

A National Approach to Healthcare-Associated Infection

Prof. Chris Baggoley, Australian Commission on Safety and Quality in Health-Care
 Broadcast live from the 2010 conference of the Australian Infection Control Association

AUSTRALIAN COMMISSION ON
SAFETY AND QUALITY IN HEALTHCARE

A national approach to HAIs – where no one has gone before?

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www.webbertraining.com October 5, 2010

► A patient perspective of health care

“I have a right to safe and high quality care”

This means:

- To be free of being infected by my hospital or health worker
- To be given the right medications at the right time
- To be assessed for the risk of VTE
- To undergo the correct procedure, operation, test, x-ray
- To be rescued if my condition unexpectedly deteriorates



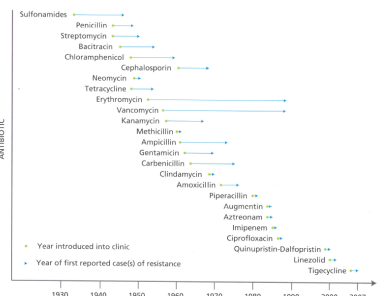
► The quality and safety problem

The incidence of:	
Experiencing an adverse event in an intensive care unit [1]	1 : 2
Being injured if you fall in hospital [2]	1 : 2
An adverse event in ICU being serious enough to cause death or disability [3]	1 : 10
Experiencing an adverse event or near miss in hospital [4]	1 : 10
Experiencing a complication from a medication or drug [5]	1 : 20
Developing a hospital acquired infection [6]	1 : 30

[1] Andrews et al, 1997; [2] Schwendimann et al, 2006; [3] Andrews et al, 1997; [4] CCGR data, average across studies in Australia, Canada, Denmark, New Zealand, UK and USA; [5] Andrews et al, 1997; [6] Pittet, 2005;

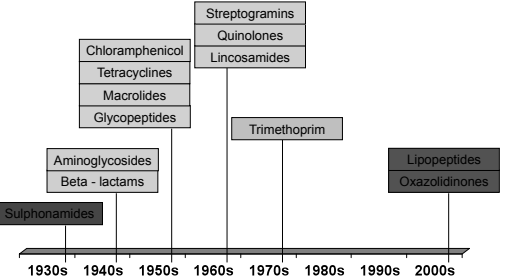
Jeffrey Braithwaite
UNSW

► Time line of the rapid rate of resistance



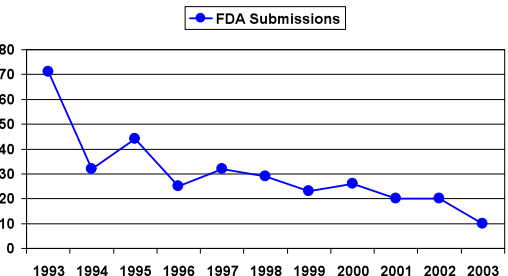
Note: Some of the dates are estimates only.
Source: Pray 2008.

► Discovery of new classes of antibiotics



Levy (2002), Norberg (2004), Singh & Greenstein (2000)

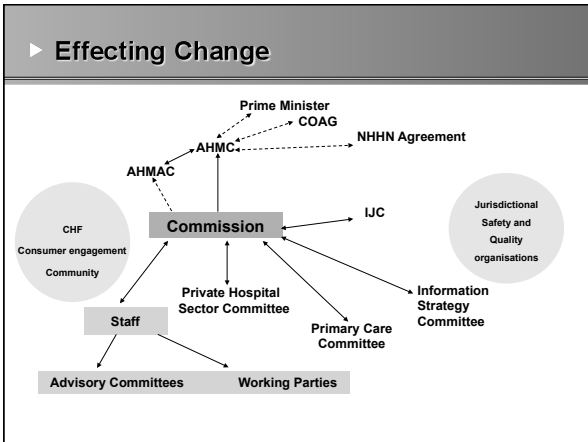
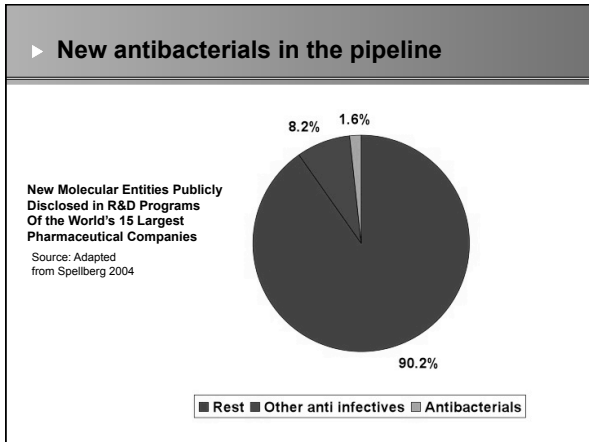
► Ten year trend in antibiotic submissions to FDA



