Challenge and Opportunities in Infection Prevention and Control

Prof. Brett Mitchell, University of Newcastle, Australia
Broadcast live from the Infection Prevention Society conference

Challenge and opportunities in Infection Prevention & Control

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www.webbertraining.com

Disclosures

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(Department of Foreign Affairs and Trade, MSD)

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Evidence

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CANNOT ALWAYS DO A RCT

NOR IT IS ALWAYS POSSIBLE

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EVIDENCE Vs THEORY

conclusive presumption

Reverse onus

Guideline for the Infection Prevention and Control of .......
(2001)

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How are recommendations in guidelines developed?

• GRADE (Grading of Recommendations, Assessment, Development & Evaluations)

  - Establish an expert advisory committee
  - Develop research questions (PICO)
  - Undertake systematic review
  - Rate quality of evidence
  - Formulate recommendations

• Formulate recommendation
  - Quality of evidence
  - Benefits / harms
  - Preferences and bias
  - Resources

• Risk of bias
• Imprecision
• Inconsistency
• Indirectness
• Publication bias

Ever sense that there are guidelines and recommendation for lots of things?

Some are useful, some are not..

Confusing?

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Describe the diversity of professional and government sponsored infection prevention and control guidelines in past 10 years

• What is the breadth and diversity of recommendations?

• What is the strength of the evidence underpinning recommendations?

• What topics have the lowest and highest strength of recommendations?

It seemed like a good idea...

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It seemed like a good idea...

31 guidelines

1870 individual recommendations

22% used GRADE

Mixture of processes to formulate recommendations

Strength of recommendations varied

GRADE (Recommend etc)
Strong to weak
A to D
1 to 5
Hybrid (e.g. Moderate BII)

20+ different recommendation types
## Synthesised category

<table>
<thead>
<tr>
<th>Strength of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meta-analyses, Systematic review of RCTs</td>
</tr>
<tr>
<td>Well-designed RCTs, Strong recommendation from high quality evidence</td>
</tr>
<tr>
<td>Well designed non-randomised studies including observational studies (case-control, cohort and cross-sectional), Moderate recommendation</td>
</tr>
<tr>
<td>Descriptive studies, Expert opinion, Weak recommendation from low quality evidence</td>
</tr>
<tr>
<td>Poor/insufficient evidence, Very low quality evidence</td>
</tr>
<tr>
<td>Recommended best practice, Good practice point</td>
</tr>
<tr>
<td>Unresolved issue, No recommendation</td>
</tr>
<tr>
<td>Legislated requirement, OHS requirement</td>
</tr>
</tbody>
</table>

### Strength of recommendations across all IPC guidelines

Percentage

- **Strength of recommendation**
  - 1: Meta-analysis & RCTs
  - 2: Descriptive studies, Expert opinion, Weak recommendation from low quality evidence

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What IPC topics are recommendations focussed on?

<table>
<thead>
<tr>
<th>Categories</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Devices</td>
<td>316 (16.9)</td>
</tr>
<tr>
<td>TBP</td>
<td>315 (16.8)</td>
</tr>
<tr>
<td>Hand Hygiene</td>
<td>171 (9.1)</td>
</tr>
<tr>
<td>Cleaning</td>
<td>154 (8.2)</td>
</tr>
<tr>
<td>Sterilisation</td>
<td>150 (8.0)</td>
</tr>
<tr>
<td>Implementation</td>
<td>111 (5.9)</td>
</tr>
<tr>
<td>Education</td>
<td>89 (4.8)</td>
</tr>
<tr>
<td>Screening</td>
<td>89 (4.8)</td>
</tr>
<tr>
<td>Antimicrobial prophylaxis</td>
<td>69 (3.7)</td>
</tr>
<tr>
<td>Personnel</td>
<td>72 (3.9)</td>
</tr>
</tbody>
</table>

Heat map

Proportion of recommendations

Level of evidence

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Illustrates the challenges in IPC

But what about opportunities?

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Infection prevention and control gives us incredible opportunities
Infection prevention and control opportunities

• Work in a variety of settings

• Work in multidisciplinary team

• We need to understand and work with clinical, behavioural and political factors

Gives us incredible skills if utilised can influence patient outcomes

Infection prevention and control opportunities

• Clinical roles
• Infectious disease unit
• Infection prevention and control
• Lead Trust IPC service
• Public Health
  • State-wide level for IPC
  • Communicable disease
  • Health policy and strategy
• Teaching
• Research

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Infection prevention and control opportunities

- Not going to name the exact location
- New TB ward
- Many IPC issues
- Explored the incineration issue (against my personal views about waste being IPC issue)
Infection prevention and control opportunities

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Infection prevention and control opportunities

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• New TB ward

• Many IPC issues

• Explored the incineration issue (against my personal views about waste being IPC issue)

Opportunities in IPC

Review of guidelines & the diversity of skills needed in IPC illustrates the enormous opportunity we have to improve practice and patient outcomes

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Collaboration

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Influencing patient care and outcome

Collaboration

Infection prevention and control opportunities – Influence patient care and outcomes

POLICY

PRACTICE

RESEARCH

• Patients
• Relatives
• Clinicians
• Researchers
• Policy
• Society

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Example of low hanging fruit & collaboration

• What product should we use to clean the meatal area with, prior to urinary catheter insertion?

  • Guidelines indicate gap in evidence
  • Practice variation
  • Low quality evidence on this topic
  • Potential impact significant
  • Can design a study to answer this

Chlorhexidine versus saline in reducing the risk of catheter associated urinary tract infection: A cost-effectiveness analysis

Brett G. Mitchell\(^1\), Dymphna Faughr\(^1\), Allen C Cheng\(^1\), Victoria Gregory\(^1\), Jane Kiemer\(^1\), Peter Collignon\(^1\), Anne Gardner\(^1\), Nicholas Graves\(^1\)

Example of low hanging fruit & collaboration

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Example of low hanging fruit & collaboration

- Difficulties with isolating a patient
- Australian nurse who identified this issue
- Work with entrepreneur to find a solution

Example of collaboration

Opportunity for clinicians, academics & industry in partnership

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We have challenges in IPC, they are real

Opportunities in IPC arise from our challenges

Utilise our unique skill set

Think about low hanging fruit .. biggest bang

Collaboration
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September 24, 2019  
Ayliffe Lecture ... PNEUMOCYSTIS - AN IMPORTANT HEALTHCARE-ASSOCIATED INFECTION?  
Speaker: Prof. Tim Boswell, Nottingham University Hospitals NHS Trust, UK

September 24, 2019  
(FREE South Pacific Teleclass – Broadcast live from the New Zealand Infection Prevention & Control Nurses College conference)  
IPC EDUCATION: DEVELOPMENT OF PROGRAMMES  
Speaker: Prof. Shaheen Mehtar, Stellenbosch University, South Africa

Live broadcast sponsored by Schülke

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POSITIVE DEVIANCE AND HAND HYGIENE: WHAT CAN WE LEARN FROM THE BEST?  
Speaker: Josiane Létourneau, University of Montreal

September 26, 2019  
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