July 2017
Volume 1, Issue 3

CLINICAL QUALITY IN FOCUS

SingHealth DukeNUS ACADEMIC MEDICAL CENTRE
ANAESTHESIOLOGY & PERIOPERATIVE SCIENCES

GREETINGS FROM ACP CHAIR

First of all, I would like to extend a warm welcome to Noelle and her team at CGH to our ACP family! Noelle, Yean Chin, Negar, Avinash and Jin Xi will be representing CGH in the different sections of the ACP. With CGH on board, our ACP now spans across 5 departments and there will be many more opportunities for collaboration and synergy.

On 15th July, we had our first ACP retreat where we had the opportunity to chart our strategic direction forward and collectively decide on what we want to do as an ACP for the next 2 years.

We will be hosting some overseas speakers such as Dr Archie Brain, Dr Stephen Luney, A/Prof Bernd Froessler and Dr Andrew Heard at the upcoming SingHealth Duke-NUS Surgical & Anaesthesia Congress 2017 on 4th and 5th August. An exciting scientific program has been lined up based on the theme Collaborating to Advance Surgical and Anaesthetic Care.

The ACP will be participating in the upcoming SingHealth Duke-NUS Gala Dinner in September. The ACP has managed to secure 5 tables for the dinner and will be putting up a few auction items to raise funds for the ACP. A big thank you to Prof Hwang Nian Chih, A/Prof Lim Boon Leng, Dr Hee Hwan Ing, Dr Jane George and Dr June Goh for their contributions towards this event.

Warmest Regards,
A/Prof Ruban Poopalalingam
Academic Chair, ANAES ACP

WORDS FROM VICE CHAIR (CLINICAL QUALITY & SERVICES)

As clinicians, we pride ourselves in delivering not only safe but quality care to our patients within the means of our healthcare system. As we strive to improve the safety and quality of our Anaesthesia care, the ACP hopes to play an active role in sharing best practices, synergizing clinical guidelines, forging collaborations between our departments in various quality initiatives and supporting staff education in quality improvement.

In this issue, we are featuring stories from 3 of our departments, sharing recent safety and quality initiatives. Happy reading!

Regards,
Dr Teo Li-Ming
Academic Vice Chair (Clinical Quality and Services), ANAES ACP

CONGRATULATIONS!

A/Prof Sng Ban Leong

SingHealth Excellence Awards 2017
Distinguished Researcher Award

Dr Hairil Abdullah

National Medical Research Council Health Services Research New Investigator Grant

UPCOMING EVENTS

SINGHEALTH ANAESTHESIOLOGY SIM CHALLENGE 2017

A challenge open to all junior residents across 3 Sponsoring Institutions.

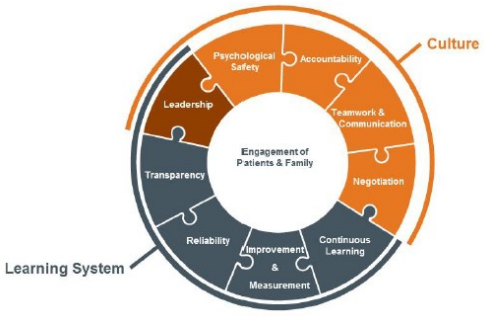
Date: 26 August 2017
Time: 0800h
Venue: SGH Academia, Simulation Lab, Auditorium

DEVELOPING A QUALITY FRAMEWORK

The Clinical Quality & Services Pillar of ANAES ACP has adopted the Institute for Healthcare Improvement (IHI) Framework for Safe, Reliable & Effective Care with hopes of developing a common objective and focus to guide clinical quality and safety initiatives across the ANAES ACP.

The framework comprises 2 domains—Culture and Learning System, and 9 components - Leadership, Psychological Safety, Accountability, Teamwork & Communication, Negotiation, Continuous Learning, Improvement & Measurement, Reliability, and Transparency.

Click here to find out more about the framework.



IHI Framework on Safe, Reliable & Effective Care

CLINICAL QUALITY & SAFETY INITIATIVES — KKH WAN

MEDICATION ERRORS

A write-up by Dr Deepak Mathur, Senior Consultant, KKH Department of Women's Anaesthesia, on efforts to reduce medication errors in KKH.

The clinical arm of the ACP continues to define and refine its goals to achieve safe patient care in the perioperative environment. Medication safety is integral to safe anaesthesia care and despite the good intentions and efforts of institutions and individuals alike, this continues to be a challenge. As always, baby-steps in the right direction will get us there.

