The Surgical Checklist

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SURGICAL SAFETY CHECKLIST

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SPECIAL ARTICLE

A Surgical Safety Checklist to Reduce Morbidity and Mortality in a Global Population

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ABSTRACT

BACKGROUND

Surgery has become an integral part of global health care, with an estimated 234 million operations performed yearly. Surgical complications are common and often preventable. We hypothesized that a program to implement a 19-item surgical safety checklist designed to improve team communication and consistency of care A.A.G.) - all in Boston; University of would reduce complications and deaths associated with surgery.

Between October 2007 and September 2008, eight hospitals in eight cities (Toronto, Canada; New Delhi, India; Amman, Jordan; Auckland, New Zealand; Manila, Philippines; Ifakara, Tanzania; London, England; and Seattle, WA) representing a variety of economic circumstances and diverse populations of patients participated in the World Health Organization's Safe Surgery Saves Lives program. We prospectively collected data on clinical processes and outcomes from 3733 consecutively enrolled patients 16 years of age or older who were undergoing noncardiac surgery. We subsequently collected data on 3955 consecutively enrolled patients after the introduction of the Surgical Safety Checklist. The primary end point was the rate of complications, including death, during hospitalization within the first 30 days after the operation.

The rate of death was 1.5% before the checklist was introduced and declined to 0.8% afterward (P=0.003). Inpatient complications occurred in 11.0% of patients at baseline and in 7.0% after introduction of the checklist (P<0.001).

Implementation of the checklist was associated with concomitant reductions in the N Engl J Med 2009;360:491-9. rates of death and complications among patients at least 16 years of age who were undergoing noncardiac surgery in a diverse group of hospitals.

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*Members of the Safe Surgery Saves Lives Study Group are listed in the Appendix

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"WE HYPOTHESIZED THAT A PROGRAM TO IMPLEMENT A SURGICAL SAFETY CHECKLIST DESIGNED TO IMPROVE TEAM COMMUNICATION AND CONSISTENCY OF CARE WOULD REDUCE COMPLICATIONS AND DEATH WITH SURGERY."

Haynes, AB, et al. NEJM 2009; 360(5): 491-499.







SURGICAL SAFETY CHECKLIST (FIRST EDITION)

BEFORE INDUCTION OF ANAESTHESIA





BEFORE PATIENT LEAVES OPERATING ROOM

SIGN IN

- □ PATIENT HAS CONFIRMED
 - IDENTITY
 - SITE
 - PROCEDURE
 - CONSENT
- □ SITE MARKED/NOT APPLICABLE
- □ ANAESTHESIA SAFETY CHECK COMPLETED
- PULSE OXIMETER ON PATIENT AND FUNCTIONING

DOES PATIENT HAVE A:

KNOWN ALLERGY?

- □ No
- □ YES

DIFFICULT AIRWAY / ASPIRATION RISK?

- □ No
- ☐ YES, AND EQUIPMENT/ASSISTANCE AVAILABLE

RISK OF >500ML BLOOD LOSS (7ML/KG IN CHILDREN)?

- No
- YES, AND ADEQUATE INTRAVENOUS ACCESS AND FLUIDS PLANNED

TIME OUT

- □ CONFIRM ALL TEAM MEMBERS HAVE INTRODUCED THEMSELVES BY NAME AND ROLE
- SURGEON, ANAESTHESIA PROFESSIONAL AND NURSE VERBALLY CONFIRM
 - PATIENT
 - SITE
 - PROCEDURE

ANTICIPATED CRITICAL EVENTS

- SURGEON REVIEWS: WHAT ARE THE CRITICAL OR UNEXPECTED STEPS, OPERATIVE DURATION, ANTICIPATED BLOOD LOSS?
- ANAESTHESIA TEAM REVIEWS: ARE THERE ANY PATIENT-SPECIFIC CONCERNS?
- NURSING TEAM REVIEWS: HAS STERILITY (INCLUDING INDICATOR RESULTS) BEEN CONFIRMED? ARE THERE EQUIPMENT ISSUES OR ANY CONCERNS?

HAS ANTIBIOTIC PROPHYLAXIS BEEN GIVEN WITHIN THE LAST 60 MINUTES?

