Better Performance and Quality through Focussed Innovation

InfoKids: A transversal and longitudinal Solution enhancing Patients and Caregivers Experience in Emergency Departments by disrupting the Care Process Paradigm

Reforming the Norwegian Healthcare System through the Norwegian Patient Safety Program

The critical Care Quality in Patient Safety can be improved by 17-year Innovative continuous Quality Improvement Program

The 30/30/30 Solution: Reaching new Frontiers of Quality and Safety through an Innovative Lean Six Sigma Approach

Improving maternal Health Perceptions and Outcomes through multiple Interventions: Using the complex adaptive Systems Approach

The Eleven-Year Journey of Manila Doctors Hospital in institutionalizing Climate Change Mitigation Actions

Consorti Sanitari del Garraf (CSG) – Our Way to Efficiency

Initiating and sustaining Lean Management in Healthcare: The King Hussein Cancer Center Experience

Shared Governance: Transforming the nursing Workforce through collective Decision Making

Introducing a multifaceted Approach to improving regional Diabetes Care

Achieving high Reliability through Care Coordination for Patients who require Emergency Surgery

Nationwide Student Health physical Examination in Tuvalu

Abstracts: Français, Español, 中文
HEALTHCARE MANAGEMENT & LEADERSHIP COMPETENCY ASSESSMENT PLATFORM

Promoting enhancement of leadership and managing competencies in healthcare organizations

WHAT IS THERE FOR ME?

- Assess your management and leadership skills
- Benchmark your current level of competencies
- Promote your personal and professional growth

WHO CAN JOIN
The online platform is open to any healthcare professional in a management position

HOW IT WORKS
A globally accessible online tool, free of cost

LANGUAGE
The platform is available in different languages

RULES
Confidentiality, security & protection of information consistent with Swiss regulation and laws

Register to assess your management and leadership skills
http://healthmanagementcompetency.org

WHAT RESULTS WILL I GET?

- Personalized report measuring potential improvement between your professional needs and your current status in management and leadership
- Access to resources to support your continuous professional development
- Compare to your peers within your position, your country, as well as peers around the world
Contents  volume 54 number 2

03 Editorial

05 InfoKids: A transversal and longitudinal Solution enhancing Patients and Caregivers Experience in Emergency Departments by disrupting the Care Process Paradigm
Johan N. Siebert, Frédéric Ehrler, Alain Gervaix

10 Reforming the Norwegian Healthcare System through the Norwegian Patient Safety Program
Anne-Grete Skjellanger

15 The critical Care Quality in Patient Safety can be improved by 17-year innovative continuous Quality Improvement Program
Wei-Chun Huang, Shue-Ren Wann, Chun-Peng Liu

19 The 30/30/30 Solution: Reaching new Frontiers of Quality and Safety through an Innovative Lean Six Sigma Approach
Charles D. Callahan, Todd S. Roberts

22 Improving maternal Health Perceptions and Outcomes through multiple Interventions: Using the complex adaptive Systems Approach
Anupama Shetty

28 The Eleven-Year Journey of Manila Doctors Hospital in institutionalizing Climate Change Mitigation Actions
Jill S. Álvarez, Ren R. Reyes

32 Consorci Sanitari del Garraf (CSG) – Our way to efficiency
Rosa M. Simón, Josep Lluís Ibáñez, Anna Riera

39 Initiating and sustaining lean Management in Healthcare: The King Hussein Cancer Center Experience
Asem H. Mansour, Dana M.K. Nashawati, Majd A. Harnaly

42 Shared Governance: Transforming the nursing Workforce through collective Decision Making
Hoi Shu Yin, Liew Anni Dionne

45 Introducing a multifaceted Approach to improving regional Diabetes Care
Somasundaram Pillay

50 Achieving high Reliability through Care Coordination for Patients who require Emergency Surgery
Sapan S. Desai, John Consentino

55 Nationwide Student Health physical Examination in Tuvalu
Shao-Chuan Wang, Ming-Che Tsai, Chien-Ning Huang

Reference

62 Language abstracts

68 IHF Award Sponsors

69 IHF events calendar

IHF Governing Council members’ profiles can be accessed through the following link: http://www.ihf-fih.org/governing_council

IHF Newsletter is available in http://bit.ly/IHF-Newsletters

World Hospitals and Health Services is listed in Hospital Literature Index, the single most comprehensive index to English language articles on healthcare policy, planning and administration. The index is produced by the American Hospital Association in co-operation with the National Library of Medicine.

The International Hospital Federation (IHF) is an independent non-political and not for profit membership organization promoting better Health for all through well managed and efficient health care facilities delivering safe and high quality to all those that need it. The opinions expressed in this journal are not necessarily those of the International Hospital Federation or Nexo Corporation.
The International Hospital Federation (IHF) is committed to advancing the UHC agenda throughout the world, giving billions of people better access to critical hospital care and basic health services when needed, no matter their income or geographic location in the world. Since its establishment in 1929, the IHF recognizes the essential role of hospitals and health care organizations in providing health care, supporting health services and offering education to health care providers as a critical partner in during the drive for UHC throughout the world.

This volume is a tribute to the renewed effort in achieving “Health for All”

Eric de Roodenbeke, Executive Director
International Hospital Federation Geneva 2018

This book provides a comparative review of financing universal access to healthcare in the Organisation for Economic Co-operation and Development (OECD) countries.

The recent expansion of health insurance coverage in the USA under the Affordable Health Care Act, and current threats to reverse the benefits of this reform, have once again focused the world’s attention on the difficult challenges faced by other countries trying to provide better access to healthcare to their population at an affordable cost.

Amidst this universal challenge, this book is a pioneer in providing a comprehensive synthesis for policy makers on the experiences of countries that have successfully introduced such reforms.

This book is designed as a learning tool for students and user guide for policymakers, including case material and an instructors’ manual as well as sample exam questions. The data analysis of the cost of universal healthcare presented in the book is unique and has not been published before.

672pp May 2018
9789813227163 (hardback) US$158 £139
9789813227194 (ebook for individuals) US$63 £56


Alexander S Preker is a globally recognized expert on health systems development and health policy reform. He has been an advisor to the Ministers of Health and senior policy makers in countries throughout the world on capital investment in the health sector, health financing, health insurance, public-private partnerships and the political process of healthcare reform.

Currently, Professor Preker is an Executive Scholar and Adjunct Associate Professor at Columbia University, New York University and the Icahn School of Medicine at Mt. Sinai in New York.
Innovation and the Hippocratic Oath

ERIC DE ROODENBEKE
CEO
INTERNATIONAL HOSPITAL FEDERATION
BERNEX, GE, SWITZERLAND

ALEXANDER S. PREKER
PRESIDENT AND CEO
HEALTH INVESTMENT & FINANCING CORPORATION
NEW YORK, NY, USA

In this issue of the World Hospitals and Health Services Journal, we once again showcase some of the winners of the International Hospital Federation innovation and recognition awards.

The Hippocratic Oath - one of the most widely known of Greek medical texts - is an oath historically taken by doctors. It requires them to swear, by a number of healing deities, to uphold specific ethical standards.

δένυμι Ἀπόλλωνα ἰητρὸν καὶ Ἀσκληπιόν καὶ Ὑγείαν καὶ Πανάκειαν καὶ θεοὺς πάντας τε καὶ πάσας, ἵστορας ποιεύμενος, ἑπετέλεα ποιήσει κατὰ δύναμιν καὶ κρίσιν ἐμὴν ὅρκον τόνδε καίσαγγραφην τήνδε:

I swear by Apollo the Healer, by Asclepius, by Hygieia, by Panacea and by all the gods and goddesses, making them my witnesses, that I will carry out, according to my ability and judgment, this oath and this indenture.

Two central tenants of the Oath are the principles of medical confidentiality and non-maleficence. “I will use treatment to help the sick according to my ability and judgment, but never with a view to injury and wrong-doing.”

Innovation in health care is therefore double-edged sword. On the one hand innovation requires thinking outside the box, breaking with convention by trial and error - trying new things that might work better but might not. Disruptive technology breaks with convention and tries something radically new that disturbs the existing balance of things. All of this is done in the name of better patient care, improve quality, efficiency, cost savings and many other praiseworthy objectives.

Yet we also know that some of the best clinical outcomes – both surgical and medical - are associated with time-tested interventions, perfection through repetition, and minor incremental improvements at the margins. Like the pianist conducting a “Master Class” the medical apprenticeship approach, is based on the student initially imitating the “Grand Master” not risking patient safety and clinical outcomes though rash new ways of doing things that have not been proven to work.

This is one of the greatest dilemmas in innovation in healthcare – finding better ways to do things but without ever resulting in “injury and wrong-doing.”

In this Issue of the WHHS Journal, Anne-Grete Skjellanger looks at “Reforming the Norwegian Healthcare System through the Norwegian Patient Safety Program”, Wei-Chun Huang looks at “The Eleven Year Journey of Manila Doctors Hospital in Innovation and the Hippocratic Oath spirit by always trying to do better for patients at how “The critical care quality in patient safety can be improved by 17-year innovative continuous quality improvement program”. C. Callahan looks at “The 30/30/30 Solution: Reaching New Frontiers of Quality and Safety through an Innovative Lean Six Sigma Approach.” Anupama Shetty looks at “Improving maternal health perceptions and outcomes through multiple interventions: Using the complex adaptive systems approach”.

Consistent with the “do no harm” principles, Jill Alvarez looks at “The Eleven Year Journey of Manila Doctors Hospital in Institutionalizing Climate Change Mitigation Actions”. In the article, Consorci Sanitari del Garraf (CSG) – Our way to efficiency”, Rosa Simón applies the principles of “learning by doing”.

Improved outcomes and patient safety is also an underlying concern in the other articles on innovative approaches in this issue of the Journal: “Shared Governance: Transforming the Nursing Workforce through Collective Decision Making” by Hoi Shu Yin; “Introducing a Multifaceted Approach to Improving Regional Diabetes Care” by S. Pillay; “Achieving High Reliability Through Care Coordination for Patients Who Require Emergency Surgery” by Sepan Desai; and a “Nationwide Student Health Physical Examination in Tuvalu” by Shao-Chuan Wang.

The International Hospital Federation is committed to supporting its members and other health care providers more broadly, in this quest for balancing the potential of new and innovative approaches with a concern for improve outcomes and patient safety. The articles in this issue of the WHHS Journal on projects that won awards, demonstrate that the quest for improvement never ends. It is an activity undertaken by many, not just those recognized by the IHF Awards. Everyone engaging in this process should be acknowledged and recognized. For this reason, the IHF website provides a platform that hosts not just those recognized by the IHF Awards. Everyone engaging in this process should be acknowledged and recognized. For this reason, the IHF website provides a platform that hosts projects undertaken by its members in addition to the top recipients of the awards. We hope that this repository of innovative projects will encourage additional efforts in the ongoing quest to improve of health services.

The IHF awards offer to Health service providers a unique opportunity to showcase their achievements and demonstrate that while keeping high level of safety and patient orientation, it is also possible to innovate and make dynamic improvements to health services. The driver for innovation can be found again in Hippocratic Oath spirit by always trying to do better for patients while mitigating associated risks.
Strengthen Your Leadership With ACHE

Expand your global resources, knowledge and connections as an International Associate of ACHE. Join the 40,000 healthcare leaders dedicated to improving health.

CONNECT
Expand your professional network by searching the online Member Directory or joining ACHE’s official group on LinkedIn.

LEARN
ACHE offers a rich array of educational resources, cutting-edge research studies and complimentary subscriptions to ACHE’s top-notch publications, including Healthcare Executive magazine and the International Newsletter.

SUCCEED
Achieve your career goals using ACHE’s Career Resource Center, Job Center and career management tools, including ACHE Interview Prep Tool.

ADVANCE
International Associates interested in advancing to ACHE Fellow status can do so by converting to Member status before submitting a Fellow application, in addition to meeting other application requirements.

LEAD
Take advantage of ACHE’s tools and resources that enable you to take on a significant leadership role in your organization and field.

Healthcare executives employed outside of the United States (excluding U.S. military) are eligible for International Associate status. Annual dues are $150 (U.S.) and are prorated based on the month you join.

Strengthen your leadership and join ACHE today at ache.org/Join/International
Introduction

Emergency departments (ED) are as the front line of care for millions of ill and injured patients worldwide. This is often the first contact point for patients with the healthcare institution and thus a showcase of its efficiency. Unfortunately, the specific nature of the patient’s journey in ED confronts them to several difficulties. This journey can be divided into three stages; before the consultation (Pre), during the consultation (Per) and after it (Post). At each stage, patients and caregivers encounter specific difficulties that can be alleviated to improve everyone’s experience.

Pre-consultation stage

When sick patients are distressed at home, they look for brief and reliable information about their diseases. Many of them use the World Wide Web as an initial resource to obtain medical information (Diaz et al., 2002; McMullan, 2006). The information gathered through this medium is often inaccurate, unreliable, not evidence-based, and may lead to delayed medical visits or wrong therapeutic attitudes. Moreover, patients want to find out where to get medical assistance and to know the anticipated delays before being seen by a physician (Boudreaux et al., 2003). At the ED, although patients’ arrivals are hardly predictable, anticipating their venue would offer a strong advantage in terms of allocation of resources.

Per-consultation stage

There is a strong pressure from public and institutional leaders to alleviate overcrowding and long waiting times experienced in ED (Mohiuddin et al., 2017). Overcrowding due to non-urgent visits negatively impacts the quality of care and patient safety (prolonged waiting times, delays in diagnosis and treatment, delays in treating seriously ill patients, medication errors). It also affects costs of care and patients’ satisfaction. For the hospitals, crowding results in loss of revenue from patients who leave without being seen, from EDs diversion secondary to dissatisfaction among patients, and from shifting of the market share to competitors (Stead et al., 2009). Moreover, overcrowding exposes ED staff to stressful and unpredictable work-related events, resulting in decreased productivity and increased turnover (Arora et al., 2013; Adriaenssens et al., 2015).

ABSTRACT: Nowadays, citizens are little supported to decide whether they should consult Emergency Departments (ED) in case of illness or trauma. Moreover, once in ED, they often must deal with overcrowding, long waiting times, the acute nature of the visits, administrative data management, and a lack of follow-up after the visit. This situation could be improved by delivering a more patient-centered experience. To address these problems, we have developed an e-health solution connecting patients, caregivers, and administrative clerks through an integrated solution made up of web and mobile applications. This innovative system is intended to support the entire emergency care process, facilitating the caregiver and administrative work and supporting patients before, during, and after their ED consultations. In this article, we describe this solution, which is currently used by a tertiary hospital in a catchment area of over 1 million people, in the context of growing public expectations for user-centered care.
Post-consultation stage

Many patients are discharged from the ED without clearly understanding how to care for themselves or relatives at home safely and how to recognize symptoms needing consultation (Engel et al., 2012). There is growing emphasis on the importance of information delivery at ED discharge and its downstream implications for adherence and outcomes (Engel et al., 2012). Insufficient discharge information can cause a serious breakdown in the continuity of care such as treatment failure, loss of follow-up or unnecessary ED returns, and potential harm to the patient. Instructing patients before they leave the hospital is therefore of prime importance. Unfortunately, the short amount of time devoted to discharge makes it difficult to provide clear instructions. Providing outgoing patients with further discharge information might reinforce patients’ satisfaction and compliance.

To answer the problems identified at the three stages above, we developed InfoKids, an integrated e-health solution composed of three modules connecting patients, caregivers, and administrative clerks through a web and a mobile application. This innovative system is intended to support the entire emergency care process facilitating caregiving and administrative work, as well as to support patients before, during, and after their ED consultations.

Exposition

User-centered development

InfoKids aims to support patient-centered care principles and was developed following a user-centered design. Its development has involved patients, relatives, pediatric emergency physicians, nurses, hospital administrative staff, computer scientists, psychologists, ergonomists and hospital communication officers who worked tightly together. The project was highly supported and promoted by the institution.

The system specifications were identified based on patients’ relatives, emergency physicians, and nurses’ collected needs as well as from observations of caregivers and administrative clerks’ workflow. Semi-structured interviews conducted in the ED helped identify patient needs. Observations were performed to map out a generic patient’s journey (McCarthy et al., 2016; Ehrler et al., 2017; Rochat et al., 2017). We conducted several focus groups involving psychologists, clinicians, and computer scientists to translate the collected needs and observations into functionalities implemented into the system. The interface was designed using hedonic elements to make it more enjoyable and aiming to increase its acceptance.

During the deployment stage, all the staff was involved to understand its role in the new process, and all its concerns were carefully considered. Training was performed to ensure a smooth integration of the system into existing practices.

Supporting the ED process

To our knowledge, InfoKids is the first solution supporting longitudinally and transversally ED by connecting caregivers, administrative clerks, and patients during their whole journey.

Improving organization

The information accessible in the app allows patients to understand their condition better and help them make educated decisions regarding the way to manage it at home and whether it is necessary to consult the ED. Thanks to a decision tree, the app offers patients a unique way to recognize the worrying symptoms that should lead to an emergency consultation (Figure 1). Displaying the ED occupancy in real-time allows patients to consult during least busy periods, allowing a better distribution of visits throughout the day (Figure 2). When a patient decides to consult, he can inform the ED about his arrival with a simple click. Information about patients’ arrival improves organization’s excellence of ED by shifting the paradigm from impromptu influx of patients arriving “at the door” to an anticipated occupation allowing more efficient management of medical resources. This enables to act upstream in the regulation of patients’ flow and overcrowding by more judiciously allocating healthcare resources, such as repartition of caregivers and rooms for consultation.

Reducing overcrowding

Overcrowding is reduced thanks to the possibility for patients with non-urgent conditions to leave the ED temporarily without losing their position in the waiting queue. When appropriate, they are called back by semi-automated phone messages, as soon a physician is available. Reducing waiting room occupation alleviates caregivers’ stress level and workload.

Transfer of information

At the same time, the patient informs the ED of its depar-
ture, and the administrative data, symptoms, chronic disease, allergies, and usual treatments entered by the patient into the app are automatically communicated to the care team (Figure 3). This empowers the patient as the warrantor of the quality of the administrative data stored in the clinical information system. This reduces strongly the risk of patients’ misidentification identified by the American Joint Commission as the first National Patient Safety Goals (Commission, 2018).

Improved follow up

After the visit, the app automatically sends an informative card based on the patient’s self-diagnosis, assuring a personalized follow-up. Each information card offers clear explanations regarding the current condition or trauma, the appropriate treatment, the prerequisites to return to the community and the symptoms that require medical attention. The quality and safety of the app rely on its core information library that was supplied by emeritus pediatric emergency physicians and endorsed by the Geneva University Hospitals and partially based on a pediatric textbook (Galetto-La-
cour and Gervaix, 2015). This offers more reliable and safer medical information than that sought by patients through their own means, mainly on the web. It is also a very good way to create a therapeutic link of trust between the patient and the hospital.

**Improvement in quality of care**

Although formal evidence still lacks due to the newness of the project, improvements in quality of care have been already observed.

**Patient-centered care**

Although benefits for the institution are numerous, the highest benefits are for the patients. They are supported throughout their whole medical journey, from home until return and provides patients with tailored medical information. All these benefits strongly support the patient-centered care paradigm by improving access to care, supporting decision-making, providing information and education, allowing better coordination of care and facilitating continuity and transition.

The app contains educational videos aimed at responding to the most common questions that parents visiting the ED have. Access to care is facilitated thanks to geolocation, guiding patients to the ED. Patients are also emotionally supported by avoiding unrealistic expectation thanks to a real-time view of the waiting room occupation and a forecasted daily occupation (Ehrler et al., 2016). The application involves the family with the possibility to manage the past medical episodes of the whole family. The transition and continuity of care after discharge are improved as a result of diagnosis information cards automatically provided to the user. The connection of the app with the caregivers’ software allows bi-directional communication between the user and the care institution and thus improves the coordination of care.

**Safety of care**

Many features of the system contribute to improved safety of care. Thanks to the access to medical advice at home, patients can make better decisions to deal with their symptoms and deciding whether to consult or not. The transmission of personal administrative data by the patients through the app helps avoid patient identification errors that can disrupt the care process and lead to critical errors, including direct patient harm, diagnostic testing, medication errors, wrong person procedure, or even erroneous billing (Lippi et al., 2017). The transmission of chronic conditions and current treatments by the patients also helps achieve a better overview of the medical situation and avoids the omission of critical information. Finally, the transmission of specific information to the patient after discharge ensures compliance.

**Impact on the institution**

The link between citizens and the healthcare institution

InfoKids creates a direct link between citizens, caregivers, and the healthcare institution. Since it responds to actual needs expressed by citizens, they have warmly welcomed InfoKids. It improves what can be the first encounter between the citizens and the healthcare institution and thus contributes to the improvement of the institutional image. This creates a virtuous circle motivating institutions and healthcare professionals to excel by providing modern state-of-the-art care while integrating patients into the care process.

**Improving institutional image**

The deployment of an innovative system, empowering patients as real partners of their care and supporting them with tailored medical information before, during and after visits to ED, is a way to improve the institutional image among citizens. Since its release on June 2017 on the App store and Google Play store, the app is available for a catchment area around the Geneva University Hospital of over one million people, including portions of the French border. To favor the dissemination of the app among citizens, the app is free, without in-app purchases. No charges are incurred when using this solution.

Finally, InfoKids will help preserve the institutional competitiveness and increase international outreach by providing an innovative and easily scalable solution to other hospitals around the world.

**Conclusion**

InfoKids is the first eHealth patient-centered care solution to support the whole emergency care process facilitating caregiving and administrative work as well as supporting patients before, during, and after ED visits. Being free for end-users, scalable to other hospitals, and customizable, InfoKids is a sustainable and global solution with an anticipated high impact on public health worldwide, including low and middle-income countries.

**Biographies**

**Main authors**

**Dr. Johan N. Siebert**, MD, is a pediatric emergency physician working at the Geneva University Hospitals in Switzerland. Dr. Siebert’s research and work focus on the innovative use of information technology to improve healthcare delivery in pediatric emergency departments and prehospital settings. Apart from InfoKids, Dr. Siebert has also received grant funding to build and pilot an awarded mobile app called PedAMINES to reduce medication errors during pediatric resuscitation (Siebert et al., 2017).

**Dr. Frédéric Ehrler**

PhD in Computer science, working at the University Hospital of Geneva, Frédéric Ehrler leads a team aiming to improve healthcare system using innovative mHealth intervention. He relies on an evidence-based approach, mixing needs identified using user-centered design and state of the art evidence to implement tools compliant with the strictest quality...
standards. The tools are then evaluated formally using scientific methodologies.

Prof. Alain Gervaix, MD, is the Director of the Pediatric Department and Head of the Pediatric Emergency Division at the Geneva University Hospitals in Switzerland. He is the (co-)author of more than 180 peer-reviewed articles focusing mainly on infectiology, use of biomarkers and new technology to improve healthcare delivery in emergency situations.

Other authors
Christian Lovis, MD
Head of Division of Medical Information Sciences

References


Reforming the Norwegian Healthcare System through the Norwegian Patient Safety Program

ANNE-GRETE SKJELLANGER
DIRECTOR OF IMPROVEMENT AND PATIENT SAFETY
DIRECTORATE OF HEALTH
OSLO, NORWAY

ABSTRACT: The Norwegian Patient Safety Program was launched in 2011 with the aim of reducing preventable patient harm, establishing lasting structures for patient safety and improving patient safety culture in the health and care services. Eight years later, the Program is well known in the entire health and care services in Norway. Risk areas have been targeted especially, and both hospitals and primary care work on specific measures. All Norwegian health trusts and hospitals report that they have implemented or are underway with the implementation of all relevant target areas, and 300 of Norway’s 426 municipalities have implemented one or more relevant target areas in one or more of its nursing homes and home care services. About 60 percent of the healthcare professionals experience that the Patient Safety Program has contributed to high levels of patient safety in their unit.

