Spotlight on the Future of HAI: A Case Study to Inform Global Action
Dr Raheelah Ahmad and Professor Alison Holmes, Imperial College London
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Integrating Infection Prevention into Healthcare Delivery

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NIHR Health Protection Research Unit
HCAI and AMR

Session objectives

1. To understand the influence of national performance measures at the hospital level (managerial and front-line staff)
2. To evaluate the role of stakeholders in addressing IPC (internal and external stakeholders)
3. To understand how to strengthen implementation evaluation to translate learning from ‘success’ and ‘failure’
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HCAI and AMR

Health System Context

organisational context

Innovation
Adoptor

Communication Process

organisational context

Health System Context

Spotlight on HCAI: The Scope

<table>
<thead>
<tr>
<th>Literature review:</th>
<th>Case studies - 2 NHS Trusts:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation studies:</td>
<td>Qualitative interviews with healthcare staff</td>
</tr>
<tr>
<td>UK (2000-13)</td>
<td>Analysis of structure, process and outcome indicators</td>
</tr>
<tr>
<td>Indicators to assess IPC performance:</td>
<td></td>
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<tr>
<td>UK &amp; international</td>
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<th>User consultation:</th>
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<tr>
<td>Group interviews</td>
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<td>Self-completed questionnaires</td>
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Spotlight on HCAI: The Scope

Aims: bring together evidence from a range of sources to illustrate how IPC practice in the UK could be improved.

Imperial College, Leicester University, Geneva Hospitals collaboration

To understand the influence of national performance measures at the hospital level - managerial and front-line staff
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International developments in benchmarking and public reporting of HCAIs


Interventions in England – mandatory; recommendations; national campaigns

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National performance

Drivers

I think most of the pressure actually comes internally, which is that, you know, now that we’ve been on a journey which has seen an improved infection rates across a number of organisms (quite markedly), there’s an appetite within the trust, firstly not to let that go backwards, see a rise in infections, (INNOVATION study - Senior executive in case 1)

Pressure to improve is internal from the department… The [ICU] infection control procedures have to be quite stringent… And I think that’s filtered down from the top. We have regular infection control emails and things like that, highlighting certain things so you know what we can do better… There’s also a lot of kind of microbiology and infection control nurse-led activity. (Senior charge nurse, case 2)
Constraints – inconsistency/sustainability?

Sometimes there is no continuity... so someone will say we need to [implement this IPC intervention] and then two days later someone else will say something different. I think that is frustrating for the staff because obviously they can’t keep swapping and changing all the time. If you are going to be telling me to do something then I need to know that is what we are going to be doing. (Ward manager, site 1)

I do think its priority level shifts according to what other pressures the trust is facing. (IPC nurse 7)

Impact on IPC Implementation

Outcome indicators of the mandatorily reported HCAIs (MRSA and MSSA blood stream infection, and C. difficile infection) reached a plateau?

Are we at the point of diminishing returns on investment?

- evidence that practitioners can feel de-motivated

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Impact on IPC Implementation

Continued managerial focus on a narrow spectrum of infections may divert attention from other increasing problems such as E. coli BSI and emerging threats such as Carbapenem resistance.

Maintaining credibility & relevance

Exploring impact of how we measure: "what consequences do vertical (ie. organism specific) targets have on other HCAIs, infection prevention practice, or on wider patient safety


NICU E. cloacae outbreak related to understaffing

Harbarth, ICHE 1999; 20(9):598-603
What are the known key elements for a hospital to deliver effective IPC programmes and what indicators are needed for their monitoring?

ECDC study:
The systematic review and evidence based guidance on Organisation of Hospital infection control Programmes (SIGHT)
Key elements within hospitals

Hospital organisation, management, and structure for prevention of healthcare-associated infections: a systematic review and expert consensus

Introduction
Healthcare-associated infections (HAIs) affect millions of patients worldwide every year. In the European Union (EU) alone, over 1.3 million patients are affected annually. However, despite existing evidence on the effectiveness and benefits of implementing effective infection control measures in healthcare settings, there remains a need for continued improvement. One key challenge is the identification and implementation of evidence-based practices to prevent and control HAIs, particularly in acute care hospitals. Effective strategies include improving hand hygiene, reducing nosocomial infections, and enhancing environmental cleaning practices. This consensus statement aims to provide guidance on how to minimize the impact of HAIs by implementing comprehensive infection control programs.

