Innovation in surgical counting process to prevent retained surgical item

Mr. Ngan Hoi Tik

BSc(nursing), MSc(HSM)

Health Informatics Analyst I

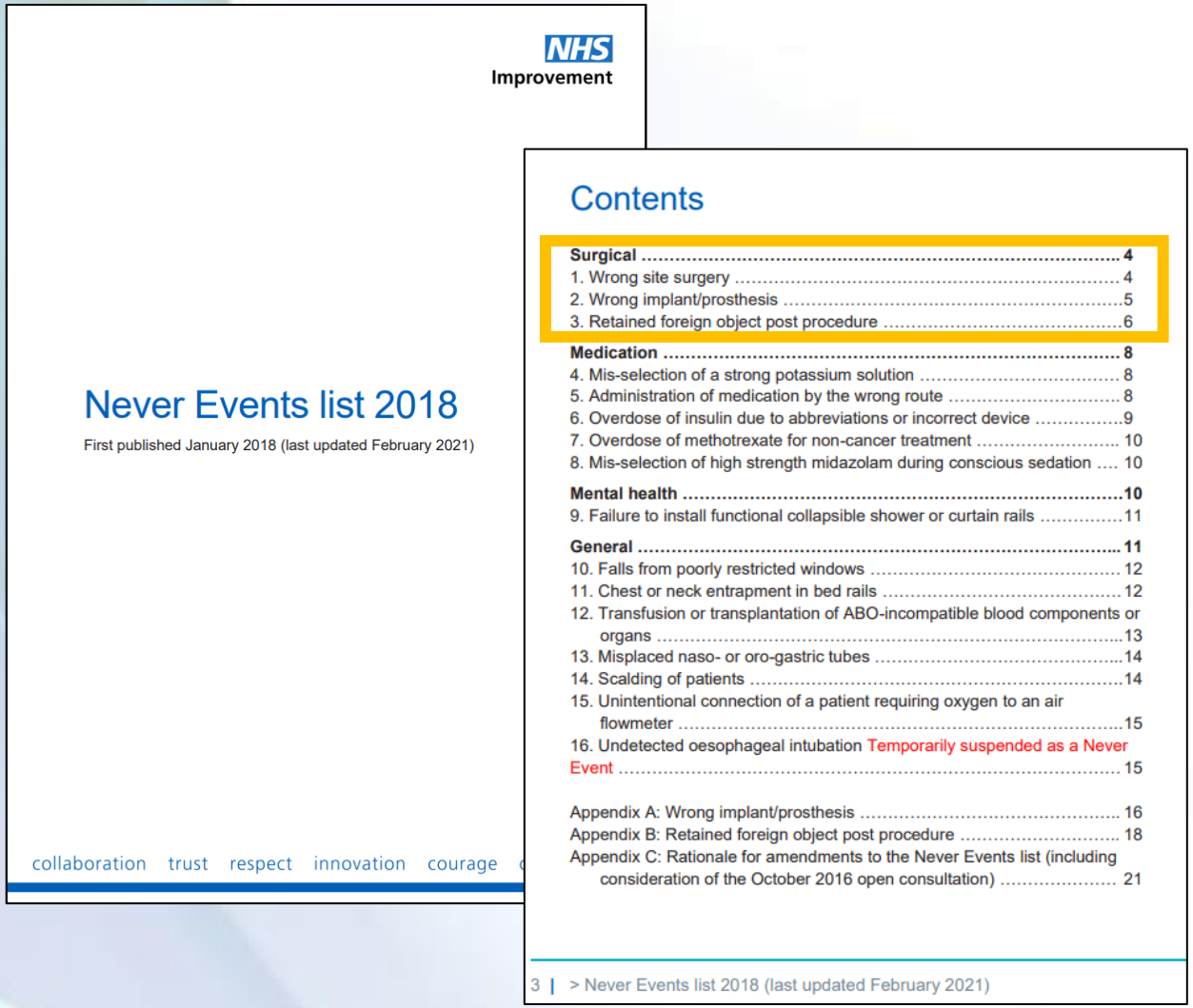
Information Technology and Health Informatic, Hospital Authority

International forum on Quality and Safety in Healthcare, Hong Kong.
27 Aug 2024

Highlights of the presentation

- Workflow design thinking in surgical counting re-engineer with information technology
- Surgical teams satisfied and well adopted to the new designed workflow
- Create significant impact to quality of care and patient safety

Surgical “never event”- NHS never event list



NHS Improvement

Never Events list 2018

First published January 2018 (last updated February 2021)

collaboration trust respect innovation courage

Contents

3. Retained foreign object post procedure

Retention of a foreign object in a patient after a surgical/invasive procedure.

‘Surgical/invasive procedure’ includes interventional radiology, cardiology, interventions related to vaginal birth and interventions performed outside the surgical environment – for example, central line placement in ward areas.

‘Foreign object’ includes any items subject to a formal counting/checking process at the start of the procedure and before its completion (such as for swabs, needles, instruments and guidewires) **except** where items:

- not subject to the formal counting/checking process are inserted any time before the procedure, with the intention of removing them during the procedure but they are not removed
- subject to the counting/checking process are inserted during the procedure and then intentionally retained after its completion, with removal planned for a later time or date as clearly recorded in the patient’s notes
- are known to be missing before completion of the procedure and may be inside the patient (eg screw fragments, drill bits) but action to locate and/or retrieve them is impossible or more damaging than retention.

NHS improvement, 2021
Arad, D., Rosenfeld, A. & Magnezi, R, 2023

Literature and News related to RSI


‘Chest gossypiboma after spinal surgery, not so easy to forget’

Santiago A Endara, Gerardo A Dávalos, Elizabeth Zamora E, Ligia M Redrobán, Gabriel A Molina

Journal of Surgical Case Reports, Volume
https://doi.org/10.1093/jscr/rjad328
Published: 17 June 2023 **Article hist**

PDF Split View Cite

Surgical Management of Gossypiboma: A Case Report

Sneha George Teressa [1], Juhi Saxena [2], Muhammad Afzal [2], Bruce Morel [3]

1. General Surgery, BronxCare Health System, New York, USA 2. General Surgery, St. George’s University School of

s, USA


Surgical item left in the abdomen six years after abdominoplasty: case report

AUTHORSHIP SCIMAGO INSTITUTIONS RANKINGS

ABSTRACT

The retained surgical item in patients after closure of the wound is a situation that although rare is preventable and requires specific care such as institutional protocols for preventi
a patient six years after an abdominoplast
symptoms such as palpable masses, com
tions combined with their few frequency, n
although in case of symptoms removal is
remain in patient’s body.