Omnicell® Work Station

The KK Hospital has been using the Anaesthesia Work Station (AWS) system for over two years now; an effort between anaesthesia, pharmacy and the MOH to reduce medication errors in the operating theatre environment and to make access to anaesthesia -related medication and other controlled drugs for patient-use easier and safer through improved workflows and medication administration practices. This system also provides a visual reminder of a patients' drug-allergies when it is logged into for access to the medicines. Despite the initial resistance, it has changed the way we work and made the work practices safer, by providing a standardised drug cabinet with controlled access.

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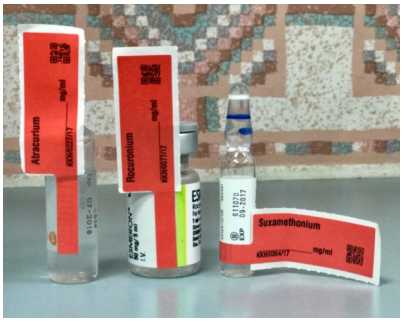
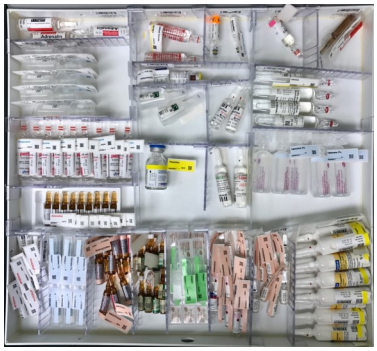


Colour coded labels for drug identification

The WHO and JCI identify confusing drug names as one of the commonest causes of medication error, in part due to 'Look Alike Sound Alike (LASA)' drugs. At KKH, for all anaesthesia-related drugs, an additional colour-coded label is applied in order to make a drug ampoule or vial easier to identify. These labels provide an extra measure in the reduction of medication errors by ensuring against the use of medicines that fall into the wrong storage bays or are incorrectly picked when an individual is rushed.



Drug layout in AWS

Ultimately, to prevent medication errors, the systems need to be strengthened. Bad hand -writing in prescriptions, dosing errors, missed drug-allergies and drug-interactions are already being managed by electronic prescription systems. We are continuing to work with our pharmacists to standardise prescriptions and dosing regimens, including the use of smart-pumps, to ultimately ensure patient safety. But there remain many challenges due to human factors and technological limitations and we aspire to overcome these hurdles collectively, as part of the ACP's effort for safer patient care.

TEAM BRIEF

An interview with Dr Patrick Wong, Senior Consultant, SGH Department of Anaesthesiology, on Preoperative Team Brief that was introduced in the main operating theatres in SGH.

ACP: What is a team brief?

P: *A team brief is a preoperative 'group huddle' comprising anaesthesiologists, surgeons and theatre staff, where important information regarding patient care is relayed.*

ACP: Why was it introduced?

P: *I worked most of my life in the UK, where team brief is a mandatory process at the beginning of the operating day. I relocated and started work at SGH in 2014 and, at that time, there was no team brief. I was amazed at how often I would start an operating list and surgeons and nurses did not introduce themselves, and that there were no discussions about patient issues or anticipated problems. The elective patient pathway is hugely complex and so there is a potential for errors to occur. The team brief has been shown to improve team work and communication, enhance efficiency, and to decrease patient morbidity and mortality.*

Through better coordination and prediction of surgery timings, the team brief can also prevent unnecessary prolonged fasting of patients which is associated with increased morbidity in the perioperative period.

ACP: How were team briefings implemented?

P: *In 2015, as part of a QI project, we conducted 2 pilot studies in SGH evaluating the implementation of the team brief, consisting of anaesthesiologists, surgeons, anaesthetic unit nurses, scrub nurses and attendants. The first pilot study (16 – 27th Mar 15) was conducted across randomized surgical specialties and the second pilot study (19 – 30th Oct 15) was conducted in ENT theatres. Our primary aim was to evaluate nine domains that we considered important for a successful team brief: awareness of anaesthesia, surgical, nursing, attendant issues; communication; team work; feeling empowered to speak up; smooth running of the list; and, patient's safety. Our secondary aims were identify baseline fluid and food fasting times.*

ACP: How was data collected?

P: *After each team brief, we handed out questionnaires pertaining to the nine domains. The patients' fluid and food fasting times were also recorded as a secondary measure of the impact of team brief.*

> The team brief has been shown to improve team work and communication, enhance efficiency, and to decrease patient morbidity and mortality.

ACP: How did team briefings fair?

P: *From the 2015 questionnaires, 80% out of the 164 respondents felt that there was an overall improvement in the nine domains, with communication scoring the highest with 90.9% of respondents stating an improvement. The pre-operative team brief led to significant interventions e.g. team awareness of potential intra-operative complications, preparation for anticipated difficult airways, clarification of surgical equipment and tailoring patient post-operative care. There was also a 50.0% reduction in fasting fluids duration pre- and post- team brief implementation, and a 19.7% reduction in solid food starvation time.*

We also audited the team brief compliance rates in various random theatres in September 2016 and April 2017, and we achieved compliance rates of 82-100% and 88-100%, respectively. In the later audit, 70% of respondents stated that the team brief was an improvement in the nine domains.

