

Challenge and Opportunities in Infection Prevention and Control
Prof. Brett Mitchell, University of Newcastle, Australia
Broadcast live from the Infection Prevention Society conference



Live broadcast from the 2019 conference of the Infection Prevention Society

Challenge and opportunities in Infection Prevention & Control

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www.webbertraining.com September 22, 2019

Disclosures

Support from IPS to attend this conference

No funding received for this presentation

Received competitive research funding from government funding agencies
(NHMRC, Commonwealth government)

Received competitive research grants from non-government funding agencies
(HCF Foundation, ACIPC, Covidien, Australian College Nursing)

Consultancy
(Department of Foreign Affairs and Trade, MSD)

Editor-in-Chief, Infection, Disease and Health

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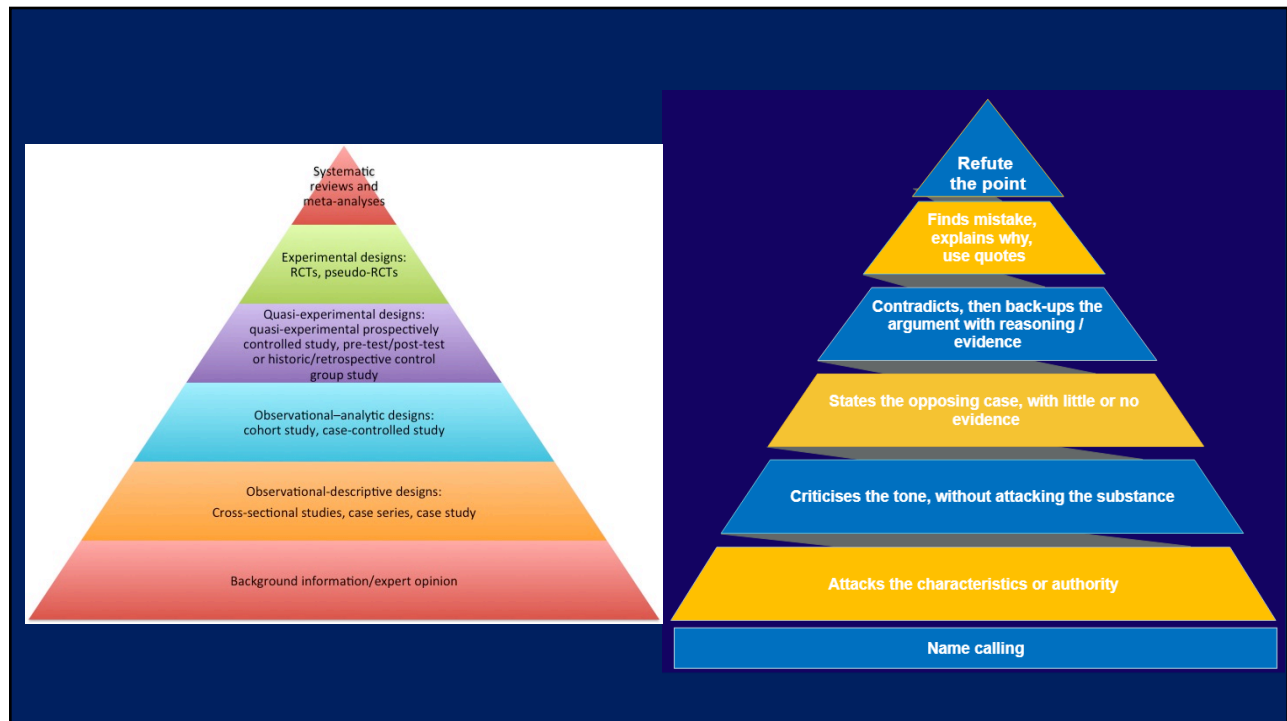


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Evidence

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CANNOT ALWAYS DO A RCT

NOR IT IS ALWAYS POSSIBLE



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EVIDENCE Vs THEORY

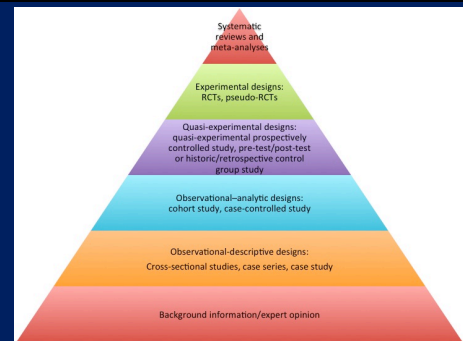
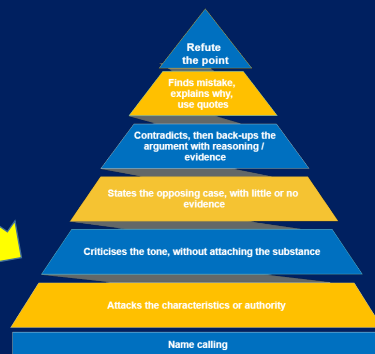
conclusive
presumption

Reverse onus

Guideline for
the Infection
Prevention
and Control of
.....