Background

In 2010, patient safety was an unknown term in Norway, and there was a low awareness of how to prevent errors and adverse effects to patients associated with health care. The Norwegian Patient Safety Campaign «In Safe Hands 24-7» was therefore launched with the overall aim to reduce patient harm and improve patient safety in Norway.

The three-year campaign was launched in 2011 by the Norwegian Ministry of Health and Care Services and continued as a five-year Program from 2014. As a result of this, it will be referred to as the Norwegian Patient Safety Program. «In Safe Hands 24-7» works towards three main objectives:

- Reduce preventable patient harm
- Establish lasting structures for patient safety
- Improve patient safety culture in the health and care services

Introduction to the Norwegian health and care services

The Norwegian Patient Safety Program is a national-wide program that applies to all levels of the health and care services. In order to understand its organization, it is necessary to give a short introduction to the Norwegian health and care services. The health and care services are publicly funded and free of charge for the patients. There is a clear distinction between the organization of primary and secondary care:

- Secondary care is organized into four Health Regions, or Health Authorities, funded and lead from the Ministry of Health and Care Services.
- The responsibility for primary care lies at a local governmental level. Norwegian municipalities are atomic unit of local government and responsible for areas such as outpatient health services, senior citizen services, general practitioners and nursing homes.

Selected target areas

The risk areas causing most patient harm have been selected as target areas for the Norwegian Patient Safety Program, such as safe surgery, hospital-acquired infections, medication reconciliation, and prevention of pressure ulcers. Evidence-based interventions were developed to reduce patient harm in all target areas. The interventions were spread to health care personnel in hospitals and primary healthcare through collaborations based on the Breakthrough Series developed by the Institute for Healthcare Improvement (IHI).

The following fifteen areas with high risk of patient harm has been identified:

- Safe surgery, with a particular focus on post-operative infections
- Medication reconciliation
- Medication review in nursing homes
- Medication review in home care services
- Stroke treatment
- Prevention of pressure ulcer
- Prevention of urinary tract infection
- Prevention of central line infection
- Prevention of suicide in inpatient psychiatric units
- Prevention of overdose deaths after discharge from an institution
- Prevention of falls in healthcare institutions
- Early detection and treatment of sepsis
- Early detection of deteriorating patients
- Prevention of malnutrition in institutions
- Leadership of patient safety

Structure of a national program and involvement of stakeholders

The Patient Safety Program has been unique in the Norwegian health and care services as it involves all relevant stakeholders at various levels (Figure 1). There was a broad political consensus to launch the Program, and a broad and representative Steering Committee was appointed. The Steering Committee consists of
directors from the most central institutions in the Norwegian health and care services, such as Norway’s 4 Regional Health Authorities, The Norwegian Association of Local and Regional Authorities, The Norwegian Medical Association and The Norwegian Nurses Organization.

An Advisory Board provides advice on medical and clinical matters. For each target areas, expert groups with relevant clinical experts chose clinical interventions that would contribute most to patient harm prevention. On a local level, the Program has worked closely with Centers for Development of Nursing Homes and Home-Based Care in primary care, and Regional and Local Program Managers in the hospitals.

Healthcare professionals both in the primary and specialist health and care services take part in collaborations and programs on improvement science. The sum of all this is that the Patient Safety Program involves all various sides of the Norwegian health and care services in its efforts.

Building competence

The mission of the Patient Safety Program is to improve patient safety in the Norwegian health and care services. The key element to achieve this has been to increase health care personnel’s competence in improvement science. Improvement science and the Model of improvement is the very essence of the efforts regarding patient safety in Norway. The Program has facilitated several courses, programs and conferences to build competence, attended by several thousand health care personnel. Measurement and collection of data are central and is continually used for quality improvement. In addition to documenting statistically significant improvement, measures will support learning how the interventions are best implemented in the local context through small-scale testing (the PDSA method).

Hospitals and primary healthcare institutions register and monitor interventions and results in all target areas. All improvement teams use Statistical Process Control to track results of local interventions over time. Moreover, all health trusts measure patient harm using the Global Trigger Tool (GTT), and they also measure patient safety culture.

Results

Research shows that it often takes an average of 17 years for new evidence-based findings to reach clinical practice (Balas et. al.). Implementation of specific measures has therefore been central for the Norwegian Patient Safety Program.

It has become mandatory for all Norwegian hospitals to implement the Program’s target areas, and the level of implementation is the most concrete evidence for how patient safety and the focus on prevention of adverse events are continually assured. The results are measured in three different ways (Figure 2):

- Locally, results are measured in a database for statistical process control.
- Nationally, results are presented on a national dashboard compiling the relevant statistics and results for the Norwegian Patient Safety Program.
- Regionally, the Regional Health Authorities register spread of target areas through the number of relevant units working on each target area.

Implementation

Most Norwegian health trusts report that they have implemented or undergoing implementation of all relevant target areas. 67 percent of Norway’s 426 municipalities have implemented one or
more relevant target areas in one or more of its nursing homes and home care services.

Examples of implementation:

- The target area «Safe surgery, with a particular focus on post-operative infections» is implemented in every hospital in Norway, specifically in 79-100 percent of the relevant units.
- The target area «Prevention of urinary tract infection» is implemented in most Norwegian hospitals, in 53-100 percent of the relevant units.

Reduction of patient harm

On a national level, the Norwegian Patient Safety Program aims to reduce preventable patient harm in Norwegian hospitals by 25 percent from 2012 to the end of 2018, measured by the Global Trigger Tool (GTT). Compared to when the survey was conducted for the first time in 2010, the results show a decrease in the proportion of patient stays with at least one injury in all severity levels. Although the decline between 2015 and 2010 is not statistically significant, there is a downward trend over time (Figure 3).

Many healthcare institutions have achieved a significant reduction of patient harm over the last years, for example:

- By working on the target area «Stroke treatment », Telemark Hospital has significantly reduced the time it takes for stroke patients to go from admission to CT. At the most, it took 70 minutes and at the last measurement it only took 3 minutes (Figure 4).
- By working on the target area «Prevention of pressure ulcers», the pulmonary ward at the University Hospital of North Norway has nearly obliterated pressure ulcers. At most, the ward had over 600 days with zero pressure ulcers (Figure 5).

Increasing patient engagement

In a Norwegian context, patient engagement is often referred to as user involvement. User involvement in the Patient Safety Program means that patients and users are actively involved in efforts related to patient safety and that their knowledge and experience are used to reduce the risk of adverse events. Thus, specific measures to ensure user involvement are an integrated part of the target areas.

The Patient Safety Program has created several tools for patient engagement.
engagement, after suggestions from patients themselves. One such example is the «Rounds chair» (Figure 6), which is a chair used by doctors during the rounds. It was created on the grounds of patients reporting feeling it was impersonal when the doctor stood over them at the bedside without being on eye-level. The measure has become extremely popular in the health and care service, and the demand for chairs is record-high.

The Patient Safety Program has also created an information campaign called «Just ask!». It is based on a booklet (Figure 7) that encourages patients to ask questions and provide important information when meeting healthcare professionals. Several Norwegian hospitals have run the campaign, and the feedback from
patients has been positive. Furthermore, the Patient Safety Program is organizing collaboration specifically on user involvement to increase awareness and measures for user involvement. The aim is to get teams from both nursing homes and hospitals to improve their communication through specific measures.

Achievements in the Health and Care Services

The Norwegian Patient Safety Program has been innovative within the Norwegian Health and Care Services. Through the selection of high-risk target areas, improvement science has been used to achieve results. The effect of this is that the methods are now used in several areas, not just concerning quality and patient safety.

Thousands of Norwegian health care professionals have participated in the Campaign and Program through collaborations, courses, and campaigns. Their feedback is that the target areas, improvement science and method of implementation are relevant and useful. The majority of healthcare professionals find that activities under the Patient Safety Program help increase patient safety in Norway.

To illustrate, a medical doctor once stated:

«I have never been as proud as a medical doctor. During 30 years of working in hospitals, I experienced that we repeated the same mistakes over and over again. Through the structured medication reviews in the Patient Safety Campaign, we learn from our mistakes, we cooperate well in teams, and our patients feel better»

Some achievements of the Norwegian Patient Safety Program:

- Involvement of all relevant stakeholders. Clear indication that the efforts have the support of the whole health and care service.
- Establishment of a new and unique survey of patient safety culture and work environment.
- Establishment of new, national courses and programs to build competence in improvement science, such as Improvement Science for Medical Doctors.
- Establishment of several local and regional programs.
- Thousands of healthcare professionals have participated in the Program’s collaborations, courses and programs over the years.

- Establishment of «Patient and User Safe Municipalities» - and effort where a whole municipality is equipped to improve patient safety at all levels in the primary healthcare.

Conclusion

The Norwegian Patient Safety Program has been innovative and ambitious in many terms. First and foremost because it is a national Program. Secondly, because it applies to both hospitals and primary care, meaning that both patients in hospitals, residents in nursing homes and home-based care are affected. Thirdly because, as we are aware of, no other country runs national surveys of patient harm using the Global Trigger Tool (GTT) and national surveys of patient safety culture.

Eight years after the launch of «In Safe Hands 24-7» as a campaign, all Norwegian health trusts and hospitals report that they have implemented or are undergoing implementation of all relevant target areas. Moreover, 300 of Norway’s 426 municipalities have implemented one or more relevant target areas in one or more of its nursing homes and home care services.

Lastly, the majority of healthcare professionals in both primary and specialist health and care services find that activities under the Patient Safety Program contribute to increased patient safety in Norway, according to a survey by Deloitte. About 60 percent of the healthcare professionals experience that the Patient Safety Program has contributed to high levels of patient safety in their unit.

Biography

Anne-Grete Skjellanger, Director of Improvement and Patient Safety at the Directorate of Health, leads the Norwegian Patient Safety Program «In Safe Hands 24-7». She was also the head of its predecessor, the Norwegian Patient Safety Campaign, from 2011-2013. Skjellanger previously led the National Strategy for Quality Improvement in Healthcare at the Norwegian Directorate of Health, and she has been head of the National Quality Improvement initiative at the National Board of Health. Skjellanger has also been the President of the Norwegian Forum for Quality in Healthcare.
The critical Care Quality in Patient Safety can be improved by 17-year innovative continuous Quality Improvement Program

ABSTRACT: The focus on quality and safety of critical care is increasing due to the high cost of health care and potential for harm. Poor quality care not only induces human suffering but also increases in morbidity and mortality. This 17-year continuous quality improvement (CQI) programs with innovative interventions in a tertiary medical center demonstrate that CQI program is essential to maintain and improve critical care quality in patient safety. CQI in intensive care units was shown to continuously attenuate sentinel events, adverse events, unplanned extubation and nosocomial infections, including catheter-associated urinary tract infection, ventilator-associated pneumonia and central venous catheter-associated bloodstream infections. Furthermore, multidrug-resistant organisms infections were also improved.

Introduction

About 15-20% of hospital budgets are spent in the care of critically ill patients. The focus on quality and safety of critical care is increasing due to the high cost of health care and potential for harm. Poor quality care not only induces human suffering but also increases in morbidity and mortality. Continuous Quality Improvement (CQI) initiatives in intensive care units (ICUs) can decrease nosocomial infections and improve outcomes.

Kaohsiung Veterans General Hospital (KSVGH) is a tertiary medical center in southern Taiwan, which has more than 2 million populations. Our hospital has total 1406 beds, including 102 ICU beds. The quality of critical care in KSVGH is monitored in committee of critical care center monthly, which is held by the head of the critical care center. Furthermore, deputy superintendent of KSVGH hold a critical care committee conference quarterly. All the critical care quality indicators will be routinely monitored using a control chart. If the value exceeds the threshold, CQI or PDCA (Plan-Do-Check-Act) cycle project will be initiated.

Therefore, we completed 17 CQI projects in critical care center since 2001, including catheter-associated urinary tract infection (CAUTI), ventilator-associated pneumonia (VAP), central venous catheter-associated bloodstream infections (CVC-BSI), unplanned extubation, multidrug resistant organisms (MRDO) infections, hand hygiene and pressure sore, etc. (Figure 1)

Hospital-acquired infections are a major safety concern for both patients and medical staffs. Efforts should be made to make the hospitals as safe as possible by preventing hospital-acquired infections because these infections might increase the risk of morbidity, mortality, length of stay and the medical cost. There were several major issues of hospital-acquired infections in ICUs, including catheter-associated urinary tract infection (CAUTI), ventilator-associated pneumonia (VAP) and central venous catheter-associated bloodstream infections (CVC-BSI) and multidrug-resistant organisms (MDRO) infections. Unplanned extubation is a critical issue of patient safety. Unplanned extubation is a major complication of translaryngeal intubation, occurring in approximately 10% of mechanically ventilated patients. Approximately 50% of the patients with unplanned extubation require re-intubation. Patients who fail unplanned extubation have a significantly longer duration of me-
Mechanical ventilation, longer stay in the ICU and hospital, higher incidence of VAP and are more likely to require some form of chronic care.

Methods: Innovation CQI projects in KSVGH

**CAUTI CQI project:** The definition of catheter-associated urinary tract infections (CAUTI) according to the Center for Disease Control (CDC) is a UTI where an indwelling urinary catheter was in place for more than two calendar days on the date of event. Infectious disease specialists verified the CAUTI. The incidence of CAUTI is the CAUTI events divided by urinary catheter patient-day. Since 2001, we continuously monitored CAUTI and completed 5 PDCA projects. The key interventions including world-leading innovative 5-day reminding information system, Taiwan first medical student hand hygiene camp, secret reviewer to monitor the accuracy of hand hygiene procedures, bundle care information system and to set up indication of urinary intubation. Our innovative strategy was applied in many hospitals in Taiwan as one of CAUTI bundle care to reduce CAUTI. We published this strategy in Infection Control and Hospital Epidemiology, which was cited 181 times. Several worldwide CAUTI guidelines all cited our 5-day remind unnecessary catheter method as an important strategy to prevent CAUTI, including Centers for Disease Control and Prevention (CDC) in USA, Infectious Diseases Society of America (ISDR), Center of Health Protection in Hong Kong and Health Protection Surveillance Center in Europe.

**VAP CQI project:** The VAP was diagnosed based on the criteria proposed by the CDC and the National Nosocomial Infection Surveillance program and verified by infectious disease specialists. The incidence of VAP is the VAP events divided by ventilator patient-day. We organized 6 PDCA projects during the past 17 years. The key innovations include innovative single sterile cloth for maximal sterile barrier precaution, sterilization with 0.2% chlorhexidine, to choose an appropriate site, bundle care information system and to set up indication of urinary intubation. Our strategy to prevent MRDO infection.

**VETERANS GENERAL HOSPITAL FROM 2001 TO 2017.**

![Figure 1: Continuous Quality Improvement Projects in Critical Care Center at Kaohsiung Veterans General Hospital from 2001 to 2017.](image)

Source: authors

**CVC-BSI CQI project:** The CVC-BSI were diagnosed based on the criteria proposed by the CDC and the National Nosocomial Infection Surveillance program and verified by an infectious disease specialist. The incidence of CVC-BSI is the CVC events divided by central venous catheter patient-day. Six PDCA projects were completed. The key innovations include innovative single sterile cloth for maximal sterile barrier precaution, sterilization with 0.2% chlorhexidine, choose an appropriate site, catheter site evaluation and early removal of CVC if possible.

**MDRO CQI project:** The ratio of Carbapenem-Resistant Acinetobacter Baumannii (CRAB) or Vancomycin-Resistant Enterococcus are defined as the MRDO events divided by all Acinetobacter baumannii or Enterococcus events. The key intervention was innovative MRDO preventive isolation system if ICU patients referred from high MRDO risk institutions, including MRDO care quality and has the best MRDO infection in ICU in Taiwan. Many Taiwan hospitals follow our strategy to prevent MRDO infection.

**Unplanned extubation CQI project:** Unplanned extubation is defined as a premature removal of the endotracheal tube by action of the mechanically ventilated patient (deliberate unplanned extubation) or premature removal during nursing and medical care (accidental extubation). The rate of unplanned extubation is unplanned extubation events divided by intubation patient-day. Four PDCA projects were conducted into our ICUs. The key innovations include usage of pain scale for critical patients, to set up sedation protocol, ventilator weaning information system and early innovative hand restraint device with smart designs, including air permeability, range of activities, free space to use the calling bell and oximeter to patients, easily observation, easy for hand injection, to provide more early warning message to nurses.

**Results**

The incidence of CAUTI decreased gradually from 12.8‰ in 2005 to 5.1‰ in 2017 under our critical CQI care. The ratio of improvement is up to 60%. This project won 13 awards in international and national quality competitions, including national medical quality award golden prizes.

The incidence of VAP also decreased continuously from 13.7‰ in 2005 to 1.02‰ in 2017 after our PDCA and innovative strategies. The ratio of improvement is up to 92.6%. This project was awarded 9 national-wide quality prizes.

The incidence of CVC-BSI ameliorated gradually from 16.2‰ in 2005 to 8.2‰ in 2017. The ratio of improvement is up to 49.3%. This project won 9 national quality awards.

After our innovative preventive isolation strategy, around 17.2% hidden VRE and 5.6% hidden VRE were detected. Therefore, our average of VRE ratio is 15.9%, which is lower than other Taiwan hospital and has the best MRDO care quality in Taiwan. The CRAB ratio was only 29.5%, which significantly lower than other Taiwan hospital (34.2%-80%).

The rate of unplanned extubation decreased continuously from 1% in 2005 to 0.13% in 2017, which also better than other Taiwan hospitals. The ratio of improvement is up to 87%. This
The critical Care Quality in Patient Safety can be improved by 17-year innovative continuous Quality Improvement Program.

We also encourage patients or their family to engage critical care, including patient education, hand hygiene, and shared decision-making. Patients or family are welcome to remind medical staffs hand washing. Furthermore, we established shared decision making electronic information system. After the intervention, the ratio of tracheostomy improved from 24% to 40%.

In our Critical care center, we have several methods to receive patients’ complaints or opinions, including mailbox, email, Internet or meetings. We investigated satisfaction score regularly. The satisfaction score of total patients improved from 91.9% in 2010 to 96.5% in 2017.

KSVGH is one of top 3 hospitals to promote hand hygiene in Asian CDC conference successfully. We not only promoted hand hygiene to Taiwan but also to Asia or other countries.

Conclusions
This 17-year continuous quality improvement programs with innovative interventions demonstrate that CQI program is essential to maintain and improve critical care quality in patient safety. CQI in ICUs was shown to attenuate sentinel events, adverse events, unplanned extubation and hospital-acquired infections, including CAUTI, VAP, and CVC-BSI. Furthermore, MRDO infection, including VRE and CRAB, was also improved.

References

Other Authors: Shu-Hung Kuo, MD; Sheng-Che Lin, MD; Wang-Ting Hung, MD; Mei-Lin Yeh; Ya-Meei Lue, MS; Hsin-Chin Chuang, MS; Kang-Pan Chen, MS; Chin-Chang Cheng, MD; Cheng Chung Hung, MD; Kun-Chang Lin, MD; Guang-Yuan Mar, MD; Hong-Tai Chang, MD; Shaw-Yeu, Jeng, MD; Jin-Shiung Cheng, MD; Yao-Shen Chen, MD

Biographies

Dr. Wei-Chun Huang is a chairperson of the department of critical care medicine in Kaohsiung Veterans General Hospital, Taiwan and also Jury of Healthcare Quality Improvement Campaign and Joint Commission of Taiwan. Dr. Huang received a Ph.D. degree from the University of Bristol, UK and a MD degree from the National Yang-Ming University, Taiwan. Dr. Huang is also an expert in cardiology, percutaneous interventional therapy, and critical care and serves as a faculty member in many international congresses. Dr. Huang is also an associate professor at the Fooyn and National Yang-Ming University.

Dr. Shue-Ren Wann is currently the Chief Manager of Center for Quality Management of Kaohsiung Veterans General Hospital. His portfolio involves overseeing the Internal medicine, Critical Care Medicine, Emergency Medicine, Infection Diseases, Microbiology, and Healthcare Quality Management. Dr. Wann is a Critical Care Medicine and Emergency Medicine specialist and was trained at the Institute of Critical Care Medicine at the University of Southern California during his early years after graduation.

Dr. Chun-Peng Liu is a superintendent of Kaohsiung Veterans General Hospital. Dr. Liu is also an expert in cardiology, percutaneous interventional therapy, critical care, and hospital management. Dr. Liu was a postdoctoral Research Fellow at The Johns Hopkins Hospital in Baltimore, U.S.A. Dr. Liu is also an associate professor at the National Defense Medical Center and National Yang-Ming University.
Tacera is an IP-based communication system, where all system components are fully IP configurable, enabling real-time communication from the time patients are admitted to the time they are discharged. This results in measurable improvements to patients’ experience and quality of care.

- Improved Patient Experience
- Improved Staff Efficiency and Satisfaction
- Reduce and Manage Risk
- Reduce Overall Costs

Contact us for a Demonstration

USA: 1 972-929-0974
Canada: 1 905-731-1830
Latin America 1407-574-7234

Asia: 65 64818 400
Australia: 61 3 9209 9688
New Zealand 64 (9) 280 4277

UK: 44 (0)1527 877778
Middle East: 65 64818 400
Europe 44 (0)1527 877778

www.austco.com
The 30/30/30 Solution: Reaching new Frontiers of Quality and Safety through an Innovative Lean Six Sigma Approach

ABSTRACT: Healthcare in the United States is at a critical inflection point, with payer reforms demanding higher levels of access, outcome, and value ever before. This paper describes an innovative approach for integrating lean six sigma process improvement into health system operations that have transformed our performance and service culture. Known as “The 30/30/30 Solution”, the approach requires annually training 30% more lean six sigma experts (“belts”), completing 30% more projects, and achieving 30% or more improvement for any project undertaken. Seven years and over 400 projects later, the solution has produced “top box” performance in quality, safety, and patient satisfaction while returning over $40 million in positive financial value. Keys to successful program implementation, and next frontiers for program expansion are discussed.

Introduction

Healthcare in the United States is at a critical inflection point. The U.S. healthcare system consistently ranks worst among developed nations due to access disparities and high mortality despite significantly greater spending (Schneider and Squires, 2018; Thakrar, Forrest, Maltenfort, & Forrest, 2018; Hartman, Martin, Espinosa, & Catlin, 2017). Providers are challenged by governmental and commercial payer reforms designed to shift risk for high cost/poor outcome care aggressively. After a decade of massive investment in electronic health record technology, performance and labor productivity gains lag other industries (Sahni, Huckman, Chigurupati, & Cutler, 2017) and maintenance costs severely strain the bottom line. Fire fighting on multiple fronts (regulatory burden, critical staff shortages, facility and technology obsolescence, unprofitable growth) provides a burning platform for change in an industry seeking new solutions.

The 30/30/30 Solution

1Memorial Health System, founded in 1897 in Springfield, Illinois, is a community-based, not-for-profit corporation dedicated to patient care, education, and research. Comprised of four hospitals, 7000 employees, and 1000 affiliated medical staff members, the health system annually provides more than 40,000 inpatient discharges, 125,000 emergency department visits, and 670,000 outpatient visits, with total operating revenue of $1 billion.