Keywords:
Foreign bodies; Seroma; Abdominoplasty;

etained surgical textile in the body
nifest as acute pain and
old female who presented with

Pol J Radiol. 2023; 88: e264–e269. PMCID: PMC10317007
Published online 2023 Jun 5. doi: 10.5114/pjr.2023.127668 PMID: 37404550

Surgical items retained in the abdominal cavity in diagnostic imaging tests: a series of 10 cases and literature review

Andrzej Modrzejewski, Study design, Data collection, Data interpretation, Manuscript preparation,[1] Konrad Mateusz Kaźmierczak, Data collection, Statistical analysis, Data interpretation, Manuscript preparation, Literature search,[1⊠] Krzysztof Kowalik, Study design, Data interpretation, Manuscript preparation, Literature search,[2] and Inga Grochal, Data interpretation, Manuscript preparation, Literature search[3]

Author information Article notes Copyright and License information PMC Disclaimer

Literature: case report


公立醫院去年7至9月3宗手術後遺留醫療物料病人體內

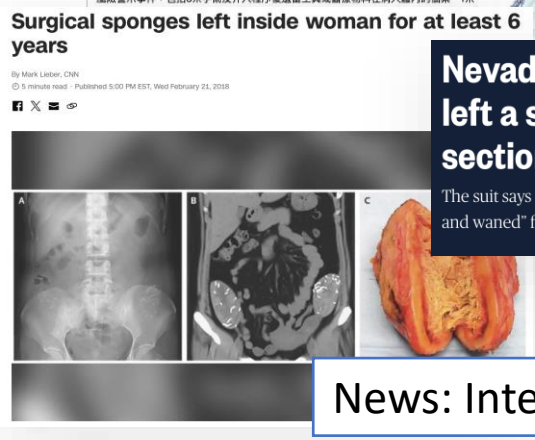
2023-01-27 HKT 17:06 分享工具

醫管局稱，當局已經深入檢討及分析事件的根源，從中汲取有關病人安全的寶貴經驗，防止日後再發生同類事件。（港台圖片）

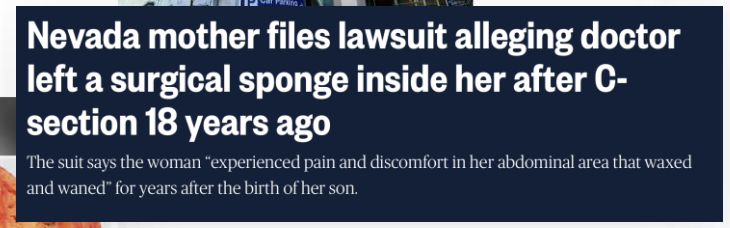
醫院管理局發布最新一期的《風險通報》季刊，指公立醫院在去年7月至9月呈報5宗醫療風險警示事件，包括3宗手術及介入程序後遺留工具或醫療物料在病人體內的個案、1宗


New Zealand woman discovers surgical instrument ‘size of a dinner plate’ left in her body after operation

Woman suffered abdominal pains for 18 months after caesarian section until scan revealed an ‘Alexis retractor’ had mistakenly been left inside her


Surgical sponges left inside woman for at least 6 years

By Mark Lieber, CNN
5 minute read · Published 5:00 PM EST, Wed February 21, 2018


Nevada mother files lawsuit alleging doctor left a surgical sponge inside her after C-section 18 years ago

The suit says the woman “experienced pain and discomfort in her abdominal area that waxed and waned” for years after the birth of her son.

News: International and local

1. Endara, S. A., Dávalos, G. A., Zamora E, E., Redrobán, L. M., & Molina, G. A. (2023). ‘chest gossypiboma after spinal surgery, not so easy to forget.’ *Journal of Surgical Case Reports*, *2023*(6). https://doi.org/10.1093/jscr/rjad328
2. Favarin, G. J., Favarin, E., Borges, A. N., Pinto Junior, A. M., Baggio, V. A., & Jacques, N. de. (2016). Surgical item left in the abdomen six years after abdominoplasty: Case report. *Revista Brasileira de Cirurgia Plástica (RBCP) – Brazilian Journal of Plastic Sugery*, *31*(4), 583–585. https://doi.org/10.5935/2177-1235.2016rbcp0096
3. George Teressa, S., Saxena, J., Afzal, M., & Morel, B. (2023). Surgical management of gossypiboma: A case report. *Cureus*. https://doi.org/10.7759/cureus.46797
4. Modrzejewski, A., Kaźmierczak, K. M., Kowalik, K., & Grochal, I. (2023). Surgical items retained in the abdominal cavity in diagnostic imaging tests: A series of 10 cases and literature review. *Polish Journal of Radiology*, *88*(1), 264–269. https://doi.org/10.5114/pjr.2023.127668
5. Guardian News and Media. (2023, September 4). *New Zealand woman discovers Surgical Instrument “size of a dinner plate” left in her body after operation*. The Guardian. https://www.theguardian.com/world/2023/sep/04/nz-woman-surgical-instrument-size-of-dinner-plate-inside-her
6. Lieber, M. (2018, February 21). *Surgical sponges left inside woman for 6 years*. CNN. https://edition.cnn.com/2018/02/21/health/surgical-sponges-left-inside-woman-study/index.html
7. NBCUniversal News Group. (2024, January 25). *Nevada mother files lawsuit alleging doctor left a surgical sponge inside her after C-section 18 years ago*. NBCNews.com. https://www.nbcnews.com/news/us-news/nevada-mother-files-lawsuit-alleging-doctor-left-surgical-sponge-c-sec-rcna135666

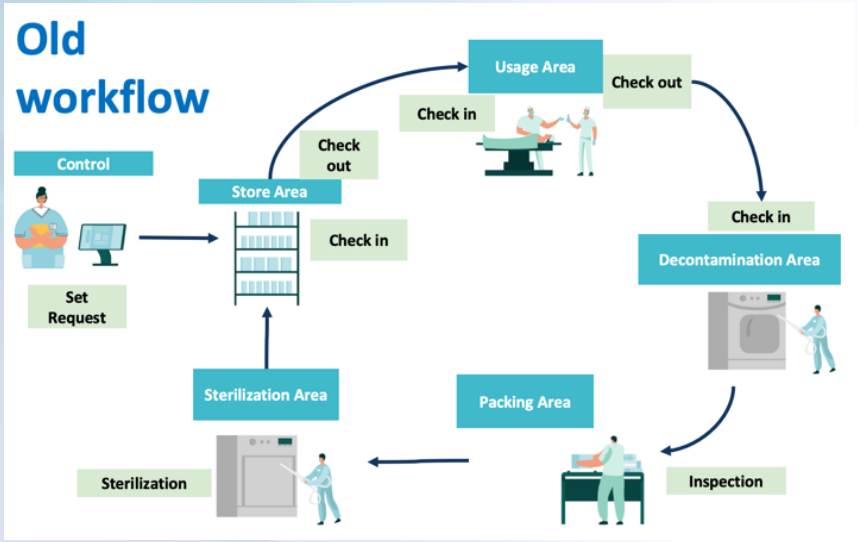
Commonly Reported SE in 2022-23

	HKSAR, China (HA)	WA, Australia (Department of Health)	USA (Joint Commission)
1.	Retained instrument/material (14)	Medication error resulting in serious harm or death (12)	Fall (611)
2.	Inpatient Suicide (including home leave) (4)	Surgery or other invasive procedure performed on the wrong site resulting in serious harm or death (6)	Delay in treatment (89)
3.	Wrong patient/body part (1)	Unintended retention of a foreign object in a patient after surgery or other invasive procedure resulting in serious harm or death (5)	Unintended Retained Foreign Object (88)