Powers (2004)

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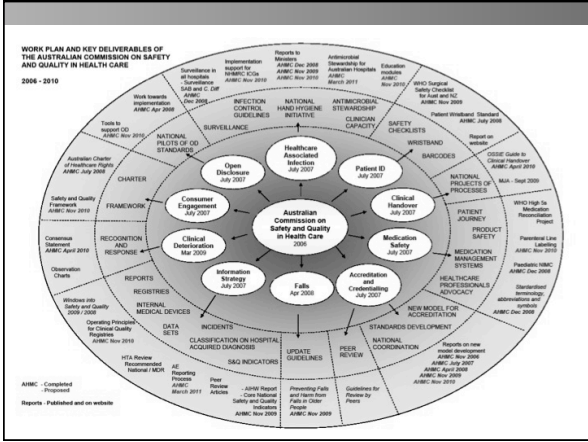
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- **Australian Commission on Safety and Quality in Health Care (ACSQHC)**
- Commenced January 2006.
 - Reports to Australian Health Ministers (AHMC)
 - Works with policy makers from jurisdictions, private hospital sector and primary care.
 - National Health and Hospitals Network Bill (2010)

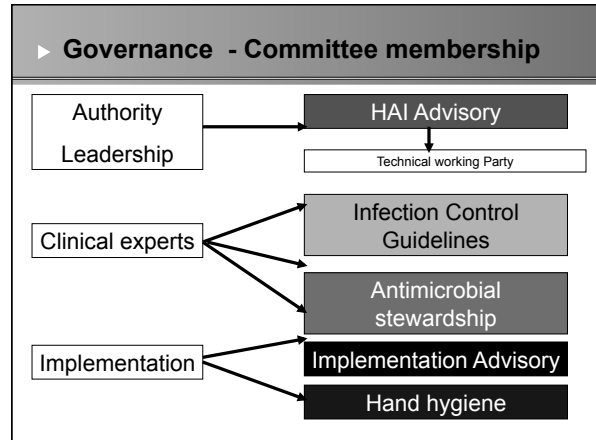
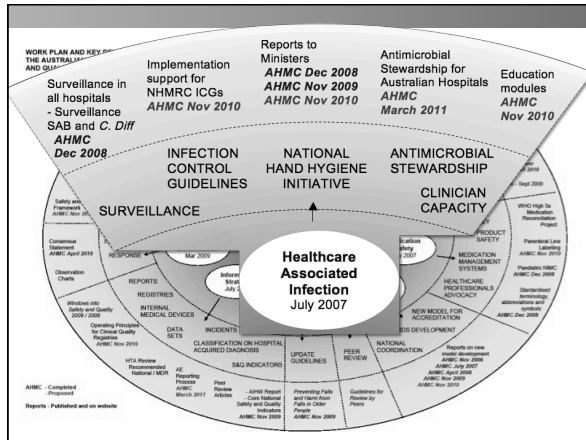
- **Result of scoping mid 2007**
- No systematic Australia-wide approach
- Considerable variation
 - Work undertaken by many disparate specialist groups
 - Despite widespread activity in most jurisdictions
 - Many individual initiatives (some endorsed by AHMC)
 - Publication of a number of national reports
 - 1999 - Joint Expert Technical Advisory Committee on Antibiotic Resistance (JETACAR)
 - 2001 - National surveillance of HAI in Australia
 - 2003 - National Strategy to Address Health Care Associated Infections
 - 2004 - Health Care Associated Infections Advisory Committee
 - 2006 - Expert Advisory Group on Antimicrobial Resistance (EAGAR)

