a majority of the day time internal calls was paging requests.

Besides, a sampling test conducted in October 2009 revealed that 4 in every 10 internal callers would have to wait for at least 35 to 68 seconds before they could be assisted. To ease out the congestion as far as we could, a speed paging pathway was desired.

Objectives:
By using a direct paging approach via shortcut icon on the desktop of workstations, we expect to eliminate/reduce average waiting time by 30%

Methods:
The paging process was reviewed and streamlined from 4 steps to 3 steps in which a web-based PC paging platform was introduced. User practice(s) such as “one-touch” phone-call practice was incorporated in the reengineering process as far as possible. The project was put on trial and then subsequent roll-out to all clinical units of TMH.

Results:
Process time for making a page is improved by 62% and waiting time for TO assistance was greatly reduced. Favorable user feedbacks are well received. Telephone operators are now more readily available in handling emergency calls.

Conclusions:
Elimination of waste on 30% waiting time was achieved and the utilization rate of the new approach was up to 70%.
Strategies consumers use to improve the safety and quality of their healthcare

Alison Short¹, Rebecca Taylor², Paul Dugdale², David Greenfield¹

Objective:
The study aimed to investigate consumers’ experiences and perspectives of self-managing chronic disease and the tools and strategies they have developed to do so.

Methods:
There were 18 research activities which involved 55 participants in Canberra, Australia, between August 2010 and January 2011. Data were collected from interviews (11) and focus groups (7). Participants were aged 36-83 years and consisted of 17 males and 38 females. An open-ended explanatory approach directed the interviews and focus groups. Participants were asked the simple question ‘please tell me about your experience of self-managing a chronic disease’. Follow-up questions were based on participant responses. Focus groups ranged in length from 60 to 90 minutes and interviews ranged in length from 20 to 120 minutes. Procedures were established within the team to ensure systematic handling of recorded data, and any discrepancies generated were thoroughly discussed and resolved.

Results:
Participants identified the tools and strategies they use as: 1) improvised hand-held records (spreadsheet, notebook, file-box), 2) choosing a single health provider location for investigations (x-rays, scans, blood-tests), and 3) engaging a friend/carer (to listen, remind, and write down information). Consumers who utilised these tools and strategies displayed high levels of functioning in cognition, language, confidence and interpersonal negotiations with both clinicians and their wider networks. Their experiences and perspectives of the safety and quality benefits of these tools and strategies clustered around the emergent themes of episodes of care, ongoing narrative, and active partners. In addressing episodes of care (admissions and doctor visits), consumers saw the employed tools and strategies as contributing to time-saving and increased accuracy of information, such as the availability of updated medications and dosages. The ongoing narrative (access to previous records) was immediately available at any consultation or admission, conveying a global view of all appointments and admissions. Additionally, a longitudinal view of tracking symptoms provided accuracy beyond a single snapshot at a given appointment. The theme active partners addressed how consumers used the stated tools and strategies indicated improved interaction between consumers and health professionals. This included: sharing information; a sense of reduced vulnerability of the sick person; and inherent advocacy and empowerment in addressing health care issues.

Conclusions:
Consumers reported the tools and strategies they had developed, and their experiences and perspectives of using them, with a view to maintaining and improving the safety and quality of their care. Considerable creativity, ability and innovation were demonstrated by consumers in managing their own healthcare. They were able to identify problems in the health system and therefore develop tools and strategies to overcome them. In doing so, consumers demonstrated a shift from passive to active participation in their healthcare. This suggests that consumers are an untapped resource to improve the quality and safety of their healthcare. The application and dissemination of tools and strategies also requires consideration of cognition, language, confidence and skills in interpersonal negotiations. Consumers can be further encouraged to share and use the knowledge from this research to maintain and improve the safety and quality of their care.
Medical Crypticness – Characteristic Barrier in Patient Safety

Anil Khare

Objective:

To study the consequences of medical vocabulary in communication with patients and related persons to protect patients’ interests

Methods:

Medical Error is one of the important factors adversely affecting the status of Patient Safety. Clear communication with patients and relatives needs wide attention to enable patients to understand their situation faster and better. Key steps and tools: 1. My personal observations in surgical practice and similar observations of others. 2. Study of Sociology of language. 3. Review of literature regarding medical communication. 4. Framing and defining the taxonomy “Medical Crypticness”. 5. Studying formation of medical terminologies. 6. Tabulation and elaboration of methods to derive principles of solution to Medical Crypticness. 7. Enlisting self-clarifying phrases adopted by non-medical persons.

Abstract:

Interconnection between unclear communication with patient and medical errors is a well-established entity. Spoken language that plays a decisive role during communication in healthcare is frequently blocked by language dissimilarity leading to negative impact on quality of patient care. Medical Crypticness is a potent communication problem leading to difficult conversation. It becomes a brainteaser to common men, patients, courts of law and language interpreters facilitating communication between patients and healthcare providers e.g. Medical Tourism industry. Irrespective of language diversity the “Medical Crypticness” typically complicates the communication and dents trust between healthcare providers and patients. The constructive ideology of Medical Crypticness is indispensable not only for the repute of healthcare institutions and consultants but also for welfare of patients.

Adverse effects of Medical Crypticness can be minimized to a large extent by Involuntary and Voluntary Methods involving indigenous and exogenous approaches. Retrospective readings reveal that Loyal Davis (Professor emeritus Surgery; USA), Professor Halvor Nordby, Oslo (Norway), and O P Mishra (Professor emeritus Surgery; India) independently marked simulating circumstances without assigning any nomenclature to the situation.

Efforts done in the field of “Medical language awareness”, e.g. Medical Transcriptions are more of use for healthcare informatics and record-keeping than to assist patients to facilitate understandings regarding his disease and treatment plan. Methods for simplified but convincing conversations restricted to specific necessities of the particular patients are mandatory for maximum clarity of communication. Proficiency of particular healthcare system depends on skillfulness, swiftness and cleverness of the treating healthcare team to develop a gratifying bond with any patient (and family) and also to make him better acquainted with his clinical situation. Awareness of Medical Crypticness stimulates total healthcare provider system to become more proficient. This is a sophisticated act of continuous fine-tuning as every patient is a separate entity.

Results:

This pioneer study has invented the taxonomy “Medical Crypticness” caused by Medical Terminologies and Medical Abbreviations. It defines the extent and limitations of “Medical Crypticness”. Also illustrates hazards of language barrier with emphasis on Medical vocabulary including simulating terminologies, set principles to minimize adverse effects of Medical Crypticness and provides assistance to healthcare provider team by enhancing awareness of Medical Crypticness.

Conclusions:

The purposeful conversation aimed to treat the patients and obtain informed consent; the patients do not grasp the actual definition of medical terminologies. This leads to a hazardous unclear communication leading undue happenings. Such hazards can be minimized. This project has succeeded to provide better knowledge regarding influence of medical terminologies over patients and other persons such as court of law and multilingual interpreters. The project has invented the taxonomy “Medical Crypticness”. The taxonomy has been well defined to lay out fundamentals to resolve the ill effects. The study stimulates total healthcare system to become more proficient to patients.
Establishment of Diabetes Foot Care Clinic in RMI (Lower Extremity Amputation Prevention)

Agnes Flood, Richard Rang

Objectives:

To provide an effective and sustainable Foot Care Program, then incorporate into a holistic and comprehensive Diabetic Management to decrease the amputation rate in RMI. The Ministry of Health in the Republic of the Marshall Islands has existing programs on Diabetes Prevention such as campaigns, Diabetes Clinic and Diabetes Wellness but there is no offered foot care service. Prevalence of amputations in RMI is continuously growing. 99% of Majuro hospital amputations are complications of DM. Majority of these are done as life-saving procedure with severe gangrene and sepsis (# 1 cause of death). Average age for amputations is fifty. Second amputation rate is very high (more than 50% within 1 year) and disabilities are much devastating. Almost all amputations are preceded by an ulcer on a chronic diabetic. Data collected for 2008 showed that 27% of registered diabetes admitted had amputations. We believe that through effective Foot Care Program, the MOH will achieve its goal.

Methods:

Established a multi-disciplinary Diabetic Foot Clinic, collaboration between Diabetes Clinic, Outpatient Dressing, Surgeons, Diabetes Wellness, Health Promotion, Taiwan Team, Hyperbaric Chamber and Rehabilitation Department.

Referring Points: (to DFC)

Diabetes Clinic (Mondays and Fridays): Public Health nurses - responsible for blood pressure, FBS check and in identifying diabetics patients to be referred at the DFC. Patients are also referred to Ophthalmologist and Dental Department for further treatment

Surgeons: Refer patients with wounds/ulcers for foot care/education.

Outpatient Dressing Nurses: Provide daily wound dressing, education on diet, tobacco cessation and refer patients to DFC for weekly wound monitoring and care.

Receiving Points: (Foot Care Clinic: Rehabilitation Department)

Rehab Technician – Provide and fill-up passport. B/P, RBS check as requested and provides translation whenever necessary.

Health Educator – Fill-up Diabetic Risk Assessment Form, check height, weight, BMI, body fat. Educate patient on foot care and nutrition counselling and tobacco cessation.

Physical Therapist: Fill-up Diabetic Foot Screening Form. Categorize diabetic foot at risk. Provide Ultra Violet Lamp or Infrared Radiation to improve wound healing and increase blood circulation as requested by the surgeons. Transcutaneous Electrical Nerve Stimulator is also given in conjunction with the two machines.

Wound care – trim callus, toe nails and modify foot wear with prosthetic technician assistance.

Decision Points: Physiotherapists refer patients to Surgeon, Internist and Hyperbaric Chamber as required. Hyperbaric Chamber mainly composed of nurses and 1 physician. Patients are also referred to Diabetic Wellness for cooking lessons, lectures on diabetes complications, blood sugar monitoring and exercises.

Results:

Since the DFC clinic was established last February 01, 2010 (initial “one year Pilot Test”), the team has seen 1,036 patients (489-new cases; 547 follow-ups). Various foot conditions were encountered and majority were neglecting their feet. Therefore, minor cuts/ wounds/ callus were ignored leading to minor or major amputations. Patients' positive feedback for the program motivates the team to further improve the service. Further, through proper education, patients were able to name their medications instead of defining them by colours. Amputation rate has also decreased from 27% (FY08-09) to 16% (FY09-10).

Conclusions:

The new concept of preventive measures and awareness for patients is helpful to prevent further foot complications and changing of old unhealthy lifestyle to healthy lifestyle. However, we might encounter problems /barriers in the years to come and may affect our objectives but with the continuous support of the MOH, WHO, CDC, Taiwan Center, NHDPs and PATIENTS, we believe that the program will be sustainable and efficient.
Improving Medication Safety in Outpatient Clinic Using Preprinted Formulary Prescription Forms (FormularyScripts)

Thuss Sanguansak¹, Michael Morley², Katharine Morley³, Yosanan Yospaiboon¹

Objective:

To determine the incidence and types of medication prescribing errors using handwritten prescriptions and a pre-printed prescription form, “FormularyScripts”

Methods:

This nonrandomized interventional study compared the rates of medication prescribing errors using a standard handwritten prescription and a pre-printed prescription form, “FormularyScripts”. The FormularyScripts includes names and strengths for selected medications, along with prompts for prescribing information such as dose, frequency, and route. It was conducted in an ophthalmology clinic at a teaching hospital in Thailand. It is a low cost method of reducing medication prescribing errors that may be of interest when computerized prescribing is not feasible.

Data were collected over 3 months to determine the incidence and types of medication prescribing errors using handwritten prescriptions. This was followed by a pilot phase where a FormularyScripts with 50 medications commonly prescribed in the ophthalmology clinic was introduced and physicians trained in its use. Data were then collected to determine the incidence and types of medication prescribing errors using FormularyScripts over a second 3 months period. Medication prescribing errors were defined as a deviation from a complete, accurate and legible prescription, and grouped into error types and subtypes. The error types were: legibility, ambiguous, incomplete, abbreviation, and accuracy. Error subtypes, based on the required prescription elements for a given medication, were: medication name, strength, route, which eye, frequency and dispense amount.

Results:

A total of 4,349 handwritten prescriptions and 4,146 FormularyScripts were included in the data analysis. Comparison of error rates in the 2 groups showed a 10-fold reduction in the overall error rate using FormularyScripts (32.9% to 3.5%, p<0.000). Decreases were seen in the rate of most error types using FormularyScripts: legibility (16.1% to 0.1%, p<0.000), incomplete information (16.1% to 0.1%, p<0.000), and unapproved abbreviations (3.1% to 0.3%, p<0.000). There was no statistically significant change in accuracy errors (0.8% to 0.6%, p 0.21), but ambiguous errors increased with FormularyScripts (0.6% to 2.5%, p<0.000) likely due to the introduction of new ways to make errors.

Conclusions:

These results indicate that medication prescribing errors are common in outpatient clinics and are primarily due to legibility and incomplete information. The introduction of a pre-printed prescription form can result in a significant decrease in the overall medication prescribing errors without changing the rate of accuracy errors. The pre-printed prescription form can introduce new error types but with proper training and design of the form this can be minimized, making FormularyScripts a viable alternative to computerized prescription writing in low resource settings.
“SOON” Discharge Criteria for Paediatric Patients Hospitalised for Acute Asthma

Theresa Leung, Rebecca Hui, June Chan, Lok Yee So

Objective:
To investigate whether the “SOON” discharge criteria can facilitate early discharge of patients admitted for asthma exacerbations.

Asthma contributes 4-5% of hospital admissions in the paediatric departments of Hospital Authority (HA) in Hong Kong. Compared with Australian Council on Health Standards (ACHS) clinical indicator report 2005, the average length of stay (ALOS) for acute paediatric asthma was 1.7 days which was much lower than the HA overall ALOS of 2.7 days and 2.5 days in 2007 and 2008. There is no single physiological parameter that could determine the time of discharge and the decision is largely based on physician’s assessment. A set of simple 4-items discharge criteria was developed based on international guidelines on asthma management.

Methods:
Nurses perform assessment of patients admitted for acute asthma at least daily with the 4 items “SOON” criteria: 1) Salbutamol inhalation no frequent than every 4 hours 2) Oxygen saturation (SaO2) ≥95% in room air 3) Oral intake satisfactory 4) Night sleep not disturbed.

Attending doctors were alerted to patients’ readiness for discharge when all the items were fulfilled. Patients not meeting the criteria within 3 days have to be assessed by respiratory specialists. The primary outcome was percentage of hospitalisations with length of stay (LOS) > 3 days. The secondary outcomes include unplanned readmission rate (URR) and average length of stay (ALOS) in days and hours. In May 2010, The Department of Paediatrics and Adolescent Medicine of Pamela Youde Nethersole Eastern Hospital implemented the “SOON” criteria for all patients admitted for acute asthma. Data for episodes with principal discharge diagnosis of asthma, excluding status asthmaticus, as retrieved from the Hospital Authority Clinical Data Analysis and Data Reporting System (HA CDARS) were analysed and compared with the data during the same period in the preceding year.

Results:
There were 170 episodes of discharge from May to December in 2010 and 115 episodes during the same period in 2009. The proportion of episodes with LOS > 3 days decreased by 41.2% from 19.9% to 11.7% (p=0.001) after implementation of the “SOON” criteria. There was also higher percentage of discharges within 1 day and 2 days in 2010. The ALOS of hospitalisation was shortened by 0.39 days (95% CI 0.07-0.71, p=0.018) from 2.57 days in 2009 to 2.18 days in 2010. The URR within 28 days for asthma remained low at 0.87% in 2009 and 2.35% in 2010.

The cause for more discharges in 2010 was uncertain. The rate and reasons for non-compliance to criteria were not known, as these required manual data collection.

Conclusions:
The “SOON criteria” could be a useful objective tool for timely discharge of paediatric patients admitted for asthma exacerbations. The ALOS after implementation of the criteria is still higher than our international counterparts which could be due to non-compliance with the criteria or other variations in clinical management that necessitate further investigation.
Improving care for chronically ill patients by standardized e-communication between hospital and local communities

Birthe Lindegaard, Peter Qvist, Anne Mette Oelholm

Objective:

To evaluate the effect of introducing standards for e-communication between primary and secondary healthcare sector for hospitalized chronically ill patients.

Methods:

Traditionally the handover of patients needing post-discharge follow up by community nurses has been planned at the time of discharge. The purpose of this regional initiative was to improve discharge and post-discharge follow up by enhancing information exchange between sectors during the patient's hospital stay. Communities and hospitals in the region of South Denmark agreed on standards for content and timeliness for information exchange on the following issues:

- Basic patient related data
- Diagnosis and medication
- Physical, mental and social status
- Need for personal aids
- Nutrition and housing situation

Implementation of the standards and corresponding e-technology was carried out in June 2009. One year later the impact of the initiative was evaluated in terms of adherence to standards.

After pilot testing of different cross-sectorial audit designs, an explicit audit model was chosen as the most cost-effective evaluation method.

Five hospital departments and five communities were included in the study. Communities and departments were chosen in pairs with a close geographical relation. The content and timeliness of e-communication for 100 randomly selected patients (20 per hospital/community unit) was registered in a pilot tested questionnaire by the recipient of the information. Results were analysed and then presented by the regional Centre for Quality during subsequent audit meetings held in each of the five settings.

Results:

Basic patient related data, provisional diagnosis and medication list was present in most cases. The other above mentioned items were often either insufficiently described or missing. The audit meetings revealed that the involved professionals struggled with identical problems across the region. Need for improvement was both related to e-technology and failures in clinical documentation of information relevant to the recipient. In addition minor improvements in the registration forms were suggested. The audit meetings – carried out with representatives from both sectors - were considered by the participants as an excellent opportunity for sectors to discuss the possibilities to meet the counterparts need for structured information.

Conclusions:

The possibility for rapid and timely communication between healthcare sectors has increased markedly with the advent of e-communication. This audit based evaluation suggests that there is still room for improvement in order to make use of this opportunity to improve integrated care across sectors. Future efforts should focus on both IT-technology adjustments, improvement of clinical documentation and cost-effective audit designs.
Continuity of care from the patient perspective

Peter Qvist, Birthe Lindegaard, Anne Mette Oelholm

Objective: To describe the patient perspective on continuity of care by analysing patients’ comments in a national satisfaction survey.

Methods: The Danish national patient satisfaction survey 2009 included possibilities for patients to add positive and/or negative written comments. In the Region of South Denmark we received 19,323 comments of which 9,007 were critical comments. In this study we wanted to assess the frequency and content of comments addressing aspects of continuity of care for both in- and outpatients.

The study was carried out as an inter-observer variation study. Observers were asked to place the critical comments into one of four categories: relational/interpersonal continuity, information continuity, organizational continuity or no relation to continuity. The three continuity-categories were chosen after scrutinizing the literature on different aspects of continuity of care.

By systematic random selection, two samples were drawn each of 100 critical comments from in- and outpatients respectively. The comments were assessed by four independent observers – two senior registrars and two nurse leaders to secure that observers were responsible and committed to react on quality data in general. A short guide for categorization was formulated after pilot testing. Observer variation was assessed using Kappa statistics.

Results:

On average 38% (24-45%) of comments from in-patients and 47% (33-55%) of comments from outpatients were categorized as comments related to continuity of care by the four observers. For both in- and outpatients the majority of these (on average 7 out of 10) were classified as problems related to organizational continuity. Kappa statistics were performed for the six possible calculations between the four observers. In three cases the kappa values showed slight agreement in the 0.2-0.4 range. The remaining three kappa values were in the 0.4-0.6 range corresponding to moderate inter-observer agreement.

Conclusions:

A precise analysis of patient experiences regarding continuity of care including categorization of the patients’ comments into subgroups of continuity seems to be difficult. However, this study confirms that continuity of care is still a point of concern for many patients. For both in- and out patients, the observers agreed that organizational continuity is by far the most important issue from the patient point of view. This suggests that care planning, inter-professional cooperation and logistics should be prioritised in the planning of improvement initiatives regarding patient pathways. We conclude that solving problems of continuity of care requires more focus on organizational aspects as compared to solutions involving case managers or similar efforts to improve relational continuity.
Smoothen the perioperative journey—Use of PACU nurse-initiated discharge protocol to decrease the unnecessary length of stay in PACU

Theresa Li, Hau Chi Kam, Steven Wong, Viki Yung

Objective:

Use of nurse-initiated protocol with standardized discharge criteria to decrease unnecessary length of stay in PACU

Methods:

The post anaesthetic care unit (PACU) has been accepted worldwide as a standard of care for the immediate recovery of postoperative patients. Studies showed that 20% of patient-stay in PACU was often unnecessarily prolonged using the traditional time-based discharge due to delay in receiving discharge orders from anaesthetists (1). After a thorough literature search and discussion among senior anaesthetists & nurses, we have developed a PACU nurse-initiated discharge protocol with the aim of avoiding unnecessary length of stay in PACU while ensuring safe patient discharge from PACU. Inclusion criteria to the PACU nurse-initiated discharge protocol are: aged 18 or above, ASA class I or II, undergoing elective mastectomy, laparoscopic cholecystectomy, gynaecological, eye, dental, ear, nose or selected orthopaedic operations with blood loss ≤ 20% blood volume. Anaesthetists will also assess the patient's intraoperative conditions and events before adopting this protocol for discharge. As there appears to be no validated gold standard for PACU discharge, modifications of the widely used Aldrete Scoring system are referenced in developing our PACU Recovery Scoring System. This scoring system consists of eight criteria (rated either 0 or 1) regarding responsiveness, motor movement, respiration, circulation, oxygen saturation, pain control, bleeding & vomiting (2). PACU nurse will initiate the PACU Recovery Scoring on arrival to PACU and repeat the clinical assessments every 15 minutes accordingly. Patient is considered ready for discharge after a minimum PACU stay of 30 minutes with a PACU Recovery Score of 8/8. PACU nurses are instructed to notify the anaesthetist if there is any deterioration in the patient's condition or failure to achieve a PACU Recovery Score of 8/8 after 60 minutes. Regular training sessions on this protocol and its integration into formal PACU nurse training are provided to ensure proper application of the protocol.

Results:

A total of 918 patients (74.1% utilization rate) were recruited from January to December 2010. Eight hundred & four cases (87.6%) were successfully discharged by the protocol while 12.4% cases required further intervention by anaesthetist due to difficult pain control. The average PACU length of stay was significantly reduced by 27.7% (p<0.001), from 42.9 minutes using traditional time-based discharge, to 31 minutes using the new nurse-initiated protocol-based discharge. No apparent adverse event was detected. A questionnaire survey was performed in January 2011 to evaluate the impact of the new protocol-based discharge workflow. The results showed that both anaesthetist and nursing staff satisfaction has been improved. Further promulgation of the protocol and inclusion of other surgical specialties was also strongly supported.

Conclusions:

As the first hospital in Hong Kong to adopt a protocol-based nurse discharge, we have successfully achieved a statistically significant reduction in PACU discharge time and shown that protocol-based nurse discharge is practical without compromising patient safety. The encouraging results, together with improvement in both staff satisfaction and standard of patient care, urge us to further promote and refine the use of nurse-initiated discharge protocol in our PACU.

References:


Evaluation of an inter-professional assessment tool for parents with mental illness: A case study of the translation of national policy to local practice

Peter Nugus, David Greenfield, Jeffrey Braithwaite

Objective:
To determine the local effectiveness of a national strategy to improve the engagement and response of mental health services to parents with mental illness and their children.

Methods:
A mixed-method evaluation was conducted of the local implementation of an Australian government-funded program entitled the Children of Parents with Mental Illness (CoPMI) National Initiative. This involved evaluation of the SARA (Support and Risk Assessment) tool – with prescribed questions and an algorithm of follow-up actions related to the family impact of mental illness – devised by clinicians for a regional health system. The evaluation, conducted between May 2009 and February 2010, consisted of client file audits, and questionnaires, interviews, and observations of staff in an acute and sub-acute mental health unit. Participants were consumers, doctors, nurses, allied health staff, managers and a consumer representative. An audit was performed of the files of 69 mental health consumers. Questionnaires consisted of 17 Likert-scale questions, with five options ranging from “Strongly disagree” to “Strongly agree”. Forty-five staff completed questionnaires. Twenty-four in-depth, semi-structured interviews were conducted. Eight staff meetings were observed, featuring 98 participants. Questionnaires were analysed using descriptive statistics. Average scores were converted to percentages, so that 1 was 0%, 5 was 100% and 3 was 50%. Consumer files were surveyed through content analysis. Thematic and content analyses were applied to the transcripts of the observations and interviews.

Results:
There was a relatively high level of agreement with and support for the national reform agenda’s thrust to assess and support adult consumers as parents, rather than only as independent adult consumers (average: 79%). However, staff conveyed moderate agreement with the effectiveness of the local SARA as a tool to realise the reform agenda (average: 62%). There were polarised views, evident in observations and interviews, between a majority (approximately two-thirds) of staff strongly supporting the SARA tool, and a minority (approximately one third) strongly opposing it. Opponents saw the SARA tool as managerial interference and inconsistent with their current work and client care. Supporters saw the SARA tool as synergistic with and supportive of their current work and client care. Regardless of whether staff supported or opposed the SARA tool, most reported they were ill-informed about the SARA tool and lacked the opportunity to advise on its design and implementation. File audits showed that, in practice: 24.7% of adult clients were asked if they were a parent of dependent children; the SARA form was attempted on 31% of occasions where consumers said that they were parents of dependent children; no SARA form was fully completed; female clients were four times more likely than male clients to be asked if they were parents of children; and 10 clients who ought to have been targeted for further assessment were not identified by staff and were subsequently re-assessed. and follow-up health and social care provided. following the audit.

