Advance Care Planning

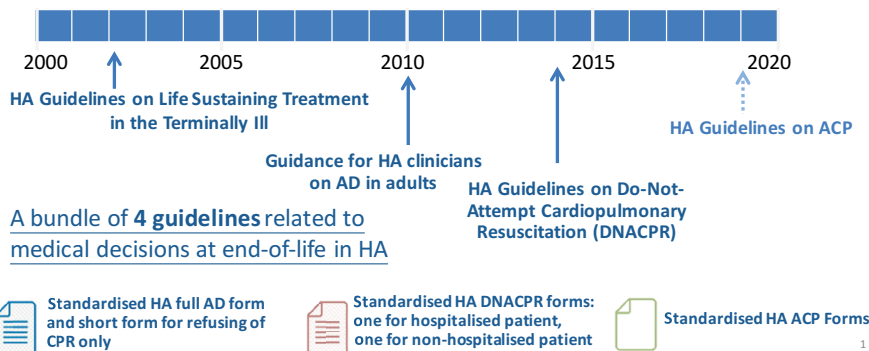*By **Department of Patient Safety and Risk Management**, HAHO*

Advance Care Planning (ACP) aims to help patients with advanced progressive disease to make decisions for their future care plan before they become unable to speak for themselves. In clinical practice, ACP is a proactive communication process for patients to express their values, wishes and preferences on future medical and personal care, with documentation by the health care team in the presence of their family members.

In HA, the Clinical Ethics Committee (HA CEC) oversees the development of clinical ethics guidelines over the years. The mission started in 2002 by releasing the first set of "Guidelines for withholding and withdrawing Life Sustaining Treatment for terminally ill". The concept of ACP was first introduced in the "Guidance for HA Clinicians on Advance Directives in Adults" in 2010. By 2014, the scope of ACP was expanded to include discussion with family members of incompetent patients and minors in the "HA Guidelines on Do-Not-Attempt Cardiopulmonary Resuscitation (DNACPR)". In 2015, a new section was added to suit the local context on ACP in the revised "HA Guidelines on Life-Sustaining Treatment in the Terminally Ill".

In This Issue:

- **Advance Care Planning**

- **Enhancing Quality and Safety at Radiology Department with Computer Vision Technology**

- **Clinical Information Access Transcending Physical Boundary – CMS Cross Hospital / Clinic Logon**

- **Maintenance of Normothermia during Surgery**

Development of ACP & Related Guidelines

2000 · 2005 · 2010 · 2015 · 2020

HA Guidelines on Life Sustaining Treatment in the Terminally Ill

Guidance for HA clinicians on AD in adults

HA Guidelines on Do-Not-Attempt Cardiopulmonary Resuscitation (DNACPR)

HA Guidelines on ACP

A bundle of **4 guidelines** related to medical decisions at end-of-life in HA

Standardised HA full AD form and short form for refusing of CPR only

Standardised HA DNACPR forms: one for hospitalised patient, one for non-hospitalised patient

Standardised HA ACP Forms

HA Guidelines on Advance Care Planning

Observing the rising trend of adopting ACP in HA, the set of "Guidelines for ACP and standardised forms" was released on 10 June 2019 and is accessible for staff via HA intranet. Using the standardised forms, staff can understand and respect patients' preferences of care when they are no longer able to communicate, taking into account their best interest. To improve their knowledge in using the ACP guidelines and forms, two education sessions were conducted in July 2019 with around 300 clinical staff participated. Relevant education material was also uploaded to HA internet for sharing with public.

To conclude, ACP serves to better prepare patients to plan their care by recording their health and personal wishes together with their families. At the time when their disease becomes more serious or death approaches, staff can follow through the appropriate care plan in accordance with their decisions and choices, allowing them to die in dignity.

In the next issue, we will continue to share on the application of guidelines from a more practical perspective.

Editorial Comments

Advance Care Planning(ACP) is acknowledged to achieve end-of-life care that respects for the best interests of patients including the expressed wish, preferences, values, and benefits. The ACP guidelines and standardised forms help healthcare team to be prepared and facilitate ACP through appropriate documentation, which safeguards a strong patient focus and person-centered care.