- **HAI prevention program**
- Commenced May 2007**
1. HAI Surveillance
 2. Clinician Capacity
 3. National Infection Control Guidelines
 4. National Hand Hygiene
 5. Antimicrobial Stewardship



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HAI Surveillance

Reducing Harm to Patients from Health Care Associated Infection: The Role of Surveillance

Addressing areas of national importance in surveillance

In December 2008, Health Ministers approved the following actions for implementation of a national approach to the surveillance of *Staphylococcus Aureus* (including MRSA) and other virulent micro-organisms:

- All hospitals establish HAI surveillance; and
- All hospitals monitor and report into a national data collection;

- Staphylococcus Aureus* (including MRSA) blood stream infections; and
- Clostridium Difficile* infections.

- ### Core hospital-based outcome indicators
- Hospital standardised mortality ratio (HSMR)
 - Death in low-mortality Diagnosis Related Groups (DRGs)
 - In-hospital mortality rates for:
 - acute myocardial infarction (AMI)
 - heart failure
 - stroke
 - fractured neck of femur, and
 - pneumonia
 - Unplanned hospital re-admissions of patients discharged following management of:
 - AMI
 - heart failure
 - knee and hip replacements
 - depression
 - schizophrenia, and
 - paediatric tonsillectomy and adenoidectomy
 - Healthcare associated *Staphylococcus aureus* (including MRSA) bacteraemia
 - Clostridium difficile* infections
 - Obstetric trauma - third and fourth degree tears

HAI Surveillance – recent work

- National definitions of Healthcare Associated SAB and CDI
- Data dictionary for Healthcare Associated SAB and CDI - lodged in METeOR
- SAB and CDI Implementation Guidelines
- Standardised laboratory requesting and reporting
- Clostridium difficile* workshop August 2010
- Clostridium difficile* 027 Snapshot Study, October 2010

National *Clostridium difficile* Infection Workshop
20 August 2010
AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTHCARE

Central Line Associated Bacteraemia (CLAB) Project

ANZICS CLAB Prevention Project funded by the Commission.

Endorsed by IJC in June 2010
Builds on work presently being undertaken
Reference groups to be set up in each state/territory

Next steps:

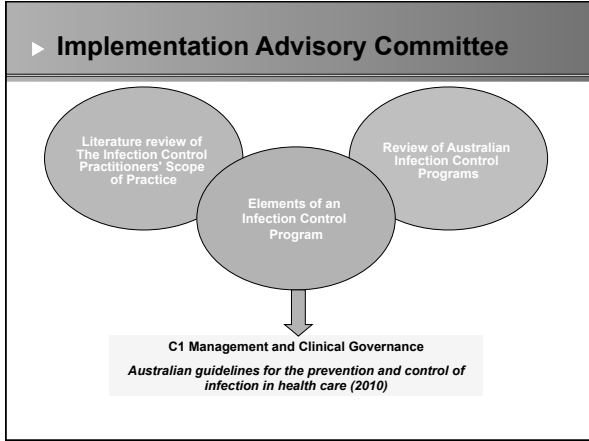
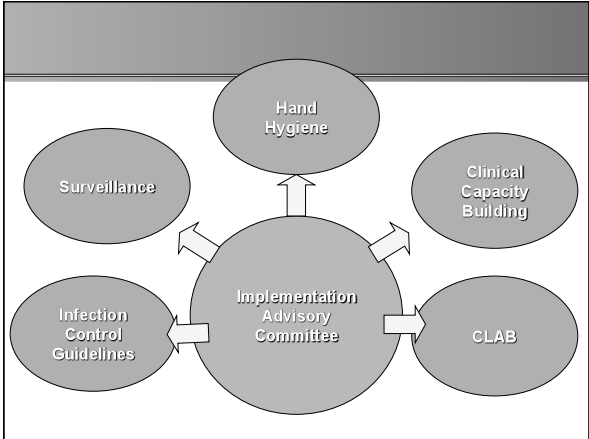
- Surveillance database, including an automated/real-time reporting process