Conclusions:
This local implementation of mental health policy was ultimately unsuccessful. The study shows the potentially large gap between policy and practice, and the challenge of policy implementation. Even where there is strong support for the principles of a policy reform, a minority of frontline staff has sufficient power to thwart management and government-sponsored reforms. Staff must be adequately consulted and informed about an initiative to bring about reform, and be persuaded as to its relevance for client care.
Design and Construction of an Electronic Handover System for Hospitalized Patients in a Medical Center

Chien-Te Lee, Hui-O Lin, Jia-Shou Liu, Yu-Lung Tseng

Objective:
It is well-recognized that hospitalized patients are usually suffering with acute and severe illnesses that need continuous care and monitoring. The care providers, including physician, nurse, pharmacologist and medical laboratory technician are all involved in a team care system and a collaborative care is mandatory. However, they are usually divided into working time groups and an adequate handover system is required to facilitate the medical care and provide immediate and precise medical decision. Although electronic medical record system has been working well in our hospital, physicians usually hand over by phone call, verbal communication or recording on handover book. To make the best use of electronic medical record and set up electronic handover system, a working team was organized to construct physician web-based handover system.

Methods:
This electronic system was designed to set up a precise and effective handover. Based on current electronic medical record system, the handover system can be implemented into shifts between daytime and night-time; between weekday and weekend. General data such as bed number, location, and basic data of patients can all be collected automatically. Essential laboratory data, image study and current pharmacological therapy are transferable depending on the request. Of the most importance, clinical information needs to be transferred and continued are provided. After completing entry, the handover note can also be translated into progress note in electronic medical record system. Totally there are six major items in our handover note: primary diagnosis; assessment; current problem/condition; current changes and treatment; recommendation; and special note. Depending on different shifts, handover note can be categorized into 12 hours, 24 hours and 48 hours.

Results:
This electronic handover system was implemented for 26 divisions and a questionnaire evaluation was performed thereafter. More than 90% of enrolled divisions utilized the system for more than 3 months. This investigation was responded to by 50 physicians and they reported a satisfaction score of 95%. We found the online handover system achieved our aims to save time in identifying patients; and physicians can collect and convey key information immediately and automatically. With the background electronic medical record system, the handover system can cross and link between different parts such as laboratory report and results of image study thus improve patient safety and care quality.

Conclusions:
We conclude that based on electronic medical record system, online handover system is an informative and effective system to promote care quality of inpatient. This electronic system is well-accepted by physicians and can be extended into other departments in a hospital-based medical care system.
The outcome of inspection program on Institutional Review Board/ Ethics Committee in Taiwan: Preliminary results

Ruei-Ting Cheng, Yu-Chia Lee, Lie-Jung Huang, Ian Chen

Objective:

To study the implementation effects for improving the outcome of Institutional Review Board/ Ethics Committee (IRB/EC) Inspection program in Taiwan.

Methods:

Taiwan Joint Commission on Hospital Accreditation (hereinafter referred to as TJCHA) has established an “IRB/EC Inspection program” since 2005. The work items included to establish the expert task force group, hold the Survey Interpretation Conference, appoint and train professional surveyors, hold Pre-survey and Surveyors Consensus workshops, schedule on-site survey arrangement, and calculate and produce on-site survey scores and comments, etc. A pilot on-site survey was carried out in 2007, and later the formal on-site surveys were launched in 2009 and 2010.

In order to understand the process of administrative work and implementation effects, an analysis on the satisfaction questionnaires and a review on the survey results of the IRB/ECs over the years were carried out. Regarding the satisfaction questionnaires, 75 questionnaires were sent in 2009 and 38 questionnaires in 2010 to the surveyors and surveyed IRB/ECs of the correspondent year to understand their opinions on the inspection program. About the survey results of the IRB/ECs over the years, the main subjects were 22 surveyed IRB/ECs which participated both the 2007 pilot on-site survey and 2009 formal on-site surveys by using the t-test method (α = 0.05) to compare the difference in the survey results in these two on-site survey results in order to understand if there was any improvement.

Results:

1. The return rate of the satisfaction questionnaires was 93% in 2009 and 82% in 2010. Part of the questionnaire results were shown in Table 1. The surveyors and surveyed IRB/ECs showed satisfaction in the substantial benefits brought by the on-site survey work, and most of them showed a positive identification on the survey design and application of survey work from TJCHA, especially on “providing the reference of improvement” and “providing the understanding of self ability to set the benchmarks.”

2. There were 31 IRB/ECs participated in the 2007 pilot on-site survey, in which 22 involved again in the 2009 on-site surveys. The results found that 7 IRB/ECs showed a significant increase in the proportion of Grade C (and above); 6 IRB/ECs showed a decrease in proportion of Grade C (and above); 9 IRB/ECs did not show any significant score change (100%) of the two years with Grade C (and above), in which 6 IRB/ECs got 100% on both years.

Conclusions:

By the application of on-site survey mechanism, the operation quality of Taiwan IRB/ECs is expected to promote with continuous improvement, to have the general consensus of the development and application on ethical review, and to protect the rights and privacy of the research subjects. The results can be provided to TJCHA to establish a more completed and comprehensive inspection program to improve the quality of service and operation, as well as the integrity of development in biomedical researches.

Table 1. Surveyors and surveyed IRB/ECs’ opinions on the implementation of Institutional Review Board/ Ethics Committee (IRB/EC) Inspection program in 2009 and 2010. (Multiple choice)

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<tbody>
<tr>
<td>1. Gathering consensus and cohesion within the IRB/EC</td>
<td>56.1</td>
<td>46.2</td>
<td>47.4</td>
<td>33.3</td>
</tr>
<tr>
<td>2. Providing the understanding of self ability and set the benchmarks</td>
<td>90.3</td>
<td>66.7</td>
<td>84.2</td>
<td>91.7</td>
</tr>
<tr>
<td>3. Providing the reference of improvement</td>
<td>96.8</td>
<td>87.2</td>
<td>89.4</td>
<td>100</td>
</tr>
<tr>
<td>4. Enhancement of concerns and related IRB/EC actsives</td>
<td>80.6</td>
<td>61.5</td>
<td>84.2</td>
<td>41.7</td>
</tr>
<tr>
<td>5. Enhancement of the communication among IRB/ECs</td>
<td>67.7</td>
<td>64.1</td>
<td>42.1</td>
<td>50</td>
</tr>
<tr>
<td>6. Promotion on the research subject protection</td>
<td>74.2</td>
<td>48.7</td>
<td>63.1</td>
<td>25</td>
</tr>
<tr>
<td>7. Assistance on the understanding of regulation and expertise for research subject protection</td>
<td>57.1</td>
<td>28.2</td>
<td>63.1</td>
<td>16.7</td>
</tr>
<tr>
<td>8. Assistance on the understanding of IRB/ECs related international trends</td>
<td>38.7</td>
<td>23.1</td>
<td>15.8</td>
<td>8.3</td>
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<tr>
<td>9. Others</td>
<td>3.2</td>
<td>5.1</td>
<td>0</td>
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Increase of Outpatient Surgery cases by improving the management process

Hyun-Kyung Lee, Hyun-Ju Baek, Jeong-Won Hwang, Sang-Hwan Do

Objective:
Outpatient surgery is expected to keep growing due to various merits both to hospitals and patients. However, outpatient surgery at Seoul National University Bundang Hospital (SNUBH) has been inefficient and shown low performance compared to other top-ranking hospitals. This study was conducted to increase outpatient surgery cases and to improve management process in outpatient surgery.

Methods:
This study was conducted at Outpatient Surgery Center (OSC) at SNUBH between July 26th and October 29th in 2010. We analyzed the number of patients during the period considering seasonal variation. To find the needs from patients, data for statistical analysis were collected through interview, survey, bench-marking, and literature review, and the data of the patients were acquired from the Electronic Medical Record (EMR) of our hospital. Based on the initial data set, the major parameters for increasing the number of patients were selected through brainstorming, bench-marking, literature review, and administrative process analysis and we set up an improvement strategy. Various activities and efforts were carried out to increase the number of outpatient surgery such as (1) adding of new outpatient surgery names, (2) post-operative intensive care (3) OCS hour extension, (4) hospitalization after surgery, and (5) transfer of inpatient surgery to outpatient surgery. To prevent a certain delay in management process due to the increased number of patients, we upgraded (1) discharge procedure, (2) return of examination, (3) telephone service system, and (4) critical pathway.

Results:
Total number of patients in 2010 was increased by 525 comparing to that of 2009, and also mean daily number of patients showed a marked increase by 45% in 2010. Improvement in the management process resulted in attracting more patients and also reducing the deviation in daily visitors of the week, which was one of the major problems at OSC. By adding new kinds of surgery to OSC and immediate hospitalization after Outpatient Surgery, 207 patients were able to stay at the hospital right after surgery at OSC. Through these procedures, the mean hospital stay of the whole patients was reduced by one day and the patient turnover rate was increased as well. In addition, we prevented possible administrative delay by developing Critical Pathway upon 16 major surgeries which cover 70% of the whole outpatient surgeries. New treatment instruction was developed for patients and guardians at OSC to provide timely information in advance. The improved management system prevents treatment delay and eventually enhanced overall satisfaction for our patients.

Conclusions:
This study was conducted at OSC of SNUBH focusing on the improvement of management efficiency and increase in the number of patients to meet various needs in the changing medical paradigm. We diagnosed present service at OSC and then proposed improved methods for better healthcare services. We provided an improved management process in perioperative care management at OSC which resulted in the increase of patients. We conclude that the improvement in the management process contributed both to providing quality medical services to patients and to enhancing effectiveness in hospital management. In this manner, SNUBH is expected to cope with various needs in healthcare environment.
Objective:

To examine the effectiveness of a nurse-led patient engagement and empowerment program in maintaining discharged patients in the community and reducing subsequent healthcare needs.

Methods:

Patients admitted from the Pamela Youde Nethersole Eastern Hospital (PYNEH) Emergency Department (A&E) to PYNEH Department of Medicine (PYNEH(Med)) at high risks of unplanned readmission were identified by ward nurses if they have: one or more of: (i) multiple chronic medical diseases and polypharmacy, (ii) impaired mobility and function, (iii) psychological problems, (iv) social deprivation, and (v) history of repeated admissions. Patients admitted from elderly homes were excluded. Recruited patients gave informed consent and were randomized into Pre-discharge Planning and Post-discharge Support Program (PPPS) group or Usual Care (UC) group in a 2:1 ratio. Patients and caregivers were actively involved in the program. PPPSP included a designated Advance Practice Nurse to assess patients' physical and psychosocial needs and develop comprehensive management and discharge plans with multi-disciplinary collaboration. After they returned home, patients and caregivers were empowered with knowledge and skills essential for chronic diseases self-management by a designated Community Nurse through home visits and telephone support for 28 days post-discharge. A back-up multi-disciplinary team of geriatricians, rehabilitation personnel and social service providers were mobilised as appropriate by the Community Nurse. Health-related outcome measures included A&E attendance rate, readmission rate, average duration of hospital stay (ALOS), and mortality rate both at 180 days and 365 days post-discharge. Statistical analysis was performed using Statistical Package for the Social Sciences. Categorical variables were analysed by Chi Square test and continuous variables by independent t-test. Statistical significance (2-tailed) was achieved if the probability (p) of test result was < 0.05.

Results:

From Oct 2007 to Sep 2009, 2,632 patients (1756 PPPSP and 876 UC) were recruited and their outcomes were analysed. Demographics of the two groups were similar. 1,147 (65.3%) PPPSP patients completed home-based patient education and empowerment. PPPSP patients and caregivers were taught on knowledge and skills for the following, in descending order of frequency: (i) dietary management of diseases (96%), (ii) monitoring and self-management of diseases (93%), (iii) drug compliance and safety (65%), (iv) home safety and fall prevention (49%), and (v) exercise and mobility (42%). Compared to UC, PPPSP patients had lower PYNEH A&E attendance rate (1.19 vs 1.39, p<0.05), overall readmission rate (0.88 vs 1.22, p<0.001), lower ALOS (4.82 days vs 5.94 days, p<0.05) to PYNEH(Med) and mortality rate (9.96% vs 13.58%, P<0.01) at 180 days post-discharge. PPPSP patients’ hospitalisation within all three medical departments of Hong Kong East Cluster (HKEC) was also lower at 180 days post-discharge: overall readmission rate (1.18 vs 1.61, p<0.001) and ALOS (9.31 days vs 11.13 days, p<0.05). All beneficial effects were sustained with statistical significance at 365 days post-discharge.

Conclusions:

Elderly patients are prone to recurrent hospitalisation and good discharge planning and post-discharge support are particularly useful in helping them stay in the community. Proactive patient and caregiver engagement in discharge planning for elderly medical in-patients at high risk of readmissions, combined with patient empowerment through home-based medical, psycho-social education and support, were effective to reduce their hospitalisation needs and lower mortality at 180 days and 365 days after discharge. The PPPSP is now continued in PYNEH(Med) and a modified form is being introduced to all Hospital Authority Clusters.
Drug classes associated with adverse drug events among elderly inpatients: the JADE Study

Mio Sakuma¹, Susumu Seki¹, David W Bates², Takeshi Morimoto¹

Objective:
To identify drug classes with high risk for adverse drug events (ADEs) occurrence in elderly inpatients.

Methods:
We conducted a prospective cohort study at three teaching hospitals in Japan (JADE study) [1, 2]. Participants of this analysis were those who were aged 65 years and older, and who were admitted to these hospitals during the study period. Well-trained research nurses reviewed all charts, incident reports and reconciliations from pharmacy to identify all potential ADEs and potential medications which were supposed to be associated with ADEs. Two independent physician reviewers evaluated them, and classified collected potential ADEs into ADEs or rule violations and assessed which medications caused those ADEs. They also classified severity of ADEs into 4 categories such as fatal, life-threatening, serious and significant. This methodology was validated in previous studies [3, 4]. The medications which caused ADEs were all classified into 24 drug classes as well as all medications which were prescribed to each patient on admission. The rates of ADEs according to each drug class were approximately estimated using the number of patients who received each drug on admission.

Results:
A total of 2155 patients aged 65 years and older were included in this analysis with 41649 patient-days. Among these 2155 patients, 523 (24.3%) patients had at least one ADE during their hospitalization: 359 (68.6%), 116 (22.2%) and 48 (9.2%) patients had single ADE, two ADEs and three or more ADEs, respectively. The total number of ADEs which occurred to these 523 patients was 746. The rate of ADEs was 34.6 per 100 admissions and 17.9 per 1,000 patient-days. Table shows drug classes which were associated with more than 10 ADEs per 100 patients. Among 746 ADEs, 15 ADEs were fatal and 37 ADEs were life-threatening. These 52 fatal / life-threatening ADEs were led by cardiovascular, antipsychotics, antiasthmatics, analgesics, sedatives, antidiabetics, diuretics, antihypertensives, antibiotics and NSAIDs. Drug classes with relatively higher risk for fatal / life-threatening ADEs (>=15% of ADEs) were cardiovascular (45.5%), antipsychotics (25.0%), antiasthmatics (20.0%), analgesics (16.7%), and sedatives (15.5%).

Conclusions:
We identified the drug classes highly associated with ADEs and leading fatal / life-threatening ADEs in elderly inpatients. Our findings will help clinicians to detect ADEs earlier when they care for elderly inpatients.

Table. Drug classes highly associated with ADEs

<table>
<thead>
<tr>
<th>Drug classes</th>
<th>No. of patients who received the medications on admission (%)</th>
<th>No of ADEs</th>
<th>Rate of ADEs per 100 patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antibiotics</td>
<td>754 (35.0)</td>
<td>275</td>
<td>36.5</td>
</tr>
<tr>
<td>Antitumor agents</td>
<td>44 (2.0)</td>
<td>11</td>
<td>25.0</td>
</tr>
<tr>
<td>Corticosteroids</td>
<td>136 (6.3)</td>
<td>21</td>
<td>15.4</td>
</tr>
<tr>
<td>Antiseizure</td>
<td>59 (2.7)</td>
<td>8</td>
<td>13.6</td>
</tr>
<tr>
<td>Laxatives</td>
<td>433 (20.1)</td>
<td>54</td>
<td>12.5</td>
</tr>
<tr>
<td>Antipsychotics</td>
<td>141 (6.5)</td>
<td>16</td>
<td>11.3</td>
</tr>
<tr>
<td>NSAIDs</td>
<td>478 (22.2)</td>
<td>54</td>
<td>11.3</td>
</tr>
</tbody>
</table>

References:
Bupa International Hospital Quality Programme

Alf Theodorou, Sneh Khemka, Helen Love

Objective:

Bupa International is working to ensure that customers, wherever they are in the world, have access to high quality healthcare.

Methods:

In the latest development of Bupa International’s Hospital Quality Programme, we have collaborated with Joint Commission International (JCI) to design assessment tools based on international standards to assess hospital quality and services available. This modular assessment was launched in June 2010 to 43 hospitals. JCI has been working with healthcare facilities, ministries of health and global organisations in over 90 countries since 1994. Members of our clinical team and leading consultants from JCI have developed bespoke quality assessment tools, consistent with internationally recognised standards. The assessment is predominantly conducted by web-based, on-line self-completed questionnaire. In hospitals where there is marked variation from the mean, on-site in-depth visits take place to inspect the hospital and validate responses.

Assessment - The modular assessment tools are completed by the participating hospitals. The multiple-choice modules cover all areas of the hospital from the management team to the front-line staff and from the availability of equipment to the measurement of quality. Evidence is requested from hospitals to support their answers and our scoring mechanism identifies inconsistencies in their responses. Detailed onsite assessments are also carried out, where necessary.

Safety initiatives - Bupa International is using the assessment tools to promote 3 key quality and safety initiatives:

- World Health Organisation Surgical Safety Checklist
- Collection, validation and sharing of Clinical Performance Indicators
- Use of evidence-based care pathways

Promoting a culture of quality - Reports are given to hospitals which detail areas of positivity, suggested areas for improvement and, where a hospital fails to meet the standards required to be a Bupa International Recognised Provider, clearly defined requirements. Our Quality Team then work with the hospitals to ensure these requirements are met.

Results:

Completion rate has been high. A total of 30 of the 43 submitted their modules for assessment (to December 2010), with no incentives or mandates to complete being applied. Onsite validation of 14 hospitals was undertaken to validate the answers of the self-assessment. The results of the onsite inspection show that the scoring mechanism we have developed provides an accurate representation of the quality of the hospital. When discussing the results, an error factor of +/- 5% (of the self-assessment score) is considered.

The hospitals are placed into tiers based on their quality assessment, from 3 (highest) to 1 (lowest); some hospitals are removed from the network if the assessment is very poor. Our results allow us to directly compare hospitals within a country or region (see fig.1), by combining this with the information we have on the services available we are able to support customers to access the most appropriate hospital for their care needs.

Conclusions:

This programme has changed the way Bupa International is looking to work with hospitals. Quality is firmly at the centre of the relationships we are creating. Bupa International is seeking to base its commissioning of hospitals on quality rather than price. We are also looking to become a trusted advisor for hospitals who are looking to improve their standards and to prompt more hospitals to undergo international accreditation. The collaboration with JCI has ensured that the core standards being measured are internationally recognised. An additional focus on three key safety initiatives is central to driving standards and improving outcomes, not only for Bupa International’s customers, but for all patients treated at the facilities that we work with.
An Integrated Wound Management Model in the Hong Kong East Cluster (HKEC): From Hospital to Community

Chi Wai HO, Annette Ka Kei Lam, Civy Sui Kei Leung, Loretta Yin Chun Yam

Objective:

To improve wound management in HKEC through the development and implementation of an integrated wound management model spanning from its six hospitals to the community.

Methods:

HKEC of the Hong Kong Hospital Authority, consisting of six hospitals (from acute to long-term care) with 2,836 beds and serving 800,000 population, developed a structured “3-tier Wound Management Model” (the Model) which focused on prevention and patient empowerment, care coordination through collaborative management using standardised wound care techniques, early complication identification, and advanced investigation and intervention. The Model was designed to provide a platform for inter-disciplinary collaboration and consultation among frontline registered nurses (RN), advanced practice nurses (APN) and the single Nurse Consultant (Wound Consultant) across all hospitals, primary care clinics and community nurses in the Cluster. Implementation commenced by training courses organized by the Wound Consultant for all nurses. RNs are then assigned to screen and classify wounds, measure wound healing time as an indicator for benchmarking according to wound type and classification, and identify early complications. APNs are assigned to develop individualized wound management plans, supervise wound care by RNs, and refer patients to the Wound Consultant if healing is delayed compared with the management plan. The Wound Consultant has overall responsibility for wound management in HKEC, performs Wound Rounds in hospitals and primary care clinics, and provides advanced investigations and interventions for difficult wounds, including wound debridement, minor excisions, wound drainage and woundoscopy, while doctors provide medical backup and more complex surgical management including tendon release. HKEC thus intends to achieve systematic, safe, timely and efficient wound care practices through implementation of the Model.

Results:

The Model was implemented from January 2009 in the community, and from August 2009 in the hospital setting. The prevalence of pressure ulcers in HKEC was reduced by 16% from 0.5 (1Q/09) to 0.42 (1Q/10) per 1,000 patient bed days. Patient safety and care quality improved through early wound healing and early discharge, while quality of care for immobilized infirmary patients improved through tendon release procedures to facilitate wound care and early healing. In the community, the total number of patient attendance for wound dressing decreased by 17% (09/10 compared to 08/09) and by another 10% in the second year (10/11 compared to 09/10). Results for the more complicated wound types are shown below:

<table>
<thead>
<tr>
<th>Wound Class</th>
<th>Dressing attendance</th>
<th>P value</th>
<th>Time to healing</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2008</td>
<td>2010</td>
<td>2008</td>
<td>2010</td>
</tr>
<tr>
<td>Infected surgical wound</td>
<td>14.6</td>
<td>7.5</td>
<td>32.3 days</td>
<td>20.2 days</td>
</tr>
<tr>
<td>Chronic leg ulcers</td>
<td>41.59</td>
<td>15</td>
<td>94 days</td>
<td>48 days</td>
</tr>
<tr>
<td>Burns &amp; Scalds</td>
<td>7.9</td>
<td>5.3</td>
<td>14 days</td>
<td>11.5 days</td>
</tr>
</tbody>
</table>

Conclusions:

A well-structured, systematic and collaborative HKEC 3-tier wound management model was developed and implemented. The Model has made significant improvements in wound management in both hospital and community settings through an integrated and streamlined service with prompt access to expertise, therapeutic intervention, care coordination, staff training and patient empowerment, to achieve early identification of complications, development of appropriate treatment plans and input from specialist when required. The simple yet integrated approach of the Model helped frontline nurses to “work smarter, not harder”, so as to consistently achieve faster wound healing rates and enhance patient safety, comfort and quality of life. The Model is practical and practicable when applied to primary and secondary care in a large population.
ZERO Tolerance – is it possible for Hospital-acquired Methicillin-resistant Staphylococcus aureus in a major Burns Centre?

NG Yuk Kuen, Sherry, BURD Andrew, CHUI See To, POON Wai Kwong

Objective:
Reduce HA-MRSA rate to zero through adoption of stringent infection control interventions. Hospital-acquired Methicillin-resistant Staphylococcus aureus (HA-MRSA) is a global problem. Inspired by the success of such initiatives as 100,000 Lives and later 5 Million Lives Campaign in USA, we have sought to eliminate HA-MRSA in our Burns Centre through application of stringent infection-control interventions. The underlying principle behind each of the interventions is to engage all staff plus carers and to redesign care process in order to successfully break the chain of infection.

Methods:
FIVE components of infection control strategies were adopted and implemented from early 2007.

1. Multi-disciplinary team spirit and Infection Control Training enhance compliance & awareness: Multi-disciplinary team spirit and rigorous infection-control training are essential for effective infection-control. All staff are engaged and inspired from the start to appreciate that compliance with infection-control policy protects patients from hospital-acquired infection.

2. Primary nursing, designated staffing and equipment: On admission, assignment of a primary nurse enables the provision of total patient care which includes daily wound and hygienic care. Familiarity with patients’ condition and progress limit the risk of cross-infection. Fixed supporting and allied health staff are crucial in maintaining high standard of care and practice. Designated equipments, including sphygmomanometer, dressing trolley and materials limit the spread of micro-organism. Upon discharge, terminal disinfections of all items prevent spread of infection.

3. Stringent pathogen-reduction measures

Strict hand hygiene practice – The ward is equipped with adequate hand-washing facilities and hand-rubs. Mutual awareness among staff enhances compliance.

Reduction of MRSA harbour opportunity -- Reverse Barrier Precautions by wearing Personal Protective Equipment whenever having close patient contact greatly eliminates the chance of cross-infection. Linen and clothing are changed daily and whenever soiled. Folders and films are not allowed inside patients’ rooms and immediate environmental mop reduce harbouring of MRSA.

