Human Factors in Clinical Handovers

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Reinforce and expand knowledge about handovers

- What is “Human Factors”?
- What is a handover?
- What goes wrong in handover?
- What can we do about it?
What do I do?

HUMAN FACTORS or ERGONOMICS

The science of:
* What people do well
* Why they do it well
* What people do NOT do well
* Why they do NOT do it well
Humans in Complex Systems

Humans:
- are a fundamental component of ANY system
- are uniquely able to function in uncertainty, and make trade-offs
- create safety in complex systems

Complex systems:
- are inherently unsafe
- always function at the limits of capacity
- require safety to be traded for other aspects of system performance.

“Human Error is the inevitable by-product of the pursuit of success in an imperfect, unstable, resource constrained world.” (Dekker, 2003)
Systemic influences on HUMAN performance

Orgnaisation

Environment

People

Tasks

Technology

Safety Culture
Resilience
Learning from Accidents

Workspace Design
Geographical distribution
Physical Constraints

Task standardization
Roles & Rules
Prediction & planning

Design
Procurement
Integration

“HUMAN FACTORS”

Human Factors in Design

Low Control Compatibility

High Control Compatibility
What is ‘Clinical Human Factors’?

Enhancing clinical performance through an understanding of the effects of teamwork, tasks, equipment, workspace, culture, and organisation on human behaviour and abilities, and the application of that knowledge in clinical settings.

www.chfg.org
WHAT IS A HANDOVER?
Handover Classification System (Cohen & Hilligoss, 2010)

Handoff Types

Between-Unit or Intra-departmental
- between-unit transfer of a new patient

Within-Unit or Inter-departmental
- within-unit continuing patient transfer
- within-unit new patient transfer
- within-unit temporary role assumption transfer
Handover Conceptualised
Table 2  Three factors of handoff characteristics (rotated factor loadings higher than 0.3)

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 5: All relevant information was selected and communicated</td>
<td>0.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 2: The person handing off the patient continuously used the available documentation (anaesthesia record, patient chart, etc) to structure the handoff</td>
<td>0.69</td>
<td>0.39</td>
<td></td>
</tr>
<tr>
<td>Item 7: The person handing off the patient clearly communicated her/his assessment of the patient</td>
<td>0.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 1: Handoff followed a logical structure</td>
<td>0.62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 3: Not enough time was allowed for the handoff</td>
<td>0.60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 6: Priorities for further treatment were addressed</td>
<td>0.58</td>
<td>0.39</td>
<td></td>
</tr>
<tr>
<td>Item 13: Documentation was complete</td>
<td>0.41</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 12: The team jointly ensured that the handoff was complete</td>
<td></td>
<td>0.84</td>
<td></td>
</tr>
<tr>
<td>Item 11: Questions and ambiguities were resolved (active enquiry by the person taking on responsibility for the patient)</td>
<td></td>
<td>0.70</td>
<td></td>
</tr>
<tr>
<td>Item 8: Possible risks and complications were discussed</td>
<td></td>
<td>0.67</td>
<td></td>
</tr>
<tr>
<td>Item 10: There was tensions within the team during handoff</td>
<td></td>
<td></td>
<td>0.76</td>
</tr>
<tr>
<td>Item 9: It was easy to establish good contact at the beginning to the handoff</td>
<td></td>
<td>0.31</td>
<td>0.72</td>
</tr>
<tr>
<td>Item 16: Patients’ experience was considered carefully during handoff (respect)</td>
<td></td>
<td>0.36</td>
<td>0.52</td>
</tr>
<tr>
<td>Variance explained (%)</td>
<td>21.87</td>
<td>16.81</td>
<td>11.28</td>
</tr>
</tbody>
</table>

Manser et al. 2010

“Information Transfer”

“Shared Understanding”

“Working Atmosphere”
Handover Conceptualised

Skills
Protocols and Procedures
Technology and Tools
Environment and Organisation

Team 1

Handover

Team 2
Handover as a Dynamic Process

Information & situation constantly changing

Team 1
Summarising picture
GIVE control

Handover

Skills
Protocols and Procedures
Technology and Tools
Environment and Organisation

Team 2
Building picture
TAKE control
What about more complex handovers?

Hospital at Night Handover

H@N Handover
Medical & nursing handover

AM ward rounds

PM ward rounds

CSP
Site security staffing handover

New events
• Theatre
• Admissions
• 2222
• PICU
Discharge

Evening
Short day
Long day
Nursing handover

“Ecosystem” of multiple handovers

Jane Carthey, 2011
‘Framing’ of handovers

- Information Transmission / Processing
- Deviations from normal / Stereotypical narrative
- Revealing Problems / Resilience
- Transfer of Responsibility / Accountability
- Social Interaction
- Networked knowledge / Distributed Cognition
- Reinforcing values / Cultural Norms

- Patterson & Wears 2010, The Joint Commission Journal on Quality and Patient Safety 36(2)
Increasing Interest

PubMed Publications on “Handover”

PubMed Publications on “Handoff”
“...rarely consider the dynamic nature...”

“...narrow definition of handover as information transfer....”

“....focus on standardisation....”

“....discrepancy between objective assessment and satisfaction....”

“...lack of systematic research...and adequate measures of effectiveness....”

In 458 incidents the most prevalent failure types:
- transfer of patients without adequate handover 28.8% (n = 132)
- omissions of critical information about the patient's condition 19.2% (n = 88)
- Omissions of critical information about the patient's care plan during the handover process 14.2% (n = 65).