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► Clinician capacity building

The Implementation Advisory Committee brings clinical, academic professional, research and government expertise with geographical representation from across Australia

► 10 on-line education modules

- developed for managers and infection prevention staff
- who undertake infection prevention as part of other clinical roles or in small healthcare facilities.
- available on the Commission's website from October 2010.
- to Health Ministers Nov 2010
- Further modules in 2011.



► Ten modules on basic principles of IC management

The education modules comprise ten online interactive sessions, a workbook, and assessment tools to facilitate learning.

The ten modules include:

- Principles of Infection Prevention and Control
- Basic Epidemiology and Statistics
- Surveillance and Quality Improvement
- Basic Microbiology and Multi-resistant Organisms
- Risk Management of Infectious Agents and Infectious Diseases
- Infectious Agent Screening and Immunisation of Healthcare Workers
- Outbreak Management
- Renovation, Repairs and Redevelopment Risk Management
- Management of Occupational Exposures
- Cleaning, Disinfection and Sterilisation

Education Modules content

MODULE ASSESSMENT
1. Which one of the following bacteria can often be found as part of the normal flora of the skin or groin but can also cause post operative infections?

Non-sterile gloves	Sterile Disposable Gown	Utility gloves
<ul style="list-style-type: none"> Not use in procedures/bactericidal SPA do not require a sterile technique. Should be disposable and compliant with AUNZ4011. Examples: <ul style="list-style-type: none"> empting a urinary catheter bag massage gastric aspiration tracheal suctioning 	<ul style="list-style-type: none"> For sterile procedures compliant with AUNZ4129. Recommendation for surgeons performing exposure prone procedures to double glove (SACS 399). Examples: <ul style="list-style-type: none"> major orthoether insertion neonatal dressings and neonatal venous line insertion site dressings. 	<ul style="list-style-type: none"> For cleaning, clean and store dry between use. Replace when damaged or deteriorating. Examples: <ul style="list-style-type: none"> general cleaning duties instrument cleaning in sterilising services unit

Further reading: Bartlett J, and Part T. The new *Clostridium difficile*- what does it mean? NEJM 2005;23:2503-2505

LINKS
Refer to Module 4 for details of these organisms

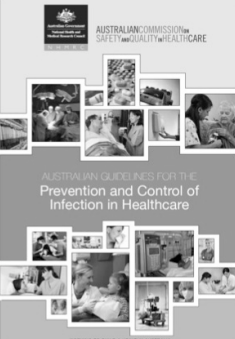
Bibliography: American Society for Microbiology (ASM): Microbe Library (2009), (Last accessed 18.06.09) <http://www.microbelibrary.org/>

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► Infection Control Guidelines

Australian Guidelines for the Prevention and Control of Infection in Healthcare



► Commission engaged the NHMRC to produce guidelines based on:

- Best available current scientific evidence
- International guidelines (CDC, EPIC II)
- Best practice / expert opinion

