

Tailoring and Implementing Checklists for Intensive Care

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Motivation

- Checklists becoming key tools for enhancing quality in healthcare
- Criticality & real-time nature of intensive care raised the interest in development of checklists for Intensive Care Units (ICUs).

Objectives

- Identify and mitigate barriers to effective use of an iPad-enabled checklist designed for the Trauma & Neurosurgical Intensive Care Unit (TNICU) of St. Michael's.

Background

What is a checklist? A checklist* is typically:

- ✓ A list of action items or criteria
- ✓ Arranged in a systematic manner
- ✓ Allowing the user to record the presence or absence of its items
- ✓ Acting as a verification or "check" after completion of a task

Landing gear	<input type="checkbox"/>	Check down
Autopilot	<input type="checkbox"/>	Off
Landing speed	<input type="checkbox"/>	140 KIAS
After touchdown	<input type="checkbox"/>	Apply reverse thrust
	<input type="checkbox"/>	60 KIAS: cancel reverse thrust
Spoilers	<input type="checkbox"/>	Verify extended
Brakes	<input type="checkbox"/>	As required

(Winters et al., 2009) – Landing procedure for a Boeing 737-800

* (Hales and Pronovost, 2006)

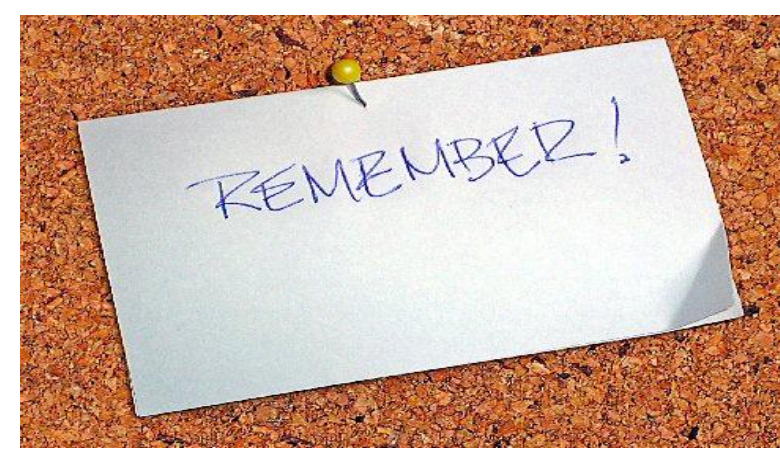
Why Checklists?

- "Medicine today has entered its B-17 phase". (Gawande, 2007)
- Stress and fatigue in health care
- Checklists are more of a support tool than a directive
- The successful and effective use of checklists in other industries particularly in Aviation



Checklists Goals

- Error reduction or best practice adherence (memory aids)



- Standardization and regulation of processes or methodologies



Challenges

Paucity of research
Limited development guidelines
Design challenges
Content challenges

Operational Adoption Barriers

Interruption to workflow
Variations in patient population
Unforeseen adverse events

Checklists Use

Risks

Overuse
Poorly designed checklists
Workflow interruptions
Failures in local adjustments
Inconsistency with state-of-the-art care

Cultural Adoption Barriers

Doubts on their effectiveness
Lack of head physician's support
Checklists viewed as limiting authority
Using memory aids viewed as admission to weakness

Example Checklists

Line Infection Checklist

When a doctor places a central line, the following procedures should be followed:

- Wash your hands with soap
- Clean the patient's skin with chlorhexidine antiseptic
- Put sterile drapes over the entire patient
- Wear a sterile mask, hat, gown, & gloves
- Put a sterile dressing over the catheter site once the line is in

ICU Line Infection Checklist
(Pronovost et al., 2006)

World Health Organization SURGICAL SAFETY CHECKLIST (FIRST EDITION)

Before induction of anaesthesia Before skin incision Before patient leaves operating room

