



INFECTION PREVENTION AND CONTROL

The role and importance of outcome monitoring: compliance and infection rates



CLEAN HANDS SAVE LIVES

Ringa Mā, Hunga Ora

www.handhygiene.org.nz



INFECTION PREVENTION & CONTROL

Improving Hand Hygiene Compliance

- Overall rates are low
- Many obstacles to achieve good compliance
 - Time
 - Availability
 - Irritation to skin
 - Lack of awareness
- Many studies reporting on effective interventions in single institutions
 - Usually multi-modal

Key Factors for Improvement in hand hygiene

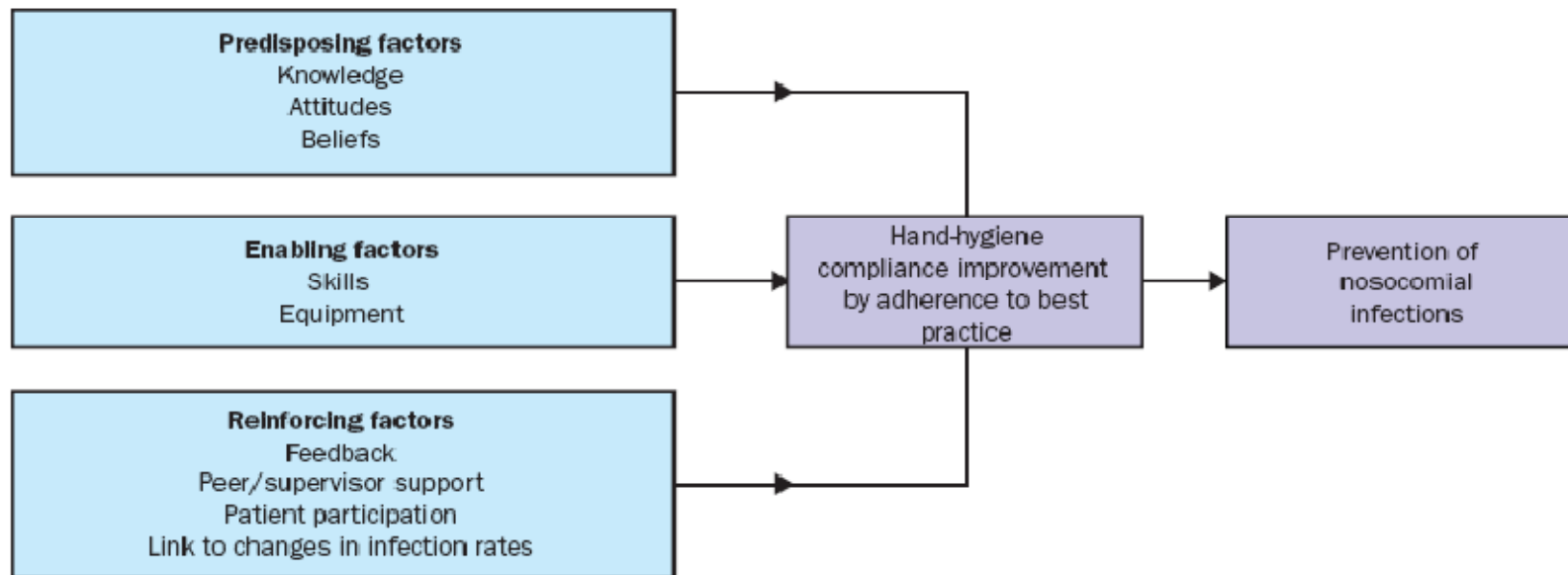
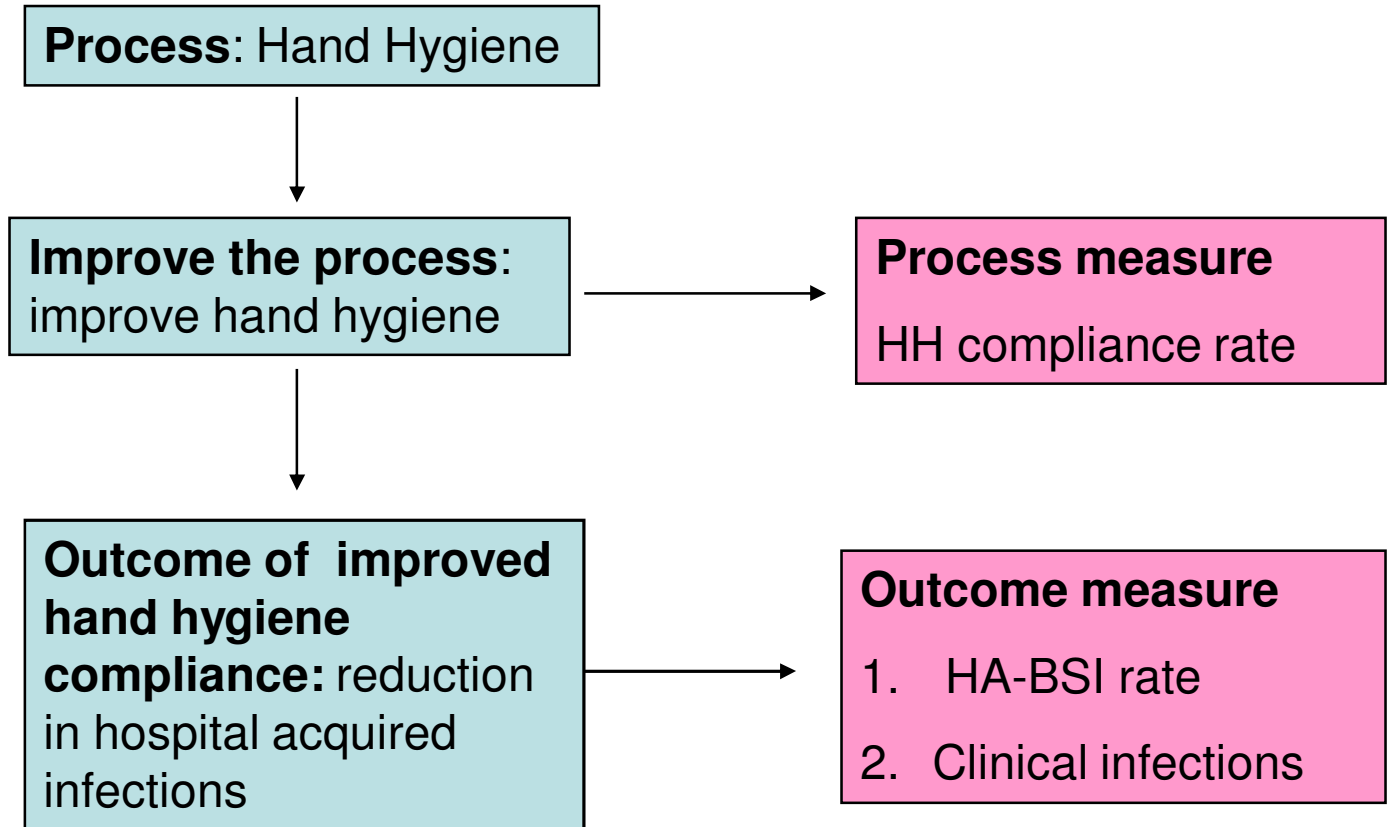