ACP: What are some of the difficulties you faced during the implementation phase of the project?

P: *The main difficulties were making a change in culture, mind set and working practices. We needed to make sure that all the stakeholders were aware, and understand the importance, of the QI project, in particular, team working, communication and patient safety. Even though the team brief takes 5 minutes at the start of the operating day, there needed a change in mindset to get all personnel together at the same time and in the same place.*

One has to be realistic about the goals you want to achieve and so have clear, relatable and clinically important goals. By presenting how the team brief benefits both patients and staff, I found that most people were receptive to the team brief.

ACP: What other future plans do you have for the team brief?

P: *The team brief was implemented in the main operating theatre, and so I would like to see it incorporated in other theatre wings such as urology, day surgery and cardiac theatres. I would also like to focus and improve on reducing starvation times.*

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KEEP ME WARM AS I SLEEP...

An article by Dr Lee Shu Ying, Consultant, KKH Department of Paediatric Anaesthesia, on Peri-operative Hypothermia among paediatric patients in KKH.

For KKH Paediatric Anaesthesia, ensuring quality care for children coming for surgery is our primary concern. Beyond keeping them safe and pain-free, a happy and comfortably warm child is our goal.

Peri-operative Hypothermia

Inadvertent Peri-operative Hypothermia (IPH), defined as core body temperature <36 °C, is common, with incidence rates ranging from 20 to 42%. Its diagnosis varies depending on monitoring techniques and temperature management practices. Indeed, what you do not measure, you will not manage. Moreover, core body temperature inevitably falls once under anaesthesia. This is due to core-heat redistribution arising from drug-mediated vasodilation. Surgical exposure and evaporation of cleaning fluids in a cold operating room further compound the problem.

Shivering is one of the top 10 clinical anaesthesia outcomes that patients would pay to avoid. More importantly, hypothermia is associated with significant medical consequences including cardiac events, bleeding and surgical site infection. Prolonged recovery, due to reduced drug metabolism, shivering, discomfort all lead to longer hospital stays.

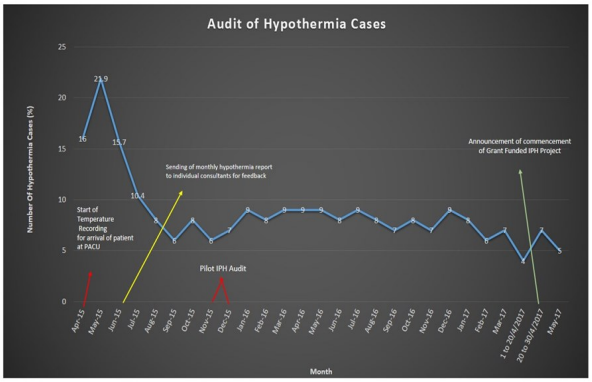
Although guidelines exist for peri-operative temperature management, there is resistance to implementation amongst healthcare providers due to wide ranging considerations from cost, inconvenience, inconsistent monitoring to surgeons' complaints of discomfort.

Yet, various clinical care evaluation programs worldwide, such as the Australian Council on Healthcare Standards (ACHS) have identified keeping patient's temperature>/=36°C as one of the clinical care indicators for the peri-operative period.

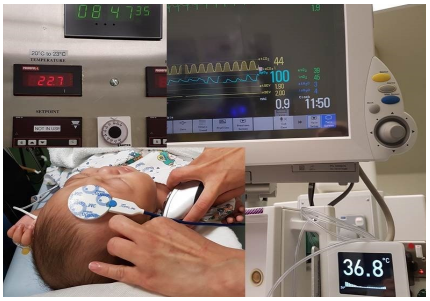
Hypothermia is associated with significant medical consequences including cardiac events, bleeding and surgical site infection.

Temperature Audit in KK Paeds Anaesthesia

The first temperature audit performed in our department in 2014 found 32% of our paediatric patients to be cold (core temperature <36 °C measured using an ear thermoscan) on arrival at the post-anaesthesia unit (PACU). The same parameter was subsequently used to track post-opt hypothermia rates in patients who have undergone surgeries in both major and day surgical paediatric theaters. As IPH rates are monitored, feedback could be given to consultants regarding how they perform compared to the department average. This initiative resulted in a significant decrease in IPH rates to below 10%. The low rate of hypothermia was sustained by continued efforts at campaigning and reminders to 'mind the temperature' through monitoring and audits.