- ☐ YES
- NOT APPLICABLE

IS ESSENTIAL IMAGING DISPLAYED?

- ☐ YES
- NOT APPLICABLE

SIGN OUT

NURSE VERBALLY CONFIRMS WITH THE TEAM:

- THE NAME OF THE PROCEDURE RECORDED
- □ THAT INSTRUMENT, SPONGE AND NEEDLE COUNTS ARE CORRECT (OR NOT APPLICABLE)
- HOW THE SPECIMEN IS LABELLED (INCLUDING PATIENT NAME)
- WHETHER THERE ARE ANY EQUIPMENT PROBLEMS TO BE ADDRESSED
- SURGEON, ANAESTHESIA PROFESSIONAL AND NURSE REVIEW THE KEY CONCERNS FOR RECOVERY AND MANAGEMENT OF THIS PATIENT

HURDLES TO A SUCCESSFUL IMPLEMENTATION OF THE SURGICAL SAFETY CHECKLIST: A PILOT STUDY

The Test Run







PERCEIVED BARRIERS (PRIOR TO PILOT)

Time

- Buy in
- Compliance







BUILDING THE TEAM

Committee

- -2 Surgeons
- Anesthetist
- Respiratory Therapist
- Nurse





RESULTS OF 5 DAY PILOT

- Specialty
 - Colorectal
 - General

- Total Number of Surgeries
 - -12

- Team
 - Surgeons
 - Anesthetists
 - Residents & Fellows
 - Respiratory Therapists
 - Nurses (TL & ATL)
 - Nursing Assistants
 - O.R. Technician





SUCCESS FACTORS

Education

- When staff is well educated prior to running the checklist, compliance =100%
- Seniority of nurse
- Awareness of Surgeon





CHALLENGES

Noise level

Intimidating experience for nurse

 Perceptions of nurses of NOT participating in the checklist pilot or integrated in the process





BENEFITS

- Interprofessional communication
 - Specific requirements/plan sharing
 - Potential complications identified
 - Accurate documentation in charts and handling of specimens

Feeling of delivering safer care





MODIFICATIONS

- Modified from original WHO checklist
 - Based on pilot results
- One size does not fit all (surgical specialties, ophtalmology vs general surgery)
- Appropriate modifications creates buy in
 - E.g. Ophthalmology (SSC shouldn't take longer than the procedure!)