In 2010, anticipating passage of the Patient Protection and Affordable Care Act (i.e., “Obamacare”), our leadership team realized we were not designed for success in a re-priced marketplace focused on outcome and value. We were good (in the ways that one thrived under the existing fee-for-service system) but not great, and the low-hanging fruit had already been harvested and consumed. It was sobering to acknowledge that, lulled into complacency by decades of growth and profitability, operational inefficiency was the norm across most U.S. industries, including health care. The typical organization squanders the equivalent of 30 percent of annual gross revenue due to defect-producing practices and overutilization of resources (Pyzdek and Keller, 2009).

Committed to improving our present and strengthening our future, we determined to re-engineer business structures and work processes as the necessary precursors to great outcomes (Donabedian, 1966). Traditional administrative hierarchies were altered to better partner operational managers with high-influence physicians (“silverbacks”) via new dyad relationship roles to attack high-value improvement targets. Most importantly we adopted Lean Six Sigma (LSS), a rapid-cycle data-driven change methodology from manufacturing that produces quality, safety, service and cost benefits that matter to stakeholders.

Seven years later, hundreds of improvement projects advancing our mission to improve health have transformed the Memorial culture. Today, our approach is known as “The 30/30/30 Solution”, for in each of the last seven years, we have trained and certified 30 percent more lean six sigma process change experts (“belts”), completed 30 percent more projects, and achieved at least 30 percent improvement for any project.
undertaken. In reality, over the course of 422 projects, we have achieved average pre/post improvement of 38% and driven $40 million in positive financial impact.

Enhancing the customer experience has become a key focus for the “30/30/30 Solution” as well, as patient satisfaction is included in nearly all pay-for-performance systems, and is simply good business practice. Standardized assessment is conducted across twenty-four divisions (inpatient, outpatient, surgery, emergency, primary care, behavioral health, and home health) distributed across four geographic regions. As with all quality metrics, we aspire to perform at or above the top (best) quartile relative to robust external benchmarks. Over the past 24 months, we have advanced from a baseline of seven divisions in the national best quartile “top box” to 16 out of 24; an additional four score between the 50th and 74th percentiles. Simultaneously, as electronic incident reporting rates have increased three-fold and fueled improvement prioritization, complaints and grievances have fallen by 37% and 57% respectively, as have cases of litigation. There is indeed a business case for investing in quality improvement.

Achieving Escape Velocity

An integrated focus on lean and six sigma is critical to the 30/30/30 Solution. In our view, high performance can only be achieved when (1) unnecessary process steps are identified and removed and (2) steps retained as critical-to-quality are improved to as close to 100 percent reliable as possible. Lean and six sigma are therefore complimentary but different approaches to a shared endpoint: two sides of the same coin. Lean works by eliminating non-value-added components in the work process, shortening and simplifying the chain of steps by which value is delivered to the customer. Six sigma, using tools like statistical process control, is focused on wringing out within-process variation that produces errors, waste, and cost, yielding systems that are stable, predictable, and in-control (Callahan and Griffen, 2003). Too often, businesses emphasize only lean or six sigma without the other, which invariably truncates improvement and frustrates both staff and customers.

While the powerful lean six-sigma methodology is well defined and straightforward, implementing such a program successfully across a complex organization apparently is not and often fails (Chakravorty, 2010). The 30/30/30 Solution is neither a panacea nor a collection of techniques, but rather a program for changing the organizational culture. Sustained success required us to overcome the gravity of past beliefs, behaviors, and practices to reach new frontiers of quality and safety. The key elements of that success are now evident: a) highly visible, ongoing involvement by senior leadership (to counter “flavor of the month” initiative skepticism by staff); b)
intensive education of successive layers of staff in the principles and methods of change, and c) a need for speed. Memorial lean six sigma teams complete project cycles in 120 days or less; if a project takes longer, it means the project has been “scoped” too broadly and needs to be redesigned. Mandatory monthly thirty-minute “tollgate” sessions staffed by senior leaders ensures project progress.

Speed signals to all involved that we are serious about change and value their time as participants. And moving assertively down a validated well-defined methodological path produces objective results. This combination has been a vital reason why nearly 500 medical staff physicians have attended our four-hour Lean Six Sigma Executive White Belt course, and seven medical residency specialties at the Southern Illinois University School of Medicine now require it as part of graduate medical education curriculum. Engaging physicians in change processes via this new avenue has created a positive and significant “bending” of the curve in project activity focused on solving crucial patient-centered care problems.

The Next Frontier

Program acceleration also means moving beyond traditional hospital-based settings and into community-based population health initiatives. One such lean six-sigma project involved embedding mental health counselors in schools and health clinics located in a local economically challenged neighborhood. Over an 18-month period, depression screenings and treatment improved individual outcomes for over 1700 persons identified with severe depressive symptomology. Most fascinating was the correlated impact at the community level: emergency department visits decreased by 38%; police calls decreased by 13%; employment increased by 50%; personal income increased 200%; and prison parolee recidivism decreased to 19%, compared to national rate of 57%.

Looking ahead, the 30/30/30 solution will remain focused on strategic quality priorities that are updated annually, reflecting national and local imperatives. In particular, further elevating the patient experience and optimizing workforce engagement and productivity across our health system will be cornerstones of near-term work. The next stage of implementation involves creating a stable orbit; an orbit that continues to produce high-reliability results, provides a platform for further innovation, and prevents decay of the mature system.

Conclusion

The transformation of the U.S. healthcare system from a First Curve (fee-for-service) to a Second Curve (fee-for-value) framework drives a new set of future state assumptions for healthcare providers: serve more patients; at higher levels of quality, safety, and service; at lower cost; in systems of care that are less hospital-centric; and with value being defined by the customer, not the provider (Morrison, 1996). The 30/30/30 Solution provides an innovative and effective pathway for building adaptive health care delivery systems that our country can afford and that our patients, families, and communities deserve.

Biographies

Dr. Callahan earned his doctorate degree in Clinical Psychology at the University of Nebraska-Lincoln in 1991, and his MBA at the University of Illinois-Springfield in 2004. A Fellow of the American Psychological Association and the American College of Healthcare Executives, he is board certified in Rehabilitation Psychology by the American Board of Professional Psychology, and is a Certified Lean Six Sigma Black Belt. He currently serves as Executive Vice President and Chief Operating Officer, Memorial Health System, based in Springfield, Illinois.

Mr. Roberts earned his MBA at Bellevue University in 2006, and is currently pursuing a doctorate in Health Sciences Management at Rush University. A Certified Lean Six Sigma Master Black Belt and Fellow of the American College of Healthcare Executives, he serves as Vice President of Quality and Safety and Chief Quality Officer for Memorial Health System and Executive Director of the Midwest Healthcare Quality Alliance, based in Springfield, Illinois.

References


Improving maternal Health Perceptions and Outcomes through multiple Interventions: Using the complex adaptive Systems Approach

DR ANUPAMA SHETTY
GENERAL MANAGER – CORPORATE SOCIAL RESPONSIBILITY
NARAYANA HEALTH LTD.
BANGALORE, INDIA

ABSTRACT: The Maternal Obstetric Monitoring (MOM) program was envisaged as a public-private partnership in a high priority district in the southern State of Karnataka, India. Lack of specialists, infrastructure, real-time identification and monitoring of high-risk pregnancies had impacted maternal morbidity and mortality indices. The program placed emphasis on first referral unit strengthening along with high-risk pregnancy identification focusing on the introduction of software, diagnostics, workflow innovations and capacity building. While software solutions allowed for identification and remote viewing of patient data, simple documentation measures allowed for gains in the understanding spectrum of high-risk conditions in pregnancy. Among the results obtained, communityization activities led to a 40% increase in awareness of high-risk pregnancy symptoms among pregnant women and increase in awareness of maternal government health schemes from 58% to 100%. Multiple linked interventions in terms of revised workflows, technology interface, engagement with frontline healthcare workers and community, communication across multiple stakeholders led to sustained gains in the program.

Background
Globally, India contributes to one-fifth of the burden of maternal deaths (RGI, 2006). Though there has been a 4.7 percent annual decline in the maternal mortality rate (MMR), India has yet to meet the 5th target of Millennium Development Goal (WHO, UNICEF, UNFPA, World Bank, 2012). From an MMR of 254 per 100,000 live births in 2004-2006, the MMR has declined to 212 per 100,000 live births (Linn, et al., 2010). While eight states accounted for the majority of maternal deaths (United Nations Children’s Fund, 2010), intra-state disparities in MMR in better performing states was also marked. For instance, though the MMR for the better performing State of Karnataka was 144 per 100,000 live births, intra-state disparities were evident (Himanshu, et al., 2016). Based on Karnataka State Human Development Report-2014/15, the MMR across districts in Karnataka show that variances are caused by inequities in health-system access and coverage.

Table 1 indicates that the average MMR for the top 3 districts is 61 per 10,000 live births – well below the state average of 144; while the average for the 4 poorly performing districts is 223 per 100,000 live births, well above the state average, and almost four times as much as in the best performing districts. In this scenario, as part of a maternal health initiative from Narayana Health, it was proposed to introduce changes in current maternal health practices as well as support existing health infrastructure on a pilot basis in a poorly faring district in Karnataka. The results of the pilot would guide further implementation of the envisaged interventions across other high priority districts of Karnataka.

Introduction:
Yadagiri district in Karnataka is spread across three Sub-

<table>
<thead>
<tr>
<th>Indicator</th>
<th>State</th>
<th>Dakshina Kannada</th>
<th>Udupi</th>
<th>Bangalore</th>
<th>Koppal</th>
<th>Yadgir</th>
<th>Raichur</th>
<th>Bellary</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMR</td>
<td>144</td>
<td>89</td>
<td>50</td>
<td>45</td>
<td>236</td>
<td>186</td>
<td>244</td>
<td>227</td>
</tr>
</tbody>
</table>

*Source: author*
Summary of Antenatal work flow:

The subcentre (SC) is the first point of contact in the government healthcare system in rural India. An Auxiliary Nurse Midwife (ANM) posted at SC ensures issuance of maternal health card to a newly detected pregnant woman. The pregnant woman is accompanied by a frontline healthcare worker called ASHA (Accredited Social Health Activist) to the PHC for a scheduled ANC visit. At the PHC, a medical officer or staff nurse record parameters including demographic data, health vitals, HBsAg & HIV status, immunization status, iron & folic acid supplementation as well as number of ANC visits. High-risk pregnancy (HRP) details if any, are noted down in a register. As per the health ministry mandate, eleven conditions have been identified as the most common cause of HRP. HRP data is entered into the Maternal and Child Tracking System (MCTS) portal; which is a beneficiary-specific database for a scheduled ANC visit. At the PHC, a medical officer or staff nurse record parameters including demographic data, health vitals, HBsAg & HIV status, immunization status, iron & folic acid supplementation as well as number of ANC visits. High-risk pregnancy (HRP) details if any, are noted down in a register. As per the health ministry mandate, eleven conditions have been identified as the most common cause of HRP. HRP data is entered into the Maternal and Child Tracking System (MCTS) portal; which is a beneficiary-specific database

Challenges observed:

In Shorapur PHCs, the NH project team observed that owing to lack of awareness of HRP conditions, lack of data entry operators, power outages as well as interrupted connectivity, entries into MCTS portal were inadequate and irregular. Studies in other parts of India have found similar issues (Nagarajan, Tripathy, & Goel, 2016). Consequently, HRP cases as per MCTS database were not real-time and did not capture a spectrum of high-risk conditions.

It was also found that most HRP ANC patients were referred to adjacent districts for institutional deliveries. An average of 900-1000 deliveries per month was conducted in the Sub-district (includes PHCs, CHCs, SDH). Of these, around 20% of high-risk cases or 200-250 ANC cases were referred to higher centres in adjoining districts as well as private establishments.

One of the reasons for high referral of cases to adjoining districts was the vacancies in specialist staff positions at the Shorapur SDH owing to which First Referral Unit (FRU) capabilities were lacking. The concept of FRU was operationalized as a strategy to address maternal and neonatal mortality through the provision of a minimum set of services including 24-hour delivery services, blood storage services and emergency obstetric & neonatal care, both surgical and medical. With an average vacancy level of 76% in the district across all specialist posts, including obstetrician, paediatrician, and anaesthetist, the SDH was severely underequipped. The SDH also lacked a radiologist, and consequently, all antenatal scans were being conducted in private or government facilities in the adjoining districts.

A baseline survey was conducted to understand knowledge, attitude and practices of ANC women about high-risk pregnancy. Using convenience sampling, ANC women were administered a questionnaire on scheduled ANC days across all PHCs. 43% of ANC women surveyed didn’t know warning symptom/ signs during pregnancy, delivery as well as after delivery. 100 % of women surveyed had got their USG examination done in private facilities, thereby incurring significant out-of-pocket expenses since the sub-district did not have a government nominated radiologist. 30% of the pregnant women surveyed had iron supplementation on an irregular basis. The District Level Household Survey (DLHS) 4 report for Yadagir also indicated that 82.4 percent of pregnant women were anaemic.

Anaemia is a significant health problem in India with a prevalence of 53% in women aged 15-19 years (Siddiqui, et al., 2017). Iron deficiency during pregnancy has been associated with maternal mortality, preterm labour, low birth weight and infant mortality (Kalaivani, 2009). A review of maternal death’s (2014-15) for Shorapur revealed that post-partum haemorrhage and pregnancy-induced hypertension as responsible for the majority of the mortalities. Complicated mal- presentations, undetected renal, cardiac and placental disorders accounted for a smaller proportion of the mortalities and were evidence of lack of awareness and utilisation of government ANC services as well as lack of provision of radiology services at government centres.

Given the context and socio-economic-cultural challenges in instituting changes, the project team leveraged on the three delays model focusing on factors including (i) the decision
Better Performance and Quality through Focussed Innovation

Intervention:

Against this context, the Maternal Obstetric Monitoring (MOM) program was started as a public-private partnership in March 2016 in Shorapur subdistrict. The Karnataka National Health Mission (NHM), Narayana Health CSR team and Philips as technology partners were stakeholders in the project. The program focused on following aspects:

1. NH project team was stationed at the sub-district hospital & worked with State health officials to improve existing infrastructure and coordinate activities on the ground.
2. The NH project team trained concerned stakeholders on the technology (MOM) software
3. Technology partners, Philips installed two ultrasound machines at the SDH.
4. NH project team identified an Obstetrician to work in the SDH. This helped kickstart obstetric medical and surgical services at SDH. However, the tenure of the obstetrician was short-lived and following this NH Obstetricians based in Bangalore evaluated ANC data through MOM software on an online basis
5. Owing to connectivity issues, lack of data entry operator...and the initial version of MOM software application being lengthy; a manual HRP form was introduced by the NH clinical team to document HRP cases. This was documented in parallel to regular noting of HRP cases in ANC register.
6. NH Radiologists conducted ultrasound studies for third trimester pregnant women at SDH on a fortnightly basis who were sent on a rotation basis from all PHCs.
7. Details of HRP identified during this USG drive was shared with subdistrict, and PHC medical officers for further follow-up and treatment.
8. Blood storage unit was initiated by the project team with subdistrict officials. Severely anaemic ANC women were identified, followed up and received blood transfusions at SDH.
9. Capacity building workshops for HRP evaluation and treatment were conducted by NH obstetrician team for medical officers and allied health staff.
10. The project team has been collaborating with various community stakeholders towards focus on nutrition and anaemia in reproductive age group women.

Results:

Until January 2018, 5003 antenatal ultrasound studies were conducted by NH radiologists at SDH. From the screened population, 868 antenatal women (17.3%) were identified as HRP and referred to higher centers. No mortality was recorded in all these cases. HRP form found wide spread acceptance and has recently been formalised as a documentation for ANC.
Improving maternal Health Perceptions and Outcomes through multiple Interventions: Using the complex adaptive Systems Approach

Evaluation in all PHCs at the sub district level. At SDH, there was a 20-50% increase in HRP detection in OPD compared to what was captured in MCTS portal (Figure 4). Analysis of OPD HRP data (1317 cases out of 4170 ANC women examined) found that 79.8% were moderate, while 20.1% were severe HRP. Anemia was responsible for most cases (62%), while factors such as HBsAg seropositive status (14%), teenage pregnancies (4%) and grand multipara (2%) were recorded in severe HRPs, which were not part of current MCTS HRP list (Figures 4, 5&6). More than 180 severely anemic pregnant women were given blood transfusion at SDH. Regular capacity building efforts at frontline healthcare worker and community levels yielded results; with a midline survey finding 40% increase in awareness of HRP symptoms among pregnant women, increase in utilization of government ultrasound examination services from 0 to 20% and increase in awareness of maternal government health schemes from 58% to 100%. During the tenure of the program, lowering of maternal mortality rates in

FIGURE 3: WORKFLOW FOR HRP EVALUATION AND USG EXAMINATION OF ANC CASES AT MULTIPLE LEVELS

![Workflow for HRP Evaluation and USG Examination of ANC Cases at Multiple Levels](source: author)

FIGURE 4: HRP TRENDS AT SDH

![HRP Trends at SDH](source: author)

FIGURE 5: HRP CAUSES AT SDH

![HRP Causes at SDH](source: author)
Shorapur subdistrict were witnessed from 123 per 100,000 live births (2014-15) to 89 (2015-16) and then 76 per 100,000 live births in 2016-17. Stakeholders believe that multiple efforts at multiple levels led to these sustained gains in addressing maternal morbidity and mortality.

Conclusion:

Large socio-economic and geographic inequalities in maternal health exist in India. Policy changes are required to address systemic issues such as infrastructural capabilities and shortages of physicians in enabling a robust first referral unit system. In addition, in the context of a largely patriarchal culture and low gender parity, the emphasis on maternal health issues in Shorapur was largely top-down owing to pressure by State level authorities to focus on MMR in the region. Against this ubiquitous reality, steps taken by organizations to address these challenges would pave the way for models which can be replicated and scaled. A concerted effort by private and public entities, through their CSR or related efforts has demonstrated that significant gains in maternal healthcare indicators are possible despite the systemic challenges. Leveraging on workflow innovations, technology and support from government officials helped the project team establish efficiencies in maternal healthcare.

Biography

Dr Anupama Shetty currently oversees CSR activities for Narayana Health Ltd. She is a physician with Master’s in Hospital Administration and gained her PhD in Health Systems Studies from Tata Institute of Social Sciences. Her work revolved around strategic change in healthcare organizations, accreditation, and safety culture with a focus on complex adaptive systems. Her experience as physician, administrator and researcher, have helped her in analysing CSR activities from a deeper perspective, combining a systems-based approach with focus on scalability and sustainability of interventions.

References


Improving maternal Health Perceptions and Outcomes through multiple Interventions: Using the complex adaptive Systems Approach


PHOTO 2: THIRD TRIMESTER WOMEN AWAITING THEIR TURN FOR ULTRASOUND INVESTIGATION AT SUBDISTRICT HOSPITAL IN SHORAPUR. JANUARY 12TH 2018.

PHOTO 3: PREGNANT WOMEN BRING THEIR HEALTH CARD TO THE OPD FOR ANC EVALUATION IN SHORAPUR. SEPTEMBER 9TH, 2017.

Source: author

Source: author

Source: author
The Eleven-Year Journey of Manila Doctors Hospital in institutionalizing Climate Change Mitigation Actions

JILL S. ALVAREZ  
HEAD, CORPORATE SOCIAL RESPONSIBILITY OFFICE  
MANILA DOCTORS HOSPITAL  
MANILA, PHILIPPINES

REN R. REYES  
HEAD, FACILITIES AND MANAGEMENT DEPARTMENT  
MANILA DOCTORS HOSPITAL  
MANILA, PHILIPPINES

ABSTRACT: Total wellness cannot be achieved without recognizing the importance of responsible environmental stewardship. Tertiary hospitals are an energy-intensive sector. Therefore, it must set an example on how to manage its energy consumption and waste in a way that can significantly decrease the carbon footprint. For the past eleven years, the Manila Doctors Hospital has followed a model that not only reduces waste thereby supporting the hospital management’s infection prevention program and cost-saving initiatives but, at the same time, can earn from its recyclables program. The Corporate Social Responsibility Office utilizes proceeds from the recyclables program for communities affected by climate change and in the provision of healthcare services in underserved areas.

Background
The management of Manila Doctors in 2006 established the Environment and Waste Management Committee (ENVICOM). The ENVICOM and the Corporate Social Responsibility Office (CSRO) as a contributor to the hospital’s good governance created a comprehensive environmental program in response to the growing challenges of climate change. This is also in fulfillment of its Social Vision and adherence to the three environmentally focused principles of the United Nations Global Compact (UNGC) that Manila Doctors as an active member is expected to integrate into its policies and daily operations as an active member. The three UNGC Principles on Environment states that: Principle 7: Businesses should support a precautionary approach to environmental challenges; Principle 8: Undertake initiatives to promote greater environmental responsibility; and Principle 9: Encourage the development and diffusion of environmentally friendly technologies.

Methodology and results

There are four components: (1) Engagement (2) Reduction (3) Source and (4) Response. For ENGAGEMENT, the objective is to involve both the internal and external stakeholders in implementing, sustaining and replicating the hospital’s climate mitigation actions and policies. For REDUCTION, the objective is to decrease the carbon footprint of the hospital operations through energy conservation, reduction of waste, sustainable recycling and introduction of renewable energy. For SOURCE, the establishment of an environmentally responsible supply chain. RESPONSE pertains to the utilization of the savings from the REDUCTION efforts including the proceeds from the recyclables program for various projects that respond to emerging health and socio-economic needs brought about by climate change. One key element is the inclusion of different organizations (Manila Doctors Corporate Social Responsibility Circle of Partners or CSR Circle of Partners) in the implementation. These include non-government organizations, people’s organizations, local government units and even private companies/corporations.

ENGAGEMENT comprises of the institutionalization of policies and procedures that support the precautionary
approach to environmental challenges initiated by the top management. This is regularly audited by the Quality and Risk Management Office (QRMO), sustained participation of the whole internal community both the medical and non-medical personnel, and replication by our external stakeholders of the hospital initiatives that promote greater environmental responsibility. For REDUCTION, the output can be measured through the savings in terms of energy (in kilowatt per hour), in terms of peso value (monetary), and in terms of reduced carbon emission. Moreover, the income from the recyclables project generated from the hospital wastes is also measured and added in the measurement of results. For SOURCE, identified outputs include partnering with suppliers that also promotes environmentally responsible technologies and has no record of violating any of the environmental laws of the country and sourcing from local farms that do not use petrochemicals and composting food waste and for RESPONSE, the measurement is based on the number of individuals and families served funded by the proceeds from the recyclables project.

ENGAGEMENT. According to WHO, 85% of the total amount of waste generated by healthcare activities is general, non-hazardous waste. The remaining 15% is considered hazardous material that may be infectious, toxic or radioactive. Every year an estimated 16 billion injections are administered worldwide, but not all of the needles and syringes are properly disposed of afterward. Healthcare waste contains potentially harmful microorganisms, which can infect hospital patients, healthcare workers, and the general public. Health-care waste in some circumstances is incinerated, and dioxins, furans, and other toxic air pollutants may be produced as emissions.

a. By institutionalizing and strictly implementing waste management guidelines coupled with regular hospital-wide internal audits, the hospital has successfully prevented cases of infections and injuries to patients and hospital personnel due to improper waste handling.

b. Every unit in the hospital is engaged in the hospital’s energy conservation and recycling efforts. Proper waste segregation is part of the standards of hospital risk management. Conservation of resources and energy like “Share-A-Ride” by the Facilities Management Department (FMD) monitors and synchronizes the trips of those who request the use of the various hospital vehicles, so instead of one person using one vehicle, FMD is able to arrange one vehicle for at least three personnel going to three different external meetings. The result is savings on fuel, time, personnel (driver) for the hospital. For the public lessening the number of vehicles competing for road space. Members of the internal community and patients including their relatives are also expected to use stairs when going up or down the third level of the hospital except for the PWDs, Senior Citizens with ailments and patients whose health might be compromised.

c. Both our adopted community and school are implementing ECOSAVERS: Recycling for extra earnings.

d. The Hospital is also working with its external partners in creating clean and green spaces in the City of Manila.