SIGN IN	TIME OUT	SIGN OUT
<ul style="list-style-type: none"> PATIENT HAS CONFIRMED: <ul style="list-style-type: none"> IDENTITY SITE PROCEDURE CONSENT SITE MARKED/NOT APPLICABLE ANESTHESIA SAFETY CHECK COMPLETED PULSE OXIMETER ON PATIENT AND FUNCTIONING DOES PATIENT HAVE A: <ul style="list-style-type: none"> KNOWN ALLERGY? DIFFICULT AIRWAY/ASPIRATION RISK? YES, AND EQUIPMENT/ASSISTANCE AVAILABLE RISK OF SIGNIFICANT BLOOD LOSS (DURING OR OUTSIDE OF THE OPERATION)? YES, AND ADEQUATE INTRAVENOUS ACCESS AND FLUIDS PLANNED 	<ul style="list-style-type: none"> CONFIRM ALL TEAM MEMBERS HAVE INTRODUCED THEMSELVES BY NAME AND ROLE (1) SURGEON, ANAESTHESIA PROFESSIONAL AND NURSE VERBALLY CONFIRM: <ul style="list-style-type: none"> 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 ANY EQUIPMENT ISSUES OR ANY CONCERNS? HAS ANTIBIOTIC PROPHYLAXIS BEEN GIVEN WITHIN THE LAST 60 MINUTES? <ul style="list-style-type: none"> YES NOT APPLICABLE IS ESSENTIAL IMAGING DISPLAYED? <ul style="list-style-type: none"> YES NOT APPLICABLE 	<ul style="list-style-type: none"> NURSE VERBALLY CONFIRMS WITH THE TEAM: <ul style="list-style-type: none"> THE NAME OF THE PROCEDURE RECORDED THAT INSTRUMENT, SPONGE AND NEEDLE COUNTS ARE CORRECT (OR NOT APPLICABLE) HOW THE SPECIMEN IS LABELLED (INCLUDING PATIENT TAGS) 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

THIS CHECKLIST IS NOT INTENDED TO BE COMPREHENSIVE. ADDITIONS AND MODIFICATIONS TO FIT LOCAL PRACTICE ARE ENCOURAGED.

WHO Surgical Safety Checklist
Developed by WHO

Debriefing - Before patient leaves the OR

Planned: _____
Unplanned: _____

Organizational logo here

Modified at UHN
(Davies & Caird, CPSI, 2009)



HandyAudit (www.handyaudit.com)

CHECKLIST - BEFORE INTUBATION

VENTILATOR

- Controlled
- Vaporizer Relief
- Simple leakage test
- Extra ventilation bag (Laerdal)
- Remote control for operation table

INTUBATION

- Laryngoscope blade length
- Additional laryngoscope
- Magill's forceps
- Suction working
- Suction catheter connected
- Slide forceps
- Cuff linkage
- Tube introducer preformed
- Bougie available
- Junction gel (nasal intubation)
- Guided air ways

PATIENT

- If running
- BP, HR, SpO2 recorded

MEDICATION

- Type, volume and dose agreed
- Double checked and labelled
- TRK: correct syringe in pump
- Succinylcholine available
- Anti-anaphylactic drug available

IF UNEXPECTED DIFFICULT INTUBATION

- Algorithm agreed upon
- Necessary equipment available
- Available senior if airway problems

Comments on the back side

A Pre-induction Checklist
(Thomassen et al., 2010)

Checklist Use in TNICU at St. Michael's Hospital

Introduction	TNICU Checklist: Current Version	Study Goals	Study Design
<ul style="list-style-type: none"> An electronic checklist is completed during rounds on a table (iPad) Goal: Improving patient care and generating quality data The checklist is to reduce the amount of work by serving as a: <ul style="list-style-type: none"> ✓ Reminder tool ✓ Data entry tool ✓ Real-time data feedback tool 		<ul style="list-style-type: none"> Improving the overall use of the checklist Identifying use challenges Developing an enhanced version of the checklist Outcome measures: <ul style="list-style-type: none"> ✓ Satisfaction rating ✓ Situational awareness ✓ Compliance rate 	