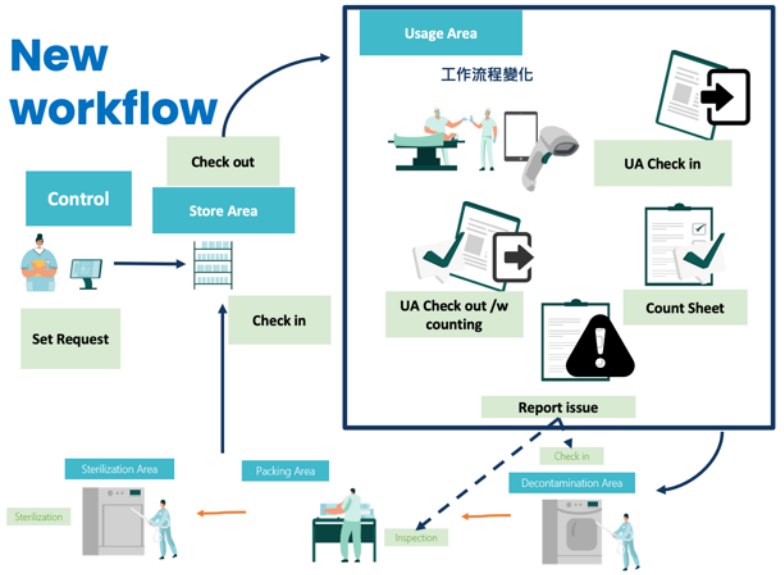
How to achieve innovation with technology in to improve surgical counting?