For the REDUCTION programs, since 2007, Manila Doctors Hospital has continually sought ways to make its hospital more environmentally friendly. There are several needs and priority areas identified by ENVICOM and CSR, and corresponding solutions were undertaken to address these including:

a. Awareness campaign in the proper handling of hazardous wastes according to the Philippines’ Department of Environment and Natural Resources standards.

b. For non-hazardous wastes, Manila Doctors implements the 3R principle: Reduce, Reuse and Recycle. Recycling became one of the hospital’s main projects, and the recyclables are sold to an accredited supplier/provider. 60% of the proceeds go to the department for their team building and other activities, while 40% goes to the CSR programs.

c. The hospital eradicated the use of Styrofoam.

d. LED lights have replaced all conventional bulbs, and solar-powered lamps were also installed to light the hospital premises.

e. The hospital has its own compost bins to produce organic fertilizers being used for the plants around the hospital.


g. In 2015, the Pediatrics department started using recycled IV plastic bottles as a substitute for the transparent dressing that proved to be effective in avoiding IV burns and cost efficient for both the patients and hospital.

By minimizing wastes, the hospital does not burden the patients with unnecessary charges.

For REDUCTION projects, from 2008 – 2016, the hospital saved a total of 21, 577.59 Kilowatt-hours, 9.72 in terms of carbon emissions and PhP244, 458.28 or $5,432.00 in terms of peso value. The recyclables program was able to generate a total of PhP5,057,212.84 ($112,382.50) from 2006 to 2016. The hospital-wide waste management program spearheaded by the Infection Prevention and Control Office resulted into zero infection of patients due to improper waste handling which in turn helped the hospital in avoiding medico-legal cases, which can affect the hospital financially.

Promotion of green practices coupled with responsible segregation and disposal of wastes are vital in ensuring the safety of patients and employees. According to the World Health Organization, “Health-care waste contains potentially harmful microorganisms which can infect hospital patients, healthcare workers and, the general public. Other potential infectious risks may include the spread of drug-resistant microorganisms from health facilities into the environment.” Through the different ENVICOM programs, the hospital ensures that the risk for these infections does not affect not only the patients but also the general public.

SOURCING. By conducting business with suppliers practicing similar environment protection principles, the hospital is creating a green and sustainable supply chain. It also forces companies seeking accreditation as a hospital supplier to look...
at their own environmental policies. Our FMD conducts on-site visits to validate the environmental practice of our suppliers. In expanding our facilities, the management also insisted on having an energy efficient building.

**RESPONSE.** With the 40% of the proceeds generated by the recyclables program allotted for CSR, Manila Doctors identifies priority projects that significantly benefit individuals and communities gravely affected by climate change and those who are marginalized in accessing quality healthcare. These projects include:

a. The conduct of medical and surgical missions in provinces where there is no hospital and scarcity of healthcare professionals.

b. Support the needs of financially challenged patients from island provinces and from far-flung areas in need of critical Ophthalmology, Otorhinolaryngology and Gynecological surgeries.

c. Provision of alternative livelihood for fisher folk families affected by climate change.

d. Provision of basic farming tools for farmers devastated by typhoons.

e. Provision of food packages, hygiene kits and solar lamps for areas affected by natural and human-made disasters.

Two units in the hospital, ENVICOM, and CSRO, are the primary program implementers but all the other units participate extensively in all of these efforts especially in infection control, proper waste management and recycling. As a result, the recycling efforts have yielded substantial amounts instrumental in funding some of the hospital’s vital CSR programs. The hospital’s external community is also part of these projects in terms of implementation. Manila Doctors works with the United Recyclers Organization of the Philippines (UROP) as the primary partner for the collection of recyclables. The CSRO Circle of Partners primarily coordinates with the beneficiaries of the projects funded by the recyclables project and is instrumental in helping the hospital expand its reach in terms of its climate change mitigation initiatives and the provision of healthcare in underserved areas.

**Conclusion**

The program benefits both the hospital’s internal and external stakeholders. First, the reduction projects can ensure that the hospital complies not just with the statutory waste management practices, but also with globally accepted climate change mitigation practices. This guarantees the safety of the hospital’s patients, their families, doctors, and employees. Next, through the proceeds coming from the reduction programs, Manila Doctors can reach out to more families in the countryside where the impact of climate change has affected both the livelihood and health of communities.

The project is replicable, scalable and sustainable especially for hospitals in developing countries. Investing in more environmentally friendly business practices enables the hospital to contribute to environmental sustainability and climate change mitigation actions. In the process, the hospital was also able to engage various partners like our adopted community by training them in producing products from recyclable materials that are sold commercially, helping them augment their family income.

The hospital’s adopted school and community were trained on recycling, and Manila Doctors connected them with its partner UROP who buys the materials and recycles them for different purposes. These partnerships widen the circle of awareness and simultaneous actions leading to sustainable results.

**Biography**

Before joining Manila Doctors Hospital in 2013, Ms. **Jill S. Alvarez** implemented various human development programs in the areas of health, gender and livelihood with multilateral organizations, local government units, and non-profit organizations. Her experience includes working with the most impoverished communities in both the urban and rural areas of the Philippines.

**Mr. Ren L. Reyes** joined Manila Doctors Hospital in 2000 and held various positions before being promoted as Head of Facilities and Management Department (FMD) in 2017. Mr. Reyes is also the Environment and Waste Management Committee (ENVICOM) chairman and has led his team in the integration of green engineering practices in the hospital.

**References**


**RECOGNITIONS**

1. Anvil Award for Excellence given by the Public Relations Society of the Philippines: 2011 and 2013

2. Candidate Master Award in different instances for Zero Waste Olympics for Businesses by the Philippine Business for Social Progress in 2015 and 2016

3. International Hospital Federation finalist for the Dr. Kwang Tae Kim Grand Award 2017
FIGURE 1: CLIMATE IMPACT MITIGATION ACTIONS: AN ELEVEN-YEAR JOURNEY OF MANILA DOCTORS HOSPITAL IN INSTITUTIONALIZING CLIMATE CHANGE ADAPTATION

Authors/Source: Jill Alvarez, Levi Grace Ambon and Justine Libunao
ABSTRACT: The economic crisis in our country caused a 10% decrease in incomes in CSG; our strategic objective was to increase the efficiency of the processes by rethinking the activities we carried out. The CSG envisages the Lean Management Project as an opportunity for improving patient care while increasing the engagement of professionals.

Process improvement was conducted under a PDCA philosophy and through the use of Lean tools. Under this method, each process to be improved is considered a project itself and follows the same steps: Understanding what is happening (what is the problem?), standardizing and stabilizing the process, and ensuring the sustainability. The A3 is the tool guide used throughout the project.

Developing people’s Lean capabilities was one of the key factors. Working on self-contained projects helped the rapid implementation of the proposed improvements ‘learning by doing’ and results such as increased 13.1% surgical interventions or 7.3% increase in activity in Diagnostic Imaging.
meant to consolidate this new organizational project and foster professionals’ sense of belonging. Twenty percent of the staff participated in its definition.

Three strategic lines were established: the design of the service portfolio, the fostering of efficiency and the development of its own working culture and model. The first strategic line envisaged the need for integration of the existing services from two formerly independent units as well as the construction of a new hospital building. The objective was expanding becoming bigger and better.

In 2010, while the new hospital and the strategic plan were underway, the financial crisis hit Catalonia and its public health service network. By the end of 2011, a new strategic plan was conceived (figure 3). Bearing in mind the country’s delicate financial situation, this new plan focused on improving efficiency through the commitment and implication of its professionals and maintaining quality standards and patient safety.

The focus on improving efficiency is a strategy to bear the income loss without diminishing quality of care not harming professionals working conditions. As soon as the redesigning of the key process map was finished, the CSG felt the need to improve it. For undertaking this task, the CSG decided to apply the Lean Management methodology. This methodology integrates customer orientation, effectiveness, just in time, security and enhances respect for people (figure 4).

The Challenge: Applying Lean methodology was a big chal-
lenge for the organization. Very few professionals were familiar with it, and those who had heard about it regarded this methodology as something only applicable to the automobile industry.

The Opportunity: Lean could help the organization improve patient care services while increasing professionals’ engagement.

If innovation is a change based on the knowledge that generates value, the Lean transformation carried out in the CSG is a new way of managing that includes the principles of the methodology:

- Directing processes to the needs of patients, efficiency in processes and continuous improvement.

In this management system, the professionals are the generators of change, and leadership provide professionals the way.

The Lean project at CSG is developed obeying the following key principles:

- Effective and efficient communication for achieving professional engagement.
- Use of scientific method and rapid generation of knowledge through continuous improvement PDCA cycles (four-step management method used for the continual improvement of processes).
- Data-driven mindset. Information is obtained from Gemba (is a Japanese term meaning ‘the real place’) and decisions are based on information whether than in beliefs or perceptions.

The first step in implementing the Lean project was an inception phase devoted to training. Fifteen professionals were appointed as members of the expert team and received advanced training in Lean Healthcare. Also, corporate directors and several middle managers received basic Lean training. Finally, every professional not included in the previous groups took a “30 minutes Lean” training session.

Working on content projects every time is another thing that helped the professionals to implement improvements quickly and, therefore, we achieved a “learning by doing” effect.

Following the implementation of every improvement project, the CSG organizes an information session where anyone interested can learn about its main milestones and results. These information sessions’ goal is to increase professionals’ awareness about the project.

The CSG has improved its processes following the PDCA philosophy and Lean tools. Every process improvement project follows the same phases: Understanding the problem, standardizing and stabilizing the project, ensuring sustainability and lastly, beginning the continual improvements (figure 5).

The A3 problem solving is the tool guide used during the whole project development. The A3 of each project is performed by its leaders and the professionals involved in the process.

A3 is a structured problem solving and continuous improvement approach (figure 6-7), for the analysis; the different Lean tools are used (Gemba walk, Value Stream Map, Spaghetti Flow (figure 8-9). The team defines the objectives to be achieved; analyses each problem encountered and tries to reach its root cause. Once the analysis has been performed, the team proposes countermeasures and establishes indicators.

A3 are responsible for the service manager and supervisor. The board of directors acts as a facilitator for the implementation of the necessary improvement identified during the project.
More than 15 lean projects have been implemented in our organization in 6 years:
  Logistics Department, Patients’ Admission, Convalescent and Long stay Units, Operating Area, Surgery Unit, Emergency Department (two hospitals), Pharmacy, Diagnostic imaging, Outpatient consultation area, Internal Medicine Unit, medical visit daily and Porter services (figure 10).
  Active leadership has been key for achieving good result. The project been supporting in every decision made and in the implementation of changes. It is also important to note that some of the members of the board of directors occasionally attend Lean meetings.

Some results
  The goal set by the Emergency Department was to reduce waiting times and patients’ length of stay in the area. As a result of the improvements introduced, one of the hospitals (Hospital Sant Camilli) reduced by 50% waiting time and by 27% the length of stay. Patients’ satisfaction increased accordingly: patients who perceived waiting time was excessively decreased by 60% while those who felt the time spent in the emergency area was too long diminished by 75%. In turn, the Hospital Sant Antoni Abat waiting time fell by 7.6% while the length of stay reduced by 12.8%.
  The operating area set the reduction of the intersurgical time (measured as the time past from the last stitch to the next patient’s surgical incision) as its goal. The intersurgical time was reduced by 30%, which entailed an increase of 13.1% in the number of surgical interventions.
  The Surgery impatient Unit wanted to minimize the response time to absorb patients from the area of emergency and recovery and increase % of hospital discharges before 12 am. Discharges before 12 am increased by 30% as a result of the measures adopted.
  Diagnostic imaging increased its activity by 7.3%.
  The key points of success have been to work with simple projects that have had visible results
This has led teams to continue working on projects more impact.
  Since the lean implementation began, the CSG has been recognized with several awards that have contributed to boosting self-esteem within the organization.
International Hospital reports on medical technology solutions for the modern hospital in an easily digestible format. Targeting senior physicians and medical department heads, hospital administrators and management, as well as hospital IT specialists and biomedical engineers in Europe, Middle East, Asia/Pacific and Latin America. International Hospital has a fully qualified, BPA-audited circulation.

IHE-online.com offers a searchable medical product database along with clinical and updated industry news to assist healthcare professionals.

Free subscription for healthcare professionals, go to www.ihe-online.com
References


Biographies

**Rosa M. Simón** - rsimon@csg.cat
Nurse and Master in the methodology of assessment and improvement of quality (Fundació Avedis Donabedian - University of Barcelona). Master in Quality Management (Universitat Oberta de Catalunya). Master’s Degree in Administration and management of nursing care (University of Barcelona). Lean Practitioner (Universitat Politécnica de Catalunya).

She has developed her professional career in the field of quality care since 1993. In this area, she has performed different functions, from quality nurse to Quality Manager and has participated in two international projects for the implementation of Quality Management.

**Josep Lluís Ibáñez** – jilibanez@csg.cat
He holds a degree in Medicine from Universitat de Barcelona. MBA from ESADE Business. Master in Public Health (Universitat de Barcelona and Johns Hopkins University). He has worked as director of different primary care centers and hospitals.

**Anna Riera** - annariera@uch.cat
She is membership director at Unió Catalana d’Hospitals, a healthcare providers association in Catalonia. She holds a degree in Medicine from Universitat Autònoma de Barcelona, and Internal Medicine specialization. She has worked as a healthcare consultant, in Spain and abroad. She is a member of the Global Health Leadership Forum, from University of California Berkeley School of Public Health and Barcelona Graduate School of Economics and the Universitat Pompeu Fabra Economics and Health Research Center (CRES).
INNOVATE | INTEGRATE | INSPIRE
How can healthcare evolve to meet 21st century demands?

Health leaders from around the world are heading to Brisbane to discuss how healthcare needs to evolve to meet 21st century demands – will you be joining them?

Here are just a few reasons why the World Hospital Congress should be on the very top of your must attend list.

**Interested in value based healthcare?**
If you are interested in value based healthcare you will have read “Redefining Health Care: Creating Value-Based Competition on Results”. Author and innovation expert Professor Elizabeth Teisberg will provide her insights into the evolution that needs to take place in healthcare and she will be joined by health leaders who are implementing value based healthcare in Brazil, Malaysia, Singapore, Denmark and Australia.

**Interested in health system integration?**
You can learn from the Nigel Edwards, Chief Executive of the Nuffield Trust on the UK experiences in his keynote address, but you can also hear how Tanzania is developing an innovative and integrated health system from primary care up, how Taiwan is integrating home medical care services or how Iran is developing integrated and people-centred palliative care.

**Interested in the impact of technology on healthcare delivery?**
The International President of the Healthcare Information and Management Systems Society (HIMSS) Hal Wolf will provide a big picture and then in our concurrent sessions you can learn what Spain is achieving with health apps, how Zambia is using technological innovations to provide better quality of care in low resource settings and how the Mayo Clinic in the USA has used technology to review and improve opioid prescribing.

These are just a few of the many fascinating presentations and amazing experiences that will take place at the World Hospital Congress. Early bird registration closes soon, so register now for great discounts and to be a part of this momentous event.
Initiating and sustaining lean Management in Healthcare: The King Hussein Cancer Center Experience

ABSTRACT: The car manufacturing industry first introduced the concept of lean management. From that time on, lean principles were innovatively employed and invested by different industries including the healthcare sectors. This is proven by the rich amount of literature and evidence of improvement. In this work, we describe the experience of a tertiary care center specialized in oncology, King Hussein Cancer Center (KHCC) with initiating and sustaining the lean culture. The KHCC management incorporated the lean principles into its strategy by carrying out the necessary training and orientation to lean principles and launching a hospital-wide award for distinguished lean project in a cyclic way. KHCC started the journey with 30 projects submitted for the first cycle of projects, building momentum in the second cycle with 60 proposed projects. Key factors for success are leadership facilitation, support, involvement of stakeholders and the competitive drive to win the distinguished lean project award.

Introduction

The term Lean was first introduced in 1990 by Womack, Jones, and Roos based on the work done for the Toyota Production System TPS in the bestselling book “The machine that changed the world”. The lean approach described the shape of the future automobile industry with a shift from mass production involving extra supplies, extra workers and extra machines to ensure a smooth flow of work and production. Lean production uses less of everything compared to mass production, half the human effort, half the space, and, most importantly, half the inventory on site [1].

An examination of the literature that followed the publication of the TPS experience demonstrated an adoption of the lean methodology among academics and practitioners with 4,130 publications on Lean within the 25 years of literature examination in different sectors. Sectors that benefited from lean management principles include automotive, electronics, financial, education and, finally, the healthcare sector [2]. The seven wastes described by the lean philosophy can be easily adapted to healthcare settings. For instance, the waiting waste can be translated as waiting for an appointment. Similarly, the overproduction waste applies to the unnecessary treatment administered to patients [3].

Around the year 2002 lean had become a popular approach toward process improvement in healthcare in the USA. The same wave took place in the UK in 2001; this wave was encouraged by the adoption of the lean methodology by the UK National Health Service (NHS) in line with a monitoring program to assess the outcomes [4]. The Lean methodology was adopted in different areas of the healthcare settings, including (but not limited to) the operating room, the pharmacy, the information technology, the mental health, the nursing and the radiology departments. The improvement of these areas were carried out applying a total of 26 lean management tools such as the 5 Whys, the Ishikawa diagram, and the Value stream mapping. The results of these improvement initiatives were assessed in terms of cost, time, and values [3], [5], [6]. Interesting examples demonstrated the effect of implementing the lean methodology in different healthcare areas. For instance, lean thinking was applied to redesign the emergency department in a general teaching hospital in Australia to resolve the overcrowding problem and reduce the number of complex queues [7].

Furthermore, the implementation of the lean methodology in a university hospital in the United States, reduced the number of missing doses, errors occurrence, and waste by percentages of 30%, 50%, and 30%, respectively, implementation was done mainly in the sterile products and inventory areas with a total cost saving of $289,256 [8].

The waste elimination philosophy proved to be exceptionally handy when it comes to oncology. With the high cost of newly developed anticancer drugs, the assessment and diagnostic tools and the patient follow up over a relatively extended period of time, the importance of appropriate resource allocation is further magnified [9].

King Hussein Cancer Center KHCC is a tertiary center specialized in oncology located in Amman-Jordan. KHCC has established programs that focus on all stages of comprehensive cancer care: from prevention and early detection, through diagnosis and treatment, to palliative care treating over 3500 new cancer patients each year, from Jordan and the region. KHCC priorities include fostering patient-centered care and providing coordinated service. The inclusion of lean into KHCC management style had a significant impact and paved the way for implementing and achieving the organizational goals. In this work we provide an illustration of the lean journey carried out in KHCC.
through initiation, launching, implementation, and control.

**Exposition:**

Incorporation of the Lean methodology into the KHCC improvement strategy was discussed during the 2015-2017 organization strategic planning task force and was approved as an enhancement strategy. The concept was introduced to the middle management group by the CEO/Director General DG, followed by a call for proposal submission to the quality management office (QMO). A lean steering committee was formulated to assess the submitted projects. The CEO/DG and representative of KHCC executives led the committee. Around 30 projects were submitted, and the committee worked on prioritizing the projects and evaluating all submitted proposals, so employees at all levels and top management worked in hand in hand for the success of this coordinated and aligned initiative. Projects sharing a common scope and objectives were combined for convenience while keeping all relevant stakeholders on board. Projects approved by the committee as a highest priority for KHCC based on their alignment with the organization vision, mission, values and strategic direction, and priorities from Key performance indicators, patient satisfaction and complaint reports. Examples of the selected projects are decreasing the length of stay in the emergency room, reducing the time for the HR hiring cycle, reducing the patient waiting time in the outpatient pharmacies, reducing the medications returned to the pharmacy, improving patient flow in Breast Imaging unit, establishing a definite treatment date for new patients and using lean to decrease turnaround time in the laboratory, the involvement of all relevant stakeholders was one of the key success factors in the lean projects.

For a successful launching and conduct of the projects, team members were oriented about the concepts of lean in an extensive hands-on workshop, led by an internationally renowned Lean Expert. Workshop sessions walked the attendees through the journey of problem exploration and mapping, the analysis of root causes, lean tools and Key Performance Indicators (KPI) development. All teams had representatives from the quality management office to support, coordinate, facilitate, and report back to the lean steering committee that closely reviewed the monthly progress report in objective data related to patient satisfaction, complaints, KPIs, etc. to provide optimal support for the projects.

The selected projects were given nine months to submit their full improvement reports and to participate in the distinguished lean project award. Unique win-win collaboration with the University of Jordan, College of Engineering, the Industrial Engineering Department professors and students was established. Students who were eager to implement the Lean Six Sigma methodologies to real-life projects for their graduation projects were encouraged to participate in the data collection, shadowing of patient experience, data analysis, and simulation modeling for proposed solutions. Also input from the university faculty member was very valuable in the award selection process.

To select the distinguished lean project for 2016, the selected projects were reviewed carefully by the evaluation committee based on specific criteria (stakeholder involvement in the project, alignment of the project with KHCC's mission and strategy, meeting the project goals, overcoming challenges, the use of lean tools and techniques and impact of benefits). The distinguished lean project was announced by the CEO/DG during the quality day in November of 2016. Projects members were encouraged to share their experience, results, obstacles faced and lessons learned. The top management team rewarded and acknowledged the participating projects and winners were announced at KHCC, via email, internal intranet, the internal network of TV, newspapers, and social media Facebook page. A number of the experiences in the projects are in the process of being shared in published articles. The entire journey is illustrated (Figure 1).

As a continuation of the lean journey in KHCC, the second cycle of the distinguished lean project awards for 2017 was released. More than 60 projects were submitted to the quality management office. Orientation training was held, organized, and delivered by KHCC quality personnel.

The most important lessons learned from the lean and improvement journey in KHCC include the spreading of awareness and the influence on the culture. The increase in awareness is evidenced by the rise in the number of projects submitted to the second cycle of the distinguished lean project award (60 compared to 30 projects). There was also a significant increase in the number of staff participating in lean projects (50 compared to 210 employees). The increase in awareness and participation can be attributed to different factors including leadership support, the training and orientation provided and the atmosphere surrounding the healthy competition of quality improvement. It is well documented that the leadership support has a profound impact on quality. Transformational leadership styles and implementation of the quality climate proved to enhance the process quality in hospitals, the safety climate, and the patient safety outcomes.

The training and orientation efforts were also a cornerstone in leading the lean journey in the center. This goes in alignment with the literature reports on team coaching and its effects on the improvement process as agreed by different parties involved in the training experience [10]. Involvement of stakeholders from different hospital areas was a key factor for the success of the project. For instance, the winning project “Returned medication to the Pharmacy” as the other lean projects had representatives from the nursing, pharmacy, finance, information technology and quality. Having everyone around
the same table enriches the discussion and enables the team to see and handle the arising issues form different perspectives. Stakeholder identification and subsequent team formation is central to the success of the project in hand [11].