Dr M LEUNG,
Manager (Nursing)/Chief Nursing Officer, HAHO

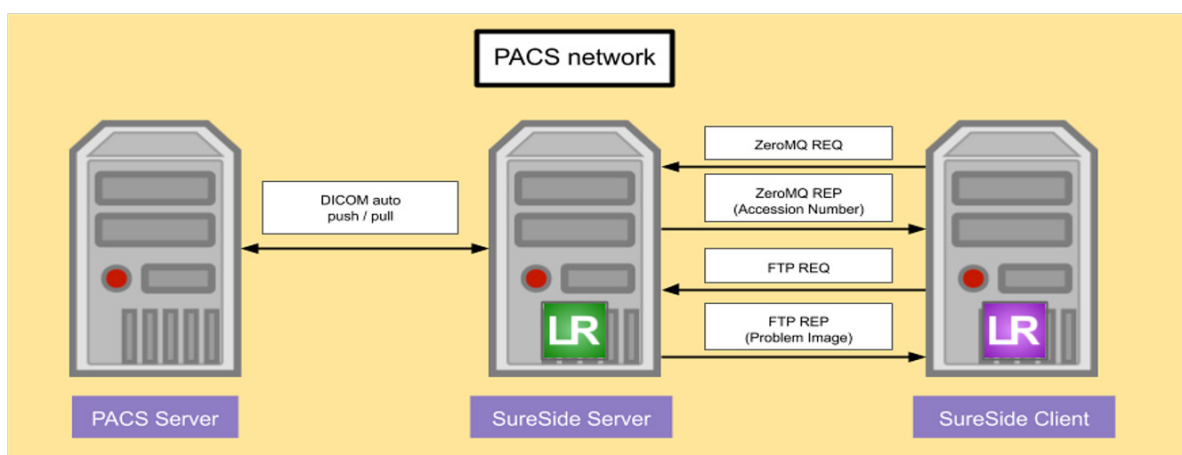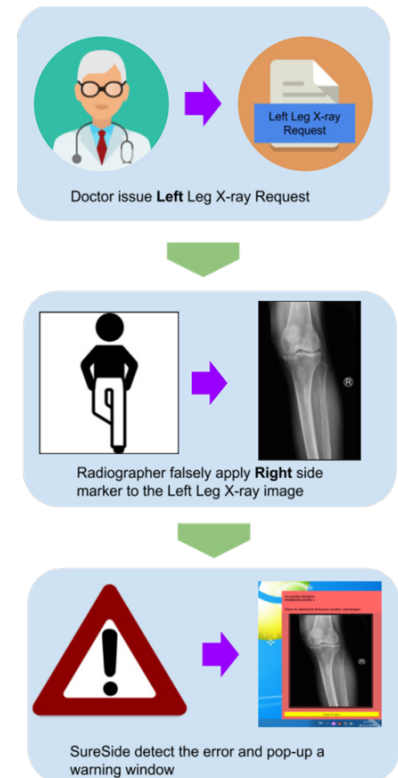# Enhancing Quality and Safety at Radiology Department with Computer Vision Technology

*By **Mr H F TSE**, Radiographer I, Department of Radiology, NTWC*

Correct side and viewing position labelling are some of the important basic elements for X ray image to facilitate clinicians to make diagnosis and carry out treatment. To minimise the incidence of incorrect annotation, NTWC Department of Radiology has developed a radiograph quality control application "SureSide" to minimise the wrong annotation of radiological images.

SureSide is a self-developed server-client Digital Imaging and Communications in Medicine (DICOM) application using computer vision technology to analyse the DICOM tag and the annotation of x-ray images. SureSide server is situated in Picture Archiving and Communication System (PACS) network to receive auto-routed DICOM objects from PACS server and with client application installed at the workstations in x-ray exam rooms.

If an image with incorrect annotation is detected, a "Pop up" warning would be displayed. Pixel data (samples of an original image) of the DICOM objects are extracted and evaluated using a few open source computer vision libraries. These source codes could assist in detecting the digital and physical markers. If discrepancy is found between image's DICOM tag of "View Position" and the image of annotation or markers, a warning window will pop up at SureSide's client to alert the radiographer, who will then rectify the problem before sending the image to ePR for review by clinicians.

Apart from detecting falsely flipped chest and abdomen images, SureSide is also capable of detecting wrong laterality labelled images. By counterchecking the laterality of requested exam in GCRS and the side marker (Left/Right) applied on the image, SureSide can spot out the wrong laterality marker rapidly.