Wound care & bathing – Hydrotherapy, especially with shared facilities, increases the risk of cross-infection. Designated transfer aids and bath trolley, assistance to patient during bathing, and wound protection by large sterile towel after bathing drastically reduce chances of acquiring infection. Well planned dressing process through aseptic technique and clear concept of “clean and dirty” further maximize asepsis and minimize pathogen spread.

4. Active wound surveillance: Wound culture results reflect the success of infection control strategies. Wound swabs are taken once weekly, and for those with infection, it will be taken twice weekly. Wound swab and screening for MRSA taken on admission or on transfer from other clinical area helps in monitoring the infection status of incoming patients.

5. Involve patient and care-givers for compliance: Education of patients, relatives and their carers equips them with knowledge for proper care which can prevent wound contamination.

Results:
The HA-MRSA rate dropped from 5.7 in 2005 and 6.5 in 2006 per 1000 patient days to 3.8 in 2007(42% reduction) after above measures taken; and sharply dropped down to 1.7 per 1000 patient days in 2008 (55% reduction). Finally by 2009, ZERO HA-MRSA rate was achieved and sustained for 12 months with statistical significance of (p<0.05) and surveillance monitoring is still going on.

Conclusions:
After implementation of stringent infection-control measures, the objectives of reducing HA MRSA rate to ZERO was achieved in 2009. In promoting stringent infection-control measures among all parties, program success is always correlated with staff and patient engagement and compliance with infection-control policy. As infection-control gatekeeper, burn nurses collaborate with multi-disciplinary team members, patients and carers in breaking the chain of infection, aiming at achieving zero tolerance result for HA-MRSA.
Significant comparative effective on circumcision through using new health technology assessment: post-operative bleeding and post-operative pain feeling

Meng-Lin Chang, Ming-Che Liu, Shauh-Der Yeh

Objective:

Use new health technology assessment to improve post-operative pain and bleeding on circumcision issue

Methods:

The methods of circumcision are various including Plastibell, Gomco clamp, free-hand operation. We start this project since 1 May, 2010 to 31 Dec, 2010. This project is designed to improve free-hand circumcision outcomes through using new health technology assessment: bipolar electrosurgery to replace traditional monopolar electrosurgery. Then, we compare effectiveness on post-operative bleeding (right after operation, 1, 2, 3, 7 days after operation) and post-operative pain (right after operation, 4, 24 hours after operation, 7 days after operation). There are 19 cases in traditional monopolar circumcision and 10 cases in new bipolar circumcision.

Results:

Compare the bleeding complication between traditional circumcision and bipolar circumcision. CHI-SQUARE test was applied for binary statistical method. Bleeding complication significantly decreasing in bipolar circumcision 1 day after operation.

<table>
<thead>
<tr>
<th>Table 1. Bleeding Complication Table</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bleeding</strong></td>
</tr>
<tr>
<td><strong>After OP</strong></td>
</tr>
<tr>
<td>19</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>1 day</td>
</tr>
</tbody>
</table>

* P-value < 0.05, statistically significant

Compare the pain complication between traditional circumcision and bipolar circumcision by using visual analogue scale (VAS). T test was applied for statistical method. There is one extreme value noted at bipolar group and showed VAS 10, 10, 10, 7 at right after OP, 4 hours, 24 hours, 1 week. This extreme value was removing at right side of this table. Pain complication significantly decreasing in bipolar circumcision 4 hours after operation.

<table>
<thead>
<tr>
<th>Table 2. Pain Complication Table</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pain</strong></td>
</tr>
<tr>
<td><strong>Mean</strong></td>
</tr>
<tr>
<td><strong>After OP</strong></td>
</tr>
<tr>
<td><strong>4 hours</strong></td>
</tr>
<tr>
<td><strong>24 hours</strong></td>
</tr>
<tr>
<td><strong>1 week</strong></td>
</tr>
</tbody>
</table>

* P-value < 0.05, statistically significant

Conclusions:

We use new health technology assessment on circumcision and get significant improving outcomes on post-operative bleeding 1 day after operation and reduce post-operative pain 4 hours after operation. There are no significant difference on post-operative bleeding 2, 3, 7 days after operation and post-operative pain 24 hours, 1 week after operation. This result may imply that new bipolar circumcision method is able to reduce pain and bleeding earlier than traditional circumcision method. In fact, less to none post-operative swelling and ecchymosis are noted at follow-up but we cannot measure the condition of swelling and ecchymosis with scientific method. The bipolar electrosurgery circumcision is more significant comparative effective than traditional circumcision.
Objectives:
To enhance a culture of safety, patient-centered care and continuous service improvement in the unit

Hong Kong Hospital Authority (HA) is embarking on meeting the challenges of managing ever-increasing demand for quality healthcare. One of the main service directions of Strategic Service Plan 2009-2012 of HA is to ensure better service quality and safer services. In line with the corporate plan, we try to enhance safety culture, patient-centered care and continuous service improvement in a respiratory unit of a district acute hospital.

Methods:

Enhance safety culture: A program of nursing round is lead by specialty nurse and aims to identify and mitigate risk factors affecting patient safety twice a week. It allows consistent communication between frontline staff and ward management. Also, adverse incidents and compliant cases are reviewed and discussed for lessons learnt. Specialty guideline has been established with reference to corporate guideline and best available evidence to ensure quality of clinical practice with a model of EBP via a process of Practice question, Evidence and Translation.

Patient-centered care: Respiratory nursing service is provided in a specialty unit which is accredited to provide specialty training and nurse clinic by HAHO. The specialty nursing services are regularly audited against corporate standard guideline. The model of Paternalistic model care is shifted to partnership model with patient empowerment program such as for patients with Chronic Obstructive Pulmonary Disease (COPD) and home mechanical ventilation (HMV).

Continuous service improvement: Innovative services for specific disease groups in secondary and primary setting has been self-initiated for few years such as comprehensive COPD care and COPD nurse clinic. With concern of quality and safety, old and diverse medical devices have been modernized and unified, including ventilators, defibrillator, infusion pump and electric bed. Nursing informatics can be robust clinical system to comprehensively support and improve care delivery in the patient's journey during hospitalization and for specific groups of patients.

Results:

A model of Nursing Round has been piloted twice a week for 260 rounds since 2008. Nearly all colleagues expressed they were satisfied and agreed the enhancement of safety culture. EBP model and guidelines have been piloted to support clinical practices. Patient empowerment programs for 203 and 165 patients with COPD and HMV respectively have been implemented since 2008 to enhance patient-centered care. More than 90% of them were satisfied with our empowerment programs. Innovative services for specific disease group and modernization of medical equipment have been implemented with support of nursing informatics in the specialty unit.

Conclusions:

A mechanism has been established and put in place in order to enhance safety culture. Nursing professional standard is maintained by practice guideline and EBP and, regular audit. Patients are treated as equal partners to manage their diseases with support of nursing informatics to improve the efficiency, quality and continuity of care.
Effect of an interactive sharing system for improving medical staffs' risk knowledge: before and after

Christine Ming Ming Lau, Agnes To, Rita Li

Objective:

Through (1) sharing sessions (where past medical incidences were presented and discussed); and (2) a risk alert journal available to clinical staff (which provides accessible reference for daily ward risk management), we reported a successful way to promote and increase the clinical awareness and alertness of our staff by learning from each other’s experience, which effectively prevents many medical incidents.

Methods:

A “Pre-test” vs “Post-test” design was employed. Sharing sessions on medical incidents and cases are conducted. Quizzes are designed to test the knowledge gained after these sharing sessions, on topics about risk alertness in clinical settings. Outcome measures are (1) knowledge level and (2) evaluation survey.

We first identified relevant journals and publications that can provide material for medical-incident sharing and identified representing cases from local and overseas. We then designed a series of sharing sessions that systematically present the medical incidents. Through these sharing sessions, staff can be reminded of the potential causes of incidents, without the expense of suffering the consequences of the incidents. For each session a quiz was designed to test the knowledge on relevant clinical risk mentioned in the cases. A scoring system for the quizzes was designed to quantify the improvement of the knowledge gained by our staff. Also, a questionnaire was designed to collect opinions from our staff regarding the effectiveness of the sharing sessions.

The quiz was given out at the beginning of the sessions as a pre-test. A video or verbal presentation then followed to present the medical incidents or cases. The staff then had a brainstorming session to share their personal experience. The same pre-test was given out again as a post-test after the sharing session. The questionnaire form was distributed at the end of each session.

To provide staff with accessible reference, the material presented in the sharing sessions was put into a binder and stored in our internal library. The binder is made available to our staff at any time.

Results:

Learning from these sharing sessions, our staff can easily identify relevant clinical risks mentioned in the sessions. During the brainstorming part of the discussion, staff further discuss the current practices of our department that are similar to the mentioned medical cases. One of the obvious outcomes of this project is that staff have increased their risk awareness during their daily practices. The mean score of the pre-test taken is about 3.1 out of 10. The post-test mean score is increased to 7.8 out of 10. A significant improvement of the clinical risk knowledge is clearly observed (the p value < 0.005). Staff are more pro-active in reminding each other of the potential clinical risks. From the collected questionnaires, staff are generally satisfied with our approach to increasing the clinical risk knowledge and found that these sharing sessions are helpful; the vast majority of the staff indicate strong agreement to our actions taken in this project. Also, staff found the binder practical and helpful to refresh themselves on the details of these cases at their convenience.

Conclusions:

This is a good initiative to increase the risk alertness of medical professionals toward medical incidents. The interactive approach of the sharing session provides a means for staff to share their ideas to enhance patient safety, and to remind themselves of any medical practice that could lead to confusion and a potential medical incident. Overall, the risk alertness of our department has increased significantly.
Enhancing Medication Safety: from hospital to community in Hong Kong East Cluster

Kwok Nora, Tsoi Tak Hong, Aboo Gloria, Ho Wai Fan, Candy Chan, McShirley Leung, Vivienne Lee

Objective:
To design and implement a robust system to ensure the medication safety through staff engagement, system and facilities improvement, patients’ and carers’ education, organization learning and sharing from hospitals to our community in Hong Kong East Cluster (HKEC).

Methods:
An initiative of the Cluster Medication Incident Review Committee (CIRP) and Nursing Service Division (NSD)

Staff engagement: NSD organized the Medication Safety Campaign in 2009 to increase the staff awareness on medication safety with a slogan competition, video broadcasting and souvenir. Nurses were appointed and rotated as the “Medication Safety Ambassadors” to promote the safety culture and environment in medication safety in wards. A standard checklist was developed to facilitate a compliance check.

System and Facilities improvement: An electronic Medication Administration Record (eMAR) was developed to minimize transcription error of medication, and piloted in selected departments. System improvement on the Clinical Information System (CIS) enabled standardized dilution, auto-scheduling and calculation of insulin dosage in the Intensive Care Unit. Customized “Dilution Table” to aid standardization of IV prescription; Revision of “Drug Allergy Warning” to update drug allergy information to enhance checking. The 24-hour Pharmacy service minimise keeping of ward stock between wards or among patients. Pharmacists counter-checked any prescription error and allergy history prior to dispensing. Well-designed injection trolleys with flip-boards of relevant documents provided a safe working platform to nurses. Announcement made in Cantonese, Mandarin and English to alert patients and visitors in order to gain their co-operation not to disrupt nurses during the medication administration. The time schedule of medication administration and types of infusion pumps were standardized.

Patient Safety Round: Ward Manager conducted the monthly safety round to check on compliance with the protocol and for environment scanning to eliminate any risk. Senior nurse / hospital manager to conduct classic ward round and discuss with frontline colleagues their barriers and recommendation in improving medication safety.

Patients’ and Carers’ education: Community Nurses not only administer medication for home patients, but also they educate them and their carers on the effects and side-effects of the medications. The Community Geriatric Assessment Team (CGAT) visited the old-age home to ensure a safe working environment and to provide expert advice and guidance to the staff of nursing homes.

Organization Learning and Sharing: The recommendations and learning points of medication incidents and near misses were shared in cluster, hospital and department levels, with the aim of looking forward to prevent similar medication incidents happening again.

Results:
Up to 2010, 300 nurses were appointed as “Medication Safety Ambassador”. Inspection rounds on medication safety with a standardized checklist were conducted by them regularly. Technology enhancement was made to the eMAR. Wrong scheduling error was eliminated in the Intensive Care Unit using CIS. Near miss incidents were detected by Community Nurses during their vigilant screening. In HKEC, the medication incidents in prescribing decreased from 0.035 to 0.020 and in dispensing decreased from 0.038 to 0.029 per 1000 bed days from 2008 to 2010, and administration decreased from 0.73 to 0.61 from 2008 to 2010.

Conclusions:
A robust system to enhance medication safety required multi-disciplinary effort and involvement of doctors, nurses and pharmacist from design to piloting, implementation and continuous review.
Quality and Safety of Web-linked Information of Ayurvedic Medicine

Vanitha Muralikumar, Meera Shivasekhar, Karthikeyan K

Objective:
The aim of this study was to assess the quality and safety of the information presented on the internet about Ayurvedic Medicine.

Methods:
Various studies have been carried out to assess health information on the internet and they have all demonstrated that the web-linked information can be the third opinion for many patients, and often contains inaccurate and misleading information. Furthermore, the usage of Ayurvedic medicine is increasing day by day, not only in its native country, but also worldwide under the category of Complementary medicine, and it is imperative to assess the quality of information presented on the internet.

Five hundred websites were initially selected from a process using 10 search engines and the keywords ‘Ayurveda’ and ‘Indian medicine’, and 140 sites actually met all inclusion criteria. Assessment of both quality and safety indicators was carried out using the DISCERN instrument, which has been developed to enable consumers, patients and information providers to judge the quality and safety of health information related to Education, Medicines, Cosmetics, Speciality Treatments of Ayurveda. Readability scores of the sites were also obtained using Flesch formula.

Results:
It was shown that most sites had low quality in a number of indicators, including accuracy of information, revealing sources of information, biased presentation of information, false claims or regularity of updates. The mean score for quality was 23.72 out of a maximum score of 50. The mean safety score was 17.86 out of a maximum score of 30. Most of the sites had the most inaccurate or misleading information, emphasizing only the positive aspects of the use of herbs, with little or no evidence. The only biomedical sites assessed achieved the highest score in both quality and safety. Two percent of the sites discouraged the use of conventional medicine.

Conclusions:
Results suggest that there are more of the biased, false claims and less information on Evidence-based claims. The web sites focus most on the Cosmetic usage of Ayurveda and rejuvenation therapies. It has been focused that Ayurveda is practiced along with Yoga. The education related information of the website of the foreign countries other than the native country is not recognized by authorities. This study achieved its objective with the conclusion that quality and safety information is biased on the web. Hence steps need to be taken to check the web-linked information of Ayurvedic medicine to protect the consumers being cheated.
Continuity of care in primary care among congestive heart failure patients

Jacob Dreier, Doron Comaneshter, Haim Bitterman, Arnon D. Cohen

Objective:

The present study's goal was to assess various measures of continuity of care in primary care and their impact on health outcomes among patients with congestive heart failure (CHF).

Methods:

A sample of adult patients (≥19 years old) enrolled in Clalit Health Services (CHS), the largest healthcare provider organization in Israel, who visited the primary care clinic at least 3 times during 2009 and were diagnosed with CHF were included in the study. Previously described measures of continuity of care within the primary care setting were calculated for each patient. These measures included the Usual Provider of Care index (UPC), Continuity of Care index (COC), Modified Modified Continuity Index (MMCI), and Sequential Continuity (SECON). Health outcomes assessed included meeting quality indicators of preventive medicine (screening for smoking, hypertension, obesity, renal failure, breast cancer, and colorectal cancer), the number of non-primary care consultations, number of outpatient visits, number of visits to the emergency department (ED), the number of hospital admissions, the total number of in-hospital days, and the costs of these services. In addition, the costs of medications were also assessed. Continuity of care indices were analyzed both as continuous variables and as dichotomous variables, with patients in the lowest quintile of each index compared to all other patients.

Results:

5,385 adult patients were included in the study (mean age: 74.7±11.9 years, 54.4% male). The median number of visits to the primary care physician in this sample was 11 (range: 3–101). The median levels of continuity of care indices were as follows: UPC: 0.88, COC: 0.76, MMCI: 0.91, SECON: 0.80. In the multivariate analysis, all four indices were inversely associated with the number and costs of hospital admission and the number of admission days per year (for the number of hospital admissions, \( p \) values for UPC, COC, MMCI, and SECON were all <0.001; for admission costs, the corresponding figures were <0.001, <0.001, <0.007, and <0.001; for admission days <0.001, <0.001, <0.003, and <0.001). UPC, COC, and SECON were inversely associated with ED visits and costs (all \( p \) values <0.001). Drug costs were inversely associated with the level of continuity (significantly for COC \( p = 0.042 \) and MMCI \( 0.015 \), borderline significant for UPC \( p = 0.087 \) and SECON \( p = 0.063 \)). Continuity of care was positively associated with screening for colorectal cancer by fecal occult blood, and measuring weight and serum creatinine. Patients in the lowest quintile of the index were less compliant to issues of preventive medicine, compared to patients in the other four quintiles: \( p \) values for fecal occult blood testing for UPC, COC, MMCI, and SECON were 0.003, 0.005, 0.021, and 0.016, respectively. The corresponding figures for measuring weight were 0.045, 0.025, 0.021, and 0.059. For measuring serum creatinine over the age of 40 years, the corresponding \( p \) values were 0.152, 0.215, 0.002, and 0.006. Continuity of care was not associated with other indices of preventive care and for ambulatory visits. Inconsistent associations with ambulatory visit costs and with the number and costs of non-primary care consultations were found.

Conclusions:

Among CHF patients, better continuity of care was inversely associated with the number and costs of admissions and ED visits and medication costs. Continuity of care was positively associated with screening for colorectal cancer, obesity, and renal failure. The association between continuity of care indices and health outcomes stresses the importance of continuity of care for patients with congestive heart failure.
A new scoring scheme for hospital quality indicators

Jacob Dreher1, Lilly Vidavsky1, Michael Lishner2, Arnon D. Cohen1

Objective:
The goal of this study was to develop a scoring scheme for quality indicators (QIs) that would help the organization focus on the more valid QIs.

Methods:
The QIs evaluated in the present study are used for hospitals owned by Clalit Health Services, the largest healthcare provider organization in Israel. Clalit owns 8 general tertiary hospitals and 6 specialized care hospitals for geriatrics, psychiatry, and rehabilitation. For the general hospitals, 70 QIs have been in use since 2006. A scoring system based on criteria suggested by Chassin et al. (New Engl J Med 2010;363:683-688) was developed. The Chassin criteria include the strength of the evidence-base, validity of the data (and the potential for adversely influencing the data by manipulation), outcome vs. process indicators, and the potential for harm. Additional criteria were added according to established principles in QI development, including the size of the patient population relevant to the QI, the variability in performance between the best and worst hospitals, and the potential for improvement. Each criterion received a score between 1 and 4. Each of the Chassin criteria comprised 17% of the total score; each of the additional criteria comprised 10% of the score, and another 2% rounded the score to 100%. Each of the QIs was scored according to this scheme. Three threshold criteria were defined: having no evidence-base for the QI, more than 95% average performance, and less than 200 patients per hospital per year. QIs failing the threshold criteria were given a final score of 0, regardless of the scores in other criteria. QIs meeting the threshold criteria were sorted according to their score with a recommendation to focus on the higher performing QIs. A compound score based on the top-ranking QIs was developed.

Results:
Thirty of 70 QIs were given higher priority based on the scheme described. Examples of high-scoring QIs were primary coronary intervention performed within 90 minutes, hip fracture operated on within 48h, and the incidence of pressure ulcers, falls, and falls with injury. A compound score for benchmarking between hospitals was developed, based on the top-ranking 14 QIs and 8 newly developed QIs. Thirty percent were classified as process indicators and 70% as outcome indicators. No QIs were thought to be associated with significant adverse effects on the patient, but only 11% were defined as associated with marked benefit to the patient. Forty-six percent of QIs were associated with low variability, with most hospitals achieving average performance; only 14% were associated with high variability, with some hospitals achieving excellent performance and others failing to achieve high performance. Most QIs (79%) were classified as having high validity, with only 4% associated with a high potential for manipulating the data. Of the QIs failing to meet the above-mentioned threshold criteria (evidence-base, number of patients, potential for further improvement), 24% had no evidence base; 29% had, on average, fewer than 200 patients per hospital per year; and in 29% the average performance exceeded 95%. The most useful criteria were, therefore, the number of patients associated with the QI, the potential for improvement, the evidence-base of the QI, and the variability between hospitals.

Conclusions:
A scoring system for evaluating QIs was developed based on some previously described criteria and some newly-developed ones. This scoring scheme enables assessment of the validity of QIs, to focus the attention of healthcare organizations on the higher performing QIs, and may also help in developing a compound score for benchmarking between hospitals.
Medication Management Support Services (MMSS) - the right prescription for improving Client Safety in the Transition of Care

Cathy Szabo

Objective:

Demonstrate how an in-home community-based MMSS program has engaged clients, reduced falls in the elderly, and increased optimal medication usage.

Methods:

Eligibility: At-risk clients are identified because of increased falls, frequent visits to ER/hospitalizations, uncontrolled pain, and/or polypharmacy. Clients must be adults who are taking three or more medications, have one or more chronic diseases, have a valid Ontario Health Insurance Plan card and are eligible for CCAC services.

Assessment: A pharmacist assesses the client’s medication regimen in the client’s home taking a best possible medication history (BPMH), comprised of a complete and accurate inventory of all medications, including prescribed, over-the-counter, and herbal medications. These are assessed for safety, simplicity and accuracy, and compared with the medications currently prescribed. Discrepancies are identified and brought to the attention of the prescribing physician. The client is assessed for cognitive abilities, adherence to instructions, knowledge and ability to safely take medications. An environmental scan to review storage and organization of medications has been key in determining the safety of how clients manage their medication.

What the client receives: Care is taken to confirm that the client is taking what the prescriber intended by reviewing directions on vials or compliance packages. The pharmacist completes and provides a medication schedule. Physicians are engaged appropriately to change medications, as required, and to provide the necessary follow-up. The client is taught how to manage their medications with the support of visual reminders. Care providers in the home are assigned to support clients (e.g., personal support workers cue clients to take the right medications at the right time). The client and/or caregiver is provided with the appropriate administration methods, and a copy of the schedule is sent to the family physician.

Results:

Central CCAC found that only 30% of clients discharged from hospital adhere to their discharge orders or prescriptions. On average, 3-5 discrepancies/medication-related problems were identified per client, based on the total sample of 865 clients served between April 2009 and December 2010. For this population, 87% of discrepancies and 82% of medication-related problems were resolved, resulting in a reduction of medications required. A study of 505 clients discharged from Central CCAC’s program between April 2010 and December 2010, conducted by pharmacists who participated in the MMSS program, demonstrated a $51,730 savings in medication costs for the Ontario Drug Benefit program, based on the assumption the clients would have stayed on their medication regimen for one year. Client satisfaction surveys, from April 2010 to December 31, 2010, show that 99% of the 192 respondents had no ER visits post-MMSS, and 90% reported having no falls post-MMSS. Overall, 99% of clients found the MMSS service to be excellent or good.

Conclusions:

This program is a key enabler of client safety in our geography. The involvement of pharmacists is key in working with the case manager and the nurse. MMSS has reduced clients’ medication-related problems and increased optimal medication usage, resulting in significantly fewer falls, fewer return visits to the emergency room, and safer medication management. Clients are more engaged in their own care, thanks to the education they are receiving. Pain management has improved for those experiencing severe pain. From a client safety and health care utilization perspective, the program should continue.
Objective:

Spontaneous reporting is the most common approach to post-marketing drug safety surveillance. Hospital-based adverse drug reaction (ADR) monitoring is particularly important to generate early safety data and prevent further adverse events following a new drug launch. This study was conducted to examine whether the variation in thesuspected ADRs reporting rate and pattern of adverse events existed between the newly marketed drugs and those already marketed drugs in a large, medical practice organization.

Methods:

Chang Gung Medical foundation is a private, medical practice group located in various cities of Taiwan, serving the largest volume of health services under the National Health Insurance program. A hospital-wide electronic reporting system allowed the health professionals report potential ADRs observed in outpatient, inpatient and emergency room. A standard reporting format consisted of suspected drug information, symptom, management and outcomes, and was integrated with the electronic prescribing and medical information system. Once ADRs report delivered, clinical pharmacists were responsible for verifying the diagnosis of ADRs and use of drugs within the electronic-based system. Automated feedback about the ADRs assessment, to who reported the ADRs, or the attending physician who currently takes care of the patient was also available in the system. We reviewed ADRs reported between January 2006 and December 2010 in Chang Gung Memorial Hospital at Keelung, Taipei, Linkou, Taoyuan, Chiayi, Kaohsiung and Fengshan. The newly-marketed drugs under drug safety monitoring stage (7 years after approval) in 2006-2010 were retrieved from the Taiwan FDA. Reporting rate of newly-marketed drugs was expressed as the proportion of ADRs reports that covered one of newly-marketed drugs under pharmacovigilance in Taiwan. The variations in the proportion of pattern of reported ADRs, drug characteristics, and patient demographics between newly-marketed and already existing drugs were examined using chi-square tests with alpha level at 0.05.