► Public consultation March 2010

► Available October 2010

► Core practice principles

Understanding modes of transmission of infectious agents	Establishment of effective work practices that minimise the risk of transmission of infectious agents	Maintenance of governance structures that support the implementation, monitoring and reporting of infection control work practices	Compliance with legislation, regulations and standards relevant to infection control	
1 Overview of diseases 2 Viral diseases 3 Bacterial diseases 4 Fungal diseases 5 Other diseases	6 Basics of infection control 6.1 Standard precautions 6.2 Additional precautions 7 Risk management approach 8 Handwashing and personal hygiene 7.1 Handwashing 7.2 Handwashing products 7.3 Other methods of hand cleaning 7.4 Hand care 9 Personal protective equipment 8.1 Protection clothing and equipment 8.2 Goggles 8.3 Protective eyewear and face shields 8.4 Masks and personal respiratory protection devices 8.5 Gowns and plastic aprons 8.6 Footwear 8.7 Uniforms 9 Handling and disposal of sharps 9.1 Handling of sharps 9.2 Disposal 9.3 Disposal of sharps 10 Needlesticks and other blood or body fluid incidents 10.1 Occupational exposures to blood and body fluids 10.2 Management of needlestick and other blood or body fluid incidents	11 Risk of transmission of bloodstream viruses 12 Patient related procedures 11.1 Clean, aseptic and sterile technique 11.2 Other aseptic and sterile techniques 11.3 Dressing changes 11.4 Preparing infections related to procedures 11.5 Preparing infections related to devices 11.6 Disinfectants and sterilants 11.7 Chemical disinfection and sterilisation 11.8 Single use medications, solutions, infusions 11.9 Single use devices (SUD) 12 Management of Therapeutic devices 12.1 Intravascular access devices (IIVADs) 12.2 Infusing IV access devices (IIVADs) 12.3 Infiltration 12.4 Indicators 12.5 Enteral feeding tubes 13 Processing of reusable instruments and equipment 13.1 Cleaning, disinfection and sterilisation 13.2 Diagnostic ultrasound transducers 13.3 Thermometers 13.4 Cystoscopes 13.5 Ophthalmic and ophthalmology equipment 13.6 Implantable items 13.7 Single use devices 13.8 Instrument tracking	14 Instruments and equipment requiring special processing 14.1 Endoscopes 14.2 Bronchoscopes 14.3 Other fiberoptic scopes and associated equipment 14.4 Respiratory and anaesthetic equipment 14.5 Resuscitation masks face pieces and accessories 14.6 Asthma spacers used with heat labile vaccines (HLCV) 15 Management of patients with MRSA 15.1 Hand hygiene 15.2 PPE 15.3 Isolation 15.4 Specialised health care settings 16 Management of physical environment 16.1 Environmental cleaning and disinfection 16.2 Environmental cleaning and disinfection 16.3 Routine environmental cleaning 16.4 Management of blood and body substance spills 16.5 Room placement 16.6 Patient accommodation 16.7 Waiting areas 17 Quality management 17.1 Infection control program implementation and management 17.2 Roles of IC 17.3 Policies and procedures 17.4 Auditing 18 Responsibilities 18.1 Health care establishments 18.2 Health care workers 18.4 Patients 19 Education and training 19.1 Overview and training 19.2 Liability 19.3 Health care establishments 19.4 Accreditation 20 Surveillance 20.1 Data collection methods, analysis and reporting 20.2 Clinical infection and management 21 Antibiotic stewardship 21.1 Antibiotic use 21.2 Antibiotic prophylaxis 21.4 Antibiotic surveillance 22 Staff health 22.1 HCAI health status 22.2 HCAI health screening and vaccination 22.4 HCAI with HIV 22.5 Pregnant health care workers 22.6 Immunocompromised HCAI 22.7 Testing and reporting 22.8 TB	23 Standards of practice 23.1 Compliance standards and accreditation 24 Ethical issues 24.1 Duty of care 24.2 Infection 24.3 Patient decision making and consent 25 Legal issues 25.1 Occupational health and safety 25.2 Privacy and confidentiality 25.3 Accreditation 25.4 Liability 25.5 Copyright 26 Regulated practice and processes 26.1 Sale of SUDs 26.2 Standards Australia 26.3 Australian standards in equipment, processes 26.4 Litter/family and food service 26.5 Water 26.6 Clinical and waste management 26.7 Hospital design/renovation

► Supporting the use of the Guidelines


► Workshops, conferences and events

► e-learning tool for infection prevention and management, designed for orientation to a healthcare facility

► OSSIE Implementation guide and OSSIE for Primary Care

Implementation strategies target:

- Healthcare workers, including nurses and doctors
- Ancillary staff, including wardens and cleaners
- Infection control practitioners
- Healthcare facility management
- Education and training facilities involved in the development of infection control curricula



To Health Ministers 2010

► OSSIE Implementation Guide & Toolkit


Implementation resources developed to support the guidelines.