(2001)

Vs



How are recommendations in guidelines developed?

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



- 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?

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...



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

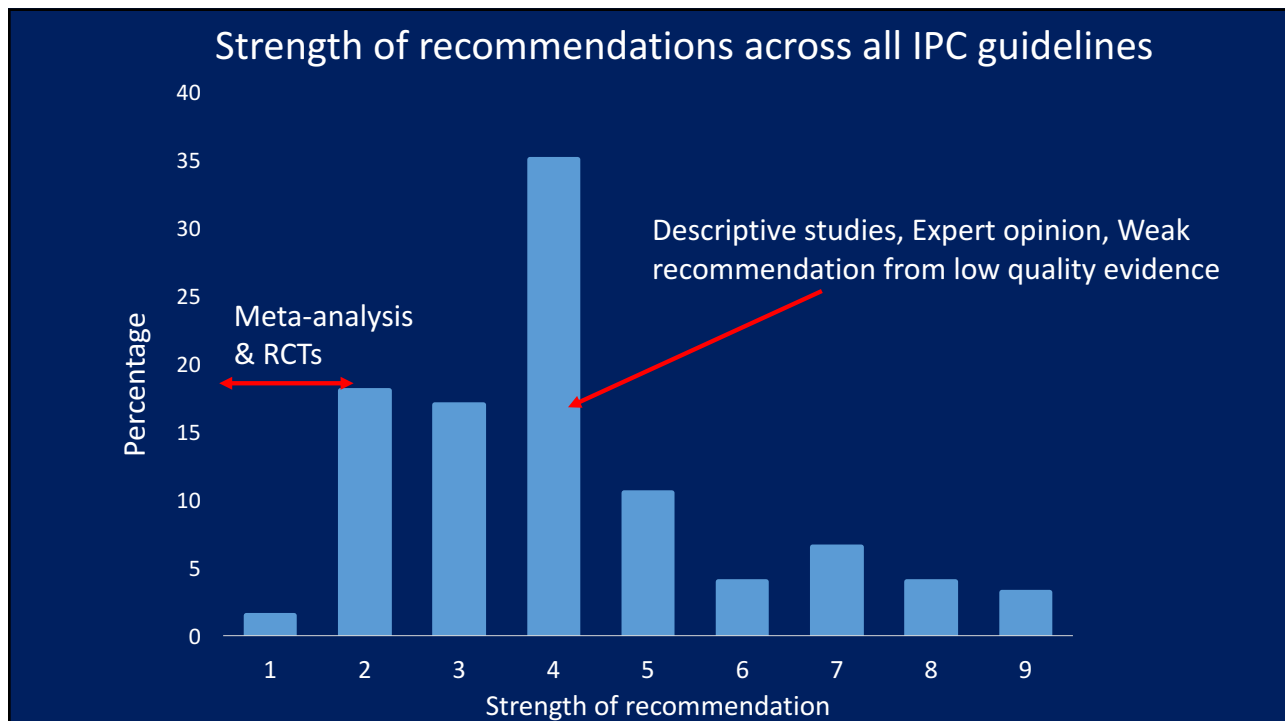
1 to 5

Hybrid (e.g. Moderate BII)

20+ different recommendation types

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Synthesised category	Strength of evidence
Level 1	Meta-analyses, Systematic review of RCTs
Level 2	Well-designed RCTs, Strong recommendation from high quality evidence
Level 3	Well designed non-randomised studies including observational studies (case-control, cohort and cross-sectional), Moderate recommendation
Level 4	Descriptive studies, Expert opinion, Weak recommendation from low quality evidence
Level 5	Poor/insufficient evidence, Very low quality evidence
Level 6	Recommended best practice, Good practice point
Level 7	Unresolved issue, No recommendation
Level 8	Legislated requirement, OHS requirement