Results:

Of 10187 person-events analyzed, 710 individual active ingredients among 9181 patients were assessed in the reporting system. Reported ADRs among elderly adults (34.9%) and older adults (33.7%) were higher than other age groups. Dermatological reaction (47.6%) was the most commonly affected organ system with skin rash or eruption (6.1%) as the most frequently reported reaction. Antimicrobial agent (31%) was the drug class most commonly involved, while vancomycin (3.7%) was the individual drug most frequently reported. Only 12.1% of the reported active ingredients (n=86) were considered newly-marketed under safety surveillance in the period. No difference in patient characteristics and drug category between ADRs related with newly-marketed and existing drugs were observed. The figure depicts the proportion of newly-marketed drugs’ adverse events significantly increased in more recent year (p<0.01).

Conclusions:

It appears that the reporting rate and safety monitoring for newly-marketed drugs are more evident in recent years in the hospital with an electronic, standard reporting format. It reveals opportunities for monitoring for newly-marketed drugs for early severe adverse effect detection to ensure safer drug use. The diagnosis of ADRs and long-term toxicity monitoring, the challenges and potential solutions in our experience will be discussed in this presentation as well.
Data-Driven Quality Improvement Efforts in Surgical Subspecialties: A Vascular Surgery Example

Tina Hernandez-Boussard, Fritz Bech, John Morton, Kathryn McDonald

Objective:

Understanding variation in adverse events by clinical specialty offers an opportunity for focused quality improvement, therefore we aimed to characterize surgical subspecialties using groups of index procedures in order to develop national estimates for benchmarking using inpatient administrative data.

Methods:

To define surgical subspecialties’ quality improvement efforts, we developed a multi-step reflective process involving literature review, clinician input, and empirical analyses, using vascular surgery as the index specialty for method development. First, a literature review was conducted to identify high-frequency procedures with a range of complexity based on risk of morbidity and mortality. Second, both academic and non-academic surgeons trained and practising in vascular surgery verified that the candidate list of procedures (mapped to ICD-9-CM codes) contained the most common procedures within the field that were performed mainly by vascular surgeons. Third, empirical analyses using the 1998-2008 HCUP Nationwide Inpatient Sample (NIS) database explored each procedure within the specialty for definition refinement. Specifically, we applied potential inclusion/exclusion criteria using primary and secondary coding information, admission types, non-specific ICD-9 codes, and diagnoses that did not relate to vascular conditions. For example, we excluded procedures of peripheral artery angioplasty with a primary diagnosis of renal artery atherosclerosis, since this is neither commonly nor exclusively performed by vascular surgeons. Fourth, further feedback on the specialty definitions at local, regional and national vascular meetings will be obtained. Finally, a structured clinical panel review by individuals nominated through surgical societies is underway to assess the methodology and final definitions. Patient Safety Indicator (PSI) criteria from the Agency for Healthcare Research and Quality (AHRQ) were applied to the 2008 HCUP NIS database to identify potential hospital-acquired adverse events in each vascular procedure. Risk-adjusted PSI rates for these procedures and for the entire vascular cohort were calculated. A composite PSI identified the number of patients in each procedure group with one or more PSI events. Lastly, we compared risk-adjusted rates of PSIs in the vascular cohort with risk-adjusted PSI rates in all other inpatients and surgical inpatients.

Results:

Ten procedures were selected to characterize major vascular surgery operations, and one procedure was excluded because it was mainly performed as a secondary procedure based on empirical evidence. Our final vascular cohort included: carotid endarterectomy; femoral endarterectomy; open abdominal aortic aneurysm (AAA) repair; endovascular AAA repair; aorto-femoral bypass; lower extremity bypass; peripheral artery angioplasty; below knee amputation; and above knee amputation. This group of vascular procedures is heterogeneous with respect to morbidity, mortality, and length of stay. Composite PSI rates varied significantly across procedures. After risk-adjustment, aorto-femoral bypass, open AAA repair, and above knee amputation consistently had higher PSI rates compared to PSI rates in all other inpatients and all surgical inpatients. In contrast, carotid endarterectomy and endovascular AAA repair had consistently lower PSI rates compared to all other inpatients and surgical inpatients.

Conclusions:

Understanding variation in PSIs across clinical specialties provides useful insight on the etiology of these adverse events in specific clinical scenarios, highlighting common and specific risk factors amenable to modification. We have developed a methodology to characterize surgical activity in defined specialties that provide a foundation to generate meaningful and specialized PSI benchmarks using readily available administrative data. We believe that the description of specialty-specific PSI rates will improve their acceptance and reporting. Analysts, hospitals, and surgeons can use these specialty-specific estimates to focus quality improvement efforts.
Improving quality of maternal and new-born training using standards in Nepal

Arjun Bahadur KC, Kusum Thapa, Geeta Sharma

Objective:

Develop Maternal and New-born Care (MNC) Learning Resource Package (LRP) with SBA skills, and introduce a performance improvement approach using standards for training site development.

In spite of progress towards achieving MDGs, Nepal still has high maternal and new-born mortality. In order to reduce it, the Ministry of Health (MoH) developed a strategy for scaling-up workforce (Skilled Birth Attendants (SBA) for which Learning Resources and training sites were needed.

Methods:

A standardized *generic set of learning resources* for SBA skills to all cadres developed with input from national/ international experts. Given the urgency for rapid expansion of training and need to ensure quality, the MOH developed a system for *performance and quality improvement* in its training sites. This system used a set of 12 tools (201 evidence-based standards) in MNH service provision and training. Initial assessment was conducted in August 2007. Following this, all 8 sites implemented actions to reach quality standards.

Results:

With limited MOH/external support the average score at all sites improved from baseline 52% (Aug 07) to 75% (Nov 07) and then to 83% (April 08). By Aug 09, MoH has trained over 900 and various pre-service curricula strengthened using MNC LRP and the system of continuous quality improvement is continuing beyond the initial project.

Conclusions:

The package, together with a system for training site strengthening, has contributed to the ongoing development of a competent workforce for meeting the maternal and new-born health needs of Nepal.
Hospital-acquired methicillin resistant *Staphylococcus aureus* transmission and the use of contact precautions for methicillin resistant *Staphylococcus aureus* nasally colonized patients

Donna Armellino, Mary Ellen Schilling, Bruce Farber

**Objective:**

To evaluate the facility’s hospital-acquired methicillin resistant *Staphylococcus aureus* (MRSA) transmission rate and the discontinuation of Contact Precautions (precautions) for MRSA nasally colonized patients.

**Methods:**

MRSA is a bacterium that can colonize the skin and/or nares. MRSA can be transmitted from one person to another by skin-to-skin contact, and contact with contaminated items within the environment. Prior to 2008, the facility implemented a multi-pronged approach to reduce MRSA transmission which included clinical and nasal screening with polymerase chain reaction, laboratory communication to the patient care unit with a positive MRSA isolate, electronic identification of readmitted patients with a positive MRSA history, placement of MRSA positive patients on precautions with reinforcement of hand hygiene upon entry and exit of the room, use of a gown and gloves for patient contact, and disinfection of patient care equipment.

To monitor MRSA and assess prevention efforts all positive microbiology isolates for MRSA were reviewed by trained registered nurses. Isolates based on the type (screening versus clinical), source, and clinical presentation were categorized as a hospital-acquired or community acquired MRSA. Rates of MRSA transmission were calculated as the total number of hospital-acquired MRSA divided by the total number of patient care days, multiplied by 1,000.

Patients with a screening and clinical isolate positive for MRSA were placed on precautions as outlined by the facility’s policy supported by external guidelines from the Centers for Disease Control and Prevention. In July 2009 precaution practices were modified, patients with a positive MRSA nasal screening isolate were not placed on precautions and patients with a positive MRSA clinical isolate continued to be placed on precautions.

**Results:**

Data from January 01, 2008 through June 30, 2009, the period of precautions utilization, identified an MRSA transmission rate of 1.07 (10,346 obtained PCRs/82,449 discharges) with a monthly range from 1.59 to 0.78. The change in practice, no precautions for nasal screening positive isolates only, was initiated in July 2009. The rate from July 01, 2009 through December 31, 2010 was 0.84 (9,591 obtained PCRs/82,508 discharges) with a monthly range from 1.33 to 0.50. A t-test between the two means was not significantly different (p < .84).

**Conclusions:**

The MRSA transmission rate decreased (21.5%) during the time period in which MRSA nasally colonized patients were not placed on precautions. A patient with a nasal screen positive for MRSA without the use of precautions does not appear to impact on the MRSA transmission rate. Implemented actions to improve patient outcomes when using the Plan-Do-Check-Act improvement cycle were evaluated to assess value. In this evaluation the use of precautions for colonized patients was not supported by the data. Change in the management of patients with MRSA colonization can potentially decrease the facility’s precaution needs, delay in bed allocation related to placement of a patient on precautions, decrease the hospital cost related to gown and glove use, procedural delays associated with schedule changes due to the need for precautions, free up the private rooms for other precaution needs or patients willing to pay for a private room, and reduce the emotional stigma associated with being placed on precautions without increasing the risk of MRSA acquisition. MRSA screening is labor intensive and expensive; these resources might better be directed toward interventions that enhance patient safety by decreasing the risk of infection. Adherence to uniform practices for all patients such as hand hygiene and environmental disinfection may be the real opportunity to decrease MRSA transmission versus implementation of practices based on nasal screening results.
Functionality of quality improvement teams at multi-level health facilities: experiences from Southwest Uganda

John Byabagambi, Esther Karamagi, Humphrey Megere, Nigel Livesley

Objective:
The objective of this assessment was to evaluate the functionality of quality improvement teams at HIV/AIDS care clinics, so as to identify priority focus areas for quality improvement coaches.

Methods:
This was a programme evaluation to assess the functionality of quality improvement (QI) teams at multi-level health facilities in Southwest (SW) Uganda. It assessed teams that have been using a collaborative approach to improve the quality of HIV/AIDS services offered to patients since October 2009. A structured questionnaire was used to collect data from QI team leaders and facility managers in November 2010. Individuals who completed the questionnaire were requested to participate in the study by providing information about the functionality of their QI teams. Functional QI teams were those that held regular meetings at least once a month to discuss QI-related activities, kept minutes and records of previous meetings, and had documentation of changes being tested. Data concerning the involvement of facility managers in QI activities, use of Ministry of Health (MoH) patient monitoring tools, presence of updated MoH patient monitoring tools, involvement of patients in provision of care, representation of patients on QI teams, and spread of QI best practices beyond the HIV clinic were also collected. Data collected were entered into a database, and analysis was done based on the team's functionality. Confidentiality was maintained during and after the assessment.

Results:

![Graph comparing functional and non-functional QI teams](image)

Figure 1

Of the nine facilities with updated data tools, six (67%) were focusing on one improvement area while three (33%) were using the district approach.

Conclusions:
Keeping updated MoH patient monitoring tools, representing patients on QI teams, and spreading best practices are the major challenges facing both functional and non-functional teams at the majority of sites. Focusing teams on one improvement area also seemed to improve the use of data tools across all clinic sections. These findings are important in helping QI programmes to identify the areas of focus and the best strategy to implement QI activities.
Honouring Our Patient’s Resuscitation Wishes with Technology: Implementation of an Electronic Ordering Process to Reduce Error

Nicola Schiebel1, Eric Cleveland1, Sarah Parker2, James Naessens1

Objective:
Assess the impact of an electronic ordering and automated armband labelling system on process monitoring, accuracy of communication and documentation of patient resuscitation wishes.

Methods:
We describe the process and outcomes for implementing a physician-initiated inpatient electronic ordering system that included an automated decentralized printing process for resuscitation status armbands. During two months of 2008, 1487 patients had at least 2 different resuscitation status orders during the same hospitalization, with no mechanism to ensure the out-dated order was inactive. Prior to the automated armband process intervention, the armband appearance was assessed using short subject-matter expert interviews (nurses, physicians, unit secretaries, respiratory therapists, and nursing assistants), as well as integrating human factors design principles, in order to maximize the likelihood that the information on the armband would be easily accessible and understandable for both patients and clinicians. The new armband design was integrated as part of the new electronic ordering process. In this process, once the physician establishes a patient’s resuscitation wishes, he/she creates an active order in the computerized physician order entry program (CPOE). Along with the CPOE order, the physician is encouraged to verbally inform unit secretaries of the issued order. CPOE triggers an electronic nursing order and the real-time printing of an armband if a Do Not Resuscitate (DNR) order is selected. Simultaneously, a unique Resuscitation Status Alert (RSA) form is printed from a separate orders printer. The RSA was developed to provide clarification, standardization and process steps for nurses and unit secretaries, and is differentiated as a stat order to reduce impact of order volume variability. This process takes place every time an active order is initiated or cancelled, and the electronic medical record (EMR) displays the current and historical record of resuscitation. Only one active resuscitation order can exist at a time.

Using de-identified data, pre and post intervention quality improvement (QI) audits were compared on discrepancy rates between resuscitation orders and patient armbands, and discrepancy rates between electronic orders and physician progress notes. Initial baseline assessments were based on a random selection of patients with DNR orders over 6 weeks from March 15, 2009 to April 26, 2009. The new process was implemented during the month of May. Post-implementation assessments were based on a sample of patients from June 8, 2010 to July 5, 2010. Discrepancy rates were compared pre and post intervention using Chi-square tests.

Results:
Screening of all inpatient admissions for the two audit periods revealed 316 DNR orders pre- and 199 DNR orders post-intervention. During the baseline assessment, 37/190 (19%) patients had an armband that did not reflect their documented wishes versus 2/103 (2%) after system implementation (p<0.001). No armband discrepancies were found after the first two weeks of post-implementation audits. Discrepancies between physician provider notes and electronic orders were detected in 40/316 (13%) records pre and 9/104 (9%) post intervention (p=0.27). These charting discrepancies were most common when a patient’s resuscitation orders changed during the admission under review, and older notes with the outdated status were “cut and pasted” into ongoing daily progress notes in the EMR.

Conclusions:
Implementation of an inpatient electronic ordering system, that included an automated decentralized printing process of resuscitation status armbands, has reduced discrepancies between patient wishes and the armband labelling of the patient’s desired DNR status. It is anticipated that these improvements will reduce the risk of adverse outcomes, including events where patients wishing full resuscitation are erroneously designated to be DNR. Discrepancies present within physician progress notes, however, are still concerning, and a potential source for confusion during a cardiac arrest event. One possible solution to consider might be to integrate the order and physician discussion notes into one location on the chart so contradictory orders and notes could not exist.
Implementing Quality Assurance to Improve Facility Management in the Basic Package of Health Services in Afghanistan

Ahmad Eklli Hossain, Shafiq Ahmad, Humira Alawi, Fauzia Shafiq

Objective:
To introduce performance standards in facility management as a part of a wider effort to improve the quality of primary healthcare service delivery in Afghanistan

Methods:
Since 2006, the Health Services Support Project has supported the Afghanistan Ministry of Public Health to initiate the Quality Assurance (QA) process to improve the quality of the Basic Package of Health Services. Explicit and operational standards were developed in various areas of service delivery and support; one cross-cutting area was based upon facility management. Existing facility management standards from the fully functional service delivery point (FFSDP) methodology were updated and harmonized for the QA tool. Since inception of the QA process, more than 400 health facilities in 17 provinces in Afghanistan are implementing the approach to make meaningful changes in their performance and improve the quality of healthcare services. The QA tool includes facility management standards in several core areas including: 1) facility infrastructure to ensure provider and client safety while respecting gender and culture; 2) adequate equipment to deliver services, including maintenance and inventory systems; 3) sufficient human resources/staff, including qualified male and female staff based on level of health facility, proper time management, job descriptions, and annual appraisals; 4) display of clear and visible written and pictorial sign boards to provide information about working hours, type of health services, and avoidable entry area; 5) planning for cleaning and maintenance, work, and involvement of staff in budgeting; 6) documentation and reporting, including health management information systems, filing systems, and estimation of targeted population (e.g. women of child-bearing age, under five children) for health services in antenatal care, normal labor, postnatal care, immunization, and outpatient services. The clear and explicit standards are used by health providers and facility managers to review their monthly and quarterly performance against the targets, and subsequently make corrective action plans to bridge the gaps. External and internal assessments are conducted to judge progress in correcting performance gaps and guide implementers towards the standards.

Results:
Health facilities implementing the QA process have shown promising improvements in the quality of health service delivery, including in the area of health facility management. Table 1 shows the average trend of compliance to facility management standards by assessment. All areas of facility management show progressive improvement from the baseline assessment to the external assessment in compliance to standards, with a range of 17% improvement in planning to a 35% improvement in documentation and reporting system.

Table 1. Trend in achievement of facility management performance standards, by assessment

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Infrastructure</th>
<th>Equipment</th>
<th>Staff</th>
<th>Information</th>
<th>Plan</th>
<th>Documentation &amp; Reporting System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline Assessment</td>
<td>39%</td>
<td>31%</td>
<td>45%</td>
<td>44%</td>
<td>56%</td>
<td>44%</td>
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<tr>
<td>Internal Assessment</td>
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<td>47%</td>
<td>52%</td>
<td>45%</td>
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<td>57%</td>
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<tr>
<td>External Assessment</td>
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<td>54%</td>
<td>78%</td>
<td>68%</td>
<td>73%</td>
<td>79%</td>
</tr>
<tr>
<td>Improvement</td>
<td>25%</td>
<td>23%</td>
<td>33%</td>
<td>24%</td>
<td>17%</td>
<td>35%</td>
</tr>
</tbody>
</table>

Conclusions:
The introduction of the QA process in primary healthcare services in Afghanistan has helped frontline providers to improve their performance and the quality of health services. Facility management is a cross-cutting area that interacts with, and influences many service delivery areas. The positive changes that occurred for facilities implementing QA in the area of facility management are contributing to a comprehensive, strengthened package of health services.
Beyond Kirkpatrick: evaluating healthcare team training interventions
Robyn Clay-Williams, Jeffrey Braithwaite

Objective:
The purpose of the study was to evaluate the efficacy of a multidisciplinary healthcare team training intervention.

Methods:
Aviation CRM knowledge, skills and attitudes were translated to learning outcomes for healthcare, based on a combination of a pre-training needs analysis, a review of the current evidence base for team training, and an expert panel review. The resulting competencies were developed into a one-day classroom based CRM course, which was delivered via adult experiential learning methods to healthcare professionals working in complex, time-critical environments in an area health service. A total of 157 recruits were randomised into one of four groups, consisting of three intervention groups and a control group. The intervention groups were then given the one-day classroom course, one day of ACRM based simulation training, or both.

The intervention was evaluated using the first three levels of Kirkpatrick’s four-level framework; that is (1) reaction, (2) knowledge and attitudes, and (3) behaviour, but not (4) results. Pre- and post-test quantitative data were gathered on participant attitudes to working in teams, and post-test quantitative data were gathered on trainee reactions, knowledge and teamwork behaviours. As is typical of this type of investigation, evaluation at Kirkpatrick’s 4th level, consisting of measurable clinical or organisational outcomes, was beyond the scope of this study. However, qualitative data were gathered by interviewing a sample of participants at the conclusion of the evaluation.

Results:
A total of 94 doctors, nurses and midwives completed the pre-intervention attitude questionnaire; between 59 and 61 clinicians completed the post-intervention assessments, and 10 clinicians were interviewed. Reactions to the course were universally positive, and positive changes were found in knowledge and behaviour when the classroom-only trained group was compared with the control; however these changes were not found in the group that received classroom followed by simulation training. No positive change in attitudes was found associated with the training. Other than in regard to improvement in self-assessed teamwork behaviour associated with classroom-only training, the hypotheses that attitudes and behaviour would display positive changes associated with the training were not supported.

Contrary to the quantitative result, qualitative data supported the effectiveness of the training for classroom-trained groups. Participants were found to have improved self-confidence, and improved awareness of self and situation. Ancillary benefits included learning through exchange of perspectives, reinforcement of team skills, and a perceived improvement in clinical crisis management. Flow-on effects included mentoring, educating and role modelling. These findings are not easily incorporated into Kirkpatrick’s framework.

Conclusions:
The randomised controlled trial (RCT) method requires a level of control of variables that is difficult to attain in a typical healthcare training intervention. A multimethod design may provide a better approach to assessing the efficacy of future healthcare teamwork training.

It is time to look beyond Kirkpatrick when evaluating the efficacy of training. Although utilisation of Kirkpatrick’s framework appears to have become the de facto method for assessing team training interventions in healthcare, this framework may preclude identification and analysis of important benefits of those interventions. In addition, the framework is not well suited to defining and evaluating the contextual aspects of the intervention that facilitate generalisation of findings (i.e. what aspects of the training worked for whom, and under what conditions).

References:

CareTrack Australia – some pilot data

William Runciman, Tamara Hunt, Natalie Hannaford

Objective:

The literature suggests that evidence- or consensus-based care is delivered, on average, only about half the time for common conditions representing more than half of the burden of disease. CareTrack Australia is part of a National Medical Research Council Project Grant on the quality and safety of healthcare which aims to

1. Determine the percentage of healthcare encounters at which Australian patients receive recommended care (by determining compliance or otherwise with indicators endorsed by local experts as appropriate for healthcare in Australia in the years 2009 and 2010)

2. Examine the drivers of healthcare from the perspectives of the knowledge, attitudes and beliefs of patients and healthcare providers for selected conditions. It is intended to examine 22 common conditions by determining compliance or otherwise with 570 indicators (y – z indicators for each condition).

Methods:

A pilot study was conducted on 100 patients who had consented at an initial telephone call to be interviewed and allow access to their medical records. A number of issues arose, in particular in relation to ethics, sampling bias, logistics and data management.

Results:

A pilot study was conducted on 12 conditions and 56 patients, some of whose records could be accessed. Access was only obtained for all the medical records for 13 out of 56 patients: indicator scores were obtained for 10 conditions over 375 interactions. Overall, there was compliance with indicators at less than 50% of encounters. As examples, compliance ranged from 20% or less for documentation of an asthma action plan, documentation of suicidal ideation, mammography, faecal occult blood tests and PAP smears at appropriate intervals, appropriate timing of surgical antibiotic prophylaxis, and venous thromboembolism risk assessment on admission. Compliance at 80% or more encounters were regular assessments of patients with diabetes, use of appropriate anti-hypertensives, exercise and mobilisation advice for osteoarthritis, and for prescribing reliever therapy for asthma.

Conclusions:

It would seem that to continue to rely on attendance at meetings, memoranda and dissemination of long-winded guidelines is futile. It would seem that evidence- or consensus-based, up-to-date simple proformas for documenting compliance with indicators, be tried, with implications for credentialing of individual practitioners and accreditation of services for lack of compliance beyond certain limits.
A method for evaluating weaknesses and critical steps in the Radiation Treatment Process through Precursor Events reporting

Eric Lenaerts, Marie Delgaudine, Philippe Coucke

Objective:

To establish a method based on the Precursor Events (PE) reporting to detect and to assess weak steps in the Radiation Treatment (RT) Process.

Methods:

An original way of analysing data stored in the Precursor Events Databases is realised.

The RT Process in our Academic Hospital is subdivided into 7 main steps. The operational Quality System used in the Radiotherapy Department is based on the spontaneous declaration of Precursor Events by the staff. We report on a period from December 2008 to September 2010.

A level of severity is attributed to each PE (1-10) and rated afterwards as minor (values 1-2), serious (3-5), major (6-7) and critical (8-10). Every single PE potentially impacts on one or more steps in the RT Process. Each step is placed under the responsibility of a specific professional sector involved in RT (Physician, Therapist, Physicist, Administration staff). Steps are grouped together under 4 Work Domains (Scheduling, Prescription, Treatment Preparation and Treatment Delivery).

Results:

Our analysis is based on 2026 PE reported in a period of 22 months, with an average of 92.1 PE per month. During this period, 3398 patients reached successfully the end of their treatment and passed through all steps of the RT Process corresponding to a number of 75816 treatment fractions delivered. This leads to a probability of 59.62% that a PE occurs during a RT Process, and a probability of 2.67% that a PE occurs during a treatment fraction. According to a classification by Work Domain, we found that 49.9% of PE are due to the Treatment Preparation, with a PE mean level of severity (PEmls) classified as [minor]. The corresponding values and levels of severity are 19.6% [minor], 16.0% [serious] and 14.5% [serious] for respectively the Scheduling, the Treatment Delivery and the Prescription. According to a classification by PEmls, we found that 32.7% of PE result from steps in the process under the responsibility of Physicians, with a PEmls classified as [serious]. For the other professional groups i.e. Physicists, Administration staff and Therapists, the values are respectively 33.6% [serious], 19.6% [minor] and 14.1% [minor]. By this method, the Radiotherapy Department Management is getting accurate detailed and overall information on the severity, the impact and consequences of the most significant steps of the RT Process and on basic responsibilities. Analysis of these PE reported in our Treatment center has enabled the Quality Management in Radiotherapy to focus on and prioritize corrective actions by individual sector.

Conclusions:

A method has been defined to use information obtained from the spontaneous declaration of PE by the staff. It provides a powerful tool for the Quality Management to highlight weaknesses in the Radiation Treatment Process in order to prevent potential clinical incidents and to launch the most effective actions against basic causes of Precursor Events. Our study showed that by assigning to each RT Process step a functional basic responsibility, this leads to a distribution of PE in different sectors much more homogeneous than that obtained by the classification resulting from the combination of steps by Work Domain. This homogeneity criterion may be interpreted by the Quality Manager as a quality index for the indiscriminate content of PE reported by all sectors. We continue to work according to this methodology, which allows us to perform risk analysis in real time and incorporate into our dashboard management indicators.
Training for Quality Outcomes in South Africa

Joyce Makgatho, Donna Jacobs

Objective:

To provide training on Quality Assurance and Quality Improvement Methodologies for staff from various PEPFAR-funded organizations in South Africa during October 2009 – May 2010, and to assess the effectiveness of this training for capacity building.

