Patient Safety in Resource Poor Settings

Global Opportunities (MIT April 8, 2011)

Pedro Delgado, Executive Director
Institute for Healthcare Improvement

www.ihi.org
Safe, Timely, Effective, Efficient, Equitable, Patient-Centred

• No needless deaths, harm or suffering
• No delays
• No waste
• No feelings of helplessness

“we cannot change the human condition, but we can change the conditions under which humans work”

(James Reason)
I. Context

„Global Trigger Tool’ Shows That Adverse Events In Hospitals May Be Ten Times Greater Than Previously Measured
The reality in the developed world…

How Hazardous is Health Care?

Image by MIT OpenCourseWare. After L. Leape, Harvard School of Public Health.
<table>
<thead>
<tr>
<th>PAIS</th>
<th>Pacientes incluidos</th>
<th>Pacientes estudiados</th>
<th>Prevalencia</th>
</tr>
</thead>
<tbody>
<tr>
<td>País 1</td>
<td>2405</td>
<td>2373</td>
<td>312 (13,1%)</td>
</tr>
<tr>
<td>País 2</td>
<td>2897</td>
<td>2897</td>
<td>224 (7,7%)</td>
</tr>
<tr>
<td>País 3</td>
<td>1643</td>
<td>1632</td>
<td>198 (12,1%)</td>
</tr>
<tr>
<td>País 4</td>
<td>2003</td>
<td>2003</td>
<td>171 (8,5%)</td>
</tr>
<tr>
<td>País 5</td>
<td>2478</td>
<td>2474</td>
<td>286 (11,6%)</td>
</tr>
<tr>
<td>Total</td>
<td>11426</td>
<td>11379</td>
<td>1191 (10,5%)</td>
</tr>
</tbody>
</table>
WHO 2008 – Africa (Dr Sambo)

- Development of a national policy for patient safety;
- raising awareness of all stakeholders on the importance of patient safety;
- ensuring safe surgical care;
- minimizing healthcare-associated infections;
- ensuring adequate funding for patient safety activities.
- improving knowledge and learning in patient safety;
- re-orienting health systems to make patient safety an integral part of quality care;
- ensuring appropriate use, quality and safety of medicines; and
- strengthening surveillance and capacity for research.
Key facts

- Healthcare-associated infection is a global problem: over 1.4 million at any given time.
- 5% to 10% of patients acquire one or more infections in health facilities, the risk being two to 20 times higher in developing countries, with patients undergoing surgery being the most affected.
High rate of healthcare-associated infections

— weak health care delivery systems;
— poor infrastructure to support basic but essential procedures such as hand hygiene;
— weak management capacity;
— under-equipped health facilities;
— poor injection and blood safety procedures;
— overcrowding; and
— limited microbiological information.
Map showing population per doctor by country removed due to copyright restrictions. See [www.doctorsoftheworld.org](http://www.doctorsoftheworld.org).
II. What? How?

2 Examples
Surgical safety is a public health issue

- About 234 million operations are done globally each year
- A rate of 0.4-0.8% deaths and 3-16% complications means that at least 1 million deaths and 7 million disabling complications occur each year worldwide
A Surgical Safety Checklist to Reduce Morbidity and Mortality in a Global Population

Alex B. Haynes, M.D., M.P.H., Thomas G. Weiser, M.D., M.P.H.,
William R. Berry, M.D., M.P.H., Stuart R. Lipsitz, Sc.D.,
Abdel-Hadi S. Breizat, M.D., Ph.D., E. Patchen Dellinger, M.D.,
Teodoro Herbosa, M.D., Sudhir Joseph, M.S., Pascience L. Kibatala, M.D.,
Marie Carmela M. Lapitan, M.D., Alan F. Merry, M.B., Ch.B., F.A.N.Z.C.A., F.R.C.A.,
Krishna Moorthy, M.D., F.R.C.S., Richard K. Reznick, M.D., M.Ed., Bryce Taylor, M.D.,
and Atul A. Gawande, M.D., M.P.H., for the Safe Surgery Saves Lives Study Group*
# The Checklist

## Surgical Safety Checklist (First Edition)

**Before induction of anaesthesia**

- **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

**Before skin incision**

**Before patient leaves operating room**

- **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

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This checklist is not intended to be comprehensive. Additions and modifications to fit local practice are encouraged.

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Image by MIT OpenCourseWare.
...was found to reduce the rate of postoperative complications and death by more than one-third!