Date

3755, CÔTE STE-CATHERINE, MONTRÉAL, QC H3T 1E2

LA LISTE CHIRURGICALE DE SÉCURITÉ SURGICAL SAFETY CHECKLIST

Date:		Olidioal Sai L	TT OHEOKEIOT			
Heure Infirmière Time : Nurse:	Heure Time :	Infirmière Nurse:		Heure Time:	InfirmièreNurse:	
Avant l'induction Before de l'anesthésie of anes	induction Avant l'ind	cision de la peau	Before skin incision	Avant que l sorte de la salle	le patient ne d'opération	Before patient leaves operating room
À L'ARRIVÉE SIGN IN	PAUSE	PRÉOPÉRATOIRE	SURGICAL PAUSE	À	LA SORTIE	SIGN OUT
LE PATIENT A CONFIRMÉ: HAS CON identité identity site de chirurgie procédure consentement consent	e L'ÉO	L'ÉQUIPE S'EST IDENTIFIÉE. LE CHIRURGIEN, IUIPE L'ANESTHÉSIE ET L'INFIRMIÈRE TERNE CONFIRMENT VERBALEMENT:	THE SURGEON, ANAESTHESIA TEAM AND CIRCULATING NURSE CONFIRM	Le nom de la L'identificatio	procédure est enregistrée. on et transport du spécimen.	NURSE VERBALLY CONFIRMS WITH TEAM : The name of the procedure is recorded. Identification and handling of specimen.
LE SITE EST MARQUÉ THE SITE	IS MARKED	identité •	identity	des éponges e	et des aiguilles	Instrument, sponge, and needle counts are correct
DES ALLERGIES ? ALLERGIE oui ☐ yes		site de chirurgie • procédure •	site procedure		orrect (ou n/a). d'équipement.	(or n/a). Equipment problems?
pas d'allergie connue ☐ no knowr LA PROPHYLAXIE ANTIBIOTIQUE oui ☐ yes no — chirurgien averti ☐ no — surg	TIC PROPHYLAXIS Pertes		SURGICAL TEAM Duration of surgery Anticipated blood loss Anticipated complications	MAINTENU		NORMOTHERMIA MAINTAINED DURING SURGERY > 2 HOURS yes (GA ONLY) no
LA PROPHYLAXIE VTE VTE PROPULATION OUI ☐ yes non — chirurgien averti ☐ no — surg	y y	IIPE D'ANESTHÉSIE a-t-il des inquiétudes ques pour le patient ?	ANESTHESIA TEAM Are there any specific patient concerns?	LE CHIRURGIEN,L'A	approprié pris 🗌	appropriate measures taken THE SURGEON, ANESTHETIST AND NURSE
	T AIRWAY/ ION RISK?	Échelle ASA	ASA score	LES INQUIÉT	TUDES/SOINS	REVIEW THE POST-OP MANAGMENT CONCERNS
non □ no oui − équipement/ □ yes − equ assistance disponible assistance RISQUE DE PERTE SANGUINE DE >500 ml ? non □ no oui □ yes	pipment / Bad pe available Tout équ OSS? Des inqui od products	e champ est stérile. µipement prêt à être □ utilisé.	NURSING TEAM Prep is dry and field sterile. All equipment ready for use. Any patient-specific concerns.	LA F	OUE POST-OP NÉCESSAIRE ? OUI □ no □ PROPHYLAXIE NÉCESSAIRE ? OUI □ non □	NEED FOR VTE PROPHYLAXIS? yes

3 PHASES

Sign In

- Interprofessional communication
 - Specific requirements/plan
 - Potential complications
 - Accurate documentation and handling of specimens

Feeling of delivering safer care





Avant l'induction de l'anesthésie	Before induction of anesthesia
À L'ARRIVÉE	SIGN IN
LE PATIENT A CONFIRMÉ : identité site de chirurgie procédure consentement	site procedure
LE SITE EST MARQUÉ	THE SITE IS MARKED
EST CE QUE LE PATIENT A DES ALLERGIES ? oui pas d'allergie connue	
LA PROPHYLAXIE VTE oui □ non – chirurgien averti □	
INTUBATION DIFFICILE / RISQUE D'ASPIRATION ? non oui — équipement/ assistance disponible	DIFFICULT AIRWAY/ ASPIRATION RISK? no yes – equipment/ assistance available
RISQUE DE PERTE SANGUINE DE >500 ml ? non oui oui produits sanguins disponible	RISK OF >500 ml BLOOD LOSS? no yes yes – blood products available





3 PHASES

Time Out

- Interprofessional communication
 - Specific requirements/plan
 - Potential complications
 - Accurate documentation and handling of specimens

Feeling of delivering safer care





3 PHASES - MODIFICATION

Time Out

- Was recently modified to include
 - 2nd dose of antibiotics required
 - Normothermia measures in place (rather than in sign out)





Avant l'incision de la peau	Before skin incision
PAUSE PRÉOPÉRATOIRE	TIME OUT
L'ÉQUIPE S'EST IDENTIFIÉE. 🗆	TEAM MEMBERS ARE IDENTIFIED.
LE CHIRURGIEN, L'ÉQUIPE D'ANESTHÉSIE ET L'INFIRMIÈRE EXTERNE CONFIRMENT VERBALEMENT: identité site de chirurgie procédure	THE SURGEON, ANAESTHESIA TEAM AND CIRCULATING NURSE CONFIRM VERBALLY: identity site procedure
L'ÉQUIPE CHIRURGICALE Durée de la chirurgie Pertes sanguines anticipées Complications anticipées	SURGICAL TEAM Duration of surgery Anticipated blood loss Anticipated complications
L'ÉQUIPE D'ANESTHÉSIE Y a-t-il des inquiétudes spécifiques pour le patient ? Échelle ASA La prophylaxie antibiotique donné	ANESTHESIA TEAM Are there any specific patient concerns? ASA score Antibiotoc prophylaxis given?
L'ÉQUIPE INFIRMIÈRE Badigeonage est sec et le champ est stérile. Tous équipements prêts à être utilisés.	NURSING TEAM Prep is dry and field sterile. All equipment ready for use.