Methods:

Three-day training on Quality Assurance and Quality Improvement Methodologies was conducted for staff from PEPFAR-funded organizations. This training was conducted by staff from the USAID-funded Health Care Improvement Project (HCI). The training curriculum included didactic teaching, as well as interactive group work and practical sessions. Participants were asked to write a test prior to starting the course (pre-test), as well as after completing the course (post-test). All scores were collated and presented to the participants upon completion of the course. Following training, managers from all organizations received telephonic follow-up and physical visits by HCI staff. At the follow-up visit, the Kirkpatrick Model was used to evaluate the participants' reactions, attitudes and capacity development. HCI staff also performed on-the-job observation to gauge whether participants who had been trained were implementing the knowledge gained during the training.

Results:

A total of 955 participants were trained by 35 organizations. Data analysis was conducted on the pre- and post-test scores, course evaluation forms, telephonic follow-up, direct observation during follow-up visits and follow-up visit scores.

On average, participants scored 30% for the pre-test and 80% for the post-test, demonstrating a significant gain in overall knowledge. Course evaluation yielded positive results, with 80% of participants demonstrating appreciation for the knowledge gained. All participants felt that the course was very important and that the trainers were well informed on the subject. The majority of participants (about 90%) suggested that the training had improved their efficiency and ability to offer a better quality service. Telephonic follow-up results indicated that most managers were impressed with the training's effect, as their staff had gained significant knowledge, were more punctual, displayed improved effectiveness and efficiency in their work and were able to graphically demonstrate program outcomes.

Follow-up visits revealed several quality improvements within organizations, ranging from improvements in staff morale and attitude, to increased professionalism of staff, graphical representation of programmatic outcomes, formation of quality teams and proof of capacity development within the organization. Organizations had also started to conduct evaluation processes, such as standard compliance evaluation and customer satisfaction evaluations.

Conclusions:

The Quality Assurance training program offered by HCI is an effective and sustainable way of developing staff capacity, raising staff morale and improving effectiveness and efficiency of service delivery. It is a valuable training course which enhances efforts to integrate quality assurance into every activity at all levels of healthcare, thus institutionalizing quality assurance in healthcare.
Identifying research priorities in an organization focused on healthcare quality

Victor Reyes-Alcázar¹, Anailien Boza-Rivera¹, Antonio Romero-Tabares², Marta Casas-Delgado³

Objective:

To describe the process followed in an organization focused on healthcare accreditation to establish its research priorities.

Methods:

The Knowledge Management Department of the Andalusian Agency for Health Care Quality (AAHQ) carried out a project during 2010 to define the research priorities of our organization. The phases of the methodology were:

1) Contextualization of the organization and the regional health system (Andalusia, Spain).
2) Review of the strategic objectives of the organization.
3) Recovery of the scientific production of the organization in the period 2005-2010.
4) Identification of keywords used in congress abstracts, scientific articles and corporate documentation generated by the organization.
5) Search for the identified keywords in the MeSH (Medical Subject Headings) and in the DeCS (Health Sciences Descriptors of BIREME-OPS).
6) Elaboration of a structured table of descriptors, classifying them by major and minor descriptors.
7) Inclusion of equivalent terms and terms related to the descriptors identified.
8) Definition of an internal reference procedure for the “research process”.

Subjects: Corporate documentation and scientific production of the AAHQ.

Period of the study: 2005-2010.


Results:

1) A total of 149 descriptors, 44 equivalent terms and 84 related terms were identified.
2) The descriptors included within the category, Major Topics [7], are: Accreditation, Professional Competence, Patient Safety, Continuing education, Knowledge Management, Quality (of healthcare) and Health.
3) A total of 137 MeSH descriptors were selected that were included within the category Minor Topics.
4) The findings facilitated the reformulation of the general research framework for the organization. This has been translated into an internal procedure that helps the Steering Committee to know if the research proposals are aligned with the strategic objectives of the organization: accreditation, patient safety and knowledge management.

Conclusions:

1. From a conceptual point of view, the described process supposes an organizational improvement since it has facilitated the definition of a reference framework that clarifies the expected scientific production and focuses on those scientific topics that are aligned with the strategic objectives of the organization.
2. From a practical approach, the described process allows the generation and diffusion of knowledge to be boosted, with a double advantage:
   * It is useful for the departments of the organization to know the topics in which they must work to respond to the research priorities.
   ** It is useful for the Steering Committee, as it can analyze if a project proposal is aligned with the strategy of the organization.

The process followed by the Andalusian Agency for Health Care Quality can be replicated in other organizations that wish to align their research projects and scientific production with their strategy. The results are broadly applicable to other healthcare contexts.
Are there champions, experts or competing demands for teaching about patient safety in medical schools?

Deborah Debono¹, Jeffrey Braithwaite¹, Kim Oates², Allan Spigelman³

Objective:
To examine medical deans’, educators’ and students’ perceptions on teaching and championing patient safety in Australian medical schools

Methods:
This study investigates patient safety education in medical schools, enrolling 20 of the 21 medical schools in Australia. Deans or their nominees, and a convenience sample of medical educators and students were surveyed using an online or paper-based questionnaire. Participants rated, on a five point Likert scale, their perceptions of the availability of champions, expertise and competing demands for teaching about patient safety in their school. Between group comparisons of deans, educators and students were made using Kruskal-Wallis one-way analysis of variance.

Results:
A total of 2,409 responses were received from: deans or nominees (n=14), medical educators (n=93) and medical students (n=2,302). While there was overall agreement on there being a champion and teaching expertise in patient safety in schools, deans and educators were more likely to agree with this statement, while students were more likely to slightly agree or to be neutral (Table). Deans and educators were more likely to disagree with the statement that the curriculum was too full to incorporate additional teaching on patient safety, whereas students tended to slightly disagree, be neutral or slightly agree with the statement. Differences were statistically significant at the 0.001 level.

Table: Percentage of each group by response and question

<table>
<thead>
<tr>
<th>This medical school has:</th>
<th>Group</th>
<th>Disagree Strongly</th>
<th>Disagree Slightly</th>
<th>Neutral</th>
<th>Agree Slightly</th>
<th>Agree Strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>A champion for teaching patient safety</td>
<td>Students</td>
<td>2.7</td>
<td>11.6</td>
<td>36.7</td>
<td>36.2</td>
<td>12.7</td>
</tr>
<tr>
<td></td>
<td>Educators</td>
<td>3.2</td>
<td>6.5</td>
<td>32.3</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Deans</td>
<td>7.1</td>
<td>0</td>
<td>7.1</td>
<td>28.6</td>
<td>57.1</td>
</tr>
<tr>
<td>Staff with expertise in teaching patient safety</td>
<td>Students</td>
<td>1.3</td>
<td>6.3</td>
<td>27.2</td>
<td>40.9</td>
<td>24.2</td>
</tr>
<tr>
<td></td>
<td>Educators</td>
<td>2.2</td>
<td>2.2</td>
<td>17.2</td>
<td>36.6</td>
<td>41.9</td>
</tr>
<tr>
<td></td>
<td>Deans</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>28.6</td>
<td>71.4</td>
</tr>
<tr>
<td>An already full curriculum with no time for additional teaching on patient safety as a specific subject</td>
<td>Students</td>
<td>12.5</td>
<td>28.5</td>
<td>28.6</td>
<td>20.2</td>
<td>10.3</td>
</tr>
<tr>
<td></td>
<td>Educators</td>
<td>31.2</td>
<td>32.3</td>
<td>19.4</td>
<td>16.1</td>
<td>1.1</td>
</tr>
<tr>
<td></td>
<td>Deans</td>
<td>42.9</td>
<td>35.7</td>
<td>21.4</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Conclusions:
Educating medical students about patient safety has vital implications for their future professional practice and as a resource for error prevention as students on placement. The development of the WHO Patient Safety Curriculum Guide¹ testifies to international recognition of the importance of this issue. Competing educational demands and inadequate numbers of teachers with relevant expertise are frequently cited barriers to the implementation of patient safety curricula². This study shows that Australian medical schools perceive that they have champions and staff expertise for teaching patient safety, and a curriculum with space for inclusion of additional patient safety teaching. There are disparities between perceptions of students, educators and deans. While this discrepancy may be due to a range of factors, there is a need to ensure that students are aware of the importance of learning about patient safety in medical school.

References:
Improving Mental Healthcare by Primary Care Physicians in British Columbia, Canada

Rivian Weinerman, Helen Campbell, Liza Kallstrom, Marcus Hollander

Objective:
To see whether an adult mental health learning module focused on a proactive, targeted, organized approach to mental health patients, could increase Family Physician (FP) skills and confidence in the diagnosis and treatment of mental health conditions using evidence-based strategies and tools; increase physicians’ awareness of community mental health resources; increase physicians’ ability to develop care plans; improve family physician collaboration with psychiatrists and mental health clinicians in the community; improve the patient experience; and promote the engagement of patients in the management of their mental health conditions, within the constraints of a primary care practice and the fee code structure.

Methods:
A CBIS (Cognitive Behavioural Interpersonal Skills) manual was developed that provides an organized approach for GPs to assist their patients with mental health issues from diagnosis through to treatment, with skills centered on patient engagement. Two other Cognitive Behavioural approaches were incorporated into an overall training module. FP champions were identified to be trained in this module and then teach it to their colleagues. The program was pilot tested in the summer and fall of 2009. Following the quality improvement model of Plan-Do-Study-Act, two training sessions were separated by a 7 week action period in which tools were practised and modified. Mental Health clinicians and psychiatrists from across the province (5 Health Authorities) were also included in the training. All tools, and videos for the training and implementation of the module, including the hyperlinked algorithm that contains all module components, can be found on the website http://www.gpsc.b.c.ca/psp-learning/mental-health/tools-resources. Practice Support Coordinators hired from each of the health authorities to facilitate the recruitment and training of FPs, provided support and helped the FPs in their region to operationalize the module. The training program was then gradually rolled out province-wide. By end January 2011, 1100(1/3) of the province’s 3,300 community FPs had enrolled. Attendees participate in three paid learning sessions that are separated by two paid action periods in which FPs practise the components of the module. After each action period, participants attend the next learning session to share their experiences and their concerns/problems, learn the next components and decide on any modifications they might make.

Results:
Based on surveys completed at the end of the third and final learning session by participating FPs (n= 136, a response rate of 60.2%) the initial evaluation found that FPs agreed or strongly agreed on the following:

What they had learned had improved their practice (91.0%)
The training had resulted in improved patient care (94.0%)
They had learned something new that they were incorporating into their practice (98.5%)
Attendance at the learning module had increased their job satisfaction (78.5%)
The training had enhanced their skills to conduct a diagnostic assessment interview the DAI (91.9%)
The training had enhanced their skills in treating mental health conditions (90.45)
The training had enabled them to decrease their reliance on prescribing antidepressant medication (41.5%)
The care they could provide after having attended the learning module, increased their patients’ ability to return to work (61.9%)

Conclusions:
Family physicians are willing recipients of training. This particular paid, adult mental health learning module which provided a targeted organized approach to mental health problems, using a train the trainer approach, was extremely successful in FPs changing their practice, feeling they had improved their practice, improved patient care, it increased their job satisfaction, decreased their reliance on prescribing antidepressant medications, and improved their patients’ ability to return to work.
Victoria through the looking glass – a brave new world

Theresa Williamson, Alison McMillan, Chris Brook

Objective:
To improve consistency and accuracy in the allocation of severity rating for clinical incidents in public health care environment.

Methods:
Meaningful analysis of multi-severity clinical incident data has been limited due to the brevity of incident information held in incident data repositories.

The Victorian Department of Health (the department) have approached this information void by introducing a standardised data set for the management of incidents in Victoria, the collection is known as the Victorian health incident management system (VHIMS). VHIMS is reflective of the World Health Organisation’s (WHO) International Classification for Patient Safety Conceptual Framework in that data is standardised across the framework domains of: patient characteristics (gender, age etc.) incident characteristics, contributing and mitigating factors, individual and organisation outcomes, and finally recovery and ameliorating factors/actions.

There has been a quantum shift with the introduction of VHIMS, moving from an arbitrary allocation of severity (or risk level) by health service staff to a derived incident severity rating (ISR) that combines values relating to degree of impact (harm) to the patient, and the level of care and treatment required as a result of the incident. This transition is a major shift for Victoria as the majority of health services had utilised the severity assessment score (SAC) method, which is reliant on an individual’s understanding and cognitive application of the underlying risk principles. The VHIMS ISR gives Victoria a standardised measure of severity based on patient outcome. The ISR value range is 1 to 4, with ISR 1 the equivalent of a severe/catastrophic outcome (such as a sentinel event) and ISR 4 a near miss. In 2007, 7 health services piloted the ISR algorithm to determine consistency and accuracy against their SAC rating over 12 weeks. Health services varied from large acute tertiary facilities, primary health settings to rural hospitals and ambulance services. The study was repeated in 2008 with the same participants once the state data set was finalised.

Results:
745 incidents were tested for ISR accuracy and consistency in 2007, and 1,385 in 2008. 35% of incidents recorded in 2007 and 28% in 2008 were accompanied by feedback/comments from end users. The primary feedback was in relation to incidents resulting in no harm (ISR 4). Historically, many health services had rated these incidents higher, as the end user and subsequent reviewers had overestimated the degree of impact (harm) experienced by the patient. 15% of the feedback was in relation to ISR 3 incidents. Many health services reported their historical rating of these incidents to be higher (i.e. at ISR 2 level), and when investigated further, the SAC score was again indicative of an overestimation of impact to the subject than what was derived with the VHIMS ISR. The overall feedback from both studies was positive, with the qualitative assessment (participant surveys) indicating a > 75 % accuracy rating of ISR with the VHIMS algorithm.

Conclusions:
In light of the positive response and increased level of confidence described by a broad range of end users to the 2007 and 2008 study, the department progressed with a statewide roll out of VHIMS, including the ISR algorithm. Over 120 organisations have transitioned from SAC (or similar) risk rating methodology to ISR. The department have embarked on a brave new world in relation to clinical incident analysis. They now have a greater capacity to review preventative and contributing factors for high severity (harm) incidents as well as a mechanism for capturing near miss incidents with the same degree of rigor.
A Web-based Tool for Measuring Patient Outcomes – Innovative, Logical, and Easy to Use

Jen Bichel-Findlay, Linda O'Connor, Phoebe Zhang, Simon Lau

Objective:
To evaluate user satisfaction with a web-based patient outcome measurement tool

Methods:
Healthcare organisations (HCOs) worldwide have been increasingly reporting clinical indicator data in order to assess, compare, and ultimately improve the care delivered to patients. Busy healthcare staff have limited time available to learn how to use a program and, in most cases, access the program infrequently. Most technology transfer acceptance theories highlight that innovation should not only add value for users, but should also not be onerous to use. Over 670 participating HCOs submit data for inclusion in a national clinical indicator database via the secure Performance Indicators Reporting Tool (PIRT) Online. The Australian Council on Healthcare Standards (ACHS) Clinical Indicator Program is the largest set of data collected nationally with the intent to measure the quality of care in Australia. Over 350 clinical indicators relating to specific clinical outcomes or processes of care have been designed to screen for known problems or to monitor and benchmark performance over time.

The PIRT program became a web-based interface in early 2009 to improve both the user experience and database manipulation functionality, replacing a process where the updated data collection software was distributed on CD-ROM. Clinicians and/or administrative staff enter data into PIRT Online monthly, quarterly, or six-monthly. One hundred and seventy one (171) users of PIRT Online responded to a survey distributed to existing ACHS Clinical Indicator Program members during August 2010. The questionnaire investigated the satisfaction of PIRT users with the web-based tool, through both fixed statements and free text questions. This presentation will focus on the results of selected fixed statements rated by users using a five-point Likert scale.

Results:
Eighty three percent (83%) of respondents agreed or strongly agreed that PIRT Online was an easy program to learn how to use, 74% indicated that the user instructions were easy to understand and follow, and over 90% agreed or strongly agreed that it was easy to enter the values in to each indicator. Over three quarters of respondents were satisfied with PIRT Online in relation to overall look and accessibility of menu items, while over two thirds of respondents were satisfied with the program’s user-friendliness, found the current functionality useful, and agreed or strongly agreed that the menu items were self-explanatory and in a logical order. Lastly, 78% of respondents found it easy to locate the user manual for the relevant indicator set, and 57% of respondents agreed or strongly agreed that the PIRT Online Frequently Asked Questions (FAQ) document covered the majority of issues for which they required further information.

Conclusions:
Usability is paramount to the success of any tool, with time-poor HCO staff requiring online tools to be easy to use, reliable, fast, and minimal screen access. The collection of data is itself a technological challenge, and narrow bandwidth in numerous regions within Australia presents an additional burden. Despite these issues, responses to this survey reveal significant support for PIRT Online in terms of ease of use, program learning, navigation, and resource location, and marginal support for the FAQ document. A reporting tool that is easy to use will not only increase data reporting compliance, but also increase the likelihood of the program being used for its intended purpose – collecting objective measures of care that can be addressed during an accreditation survey, and can make accreditation more relevant to the healthcare professions.
The Impact of Hospital Accreditation Program on Hospital Quality of Care: Comparison between National and International Program

Hanevi Djasri¹, Sutoto Sutoto², Supriyantoro Supriyantoro³

Objective:

Comparing hospital quality of care improvement obtained from the national hospital accreditation program (KARS) with international accreditation program (JCI)

Methods:

A descriptive study, conducted in early 2011. Data collection was conducted through a quantitative cross-sectional survey. Questionnaire instrument was adapted from Shortell (1995) and Pomey (2004), qualitative data obtained through interviews by telephone. Respondents came from 20 national referral hospitals which have gained national accreditation certificate (16) and 4 hospitals that have gained national and international accreditation (JCI), each represented by a director. Quantitative data processed and presented in descriptive statistics, while qualitative data is presented in narrative form to explain the phenomenon shown from quantitative data analysis.

Results:

In general, all hospitals state that accreditation impacts on quality of hospital care. With an average rating of 3.66 (national accreditation) and 3.73 (international accreditation), there was no statistically significant difference. International accreditation is considered to have more impact especially to: ensure the quality results; building leadership, commitment and support, rewards and recognition; use of data; and staff involvement, while the national accreditation is considered more of an impact for: strategic quality planning, human resource utilization; education and training; and quality management. National accreditation is considered to be a good basis to obtain international accreditation which is also considered more comprehensive and complex.

Conclusions:

National accreditation can be used to promote the quality of hospitals in accordance with the priority of the country concerned (for example, reduce maternal and child mortality in Indonesia), while the international accreditation can be used as a mechanism for international benchmarking as well as to enhance hospital image. Government and/or the hospital association should formulate policies or guidelines on how to select the hospital accreditation program in accordance with the needs of hospitals, to prevent unnecessary prestige costs only to pursue an international accreditation.
Objective:
To determine the clinical efficacy of application Class 1 Handheld Low Level Laser Therapy (LLLT) for wound healing on venous ulcers in terms of wound size, wound bed viability and reduction in pain level.

Methods:
The Class 1 LLLT device generated red and infra-red light of wavelength 650nm and 808nm with total output power of 200mW. The light accelerated the mitochondrial production of the Adenosine Tri-Phosphates (ATPs) which enhance the primary cellular energy source for wound healing. The device was handy and easy to operate. The wound nurse did not need to wear goggles during the therapy. Prior to the therapy, the wound nurse explained the treatment aim, regime and the potential outcome of the LLLT of this clinical trial to the clients and obtained their verbal Informed consent. The wound nurse applied the light generated from LLLT perpendicularly and 1 to 2 cm away from the wound surface for 3 minutes in each session. The therapy was carried out in 3 sessions per week.

Results:
In this trial, twenty clients with chronic venous ulcers and who had experienced some degree of wound pain over six months were recruited in January 2011. They were either followed up by the HKEC Wound Clinic or Government Out-patient Clinics in Hong Kong East Cluster of Hospital Authority. No harmful effect was reported or noted from clients. Improvement of wound bed viability was noted in 18(90%) patients; as evidenced by the wound bed colour changed to more pinkish or less dull; and decrease in wound debris. 14(70%) patients showed decrease in wound size. 16(80%) patients decreased wound discharge. 10(50%) patients experienced less wound pain and use less analgesic / without adjusting of their pre-existing analgesic regime. There was no major change on the peri-wound skin condition and level of leg swelling of clients.

Conclusions:
The LLLT was effective and clinically safe to promote wound healing on chronic venous ulcers by improved wound bed viability, decreased wound discharge, reduced wound size and improved wound pain. The LLLT was applied on limited patients in this trial; it is worthwhile to further explore the efficacy of LLLT on venous ulcers with more samples to confirm the effectiveness.
National Quality of Hypertension care in Korea
KA Son, MS Baek, SM Kim, HE Kim

Objective:
To identify the adherence to the medication for hypertension in Korean primary care settings using the findings of the quality assessment of hypertension.

Health Insurance Review & Assessment Service (HIRA) has been conducting the assessment of quality for hypertension to enhance the therapeutic compliance of hypertensive patients.

Methods:
The computerized claims data of HIRA was used. We selected 2,846,073 patients with hypertension (the Korean Standard Classification of Disease (KCD) code: I10~I13) and antihypertensive drug prescription in primary care settings during the evaluation period from January to June, 2010 among those who have prescribed from July to December, 2009. Adherence to medication was assessed with the Medication Possession Ratio (MPR). We used demographic factors, such as gender, age, residential area, income level (type of insurance) to evaluate what these factors affect on the MPR.

\[
\text{MPR} = \frac{\text{Total days of antihypertensive drug prescription}}{\text{Total days during the research period}} \times 100
\]

Results:
The total average of MPR was 87.8%, which have prescribed 159day medication for the six months. The MPR was higher in age group ≥65yrs. The MPR in health insurance was 87.6%, a little bit higher than medical aid at 86.7%. Urban area was higher in MPR. The result was statistically significant (p<.0001).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Medication adherence</th>
<th></th>
<th>Result</th>
<th></th>
<th>SD (%)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Patients</td>
<td>%</td>
<td>Mean (%)</td>
<td>SD (%)</td>
<td>p-value</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2,843,073</td>
<td>100.0</td>
<td>87.6</td>
<td>18.1</td>
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<tr>
<td>Male</td>
<td>1,242,027</td>
<td>43.7</td>
<td>87.4</td>
<td>18.3</td>
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<td>Female</td>
<td>1,601,046</td>
<td>56.3</td>
<td>87.8</td>
<td>18.0</td>
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<td>Age</td>
<td></td>
<td></td>
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<td>&lt;65</td>
<td>1,656,188</td>
<td>58.3</td>
<td>86.9</td>
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<td>&gt;=65</td>
<td>1,186,885</td>
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<td>Urban</td>
<td>2,404,968</td>
<td>84.6</td>
<td>87.8</td>
<td>17.9</td>
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<td>86.6</td>
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<td>Insurance type</td>
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<tr>
<td>Health Insurance</td>
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<td>94.4</td>
<td>87.6</td>
<td>18.0</td>
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<tr>
<td>Medical Aid</td>
<td>159,419</td>
<td>5.6</td>
<td>86.7</td>
<td>19.9</td>
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</tr>
</tbody>
</table>

Conclusions:
The medication adherence at primary medical institute in Korea reported high level. It is important to plan a project for hypertensive patients to get some good services in primary care settings.
Planning an evidence-based Annual Cycle of Quality Improvement for the Health Service in Bhutan

Dechen Choipel¹, Kinley Wangchuk¹, Vicki Doyle², Dave Haran²

Objective:
To establish an Annual Cycle of Quality Improvement for the Hospitals and Health Centres of Bhutan which use regular data collection to monitor quality improvements

Methods:
The Royal Government of Bhutan has set a policy objective to improve and standardize the quality of healthcare services, for which the Quality Assurance and Standardization Division (QASD) has been established. The essential strategy in pursuit of this policy objective is to build a process of Continuous Quality Improvement around a central element of an Annual Cycle of quality monitoring and improvement. The critical driving force for motivation and standardization of quality across facilities is an annual benchmarking exercise on key quality and performance indicators, so that facilities can be compared against each other and against targets set by the MoH. These comparisons will provide the ability to identify good practice which can be disseminated and rolled out to other facilities. Benchmarking will also help to identify those facilities in need of additional support to bring about acceptable levels of service quality. Following detailed discussions with health professionals at all levels, this Annual Cycle includes the following elements: 1) Set priorities for service delivery areas where quality improvements are required. 2) Monitor quality across hospitals by the use of defined quality indicators. 3) Design and implement quality action plans. 4) Monitor quality improvements using agreed quality indicators. 5) Benchmark for comparison of facilities and against targets. 6) Identify good practice in quality improvements and disseminate. 7) Support those facilities where quality improvement is poor and reward facilities with good improvements. 8) Undertake an Annual Review of progress on key quality priorities.