Doctor issue **Left** Leg X-ray Request

Radiographer falsely apply **Right** side marker to the Left Leg X-ray image

SureSide detect the error and pop-up a warning window

PACS network

DICOM auto push / pull

ZeroMQ REQ

ZeroMQ REP (Accession Number)

FTP REQ

FTP REP (Problem Image)

PACS Server   SureSide Server   SureSide Client

Editorial Comments

Wrongly labelled radiological image is one of the risks in radiology workflow. These errors may result in serious consequences if clinicians carry out treatment based on incorrect annotation. The application of "SureSide" can alert radiographers for early rectification when there is error of flipping or wrong side marker applied. I hope that this IT enhancement can be extended to other hospitals to ensure safety.

Mr S H LAU,
Cluster Manager (Quality & Safety), KWC

Clinical Information Access Transcending Physical Boundary – CMS Cross Hospital / Clinic Logon

*By **Benny Ku, Fanny Lo, Dr Joyce Chan, Dr Joanna Pang, Watson Tsui, Dominic Cheng, Ricky Yau**,*
*Hospital Authority Head Office IT&HI Section*

Clinical Management System (CMS) is an indispensable tool that clinicians utilise daily in their clinical practice. Neurosurgeons, ophthalmologists, oncologists, ENT often need to serve many hospitals. Circumstances often arise for clinicians physically located in hospital / clinic A needing to access, review, update or even place clinical order to patients in hospital / clinic B.

Technology advancement overcomes the limitation of traditional CMS access. Cross Hospital Logon in CMS to all HA hospitals and HA clinics were enabled in May 2017 and January 2019 respectively.

Accessibility, convenience and safety are emphasised:

❖ Special User Interface to alert clinician he/she is accessing CMS of a remote hospital / clinic which included disclaimer; distinct colour theme and special indicators etc.

❖ Special emphasis is put on good clinical communication if a clinician updated clinical information or make investigation order by GCRS through CMS cross hospital logon.

❖ Clinicians must have valid access right of the remote hospital / clinic before he/she can access the CMS through Cross Hospital Logon.
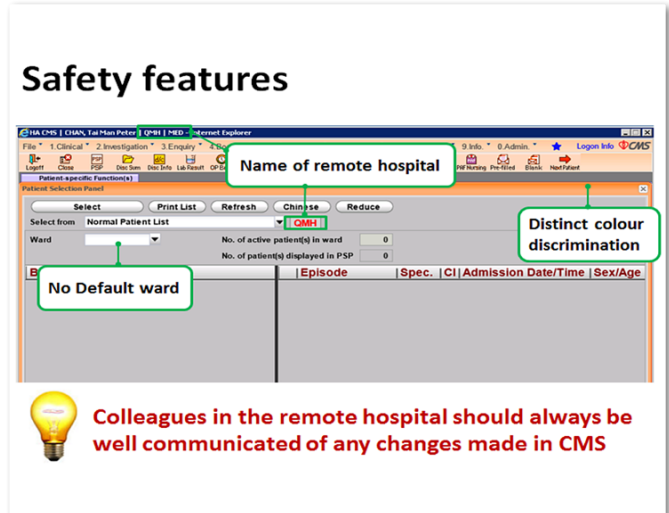
	Sept 2017	Oct 2018	April 2019
No. of utilisation per month	8544	19548	22337
Average utilisation per day	290	651	741

With reference to April 2019 utilisation, it is evident that considerable amount of travelling can be avoided by remote logon. The total time saved per month can add up to thousands of hours that can otherwise be used productively in clinical services! Furthermore, this function also facilitates timely information review and clinical order placement.

Editorial Comments

Advancement in information technology can definitely contribute a lot in increasing the clinical accuracy & productivity. With cross hospital/clinic logon in CMS to all HA hospitals and clinics, clinical order placement can be made more timely to improve the efficiency of patient care and hence the outcomes.

