Checklists:  
The good,  
The bad,  
and the preventably ugly

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“Reality Check for Checklists”

• The emphasis on checklists is Hitchcockian “McGuffan”, a distraction from the plot that diverts attention from how safer care is really achieved.”

Bosk, C et. Al. The Lancet Vol 374 August 8, 2009
“A checklist does not replace or interfere with your judgment or critical decision-making”

Daniel Boorman
Boeing Checklist Designer

Why Checklists?
Rank Order of Error Reduction Strategies

- Forcing functions and constraints
- Automation and computerization
- Standardization and protocols
- Checklists and double check systems
- Rules and policies
- Education/ Information
- Be more careful, be vigilant
The intent of checklists is to turn the brain on...

Heralding the Checklist

- Wash Hands
- Use Chlorhexidine
- Full Barrier Drape
- Avoid Femoral Site
- Remove Unwanted Lines

The Mindful Intent of the Surgical Safety Checklist

• The Team will...
  – Effectively communicate
  – Exchange critical information
  – Anticipate risk
  – Prevent harm
  – Ensure accuracy
Significant Reduction in Death and Complications

![Bar chart showing reduction in death and complications before and after implementation of checklists.](chart.png)

**Before**
- Surgical Site Infections: 6.2%
- All Complications: 3.4%
- Death: 11.0%

**After**
- Surgical Site Infections: 1.5%
- All Complications: 0.8%
- Death: 0.0%

- P < 0.001
- P < 0.001
- P = 0.003

NEJM January 29, 2009, 360:491-8

Further data on checklists

- “functioning as well-coordinated team:
  - 69% → 92%”
- OR nurse turnover
  - 23% → 7%
- “synthesis of the existing body of evidence suggests a relationship between checklist use in surgery and fewer postoperative complications”

**Effect of Using a Safety Checklist on Patient Complications after Surgery**

*A Systematic Review and Meta-analysis*

Beigie M, Gillespie, Ph.D., R.N., Wendy Chubey, Ph.D., R.N., L. Mahajan Thabti, Ph.D., B.Sc., Melanie John, B.Sc., Nicole Ferns-Hedley, FANZCA, M.D., Kellie Stover, F.R.C.O.S., M.D.

**ABSTRACT**

*Background:* Previous before-and-after studies indicate that the use of safety checklists in surgery reduces complication rates in patients.

*Methods:* A systematic review of studies was undertaken using MEDLINE, CINahl, ProQuest, and the Cochrane Library to identify studies that evaluated the effect of checklists in surgery on complication rates. Study quality was assessed using the Methodological Index for Non-Randomized Studies. The pooled effect size (ES) was estimated using both fixed and randomeffects models. Funnel plots were used to assess publication bias.

*Results:* Of the 287 manuscripts initially identified, 7 representing 1,289 patients were included in meta-analyses, and all were cohort studies. Results indicated that the use of checklists in surgery compared with standard practice led to a reduction in our complication (OR = 0.52; 95% CI: 0.38 to 0.69) and death (OR = 0.08; 95% CI: 0.01 to 0.77) rates.

World Health Organization
Gillespie, B et. al. Anesthesiology; 120:1380-9. 2014
But if it were YOU...

• 78.6%: “The checklist helped prevent errors in the operating room”

• 93.4% “If I were having an operation, I would want the checklist to be used”

Haynes et. al. BMJ Qual Saf 2011;20:102

SURPASS Checklists Reduce Surgical Complications and Mortality

• The Surgical Patient Safety System: de Vries EN et. al. Effect of a comprehensive surgical safety system on patient outcomes.

Teams Testing in Simulation improved performance with use of Checklists

When checklists are GOOD, it is in the context of high performing teams

Formula for Perfect Teams?

• Google Project Aristotle
  – Psychological Safety
  – Dependability
  – Structure/Clarity
  – Meaning of Work
  – Impact of Work
Using Checklists as a tool for a high performing team

Checklists have a critical role when...

- Key steps shouldn’t be omitted
- Unnecessary variation can be removed
- We want to reduce fatigue.. improve mental capacity
- Used as a tool for situational awareness

... in the context of a high performing team
When checklists don’t work...