Workflow study tour and Design Thinking workshop



Workflow re-engineer

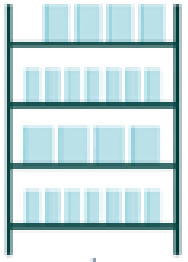


Old workflow

Control

Set Request

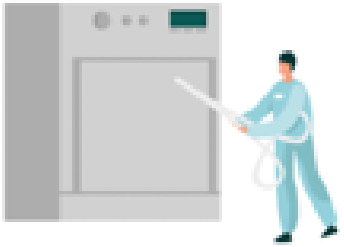
Store Area



Check in

Sterilization Area

Sterilization



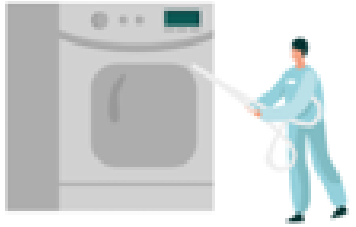
Packing Area

Inspection

Check out

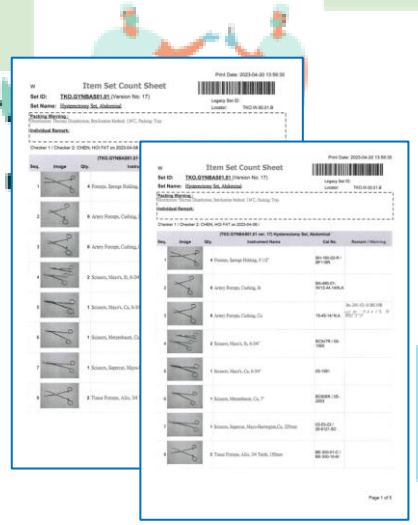
Check in

Decontamination Area



Check out

Check in



Usage Area

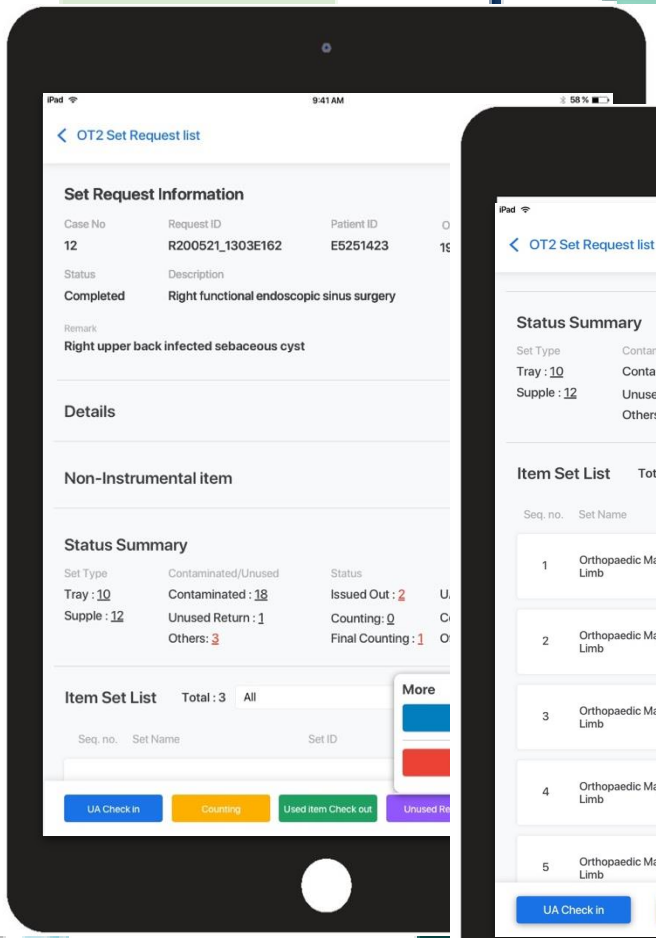
New workflow

Usage Area

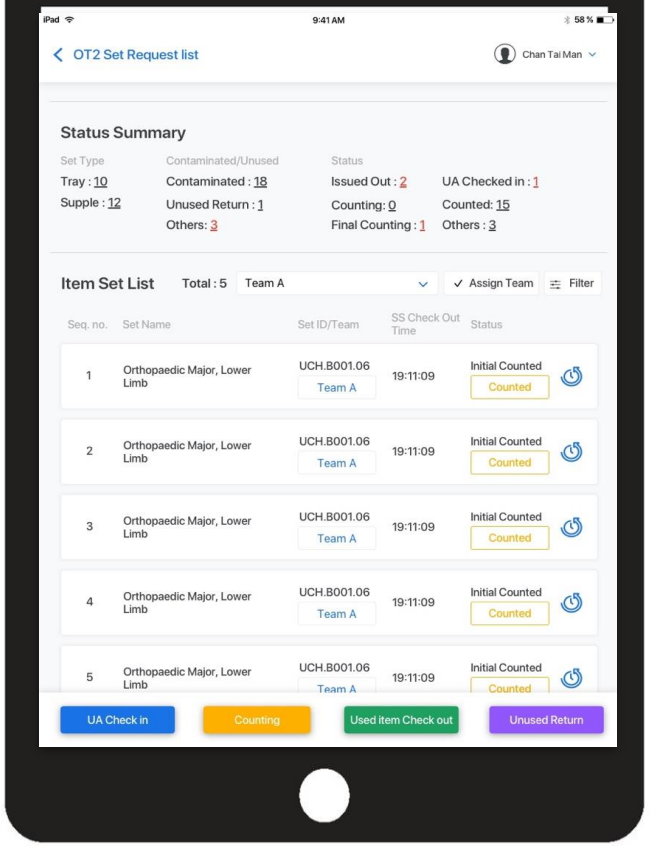
工作流程變化

UA Check in

Control



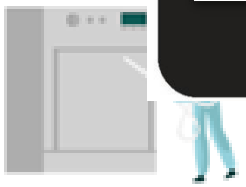
Set Request



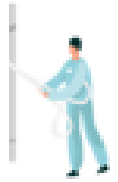
Count Sheet

Sterilization A

Sterilization



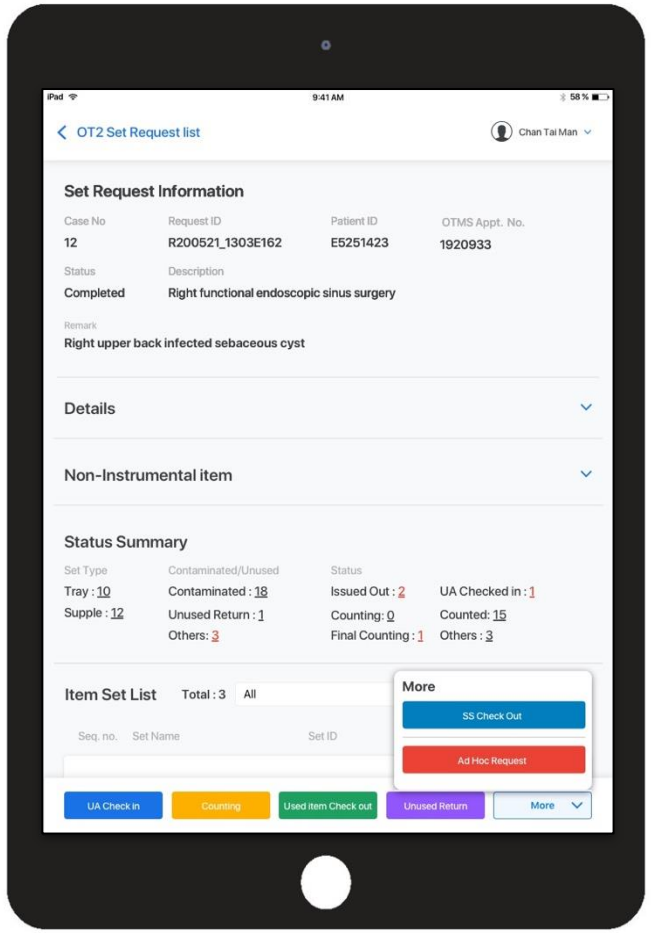
Area



醫院管理局 HOSPITAL AUTHORITY

IT&HI DIVISION

Surgical Instrument tracking system mobile (SITS-mobile)



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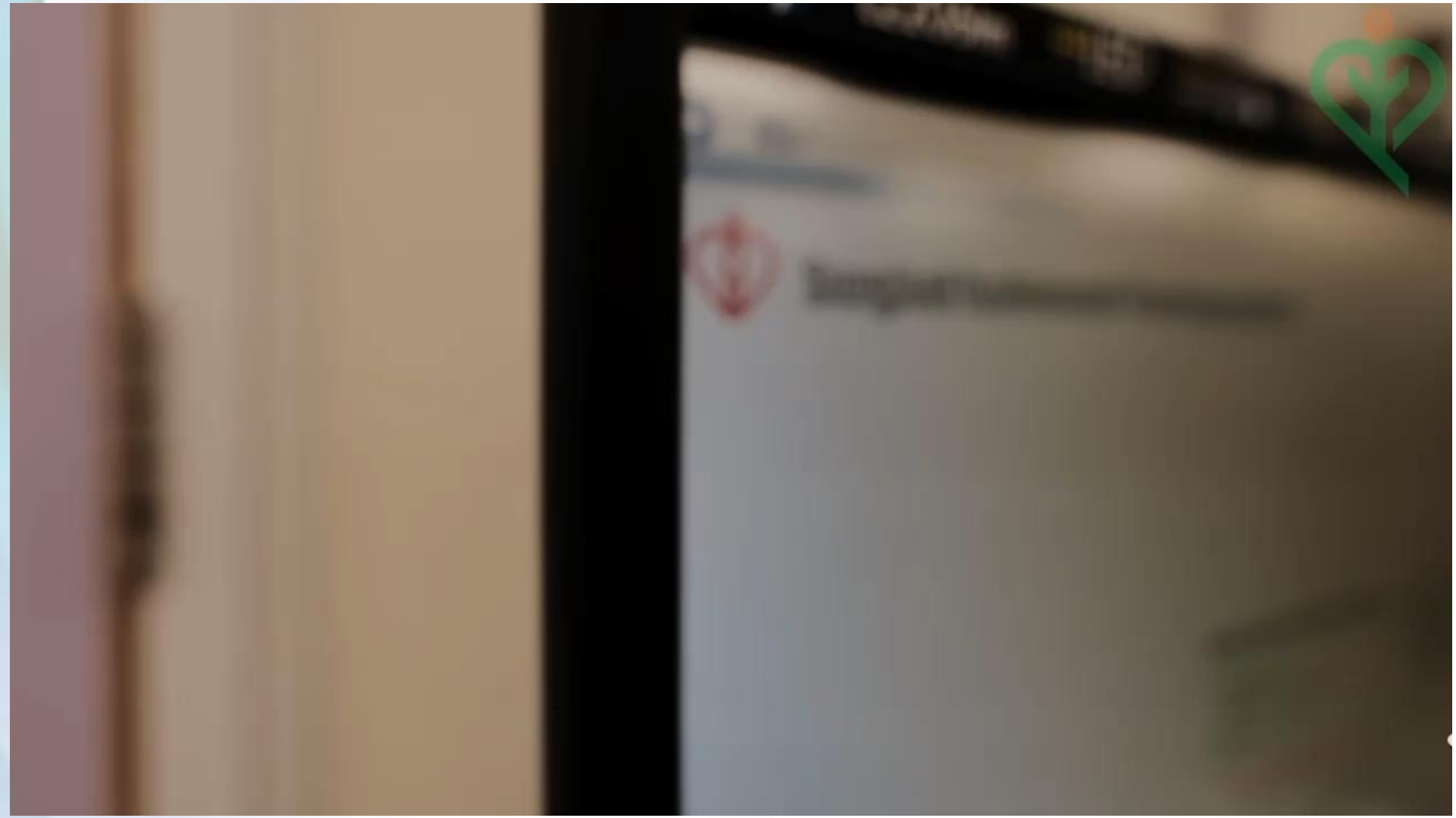
Video- Workflow illustration



醫院管理局
HOSPITAL AUTHORITY

香港中文大學醫學院
Faculty of Medicine
The Chinese University of Hong Kong

Research Study on electronic surgical counting system evaluation

Aim and Objective

Aim:
Electronic surgical counting system is new initiative targeting to surgical counting for perioperative team. The findings will be valuable and significant for establishing surgical counting standards in the perioperative setting in Hong Kong.

Objectives

- 1. To evaluate the effects of using the electronic surgical counting system (ESCS) on the counting time during surgical counting for ultra-major operation
- 2. To evaluate the satisfaction of perioperative staff with the implementation of ESCS.
- 3. To evaluate the effect of the electronic surgical counting system by semi-structured interview.
- 4. To evaluate the adverse event i.e. Retained surgical item and counting discrepancy before and after the implementation of ESCS.