► For managers and infection prevention staff

► For Primary Care workers


Key elements:

- Principles of change management
- Implementation strategies




The OSSIE Toolkit for the implementation of The Australian Guidelines for the Prevention of Infection in Health Care 2010

► National Hand Hygiene Initiative



HHA model

- Standardises practice across Australia
- Work with infection control community
- Adapted WHO guidelines for Australian context
- Majority of amendments have been incorporated into new standard WHO policy
- Validated audit tool
- Credentialing of auditors
- Educational module with on-line questions (100,000+ participants)


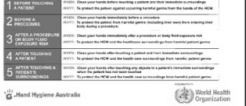


► National Hand Hygiene Initiative

Appropriate for:

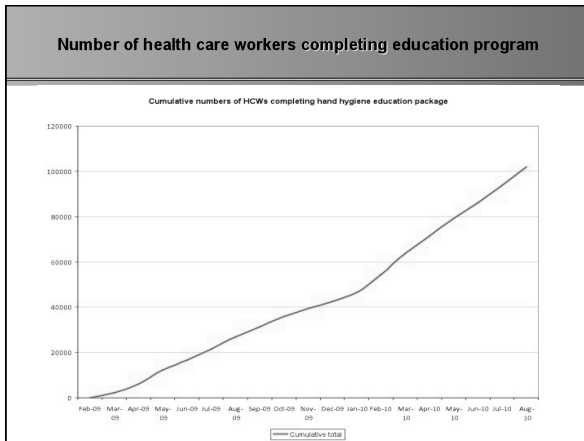
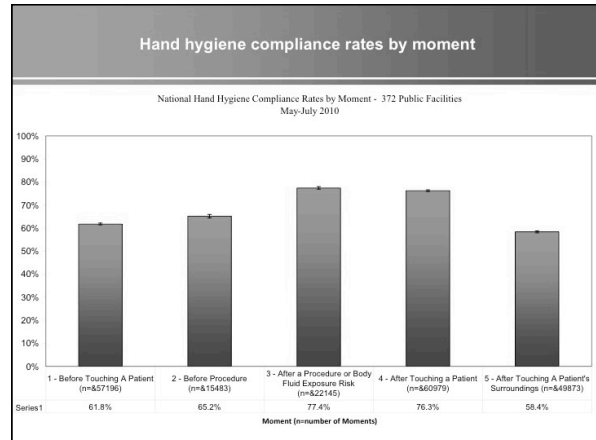
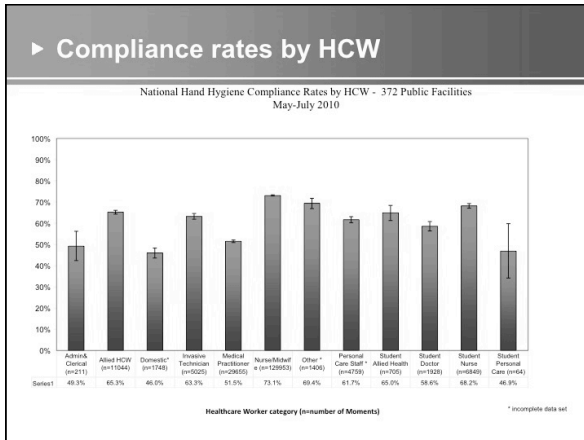
- Public Sector Hospitals
- Private Hospitals
- General Practice
- Consumers
- Aged care facilities

All states and territories now submitting compliance data

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► Hand Hygiene Evaluation Project