Results:
The six priority areas have been identified for quality improvement over 2010-2011. 1) Waiting time; 2) cleanliness of health facilities; 3) lab test wastage; 4) average waiting time in Emergency unit (ER); 5) Infection control; 6) patient understanding of diagnosis and treatment. Data collection has just started in one region of the country. Below we present on a typical set of results that we will supplement as the year progresses.

<table>
<thead>
<tr>
<th>Quality Indicator</th>
<th>Current level</th>
<th>Target for 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waiting time</td>
<td>30-50 mins</td>
<td>&lt;30 mins</td>
</tr>
<tr>
<td>Lab test wastage</td>
<td>20%</td>
<td>10%</td>
</tr>
<tr>
<td>Average waiting time at ER</td>
<td>35 mins</td>
<td>10 mins</td>
</tr>
<tr>
<td>Hospital infection control</td>
<td>3 cases</td>
<td>0 cases</td>
</tr>
<tr>
<td>Cleanliness of facility</td>
<td>Not yet done</td>
<td>&gt;90% of patients satisfied</td>
</tr>
<tr>
<td>Patient understanding of information</td>
<td>Not yet done</td>
<td>&gt;90% of patients satisfied</td>
</tr>
</tbody>
</table>

Conclusions:
1. An Annual Cycle of Quality Improvement provides a systematic structure for driving quality improvement that meets with the planning cycles of other sections of the Ministry of Health
2. Benchmarking between facilities and against an agreed government target is a useful way of stimulating greater efforts at quality improvement from health staff
3. This strategy depends for success on appropriate QA training for different levels of staff and on a support structure of regional QA teams to assist those facilities which are not achieving the targets
Study on Increasing Patient Satisfaction for Post-Stroke Patients Receiving Acupuncture Treatment and Related Care Management

Yi-Chen Hsieh, Yueh-E Lin, Shen-Mei Tung

Objective:

Cerebrovascular diseases are the third leading cause of death, accounting for 7.5% of deaths in Taiwan. Neurological disorders and malfunctions are triggered after the onset of cerebrovascular diseases. Many stroke survivors sustain moderate or severe physical disabilities. In addition to medical treatment and post-stroke rehabilitation, acupuncture has become a widely popular alternative medicine with a growing acceptance in recent years. Acupuncture has considerable potential for improving the quality of life and neurological functions for patients following stroke. Acupuncture requires administration by a trained professional, following safety precautions. However, clinical nursing staff sometimes forgot the needle removing time, or missed acupuncture points attributed to heavy workload and the complicated insertions of needles into various parts of the body, which gave rise to the complaints responded to acupuncture treatment from both hospitalized patients and healthcare providers. The safety of patients and quality of care management were also affected. Therefore, this study aimed to achieve care quality improvements by increasing patients' satisfaction while receiving acupuncture treatments.

Methods:

Data was collected and analyzed by designed questionnaires, participant observation from fieldwork, and survey interviews during the period June to September, 2009. Results showed an average rate of satisfaction was 72.66% for both stroke patients receiving acupuncture treatment and healthcare providers. However, low scores were noted in the surveyed items regarding the information of followed acupuncture administration time, the exact needle insertion points and accurate time points to remove needles. The rate of adequate knowledge of acupuncture treatment was only 63.48% among nurse practitioners, including insufficient knowledge about related care after administration, exception management, and healthcare education prior to and after treatment. The success rate of acupuncture administration performed by nurse practitioners was 68.48%. Therefore, three strategies were implemented for improvement during the period between September, 2009 and February, 2010. Firstly, continuing education for nursing staff was provided to improve their knowledge of traditional Chinese medicine (TCM) care. Secondly, record charts of meridian points for stroke patients receiving acupuncture were documented for the convenience of needle manipulation. Thirdly, a health education manual was created to guide the patients receiving acupuncture treatment.

Results:

The results of assessment performed in March, 2010 revealed the following findings. The average patient satisfaction rate was significantly increased to 91.78% from 72.66% for the patients having acupuncture treatment. The rate of knowledge accuracy of nurses on acupuncture was upgraded to 89.56% from 63.48%. The success rate of acupuncture administration performed by nurses was raised to 100% from 66.48%. In addition to elevating the scores of patient satisfaction with acupuncture treatment and administration procedure, the expediency and efficiency in carrying out patient care with acupuncture were also increased for nurse practitioners.

Conclusions:

The complaints regarding acupuncture administration procedures were often made by both hospitalized patients and healthcare providers, which was attributable to needle removal time forgotten and acupuncture points missed by nurses. Prior to initiating this study, insufficient knowledge of TCM acupuncture was found among nurses, which resulted in low scores of patient satisfaction with healthcare following acupuncture treatment. The safety and quality of care management were also significantly affected. The objectives of this study were implemented and achieved by providing continuing education to improve knowledge of TCM health care for nursing staff, documenting record charts of meridian points for stroke patients receiving acupuncture, and creating a health education manual to provide guidance for the patients receiving acupuncture treatment. The average score of patient satisfaction with care of acupuncture treatment was then notably raised, meanwhile, giving the healthcare team enough encouragement to recover its morale and motivation.
The incident reporting pilot project in the Medical Dispatch Centre of Verona (Italy): results and prospects.

Tamara Zerman, Alberto Schonsberg, Enrico Vallaperta, Diana Pascu

Objective:
The Medical Emergency Dispatch Centre of Verona (MEDCV) has introduced the “incident reporting form pilot study” as a tool for analysing adverse events, for detecting safety issues in order to identify solutions, to learn from errors and to enhance patient safety in the emergency processes.

Methods:
The Medical Emergency Dispatch Centre of Verona, Italy responds to 135,000 calls every year, coordinating the services for the whole Province which has around 900,000 inhabitants. 18 nurses and 3 doctors work to guarantee timely intervention and the immediate stabilisation of the patients. A team of the MEDCV (nurses and doctors), in collaboration with the Executive Committee for Risk Management and Patient Safety (ECRPS), developed an incident reporting form to identify adverse events. This form, the only one in Italy at the moment of its introduction, is divided into six parts that reflect all the phases of emergency in which potentially something could fail. Thereafter, the tool has been tested and validated for 30 days by a group of nurses with experience and filled in anonymously.

Results:
161 adverse events were reported on 46,584 requests of intervention (incidence 0.35%) and were analysed by a panel of experts (nurses, emergency physicians, patient safety officer). 84 were classified as slight (52.17%) of which 66.7% preventable, 45 medium (27.95%) with 66.7% preventable, 32 severe (19.88%) with only 43.75% preventable. The incidence of adverse events in the process for every shift was 0.29% (8 am - 2 pm), 0.34% (2 pm - 8 pm) and 0.41% (8 pm - 8 am) with no difference between weekdays and holidays and with the same frequency for high severity errors in all shifts.

The errors related to human factors were the most frequent (77.02%) while errors related to technology were less frequent (22.98%). 30 errors were caused (18.63%) by the callers who provided unrealistic information.

The first preventable error was a delay in providing emergency vehicles, the second was in the medical triage code (underestimated,) and the third due to topographic homonymy.

The high severity errors occurred during the triage (code of severity underestimated), followed by the inappropriate stabilisation of the patient and lack of feedback between the ambulance crews and the MEDCV to coordinate the correct hospitalisation.

The organisational model adopted was found to be the first reason for errors in the emergency chain.

Conclusions:
The first result of the study is the creation of safety awareness, and the improvement of motivational functions in the organisation. The clarity on what to report and the frequent feedback made the incident form accepted and used, even in cases of high workload or of violation of protocols.

Educational meetings and stages for all professionals were proposed as occasions to share different setting of work, knowledge and experiences in the emergency chain. A training course for the right use of a “Medical Priority Dispatch” was promoted to implement the correct triage. The role of supervisor in the MEDCV was enhanced to guarantee safety in all the interventions especially during the triage. The hospital medical records were analysed to complete the evaluation in patients for whom errors were reported in the emergency chain. A re-organisation and in-depth analysis of night shifts was proposed for the highest incidence during the night. The incident reporting form will be available in the national territory to create a database in order to compare the results, currently not comparable with the anglo-saxon data of the MEDCV for the different organisational models in terms of objectives and resources.
National Safety Goals as a Tool for Promoting Patient Safety

Ahmad Al Khateib

Objective:

The delivery of healthcare services has become more complex and it is increasingly challenging to provide care safely. High risk issues have been identified worldwide that put the patient in harm’s way. Patients have received the wrong medications and undergone the wrong procedures with dire consequences. Therefore, it is imperative that healthcare institutions find ways to deliver care to reduce these risks.

Methods:

Research shows that the majority of medical errors can be prevented. A landmark study on medical errors indicated that 70 percent of adverse events found in a review of 1,133 medical records were preventable; 60 percent were potentially preventable; and 24 percent were not preventable. A study released last year, based on a chart review of 15,000 medical records in Colorado and Utah, found that 54 percent of surgical errors were preventable. Keeping this in mind, National Quality and Safety Goals (NQSGs) came into being. These NQSGs provide a significant focus on patient safety within healthcare. It is a key process by which the Health Care Accreditation Council (HCAC) enforces important changes in patient safety in healthcare organizations across Jordan.

A commitment to healthcare quality and patient safety becomes part of the healthcare accreditation Council's mission. HCAC is committed to continuously improving the quality and safety of care by setting optimum standards that enable organizations to develop and use systems and techniques to further improve patient safety during patient care experiences. HCAC also demonstrates its commitment to quality and patient safety by stating National Quality and Safety Goals, and offers a certification to hospitals that meet the criteria and show that their healthcare organization consistently meets the goals. The patient-safety goals were developed by an expert advisory group comprised of physicians, nurses, risk managers and other professionals.

Results:

For each of the goals, there are evidence-based recommendations to help healthcare organizations reduce specific types of healthcare errors. On August 2010, the HCAC-accredited healthcare organizations that provide care relevant to these patient-safety goals will start being evaluated for compliance.

Conclusions:

This paper discusses the experience of HCAC in developing the National Quality Safety Goals as a part of our commitment to improve patient safety. The process of developing and implementing NQSGs will be discussed based on the evaluation of our clients.
What is the role of middle managers in quality and safety?

Anam Parand, Sue Dopson, Jill Pellett, Charles Vincent

Objective:
To investigate the role of secondary care middle managers in quality and safety

Methods:
Forty semi-structured individual interviews with middle managers (e.g. general managers, service managers and service delivery managers etc.) within two specialities (surgery and general medicine) were conducted at a large teaching NHS Foundation Trust and a District General NHS Foundation Trust. The interviews were undertaken between December 2010 and February 2011. All interviews were face-to-face and lasted between 45-60 minutes. Participants were presented with a research information sheet and briefed on the confidentiality and anonymity of any information that they provided. Signed consent was obtained for audio recording the interviews. A standardised semi-structured interview topic guide was used by two interviewers. Expansive questioning with free prompts provided exploratory examination of perceptions of what the managers reported to do relating to quality and safety. The interviews were transcribed by professional transcribers and grounded theory qualitative analysis was performed with the aid of NVIVO software. The researchers responsible for both analysis and interviewing had diverse backgrounds (NHS management and Organisational Psychology) to ensure multiple perspectives and consistency in coding.

Results:
Factors and sub-factors were identified concerning quality and safety related issues: daily responsibilities & routine; improvement activities; barriers & facilitators; targets & priorities; influence & change; knowledge & research translation; competencies; and impact.

Overall, there was a clear variation in the perceptions of managers regarding how big a part quality and safety plays in their job. Some described it as their sole motivator and that their entire job is quality and safety in some way, others believed a small amount of time was possible to spend on such matters. Interestingly, a few managers implied that dealing with quality and safety, in many instances, may be more appropriate for their clinical colleagues than relevant to their position. Daily activities relating to, and having an impact on quality and safety included the following: dealing with patient complaints, purchasing medical equipment, ensuring consultants are in the right place at the right time, ensuring adequate number of staff available, managing waiting lists, beds and incidents etc. The managers perceived their work to impact mostly on patient experience (e.g. delivery of waiting time targets), with a little less direct influence on patient safety. However, ample examples of how their daily tasks impact on patient safety were provided, as well as their involvement in improvement initiatives. Amongst others, barriers to successfully addressing quality and safety issues included factors such as: conflict of quality & finance targets; 'fire-fighting' quality and safety incidents in a reactive rather than proactive approach, with a lack of ‘head space’ to improve services and get to the root cause of systemic failures; lack of the correct tools (e.g. knowledge of improvement methodology); lack of a clinical or business background (depending on the issue at hand); and poor information systems for patient safety data etc.

Conclusions:
This study presents, for the first time, a look at the activities of the middle manager in relation to quality and safety. Variability of tasks and time spent on quality were revealed, and a list of barriers in managing quality was highlighted, despite the reported belief that they have a huge impact on quality and safety. Details and examples of these have provided us with a wider understanding of the direct and indirect effects of the middle management role in quality and safety. Implications are based on barriers and suggested facilitating strategies by the managers themselves, such as more well-defined purposes for quality, training and better access to internal incident data and external research and evidence-based practices.
Engaging Leadership and Frontline to Redesign Care and Improve Patient, Provider, and System Outcomes

Debbie White, Karen Jackson

Objective:
The purpose of this study was to document the work of RNs and health care aides (HCAs) and to optimize the roles of these providers through job redesign, thereby improving patient, provider and system outcomes. Health care leaders are searching for more efficient and effective ways to deliver quality care. Recent evidence suggests that registered nurses (RNs) spend insufficient time enacting key clinical functions associated with their role. Exacerbating the underutilization of nursing knowledge and skill is the paucity of literature linking nursing role accountabilities to outcomes. A key first step is to understand how nursing providers enact their roles and to examine structures and processes that influence their practice. By attending to optimal utilization of nursing providers as well as operational inefficiencies, the healthcare system has the potential to optimize outcomes.

Methods:
Work sampling data was collected using a methodology called Function Analysis™ (FA). Using palm pilot technology, data was captured on each RN’s and HCA’s use of time in a variety of predefined work activities associated with their clinical role functions; work flow was also documented. A convenience sample of RNs and HCAs on two medical units in a large tertiary treatment facility in Alberta, were study participants. Utilizing principles from the job redesign literature, observation and corporate data, and interviews, a job intervention strategy focused on role accountability, unit and system processes, and space and technology was implemented. Linear regression analyses were performed to determine provider, unit and time differences.

Results:
For RNs on the Redesign Unit, observation data confirmed that limited time was spent on psycho-social-cultural-spiritual assessment/support and teaching (4.6%) while considerable time was devoted to activities of daily living and personal care (13.0%), bio-medical assessment (8.0%) and medications and treatments (13.2%); activities that in many cases do not require their level of expertise. Observation data confirmed that a majority of HCA time on the Redesign Unit was spent in activities of daily living and personal care (33.5%) and cleaning/organizing patients’ rooms on the unit (12.3%). The observation data also revealed that a substantial amount of RN time was spent in activities such as travel (10.7%), documentation and review of patient information (20.9%), organization of the unit and patient room (6.1%), and administrative tasks (3.2%). Although not significant ($\alpha = 0.05$), the estimated redesign effect showed an increase in RN time spent on coordination of care, patient and family assessment, activities of daily living, and documentation and review of patient information, and a slight decrease in time spent on medication and biomedical assessment activities. Similar to findings for RNs, the HCA results indicate that few of the work activities were statistically different as a result of redesign (i.e., significant decrease in time spent on coordination of care ($\alpha = 0.05$). A positive redesign outcome was a significant increase in job satisfaction and reported valuing of team members.

Conclusions:
Changes in RN practice were very difficult to impact given the severe shortages, the inability to redistribute care activities to another regulated worker, and the lack of a strong model of care delivery that is population-based and fosters collaborative practice. Significant change in workforce utilization cannot occur if focused solely at a unit level. A systems approach is needed, guided by a clear vision that is understood and championed by leaders at all levels, and a well-articulated plan. This approach has been recognized as an essential element of workforce planning and redesign in Alberta and beyond.
The Spanish Hospital Social Reputation questionnaire (RECOR) validation study

ISABEL MARÍA NAVARRO SOLER, JOSÉ JOAQUÍN MIRA SOLVES, SUSANA LORENZO MARTÍNEZ, LIDIA ORTIZ HENAREJOS

Objective:
To validate the RECOR questionnaire designed to measure the reputation of Spanish hospitals from the citizens’ point of view.

Methods:
Five dimensions of Social Reputation (SR) were identified after a literature review: quality, confidence in the institution and their professionals, ethical behaviour of the organisation and its managers, social responsibility (including economic, people’s and environmental management) and innovation and research.

Secondly, staff and professionals of several hospitals, and citizens discussed in successive discussion groups about these five dimensions to assure the RECOR representativeness. Four dimensions were outlined: quality assurance, credibility and confidence, social responsibility, and innovation and research. A pool of items was designed to explore each of these four dimensions. A total of 24 reactive items were collected from literature and suggestions of participants in groups and the research team. An analysis of its understanding was conducted before being included in the RECOR 1.0 version.

To assess reliability and validity, 325 patients (61.5% were women and 40% were less than 50 years) from 4 Spanish hospitals replayed the RECOR 1.0. An exploratory factorial analysis was carried out using a Varimax rotation. In order to assure its suitability, Bartlett’s test of sphericity and KMO were calculated.

Results:
The factorial analysis yielded 3 dimensions and explained 61% of the variance, which is an acceptable loss of information due to the reduction of 9 items. These items were excluded because they presented a low correlation with the score of the dimensions (less than 0.5). KMO was 0.9 and the Bartlett test 2.1, (p<0.01). The description of the dimensions took into account the representativeness of the items. The social responsibility dimension was scattered among the other three. The quality assurance dimension includes 8 items. The credibility and confidence dimension includes 5 items. The innovation and research dimension includes 2 items. Cronbach’s alpha for the questionnaire’s total scale was satisfactory (0.89).

Conclusions:
The RECOR questionnaire could be used to assess hospitals’ social reputation. This instrument measures the reputation of a hospital, but it also might be used in the research context to determine the background and consequences of the quality evaluations from the citizens’ point of view.
Impact of clinical decision support system for high-alert medications on reducing prescribing errors and improving medication safety

Hye-won Han¹, Tae-wan Kwon¹, Woo-sung Kim², Jae-ho Lee²

Objective:

High-alert medication safety has been a JCI International Patient Safety Goal since 2007. To help healthcare providers make evidence-based decisions, HARMLESS (High-Alert medication Recognition & Management System to Lower Errors and to Secure Safety) was developed in a teaching hospital. This study was designed to evaluate the impact of HARMLESS, focusing on the reduction of prescribing errors.

Methods:

HARMLESS was implemented and updated in the computerized physician order entry system for inpatient and outpatient care facility between September 2009 and September 2010. Now, we have tried to evaluate the effect of HAMRLESS on the prescription status of the top three high-alert medications (insulin, injectable potassium chloride concentrate, and warfarin) by performing two types of analysis. The first, we compared the incorrect orders of the top three high-alert medications during 6 months before (between January 2009 and June 2009), and 6 months after (between January 2010 and June 2010) the system implementation. The second, we analyzed logs of intervention performed by HARMLESS according to the types of prescribing error for the top three high-alert medications, during 6 months after the system implementation (between January 2010 and June 2010). Those logs represented valuable evidence of preventing potential adverse drug events. Prescribing errors for the top three high-alert medications could be classified into four types, that is, omission of diluted solution for intravenous insulin (type I), overdose of limit related to the injection route for insulin (type II), omission of diluted solution for injectable potassium chloride concentrate (type III), and overdose of daily limit for warfarin (type IV).

Results:

A total of 358,391 orders were reviewed and a total of 3,945 logs were analyzed. As a result, the prescribing error ratio for type I was reduced from 22.5 % to 0.0%, that for type II was reduced 2.24 % to 0.16 %, and that for type III was also reduced 5.54 % to 0.0 %. In case of type IV, there was no case during both periods. The incidence of intervention on the prescription status was the monthly average of 3.50 % for type I, that of 0.54 % for type II, that of 2.54 % for type III and that of 0.63 % for type IV.

Conclusions:

HARMLESS was available at the exact moment of prescription for high-alert medications, and effectively provided important information regarding the prevention of potential adverse drug events. The intervention of HARMLESS led to an improvement in high-alert medication safety.
Factors affecting the implementation and sustainability of quality improvement strategies: a study of multiple perspectives

Joanne Travaglia¹, Deborah Debono¹, Debra Thoms², Jeffrey Braithwaite¹

Objective:

This study sought to examine the factors which inhibit or support clinical leaders’ ability to implement and sustain quality improvement strategies after leadership training, from the perspectives of the leaders, their managers and staff.

Method:

This study is part of a larger mid-term evaluation of the impact of a leadership development program for Nursing and Midwifery Unit Managers (N/MUMS) across an Australian health system. We utilised a multi-method approach, including individual interviews, surveys and case studies. The data reported here was collected via interviews with N/MUMs (n = 30) and their managers (n = 21) and a survey of staff (n = 18). The data was analysed using thematic analysis and descriptive statistics.

Results:

The N/MUM development program included modules on communication, lean thinking, financial management, and rostering for patient care and leadership. We found that of the 30 N/MUMs interviewed, three participants (10%) were unable to execute improvement strategies related to the leadership program, after their participation in that program. An additional three participants (10%) were able to implement related strategies, but unable or unwilling to attribute these to their participation in the program. The most commonly implemented strategies related to improvements in the N/MUMs’ personal leadership abilities, including their ability to communicate with and relate to their staff (60%); ability to facilitate the ability of their staff to become more innovative, productive and proactive in their work (40%); and leadership skills and confidence (27%). N/MUMs attributed difficulties in successful implementation of strategies to: staff culture (17%); resource and organisational issues (13%); and need for additional support and development opportunities (10%). N/MUMs’ managers and staff attributed their N/MUMs’ ability to execute their desired strategies to a similar range of factors. In addition, managers identified their support of N/MUMs as the most important factors in the N/MUMs’ ability to implement change (34%). Both managers (7%) and staff (10%) identified the timing of changes as a key element in their success.

Of the N/MUMs who felt that the changes they had made were sustainable (83%), the most common reason given was the “N/MUMs’ ability to drive and reinforce change” (17%). Other facilitative factors included: evidence of success, including results of audit (13%); improved communication with staff about the change and their role (13%); and engagement of individual staff and teams in the improvement process (7%). Inhibitory factors mentioned by N/MUMs included difficulty in attaining and sustaining cultural and behaviour change, and the ‘loudness of change resisters’. As with the implementation of changes, N/MUMs’ managers attributed the sustainability of those changes to: the support of the N/MUMs by their managers, peers and staff (24%); ‘manageability’ of the changes required (24%); and effective collaboration and communication (13%). For the staff of N/MUMs, factors affecting the sustainability of changes reflected those of the N/MUMs’ managers, including support from senior management, addressing structural and resources issues, effective feedback, ongoing training and individual N/MUM capabilities (each 6%).

Conclusions:

Our study provides insights into how leadership development programs may contribute to the successful implementation of quality improvement strategies. For all three groups, the primary type and indicator of quality improvement strategies was the leaders’ development of communication and facilitation skills. This would suggest that self-confidence and the ability to manage and ‘sell’ changes, rather than content, are the important outcomes of these courses, but that these skills are not sufficient to overcome the organisational and structural barriers to change.
Surveyor involvement in the revision of accreditation standards for long term care

Mark Brandon, Victoria Crawford

Objective:
To evaluate the involvement of surveyors in reviewing the revised Accreditation Standards for long term aged care in Australia.

Methods:
Revised Accreditation Standards for residential aged care (long term care) in Australia were developed by the government department responsible for funding aged care. The current standards were legislated in 1997. The draft standards will also be legislated. The draft standards were then the subject of five workshops with surveyors (assessors) from all states in Australia. Each workshop was for seven hours. There were 56 surveyors involved in the workshops. The surveyors had not seen the proposed standards until the workshop. Each workshop was facilitated by the same facilitator using the same process. Surveyors were given a copy of the standards, the structure was explained and the surveyors given time to read and discuss among themselves. The facilitator then took them through the standards that could be considered as new and then the changes to others. They were asked “what did this performance statement mean and was it assessable”. All comments were recorded and then collated against each standard. Feedback was then given to the drafters. There was also a follow-up survey of all surveyors to see how they valued the activity.

Results:
There was congruence in the issues raised by all five groups with a few additional issues raised at two workshops. The draft standards included lengthy statements of intent and introduction which surveyors found confusing. They identified that there would be problems assessing, as the standards also include a principle for each standard and 37 performance statements. The performance statements did not always align with the statements of introduction. The new performance statements such as those concerned with initial entry to a home, care planning, falls, risk management and governance were well received – surveyors believing they are a gap in the current system. There were other areas where the surveyors raised the wording of the performance statement as being too complex to assess, or ambiguous, or there was a different understanding of the meaning of the words.

The feedback given to the drafters has been taken into account for the next round of consultation.

The survey distributed to the 56 surveyors was answered by 93%. The responses include 100% of respondents found the process positive, 100% felt it was important for surveyors to be included in such development and 88% said the discussion on the day helped clarify the meaning of the standards and would assist them in assessing. 100% agreed that all surveyors should have similar workshops before the standards are released. 86% were surprised that not all surveyors agreed on the interpretation of the performance statements. 88% believed that similar workshops would be beneficial for providers and consumers. 100% agreed that an explanatory document for providers should be developed and that a different document would be required for residents. 76% wanted a different guide for surveyors.