Ms Karen MAK,
Senior Manager (Allied Health), HAHO

Maintenance of Normothermia during Surgery

*By **Kwok V, Leung H, Fu MF, Chim TL, Ng YY, Yip WP, Wong LM**, Department of Anaesthesia and Intensive Care, Operating Theatres, Pok Oi Hospital*

Introduction

Inadvertent perioperative hypothermia is a common surgical complication and is defined as core body temperature below 36°C. Hypothermia may increase infections, bleeding tendency and cardiac complication. It is estimated that 70-90% of patients will experience hypothermia during the first hour of operation (Bayter-Marn, Rubio, Valedn, Macas, 2017). It is because anaesthesia impairs central thermoregulation, allowing re-distribution of body heat. In the Operating Theatre of Pok Oi Hospital, there was 38.8% hypothermia rate post-operatively from October 2015 to March 2016. High risk cases include patients under regional anaesthesia with short operation time and there is no temperature monitoring during surgery; urological surgery with continuous irrigation during surgery and old age patients undergoing hip surgery. Hence, a project team was established to identify the reasons of high hypothermia rate, formulate the improvement task and evaluate the outcome accordingly.

Objectives

(1) to deliver safe and quality care to patients who undergo general /regional anaesthesia by prevention of hypothermia;

(2) to review the causes of these hypothermia cases and check if current alternatives preventing hypothermia are effective;

(3) to increase staff awareness about the importance of maintenance of normothermia perioperatively; and
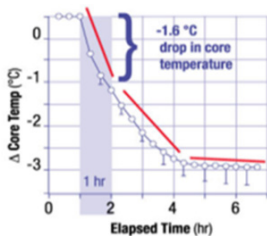
(4) to evaluate the project outcome.

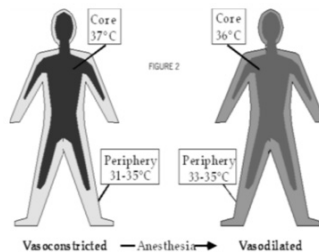Figure 1, Characteristic Patterns of General Anaesthesia Induced Hypothermia

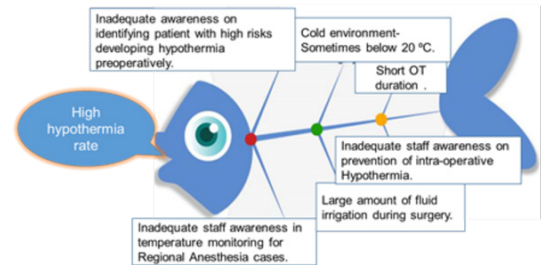Figure 2, Re-distribution of body heat during induction.

Figure 3, Factors causing high hypothermia rate in POH OT

Methods

A series of improvement tasks were formulated. Patients' temperature is checked upon arrival to operation theatre; a warm blanket is provided to all patients while waiting for operation in induction room; active pre-warming is applied to patients if their on-call temperature is below 36°C or requested by anaesthetists; theatre temperature is set between 20°C - 22°C to reduce heat loss by convection and radiation; thermometers are available inside theatre to facilitate temperature monitoring of regional anaesthesia.

One of the main practical changes is to start active warming of patients before induction. Then patient's body is refrained from exposure to environment during the first 5-10 minutes of anaesthesia induction. It is used to prevent a patient's body temperature from dropping sharply during the first hour of operation. Staff was educated about the new measurement. The hypothermia rate is then evaluated periodically.

Results

Hypothermia rate is reduced sharply from 38.8% to 2.85% from March 2016 to September 2017

Conclusion

The programme can enhance awareness and knowledge about hypothermia management of staff. The measurements can improve effectiveness, efficiency of nursing care and ensure early detection of high risk cases of hypothermia during surgery. Proper thermal management may reduce complications and improve outcome in high-risk surgical patients.

Reference:
Bayter-Marín JE, Rubio J, Valedón A, Macías ÁA (2017).Hypothermia in elective surgery: The hidden enemy. *Colombian Journal of Anaesthesiology* :45:48–53.

Editorial Comments

Unintended perioperative hypothermia is not only a feeling of discomfort for the patient, but also related to definite complications. Because of the surgical/anaesthetic procedure and patient factors, temperature of an operating room may not be optimal for the patient, so the patient may need additional warming and close monitoring of body temperature. It is great that the awareness towards hypothermia management was enhanced in POH and was successfully dealt with in a scientific way.

Dr C W LAU, Service Director (Quality & Safety), HKEC

Comments are welcome

Please email us at address:
HO Quality & Standards Department