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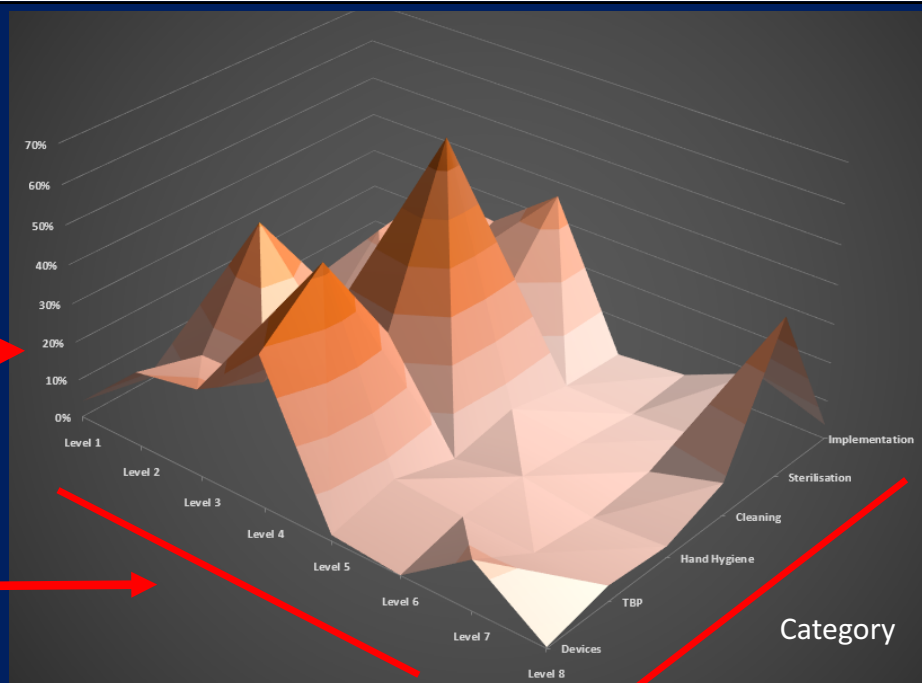
What IPC topics are recommendations focussed on?

Categories	n (%)
Devices	316 (16.9)
TBP	315 (16.8)
Hand Hygiene	171 (9.1)
Cleaning	154 (8.2)
Sterilisation	150 (8.0)
Implementation	111 (5.9)
Education	89 (4.8)
Screening	89 (4.8)
Antimicrobial prophylaxis	69 (3.7)
Personnel	72 (3.9)

Heat map

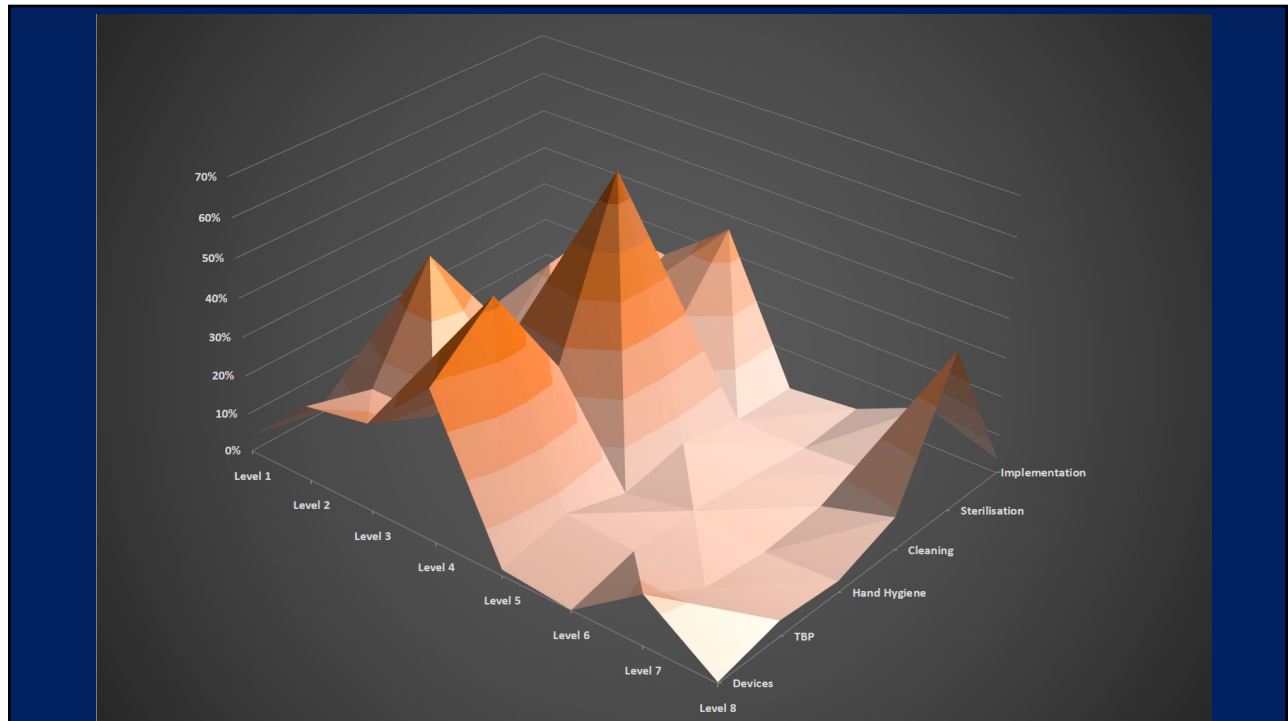
Proportion of recommendations

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

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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