Ethical approval by REC

香港中文大學醫學院
Faculty Of Medicine
The Chinese University Of Hong Kong

醫院管理局
新界東醫院聯網
Hospital Authority
New Territories East Cluster

Joint Chinese University of Hong Kong-New Territories East Cluster Clinical Research Ethics Committee
香港中文大學-新界東醫院聯網 臨床研究倫理 聯席委員會

8/F, Lui Che Woo Clinical Sciences Building, Prince of Wales Hospital, Shatin, HK
Tel : (852) 3505 3935 / 2144 5926 Fax : (852) 2646 6653 Website : http://www.crec.cuhk.edu.hk

The Joint CUHK-NTEC CREC is an independent committee established by CUHK/NTEC and authorized to perform ethics and scientific review and oversight of clinical studies within the jurisdiction of CUHK/NTEC in accordance with its standard operating procedure and the principles of the Declaration of Helsinki and ICH Good Clinical Practice.

CREC Ref. No.: 2024.080 22 MAR '24

To: Mr. Hoi Tik NGAN (Student)
The Nethersole School of Nursing
The Chinese University of Hong Kong

This notice is issued by the Joint CUHK-NTEC CREC with respect to the application/submission by you, being the principal investigator of the following study at your study site:

- **Study Protocol Title:** The Effect of Implementing an Electronic Surgical Counting System on the Surgical Counting Process
- **Investigator(s):** Hoi Tik NGAN and Suzanne Hoi Shan LO
- **Academic Supervisor(s):** Prof. Suzanne Hoi Shan LO
- **Site Supervisor(s):** Dr. Ling SZETO
- **Study Site(s) in NTEC:** Not Applicable

In accordance with our standard operating procedure, we have duly performed ethics and scientific review of your application/submission as detailed below:

- **Nature of Your Application/Submission:** ☒ Initial application ☐ Amendments/changes ☐ Others: ☐ Renewal
- **Mode of Review:** ☐ Full review ☒ Expedited review
- **Date of Initial/Renewal Approval:** 22 March 2024
- **Document(s) Reviewed:** See Schedule 1
- **Reviewer(s):** See Schedule 2

After due review by our reviewer(s), we hereby write to inform you of our decision on your application/submission as follows:

- **Decision:**
  - ☒ Application/Submission approved
  - ☐ Application/Submission approved with condition(s) (see condition(s) below)
  - ☐ Application/Submission approved with remark(s) (see remark(s) below)
  - ☐ Application/Submission approved with condition(s) and remark(s) (see condition(s) and remark(s) below)
- **Regular Progress Report(s) Required:** Every 12 months from the date of initial/renewal approval and during the period of the study if required

Page 1 of 3
CREC Ref. No.: 2024.080

香港中文大學醫學院
Faculty Of Medicine
The Chinese University Of Hong Kong

醫院管理局
新界東醫院聯網
Hospital Authority
New Territories East Cluster

Joint Chinese University of Hong Kong-New Territories East Cluster Clinical Research Ethics Committee
香港中文大學-新界東醫院聯網 臨床研究倫理 聯席委員會

8/F, Lui Che Woo Clinical Sciences Building, Prince of Wales Hospital, Shatin, HK
Tel : (852) 3505 3935 / 2144 5926 Fax : (852) 2646 6653 Website : http://www.crec.cuhk.edu.hk

22 MAR '24

You, being the principal investigator of the study at your study site, are reminded to comply with our requirements and to maintain communication with us during the period of the study by undertaking the principal investigator's responsibilities including (but not limited to):

- if the study is an industry-sponsored clinical study, submitting to us a copy of the fully executed indemnity agreement satisfying the Hospital Authority's requirement prior to commencement of the study (if it has not been submitted yet);
- observing and complying with all applicable requirements under our standard operating procedure ("IRB/REC SOP"), the Declaration of Helsinki and the ICH GCP (if applicable);
- submitting regular progress report(s) at the required intervals (as specified above) in accordance with the requirements in the IRB/REC SOP;
- not implementing any amendment/change to any approved study document/material without our written approval, except where necessary to eliminate any immediate hazard to the subjects or if an amendment/change is only of an administrative or logistical nature;
- notifying us of any new information that may adversely affect the rights, safety or well-being of the subjects or the proper conduct of the study;
- reporting any deviation from the study protocol or compliance incident that has occurred during the study and may adversely affect the rights, safety or well-being of any subject in accordance with the requirements in the IRB/REC SOP;
- submitting safety reports on all SAEs observed at your study site or SUSARs reported from outside your study site in accordance with the requirements in the IRB/REC SOP; and
- submitting a final report in accordance with the requirements in the IRB/REC SOP upon completion or termination of the study at your study site.

In addition to the above, you are also reminded to observe and comply with other applicable regulatory and management requirements including (but not limited to):

- if required by Hong Kong laws or regulations, obtaining a certificate for clinical trial through the Hong Kong Department of Health and complying with the associated requirements;
- obtaining the necessary consent from the management of your institution/department in accordance with the requirements of your institution/department;
- if required by local laws or regulations at conducting site out of IRB/REC's jurisdiction, obtaining an approval and complying with associated requirements;
- not representing to any third party or in any way likely to mislead any third party forming the view that the approval from the IRB/REC has any extraterritorial effect; and
- with due diligence ensuring your teams, staff, agents or whosoever connected with you to comply with the preceding requirements.

Yours sincerely,

Envy Lee (Secretary)
for and on behalf of
The Joint CUHK-NTEC CREC

EL/ci

Page 2 of 3
CREC Ref. No.: 2024.080

Method- Mixed-methods

	Quantitative:			Qualitative:
Evaluation method	Pre-post comparison of Surgical counting time for ultra major surgery	Online questionnaire on System Useability	Pre-post comparison of adverse events	Semi-structure interview
Number of participant	369 ultra major surgeries	35	N/A	12
Tools/ Method	Compare Surgical counting time include: initial count, first count, final count and total count time	System Usability Scale (10 questions validated tool for system usability)	N/A	Thematic analysis

Participants and subjects

Anesthetist, surgeons and nurses involved in surgical counting process.