3 PHASES

Sign Out

- Specimen identification
 - Oncology centre accurate pathology
- Plan for patient post-operatively
 - Meds, follow up, potential complications etc





3 PHASES - MODIFICATION

Sign Out

Wound classification





Avant que le patient ne sorte de la salle d'opération	Before patient leaves operating room
À LA SORTIE	SIGN OUT
L'INFIRMIÈRE CONFIRME AVEC L'ÉQUIPE :	NURSE VERBALLY CONFIRMS WITH TEAM :
Le nom de la procédure est enregistrée.	The name of the procedure is recorded.
L'identification et transport du spécimen.	Identification and handling of specimen.
Le compte des instruments, des éponges et des aiguilles est correct (ou n/a).	Instrument, sponge, and needle counts are correct (or n/a).
Problèmes d'équipement.	Equipment problems?
NORMOTHERMIE EST MAINTENUE PENDANT CHIRURGIE > 2 HEURES (GA SEULEMENT) oui no mesures appropriées prises	NORMOTHERMIA MAINTAINED DURING SURGERY > 2 HOURS yes (GA ONLY) no appropriate measures taken
LE CHIRURGIEN,L'ANESTHÉSISTE ET L'INFIRMIÈRE REVISENT LES INQUIÉTUDES/SOINS POST-OPÉRATOIRES.	THE SURGEON, ANESTHETIST AND NURSE REVIEW THE POST-OP MANAGMENT CONCERNS
ANTIBIOTIQUE POST-OP NÉCESSAIRE ?	NEED FOR POST-OP ANTIBIOTICS?
oui	yes no
LA PROPHYLAXIE VTE NÉCESSAIRE ?	NEED FOR VTE PROPHYLAXIS?





REINFORCES SEVERAL HOSPITAL SAFETY PROTOCOLS

- Patient Identification
- Timely administration of appropriate antibiotic use (before incision and every 4 hres)
- VTE Prophylaxis
- Maintenance of Normothermia





FACTORS INFLUENCING SUCCESSFUL IMPLEMENTATION

- Leadership commitment
 - Communication to Chiefs, TL's
 - Goals clearly stated 100% compliance required
- Education
- Champion nurses, surgeons, anesthetists, RT's

Leader was circulating nurse – now is a team effort and often Surgeon driven





OUTCOMES

- Team communication enhanced
 - Promotes professional environment
 - Assists learning of procedures, steps of interventions and possible complications
 - Reminds us that we are operating on a person rather than fixing a body part
- Several anecdotes by nurses of near misses
 - We need a formal way of keeping track
 - Whiteboard
 - Log book





IMPLEMENTATION RESULTS

- Initial compliance 30 50%
 - Followed by Opera electronic system
 - Day shift
- Current compliance 90% (and higher)
 - Stats shared with staff regularly, per room, per surgeon
 - White board for sharing stats
 - Reminders weekly and evaluation-validation visits in operating rooms



IMPLEMENTATION RESULTS

- Beyong statistics,
 there is the message (Dre L. Lingard, PhD)
 - Parallel conversations
 - Complementory messages
 - Communication effectiveness
 - Compliance to process





IMPLEMENTATION RESULTS

How to measure our successes

- Work groups share their anecdotes
- Diffusion of the good catches and not so good ones
- ...





LINK TO QUALITY

 a tool to facilitate the reduction of near misses and medical errors represents a theoretical prevention of adverse events of approximately 450 surgical patients per year





CONCLUSION

It works!

- Adds patient safety value
- Is inexpensive and easy to use
- Gives a voice
- Easy to align

Jewish General Hospital

(cpsi, 2009)

Results

 Data comparing pre and post implementation periods are being gathered to further assess the impact for patients of JGH

McGill

ONE PATIENT

ONE GOAL

ONE TEAM

And partnering with
CPSI-SHN SSSL faculty
And Checklist Action
Series







Thank you!

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For further information please contact us or visit:

www.who.com www.cpsi.org