“Implementation of surgical safety checklists was not associated with significant reduction in operative mortality or complications”

Checklists don’t work, when there is no ability to adapt

Surgical Safety Checklist

- Before induction of anaesthesia:
  - Has the patient confirmed his/her identity, site, procedure, and consent?
  - Yes
  - No
  - Not applicable
  - Is the site marked?
  - Yes
  - No
  - Not applicable
  - Is the anaesthesia machine and medication check complete?
  - Yes
  - No
  - Not applicable
  - Is the pulse oximeter on the patient and functioning?
  - Yes
  - No
  - Not applicable
  - Does the patient have a:
    - Known allergy?
      - Yes
      - No
    - Difficult airway or aspiration risk?
      - Yes
      - No
    - Ventilator or non-invasive ventilation available
      - Yes
      - No
    - Risk of >500ml blood loss (including in children)?
      - Yes
      - No
  - Advise iv/central access and fluids planned

- Before skin incision:
  - Confirm all team members have introduced themselves by name and role.
  - Confirm the patient’s name, procedure, and where the incision will be made.
  - Has antibiotic prophylaxis been given within the last 60 minutes?
    - Yes
    - No
    - Not applicable
  - Anticipated Critical Events
    - To Surgeon:
      - What are the critical or non-routine steps?
      - How long is this case likely to take?
      - What is the anticipated blood loss?
    - To Anaesthetist:
      - Are there any patient-specific concerns?
    - To Nursing Team:
      - Has sterility (including indicator results) been confirmed?
      - Are there equipment issues or any concerns?
  - Is essential imaging displayed?
    - Yes
    - No
    - Not applicable

- Before patient leaves operating room:
  - Nurse Verbally Confirms:
    - The name of the procedure
    - Completion of instrument, sponge and needle counts
    - Specimen labelling (must specimen labels aloud, including patient name)
    - Whether there are any equipment problems to be addressed
  - To Surgeon, Anaesthetist and Nurse:
    - What are 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.
A CHECKLIST FOR CHECKLISTS

<table>
<thead>
<tr>
<th>Development</th>
<th>Drafting</th>
<th>Validation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you have clear, concise objectives for your checklist?</td>
<td>Does the Checklist:</td>
<td>Have you:</td>
</tr>
<tr>
<td>Is each item:</td>
<td>Utilize natural breaks in workflow (pause points)?</td>
<td>Trained the checklist with front line users (either in a real or simulated situation)?</td>
</tr>
<tr>
<td>A critical safety step and in great danger of being missed?</td>
<td>Use simple sentence structure and basic language?</td>
<td>Modified the checklist in response to repeated trials?</td>
</tr>
<tr>
<td>Not adequately checked by other mechanisms?</td>
<td>Have a title that reflects its objectives?</td>
<td>Does the checklist:</td>
</tr>
<tr>
<td>Actionable, with a specific response required for each item?</td>
<td>Have a simple, uncluttered, and logical format?</td>
<td>Fit the flow of work?</td>
</tr>
<tr>
<td>Designed to be read aloud as a verbal check?</td>
<td>Fit on one page?</td>
<td>Detect errors at a time when they can still be corrected?</td>
</tr>
<tr>
<td>One that can be affected by the use of a checklist?</td>
<td>Minimize the use of color?</td>
<td>Can the checklist be completed in a reasonably brief period of time?</td>
</tr>
</tbody>
</table>

Have you considered:
- Adding items that will improve communication among team members?
- Involving all members of the team in the checklist creation process?

Please note: A checklist is NOT a teaching tool or an algorithm

Last updated 1/14/10
When “checklists” can get ugly

When they turn the brain “off”

- When the intent is for compliance instead of commitment

- When the team mindlessly “thinks”
  - They are being evidence-based
  - They are having a conversation
  - The roles are accounted for
“improper checklist use can adversely affect patient safety”
- 94% participation
- 85% completion
- 54% accuracy

J Am Coll Surg 2013;217:867-873

• “weak type of safety barrier...”
• “... when compliance with the checklist is flawed and other safety checks are omitted because they are thought of as being handled by the checklist– then we have a new safety threat because we have induced a false sense of safety into the ... system”
Checklists are dangerous...
... when the mental model is that a “checklist” is a “crutch”

( read.. lame and unenlightened)
Coaching Tools from Safe Surgery 2015


UK CUT tool found wide variation

WHOBARS tool from New Zealand


Checklists

• The Good: A tool for high performing teams... MINDFUL

• The Bad: A tool mandated without local adaptation for individuals/teams... UNMINDFUL

• The Ugly: Assuming “compliance” is sufficient feedback for success ... MINDLESS