Not limited to any working experience and ranks

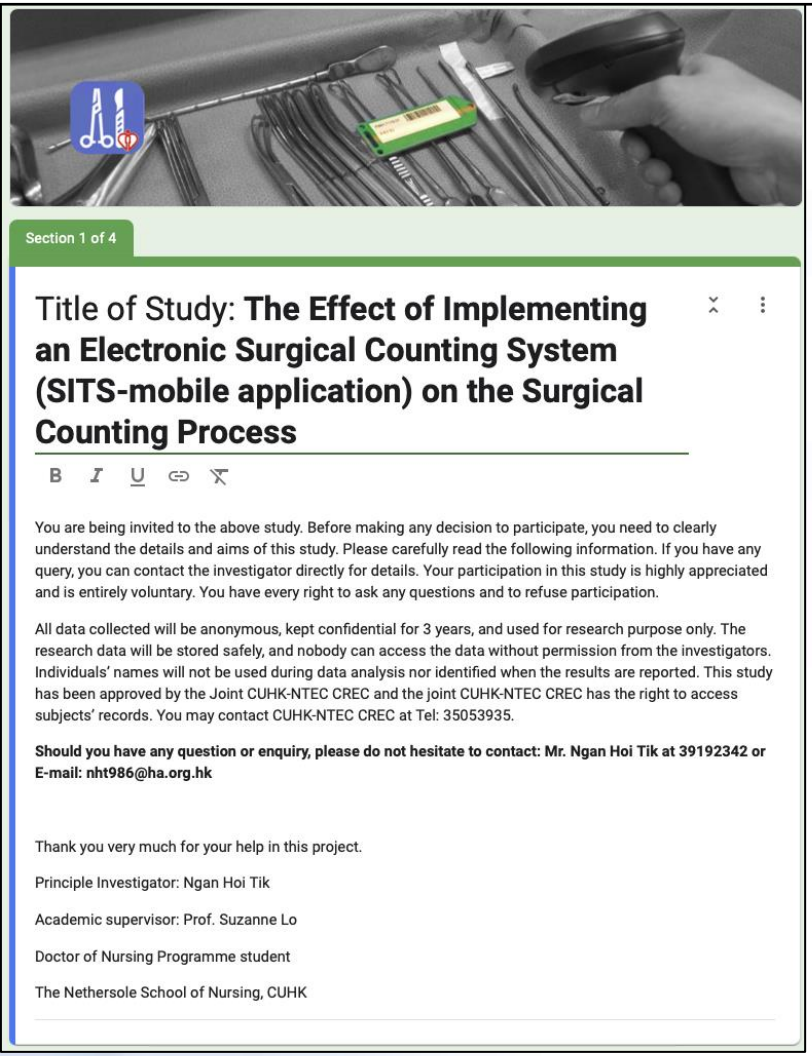
1. System log for counting time evaluation for ultra major surgery

Usage Area				
Code	Check-in Time	Check-in By	Counted Time	Counted By

Time frame capture before and after intervention:

1. pre-1-month, (baseline comparison)
2. the month of intervention,
3. post-1-moth,
4. post-3-month and
5. post-6-month

2. Evaluate the satisfaction of perioperative staff by System Usability Online Questionnaire



Demographic data:

- Age
- Gender
- Education
- Rank
- Year(s) of working experience
- Year(s) of experience in current rank
- Number of year(s) using smartphone

SUS questionnaire with 5 points scale:
I think that I would like to use this ESCS frequently.
I found the ESCS unnecessarily complex.
I thought the ESCS was easy to use.
I think that I would need the support of a technical person to be able to use this ESCS.
I found the various functions in this ESCS were well integrated.
I thought there was too much inconsistency in this ESCS.
I would imagine that most people would learn to use this ESCS very quickly.
I found the ESCS very cumbersome to use.
I felt very confident using the ESCS .
I needed to learn a lot of things before I could get going with this ESCS .

3. Evaluate the effect of the electronic surgical counting system by semi-structured interview.

Focused Interview guiding question.

Usability and Workflow:

- How has the implementation of the ESCS affected the workflow in the operating room (OR)?
- What challenges or bottlenecks have you encountered while using the ESCS during surgical procedures?
- Are there any specific features of the ESCS that enhance or hinder your efficiency?

Accuracy and Reliability:

- How confident are you in the accuracy of the ESCS for tracking surgical items?
- Have there been instances where the ESCS failed to detect discrepancies or retained items?
- How do you handle discrepancies between the ESCS count and the manual count?

Integration and Interoperability:

- How well does the ESCS integrate with other hospital systems (e.g., electronic health records, OT management system)?
- Does the ESCS communicate effectively with other team members (nurses, surgeons, anesthesiologists)?
- Have you experienced any interoperability challenges with the ESCS?

Training and Support:

- What training was provided to OR staff for using the ESCS effectively?
- Are there ongoing training needs or areas where additional support would be beneficial?
- How do you address staff turnover and ensure new team members are proficient with the ESCS?

Patient Safety and Error Prevention:

- How has the ESCS contributed to preventing retained surgical items or wrong counts?

Main theme for semi-structured interview:

1. Usability and Workflow
2. Accuracy and Reliability
3. Integration and Interoperability
4. Training and Support
5. Patient Safety and Error Prevention
6. Efficiency and Time Savings

4. Evaluate the adverse event

- RSI by tracking the Annual Report on Sentinel & Serious Untoward Events
- Counting discrepancies by local record

Findings of the evaluation study

Finding 1- Counting time for ultra major surgery

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Significance different of counting time across group

Table 5- ANOVA test for Initial count, First count, Final count and Total count time across group

		Sum of Squares	df	Mean Square	F	Sig.
Initial count	Between Groups	237.180	4	59.295	21.803	<.001
	Within Groups	989.931	364	2.720		
	Total	1227.111	368			
First count	Between Groups	221.908	4	55.477	25.900	<.001
	Within Groups	779.691	364	2.142		
	Total	1001.599	368			
Final count	Between Groups	146.705	4	36.676	19.092	<.001
	Within Groups	699.268	364	1.921		
	Total	845.973	368			
Total count time	Between Groups	1780.597	4	445.149	24.493	<.001
	Within Groups	6615.408	364	18.174		
	Total	8396.005	368			

Significance different between pre-1-month vs post-3-month and post-6-month

Table 8- Independent Samples Test for Counting Times One Month Before and Three

		Levene's Test for Equality of Variances		t-test for Equ			
						Significance	
		F	Sig.	t	df	One-Sided p	Two-Sid
Initial count	Equal variances assumed	25.888	<.001	6.389	158	<.001	
	Equal variances not assumed			6.033	105.735	<.001	
First count	Equal variances assumed	14.920	<.001	6.787	158	<.001	
	Equal variances not assumed			6.407	105.499	<.001	
Final count	Equal variances assumed	11.628	<.001	5.928	158	<.001	
	Equal variances not assumed			5.662	114.801	<.001	
Total count	Equal variances assumed	16.057	<.001	6.649	158	<.001	
	Equal variances not assumed			6.282	106.111	<.001	

Table 9- Independent Samples Test for Counting Times One Month Before and Six Months After ESCS Implementation

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Initial count	Equal variances assumed	28.725	<.001	6.906	167	<.001	<.001	1.826	.264	1.304	2.348
	Equal variances not assumed			6.348	101.626	<.001	<.001	1.826	.288	1.256	2.397
First count	Equal variances assumed	14.701	<.001	8.039	167	<.001					2.387
	Equal variances not assumed			7.402	102.512						9
Final count	Equal variances assumed	9.942	.002	7.298	167						
	Equal variances not assumed			6.864	114.118						.136
Total count	Equal variances assumed	17.719	<.001	7.754	167					25	6.775
	Equal variances not assumed			7.140	102.554	<.001	<.001	3.400	.756	3.900	6.900

Significance reduction on surgical counting time (reduced 4mins on average) -> **improved efficiency after system learning curve**

Finding 2- satisfaction of perioperative staff

In total 35 nurses participated in System Usability Online Questionaries

The analysis of the collected SUS data revealed a mean score of 62.8 across all participants.