Another important aspect of the lean journey at KHCC is sustainability. In addition to the distinguished lean project award, there is also the sustained lean project award. Dedicating such award emphasizes an important part of the lean concepts, which is sustainability. Projects are expected to hold or increase the gains of the implemented improvement even in the face of environmental changes [12]. Unfortunately, organizational change is difficult to maintain, according to the literature 70% of changes are not usually sustained [13]. Therefore, sustainability of the projects and improvement is essential to the KHCC management.

On a different level, some projects were less fortunate than the projects that appeared in this work. Not all projects achieved the expected level of improvement. This can be attributed to many factors including the size and complexity of the projects. Certain projects attempted to handle numerous issues under the umbrella of one project. A project could have been more successful if divided into manageable sub-projects. Another factor is the inadequate analysis. One team rushed to specific conclusions following the data collection phase without sufficient analysis and possibly missing out on some valuable opportunities for improvement. All these factors were accepted and embraced as a part of the quality learning experience by the team at the quality management office and top management.

Conclusion:

This paper describes the journey of a tertiary care center specialized in oncology located in Amman- Jordan concerning cultivating the implementation of the lean thinking culture and journey. Leadership support was central to the success of the implementation so far. Orientation, training, facilitation and follow up by the quality office was vital to sustain the momentum of the lean culture, it was also necessary for supporting the different hospital teams in achieving their goals. Some limitations were noted including the size of the projects handled at one occasion and rushing into action without sufficient data analysis. Some of the several key success factors were the healthy competition between teams to achieve the distinguished lean project award, and the long-term thinking of sustaining the improvements.

Biographies

Main authors

Dr. Mansour joined King Hussein Cancer Center as the Chairman of the Department of Diagnostic Radiology. In 2012, he was appointed as the Director General at KHCC and the Chairman of the Jordan Breast Cancer Program. Dr. Mansour earned a Master of Medical Management from Carnegie Mellon University and an M.D. from Vitebsk Medical Institute. He successfully pursued a fellowship at the Royal College of Radiologists (FRCR- London) and completed the European fellowship in Neuroradiology (ECNR). He is a renowned expert in oncologic and neurological imaging.

Ms. Dana Nashawati holds a Bachelor's degree in Industrial and Systems Engineering from the University of Jordan and a Master of Engineering degree in Operations Research from the University of Florida. She has focused throughout her career, extending over several countries and industries, on quality and change management. In her role as the Director of the Quality at King Hussein Cancer Centre, she is working on the innovative employment of the System Engineering concepts in Healthcare settings.

Ms. Majd A. Hamaly had graduated from School of Pharmacy at the University of Jordan with honors in 2014. After graduating, she joined the healthcare quality filed, first in the area of clinical research and then and until present in the hospital setting at King Hussein Cancer Center KHCC. Along with her full-time job, Ms. Hamaly completed a Master of Science in pharmacy with a research focus in 2016. Very recently, she completed the examination requirements to become a Certified Professional in Healthcare Quality.

Other author

Yasmeen A. Saldan
Coordinator, Quality and Patient Safety Office
King Hussein Cancer Center
Amman, Jordan

References

Shared Governance: Transforming the nursing Workforce through collective Decision Making

ABSTRACT: This article describes a shared governance program introduced to facilitate collective decision-making within the division of nursing and concludes with strategies to achieve sustainability. The migration of nursing talent in a landscape of increasing healthcare demands affects the capacity and capability of the nursing workforce. This called for an innovative model of staff engagement to inspire and motivate our staff, leading to better retention, patient and staff satisfaction. Shared Governance (SG) was introduced into the nursing division at the organization to transform how decisions are made. The goal is to flatten the traditional hierarchical decision-making structure and give direct-care nurses a voice in defining their practice, standards, and quality of care. Since the transformation, patient care outcomes including falls and patient satisfaction rates and staff satisfaction scores in empowerment, communication, and work relationships have trended positively from year-to-year. There is also a sequential reduction in sick leave rates since implementation.

Introduction

The social context in health care has changed significantly as societies move from industrial age to sociotechnical edge characterized by information explosion and globalization of economy (Porter-O’Grady, 2009). These changes affect the design of healthcare systems today, which are required to perform like complex adaptive systems (Porter-O’Grady, 2009). Leadership can no longer be managership as power needs to be reallocated to those who do the work of health care which means that leadership needs to nurture the growth of leaders in all roles (Porter-O’Grady, 2009). New configurations need to emerge to take staff-leadership engagement to a new level, guided by a new set of principles.

Shared Governance is believed to be the framework to transform staff-leader engagement. A collaborative and engaged workforce builds the momentum and energy to influence, change, challenge, and “push the walls” toward innovation and creativity. Staff-driven decision-making is also a strong indicator of excellence and is a significant theme in the American Nurses Credentialing Center Magnet Recognition Program (American Nurses Credentialing Center, 2011)

Our 8000-strong workforce is made up of 59% Generation Y. Nursing is the largest family group at 37% and much of the staff is younger than 35. Traditionally, the nursing culture has been hierarchical, and seniors made decisions. Today, frontline nurses from the younger generation want to be partners in decision-making and hope to influence their work environment and care practices. Shared Governance is introduced with the reformation of existing engagement structure to one that reorients decision-making to require a broader distribution of decisions across all levels of nurses. The goal is to build a truly staff-driven model for decision-making and action.
Shared Governance Structure

At a micro-system level, Unit Councils (UCs) are formed in every nursing unit. The UCs comprise nursing supervisors and direct care nurses working in partnership to champion improvement efforts in their units. Issues related to staff scheduling, teamwork, practice gaps, educational needs and quality indicators are discussed as a team. Unit Councils are given autonomy over the projects they wish to pilot, giving them the flexibility to adapt to challenges on the ground.

At a mesosystem level, a councillor model for shared decision-making is developed. Five Governance Councils (GC) are set up to oversee divisional wide issues. Each of the GC is empowered within the structure to explore and test-bed new ideas. They also play a consultative role in their specific areas and provide valuable feedback on any wide-reaching processes before rollout. GC elections are held every two to three years, and any nurse can be nominated and elected to the councils to champion a change he or she wants to see.

The councils are organized on five key domains: Nursing Practice (NP), Nursing Work-life (NWL), Nursing Education & Development (NED), Nursing Quality & Research (NQR), and Person-Centred Care (PCC). Each of these domains aligns with the organization’s espoused vision towards ‘Better People, Better Care and Better Community’. The Nursing Practice Governance Council members provide oversight on activities related to nursing practice and the use of technology. They evaluate standards of practice and implement strategic plans to improve the care delivery system. The Nursing Education and Development Governance Council members facilitate professional development of staff and refine nursing educational needs. They also promote the teaching role of nurses.

The Nursing Quality and Research Governance Council members seek to promote culture of inquiry and innovation. They promote research and innovation through the set-up of the “I am a Nurse Scientist” award and the “Innovation Fund”. Nurse researchers and innovators are provided with seed funding to develop their ideas. The Nursing Work-Life Governance Council members are advocates of a happy and safe workplace. They make visible the contributions of nurses and strategize action plans to recruit and retain nurses.

The Person-Centred Care Governance Council encourages nurses at all levels to embrace person-centred mindfulness in their daily interactions with patients, families and one another. A council charter was developed for each GC, which describes the goals of the council, roles and responsibilities, measures of success and rules of engagement so that the work of the council stays focused. The GCs function under the oversight of the Coordinating Council (CC), chaired by the Chief Nurse. The CC ensures that the GCs are collaborative, communicative and accountable and maintains connectivity among councils.

Empowerment and outcomes

At the unit councils, there is evidence of increasing engagement from staff in solving day-to-day problems and in improving patient’s care experience. The unit councils initiated a total of over eighty improvement projects each year in 2016 and 2017. Here are three examples of the projects:

1. Surgical unit: Saving time through a medication drop-box

At the surgical ward, the team implemented a medication drop-box system that reduced the time taken for the return of unused medications to the pharmacy from 5 minutes to 1 minute per patient, resulting in a 40-minute save per day. This system also eliminates the need for paper documentation and counting of drugs at the unit. The solution is being spread to all inpatient units.

2. Stroke unit: Helping stroke patients on their journey

Nurses from the stroke unit created an info graphic chart on the unit’s wall to better educate their patients and family on the journey of a stroke patient. This initiative has alleviated patients’ anxiety and garnered much positive feedback. One patient said, “We are now better informed on our condition and care in the ward, and it gives us greater hope for recovery.”

3. Medical unit: Empowering patients in self-care

Keeping track of the amount of fluid and food patients consume is important. Nurses created a set of standardized measurements and provided suitable patients with a chart with clear picture-based categories for them to note down their own intake and output. Eighty percent of patients who meet the criteria practice self-charting. The medical team can then obtain a more accurate record of intake and output and patients has developed a greater sense of awareness for self-care.

At the division level, sustained improvements in patient fall rates, patient and staff satisfaction scores are observed since the introduction of shared governance in 2012. Inpatient fall rate per 1000 patient days was reduced by 33% from 2012 to 2015, patient satisfaction score increased by nearly ten percentage points in 2015 and staff satisfaction scores in work organization, job satisfaction, empowerment, communication, and work relationship have increased by at least five percentage points.

Satisfaction surveys were administered in 2014 and 2016 using the National Database of Nursing Quality Indicators (NDNQI) registered nurse job satisfaction scale. Table 1 highlights improvement in scores in all areas surveyed, with high positive ratings in professional status, autonomy, RN-MD interactions, RN-RN interactions, nursing administration, management, professional development opportunity, access, and control over work.

Achieving Sustainability

The SG program is evaluated regularly. In March 2015, the program was modified to keep it relevant and sustainable. We created regular platforms for councils to present their projects, a strategy to recognize the work of the councils and introduce peer competition to keep the momentum
Better Performance and Quality through Focussed Innovation

Better Performance and Quality through Focussed Innovation Vol. 54 No. 2

A good communication strategy is crucial in keeping staff engaged. The five governance councils meet with the unit councils on a quarterly basis. At the session, the unit councils would present their on-going initiatives to inspire and encourage sharing of new ideas and best practices. The governance councils also discuss issues of concern and new initiatives with the unit councils. Every unit council has an assigned representative governance council member, who serves the role of facilitating a cross exchange of information and encouraging each unit council. Close interactions build rapport and trust over time.

Power Lunch is another unique platform designed to ensure on-going dialogue between the Chief Nurse and the unit councils. It is held quarterly over lunch with the unit councils and provides the opportunity for members to raise concerns and clarify issues with the Chief Nurse. Members would raise queries ranging from staffing to operational pain-points as well as interdepartmental conflicts. At these sessions, the Chief Nurse takes the opportunities to explain hospital or division policies as well as notes down issues to be followed up.

Conclusion

In 2013, TTSH was designated with the American Nurses Credentialing Center (ANCC)’s Pathway to Excellence accreditation award. Pathway to Excellence is a prestigious recognition award given to organizations that have created a positive working environment for nurses. The shared governance program was cited as an exemplar in the accreditation report as it was evident that processes were in place to promote staff-leader engagement. In 2015, the organization won the Aon Hewitt’s Best Employers Award. Shared governance was one of the cited key initiatives that have anchored its people strategy. Staff-centric initiatives such as shared governance are what the organization has credited its high staff retention rate too. We are now part of a worldwide nursing movement on shared governance. Nurses and leaders from the organization often exchange knowledge and ideas with other local nurse leaders in the country and internationally. Shared governance has indeed taken a leap in the organization and improved nurses’ work environment to one that is engaging, empowered, and positive.

Biographies

Shu Yin Hoi, Deputy Director of Nursing is the key driver for Nursing Shared Governance. She completed her degree with honours at King’s college London in 2011 and attained a Masters in Knowledge Management with Nanyang Technological University Singapore. Her interest lies in developing clinical microsystems to achieve nursing excellence in quality and patient safety.

Dionne Liew is a registered nurse and the secretariat for the shared governance program. She graduated with honours from the University of Pennsylvania. Her role involves supporting the goals and creating awareness of the shared governance model.

References


ABSTRACT: Optimal control of diabetes mellitus (DM) remains challenging globally. This is particularly pertinent in developing countries where the burden of infectious diseases like HIV and TB and non-communicable diseases like DM weigh heavily on both the fiscal and on human suffering alike. Approaches to improving diabetes control in developing countries are highly sought after. This article describes the implementation of one such approach into a resource-limited diabetes clinic in Pietermaritzburg, South Africa. Studies that have been conducted in this clinic post-implementation of this multifaceted approach to diabetes care have demonstrated improved diabetes control within this setting. This blueprint can be used in other such clinics in developing world countries.

Introduction

Diabetes mellitus (DM) is a chronic disease with devastating complications. Both the disease and its complications place a considerable burden on the economy. This is especially so in developing countries where, according to the 2014 International Diabetes Federation (IDF) guidelines, approximately 77% of patients with diabetes are found. Globally, optimal control in the majority of patients with DM remains elusive. This is pertinent in developing countries where the burden of DM and its complications coupled with infectious diseases continues to weigh heavily both on human suffering and the economies of these countries. Strategies to improve diabetes care are crucial, more especially in resource-limited developing countries. Improving diabetes care begins at the community level, and even small improvements made at this healthcare level may translate into more significant benefits to both the patient and the population at large.

Edendale Hospital (EDH) is a busy regional level hospital situated in the capital of KwaZulu-Natal (KZN), South Africa. A previous study done at this clinic demonstrated that there was suboptimal diabetes control at this clinic. This study prompted me to assess the effects that the introduction of a multifaceted approach to diabetes care would have on overall diabetes control within this clinic. Studies also conducted at private diabetes clinics in South Africa revealed that the majority of patients with diabetes were sub-optimally controlled. Renders et al showed in their systematic review of studies conducted in developed countries that a multifaceted approach targeting both the professionals (clinician and nursing staff) and patient education was effective in improving patient outcomes. Samoutis et al using a multifaceted approach targeting diabetes care in Cyprus showed similar favorable results while Ricci-Cabello et al in their systematic review and meta-analysis of studies performed in rural and low-income areas showed that interventions to improve diabetes care need to be multifaceted.

Limited studies detailing the effects of the introduction of a multifaceted approach to diabetes care, as described below, exist in resource-limited Africa. Studies from South Africa (SA) and Cameroon have demonstrated that systems directed towards improving nursing diabetic protocols and education do have a beneficial effect on diabetes control. Van Zyl et al in their study conducted in two tertiary diabetes clinics in South Africa showed that improving clinician education and structuring the diabetes consultation process resulted in improved care of the diabetes patient. Auditing of diabetes management in a resource-limited primary care setting in South Africa has also been shown to improve overall quality of diabetes care. Patient education is an essential first step towards diabetes control. This education process should be present at every level of the multidisciplinary team and is integral to achieving control. The diabetes nurse educator’s role is pivotal in improving the quality of diabetes education imparted to patients. Dietary advice to patients with diabetes has shown benefit in improving glycemic control. Diabetic retinopathy accounts for the majority of cases of new onset blindness in adults between 20 and 74 years of age. Annual eye assessments form an integral component of optimal diabetes care. Foot care is a substantial part in managing diabetes since individuals with DM are 20 times more prone to lower limb amputations than patients without DM. DM is a chronic disease requiring the patient to take ownership of their own health. One of the fundamental aspects of self-control entails being able to manage diabetes at home. This involves self-
monitoring of blood glucose (SMBG) by the patient. Guerci et al demonstrated that SMBG improves metabolic control in patients with diabetes,\textsuperscript{17} while the ROSSO study also highlighted the benefits of performing SMBG in patients with DM in reducing both morbidity and mortality.\textsuperscript{18}

**Implementation of a multifaceted approach to diabetes care**

Once the inadequacies of the EDH diabetes clinic had been assessed, certain vital improvements were made.

In summary, these included the following:

- Setting up of a multidisciplinary team including dietician, podiatrist services and ophthalmological care
- Acquisition of appropriate equipment through donations
- Improved clinic physical facilities
- Better clinic booking system
- Clinician and nurse education on Society of Endocrinology and Metabolism of South Africa (SEMDSA) diabetes guidelines
- Extensive patient education from all the members of multidisciplinary team
- Issuing of blood glucose machines to all patients on insulin therapy for self-monitoring of blood glucose (SMBG).
- Introduction of a unique data collection tool which included the following:
  - Datassheet – to be completed in triplicate for every patient. Amongst other reasons, this ensured a comprehensive and standardized approach to every patient consulted at the clinic and assisted in dissemination of patient data to their local healthcare facility.
  - Ink-based stamp to confirm that nursing staff routinely perform a standard set of vital signs
  - Specially designed computer Programme written using Visual Basic.net and .net technologies, which helped for auditing clinical, biochemical and epidemiological variables.

**Results**

Much of the scope of diabetes as a non-communicable disease (NCD) is not currently understood in our province. We initially set out to provide an overview of the burden of DM within the public sector in KZN over a period of 5 years. Findings of this study demonstrated a strong proportional relationship between defaulter and diabetic-related amputation rates. A significant percentage of patients with diabetes was diagnosed and commenced on therapy at their local clinics rather than at hospitals in the province. This emphasizes the need to strengthen our clinics in terms of resources and staffing together with nursing and clinician education.

Diabetes control in this clinic was assessed before and after implementation of this multifaceted approach to diabetes care into the clinic.\textsuperscript{19,20} Results from these studies conclusively demonstrated that a multifaceted approach is feasible in a developing country and that this model could be used as a blueprint for other resource-limited diabetes clinics in SA and Africa.

The impact on diabetes control after issuing of blood glucose meters to those patients on any form of insulin therapy was also assessed. All patients who qualified for these machines received education on their use and steps to be followed in the event of hypo- or hyper-glycaemia with regards to diet, exercise and medication dosage adjustments. Previous studies on the benefits of SMBG have been conflicting. Patrick et al\textsuperscript{21} found no definite evidence that SMBG improved blood glucose control in his cohort of type 2 patients with diabetes. However, Guerci et al in his more extensive study showed definite evidence that SMBG improved metabolic control in patients with diabetes. This benefit in controlling blood sugar with SMBG was also seen in a later study conducted by McAndrew et al.\textsuperscript{22} Both the DiGEM\textsuperscript{23} and the ESMON studies\textsuperscript{24} found no clear benefit on glycemic control from using SMBG, if adequate patient education and training did not accompany the SMBG. Our study demonstrated significant improvements in the glycemic control between baseline, six- and twelve months. The number of patients achieving target glycemic control also increased substantially both at six and at twelve months while the number of patients who achieved target total cholesterol and triglyceride levels improved at six months. Mean HDL-cholesterol levels increased significantly between baseline and twelve months. This study demonstrated that the introduction of SMBG together with appropriate patient education on its use, within this resource-limited clinic setting, had beneficial effects on diabetes control.

The introduction of a comprehensive data collection tool into the clinic allowed us to gain insight into the following:

- The prevalence of ECG aberrations in the black South African patients with diabetes. Limited data on this exists in Africa, especially so in SA. The ECG aberrations found in this cohort of patients was compared to other similar studies that were done in Cameroon and Nigeria.\textsuperscript{24-25} This study demonstrated a high prevalence of left ventricular hypertrophy (LVH) and undiagnosed or silent myocardial infarctions (MI) within this cohort of black South African patients with diabetes when compared to other studies done in Africa and the developed world. As found in other studies worldwide, our patients with LVH were more prone to MI. Poor glycemic and cholesterol control coupled with obesity was found in those patients with MI. HIV-infected patients were seen to be at a significantly higher risk of developing MI.

- The control currently being achieved in the human immunodeficiency virus (HIV)-infected versus the HIV-uninfected patients with diabetes. Findings from this comparison will help in developing effective strategies to deal with the deadly combination of HIV and DM. SA has a high prevalence of HIV infection\textsuperscript{26-27}. HIV-infected patients are living longer as a consequence of the rollout of antiretroviral drugs (ARVs). They are now experiencing chronic conditions like DM due to the HIV itself, the ARVs or increased longevity. Limited studies exist in Africa and South Africa on the combination of DM and HIV and the complexities in the management of such patients. Results from this study demonstrated that HIV-infected patients with diabetes had significantly more inadequate blood sugar control and a higher incidence of neuropathy and nephropathy. Most HIV-infected patients on ARVs failed to achieve target glycemic control.
Figure 1 is an apt illustration describing the multifaceted approach implemented in the clinic. Each piece of this “jigsaw puzzle” is inter-dependent on the next to complete the puzzle. This same principle is also valid in the care of diabetes, where all facets of treatment need to work together to attain optimal control.

Conclusions

The study demonstrated that many patients within the entire province of KwaZulu-Natal over the last five years were diagnosed and had their treatment initiated at their local clinic level. This is a very sobering fact indeed as this is where the government needs to target. The emphasis needs to be on improving resources in terms of both staffing and equipment coupled with increased clinician and nursing education on the management of DM.

Our studies have provided ample evidence that these simple interventions are highly effective in improving diabetes control within a developing country setting. The Government needs to heed results of such research and implement steps to reproduce these changes within SA diabetes clinics. Improved diabetes control leads to decreased diabetes-related complications and may assist in breaking the vicious interactions between TB and HIV in SA. Much greater attention to non-communicable diseases by the government is needed as a matter of urgency if we are ever going to win this battle for optimal diabetes control.

Biography:

Dr. Somasundram Pillay is a specialist physician working at Edendale Hospital, Pietermaritzburg, KwaZulu-Natal as well as a clinical lecturer at the University of KwaZulu-Natal. He has recently attained his Ph.D. for his work on improving diabetes care at resource-limited developing world settings. He is actively involved in both undergraduate and postgraduate teaching and supervision. His interests lie in diabetes and endocrinology, and he is working closely with government to implement improved diabetes care strategies.
References

Hospital Management Asia 2018

13-14 Sept 2018
Centara Grand at CentralWorld
Bangkok, Thailand

Special offer for IHF members:
Get 10% discount on your registration for HMA 2018 conferences & free 3 nights stay at one of the satellite hotels in Bangkok when you register with a colleague*

The 17th Hospital Management Asia (HMA) is an annual regional event for hospital owners, C-level executives, directors, clinicians and healthcare leaders to get insights on healthcare management thinking and solutions to overcome the rising costs of healthcare. For more information, check out www.hospitalmanagementasia.com – book a seat at the most coveted thought leadership platform for healthcare in the region.

5 TRACKS AT HMA 2018

1. SAFETY, QUALITY AND ACCREDITATION
2. PATIENT CARE AND ENGAGEMENT
3. TALENT MANAGEMENT
4. HEALTHCARE 4.0
5. FEATURED SESSIONS FOR C-LEVELS

Co-hosted by: 
Knowledge Partner: Joint Commission International
Supporting Sponsors: ORION HEALTH

Education Partner: IHLIM
Organised by: CLARION

International and Regional Association Partners:

Registration: www.hospitalmanagementasia.com    Lennette.Gabayeron@clarionevents.com    +65 6590 3982

1ST EDITION IN WUXI, CHINA!

18-20 July 2018, Wuxi Taihu Hotel, China

Hospital Management Asia: China Edition will provide a valuable platform for Chinese and international attendees to network with one another learn about hospital management strategies from different cultures and explore opportunities for collaboration.

IHF members will also receive a 20% discount for your conference passes!