Conclusions:
Involvement of surveyors in the review of proposed standards is crucial. They bring their knowledge of current standards, the care provided in homes and how they are assessed to the revised standards. Surveyors are able to identify ambiguities in the text, duplications, gaps, how valid they are in the context of the care being provided and different business models within long-term care. They were also able to consider carefully whether the standards are assessable or not. Their contribution to the development of the standards will assist in making them more useable.
Establishing a unique, integrated, independent National Health Regulatory Authority (NHRA) in Bahrain: a potential model for healthcare regulation

Alison Reid, Shawqi Ameen, David Wright, Salma Al Derazi

Objective:

Effective regulation provides the foundation for an efficient and high quality healthcare system. Around the world, healthcare regulation tends to be split across multiple agencies, creating difficulties in sharing information and integrating related functions. In time, NHRA may well be considered to be a model regulator as it brings together the regulation of healthcare professionals, healthcare facilities and pharmaceutical products across all sectors in a single, integrated, independent authority. This paper will present the story of NHRA’s genesis, vision and implementation.

Methods:

The establishment of the NHRA is one of a number of important reform initiatives under Bahrain’s National Economic Strategy. The project was conceived with the intention of: (1) strengthening healthcare regulation and extending it to the public as well as the private sector; (2) improving the quality of healthcare provision across all healthcare sectors; and (3) facilitating development and growth in Bahrain, by encouraging greater private sector participation in the provision of healthcare.

The vision for NHRA was of an agency that brings together best practice in regulation across the three functional areas (professionals, facilities and pharmaceuticals) in a single authority that is independent of providers in both the government and private sectors. Previously, regulatory functions were undertaken within the Ministry of Health, which funds and provides public sector facilities and services.

An extensive benchmarking study was undertaken, followed by significant consultation. Legislation was passed to establish the Authority and a Board was appointed. The Board was charged with the responsibility of taking over existing regulatory functions and developing a new regulatory system that applies its rules and regulations equally across all sectors, all in a relatively short time frame. To assist with this task, a team of experienced international partners (International Development Ireland) were engaged to manage the organisation during the transition and develop NHRA’s new regulatory functions. Capacity building is an important aspect of the work of the international partners.

Results:

NHRA is operational and making good progress towards achieving its vision. A functional, matrix-style organisational structure has been approved by the Board and introduced. A new committee structure and governance arrangements are in the process of introduction. Complex transitional arrangements for staff are well under way. The project is monitored by a project management committee which oversees the deliverables contracted with the international partners.

Common systems for the licensing of all healthcare professionals are being implemented, and standards are under revision. Most importantly, there is integration, both organisational and ICT-based between all three functional areas.

Conclusions:

NHRA is set to take its place among international regulators, and its unique regulatory arrangements may, in time, provide a model for healthcare regulation. NHRA will have a significant impact on the delivery of quality care to people in Bahrain as well as encouraging investment and economic development in the country.
Reduction of Medication Incidents after Implementation of a Computerized Physician Order Entry System in an Adult Intensive Care Unit

King-chung Kenny Chan, Sau-yan Simon Leung, Sik-yin McShirley Leung, Wing-wa Yan

Objective:
To evaluate the effects of a Computerized Physician Order Entry (CPOE) system on the incidence of medication error in an adult intensive care unit.

Methods:
It is a longitudinal observational study, before and after CPOE implementation, in a 20-bed mixed, medical-surgical adult general intensive care unit in a tertiary district hospital. Feedback from different staff groups (doctors, nurses & pharmacists) was collected after the implementation of the system.

Results:
The system was implemented in the fourth quarter of 2007. The number of medication incidents in each quarter is shown in the figure below. There were a median of 7 medication incidents per quarter before the implementation of CPOE. The median number of medication incidents was reduced to 1 per quarter after the implementation (p=0.009, Mann-Whitney test). The reduction in prescription error reached statistical significance (p=0.018, Mann-Whitney test), while the reduction in medication administration incidents did not (p=0.484, Mann-Whitney test). Doctors and nurses were generally satisfied with the system. Pharmacists also preferred the CPOE prescriptions as they were presented in a clear and organized manner.

Conclusions:
Implementation of the CPOE was associated with significant improvement in medication safety in an adult intensive care unit. Multidisciplinary coordination was exemplified in the process. A few lessons were learnt with the implementation of the system, including issues in workflow design and new pitfalls with the use of CPOE. The main hurdle was the design of a smooth interface with the Pharmacy Department and with other clinical areas where CPOE was not used.
Are patients participating in symptom management in acute cancer care?

Emma Cohen¹, Mari Botti², Maxine Duke³, Julie Pallant⁴

Objective:
Patient participation is a commonly incorporated concept in primary and chronic healthcare, and although considered one of the key aspects of ‘patient-centred care’ in acute care environments, its integration into daily practice is not well understood (Longtin et al. 2010). In particular, there are few measures with proven clinical utility in measuring patient preference for participation, nor are there established indicators of patient participation. The objective of this project was to explore current practice in cancer care to determine whether patient preference for participation is elicited, and whether actual participation is evident in symptom management and documentation of care delivery.

Methods:
A single case study (one institution) with multi-method data collection approach was used. Data collection methods included patient survey, nurse interviews, focus group interviews, medical record audit and naturalistic observation.

Patients (N=171) were interviewed, using the Memorial Symptom Assessment Scale (MSAS) and semi-structured questions about their symptoms and preference for participation, including the five role statements of the Control Preference Scale (CPS). In this paper, data derived from the patient survey and medical record audit are presented with the purpose of identifying 1) patient preference for participation, 2) the use of symptom management medications, 3) evidence of a patient voice in symptom documentation, 4) patient satisfaction with information on symptoms and symptom treatment.

171 patients with a diagnosis of cancer were recruited after 48 hours of admission to an acute oncology and haematology ward. Participants were male (113) and female (58), aged 53.7(SD15.4) years. Patients had a high symptom burden with a mean of 12.1 (SD4.9) symptoms experienced in the previous 24 hours.

Results:
Patients’ preference for participation was variable. Using the CPS, 7.6% of patients preferred total control of symptom management decision making (active), 58.3% wanted to collaborate with clinicians in some form. Almost one third (29.8%) wanted their clinicians to make all decisions (passive).

Patients had 6.3 (SD 3.0) symptom medications prescribed, and received 49.1% of all available symptom medications (fixed dosing and PRN); 33.2% of available PRN symptom medications were administered. All patients had high symptom burden, but preference for participation did not influence administration of PRN medications (H (4) = 4.6, p=.33).

Only one third (37.3%) of the symptoms reported by patients on the MSAS were documented in the medical record. 21.6% of symptoms documented were inconsistent with patient reports. Symptoms were primarily (> 75%) described in terms of presence or absence; medical records were largely devoid of patient voice (<10%) i.e. symptom description or preferences for symptom management. There was no documented evidence that patients had been asked their preference for participation.

Patients with a preference for active participation were most likely to be dissatisfied with information provided about their symptoms (40%) and symptom treatment (30%). Patients who preferred passive participation were satisfied with the information they had received (100%).

Conclusions:
Patients’ preference for participation in symptom care was investigated in the context of high symptom burden. Despite variability in patients’ reported preference for participation, there was no evidence that this preference was assessed by clinicians, nor was there evidence that preference for participation influenced the use of PRN symptom medications. The finding that patients with a preference for active participation were more dissatisfied with the information they received suggests that they may use information to assist them to participate and this should be investigated further. The lack of documented patient preference and patient voice suggests that patient participation is not an explicit priority of acute cancer care in the cohort investigated.

References:
Modelling patient risk and vulnerability: a spatial approach

Hamish Robertson¹, Nick Nicholas¹, Joanne Travaglia²

Objective:
To develop a model of population-level social vulnerability and risk factors using spatial science methods.

Method:
The last two decades have seen a concerted attempt to estimate the rate and types of errors and adverse events in healthcare systems across the globe. Much less is known, in comparison, about the relative risk of errors: that is, whether and to what degree, certain groups or populations are at higher risk of experiencing iatrogenic harm.

In order to address this situation, we developed a model for weighting and estimating the risk profile of population groups. We identified variables for the model from three sources: the general peer-reviewed literature on error risk; available literature pertaining to relative risk of population groups (including women, the elderly, immigrants and refugees, Indigenous groups and people with lower socio-economic status); and the findings of key international patient-safety inquiries.

We then tested our model on a number of specific scenarios such as high risk levels associated with low SES, high aged and non-English-speaking and/or Indigenous populations, versus high SES, lower aged, high English-speaking and a number of intermediate scenarios. We utilised standard geographic information software (GIS) to map each scenario, cross-checking the characteristics of vulnerable populations against other existing measures such as the SEIFA (the Australia socio-economic index of areas) index produced by the Australia Bureau of Statistics. This provided us with a series of maps of the outcomes, which in turn allow us to analyse and discuss our modelled geography of metropolitan patient-safety vulnerability. Our third and final step was to enhance the visualisation of this social model by reproducing the results in a Google Earth environment.

Results:
We report here on our findings of population level differentials of a metropolitan population, within a primary care service context. We found that the model allowed for a) the visualisation of quantified estimates of the vulnerable population including numbers of people, population characteristics and locations: and b) the development of a platform for exploring and developing our understanding of the concept of social vulnerability in patient-safety epidemiology and patient-safety geography. This two-fold approach opens discussion about the modelling of patient vulnerability, advancing patient-safety epidemiology, and using a common spatial approach to engage a wide audience.

Conclusions:
This modelling exercise illustrates that it is possible to quantify, estimate and map the vulnerable population most at risk of adverse events in primary and acute care settings. This project is a pilot project for an expanded approach to using GIS and other spatial methods in patient-safety epidemiology. The methods used provide a platform for cross-jurisdictional research and redesign processes. This study is unique, in our experience, and offers a significant contribution to the development of patient-safety science and the quantification and visualisation of population risk factors.

References:


From Patient Satisfaction Survey to Patient Engagement for Quality Improvement

Pauline Wong

Objective:
To establish a quality improvement and patient engagement mechanism as a result of the Patient Satisfaction Survey.

Experience of patients is a key feature of quality improvement in modern healthcare delivery. The first Hong Kong Hospital Authority (HA) Patient Satisfaction Survey (PSS) for 5,000 discharged patients was successfully launched during the period from June to October 2010, and the results reported to the public in March 2011. It is the first PSS of such scale in Hong Kong and any Chinese community in Asia, aimed at proactive engagement of patients and the monitoring of health services - how much the rendered care is aligned with patients’ expectations, value, preferences and needs in the patients’ journey.

The HA’s PSS measures the following dimensions and elements of healthcare delivery:

a) Prompt access: Clinical staff response time; Emergency & planning in advance admission procedure.

b) Information and Education: Condition, treatment and procedure, medicines & information after discharge from hospital.

c) Care and involvement in decision making: Answers to question; Confidence and trust; Involvement in decision; Opportunity to talk to doctors/nurses; Willingness to listen.

d) Physical and emotional needs: Help to control pain; Staff’s attitude; Care of patient’s worries and fears.

e) Co-ordination of Care: Co-ordination & arrangement for discharge and follow up.

f) Respect and Privacy: Respect and privacy when being examined or treated, and during discussion of condition or treatment.

g) Environment and facilities: Food; Cleanliness of physical setting; Comfort in hospital ward; Safety and Security.

h) Handling dissatisfaction: Availability of and accessibility to complaint mechanism; Staff, response and handling of problems.

i) Overall satisfaction

Results:
As a result of the PSS, the Hong Kong HA has constructed a structured quality improvement and patient engagement mechanism (see powerpoint slide attached) to identify areas for service improvement to help the HA move towards its mission of providing quality patient-centred care.

Conclusions:
The PSS project has fully achieved its objectives. It has marked the beginning of a new era in proactive patient engagement for quality improvement in Hong Kong. It also pointed out the directions and assisted the HA in developing long term corporate strategies, initiative, programmes and activities on **quality improvement and patient engagement**. Actions are targeted at areas with survey findings (from patients’ perspective) of: (1) Low Score; (2) Great Variation; (3) Maximum Score Desired; and (4) Counterintuitive.
All Oncology patients in Ward 48 will receive timely administration of their medication thereby enhancing the effective treatment of patients

Rathidevi Thirunavu, Annie Lau, Swee Mui Hone, Mariana Bte Osman

Objective:
The JAZZ team was formed with the mission to reduce the delay in serving medication on time, and to ensure that all Oncology patients will have their medication served in a timely manner. There has been a low compliance rate of patients consuming medication on time, due to various reasons, in an Oncology in-patient ward; hence we believe that this project is important in improving the process of medication serving for both patients and staff.

“Within 6 months all Oncology patients in Ward 48 will receive timely administration of their medication”.

Our team had set a target of 100 % for the serving of medication to all Oncology patients, which is in line with the organisational goal of reducing Medication errors. It is also benchmarked against the Hug Hospital in Geneva.

A delay in serving of medication will negatively impact patients' treatment in the hospital. It will prolong treatment plans, hospitalisation, increase the cost of the medical bill, and if the patient's condition deteriorates as a result of a delay in serving medication, the consequences could be fatal.

Methods:
Through brainstorming, the team identified the 6 main reasons why there is a delay in serving medication to patients. However, one reason has already been resolved through the use of a medication vest during medication serving.

Using the 80/20 rule of the Pareto Chart, the vital few causes which were responsible for 80% of the problems were identified as the following 5: a) staff forgot to serve drug /follow up, b) staff were not used to medication routine, c) doctors are too busy, d) patient forgot to take, e) patient's condition changes

The Serendipity Technique, and the Delphi Technique for creative ideas were converted into solutions. Based on Matrix tree diagram finalized solutions were a Medication bookmark with “Oral / IV medication to follow up” message indication and plastic pocket to write what to do in book mark, flipchart and hanging signage of medication picture with following message, and stated 7 rights of medication with attractive colours as a reminder for the nurses of ward 48 to serve medication on time. Stages of improvement carried out by PDCA cycles. The nurses used these solutions in a few PDCA cycles and the delay in serving of medication had been reduced with fine-tuning the project to suit the ward setting process and make it more user-friendly. The nurses were briefed on the purpose of the study, outcome, storage and care of the using of book mark, flipchart and hanging signage. Patients and relatives were also provided orientation upon admission and this was reinforced when required. Nurses have to apply when medication need to follow up.

Results:
There was a significant 100% improvement shown in the Oncology Ward. It has resulted in decreased medication error, prevention of delay in treatment, increased nurses' job satisfaction, patient's safety and improved hospital image. The standard of new practice was introduced to all staff including new nurses and doctors and implemented in the ward. Jazz team conducted random audit for compliance rate to the new practices and obtained feedback for further improvement. The Jazz team monitored the practices and analyzed the feedback that surfaced.

Conclusions:
Patients' safety is of paramount importance to the organization and it helps to promote safe treatment to patients. Job satisfaction will increase and staff turnover rate will decrease. Morale and self-esteem of staff will also increase. This will allow the nurses to feel that they are making a difference to the success of the organization completing the QIP project successfully.
A national strategy for promoting empowerment in healthcare: the “Good Practices Cycle”

Giovanni Caracci, Sara Carzaniga, Beatrice Cerilli, Fulvio Moirano

Objective:
To promote the health of Italian citizens and improve the equity of the healthcare system by fostering a national strategy aimed at developing control, critical awareness and participation of citizens and patients at the individual, organizational and community levels.

Methods:
The National Agency for Regional Healthcare Services (Agenas) has the mission of supporting the Ministry of Health and the 21 Regional Health Care Systems to promote and encourage the implementation of shared policies. On the strength of the experience gained in the field of Patient Safety, it has activated a top-down/bottom-up program to disseminate the “Good Practices Cycle” for empowerment among the healthcare organizations and professionals. This Cycle is a cognitive model of intervention and improvement divided into recursive actions (fig.1), as listed below:

- Sharing models and tools
- Identification and collection of Good Practices
- Dissemination/information
- Monitoring and promoting transfer

In 2008, Agenas and regional experts formed a national coordination structure to adopt a shared multilevel (national, regional, local) action program based on knowledge network and dissemination of innovation theories.

Results:
All the above phases of the “Good Practices Cycle” have been implemented in 14 regions. In particular, in the last two years we have achieved:

- Dissemination of the model and the experiences we have gathered at the international, national and regional levels through information/training workshops which saw the participation of all the stakeholders (among them more than 1000 professionals);
- Creation of an online database where 71 excellent regional experiences of empowerment have been collected (40 attaining individual empowerment, 21 organizational, 20 community);
- Inter-regional transference of one such initiative of organizational empowerment, selected based on cost-benefit criteria.

Conclusions:
Empowerment is an essential strategic element for equity, quality and sustainability of universal coverage healthcare systems. The national strategy implemented in Italy for the last three years proved to be effective in fostering knowledge and promoting actions. Sharing a methodological framework, and the tools for data-gathering based on literature, we managed to transfer knowledge and promote - through an action-research project - the first inter-regional transference of an intervention of organizational empowerment in the field of mental health. We believe the Italian experience could be of relevance for other healthcare systems to encourage the adoption of national strategies in this field.


Waiting Time Reduction of Ophthalmology Outpatients using Six Sigma Strategy

Haewon Chung, Joon Young Hyon, Hyun A Lee, Tae Woo Kim

Objective:
Patients visiting the ophthalmology outpatient clinic at our hospital have the longest wait and throughput times. This resulted in lower patient satisfaction and complaints, with some even demanding payment refunds for being exhausted after waiting their turn. Due to these issues, we decided to solve the problem by searching for the fundamental causes and utilizing the Six Sigma Strategy.

Methods:
This project was conducted according to the DMAIC process of the Six Sigma strategy. During the definition phase, we investigated the waiting times of all outpatients for a year, which were measured based on the appointment and arrival time of patients, and the completed time of doctor’s prescription by using the clinical data warehouse of Bestcare, the electronic medical record solution at our hospital. We also measured the average waiting time, sigma level, and DPMO (defects per million opportunities) through utilizing the statistic program Minitab, and found 43 minutes for average waiting times, 723.018 DPMO and the sigma level was 0.96.

In the measurement phase, we surveyed patients’ satisfaction, lead times and problems in each process of treatments using 200 selected patients, and identified the problem causes by using questionnaires and a brainstorming process.

As part of the analysis steps, we needed to verify each identified cause to see whether these were related to waiting times. At this point, we drew 5 main causes which were; complex process for treatments, inadequate treatment standards on same day reservation, insufficient notification system, the number of irregular patient appointments and lastly, mixed waiting areas between examination rooms and consultation rooms.

These causes were focused on in the improvement phase to come up with effective solutions, and 8 improvements have been made as follows:

1. A simplified treatment process; we combined the process of baseline history-taking and preliminary examination before treatment, or dispensed with them.

Examination procedures which did not need prerequisite reservation were changed to a system with reservation at designated times.

2. Setting up specific standards on instant examination (same day reservation), registrations without reservation or instant request for treatment from other departments.

3. Introduction of a computerized medical record system to replace the paper system and instruction sheet developments regarding treatment.

4. Introduction of a caller system for waiting patients, modification of mobile text messaging service.

5. Splittting crowded departments into two departments and dispersing concentrated reservations in order not to exceed patients reserved at each time slot.

6. Installation of electronic display boards in front of examination rooms to notify patients of their turn.

7. Announcing expected waiting times and modification of instruction sheets which were given after the treatments.

8. Rearranging the patient waiting areas.

In the control phase, we developed a maintenance management plan and applied it during the follow-up period.

Results:
During the performing period of this project, waiting times were reduced to 38 minutes, and the six sigma value was 0.9 and DPMO fell to 712,654.

During the follow-up period, it was reduced to an average 33 minutes, which was 10 minutes reduced from what it used to be, even though more than 11,000 patients have increased for a year, 10 minutes were shortened. At this point, the six sigma value increased to 1.4 σ and DPMO fell to 603,186.

Conclusions:
Through these procedures, it was sufficient to change our medical staffs’ mind into a patient-oriented way.

We will also enhance monitoring to optimize the work process and learn how to interact with patients on a regular basis by having a workshop to keep improving patient satisfaction, so that we could be the friendliest clinic in our hospital.
Job satisfaction of workers in healthcare facilities in Serbia, 2006-2010

Vesna Korac, Vesna Horozovic, Mirjana Zivkovic Sulovic, Milena Vasic

Objective:

To compare job satisfaction levels among workers employed at public health institutions from 2006 until 2010. Knowledge of job satisfaction of healthcare staff is of interest to managers, patients, politicians, health administrators, and healthcare workers alike.

Method:

Research was conducted as a cross-sectional study, a one-day sample of all present at work employees, in all public healthcare facilities in Republic of Serbia. The satisfaction questionnaires, containing 24 items, were self-administered, anonymous and filled in on a voluntary basis. Overall satisfaction was measured using a five-point ordinal scale, ranging from very satisfied to very dissatisfied. The total sample included approximately 70,000 respondents each year. The response rate has been around 80%.

Results:

In regard to occupation, healthcare workers comprise over 75% of all employees, between 4 and 5% are healthcare associates, around 7.5% are administrative staff and over 12% are technical staff. Since 2006, overall satisfaction has increased steadily until 2008. In 2006, 38% were satisfied and very satisfied, in 2007 that percentage rose to 45.8% and in 2008 it was 51%. In the years 2009 and 2010 we have observed a slight decrease in satisfied employees. Unlike the constant percentage of satisfied, there were differences in regard to dissatisfied and very dissatisfied employees over the years. In 2006 there was 23%, in 2007 18.2%, in 2008 16.1% but this percentage increases from 2009, when there was 17% dissatisfied, and 18% in 2010.

The study of satisfaction levels with different job characteristics shows that respondents were most satisfied with their relationship with colleagues, adequate time to do the job, organizational aspects of work and freedom to choose their own method of work, while compensation, possibilities for continuous education, possibilities for professional development and equipment with which they work, turned to be causing the highest dissatisfaction among workers in healthcare institutions in Serbia. It is very important that the dissatisfaction levels concerning possibilities for continuous education have steadily decreased from 50.5% in 2006, to 28.5% in 2010. Similarly, dissatisfaction with professional development has decreased from 48.9% in 2006 to 27.3% in 2010. Comparing satisfaction levels among employees in different types of healthcare facilities has shown that primary healthcare workers have been most satisfied from 2006 until 2008, when employees in general hospitals became the most satisfied workers. From 2006, the least satisfied are employees working in tertiary healthcare facilities, primarily located in Belgrade. In relation to job change, there is a decrease in respondents, from 2006 (43%) who stated that they do not consider changing their job, compared to 2010 (38%). There has been a decrease in the percentage of respondents who considered a change of their job for a private enterprise, in 2006 - 7%, and in 2010 - 4%. Similarly, there is a decrease in respondents who planned to leave the healthcare system completely, in 2006 - 14%, and in 2010 - 9%. Finally, the percentage of healthcare staff who plan to stay in a public healthcare facility has steadily increased from 36% in 2006, to 49% in 2010.

Conclusions:

Trends and differences in satisfaction levels during the last five years have shown the responsiveness of healthcare staff to changes introduced in healthcare policy, as well as to the social and economic changes in the country.
An Evaluation of the quality of oral anticoagulation management in an outpatient pharmacist-assisted clinic

Yi Feng Lai, Ming Chai Kong, Fiona Tee, YH Chan

Objective:
To evaluate the quality of oral anticoagulation therapy (QoAT) and related services, 9 years after the transition from a physician-only Anticoagulation Clinic (ACC) to a hybrid physician-pharmacist ACC in Singapore General Hospital, Singapore.

Method:
Quality of anticoagulation management in ACC can be measured in 3 ways. Firstly, percentage time International Normalized Ratio (INR) within therapeutic range; secondly, percentage of patients hospitalized due to bleeding and thrombosis; finally, patients’ satisfaction with, and feedback on the ACC service provided.

Time-within-therapeutic range (TTR) of all ACC attendance, and thrombotic and bleeding events were studied 1 year before (Y0) and 9 years consecutively after (Y1-9) the introduction of pharmacists into the ACC. Data from each year were collected retrospectively and analyzed independently as separate cohorts. Patient cohorts’ hospitalization events related to complications of anticoagulation – including bleeding and thrombosis events – within each study period, were also recorded as secondary outcomes. Finally, 3 surveys were employed to evaluate the extent of patients’ understanding of anticoagulation and their perception towards our clinic services within Y1-9.

Results:
Marked improvement in QoAT has been observed over the last 9 years with the hybrid physician-pharmacist model. In Y9 (Sept 2009-Aug 2010) with 532 patients, 66.30% of patient days within the study period were found to be within TTR, with 6 cases (1.13%) of major bleeding, 10 cases (1.88%) of minor bleeding and 1 case (0.19%) of thrombosis. TTR had improved from 44.78% in Y0 with 111 patients, with a positive increment every year from Y1 to Y8. Comparing against previous study periods, our QoAT had seemingly reached a plateau in Y7-9. A spike in bleeding events in Y9 was observed, which was found to be mainly contributed to by complications from concomitant disease states, unlike in earlier years where there were more drug-related issues such as drug interactions. Besides, hospitalization events documented in the earlier years were small and potentially under-reported.

From our survey, it was found that some patients today still lack good understanding of International Normalized Ratio (INR). It was also found that patients were generally concerned about the cost of new drugs and treatment modalities, and long waiting time during hospital visits. Otherwise, our patients were generally satisfied with our clinic services.