This score situates the ESCS within the range of 62.7-64.9, which corresponds to a C- grade in the context of SUS evaluations.

This grade suggests that the ESCS is perceived as marginally acceptable in terms of usability by the users.

Table 11-Demographics data of participants in online questionnaire		
Age group		
25-34	18	51.42%
35-44	12	34.29%
45-54	3	8.57%
55 or above	2	5.71%
Sex		
Male	11	31.42%
Female	24	68.57%
Academic Qualification		
Diploma	2	5.71%
Bachelor's Degree	11	31.43%
Master's Degree	21	60.00%
Doctorate's Degree	1	2.86%
Working Experience		
5 years<	7	20.00%
5-10 years	11	31.43%
>10 years	17	48.57%
Rank		
EN	1	2
RN	18	
APN	10	
NC/ANC	2	
DOM/WM	4	

The 1st version of the system is accepted by clinical users-> System is usable

Finding 3- Semi-structured interview

- Participants : 12
  - Anesthetist: 3
  - Surgeon: 4
  - Nurse: 5
- Age: 27-55 years old
- Working experience: 3-32 years
- Rank:
  - Doctor: Chief of Service, Consultant, Associate Consultant
  - Nurse: Ward Manager, Advanced Practice Nurse, Registered Nurse and Enrolled Nurse

Abstract of result on Semi-structured interview

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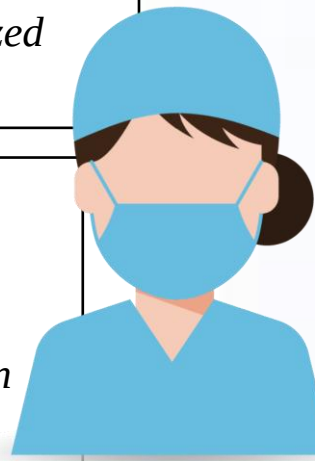
"I assumed that our staff should perform and ensure the patient safety standard no matter using paper form record or electronic system. However the system should have marginal benefit when compare to the paper workflow." (Consultant Surgeon)

"The design of ESCS is based on our clinical workflow. We basically follow the steps provided in ESCS and we should be counting in a standardized way."(Registered Nurse)



"The system has help in minimize the chance of missing count and wrong count. Nurses feel more confidence and safe in the surgical counting process as we usually over worry on retained surgical item. I am sure the system can help to ensure the patient safety by smoothen the surgical counting process." (Advanced Practice Nurse)

"In general, it is impossible to achieve zero error, however nurse perform counting according to the standardize guideline and ESCS should have minimize the risk to counting discrepancy." (Consultant Surgeon)

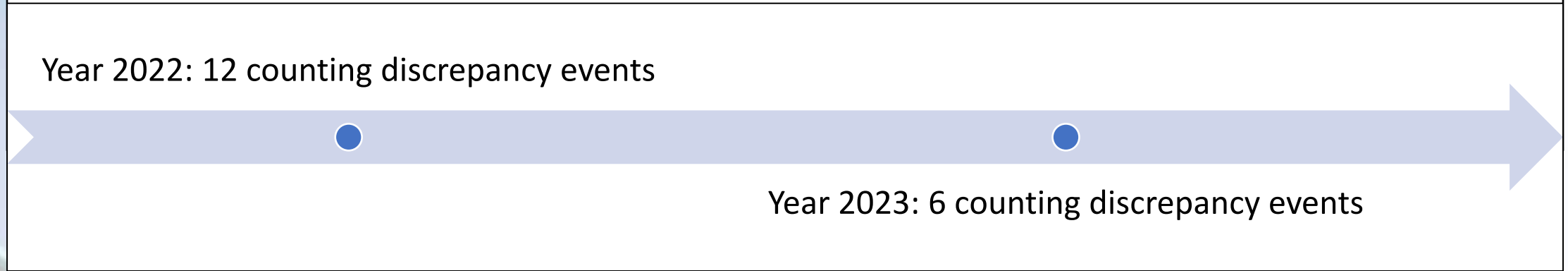
"It is more efficiency and reduce human error with standardized procedure when come to digitalization." (Chief of Service)

Finding 4- Adverse event

- Retained Surgical item:
  - No reported RSI during study period

Counting discrepancies halved
(Most of them discover during initial count and no harm to patient)

- Counting discrepancy:
  - Prior to the ESCS implementation, the study site recorded 12 counting discrepancies throughout the year of 2022.
  - Following the deployment of the ESCS in December 2022, the frequency of counting discrepancies was halved, with only 6 occurrences reported over the subsequent year.



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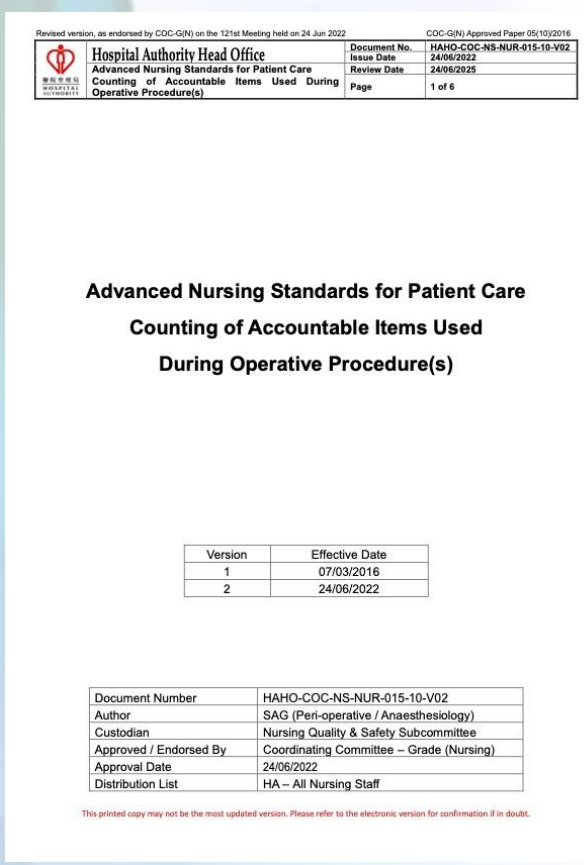
Impact of SITS-mobile in Hospital Authority

SITS-mobile in Hospital Authority



Revised version, as endorsed by COC-G(N) on the 121st Meeting held on 24 Jun 2022 — COC-G(N) Approved Paper 05(10)/2016

Hospital Authority Head Office	Document No.	HAHO-COC-NS-NUR-015-10-V02
Advanced Nursing Standards for Patient Care	Issue Date	24/06/2022
Counting of Accountable Items Used During Operative Procedure(s)	Review Date	24/06/2025
	Page	1 of 6

Advanced Nursing Standards for Patient Care

Counting of Accountable Items Used

During Operative Procedure(s)

Version	Effective Date
1	07/03/2016
2	24/06/2022

Document Number	HAHO-COC-NS-NUR-015-10-V02
Author	SAG (Peri-operative / Anaesthesiology)
Custodian	Nursing Quality & Safety Subcommittee
Approved / Endorsed By	Coordinating Committee – Grade (Nursing)
Approval Date	24/06/2022
Distribution List	HA – All Nursing Staff