The most prevalent failure detection mechanisms:
- expectation mismatch 35.7% (n = 174)
- clinical mismatch 26.9% (n = 127)
- mismatch with other documentation 24.0% (n = 117).
“Of course, there is a process …….but everyone does it differently”

Handover as a Dynamic Process

Information & situation constantly changing

Team 1

Summarising picture
GIVE control

Handover

Team 2

Building picture
TAKE control

Skills

Protocols and Procedures

Technology and Tools

Environment and Organisation

Checking Processes

Establish Currency
Monitor Changes
Handover as a Dynamic Process

Information & situation constantly changing

Team 1
- Summarising picture
- GIVE control

Handover

Team 2
- Building picture
- TAKE control

Skills
- Protocols and Procedures
- Technology and Tools

Environment and Organisation

Control Overlap
Handover as a Dynamic Process

Information & situation constantly changing

Team 1

Team 2

Handover

Technologies

Skills

Protocols and Procedures

Handover as a Dynamic Process

Team 1

Team 2

Summarising picture

Building picture

TAKE control

GIVE control

Information & situation constantly changing
“...the transfer from the operating theatre to the intensive care unit is one of the most difficult stages in the care of a child.”

- p. 214, Learning from Bristol (2001)

NOTE
TRANSFER OF:
- safety-critical monitoring & support equipment from theatre to ICU
- patient care, information & plans from operating team to intensive care team
Multiple specialists
Complex tasks
Complex interfaces
Time pressure
Need for accuracy
Lessons from F1 and Aviation

Technology

- Process Organisation
  - Task Allocation
  - Task sequence
  - Discipline and composure

Training Regimes

- Teamwork
  - Leadership
  - Involvement
  - Briefing

- Threat and Error Management
  - Checklists
  - Predicting and Planning
  - Situation Awareness
Resistance to Change

“It’s fine as it is”

“We’ve always done it like this”

“We don’t have time to do it like this”

“It might make things worse”

“But so many other things are wrong”

“We’re different here”
Ten challenges in improving quality in healthcare: lessons from the Health Foundation’s programme evaluations and relevant literature

Mary Dixon-Woods, Sarah McNicol, Graham Martin

ABSTRACT
Background: Formal evaluations of programmes are an important source of learning about the challenges faced in improving quality in healthcare and how they can be addressed. The authors aimed to integrate lessons from evaluations of the Health Foundation’s improvement programmes with relevant literature.

Methods: The authors analysed evaluation reports relating to five Health Foundation improvement programmes using a form of ‘best fit’ synthesis, where a pre-existing framework was used for initial coding and then updated in response to the emerging analysis. A rapid narrative review of relevant literature was also undertaken.

Results: The authors identified ten key challenges: convincing people that there is a problem that is relevant to them; convincing them that the solution chosen is the right one; getting data collection and monitoring systems right; excess ambitions and ‘projectness’; organisational cultures, capacities and contexts; tribalism and lack of staff engagement; leadership; incentivising participation and ‘hard edges’; securing sustainability; and risk of unintended evaluations of programmes to improve quality in healthcare.

A large portfolio of such programmes (table 1) has been assembled by the Health Foundation, an independent charity working to improve healthcare quality in the UK. The programmes have diverged in their scope and remit, but all are united by their focus on technical skills, leadership development, clinical engagement, capacity, knowledge and the will for change. In a perhaps unique contribution, the Health Foundation has commissioned independent evaluations of each of them. The evaluation reports represent a resource that could provide generalisable insights into the challenges faced in trying to improve quality in healthcare and how improvement processes could be optimised.

In this article, we provide a review of the findings of these reports and specifically focus on the challenges in the adoption of
Making Change

- Identify the problem
  - Break it down
  - Generate multiple solutions

- Involve everyone
  - Be visible
  - Obtain support and establish “Champions”
  - Use the most negative people
  - Don’t listen to “No”

- Make the change
  - Gather evidence
  - Plan, Do, Check, Act
Overview of the New Process

Prior to Transfer
- Patient Transfer Sheet obtained from theatre
- Bedspace & equipment prepared in CCC

Technology Transfer
- Equipment is configured in CCC
- SAFETY CHECK

Information Handover
- Anaesthetist then Surgeon hand over information using Information Transfer Aide Memoir
- SAFETY CHECK

Discussion & Plan
- Group discussion
- Anticipation of problems
- Immediate care strategy agreed

Training time = 30 minutes
Errors in BOTH Equipment AND Information:

<table>
<thead>
<tr>
<th>Category</th>
<th>BEFORE</th>
<th>AFTER</th>
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<tbody>
<tr>
<td>&gt;1 in both</td>
<td>39%</td>
<td>11%</td>
</tr>
<tr>
<td>&gt;4 in both</td>
<td>13%</td>
<td>4%</td>
</tr>
<tr>
<td>Correlation</td>
<td>$r=0.513$</td>
<td>$r=0.262$</td>
</tr>
<tr>
<td></td>
<td>$p&lt;0.01$</td>
<td>$p=0.186$</td>
</tr>
</tbody>
</table>
Acceptance of Change

“This is great....

......but we can make it better”

Consultant Anaesthetist, February 2007

Continuous Improvement

High Reliability
Some useful rules of thumb

Avoid notions of blame; understand motivations

Trying harder will not work (& “should” is dangerous)

Good outcome ≠ good process

Is it easy to do right and hard to do wrong?

Do we know what “right” looks like?
Thank you for listening

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Selected Publications