Register at www.hospitalmanagement-china.com or send an email to InfoAsia@clarionevents.com today.
Achieving high Reliability through Care Coordination for Patients who require Emergency Surgery

SAPAN S. DESAI
DIRECTOR, PERFORMANCE IMPROVEMENT
NORTHWEST COMMUNITY HOSPITAL
ARLINGTON HEIGHTS, IL, USA

JOHN CONSENTINO
CERTIFIED LEAN SIX SIGMA MASTER BLACK BELT, PERFORMANCE IMPROVEMENT,
NORTHWEST COMMUNITY HOSPITAL
ARLINGTON HEIGHTS, IL, USA

ABSTRACT: Ruptured abdominal aortic aneurysms (AAA) are associated with a 90% overall mortality and $150,000 cost of care. Despite major improvements in intensive care and surgical technology, morbidity and mortality remain unchanged over the past 20 years. The most significant predictor of survival is time from the door of the hospital to the operating room. To streamline operational efficiency, our team utilized lean six sigma methodologies, team training, and intentional clinical process design to institute changes in our clinical processes, enhance care coordination, and improve communication. These changes have led to a $1.8 million profit on operations, 10-day reduction in length of stay, and 89% survival rate among ruptured AAA patients.

Introduction.
Abdominal aortic aneurysms (AAA) affect approximately 10% of the population. The risk of rupture increases as the diameter of the aneurysm grows. A ruptured AAA is associated with a 90% mortality, and survivors have a high rate of secondary complications. Approximately 45,000 aneurysm repairs are completed every year, and 90% of these are now completed using minimally invasive endovascular means.1,2 While the outcomes after elective AAA repair are well understood, predictors of outcome after ruptured AAA remain poorly studied due to the relatively lower sample size at individual institutions.3-5 However, despite significant improvements in critical care and the advent of endovascular aneurysm repair (EVAR), morbidity and mortality remain virtually unchanged.1,3 The most significant predictive factor for poor outcomes in ruptured AAA patients is time from arrival at the emergency room (ER) to transfer to the operating room (OR).6

Our hospital system, therefore, sought to establish a baseline for transfer time from arrival in the emergency room (ER) to the OR for ruptured AAA patients. We identified several issues with clinical processes after the completion of a Failure Modes and Effects Analysis (FMEA), and thus opted to use lean six sigma (LSS) methodologies, team training, and intentional clinical process design to streamline clinical operations.

Lean six-sigma is a set of performance improvement tools that use a standardized process to make changes. Adopted originally from manufacturing, LSS precisely defines the problem, measures the variables associated with it, uses statistics to analyze the findings, institutes a plan of improvement, and then maintains those gains through the use of a Control plan (DMAIC). Team training is a mechanism to use standard tools to cross train members of a multidisciplinary team so that each stakeholder understands the responsibilities and expectations of others. Intentional clinical process design is a term that we have developed that indicates that a process was re-engineered using best practices, evidence-based medicine, and error proofing.

The purpose of this paper is, therefore, to describe how we have streamlined the process for getting a patient to the OR from the time they present to the ER. We hypothesize that this would lead to a decrease in complications, length of stay (LOS), cost of care, and an improvement in survival.

Methods
A retrospective chart review was completed for all patients who presented with a ruptured AAA at our institution between April 2015 and June 2017. Records were evaluated to determine the time of arrival, time of CT scan, and time of arrival to the OR. Patient disposition, length of stay (LOS), 30-day mortality, and cost of care (variable costs, 2017 USD) were also calculated.

National data on median length of stay, cost of care (total costs), and overall mortality was obtained from the National Inpatient Sample (NIS), a part of the Health Care Utilization Project (HCUP) maintained by the Agency for Healthcare Research and Quality (AHRQ). The NIS is the largest all-payer...
inpatient database and includes a stratified 20% random sample of all nonfederal inpatient hospital admissions throughout the United States. Clinical records between 2010 and 2014 (the most recent available) were obtained using the ninth revision of the International Classification of Diseases (ICD-9) diagnosis and procedure codes to ensure that the sample included patients who underwent open and endovascular treatment for abdominal aortic aneurysm disease. We have previously published our methods and analysis on large database utilization.1-3 Of note, the cost data in Table 1 cannot be directly compared to the cost data in Table 2, as the former represents the total cost of care while the latter represents variable costs.

Statistical analysis was completed using ANOVA for 30-day mortality, and the Mann-Whitney U test for LOS and cost of care. Data analysis and management were done using the IBM SPSS software package (SPSS version 24, SPSS Inc., Chicago, IL). Statistical significance was set at a probability of P < 0.05. Values are presented as median with interquartile range (IQR) in parentheses for LOS and cost of care.

Results

The national mortality for patients who present with a ruptured AAA ranges from 27.8% (EVAR) to 41.3% (open repair) depending on the method of repair. The mortality is substantially less for patients who undergo elective repair, underscoring the need for a community-wide screening effort. The length of stay and total cost of care is significantly lower for patients who undergo elective repair (Table 1).

At our institution, we identified 20 patients who underwent surgical repair for a ruptured AAA before implementation of a lean six-sigma performance improvement program. Nine patients underwent repair after implementation. We noted a 10-day decrease in median length of stay (15 days to 5 days, P < 0.01; Figure 1). Survival also improved, from 70.0% to 88.9% (P = 0.144). Cost of care significantly declined from $102,468 to $30,923 (P<0.001). Our sample size was not large enough to detect significance in the decrease in mortality (Table 2).

Our average door to OR time before implementation was 217 +/- 112 minutes. This decreased to 44.6 +/- 12.4 minutes after implementation, saving an average of 172 minutes per patient (P < 0.001). Furthermore, we saw a significant decrease in variation and the absence of special cause variation following implementation, indicating that we had developed an effective clinical process to manage these complex patients (Figure 2).

An FMEA was completed at the start of the project to identify opportunities for improvement (Table 3). We noted that the most significant delays occurred with an initial incorrect diagnosis in the ER, delays in obtaining a CT scan, and delays in transport to the OR. A 5-Whys analysis conducted with key stakeholders identified the primary root cause as communication between the ER and OR, leading to poor coordination of care and wasted time. In conjunction with this group, we then implemented a strategy for intentional clinical process design to determine the critical path to have a patient go from the door to the OR as efficiently and safely as possible. A process map was developed (Figure 3).

Discussion

The findings at our hospital support the results of an earlier article that demonstrated that time from door to OR was the critical factor that impacted outcomes for ruptured AAA patients.6,8 We were able to decrease this time by nearly three hours by optimizing our value stream, decreasing variability in patient care, and intentional clinical process design.

Several improvements in our system were made, and implementation of similar changes at other institutions may also lead to an improvement in outcomes. Through improved staff and physician awareness, patients over the age of 65 who present with severe abdominal or back pain are immediately triaged and evaluated. Male patients, those with a history of smoking, a past medical or family history of aneurysm disease, recent syncope, progressively severe abdominal or back pain, hypotension, tachycardia, or a pulsatile abdominal mass are diagnosed with a ruptured AAA until proven otherwise. IV access is rapidly gained, stat labs (CBC, BMP, type and screen, coagulation panel) are immediately sent, and a CT scan completed within 5-10 minutes. The radiology team is alerted that this is an “Aortic Emergency”, and a radiologist completes a stat read and communicates these results to the ER physician while the patient is still on the CT scanner.

The vascular surgeon on call is immediately paged and reviews the patient and imaging to determine if they are a candidate for

<table>
<thead>
<tr>
<th>Table 1: National Length of Stay, 30-Day Mortality, and Cost of Care (Total Costs) for Elective AAA Repair vs. Ruptured AAA Repair Using Both Open and Endovascular Techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Variable</strong></td>
</tr>
<tr>
<td><strong>LOS (days)</strong></td>
</tr>
<tr>
<td>7 (5-10)</td>
</tr>
<tr>
<td><strong>Mortality</strong></td>
</tr>
<tr>
<td><strong>Cost of Care ($)</strong></td>
</tr>
</tbody>
</table>

Source: authors
surgery. If the patient is deemed to be a candidate, the vascular surgeon grants approval to activate the “Aortic Emergency” team to the ER physician, who then immediately calls a central number to activate the team. If anesthesia, vascular surgery, perfusion, radiology, operating team, and operating room are immediately available, the patient goes directly from the CT scanner to the OR. We have achieved door to OR times as low as 21 minutes in this case. Unfortunately, most ruptured AAA patients tend to come during off hours and weekends, and a team needs to be assembled. The communication to the entire team occurs via a dedicated paging system.

In this instance, our team has up to 30 minutes to prepare an

### TABLE 2: LENGTH OF STAY, MORTALITY, AND COST OF CARE (VARIABLE COSTS) FOR RUPTURED ANEURYSM PATIENTS AT OUR INSTITUTION BEFORE AND AFTER IMPLEMENTATION OF A LEAN SIX-SIGMA PROGRAM

<table>
<thead>
<tr>
<th></th>
<th>Before Implementation</th>
<th>After Implementation</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Size</td>
<td>20</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>LOS (days)</td>
<td>15 (4-19)</td>
<td>5 (2-5)</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Mortality</td>
<td>30.0%</td>
<td>11.1%</td>
<td>0.144</td>
</tr>
<tr>
<td>Cost of Care ($)</td>
<td>102,468 (55,921-163,233)</td>
<td>30,923 (22,920-44,826)</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>

Source: authors

### TABLE 3: FAILURE MODES AND EFFECTS ANALYSIS (FMEA) FOR RUPTURED AAA PATIENTS. LIKELIHOOD, IMPACT, AND SEVERITY SCORES ARE CALCULATED

<table>
<thead>
<tr>
<th>Adverse Event</th>
<th>Impact on Care</th>
<th>Current Risk</th>
<th>Mitigation</th>
<th>Residual Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Missing changes in patient’s vital signs in ambulance</td>
<td>Safety Effectiveness</td>
<td>2 8 16</td>
<td>EMS to ensure that vital signs are measured for critically-ill patients</td>
<td>1 3 3</td>
</tr>
<tr>
<td>Missing EMS radio call documentation</td>
<td>Safety Effectiveness</td>
<td>7 5 35</td>
<td>ER to ensure that EMS radio call is documented and made a part of the medical</td>
<td>2 2 4</td>
</tr>
<tr>
<td>Missing changes in patient’s vital signs while in the ER</td>
<td>Safety Effectiveness</td>
<td>2 8 16</td>
<td>ER to ensure that vital signs are measured for critically-ill patients</td>
<td>1 3 3</td>
</tr>
<tr>
<td>Incorrect diagnosis</td>
<td>Safety Delay of Care</td>
<td>4 10 40</td>
<td>Require vascular surgeon to confirm patient is a candidate for surgery</td>
<td>1 2 2</td>
</tr>
<tr>
<td>Delay in obtaining CT scans</td>
<td>Effectiveness Delay of Care</td>
<td>6 7 42</td>
<td>Radiologist to conduct STAT read &amp; interpretation and call ER MD with results</td>
<td>1 2 2</td>
</tr>
<tr>
<td>False activation of the OR</td>
<td>Effectiveness Increased Cost</td>
<td>4 3 12</td>
<td>ED MD activates OR Team after confirming with Vascular MD</td>
<td>1 1 1</td>
</tr>
<tr>
<td>Heart Team not arriving within 30 minutes</td>
<td>Safety Delay of Care</td>
<td>2 8 16</td>
<td>Ensure communication to Heart Team is sent correctly and in a timely manner</td>
<td>2 1 2</td>
</tr>
<tr>
<td>OR not set-up within 15 minutes</td>
<td>Safety Delay of Care</td>
<td>3 8 24</td>
<td>Ensure OR team knows and understand the OR set-up process</td>
<td>2 1 2</td>
</tr>
</tbody>
</table>

Source: authors
Achieving high Reliability through Care Coordination for Patients who require Emergency Surgery

Better Performance and Quality through Focussed Innovation Vol. 54 No. 2

Operating room for this level 1 emergency. This includes transit time to the hospital and prep time at the hospital. A high level of coordination of care is achieved between the central lab, blood bank, pharmacy, perfusion, anesthesia, the ER, the OR team, and vascular surgeon due to communication to the entire team that this is an “Aortic Emergency” and requires immediate attention. Through cross training of this entire team, each member is aware of the overall team’s responsibility, in addition to the individual obligations of each team member.

While the OR is being prepared, the ER is simultaneously preparing the patient for surgery by obtaining cross-matched blood (or activating the mass transfusion protocol if there will be a delay), placing a Foley catheter, and obtaining peripheral arterial and venous access. As soon as the OR is ready, the OR charge nurse notifies the bedside ER nurse, who immediately transfers the patient to the operating room. In these instances, our door to OR times ranged from 38-57 minutes.

Our institution has seen a significant improvement in the quality of care we provide to patients with ruptured AAA. We attribute these improvements in safety, timeliness, efficacy, efficiency, equitability, and patient-centered care to the implementation of a lean six-sigma performance improvement program. This program identified defects with communication, coordination of care, physician and staff awareness, and major variability in clinical processes. Correction of the underlying defects has translated into markedly less variability in care, with a subsequent decrease in the door to OR time, length of stay, inpatient mortality, and cost of care.

This strategy has led to an improvement in care coordination in other areas of the hospital. We have seen communication protocols being implemented between radiology and the ER for other critical emergencies, streamlining of processes to bring other level 1 emergencies to the OR, and improved coordination of care between the ER and OR for other critically-ill patients. As this project has reached maturity at our institution, our goal is to expand its scope and implement similar enhancements for all critically ill patients who require emergency surgery.

Biographies

Dr. Sapan Desai is the Director of Performance Improvement at Northwest Community Hospital and Chief Executive Officer of the Surgisphere Corporation. He is an internationally recognized authority in quality and performance improvement, recipient of the international award in quality by the International Hospital Federation (IHF) in 2015, and recognized as an honorable mention for the Grand Award given by the IHF in 2017. He is the author of publications and presentations on various topics in healthcare quality, big data, medicine, and vascular surgery.

Mr. John Cosentino is a lean six sigma master black belt in Performance Improvement at Northwest Community Hospital. He has been internationally recognized for his work in healthcare quality and performance improvement by the IHF. He brings a unique blend of expertise to healthcare performance improvement through a fusion of his experience in manufacturing, data analytics, and healthcare.

FIGURE 1: AVERAGE LENGTH OF STAY FOR PATIENTS PRE-IMPLEMENTATION (RED) AND POST-IMPLEMENTATION (GREEN)

We noted a 279% improvement in LOS over the course of this study.

FIGURE 2: DOOR TO OR TRANSPORT TIME CONTROL CHART FOR DEMONSTRATING THE EFFECTIVENESS OF OUR NEW CLINICAL PROCESS FOR TREATING PATIENTS WITH RUPTURED AAA

Door to OR Control Chart


Length of Stay


279% Improvement in Length of Stay

Source: authors

The red lines indicate the upper and lower control limits, which in this case are +/- two standard deviations. Individual patients are plotted in blue, while the black line indicates the average performance. Implementation of this LSS project is noted, with the resulting major decrease in door to OR time and the absence of special cause variation.

Source: authors
Coordination of care between ER, radiology, central lab, blood bank, pharmacy, perfusion, anesthesia, OR team, and vascular surgery was greatly improved through streamlining of communication protocols, implementation of a single, versatile clinical process, and cross-training of staff.

References


Acknowledgements

We are grateful for the outstanding support from all of the members of the lean six-sigma performance improvement team that assisted with development of this aortic emergency protocol.
Nationwide Student Health physical Examination in Tuvalu

Introduction
Tuvalu, composed of nine atolls, is an island country in the South Pacific Ocean with the second smallest population and the fourth smallest territory in the world. Tuvalu is designated as a least developed country and seriously lacks medical resources, and therefore she has accepted assistance from other nations and international health organizations, including the World Health Organization (WHO), for a long term.

In 2006, Chung Shan Medical University Hospital (CSMUH) concluded sister hospital tie-up with the Princess Margaret Hospital of Tuvalu and started the annual dispatch of the mobile medical team. CSMUH signed a 5-year medical cooperative agreement with the Tuvalu Ministry of Health (MoH of Tuvalu) in 2011 and began to implement the “TAIWAN MEDICAL PROGRAM”. Besides keeping sending the medical team, CSMUH also sends coordinators and doctors to stay in Tuvalu for a long time for not only performing the voluntary medical service and operations but putting more effort into the training of public health and medical education to assist in improving health perceptions of the locals and medical capabilities of healthcare personnel.

Background
The health of students is the future of a country. The student health examination is regarded as the preventive health care item for adolescent preventive health care by countries in the world. However, such examination had never been performed in this country before. In addition to inconvenient traffic between inner and outer islands, that too many subsidiary islets and the unequal population distribution easily form marginalized groups, and furthermore, the practices of the school children health check-up involve different departments including execution, education, public health, and transport, which makes the project integration difficult. Therefore the health examinations not listed as the item for medical assistance by other nations or international organizations. In 2016, with the active cooperation of relevant agencies, CSMUH surmounted numerous difficulties and promoted the first nationwide school children health examination in Tuvalu.

Purpose
The main purpose of this project is to realize the status of growth and developmental for school children in Tuvalu, then provide adequate therapies and correction. Furthermore, from the perspective of preventive medicine, appropriate health education based on the results would be capable of teaching children to pay more attention to concepts, attitudes, and behavior of self-health, and establishing the associated systems for medical assistance, counseling, referral, etc.

Methods
From April to June 2016, a group including pediatric doctor,
medical technician, nursing staff was sent from Taiwan and cooperated with local physicians to conduct this health-screening project, covering students aged 6 to 15 years from all nine islands in Tuvalu.

The structural form, based on the health examination items for school children in Taiwan, was adjusted and designed for local needs. The check-up list, with a total of 19 items, includes height, weight, BMI, vision, color vision deficiency, auditory skills, a head-to-toe physical examination (head, neck, ear, nose and throat, heart, lung, abdomen, vertebral column, urological, reproductive systems, extremities, trunk and skin), pinworm and urine screening (protein, glucose, occult blood and pH).

The data was evaluated with descriptive statistics, including the one-way analysis of variance, the Pearson’s correlation analysis, and the Chi-square test by software SPSS 22.0 version.

Results

General statistics

A total of 1648 school children participated in the health checkup examination, covering 90.2% of the entire school children of Tuvalu (Table 1). Among all the islands, the capital island, Funafuti Island, accounted for the most proportion (47.5%). Boys accounted for 51.3% and girls for 48.7%. The average age of attendees was 9.3 years old. Among these attendees, those aged under 5 accounted for 5.9%; age 6 to 11 accounted for 69.1%; age 12 to 14 accounted for 24% and age above 14 accounted for 1%. The status of growth were as follows: mean height: 134.8 cm; mean body weight: 34.9 Kg; mean BMI: 18.3 (9.2 – 42.6). Figure 1 showed the comparison of the growth curve for Tuvalu school children and WHO school students between 5 to 19 years old.

Abnormalities according to organ systems

The most common abnormalities were in the fields of oral, ear & skin diseases. Furthermore, a high proportion of proteinuria and hematuria were also noted. The common abnormalities were listed as: dental caries (31.2%), ear wax embolism (29.8%), skin disease (tinea vesicolor, warts, eczema, 28.3%), BMI<18.5 (underweight, 65.2%), overweight (5.9%), obesity (2%), urine proteinuria (> 1 ±) (53.3%), urine sugar (1%) and urine occult blood (73.4%) (Figure 2).

Urine abnormalities

Those with urine protein abnormalities (above ±) accounted for 53.3%. Those with urine sugar abnormalities (above ±) accounted for 1%. Those with urine OB abnormalities (above ±) accounted for 73.4% (Table 2). The proportion of urine abnormalities were high, and ANOVA statistical analysis showed that the proteinuria ≥ 2 + was significant (P = 0.05).

Discussions

Innovation of the project with outstanding achievements in corporate social responsibility

In Tuvalu, food and daily necessities are dependent on import due to its lack of natural resources. However, the massive importation of numerous civilized products such as alcohol products and sugary beverages dramatically harms the health of children who are growing and developing. Moreover, due to insufficient medical facilities and dispersed outer islands, critically ill patients can be only transferred to Princess Margaret hospital in Funafuti – Capital Island for new management treatment by shipping. Hence, preventive medicine is quite important for Tuvalu.

The school children health examination was the first nationwide survey activity executed in Tuvalu. CSMUH supported it in cooperation with the government of Tuvalu and WHO. With the expense provided by WHO for the ship tickets, healthcare personnel dispatch by the MoH of Tuvalu, the promotion to elementary and secondary schools by the Ministry of Education (MoE), the sailing schedule for each island by the Ministry of Communication & Transport (MCT) and great attention with strong support from all the departments, this program became an accomplished act. The only hospital of Tuvalu is established in the main island- Funafuti, and the other eight outer islands only have clinics. The unequal distribution of medical resources and the great imbalance between the numbers of school children often make the minority groups unable to receive proper medical assistance. Under the cooperation with the government agencies, the medical team spent more than two months traveling around the whole nine islands to complete the project.

The health checkup project and relevant stakeholders

The health examination is a positive way of health care that early intervention can be made when the diseases are detected in the early stage through examination. The aims of implementation of the health examination are as follows:

1. For student: to adjust the lifestyle, pay attention to the diet and exercise
2. For school: to understand the health and growth statuses of students for adjustment of educational and physical activities effectively according to their adaptability.
3. For hospital: to early detect physical defects and diseases and provide appropriate treatment.
4. For parents: to enhance awareness of their children’s health.
5. For the associated government agency: to modify strategic decision according to the information from the national students health condition.

Follow-up

Among the school children in Tuvalu, underweight students (BMI<18.5) account for 65.2%, overweight students account for 5.9%, and obese students account for 2%. Among the results, abnormalities of the urinalysis caught our attention. Therefore, urine re-examination was conducted in 5 schools from the central island and the capital - Funafuti. The re-examination results revealed that the proportion of proteinuria decreased by 33.3% and occult blood decreased by 52.6%. We considered relative dehydration due to inadequate fluid intake to be the main reason. According to the checkup result, our dentists were sent for a nationwide oral care tour to treat dental illness and closely follow-up with these patients. Moreover, education of oral cavity care was carried out by broadcasting, and the dentists
were sent to schools, teaching children how to brush their teeth correctly.

For other abnormalities and diseases discovered, specialists were recruited to mobile medical team to provide outpatient services, operations and medical therapies twice a year. Additionally, One audiologist was sent to offer a “Hearing Pathway and Hearing Loss” training course to medical staff in the institution to upgrade their professional knowledge, techniques, and clinical skills.

We also designed several health education handbooks in dual languages for school children, consisting of subjects on personal cleanliness, dental care, hand washing, eating healthy, etc., based on the examination results. These handbooks were sent to the elementary schools in each island, and provide adequate knowledge and methods for teachers and parents to educate their students (Figure 3).

Conclusions

The school children health examination involved many fields, and therefore CSMUH invited the Tuvalu government and WHO for cooperation. With support and assistance from the Embassy of the Republic of China (Taiwan) in Tuvalu, we coordinated and communicated with the MoH, MoE, MCT of Tuvalu and the Ministry of Internal Affairs (MHCAR) for implementation of this program. A special interview to show the appreciation and thankfulness was held on the radio station- the only express media in Tuvalu.

Through the aggressive, generalized health examination, the government can realize the health status of school children and pay more attention to those requiring intervention constantly, then try to achieve the goal of public health, like infectious disease prevention and furthermore reduce medical expense, which is beneficial for the national economy and security.

Biographies

Main authors:

Shao-Chuan, Wang

As an urologist, I step into the field of international medical assistance since 1996. With every medical mission, I am deeply touched by the give and gain from those places, people, and cultures.

Doctor Ming-Che Tsai is a graduate from Chung Shan Medical University, Taichung, Taiwan. He devoted himself in the field of international medical assistance and health promotion with great passion for decades. He has served as the president of AHLA (Asian Health Literacy Association) since 2017. One of his accomplishments is the International Medical Model Award in 2016.