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Hospital Authority Guidelines on Counting of Accountable items used during operative procedure 2022

All Hospitals within Hospital Authority has adopted SITS-mobile application for surgical counting
(24 hospital and over 250 procedure rooms)

SITS-mobile

Rolled-out in all hospitals with operation rooms

Aug 2023 – Jul 2024

Reduced workload

- Replaced paper-based surgical counting with SITS-mobile
- Reduce the operation team stress on surgical counting
- Ensure standardized counting in operation procedure

Papers Reduced

- Total paperless workflow
- As estimation of annual saving of **5M** papers (~ **600** trees)
- Cost reduction in print out: over **4 million HKD** (Print per cost around 0.8 HKD per page)

Enhanced Efficiency

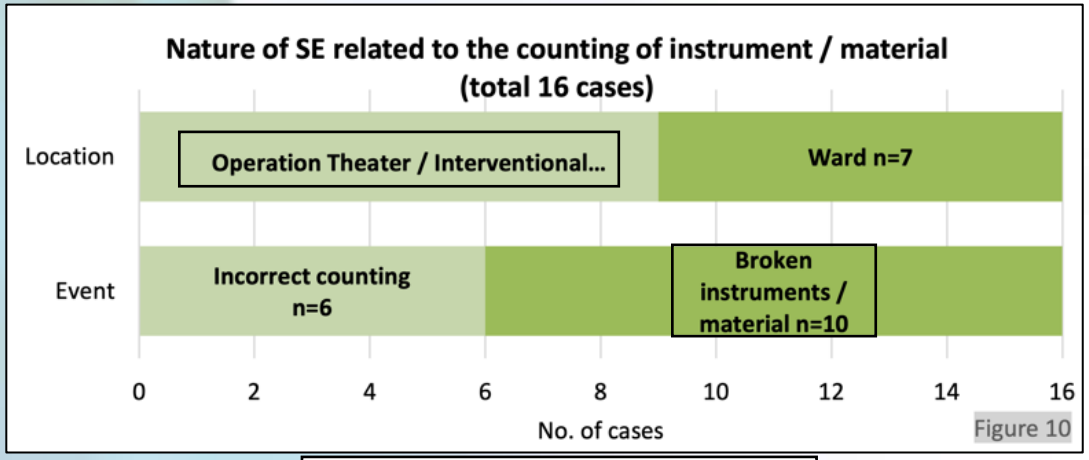
- Reduced surgical counting time
- Reduced documentation time
- Enhanced team communication with horizontal integration with OTMS and SITS

Improved Patient Safety

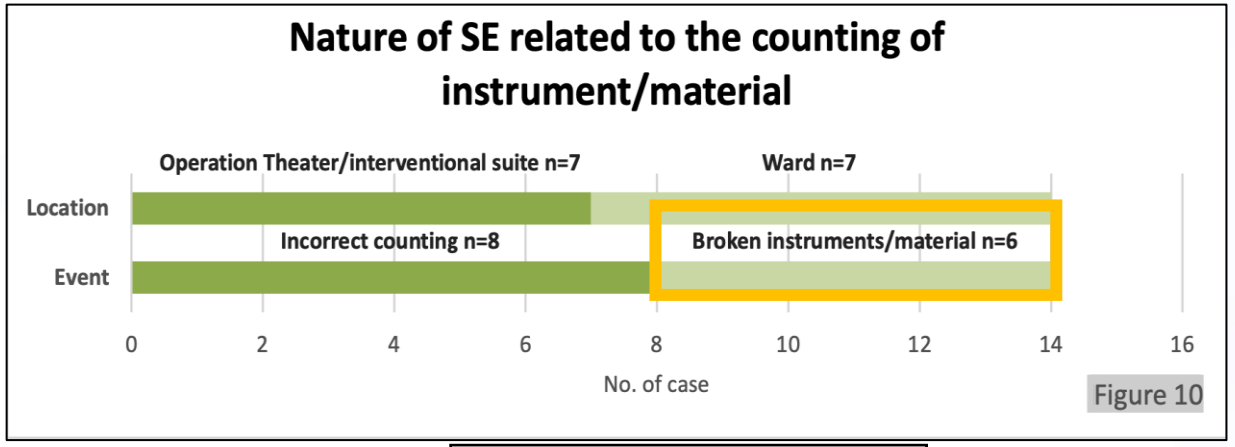
- *Standardized surgical counting for **148,443** surgical procedure and over **1M** surgical instrument set
- Reduced surgical counting discrepancy

*Number of surgical procedure used SITS-mobile for counting: 148,443
Number of instrument set counted: 1,028,709
Period: Aug 2023- July 2024

HA SE related to the counting of instrument – report for whole HA



Year:2021-2022



Year: 2022-2023

For the 6 cases reported in 2022
4 cases are related cement (operation consumable)
1 case is related gauze
Only 1 case report with metallic fragment

Key takeaways

"Incorporating innovation and digital health to improve quality of care and patient safety."-WHO

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Dr. NT CHEUNG, HOIT&HI Head of IT&HI

Dr. Joanna PANG, HOIT&HI CMIO

Dr. Joyce CHAN, HOIT&HI CM (HI)

Mr. K C YIU, HOIT&HI HI(PH&IS)2

SITS mobile IT product team:

Mr. Calvin Ho, HOIT&HI SSM(BAS)

Mr. Ivan Ng, HOIT&HI SM(HA)3

Mr. Andrew Chan, HOIT&HI SA(HA3)1

CUHK, The Nethersole School of Nursing Faculty of Medicine

Prof. William Li, Assistant Dean

Prof. Suzanne Lo, Associate Professor

Hospital Authority, Tseung Kwan O Hospital

Dr. Kenny Yuen, TKOH/HHH HCE / KEC CSC(Surg) / CC(IT)

Dr. Dione Szeto, TKOH COS(ANAE)/ SD (ASS)

Dr. Yuen Yee LEUNG, TKOH COS(SURG)

Dr. Warren CHEUNG, TKOH COS(O&T)

Ms. Doris Lo, TKOH DOM (A&OT/ASS)

Ms. C K Fung, TKOH WM(IDSS)

Ms. W Y Yip, TKOH ex-WM(IDSS)

Hospital Authority, Head Office Nursing Service Department

Dr. Danny Tong, HOCS CM(N)/CNE

Mr. M T Leung, HOCS M(N)

Mr. Kenny Tsang, HOCS M(N)

Hospital Authority, Specialty Advisory Groups (Peri-op/Anae) advisor

Mr. Ngai Yung Yu, TWH GM(N)

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IT&HI DIVISION

香港中文大學醫學院
Faculty of Medicine
The Chinese University of Hong Kong

Q&A

PI of evaluation study

Mr. Ngan Hoi Tik (nht986@ha.org.hk)

Health Informatics Analyst I

Information Technology and Health Informatic, Hospital Authority

Doctorate of Nursing Student

The Nethersole School of Nursing Faculty of Medicine, CUHK

Thank You!

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CU Medicine HONG KONG

香港中文大學醫學院 Faculty of Medicine The Chinese University of Hong Kong

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