Taming the Wicked Problem of Hand Hygiene

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Overview

1. Wicked problems and hand hygiene
2. Moment for hand hygiene project
What is a Wicked Problem?

• A problem that is difficult or impossible to solve because of incomplete, contradictory, and changing requirements that are often difficult to recognise.
  – Childhood obesity
  – Affordable healthcare
  – Antibiotic resistance
  – Caring for old people
  – Hand hygiene compliance?
Hand Hygiene Compliance Research

- The hand hygiene procedure itself is simple, and there is no shortage of research on hand hygiene interventions (>7k papers).
  - Lack of methodological rigour.
  - Lack of a theoretical basis for intervention.
  - Lack of practical guidance in how to apply, and sustain, good hand hygiene practices
  - Inadequate understanding of the complexities of the environment and organisation.
Hand hygiene governance, delivery and resource in the Irish healthcare system.
Characteristics of Wicked Problems (Horst Rittel)

1. You don’t understand the problem until you have developed a solution.
2. Wicked problems have no stopping rule.
3. Solutions to wicked problems are not right or wrong.
4. Every wicked problem is essentially unique and novel.
5. Every solution to a wicked problem is a ‘one-shot’ operation.
6. Wicked problems have no given alternative solutions.
1. You don’t understand the problem until you have developed a solution.

- Every solution that is offered exposes new aspects of the problem, requiring further adjustments of the potential solutions.
Audit and the Hawthorne Effect

• Direct observation has been described as the ‘gold standard’ approach to hand hygiene audit.

• However, healthcare workers have show to behave differently when they know they are being observed.
  – 3-fold increase of hand hygiene events when auditors are visible (Srigley et al, 2014).
  – 180% increase in compliance during audit (Cheng et al, 2011).
More Hawthorne Complications (Eckmanns et al., 2006)

- Hawthorne effect was more pronounced in units with a high baseline level.
  - **High baseline**: 79% without observation vs 98% with observation.
  - **Low baseline**: 40% without observation vs 47% with observation.
- Staff in poorer performing hospitals do not seem to try and ‘impress’ the auditors to the same extent as staff in higher performing units.
2. Wicked problems have no stopping rule

• Since there is no definitive ‘the problem’, there is also no definitive ‘the solution.’
A Solution?: Nudging Hospital Visitors
Aarestrup et al (2016)

“Here, we use HAND DISINFECTANT… to protect your relative.”

Amount of visitors using hand sanitizer (%)

- **BASELINE**: 3%
- **PLACEMENT**: 20%
- **SIGN + PLACEMENT**: 67%
3. Solutions to wicked problems are not necessarily right or wrong

• They are simply ‘better,’ ‘worse,’ ‘good enough,’ or ‘not good enough.’
### Acute hospital Hand hygiene KPIs.

<table>
<thead>
<tr>
<th>KPI Title</th>
<th>QVA</th>
<th>Reported against NSP / DOP</th>
<th>Data Source to BIU</th>
<th>KPI Type</th>
<th>Access / Quality / Access Activity</th>
<th>Healthy Ireland / Corporate Plan / HI &amp; CP</th>
<th>Report Period</th>
<th>Report Frequency</th>
<th>KPIs 2015</th>
<th>2015 National Target / Expected Activity</th>
<th>2015 Projected ACTUAL outturn</th>
<th>2016 National Target / Expected Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of current staff who interact with patients that have received mandatory hand hygiene training in the rolling 24 month **</td>
<td></td>
<td>DOP</td>
<td>HPSC</td>
<td>Quality</td>
<td>M</td>
<td>M</td>
<td>New KPI 2016</td>
<td>New KPI 2016</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol Hand Rub consumption (litres per 1,000 bed days used)</td>
<td></td>
<td>NSP</td>
<td>HPSC</td>
<td>Quality</td>
<td>Bi</td>
<td>Bi</td>
<td>25</td>
<td>28</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% compliance of hospital staff with the World Health Organisation’s (WHO) 5 moments of hand hygiene using the national hand hygiene audit tool</td>
<td></td>
<td>NSP</td>
<td>HPSC</td>
<td>Quality</td>
<td>Bi</td>
<td>Bi</td>
<td>90%</td>
<td>87.2%</td>
<td>90%</td>
<td></td>
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</tbody>
</table>
4. Every wicked problem is essentially unique and novel.