## Results – All Sites

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Checklist</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cases</td>
<td>3733</td>
<td>3955</td>
<td>-</td>
</tr>
<tr>
<td>Death</td>
<td>1.5%</td>
<td>0.8%</td>
<td>0.003</td>
</tr>
<tr>
<td>Any Complication</td>
<td>11.0%</td>
<td>7.0%</td>
<td>&lt;0.00</td>
</tr>
<tr>
<td>SSI</td>
<td>6.2%</td>
<td>3.4%</td>
<td>&lt;0.00</td>
</tr>
<tr>
<td>Unplanned Reoperation</td>
<td>2.4%</td>
<td>1.8%</td>
<td>0.047</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Income Level</th>
<th>Change in Complications</th>
<th>Change in Death</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Income</td>
<td>10.3% -&gt; 7.1%*</td>
<td>0.9% -&gt; 0.6%</td>
</tr>
<tr>
<td>Low and Middle Income</td>
<td>11.7% -&gt; 6.8%*</td>
<td>2.1% -&gt; 1.0%*</td>
</tr>
</tbody>
</table>

* p<0.05

What problems does this checklist address?

• Correct patient, operation and operative site
  – There are between 1500 and 2500 wrong site surgery incidents every year in the United States.¹
  – In a survey of 1050 hand surgeons, 21% reported having performed wrong-site surgery at least once during their careers.²

• Safe Anaesthesia and Resuscitation
  —An analysis of 1256 incidents involving general anaesthesia in Australia showed that pulse oximetry on its own would have detected 82% of them.¹

What problems does this checklist address? (cont.)

• Minimizing risk of infection
  — Giving antibiotics within one hour before incision can cut the risk of surgical site infection by 50%¹,²
  — In the eight evaluation sites, failure to give antibiotics on time occurred in almost one half of surgical patients who would otherwise benefit from timely administration

What problems does this checklist address?

- **Effective Teamwork**
  - Communication is a root cause of nearly 70% of the events reported to the Joint Commission from 1995-2005.¹
  - A preoperative team briefing was associated with enhanced prophylactic antibiotic choice and timing, and appropriate maintenance of intraoperative temperature and glycemia.²,³

### Survey of Attitudes Among Clinicians at Study Sites/ (n=229)

<table>
<thead>
<tr>
<th>Statement</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>The checklist was easy to use</td>
<td>78.6%</td>
</tr>
<tr>
<td>The checklist improved operating room safety</td>
<td>79.0%</td>
</tr>
<tr>
<td>The checklist took a long time to complete</td>
<td>18.3%</td>
</tr>
<tr>
<td>Communication was improved through use of the checklist</td>
<td>84.3%</td>
</tr>
<tr>
<td>The checklist helped prevent errors in the operating room</td>
<td>78.2%</td>
</tr>
<tr>
<td>If I were having an operation, I would want the checklist to be used</td>
<td>92.6%</td>
</tr>
</tbody>
</table>
Advantages of Using a Checklist

- **Customizable** to local setting and needs
- **Deployable** in an incremental fashion
- **Supported** by scientific evidence and expert consensus
- **Evaluated** in diverse settings around the world
- **Ensures** adherence to established safety practices
- **Minimal resources** required to implement a far-reaching safety intervention
II. What?, How?:
Some Principles
Principles

• $S + P = O$
• Reliability
• Introducing a ‘new way’ (Rogers, 1995):
  — Relative advantage
  — Compatibility
  — Complexity
  — Trialability
  — Observability
The Model for Improvement

- ‘Pragmatic science’ (James)
- Data for improvement
- Learning (sequential, cumulative)
- Engagement
- **Implementation focus**
The Model for Improvement

Model for Improvement

- What are we trying to accomplish?
- How will we know that a change is an improvement?
- What change can we make that will result in improvement?

Act  Plan
Study  Do
Adopter Categories

from E. Rogers, 1995
III. Join the community…
The IHI Open School [www.ihi.org](http://www.ihi.org)
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- Case studies
- Audio recordings
- Videos
- Recommended reading
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Research to Reform: Achieving Health System Change: September 13-16, Bethesda, MD

AHRQ presents its third annual conference at the Bethesda North Marriott Convention Center in Bethesda, Maryland.

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The Mayo Clinic presents a symposium on innovative ways to deliver health care in the 21st century.

The Student Experience - Service Improvement in Pre-registration Education: September 17, Birmingham, UK

The NHS Institute is hosting a conference to showcase students’ achievements in the area of service improvement.

Training Tomorrow’s Doctors: Graduate Medical Education and Patient and Family Centered Care: September 25-26, Chicago, Illinois

An opportunity to meet and learn from leaders in graduate medical education and patient- and family-centered care.

IHI National Forum on Quality Improvement in Health Care: December 6-9 - Orlando, FL

Scholarships available for students, faculty, and residents.

What’s the IHI Open School?

Donald Berwick, IHI’s president and CEO, explains.

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Improvement and patient safety in health care, categorized by major topics in the field.
Questions?