www.thelancet.com/infection Published online November 11, 2014 http://dx.doi.org/10.1016/S1473-3099(14)7054-0
Key elements within hospitals

Hospital organisation, management, and structure for prevention of health-care-associated infection: a systematic review and expert consensus

Despite growing efforts, the burden of health-care-associated infections in Europe is high. Surveillance systems in European Union (EU) countries identify an estimated 120,000 deaths each year. We did a systematic review to identify critical elements for the implementation of effective infection control programmes in hospitals and key components for its integration into hospital management. The review aimed to identify: 1) the elements of effective infection control programmes; 2) the indicators that could assess the implementation of these programmes; and 3) the components of the programmes that could be integrated into hospital management. A systematic review of the relevant literature identified 833 articles eligible for quality assessment. Eighty extracts were scored after expert consensus had been reached on the finalised components and indicators and scored for the EU-wide applicability.

Systematic review
48079 records identified
833 articles eligible for quality assessment
Key elements identified. Expert consensus finalised components and indicators and scored implementation and EU-wide applicability

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| 1. IC programme at the hospital, appropriately staffed and supported |
|---|---|
| 2. Bed occupancy, staffing, workload, and use of agency and pooled staff |
| 3. Availability and easy access to materials, equipment and optimum ergonomics |
| 4. Appropriate use of guidelines, with practical education and training |
| 5. Education and training involves frontline staff and is team and task oriented |
| 6. Auditing organised and standardised with timely feedback |
7. Participating in prospective surveillance, involvement in networks, active feedback
8. Implementing infection prevention programmes with multiple methods, strategies, accounting for local conditions
9. Identifying and engaging champions in promoting interventions

10. Positive organisational culture by fostering good working relationships and communications across units and staff groups.

Indicators: Work satisfaction, Emergency and crisis management, HR, Absenteeism, HCW turnover
### Appraisal of practice

<table>
<thead>
<tr>
<th>Theme</th>
<th>Indicators</th>
<th>Recommended at regional / national level</th>
<th>Data available at hospital level</th>
<th>Used to inform IPC management and practice at hospital level?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Effective organization of infection control (IC) at hospital level</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No. of ongoing surveillance and prevention programmes, outbreaks, and performed audits</td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>IC committees in place</td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Defined goals and budget for IC</td>
<td></td>
<td></td>
<td>Yes</td>
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<tr>
<td></td>
<td>IC on the agenda of the hospital administration</td>
<td></td>
<td></td>
<td>Yes</td>
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<tr>
<td></td>
<td>Defined sustainability management</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Vaccination programmes for healthcare workers</td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>2. Effective and appropriate staffing and workflow, and minimal use of pool / agency nurses</td>
<td>Averaged bed occupancy at midnight for the different units</td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Average staffing of frontline workers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Average proportion of pool/agency professional nurses</td>
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</table>

To evaluate the role of stakeholders in addressing IPC (internal and external stakeholders)

- Professional organisation involvement or research collaboration enhances success
- Redefine problem as a social problem that can be solved i.e. involving human action and behaviour, not simple technical fix
- Social process, sense of community
- Systems with network and teams and sense of ownership
- Clinicians' behaviours influenced by trusted peers (Dopson et al. 2003).
- Leaders with authority to “breathe legitimacy” critical (Hwang and Powell 2005).
### Policies and guidelines

- Guidelines, policy help with decision-making, by providing knowledge and awareness
  
  But, they may not shift attitudes or change practice
  
  J Carthey et al. BMJ 2011; 343

- Make optimal antibiotic prescribing default, routine practice

- ‘Mindlines’ not guidelines
  
  Gabbay, Le May. 2004; BMJ 329

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*The ability for individual staff to passively resist something is far greater than the position and power of any individual within the organisation. So if we want to introduce something new and if it isn’t really understood and accepted at the ground level, people will just make the right noises and not act, absolutely embrace it and do it. A lot of it is about hearts and minds.’

*(Executive team member)*

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Evidence – paralyser or motivator?

More effort expended in seeking evidence to resist change


Greater emphasis on ‘principles’ than ‘how-to’ knowledge

(Kyratsis Y, Ahmad R, Holmes, A. 2012)

Be aware that different professional groups view evidence differently


→ means that not everyone has bought into the evidence base of the guidelines.

Who to involve in the process? When?