- The solutions to a wicked problem will always be custom designed and fitted.
  - A consistent finding in articles on quality improvement in healthcare is that change is difficult to achieve (Grol et al., 2007).
  - Does a hand hygiene intervention designed for use in one domain transfer to another?
  - Lack of impact may not be an issue with the intervention, but rather the problem is the implementation.
5. Every solution to a wicked problem is a ‘one-shot operation’

- You can’t learn about the problem without trying solutions, but every solution you try is expensive and has lasting unintended consequences.
Time for Handwashing (Voss & Widerman, 1997)

Total time required for handwashing for a 12 person 8 bed ICU team working a 8 hour shift.
6. Wicked problems have no given alternative solutions

- There may be no solutions, there may be a lot of potential solutions, or ones that are not yet thought of.
Wicked Problem Conclusion

• Great improvements in hand hygiene compliance rates have been made over the last two decades.
• Perhaps hand hygiene is not the ‘wickedest’ problem.
• However, it shares many of the characteristics of wicked problems
• It is not a problem that has been solved, and requires continued and sustained effort.
Overview: A Moment for Hand Hygiene in the Intensive Care Unit: How Can Compliance be Improved?
Background

• The genesis of this project was from Dr. Michael Power- National Critical Care Lead.
• We were ‘matched’ as part of the Research Collaborative in Quality and Patient Safety (HRB/HSE/RCPI) grant.
• Application was unsuccessful, so dusted ourselves off and re-applied to the HRB project grants.
  – 3 year project.
  – Started July 2016.
  – Funding for one Post-Doc- Dr Sinéad Lydon
Principle/Co-Principle Investigators

Dr Paul O’Connor
NUIG, HF Psychology

Dr Molly Byrne
NUIG, Health Psychology

Dr Jenny McSharry
NUIG, Health Psychology

Dr Christine Domegan
NUIG, Social Marketing

Dr Michael Power
National Critical Care Lead

Dr Janet Squires
U Ottowa, Nursing
Collaborators

- **Dr. Eibhlin Connolly**- Deputy Chief Medical Officer, Dept. Health.
- **Dr Rob Cunney**- National Clinical lead HCAI
- **Ms. Sheila Donlon**- Assistant Director of Nursing, Beaumont
- **Dr Susan FitzGerald**- Microbiology, Vincent’s
- **Dr. Fabiana Lorencatto**- Health psychologist, City Uni London
- **Dr Angela O’Dea**- HF psychologist, RCSI
- **Ms. Marie Kehoe O’Sullivan**- Director, Safety & Qual Improvement
- **Rev Patrick Towers**- Patient representative
- **Dr Akke Vellinga**- Epidemiologist, NUIG
Project Aims

• The aim of the proposed research project is to use input from all of the stakeholders to develop a unified and scientific approach to improving hand hygiene in ICUs.

• Draw upon improvement sciences methodologies to identify a complex intervention that is specifically designed to improve hand hygiene compliance in ICUs.
Project Overview

The project has two distinct parts:

- **Part A.** Develop an understanding of the current situation and identify barriers to hand hygiene compliance (Years 1 and 2).

- **Part B.** Develop (but not deliver) an evidence-based and sustainable complex intervention (Year 3).
Behavioural Change Wheel (Mitchie et al, 2011)

Sources of behaviour

Capability

Opportunity

Motivation

Behaviour

Guidelines

Environmental/Social planning

Physical

Psychological

Capability

Opportunity

Motivation

Guidelines

Restrictions

Education

Physical

Persuasion

Psychological

Physical

Attractive

Motivation

Regulation

Service provision

Fiscal measures

Environmental restructuring

Enablement

Legislation

Psychological

Reflective

Incentivation

Attractive

Psychological

Social

Coercion

Physical

Psychological

Physical

Training

Service provision

Communications

Legislation

Fiscal measures

Environmental restructuring

Enablement

Legislation
Intervention Functions (Mitchie et al, 2011)
Policy Categories (Mitchie et al, 2011)
Part A. Develop an understanding of the current situation and identify barriers to compliance

- Understand the current situation in the actual environment and from a regulatory perspective.
  1. Identify the level of compliance with, and barriers to, hand hygiene.
  2. Consolidate the hand hygiene guidelines, standards and policies.
  3. Evaluate the opinions of key policy makers on the challenges to improving hand hygiene compliance.
  4. Analyse what is needed to improve hand hygiene practices in Irish ICUs.
Part B: Develop an evidence-based and sustainable complex intervention.

- Using the data from part A to identify a sustainable complex intervention for improving hand hygiene in ICUs.
  1. A systematic review of interventions for improving hand hygiene compliance
  2. Identify appropriate intervention options for improving hand hygiene compliance in Irish ICUs.
  3. Identify a specific bundled intervention for improving hand hygiene compliance in Irish ICUs.
  4. Identify the policies that are required to enable the proposed intervention to occur.
Current work: Identify the level of compliance with, and barriers to, hand hygiene.

1. 40+ semi-structured interviews with ICU staff members
2. Questionnaire to be complete by all ICU staff members (national survey)
3. Direct observation of ~125 participants across the four sites (16 shifts). Evaluate whether hand hygiene occurs at the appropriate ‘moment’ and is sufficiently thorough.
Want to Get Involved?

• Any advice, suggestions, information would be gratefully received.

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