Evaluating hand hygiene interventions and their ability to reduce Healthcare Associated Infection

April 2010 – March 2013

The Aim: The Hand Hygiene Evaluation is an NHMRC Partnership project which aims to evaluate the effectiveness and cost effectiveness of the National Hand Hygiene Initiative (NHHI)

The Research Team:

Prof Nicholas Graves	Health Economist
A/Prof Katy White	Psychologist
A/Prof Nerina Jimmieson	Organizational Psychologist
A/Prof Adrian Barnett	Health Statistician
Prof Lindsay Grayson	Director - Hand Hygiene Australia
Prof David Paterson	Infectious Disease Consultant
Prof Naomi Fulop	Health and Health Policy - King's College London
Megan Campbell	Project Manager

► Hand Hygiene Evaluation Project

Research Questions:

Do measurable factors, other than hand hygiene compliance affect rates of healthcare associated *Staphylococcus aureus* bacteraemia?

The researchers will investigate what factors - other than NHHI - might influence SAB rates

- at Hospital level and
- at Healthcare worker level

Is a hand hygiene intervention a cost effective use of scarce health care resources?

The researchers will estimate the:

- wide range of costs from rolling out the NHHI
- cost savings from reduced cases of infection
- health benefits from reduced infection by lives saved and quality of life gains

► Hand Hygiene Evaluation Project

Outcomes:

The research will show:

- whether other factors are associated with positive outcomes
- how the effects vary across Australian HCW and hospitals
- whether it is cost-effective as a national policy
- whether hand hygiene interventions should be targeted based on value for money

This will allow policy makers to:

- decide how hand hygiene interventions should be organised
- decide how to target healthcare spending

The findings will be novel

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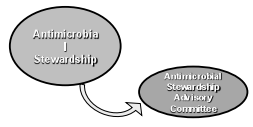
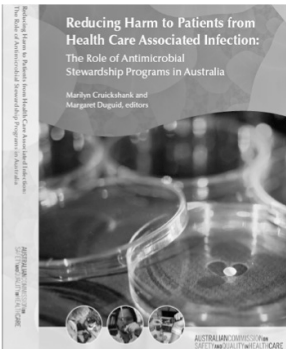
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▶ **Antimicrobial stewardship**

Aim: to promote optimal use of antibiotics in maximising efficacy in individuals while minimizing impact of antibiotic resistance on Communities.

Publication, *The Role of Antimicrobial Stewardship in Australian Hospitals*, due October 2010

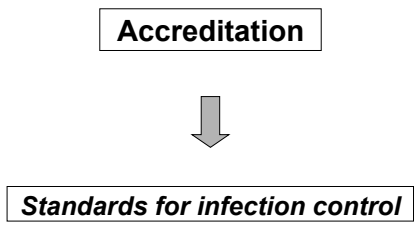
Education module development with NPS

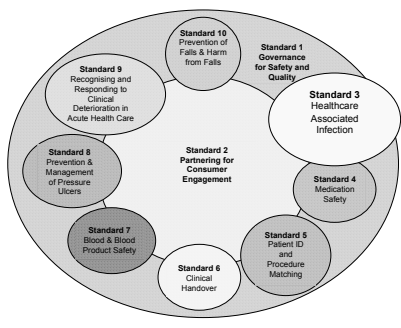
▶ **Coming soon.....**

- ▶ Education modules for antimicrobial prescribing (NPS)
- ▶ Antimicrobial Stewardship Forum – early 2011
- ▶ Workshop on antimicrobial usage data (NAUSP)

▶ **Links with other Commission programs**



▶ **National Safety and Quality Health Service Standards**



▶ **Elements of HAI standard**

1. Systems and governance
2. Infection prevention policies and protocols
3. Managing patients with infections
4. Antimicrobial stewardship
5. Cleaning, disinfection and sterilisation
6. Consumer information

▶ 28 Pilot sites including primary care acute

▶ **Thank you**

www.safetyandquality.gov.au