<table>
<thead>
<tr>
<th>Initiation</th>
<th>Decision Making</th>
<th>Implementation planning</th>
<th>Implementation execution</th>
</tr>
</thead>
<tbody>
<tr>
<td>External to hospital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wider hospital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IPC team</td>
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(Ahmad R, Kyratsis Y, Holmes, A. 2012)
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How to involve?

- Information giving
- Information giving with opportunity for feedback
- Shared/equal role at all stages of the process (initiation to implementation execution)
- Dominant role at all stages

Front line staff Involvement

Approaches to leading change

Vertical – top down approaches

…it gives people licence to challenge. (Executive team member)

My perception is that people panic when they see infection control come, and feel they are being spied on (nurse)

You’ve got to have knowledge, certainly have the co-operation and commitment of all the staff. I think that’s number one. Because without that, it all falls apart (ward sister)

Horizontal/distributed across hierarchy and professional groups

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The public/patient voice

- Who is responsible for patient safety?
- What is your role?

Patient safety – who is responsible?

Do you have a role?
Patient safety – who is responsible?

Do you have a role?

- Yes - all users felt that patients have a role in patient safety but were worried about *not being listened to*
- Follow up after discharge was when patients reported feeling most vulnerable
- Examples of good practice shared

What role?

Would you ask the question – ‘have you washed your hands?’
Overall – would not ask

However, satisfaction matters

<table>
<thead>
<tr>
<th>Dissatisfied with previous care</th>
<th>Would not ask</th>
<th>90%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfied with previous care</td>
<td>Would ask</td>
<td>32%</td>
</tr>
</tbody>
</table>


To understand how to strengthen implementation evaluation to translate learning from ‘success’ and ‘failure’
Drs and Nurses value implementation research

Challenge of reviewing implementation studies

Application of a novel integrated quality criteria tool (ICROMS) allowed for the review of multiple study designs.


UK

47 included

3632 reviewed

3 - evaluating national campaigns

49% included organisational factors in analysis

Implementation Quality Index

1. Identify which stakeholders the intervention is aimed at (who?)
   - Healthcare professionals (which ones)
   - Patients
   - Public

2. Clearly define the intervention and components (what?)
   - eg. Technology, guideline, protocol

3. Specify the organisational level of implementation (where?)
   - Professional group
   - Department
   - Ward
   - Hospital

4. Most interventions are based on an assumption of human behaviour – be explicit (how?)
   - eg. feedback-based models - internal and external factors interact to shape how we behave. (IC Link nurses wearing different uniforms to ward nurses)

5. Specify the unit of analysis? – quantitative and qualitative (where?)
   Professional group, department, ward, hospital

6. Employ a theoretical framework for evaluation i.e. theory of change. (how?)
   Should be consistent with underlying assumptions of behaviours on which the intervention is based; but also look at different levels (individual, organisational) e.g. diffusion theory, double loop learning (Greenhalgh et al, 2004; Argyris & Schon, 1996)

7. Systematically consider barriers/ facilitators to implementation (why?)
   Structural/cultural/individual/ organisational/ macro

8. Quantify the duration of exposure (ie. adequate dose?)
   Length of time (and which components if stepwise).


Summary – tools to appraise practice

• Consider whether your hospital deliver on the ECDC 10 key components – process and organisational as well as outcome indicators
• Involving organisational members is important – but timing and method of this involvement is critical
• Organisational members value implementation research but recognise that there are gaps. The Implementation Quality Index can support practice and evaluation of guideline/ intervention implementation.
• Service users are temporary organisational members and dissatisfaction with care can result in disengagement - do you know what your patients/carers are concerned about?
Future Research must…

Provide a robust evidence base of the why, how and why not?

Understand, the ‘soft periphery’ of an intervention - the organisational structure, systems and people to fully implement a guideline/intervention.

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The next WHO teleclass ....
February 11, 2015

WHO GUIDELINE AND SYSTEMATIC REVIEW ON HAND HYGIENE AND THE USE OF CHLORINE IN THE CONTEXT OF EBOLA

Dr. Joost Hopman, Radboud University Medical Center
Nijmegen, The Netherlands

Objectives ....
- Reflect on the updated WHO guideline on hand hygiene in the context of Ebola Virus Disease
- Discuss the evidence about microbiological efficacy of chlorine in health care settings, concentrations and minimum time required for achieving the desired antimicrobial effect
- Discuss the evidence about tolerability and possibly side effects of chlorine in health care settings

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