Run Chart of incidence of hypothermia cases pre and post IPH



Minding the temperature with SPOTON, a continuous non-invasive core temperature monitoring system.

Latest Efforts to Mitigate Hypothermia

Our latest effort to mitigate hypothermia is aided by the Singhealth Foundation (SHF) Healthcare Services Research grant 2016, where a standard form of non-invasive core-monitoring system is introduced, enabling continuous core temperature monitoring throughout the peri-operative period. With the system, one can detect the duration of hypothermia, allowing warming measures to be adjusted. In fact in some cases, the ambient OT temperature can be lowered in the paediatric OT, much to the delight of the sweating surgeon! While warming techniques remain largely the same, additional measures as a result of the grant-funded study include:

- Measurement of patients' baseline tympanic temperature before entering the OT;
- Noting the ambient OT temperature at the start and end of surgery; and
- Availability of continuous core temperature monitoring probes

It is our hope that the study will enable us to identify the group of paediatric patients at risk of hypothermia, such that temperature management measures could be sensibly administered in a cost-effective way, and patient outcomes improved.

For further queries on KKH Department of Paediatric Anaesthesia's efforts to mitigate peri-operative hypothermia among patients, contact Dr Lee Shu Ying at lee.shu.ying@singhealth.com.sg.

QUALITY & SAFETY ANNOUNCEMENTS & RESOURCES

UPCOMING CLINICAL QUALITY CONFERENCES AND COURSES

Date	Provider	Conference / Course Name	Country
1 - 4 Oct 17	ISQua	ISQua 34th International Conference: Learning at the System Level to Improve Healthcare Quality and Safety	London, UK
17 – 18 Nov 17	HQSS	Healthcare Quality Society of Singapore Patient Safety Course	Singapore
10 - 13 Dec 17	IHI	29th Annual National Forum on Quality Improvement in Health Care	Orlando, Florida
2 - 4 May 18	IHI	International Forum on Quality & Safety in Healthcare	Amsterdam, Netherlands
24 - 25 May 18	WASET	20th International Conference on Healthcare Quality Management	London, UK
23 - 25 May 18	NPSF	The 20th Annual NPSF Patient Safety Congress	Boston, USA
23 - 28 Sept 18	ISQua	ISQua 35th International Conference: Learning at the System Level to Improve Healthcare Quality and Safety	Kuala Lumpur, Malaysia

QI RESOURCES

Interested in QI? Click here to check out the **Health Foundation (part of NHS, UK) website** which has a large array of improvement projects, tools and resources on QI!

EDUCATION UPDATES

The AM•EI Education Leadership (AMLead) Programme is a nine-month long programme that brings together an interprofessional community of healthcare educators to develop their education leadership skills. Participants of this programme are by nomination only from the respective Department Directors and/ or ACP Vice-Chairs of Education.

The 2nd cohort of participants has recently completed the programme in May 2017 and we would like to congratulate A/Prof Darren Koh, Dr Evangeline Lim and Dr Ng Shin Yuet for their hard work over the nine-month learning journey. At the same time, we would also like to announce that Dr Chong Shin Yuet and Dr Farida Ithnin will be joining the 3rd cohort of the AMLead Programme. They will be embarking on the journey in cross-learning of leadership experiences and expertise.

Congratulations to A/Prof Darren Koh, Dr Evangeline Lim and Dr Ng Shin Yi for completing the AMLead Programme (2nd Cohort). Dr Chong Shin Yuet and Dr Farida Ithnin will be joining the 3rd cohort of the programme.

FACULTY DEVELOPMENT SCHEDULE

Date	Venue	Topic	Speaker
2 Aug 2017 (Wed) 0715 — 0815	OT Seminar Room, Level 2, KKH	Coaching for Success: GROW SMART	Hwang Nian Chih
23 Aug 2017 (Wed)	Anaes Conf Rm, SGH	Coaching for Success: GROW SMART	Hwang Nian Chih
6 Sept 2017 (Wed)	OT Seminar Room, Level 2, KKH	Echo	Ng Shin Yi
13 Sept 2017 (Wed)	Anaes Conf Rm, SGH	Updates in Obstetric Anaesthesia	Leong Wan Ling
4 Oct 2017 (Wed)	OT Seminar Room, Level 2, KKH	How Gen Y & Beyond Learn	Evangeline Lim
11 Oct 2017 (Wed)	Anaes Conf Rm, SGH	How Gen Y & Beyond Learn	Evangeline Lim
1 Nov 2017 (Wed)	OT Seminar Room, Level 2, KKH	Airway	Patrick Wong
8 Nov 2017 (Wed)	Anaes Conf Rm, SGH	TBA	Wijeweera Olivia