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)



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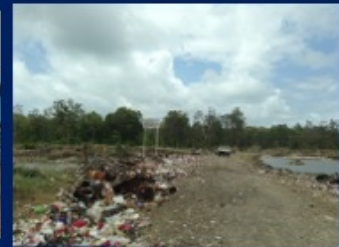
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Opportunities in IPC

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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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 for meatal cleaning in reducing catheter-associated urinary tract infections: a multicentre stepped-wedge randomised controlled trial

Oyebola Fasugba, Allen C Cheng, Victoria Gregory, Nicholas Graves, Jane Koerner, Peter Collignon, Anne Gardner, Brett G Mitchell

Summary
 Background Evidence for the benefits of antiseptic meatal cleaning in reducing catheter-associated urinary tract infection (UTI) is inconclusive. We assessed the efficacy of 0.1% chlorhexidine solution compared with normal saline for meatal cleaning before urinary catheter insertion in reducing the incidence of catheter-associated asymptomatic bacteriuria and UTI.

Latest Infect Dis 2019; 19: 410-18
 Published Online April 12, 2019
<http://dx.doi.org/10.1016/j.ijns.2019.03.007>

International Journal of Nursing Studies 97 (2019) 1-6

Contents lists available at ScienceDirect
International Journal of Nursing Studies
 journal homepage: www.elsevier.com/ijns

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

Brett G. Mitchell^{a,b,*}, Oyebola Fasugba^{c,d}, Allen C Cheng^{e,f}, Victoria Gregory^g, Jane Koerner^h, Peter Collignon^{h,i}, Anne Gardner^j, Nicholas Graves^k

Example of low hanging fruit & collaboration

An environmental cleaning bundle and health-care-associated infections in hospitals (REACH): a multicentre, randomised trial

Brett G Mitchell^{a,b}, Lisa Hall^c, Nicole White, Adrian G Barnett, Kate Halton, David L Paterson, Thomas V Riley, Anne Gardner, Katie Page, Alison Farrington, Christian A Gericks, Nicholas Graves

Summary
Latest Infect Dis 2019; 19: 410-18
 Background The hospital environment is a reservoir for the transmission of microorganisms. The effect of improved cleaning on patient-centred outcomes remains unclear. We aimed to evaluate the effectiveness of an environmental

Industry

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Policy and professional

Australian Private Hospitals Association | HSU NATIONAL | ACIPC | deeble institute | ahho

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Clinical Infectious Diseases
MAJOR ARTICLE

AIDSA Infectious Disease Society of America | hivma | by medicine association | EDITORIAL

Cost-effectiveness of an Environmental Cleaning Bundle for Reducing Healthcare-associated Infections

Nicole M. White,^{1,2*} Adrian G. Barnett,^{1,2} Lisa Hall,^{3,4} Brett G. Mitchell,^{4,5} Allison Farrington,^{1,2} Kate Halton,⁷ David L. Paterson,⁶ Thomas V. Riley,^{2,8} Anne Gardner,⁹ Katie Page,⁹ Christian A. Gericks,^{10,11} and Nicholas Graves¹²

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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



Infection Control & Hospital Epidemiology (2019), 40, 427–431
doi:10.1017/ice.2019.31

Original Article

Reducing urinary catheter use using an electronic reminder system in hospitalized patients: A randomized stepped-wedge trial

Brett G. Mitchell PhD^{1,2} , Maria Northcote PhD³, Allen C. Cheng PhD^{4,5}, Oyebola Fasugba PhD^{6,7}, Philip L. Russo PhD^{7,8,9} and Hannah Rosebrock MPych⁷



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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

(FREE South Pacific Teleclass – Broadcast live from the New Zealand Infection Prevention & Control Nurses College conference)

IPC EDUCATION: DEVELOPMENT OF PROGRAMMES

September 24, 2019 Speaker: **Prof. Shaheen Mehtar**, Stellenbosch University, South Africa

Live broadcast sponsored by Schulke

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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 *Sponsored by GOJO Canada*



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