Prof. Huang received M.S. degree in 1996 and further advanced his researches and received his Doctorate on Medicine at the Institute of Medicine of Chung Shan Medical University during 1999 to 2004. His interests in researches are mainly specifics in diabetes and diabetic complications, thyroid disease, obesity, and osteoporosis. His current position is professor of the Institute of Medicine and Internal Medicine at Chung Shan Medical University and superintendent in general of Chung Shan Medical University.

Other authors

Chun-Hua, Wu

Coordinator, Taiwan Medical Program in Tuvalu, Chung Shan Medical University Hospital Taichung, Taiwan, R.O.C.

Nese Ituaso Conway

Director, Princess Margaret Hospital, Tuvalu

Permanent secretary/chief executive officer, office of the Prime Minister, Funafuti, Tuvalu

### TABLE 1: DISTRIBUTION AND NUMBERS OF THE SCHOOL STUDENTS PARTICIPATED IN HEALTH CHECK-UP

<table>
<thead>
<tr>
<th>Island/school</th>
<th>No. of Students</th>
<th>No. of Participation</th>
<th>Participation Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nui/Vaipuna PS</td>
<td>151</td>
<td>143</td>
<td>94.7</td>
</tr>
<tr>
<td>Nukufetau/Tuta PS</td>
<td>107</td>
<td>92</td>
<td>86</td>
</tr>
<tr>
<td>Vaitupu/Tolise PS</td>
<td>230</td>
<td>207</td>
<td>90</td>
</tr>
<tr>
<td>Funafuti/Nauti PS</td>
<td>749</td>
<td>664</td>
<td>88.7</td>
</tr>
<tr>
<td>Funafuti/SDA</td>
<td>121</td>
<td>119</td>
<td>99.2</td>
</tr>
<tr>
<td>Niutao/Webley PS</td>
<td>136</td>
<td>120</td>
<td>88.2</td>
</tr>
<tr>
<td>Nanumea/Kaumaile</td>
<td>137</td>
<td>134</td>
<td>97.8</td>
</tr>
<tr>
<td>Nanumaga/Lotohoni PS</td>
<td>115</td>
<td>97</td>
<td>84.3</td>
</tr>
<tr>
<td>Niulakita/Lotoalofo PS</td>
<td>11</td>
<td>8</td>
<td>72.7</td>
</tr>
<tr>
<td>Nukulaelae/Fakimua PS</td>
<td>70</td>
<td>64</td>
<td>91.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1827</strong></td>
<td><strong>1648</strong></td>
<td><strong>90.2</strong></td>
</tr>
</tbody>
</table>

Source: Chun-Hua Wu
### TABLE 2: URINALYSIS PARAMETERS FOR STUDENTS IN TUVALU

<table>
<thead>
<tr>
<th>Urinalysis parameters</th>
<th>Number</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Protein</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neg</td>
<td>761</td>
<td>46.2</td>
</tr>
<tr>
<td>±</td>
<td>514</td>
<td>31.2</td>
</tr>
<tr>
<td>1+</td>
<td>154</td>
<td>11.2</td>
</tr>
<tr>
<td>2+</td>
<td>104</td>
<td>6.3</td>
</tr>
<tr>
<td>3+</td>
<td>53</td>
<td>3.2</td>
</tr>
<tr>
<td>4+</td>
<td>23</td>
<td>1.4</td>
</tr>
<tr>
<td>uncheck</td>
<td>9</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Sugar</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neg</td>
<td>1618</td>
<td>98.2</td>
</tr>
<tr>
<td>±</td>
<td>7</td>
<td>0.4</td>
</tr>
<tr>
<td>1+</td>
<td>7</td>
<td>0.4</td>
</tr>
<tr>
<td>2+</td>
<td>2</td>
<td>0.1</td>
</tr>
<tr>
<td>3+</td>
<td>2</td>
<td>0.1</td>
</tr>
<tr>
<td>uncheck</td>
<td>12</td>
<td>0.7</td>
</tr>
<tr>
<td><strong>Occult blood (OB)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neg</td>
<td>462</td>
<td>25.8</td>
</tr>
<tr>
<td>±</td>
<td>162</td>
<td>9.8</td>
</tr>
<tr>
<td>±Hemolysis</td>
<td>325</td>
<td>19.7</td>
</tr>
<tr>
<td>1+</td>
<td>311</td>
<td>18.9</td>
</tr>
<tr>
<td>2+</td>
<td>271</td>
<td>16.4</td>
</tr>
<tr>
<td>3+</td>
<td>140</td>
<td>8.5</td>
</tr>
<tr>
<td>4+</td>
<td>12</td>
<td>0.7</td>
</tr>
<tr>
<td>uncheck</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PH</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.0</td>
<td>90</td>
<td>5.5</td>
</tr>
<tr>
<td>6.0</td>
<td>754</td>
<td>45.8</td>
</tr>
<tr>
<td>6.5</td>
<td>743</td>
<td>45.1</td>
</tr>
<tr>
<td>7.0</td>
<td>66</td>
<td>2.2</td>
</tr>
<tr>
<td>7.5</td>
<td>7</td>
<td>0.4</td>
</tr>
<tr>
<td>8.0</td>
<td>4</td>
<td>0.2</td>
</tr>
<tr>
<td>8.5</td>
<td>3</td>
<td>0.2</td>
</tr>
<tr>
<td>uncheck</td>
<td>11</td>
<td>0.7</td>
</tr>
</tbody>
</table>

Source: Chun-Hua Wu

### FIGURE 1: COMPARISON OF GROWTH AND DEVELOPMENT CURVES BETWEEN TUVALU AND WHO STANDARDS FOR SCHOOLCHILDREN AGED BETWEEN 5 TO 19. 2A. BODY HEIGHT FOR BOYS; 2B. BODY HEIGHT FOR GIRLS; 2C. BMI FOR BOYS; 2D. BMI FOR GIRLS

2A:
Comparison of the Tuvalu and WHO Height-for-age SD curves for girls

Comparison of the Tuvalu and WHO BMI-for-age SD curves for boys

Source: WHO, modified by Chun-Hua Wu
FIGURE 2: ABNORMALITIES ACCORDING TO ORGAN SYSTEMS

Source: Chun-Hua Wu
References

InfoKids : une solution transversale et longitudinale améliorant l’expérience des patients et des soignants dans les services d’urgence en perturbant le paradigme du processus de soins

De nos jours, les citoyens sont peu soutenus pour décider s’ils doivent consulter les services d’urgence (SU) en cas de maladie ou de traumatisme. De plus, une fois aux urgences, ils doivent souvent composer avec le surpeuplement, les longs délais d’attente, la nature aigüe des visites, la gestion des données administratives et le manque de suivi après la visite. Cette situation pourrait être améliorée en offrant une expérience plus centrée sur le patient.

Pour résoudre ces problèmes, nous avons développé une solution d’e-santé en mettant en relation les patients, les soignants et les employés administratifs grâce à une solution intégrée composée d’applications web et mobiles. Ce système novateur vise à soutenir l’ensemble du processus de suivi des soins d’urgence, en facilitant le travail des soignants et du personnel administratif et en soutenant les patients avant, pendant et après leurs consultations aux urgences.

Dans cet article, nous décrivons cette solution, actuellement utilisée par un hôpital tertiaire dans un secteur touchant plus d’1 million de personnes, dans le contexte des attentes grandissantes du public en matière de soins centrés sur l’usager.

Réformer le système de santé norvégien grâce au programme norvégien de sécurité des patients

Le programme norvégien de sécurité des patients a été lancé en 2011 dans le but de réduire les dommages évitables pour les patients, d’établir des structures durables pour la sécurité des patients et d’améliorer la culture de sécurité des patients dans les services de santé et de soins. Huit ans plus tard, le programme est bien connu dans l’ensemble des services de santé et de soins en Norvège. Les zones à risque ont été ciblées en particulier, et les hôpitaux et les soins primaires travaillent sur des mesures spécifiques. Tous les fonds du secteur de la santé et hôpitaux norvégiens déclarent avoir identifié ou sont en train d’identifier toutes les zones cibles pertinentes et 300 des 426 municipalités norvégiennes ont mis en place une ou plusieurs zones cibles dans une ou plusieurs maisons de retraite et services de soins à domicile. Environ 60 % des professionnels de la santé constatent que le programme de sécurité des patients a contribué à la sécurité des patients dans leur unité.

La qualité des soins critiques en matière de sécurité des patients peut être améliorée grâce à un programme innovant d’amélioration continue de la qualité, d’une durée de 17 ans

L’accent mis sur la qualité et la sécurité des soins intensifs augmente en raison du coût élevé des soins et des risques associés. Des soins de mauvaise qualité induisent non seulement des souffrances humaines, mais aussi une augmentation de la morbidité et de la mortalité. Ces programmes d’amélioration continue de la qualité (ACQ) qui se déploient sur 17 années, avec des interventions novatrices dans un centre médical tertiaire, démontrent qu’un programme d’ACQ est essentiel pour maintenir et améliorer la qualité des soins critiques en matière de sécurité des patients. Il a été démontré que l’ACQ dans les unités de soins intensifs atténue continuellement les événements sentinelles, les événements indésirables, l’extubation non planifiée et les infections nosocomiales, y compris les infections des voies urinaires associées aux cathéters, les pneumonies associées aux ventilateurs et les infections sanguines associées aux cathéters veineux centraux. De plus, les infections à germes multi-résistants ont également été améliorées.

La solution 30/30/30 : Atteindre de nouvelles frontières en termes de qualité et de sécurité grâce à l’approche innovante Lean Six Sigma

Les soins de santé aux États-Unis sont à un point d’inflexion critique, les réformes payantes exigeant des niveaux d’accès, de résultats et de valeur plus élevés que jamais. Cet article décrit une approche innovante pour intégrer l’amélioration des processus Lean Six Sigma aux opérations du système de santé qui ont transformé notre culture de performance et de service. Connu sous le nom de «solution 30/30/30», cette approche requiert chaque année la formation de 30 % d’experts de la méthode lean six sigma (< ceintures >), réalisant 30 % de projets en plus et 30 % ou plus d’améliorations pour tout projet entrepris. Sept ans et plus de 400 projets plus tard, la solution a produit d’excellentes performances en termes de qualité, de sécurité et de satisfaction des patients, tout en permettant d’atteindre une valeur financière positive s’élevant à plus de 40 millions de dollars. Les clés de la mise en œuvre réussie du programme et les prochaines étapes de l’expansion du programme sont discutées.

Améliorer la perception et les résultats en matière de santé maternelle grâce à de multiples interventions : Utiliser l’approche des systèmes adaptatifs complexes.

Le programme de suivi obstétrical maternel (SOM) a été prévu sous la forme d’un partenariat public-privé dans un district hautement prioritaire de l’État du Karnataka, au sud de l’Inde. Le nombre insuffisant de spécialistes, d’infrastructures ainsi que l’identification et le suivi en temps réel des grossesses à haut risque ont eu un impact sur les indices de morbidité et de mortalité maternelles. Le programme a mis l’accent sur le renforcement des unités de santé de base ainsi que sur l’identification des grossesses à haut risque en mettant l’accent sur l’introduction de logiciels, de diagnostics, d’innovations en matière de flux de travail et de renforcement des capacités. Alors que des solutions logicielles permettaient l’identification et la visualisation à distance des données des patients, de simples mesures documentaires ont permis de mieux comprendre le spectre des conditions à haut risque pendant la grossesse. Parmi les résultats obtenus, les activités de communautarisation ont conduit à une augmentation de 40 % de la sensibilisation aux symptômes de grossesse à haut risque chez les femmes enceintes et à une augmentation de la sensibilisation aux programmes de santé maternelle de 58 % à 100 %. Les multiples interventions liées à des flux de travail revus, d’interface technologique, d’engagement avec les professionnels de santé de première ligne et la communauté, la communication entre de multiples parties prenantes ont conduit à des améliorations soutenues dans le programme.

Le parcours sur onze ans du Manila Doctors Hospital dans l’institutionnalisation des mesures d’atténuation du changement climatique

Le bien-être total ne peut être atteint sans reconnaître l’impor-
tance d’une gestion responsable de l’environnement. Les hôpitaux tertiaires sont un secteur énergivore. Par conséquent, il doit donner l’exemple sur la façon de gérer sa consommation d’énergie et ses déchets de manière à réduire considérablement l’empreinte carbone. Au cours des onze dernières années, le Manila Doctors Hospital a adopté un modèle qui non seulement réduit le gaspillage, en soutenant le programme de prévention des infections et les initiatives en matière d’efficacité économisée menées par la direction de l’hôpital, mais qui peut également bénéficier de son programme de recyclage. Le Bureau en charge de la responsabilité sociale des entreprises utilise les recettes du programme des matières recyclables pour les communautés touchées par le changement climatique et pour la fourniture de soins dans les zones mal desservies.

Consorci Sanitari del Garraf (CSG) - Notre cheminement vers l’efficacité

La crise économique dans notre pays a entraîné une baisse de 10 % des revenus au CSG ; notre objectif stratégique était d’accroître l’efficacité des processus en repensant les activités que nous avons réalisées. Le CSG voit le projet Lean Management comme une opportunité pour améliorer les soins aux patients tout en augmentant l’implication des professionnels.

L’amélioration des processus a été menée selon une philosophie PDCA et grâce à l’utilisation d’outils Lean. Selon cette méthode, chaque processus à améliorer est considéré comme un projet et suit les mêmes étapes : Comprendre ce qui se passe (quelle est le problème?), normaliser et stabiliser le processus, et garantir la durabilité. L’A3 est l’outil d’aide utilisé tout au long du projet.

Le développement des compétences Lean des personnes était l’un des facteurs clés. Le travail sur des projets autonomes a aidé à la mise en œuvre rapide des améliorations proposées « en apprenant par la pratique » et des résultats comme l’augmentation de 13,1 % des interventions chirurgicales ou une augmentation de 7,3 % de l’activité en imagerie diagnostique.

Lancer et soutenir une gestion « lean » dans le domaine de la santé : l’expérience du centre oncologique du roi Husseïn

L’industrie automobile a introduit le concept de « lean management » (gestion allégée). À partir de ce moment-là, les principes Lean ont été utilisés de manière innovante par différentes industries, y compris les secteurs de la santé. Ceci est prouvé par la richesse de la littérature et des preuves d’amélioration. Dans ce document, nous décrivons l’expérience d’un centre de soins tertiaires spécialisé en cancérologie, le Centre Oncologique du Roi Husseïn (CORH) avec la mise en place et en œuvre de la culture Lean. La direction du CORH a intégré les principes Lean dans sa stratégie en procédant à la formation et à l’orientation nécessaires pour adopter des principes simples et en décemment de manière cyclique une récompense à l’échelle de l’hôpital pour un projet Lean qui s’est distingué CORH a commencé avec 30 projets soumis pour le premier cycle de projets, ce qui a permis de créer une dynamique durant le deuxième cycle avec 60 projets proposés. Les facteurs clés du succès sont la facilitation du leadership, le soutien, la participation des parties prenantes et la compétitivité pour remporter le prix du projet Lean.

Gouvernance partagée : Transformer la main-d’œuvre infirmière en ayant recours à la prise de décision collective

Cet article décrit un programme de gouvernance partagée mis en place pour faciliter la prise de décision collective au sein de la division des soins infirmiers et se termine par des stratégies visant à garantir la durabilité. La migration des talents infirmiers dans un contexte de croissance de la demande de soins de santé croissantes affecte les capacités et les compétences du personnel infirmier. Celui-ci a fait appel à un modèle innovant de sensibilisation du personnel pour inspirer et motiver notre personnel, ce qui a permis d’améliorer la rétention ainsi que la satisfaction des patients et du personnel. La gouvernance partagée (SG) a été introduite dans la division des soins infirmiers de l’hôpital pour transformer la façon dont les décisions sont prises. L’objectif est de simplifier la structure décisionnelle hiérarchique traditionnelle et de donner aux infirmières en soins directs la possibilité de définir leur pratique, leurs normes et la qualité de leurs soins. Depuis cette transformation, les résultats des soins fournis aux patients, notamment les baisses et les taux de satisfaction des patients et celle du personnel en matière d’autonomisation, de communication et de relations de travail, ont évolué positivement d’année en année. Il y a également une réduction séquentielle des taux de congés maladie depuis sa mise en œuvre.

Introduire une approche à plusieurs facettes pour améliorer les soins liés au diabète au niveau régional

Le contrôle optimal du diabète sucré (DS) reste globalement difficile. Cela est particulièrement le cas dans les pays en développement où le fardeau des maladies infectieuses comme le VIH et la tuberculose et les maladies non transmissibles comme le diabète sucré pese lourdement à la fois sur le plan fiscal et sur la souffrance humaine. Les approches visant à améliorer le contrôle du diabète dans les pays en développement sont très recherchées. Cet article décrit la mise en œuvre de cette approche dans une clinique pour diabétiques à ressources limitées à Pietermaritzburg, en Afrique du Sud. Les études qui ont été menées dans cette clinique après la mise en œuvre de cette approche à multiples facettes pour soigner le diabète ont démontré un meilleur contrôle du diabète dans ce cadre. Ce plan peut être utilisé dans d’autres cliniques de ce type dans les pays en développement.

Atteindre un plus grand niveau de fiabilité par la coordination des soins pour les patients qui nécessitent une chirurgie d’urgence

Les ruptures d’anévrismes de l’aorte abdominale (AAA) sont associées à une mortalité globale de 90 % et à un coût des soins de 150 000 $. Malgré des améliorations majeures dans les soins intensifs et la technologie chirurgicale, la morbidité et la mortalité demeurent inchangées au cours des 20 dernières années. Le facteur prédictif le plus important pour la survie est le temps entre la porte de l’hôpital et la salle d’opération. Pour rationaliser l’efficacité opérationnelle, notre équipe a utilisé des méthodes Lean Six Sigma, la formation d’équipe et la mise au point de pratiques cliniques intentionnelles pour initier des changements dans nos pratiques cliniques ainsi qu’améliorer la coordination des soins et la communication. Ces changements ont entraîné un bénéfice d’exploitation de 1,8 million de dollars, une réduction de 10 jours de la durée du séjour et un taux de survie de 89 % chez les patients présentant des ruptures d’AAA.

Examen clinique national des étudiants à Tuvalu

En 2016, un groupe médical a été envoyé par le Chung Shan Medical University Hospital de Taïwan pour mener un projet national de dépistage de la santé auprès des étudiants âgés de 6 à 15 ans à Tuvalu. Le programme a bénéficié de la coopération avec l’OMS, l’ambassade de Taïwan à Tuvalu et le gouvernement de Tuvalu. La forme structurelle modifiée pour l’examen clinique a été utilisée pour évaluer l’état de la croissance et du développement. En couvrant 90,2 % des étudiants, les résultats ont montré que les anomalies communes concernaient la cavité buccale, les oreilles, les maladies de la peau et l’analyse de l’urine. Les réponses aux résultats comprennent la répétition de l’analyse d’urine chez des enfants bien précis ; envoyer des dentistes pour une tournée de consultations ; éducation en matièure de santé et manuels bilingues axés sur les questions de santé. Ce projet fait écho à la question de la « bonne santé et du bien-être »; l’un des 17 objectifs de développement durable. Ce programme a permis de mettre au point un modèle de réussite exceptionnelle en matière de responsabilité sociale des entreprises, qui garantit des vies en bonne santé et promeut le bien-être pour tous à tous âges.
**Resumen en Español**

InfoKids: una solución transversal y longitudinal que mejora la experiencia de los pacientes y del personal sanitario en los servicios de urgencias alterando el modelo de proceso de asistencia.

Hoy en día los ciudadanos se ven escasamente apoyados al momento de decidir si deben consultar los Servicios de Urgencia (SU) en caso de una enfermedad o traumatismo. Además, una vez en los SU, a menudo deben lidiar con el hacinamiento, esperas interminables, las consultas de tipo agudo, la gestión administrativa de los datos y un deficiente seguimiento después de la consulta. Esta situación puede mejorarse ofreciendo una experiencia más centrada en el paciente.

Para orientar estos problemas, hemos desarrollado una solución sanitaria electrónica que conecta los pacientes, el personal sanitario y los empleados administrativos mediante una solución integrada basada en aplicaciones web y para teléfono móvil. Este sistema innovador se concibió para apoyar todo el proceso de atención de la emergencia, facilitando el trabajo del personal sanitario y administrativo y apoyando a los pacientes antes, durante y después de su consulta al SU.

En este artículo describimos esta solución, que actualmente es utilizada en un hospital terciario en un área de captación de más de 1 millón de personas, dentro de un contexto de creciente expectativa de los ciudadanos por una atención centrada en el usuario.

**Reforma del Sistema Sanitario Noruego a través del Programa Noruego de Seguridad del Paciente**

El Programa Noruego de Seguridad del Paciente se lanzó en 2011 con el objetivo de reducir los perjuicios previsibles para el paciente, implementando estructuras duraderas para la seguridad del paciente y mejorando la cultura de la seguridad del paciente en los servicios de asistencia sanitaria. Ocho años más tarde, el Programa es ya bien conocido en todos los servicios de asistencia de Noruega. Las áreas de riesgo han sido especialmente identificadas y tanto los hospitales como la atención primaria se ocupan con medidas específicas. Todos los proveedores sanitarios y los hospitales noruegos informan que han implementado o están realizando la implementación de todas las zonas objetivo relevantes y, 300 de los 426 municipios de Noruega, ya han implementado una o más zonas objetivo relevantes en una o más de sus residencias de ancianos y servicios de asistencia domiciliaria. El 60 por ciento de los profesionales de la sanidad pudo comprobar que el Programa de Seguridad del Paciente ha mejorado los niveles de seguridad del paciente en sus unidades de atención.

La calidad de los cuidados intensivos que afectan la seguridad del paciente se mejoró mediante un programa de mejoras constantes e innovadoras de la calidad que lleva 17 años. El enfoque en la calidad y seguridad de los cuidados intensivos está aumentado debido al elevado costo de la asistencia sanitaria y a los perjuicios potenciales. La escasa calidad de la asistencia no solo aacarea el sufrimiento de las personas sino que además incrementa la morbilidad y la mortalidad. Estos programas continuativos de mejora de la calidad (CQI) que llevan 17 años con innovadoras intervenciones en un centro médico terciario demuestran que el programa CQI es esencial para mantener y mejorar la calidad de los cuidados intensivos mejorando la seguridad del paciente. CQI en unidades de asistencia intensiva mostraron la constante atenuación de los eventos centinela, eventos adversos, extubación imprevista e infecciones hospitalarias, incluyendo infecciones en el tracto urinario asociadas a catéter, neumonía asociada a la ventilación e infecciones sanguíneas asociadas a catéter venoso central. Asimismo, disminuyeron las infecciones por organismos fármaco resistentes.

La Solución 30/30/30: Alcanzar Nuevas Metas en Calidad y Seguridad mediante un método Lean Six Sigma

La sanidad en Estados Unidos se encuentra en un punto de inflexión crítico, con reformas para el pagador que exigen niveles elevados de acceso, resultados y más que nunca mejor calidad. Este trabajo describe un método innovador para los procesos de mejora de integración lean six sigma en el funcionamiento del sistema sanitario que transforme nuestro rendimiento y cultura del servicio. Conocido como “La Solución 30/30/30”, el método requiere un 30% más de expertos formados en lean six sigma (“belts”), para completar un 30% más de proyectos y alcanzando un 30% o más de mejoras de todos los proyectos emprendidos. Después de siete años y más de 400 proyectos, la solución ha producido un resultado que se coloca en la “casilla superior” con respecto a la calidad, la seguridad y la satisfacción del paciente, con un retorno de $40 millones en valor financiero positivo. Las claves de la exitosa implementación del programa y de las nuevas fronteras para la expansión del programa se están analizando.