Conclusions:
A physician-only ACC has been successfully transitioned into a hybrid pharmacist-assisted ACC, with improved measurable outcomes and minimal safety concerns via a regimented training and supervisory framework that complies with regulatory requirements in our practice.
Using Continuous Motion Sensing Technology as a Nursing Monitoring and Alerting Tool to Prevent In-hospital Development of Pressure Ulcers

Eyal Zimlichman¹, Harvey Brown², Howard Amital³, Yehuda Shoenfeld⁴

Objective:
To perform initial validation of a continuous motion monitoring technology that can potentially be used as a risk assessment tool to determine risk for developing pressure ulcers (PU), and perform a clinical pilot that would assess the effectiveness of such a tool in preventing the development of PU.

Methods:
We have used the EverOn™ system (Earlysense LTD) as a bed movement and activity monitor. The EverOn is a contactless continuous measurement system based on a piezoelectric sensor that is placed under the patient’s mattress, which was validated previously as a respiratory rate and heart rate monitor¹. Phase one was a non-interventional study performed in two medicine units, in which we aimed to evaluate the EverOn’s mobility level as a risk assessment tool by comparing it to the Norton PU risk-assessment scale in a hospital setting. Recorded movement data from enrolled patients were retrospectively analyzed and patients were assigned a motion level score. Motion scores for the first night of hospitalization were correlated with the Norton scale as calculated per patient on admission.

In phase two of this study, we evaluated the implementation of the monitoring device in a 33-bed medical-surgical unit. Each bed was equipped with an EverOn unit that continuously monitored pulse rate, breathing rate, movement rate, and bed occupancy, and alerted the nurses for the need for patient turns. Alerts were delivered both through a central display station connected to the bed units via a wired LAN, and through nurse pagers. We collected patients’ demographic data, Braden PU risk-assessment scores, and reports on development of PU for a 4-month pre-implementation phase and a follow up of 6 months post implementation. We also conducted a nursing satisfaction and perception survey related to the technology.

Results:
Overall, 116 patients were included in phase one of the study. Motion score was significantly different between the PU risk groups as determined by the Norton scale (10.7±6.2 for low risk, 5.4±4.9 for intermediate and 1.6±3.2 for high risk, p<0.01). Using the Norton scale as a gold standard to define high risk for developing PU (<14), the sensitivity of the motion score was 85% and the specificity 93%. In phase two of the study, we have compared 666 patients in the pre-implementation period with 993 patients post-implementation. Patient groups were similar in terms of age, gender and acuity level. Although Braden scores were higher in the pre-implementation phase (19±2.9 vs. 18.0±3.0), this difference has no clinical significance. Comparing the outcomes in the two periods, we have found a significant reduction of 60.7% in the incidence of new PU from 1.4% (9/666) pre-implementation to 0.5% (5/993) post-implementation (P<0.05). Of 41 staff nurses who routinely worked on the floor with the devices, 88.0% agreed that the turn alerts help nurses to reduce the risk of pressure ulcers, and 84.6% were overall highly satisfied working with the device.

Conclusions:
a) The EverOn monitor can continuously detect and alert for patients at high risk of developing PU.
b) Our preliminary clinical data show that introducing the EverOn in a hospital floor setting can reduce PU incidence.
c) Future large scale studies should re-examine the effectiveness of this technology and explore how best to integrate it into the nurse’s work flow.

Accreditation of Nurse Clinic: a Respiratory Nurse Clinic in a public hospital in Hong Kong.

Shu Wah Steve NG, Chung Leung Henry POON, Yuk Yin CHONG, Wai Yee TSANG

Objective:
To ensure quality of service in the Respiratory Nurse Clinic. HA nurse clinics have demonstrated nurses’ commitment to the provision of quality client care. To formally recognize the contribution of nurse clinics, and to assure service quality, HA supported the initiative of accrediting nurse clinics in the past decade under the accreditation mechanism of HA Nurse Clinic. A Respiratory Nurse Clinic has been established since November 2009 to provide Respiratory Nursing Services in United Christian Hospital in Hong Kong. In this article, the journey of a respiratory nurse clinic accreditation is shared.

Methodology:
The mechanism of HA Nurse Clinic accreditation consists of the accreditation structure and the accreditation process.

Accreditation structure: There are two professional groups constituting the backbone structure for accreditation, namely the accreditation panel and the assessment, and the site visit working group. Their functions include reviewing the scope, accrediting against established criteria, and recommending improvement measures for the nurse clinic.

Accreditation process: The process consists of three phases, namely assessment, site visit by two authorized surveyors and review, and notification. The accredited period of a nurse clinic would be five years. According to the guidelines on Accreditation of HA Nurse Clinic 2010, the accreditation criteria include: a.) Formalized and structured healthcare delivery mode, b.) Advanced nursing competence, c.) Nurse functions independence, d.) Supported by multi-disciplinary team, e.) Key interventions are nursing therapeutics and f.) Holistic approach.

Results:
There were 190 COPD patients recruited between December 2009 and December 2010. First 100 patients with mean age of 74.6 ± 7.2 were analyzed for effectiveness in 3 months before and after joining the clinic. It was statistically significant showing that the number of emergency department attendance was reduced by 40.07% from 5.39 to 3.23 times (P<0.001). Also, the total numbers of unplanned admissions, and the length of stay were reduced by 44.5% from 1.91 to 1.06 (P<0.001) times and 49.5% from 5.81 to 3.05 days (P<0.001) respectively. The average Modified Brog Scale reflecting shortness of breath symptom (from 2.88 to 2.02) and cough frequency was significantly reduced.

Conclusions:
The Respiratory Nurse Clinic could provide quality and effective services. The healthcare utilization and symptoms of the COPD patients was significantly improved after they were under the care of the Respiratory Nurse Clinic.
Project for Using VAP Bundle approach to Reduce Ventilator Associated Pneumonia Incidence Rate in Intensive Care Units

Meei-Liang Lin, Hsin-Yi Liu, Jen-Zon Chen

Objective:
The purpose of the project was to reduce the ventilator associated pneumonia (VAP) incidence rate in intensive care units in order to assure patients’ medical and nursing service quality.

Methods:
This project was conducted in medical and surgical intensive care units of regional teaching hospital. There were 42 beds in total in these two ICUs. According to Taiwan Healthcare Indicator Series (THIS data in our ICUs, the VAP incidence rate was increasing from March 1 to July 31, 2009, the average was high to 6.90‰. Based on the literature review, we discussed the risk factors of VAP that can be resolved. The risk factors needing to be improved included: (1) did not elevate of the head of the bed, (2) extended to use mechanical ventilator, (3) aspirated colonized or infected oropharyngeal or gastrointestinal contents.

In order to resolve these risk factors, the project team reviewed the published evidence-based guidelines for VAP prevention and extracted three components as VAP bundle to reduce VAP incidence rate. The three components of VAP Bundle were: (1) elevation of the head of the bed to 30°–45°, (2) daily ‘sedation vacation’ and daily assessment of readiness to extubate, (3) practicing oral hygiene for patients with 0.2% Chlorhexidine, 3 times per day. This VAP Bundle of project was designed during August to October and implemented from November 1, 2009, to December 31, 2010. For enhancing Ventilator Bundle compliance rates, we designed VAP Bundle checklist as implementation of the VAP Bundle record sheet.

Results:
After following the VAP Bundle implementation, the result showed that the VAP incidence rate had been reduced from 6.90‰ to 4.04‰.

Conclusions:
The result of the project has demonstrated the positive impact of implementation of the VAP Bundle on the reduction of VAP in ICUs. In care aspect, VAP Bundle can be easily grasped by physicians and nurses to care for patients. In administrative aspects, executives can easily monitor whether staff are implementing the care policy or not. We suggest that VAP Bundle can be used as a care strategy for preventing VAP.
Adoption and Implementation of Performance-based Criteria for HIV Services

Amy Stern¹, Rhea Bright¹, Annette Reinisch², David Hales²

Objective:
To assist in developing a globally harmonized set of performance criteria for tracking and improving quality of HIV services, to strengthen in-country capacity to improve quality and health outcomes for five HIV service delivery areas (SDAs): Counseling and Testing (C&T); Care and Treatment (TrT); PMTCT; TB/HIV; and Harm Reduction.

Methods:
USAID and the Global Fund are collaborating to define a globally agreed performance measurement framework to assist in-country facility managers and providers to continuously monitor and evaluate the quality of service of their HIV programs. In the first phase of this project, the Global Fund met with global technical partner organizations such as USAID, UNAIDS, WHO, and UNICEF to develop and identify indicators for the framework. Based on those discussions, 16 proposed performance criteria (PC) and 23 indicators were selected to be field-tested in five countries: one East African country (Country A), one West African country (Country B), one Sub-Saharan African country (Country C), one Southeast Asian country (Country D), and one Eastern European country (Country E). USAID’s Health Care Improvement Project (HCI) is leading the second phase, field testing the proposed PC and indicators from June 2010-February 2011. The proposed PC and indicators were selected from existing data sources to ease implementation and reduce reporting burden. Field tests were designed to assess the feasibility and relevance of the PC and indicators by determining the facility, regional and national levels’ capacity to collect, analyze and report requested data. Quantitative and qualitative data were collected in four to six facilities in each country through retrospective cohort analyses, record abstraction, documentation review, and interviews.

Results:
All of the proposed PC were perceived as “very useful” by facility, sub-national, and national interviewees in Countries A, C, and D. Interviewees in Country B rated the PC as either “very useful” or “useful.” Less than 50% of the proposed PC and indicators, with the exception of TB/HIV are feasible (Table 1).

Table 1: Feasibility of Countries Reporting on Each Proposed Performance Criterion by Service Delivery Area

<table>
<thead>
<tr>
<th>SDA</th>
<th>Counselling &amp; Testing</th>
<th>Care &amp; Treatment</th>
<th>PMTCT</th>
<th>TB/HIV</th>
<th>Harm Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country A</td>
<td>0/2 PC</td>
<td>2/4 PC</td>
<td>1/4 PC</td>
<td>2/2 PC</td>
<td>N/A</td>
</tr>
<tr>
<td>Country B</td>
<td>0/2 PC</td>
<td>3/4 PC</td>
<td>1/4 PC</td>
<td>2/2 PC</td>
<td>N/A</td>
</tr>
<tr>
<td>Country C</td>
<td>0/2 PC</td>
<td>2/4 PC</td>
<td>1/4 PC</td>
<td>2/2 PC</td>
<td>N/A</td>
</tr>
<tr>
<td>Country D</td>
<td>1/2 PC</td>
<td>3/4 PC</td>
<td>2/4 PC</td>
<td>2/2 PC</td>
<td>2/4 PC</td>
</tr>
<tr>
<td>Country E</td>
<td>Field test is underway</td>
<td>Results will be available March 2011</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Conclusions:
The findings indicate that the countries find the PC relevant and necessary for improving the quality of their HIV services. Countries should be able to report on more than 50% of the proposed PC, if the global community supports countries in strengthening tracking systems of inactive patients; restructuring PMTCT systems to enable tracking of HIV-positive women and their exposed infants; harmonizing documentation of services and timely entry of updated patient information; modifying indicators to increase feasibility of reporting on the PC at the facility level; and encourage a monthly cycle of tracking patients, data analyses, and use of data to make decisions.
Objective:

Compare nursing unit level mean scores on a patient safety climate survey (based on components of the AHRQ survey supplemented with a few questions) with reported rates of adverse events, near misses and other safety measures across both hospitals of Mayo Clinic Rochester.

Methods:

A teamwork survey was completed in summer 2008 by inpatient hospital nursing staff in 48 units, including both medical and surgical, general and intensive care units, at an academic medical center comprised of two hospitals. The 68- (Q1-Q68) question survey consisted of nursing satisfaction questions, and questions from the AHRQ Patient Safety Climate Survey. Five dimensions of the AHRQ safety culture were included: Teamwork within units, Management support for patient safety, Overall perception of patient safety, Communications openness, and Teamwork across units. Reported safety events from January-December 2008 were used. Event data was obtained from provider-reported events, infection control, rapid response team/resuscitation calls, and AHRQ patient safety indicators. Adverse events were classified into four categories: near misses, no harm, major harm and any harm. Provider-reported adverse events included equipment events, medication events, falls, skin events and miscellaneous events. To adjust for different size and volume of nursing units, each count was analyzed as a rate. Spearman (S) and Pearson (P) correlations were calculated to determine relationships between nursing unit survey scores and event rates. To control for the large number of assessments, only correlations with a p-value ≤ 0.01 were considered significant. Patient safety indicators and deaths were divided by total number of discharges; all other events were divided by total number of bed-days.

Results:

Response rates were higher among nursing units that had a lower perception of the organization living up to its values. None of the more objective outcomes (All reported events with harm, Patient safety indicators, Deaths with issues, Infection events) had significant associations with any of the individual questions or with the dimension scores available, except that bloodstream infections had a significant positive correlation (S, 0.385, p=0.007) with Q29 (helping within team when busy). Some measures of severity (resuscitation calls, isolation events and days, and deaths) were related to several questions: Resuscitation calls: positively associated (P, 0.390, p=0.006) with Q7 (within dept. work together) and (S, 0.376, p=0.009) Q32 (work in crisis mode). Isolations: negatively associated (S, -0.541, p=0.001) with Q27 (enough staff) and the Overall dimension (S, -0.400, p=0.005). Deaths: negatively associated (S, -0.399, p=0.005) with Q63 (praise and recognition). Rapid Response Team calls were positively associated with Q32 (S, 0.438, p=0.002) and negatively associated with Q27 (S, -0.389, p=0.006).

Falls with harm was the only type of provider-reported harm with significant associations. It was positively associated (S, 0.547, p=0.001) with Q35 (patient safety problems exist) and negatively associated (S, -0.488, p=0.001) with the Overall dimension. There were significant associations with higher reporting of some types of errors without harm and near misses. Equipment events: negatively associated (S, -0.468, p=0.001) with Q18 (support work style differences). Falls with no harm: negatively associated (S, -0.425, p=0.003) with the Overall dimension and positively associated (S, 0.387, p=0.007) with Q12 (cooperation among units). Medication near misses: negatively associated (S, -0.456, p=0.001) with Q19 (communication skills).

Conclusions:

This study shows that at the nursing unit level, variation in mean survey response is associated with several measures related to patient safety. However, some variation may reflect patient disease burden (isolation and resuscitation calls). Other findings were unexpected: More help within the team is associated with higher bloodstream infection rates. Unexpectedly, there were no significant associations with the safety climate dimensions of Teamwork within units, Management support for patient safety and Communications openness.
Developing an Accreditation Program for Primary Care in Lebanon
Lacey Phillips\(^1\), Marty Huynh\(^1\), Sajid Ahmed\(^1\), Randa Hamadeh\(^2\), Mohamed Jawad Khalifeh\(^2\), Walid Ammar\(^2\)

Objective:
The overall objective of this work was to develop an accreditation process for primary care in Lebanon.

Methods:
In late 2009, Accreditation Canada signed a contract with the Ministry of Public Health (MOPH) in Lebanon to develop a primary care accreditation process. This included the development of standards relevant to primary care delivery in Lebanon, which were translated into Arabic. The primary care standards and accreditation process were then evaluated through pilot testing in three primary care centres in the Beirut area, by carrying out the following activities:

- Education sessions – to introduce participants to the primary care standards and accreditation process
- Self-assessment questionnaires – filled out by teams in order to identify their strengths and areas for improvement with respect to the standards
- Onsite visits – carried out by two surveyors who visited each clinic for two days, using the tracer methodology to rate the primary care centres against the standards
- Focus groups and questionnaires – conducted and distributed at the end of the onsite visit in order to gather evaluation feedback on the standards content and accreditation process
- Pilot testing reports – summarizing the results of the onsite surveys and observations made by surveyors

Results:
The results of the evaluation and pilot surveys were presented to the Lebanese MOPH in early 2011. Overall, the feedback on the standards and accreditation process was positive, and specific suggestions for improvements were obtained qualitatively through the focus groups and open-ended questions within the questionnaires (16 respondents). Respondents emphasized how beneficial it was to have the standards in Arabic.

Between 88 and 100% of respondents agreed or strongly agreed that the primary care standards:
- Were easy to read and covered the key quality and safety issues for primary care in Lebanon
- Reflected the range and essence of how primary care services are delivered and integrated with other service providers in Lebanon
- Will drive the primary care field toward excellence

Between 88 and 100% of respondents agreed or strongly agreed that the self-assessment process:
- Helped them understand what they needed to do to prepare for the accreditation process
- Addressed topics that were relevant to their primary care services and quality improvement goals

All respondents agreed or strongly agreed with the following regarding the accreditation process:
- The surveyors provided useful feedback throughout the onsite visit
- The process helped them focus their ongoing quality improvement actions and identify specific areas for quality and safety improvement
- That they would integrate the standards into their regular business practices

Conclusions:
The feedback obtained through the evaluation was used to develop an evaluation report and revise the primary care standards and survey process for the Lebanon MOPH. Specifically, new content was incorporated addressing the laboratory and diagnostic imaging components as well as mental healthcare. The revised standards and survey process will be utilized to conduct education sessions and accreditation readiness assessments within 20 sites in Lebanon through 2011. Further, through the pilot testing process and application of the standards, Accreditation Canada was able to identify and share with the Lebanon MOPH, strengths and areas for improvement with respect to the standards for the three pilot test sites. Overall, participating in the process helped the pilot sites to create a culture of quality and safety and to successfully implement standards that will support ongoing quality improvement.
Theoretical perspectives on pay-for-performance in healthcare

Michael Trisolini

Objective:
This study evaluated theoretical perspectives from economics, sociology, psychology, and organization theory to better understand the limited success of pay-for-performance programs for improving quality of care.

Methods:
Theoretical models and concepts from economics, sociology, psychology, and organization theory were used to assess the opportunities and challenges of pay-for-performance programs for improving quality of care. The different theoretical perspectives were compared and contrasted regarding the ability of pay-for-performance programs to achieve significant improvements in quality of care. An approach for developing a multidisciplinary theoretical perspective was presented.

Results:
Economic models were found to underlie most of the current pay-for-performance programs, but these were found to be too simplistic. They assume direct relationships between financial incentives and provider behaviour change that underestimates the institutional, professional, and organizational complexities of healthcare systems. This likely explains the disappointing performance of many pay-for-performance programs to date.

Sociology emphasizes the strong effects of medical training and the medical profession on physician behaviour. This can mediate or redirect the financial incentives provided by pay-for-performance programs to unintended consequences. However, if pay-for-performance programs can be designed to support medical professional values, they may better support quality improvement efforts.

Psychological theories present a range of motivational factors affecting physicians, including financial motivators but a number of others as well. Intrinsic motivations are especially vulnerable to damage from blunt financial incentives and this can damage quality of care rather than improve it. However, pay-for-performance programs can be designed in ways to support intrinsic motivation and teamwork, which may provide more support for improving quality of care.

Organization theory highlights the complexity of healthcare provider institutions, with multiple layers, varying organizational cultures, unusual ownership models not usually considered in standard economic models, and varying capabilities for change management and quality improvement. These complexities mean that financial incentives aimed at only one organizational layer, or at different organizations with different cultures and capabilities, may have widely varying impacts on quality of care over the different organizations.

Conclusions:
A theoretical model of pay-for-performance requires a breadth of multidisciplinary perspectives: economic, sociological, psychological, and organizational. All of these perspectives include factors that can enhance or impede the impact of pay-for-performance programs on quality of care. This type of situation is familiar in management theory, where “contingency theory” is one of the main viewpoints. Policy makers need to avoid assuming that simple financial incentives will have direct impacts on quality of care, but rather organize pay-for-performance programs differently depending on the policy environment, the nature of the diseases and patients being treated, the degree of physician and non-physician staff teamwork, the organizational culture, and the extent of available health information technology, and other factors. Three examples of practical applications of multidisciplinary perspectives will also be presented.
Trends in safety assurance organizational models and Patient Safety Managers’ (PSMs) competences and profile: an empirical analysis in Italian hospitals.

Elisabetta Trinchero, Manuela Brusoni

Objective:

Research aim is to identify new trends in terms of Italian hospital patient safety assurance organizational models and PSMs’ competences and profile.

Methods:

Analysis has been focused on 54 hospitals in Italian’s Regional Health Boards with a high reputation as far as patient safety is concerned: Emilia-Romagna, Friuli-Venezia-Giulia, Liguria, Lombardia, Piemonte, Toscana, Trento, Veneto. First step, we e-mailed a survey, preceded and followed by a telephone call, to hospital’s sample clinical director to know: (i) patient safety assurance priorities, policy and focus; (ii) patient safety assurance organizational model; (iii) PSMs’ profile, role, and responsibilities; (iv) connection between patient safety assurance and hospital accreditation process. Redemption rate was 24%. Second step, we e-mailed a survey, followed by a telephone call, to the 13 PSMs managers appointed by clinical directors, to know: (i) organizational accountability and power (analysing: job description and responsibilities, main processes affected, main projects or actions or outcomes achieved, tools implemented, resources dedicated); (ii) patient safety staff profile, know-how and competences and educational plans to increase them. Redemption rate was 85%. Sample has a number of beds between 900 and 1500 and staffing between 2400 and 4500, but we had a smaller hospital (200 beds, 650 employees) and a bigger hospital (1700 beds, 5200 employees).

Results:

Main results on “new trends in term of hospital patient safety assurance organizational models” are: (i) patient safety assurance is always one of the hospital CEO’s achievement and a priority issue within the strategic plan, and the accreditation process has been considered synergic to that; (ii) 38% of hospitals have a “risk management and insurance intermediary”; (iii) patient safety management is always related to: clinical risks, hospital-acquired infections, hazardous materials, electro-medical equipment, building security, hospital fire prevention. There isn’t a department that has responsibilities on all/most of these items because clinical units and technical units share them in different units between different hospitals; (iv) 55% of patient safety management units have a budget; (v) 45% of patient safety management units have full-time staff (min 5 people, max 15). In Emilia-Romagna, Liguria, Piemonte and Veneto, PSMs have interfaces within clinical departments, and in Emilia-Romagna, Veneto and Lombardia, have been helped by a multi-professional committee; (v) main patient safety management projects are always focused on implementation of: staff education programs on patient safety; adverse events reporting system; clinical risk prevention tools (time out check list, health records audit), empowering patients tools (patient consensus).

Main results on “PSMs’ competences and profile in Italian hospitals” are: 73% of PSMs have a medical degree, 9% biology degree, 9% economic degree, 9% hasn’t any degree at all. All the physicians started their career in the ward as professionals. All the other profiles started their career in private industry. On Continuous Professional Development issue, 82% of PSMs attended executive education on patient safety, 36% attended to master’s level on patient safety, but 91% think they need more education on technology assessment and professional and organizational liability. No one has a professional certification, but 27% are ISO auditor.

Conclusions:

The role of PSMs is still far away from a specific autonomy, especially as far as education and career development are concerned. Therefore, there is room for new professional skills and roles. Because it is across responsibilities, all the healthcare professions need a baseline education on patient safety, and the PSMs need a continuous professional education on technicalities and change management.
Objective:
To work with health service staff leading improvement programmes to develop 'value statements' to demonstrate how their programmes add value to healthcare services and to society.

Methods:
The majority of healthcare services around the world are facing rising costs and shrinking or, at best, static healthcare budgets. It is, therefore, vital to make the case for the contribution that improvement programmes can make in delivering higher quality services for lower costs. However, being able to identify cost data and real or potential savings is a challenge which takes time and effort from programme and finance staff to provide robust data. Where programmes are not easily able to calculate costs and savings, it is helpful to use the concept of 'value statements' to express the benefits in a quantifiable manner but not necessarily in dollars.

The Health Foundation worked with a range of improvement programmes that are aiming to close the gap between current practice and practice based on best evidence, to articulate all the ways in which the programmes are adding value to their health economies. The project teams found that this was a new way of thinking about their work; a middle way between describing the benefits in terms of clinical outcomes and patients' experience (which they are used to doing), and the struggle to determine true costs of care and to calculate projected savings. The value statements consider aspects such as quantifying how much clinical staff time is saved, how many fewer appointments are needed, what the value of patient time saved may be worth in terms of fewer lost working days, and also projecting long term value preventive care which reduces the need for highly intensive care.

Results:
Value statements were developed to estimate savings, for example for early intervention in kidney disease resulting in better long term management. These included savings across the health economy from reduced admissions to hospital, less invasive and intensive care. For patients and their families the value of the programme included less time off work for patients and carers, and a more active lifestyle for longer.

A programme designed to reduce falls in hospital showed that it added value, as each fall prevented reduces the associated costs of longer hospital stay, additional tests and treatment, staff time in reporting and investigating, as well as the increased care needs of people who may never return to independent living after a fall.

Conclusions:
The formal exercise of developing value statements helped the staff working on improvement programmes to better articulate the benefits and worth of their work. In turn, this enabled them to gain support from other staff in their organisations to put effort into the improvement programmes and to confidently present to Boards and funders with a convincing case for the need for investment of money and staff resources. The value statement approach also broadened the thinking about long term and wider benefits of the improvement programmes, which led to more patient and carer involvement, as the messages about economic and social benefits were, in many cases, more compelling than the previous focus purely on health outcome benefits.