**Mejoramiento de la sanidad materna y resultados debidos a las múltiples actuaciones**: Utilización de un complejo método de sistemas adecuados

El proyecto de Seguimiento Obstétrico Materno (SOM) fue concebido como una colaboración pública-privada en un distrito con alta prioridad en el Estado de Karnataka al sur de India. La escasez de especialistas, de infraestructura y de identificación y seguimiento de gestaciones de alto riesgo en tiempo real han impactado en los índices de mortalidad y mortalidad materna. El programa puso énfasis en la primera unidad de mejora de referencia relativa a la identificación de gestaciones de alto riesgo con un retorno de $40 millones en valor financiero positivo. Las claves de la exitosa implementación del programa y las nuevas fronteras para la expansión del programa se están analizando.

El Recorado de Once Años del Hospital Manila Doctors ejecutando Acciones Institucionales de Atención del Cambio Climático

El bienestar completo no puede alcanzarse sin reconocer la im-
portancia de una administración medioambiental responsable. Los hospitales terciarios pertenecen a un sector de consumo intensivo de energía. Por lo tanto, debe establecerse un ejemplo sobre cómo gestionar el consumo de energía y el despilfarro para disminuir de manera significativa la huella de carbono. Desde hace once años, el Hospital Manila Doctors está actuando un modelo que no solamente reduce el despilfarro apoyando la gestión del hospital en el programa de prevención de infecciones e iniciativas de contención de costos, sino que, al mismo tiempo, permite obtener beneficios de sus progra-
mas de reciclables. La Oficina de Responsabilidad Social Corpora-
tiva emplea fondos de los programas de reciclables destinándolos a las comunidades afectadas por el cambio climático y al suministro de servicios sanitarios en zonas con atención deficiente.

Consorcios Sanitarios del Garraf (CSG) – Nuestra manera de ser eficientes
La crisis económica en nuestro país provocó una disminución del 10% de los ingresos destinados a CSG; nuestro objetivo estra-
tégico fue aumentar la eficiencia de los procesos replanteando las actividades que realizábamos. CSG concibió el Proyecto de Gestión Lean como una oportunidad para mejorar la asistencia del paciente aumentando la participación de los profesionales.

El mejoramiento de los procesos se realizó en base a una filosofía PDCA y mediante el uso de las herramientas Lean. Con este méto-
do, cada proceso a mejorar se considera un proyecto en sí mismo y sigue los mismos pasos: Comprender qué está sucediendo (¿cuál es el problema?)), normalizar y estabilizar los procesos y asegurar la sostenibilidad.

Sabemos que los avances (Lean) se han logrado en una gama de industrias incluidos los sectores sanitarios. Lo demuestra la gran cantidad de literatura y la evidencia del mejoramiento. En este trabajo, describimos la experiencia de un centro sanitario terciario especializado en oncología, el King Hussein Cancer Center (KHCC), que comenzó y sigue manteniendo la cultura de la agilidad. La ges-
tión del KHCC incorporó los principios de agilidad en sus estrategias realizando la formación y orientación necesarias sobre los principios de agilidad y creando un premio para el sistema hospitalario para el mejor proyecto (Agilidad).

Este proyecto se hace eco del tema «salud y bienestar» - uno de los objetivos del Programa de Gestión Lean. Las organizaciones sanitarias y laborales han ido evolucionando positivamente año tras año. Existe además una consecuente reducción de los porcentajes de licencia por enfermedad desde la implementación.

Introducción de un Método Polifacético para Mejorar la Asistencia Regional de la Diabetes
El control preciso de la diabetes mellitus (DM) sigue siendo en la actualidad un desafío mundial. Es especialmente pertinente en países en vías de desarrollo cuando el peso de enfermedades infecciosas como VIH/SIDA y TB y enfermedades no transmisibles como la DM afectan profundamente y por igual tanto el sufrimiento humano y como el costo fiscal. Son altamente demandados métodos que mejoren el control de la diabetes en países en vías de desarrollo. Este artículo describe la implementación de un tipo de método en clínica en dos idiomas.

Inicio y mantenimiento de una administración ágil de la sanidad: la experien-
cia del centro oncológico rey hussein
La industria automotriz introdujo por primera vez el concepto de administración ágil. Desde esa época, los principios de agilidad han sido empleados de manera innovadora y destinados a diferentes industrias incluidos los sectores sanitarios. Lo demuestra la cantidad de literatura y la evidencia del mejoramiento. En este trabajo, describimos la experiencia de un centro sanitario terciario especializado en oncología, el King Hussein Cancer Center (KHCC), que comenzó y sigue manteniendo la cultura de la agilidad. La gestión del KHCC incorporó los principios de agilidad en sus estrategias realizando la formación y orientación necesarias sobre los principios de agilidad y creando un premio para el sistema hospitalario para el mejor proyecto (Agilidad).

Lograr Alta Fiabilidad Mediante la Coordinación Asistencial de Pacientes que Requieren Cirugía de Emergencia

Este artículo describe la implementación de un tipo de método en clínica en dos idiomas.

Dirección Compartida: Transformación de la Fuerza Laboral de Enfermería mediante la Toma de Decisiones Colectiva
Este artículo describe un programa de dirección compartida in-
trducido para facilitar la toma de decisiones colectiva dentro del reparto de enfermería y concluye con las estrategias para lograr la continuidad. La migración de talentos en enfermería en un panorama de aumento de la demanda de sanidad creciente afecta la capacidad y aptitud de la fuerza laboral de enfermería. Esto ha llevado a un modelo innovador de participación del personal para inspirar y moti-
vando nuestro equipo, liderando una mejor permanencia y logrando la satisfacción del personal y de los pacientes. La Dirección Compartida (DC) se introdujo en el reparto de enfermería a nivel organizativo para transformar el modo de tomar las decisiones. El éxito es nivelar la estructura de toma de decisiones jerárquica tradicional y dar al per-
sonal de enfermería de atención directa una voz en la definición de sus prácticas, patrones y calidad de asistencia. Desde la transforma-
ción, el resultado del cuidado de los pacientes que incluye descensos y porcentajes de satisfacción de los pacientes y puntuación de la satisfacción del personal con autonomía, comunicación y relaciones laborales han ido evolucionado positivamente año tras año. Existe además una consecuente reducción de los porcentajes de licencia por enfermedad desde la implementación.

Examen de Físico Clínico a Escala Nacional de los Estudiantes de Tuvalu
En 2016, se envió a Tuvalu un grupo de médicos del Hospital Uni-
versitario Chung Shan de Taiwán para realizar un proyecto de control sanitario a nivel nacional en estudiantes de 6 a 15 años. El programa contó con la coordinación de la OFS, Embajada de Taiwán en Tuvalu y el Gobierno de Tuvalu.

Esta experiencia permite preservar el medio ambiente y el bienestar del paciente, aumentando la eficiencia en la asistencia del paciente. Se realizó una revisión exhaustiva de los resultados obtenidos en el examen clínico y se establecieron recomendaciones para mejorar la atención al paciente. Se implementaron medidas para optimizar el uso de los recursos disponibles, lo que permitió reducir los costos de la asistencia clínica.

El proyecto de la Asociación Médica de Tuvalu ha logrado mejorar la calidad de la asistencia sanitaria en el país, gracias a la colaboración internacional. Los resultados obtenidos en el examen clínico han sido positivos, lo que ha permitido identificar áreas para mejorar la atención al paciente y optimizar el uso de los recursos disponibles. Se establecieron recomendaciones para mejorar la atención al paciente, lo que permite preservar el medio ambiente y el bienestar del paciente, aumentando la eficiencia en la asistencia del paciente.
中文摘要

InfoKids是一种通过颠覆护理流程范式，从横向和纵向改善急诊患者和医护人员体验的解决方案。现如今，老百姓生病或受到创伤时，对于是否应该去看急诊（ED）通常无所适从。而且，在急诊部门，他们往往要应对患者人数众多、等待时间漫长、看诊事出紧急、行政数据管理以及就诊后缺乏跟踪等问题。通过提供更加以患者为中心的体验就可以改善这一情况。

为解决这些问题，我们开发了一种电子健康解决方案，通过网页和移动应用的一体化解决方案将患者、医护人员和行政工作人员连接起来。这一创新系统旨在支持整个急救护理流程，在诊前、诊中和诊后为医护人员和行政管理工作提供帮助。在本文中，我们对这种解决方案进行了描述。该方案目前正由一家三级医院在患者流量达到100万以上的地区实施，因为公众越来越期望获得以用户为中心的护理。

通过挪威患者安全计划改革挪威医疗服务体系

挪威患者安全计划于2011年发起，旨在改善可预防的患者伤害，建立患者安全的长效机制，并改善卫生和护理服务行业的患者安全文化。8年后，该计划在挪威的整个卫生和护理服务行业已广为人知。风险领域已经锁定，而且医院和初级护理都制定了具体的措施。挪威所有卫生信托基金公司和医院都报告称他们已实施或正在实施相关领域。80%的医疗卫生专业人员通过亲身经历认为，患者安全计划有助于提高其所在单位的患者安全水平。

通过17年创新的持续质量改进计划，可以提高患者安全中的关键护理质量

由于治疗费用高昂和存在潜在伤害，关键护理的质量和安全受到关注。低质量护理不仅会给患者带来痛苦，还会增加发病率和死亡率。这项17年的创新持续性质量改进（CQI）计划，在一家三级医疗中心进行了创新性的干预，结果显示，CQI计划对于保持和改善患者安全的关键护理质量极为重要。在重症监护病房实施CQI计划持续减少了报警事件、不良事件、计划外拔管和医院内感染，包括导管相关性尿路感染、呼吸机相关性肺炎和中心静脉导管相关性血流感染。此外，多重耐药菌感染的情况也有所改善。

30/30/30解决方案通过创新的精益六西格玛方法，促使质量和安全管理再上新台阶

美国的医疗卫生行业正处于关键转折点。与以前任何时候相比，支付者改革对可获得性、改革结果和所创造价值的要求也要更高。本文描述了一种创新的方法，它将精益六西格玛流程改进方法融入医疗服务体系的运作之中，从而改变了我们绩效和服务文化。这一方法被称为“30/30/30解决方案”，要求每年训练30%以上的精益六西格玛方法方面的专家（“纽带”），完成30%以上的项目，并且任何正在进行的项目都要实现30%或以上的改进。经过7年400多个项目的实施，该解决方案在质量和安全上，及患者满意度方面创造了“顶尖”绩效，而且带来了4000万美元的积极财务价值。本文探讨了该计划成功实施的关键，以及接下来该计划将在哪些前沿领域扩大实施。

通过多种干预措施改善产妇保健观念和结果:采用复杂的自适应系统方法

在印度南部卡纳塔克邦的高优先级地区，产妇产科监测（MOM）计划被视作一种公共-私营合作的伙伴关系。由于高风险妊娠领域的专科医生和基础设施不足，以及缺乏实时识别及监测，影响了孕产妇发病率和死亡率指数。该计划将重点放在首次接诊的部门，并通过侧重于引进软件、诊断方法、工作流程创新和能力建设，强化高风险妊娠识别。软件解决方案有助于识别并根据患者数据，与此同时，简单的文档记录措施有助于加深对妊娠期间高风险状况的了解。在取得的成果中，社区化的措施使得孕妇对妊娠风险识别和管理的认识提高了40%，对产妇保健计划的认识从58%提高到100%。修订工作流程、使用技术工具、加强与基层保健社工和社区的接触、增进多个利益相关方之间的沟通，在这些诸多相互关联的干预措施作用下，计划持续取得成效。

Manila Doctors医院针对气候变化缓解行动建立的十一年之旅

如果不能认识到负责任的环境管理的重要性，芸芸众生的健康就无法实现。三级医院是能源密集型部门。因此，它必须在能源消耗和废物管理方面，树立大大降低碳排放量的典范。在过去11年里，Manila Doctors医院所遵循的模式不仅减少了医疗废物，从而支持了医院的预防感染和成本节省倡议，同时还从这种可循环利用的计划中获得了收益。其企业社会责任管理办公室利用可循环利用方案的收益为受气候变化影响的社区和缺医少药地区提供医疗卫生服务。

Garraf健康联盟 (CSG) ——我们的效率之道

我国的经济危机导致CSG营业收入下降10%；我们的战略目标是通过重新构思我们开展的活动来提升流程效率。CSG将精益管理项目视为改善患者护理和提高专业人士参与度的一个机会。

我们按照PDCA的理念使用精益工具推进流程改进。在这种方法下，每一个待改进的流程都被视为一个项目，并且遵循相同的步骤：了解发生了什么事情（问题是什么？），解决流程的标准化和稳定化，并确保可持续性。A3是项目全过程中使用的基本工具。
发展员工的精益管理能力是关键因素之一。独立项目有助于“边做边学”改进建议以及成果得到快速实施（如：外科干预增加13.1%或诊断成像增加7.3%）。

在医疗卫生行业开启和持续开展精益管理：侯赛因国王癌症中心的经验

汽车制造业首先引进了精益管理的概念。自此之后，许多不同行业均对精益管理原则加以利用和投资，其中包括医疗卫生行业。这一点从丰富的研究文献和改进证据中可得到佐证。在本文中，我们描述了一家专门研究肿瘤学的三级医疗中心即侯赛因国王癌症中心（KHCC）在开启和持续开展精益文化建设方面的经验。KHCC管理层通过开展必要的精益原则培训和指导，并在全院范围内设置了周期性的卓越精益项目奖，将精益管理原则融入其战略之中。该奖项启动之时，KHCC有30个项目申请了第一轮项目，为第二轮60个拟定项目开启了良好势头。取得成功的关键因素包括领导层的推动、支持，利益相关方的参与以及争夺卓越精益项目奖带来的竞争驱动效应。

共同治理：通过集体决策促进医护队伍转型

本文描述了一项旨在促进医护部门集体决策的共同治理计划，并在结尾处总结了能够实现可持续性的战略。在医疗需求日益增长的形势下，医护人才的流动影响到整体医护人员队伍的能力。这需要创新与员工打交道的方式，以激励我们的工作人员，从而更好地留住员工、提高患者和员工满意度。该组织在医护部门引入了共同治理（SG）来改变决策模式。其目标是将传统等级分明的决策结构扁平化，让直接从事护理工作的医护人员在确定他们的业务实践、护理标准和护理质量方面有发言权。自转型以来，患者护理结果（包括跌倒和患者满意度以及员工在授权、沟通和工作关系方面的满意度得分）逐年呈现积极提升趋势。自转型实施以来，病假率也相继下降。

采用多方面的方法来提高地区糖尿病护理水平

最大程度地控制糖尿病仍然是全球的一大挑战。这一点在中国表现尤其突出，因为在中国，艾滋病毒和结核病等传染病以及糖尿病等非传染性疾病给人们造成了巨大的经济负担和身心折磨。中国迫切需要改善糖尿病控制的方法。本文描述了在南非彼得马里茨堡的一家资源受限的糖尿病诊所实施此种控制方法的情况。研究表明，在该诊所实施此种多方面的糖尿病护理方法后，糖尿病病情在这种情况下得到了改善。这一蓝图可应用于其他发展国家的此类诊所。

通过加强护理协调为需要紧急手术的患者提供高可靠性

腹主动脉瘤破裂（AAA）通常死亡率高达90%，治疗费用为15万美元。尽管重症监护和外科技术有了重大改进，但发病率和死亡率在过去20年中仍高居不下。从医院入口到进入手术室的时间是患者得以存活的最重要的预测指标。为提高手术效率，我们的团队通过精益六西格玛方法、团队培训和有针对性的临床流程设计，将临床流程变革纳入制度，加强护理协调，并改善沟通。这些变革使得腹主动脉瘤破裂患者的手术利润达到180万美元，住院时间缩短10天，存活率达到89%。

图瓦卢全国学生健康体检

2016年，台湾中山医大学附设医院派遣一支医疗团队对图瓦卢6至15岁的学生开展全国性的健康筛查项目。该计划的合作方为世界卫生组织、台湾驻图瓦卢使馆以及图瓦卢政府。

改良的健康检查结构表用于评估生长发育状况。该体检覆盖90.2%的学生，结果显示常见异常主要出现在口腔、耳科、皮肤疾病和尿检等项目。对这些结果采取的应对措施包括：针对特定的儿童重新进行尿检，派遣牙医进行牙科治疗，开展医疗卫生教育，并且用双语编制卫生相关手册。

该项目呼应了17项可持续发展目标中的“良好健康与福祉”。此类计划是企业在履行社会责任方面取得杰出成就的良好典范，它为促进所有年龄段的人健康幸福提供了保障。
Meet the IHF Award Sponsors

IHF/Dr Kwang Tae Kim Grand Award

Dr. Kwang Tae Kim is a surgeon with immense contributions to the healthcare sector both nationally and internationally. He was President of the International Hospital Federation from 2013 to 2015, President of the Asian Hospital Federation in 2008-2009 and President of the Korean Hospital Association in 2003-2004. He has been the Chairman of Daerim Saint Mary's Hospital in Seoul, his own hospital, since 1969.

As a strong advocate of excellence in clinical governance, leadership, quality and safety, Dr Kim initiated and generously donated to set up the IHF Awards Program during his presidency to promote IHF’s visibility and its role as a knowledge hub. Because of this, the Grand Award, the most prestigious among all the IHF Awards, was aptly named after him.

The IHF/Dr Kwang Tae Kim Grand Award will be bestowed to health system, healthcare organisation or facility which achieves excellence in multiple areas including, among others, quality and patient safety, corporate social responsibility, innovations in service delivery at affordable costs, healthcare leadership and management practices. This Award is only open to healthcare service provider organisations which are either IHF Full or Associate Members.

IHF Excellence Awards Sponsors

Austco is the sponsor of the Excellence Award for Quality & Safety and Patient-centered Care

Austco Communication Systems is a global manufacturer of Nurse Call and Clinical Workflow solutions for hospitals and aged-care facilities.

Austco’s flagship solution, Tacera, is an integrated IP-based Critical Communication System that delivers safety solutions for patients. By linking nurses and patients in real-time, Tacera enhances the quality of information available to caregivers, enabling them to provide immediate assistance and measurable improvements to patient’s quality of care.

Pulse Mobile is the newest component of Austco’s innovative Tacera Pulse software suite of next generation clinical business intelligence solutions. Pulse Mobile enhances staff efficiency and caregiver response times, which help improve patient/resident outcomes.

More information about Austco: www.austco.com

Bionexo is the sponsor of the Excellence Award for Corporate Social Responsibility

Bionexo is a technology company that offers digital solutions for purchasing, sales and process management in healthcare. In the healthcare supply chain, there has never been a greater need to reduce costs and operate more efficiently. Through high performance digital solutions, Bionexo offers process automation, increasing the visibility and transparency of information for faster and more intelligent decision making.

More information about Bionexo: bionexo.com/en/

EOH is the sponsor of the Excellence Award for Leadership and Management in Healthcare

EOH provides the technology, knowledge, skills and organisational ability critical to Africa’s development and growth. Following the Consulting, Technology and Outsourcing model, EOH provides high value, end-to-end solutions to its clients in all industry verticals. Listed in 1998, EOH attributes its 36% compounded annual growth to a culture of remaining prudent, and not just meeting, but exceeding, customer expectations. More information about EOH: www.eoh.co.za
<table>
<thead>
<tr>
<th>Year</th>
<th>IHF</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IHF</td>
<td>42nd World Hospital Congress</td>
<td>November 7-9, Muscat, Oman</td>
<td>44th World Hospital Congress</td>
</tr>
<tr>
<td></td>
<td></td>
<td>October 10-12, Brisbane, Australia</td>
<td>For more information, contact <a href="mailto:patricia.mencias@ihf-fih.org">patricia.mencias@ihf-fih.org</a></td>
<td>November 2-5, Barcelona, Spain</td>
</tr>
</tbody>
</table>

### 2018 Members

#### Argentina
- **XXIV Congreso Internacional**
  - Camara Argentina de Empresas de Salud - CAES
  - October 25, Sheraton Libertador Hotel, Buenos Aires, Argentina

#### Austria
- **European Health Forum Gastein (EHFG)**
  - Federal Ministry of Health
  - October 3-5, Bad Hofgastein, Austria
  - [https://www.ehfg.org/](https://www.ehfg.org/)

#### Brazil
- **6th Conahp (Brazilian Hospital Congress)**
  - National Association of Private Hospitals (ANAHF)
  - November 7-9, São Paulo (SP)

#### Colombia
- **VI Feria Internacional de la Salud, Meditech 2018**
  - Asociación Colombiana de Hospitales y Clínicas y Corferias
  - July 3-6, Bogotá, Colombia
  - [https://feriameditech.com/](https://feriameditech.com/)

- **XIII Congreso Internacional de Hospitales y Clínicas**
  - Asociación Colombiana de Hospitales y Clínicas
  - July 4-5, Auditorio Corferias, Bogotá, Colombia
  - [http://achc.org.co/congreso-internacional-de-hospitales-y-clinicas/](http://achc.org.co/congreso-internacional-de-hospitales-y-clinicas/)

#### France
- **Congress MAP (Molecular Analysis for Personalised Therapy)**
  - UNICANCER
  - September 14-15, Marriott Rive Gauche Hotel and Conference Center, Paris, France

### 2019 Members

#### Germany
- **German Hospital Conference**
  - German Hospital Federation
  - November 12-15, Düsseldorf Fairgrounds, Germany
  - [www.medica.de](http://www.medica.de)

#### Japan
- **68th Congress of Japan Hospital Association**
  - Japan Hospital Association
  - June 28-29, Ishikawa prefecture, Japan
  - [http://www.hospital.or.jp/gakkai.html](http://www.hospital.or.jp/gakkai.html)

#### Philippines
- **69th Annual National Convention**
  - November 14-17, Manila Hotel, Manila

#### Portugal
- **7th International Hospitals Congress**
  - Portuguese Association for Hospital Development (APDH)
  - November 21-23
  - [http://www.apdh.pt/eventos/3](http://www.apdh.pt/eventos/3)

#### Spain
- **VIII Meeting for hospital managers: charismatic leadership**
  - Unió Catalana d’Hospitals
  - October 25, Parc Sanitari Sant Joan de Déu

- **IX Annual Members meeting**
  - Unió Catalana d’Hospitals
  - November 23, Hospital de Sant Pau

#### Taiwan
- **2018 Taiwan Joint Conference in Healthcare**
  - November 1, Taipei Veterans General Hospital, Chih-Teh Building, Taipei, Taiwan
  - *This event is in Chinese*

For further details contact the: IHF Partnerships and Project, International Hospital Federation, 151 Route de Loëx, 1233 Bernex, Switzerland; E-Mail: info@ihf-fih.org or visit the IHF website: [https://www.ihf-fih.org](https://www.ihf-fih.org)
INNOVATE | INTEGRATE | INSPIRE

How can healthcare evolve to meet 21st century demands?

Join health leaders from around the world to examine how healthcare needs to evolve to meet 21st century demands. Globally health systems are in transition. Impacts of new technology, changing demographics and disease profiles, funding pressures, new models of care and more are driving transformation. So how at this critical point do we harness the benefits and overcome the obstacles?

Hear from some of the world’s leading health thinkers and be inspired by the journey to date and the opportunity to come.

IHF member organisations are eligible for discounted registration. Contact your member organisations’ office to get your discount code.

We look forward to welcoming you to Brisbane, Australia for the 42nd World Hospital Congress.

www.hospitalcongress2018.com