Figure 10. Key factors for hand-hygiene-compliance improvement.

Why measure outcomes?



Hand Hygiene Improvement Programmes

- **Pittet et al** (Lancet 2000; 356: 1307-12)
 - Teaching hospital in Geneva
 - 1995 Hand hygiene promotional campaign
 - Baseline compliance 48%
 - Visual Displays
 - Multidisciplinary Group of HCW
 - Introduction of handrub solution
 - » Alcohol-based with 0.5% chlorhexidine
 - » Individual bottles and wall-mounted
 - Recognised as a hospital wide priority

Compliance measure

- Twice yearly surveys
 - Structured protocol
 - Recorded potential “opportunities” and the actual number of hand washes or handrubs
 - Observations were done at prescribed time periods of approx 20 mins
 - Inter-observer variability recorded
 - Performance feedback via hospital newsletter

Outcome Measures

- Prevalence survey for nosocomial infections
- MRSA surveillance
 - Number of newly acquired MRSA per 100 hospital admissions
- Distribution of ABHRS

Results

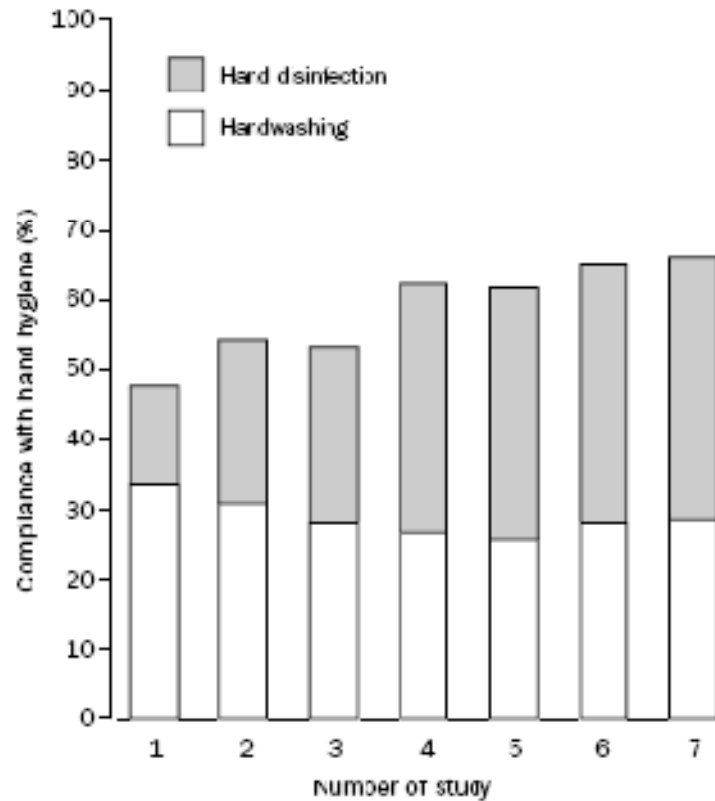


Figure 1: Hand-hygiene compliance trend during seven consecutive hospital-wide surveys, University of Geneva Hospitals, 1994–97

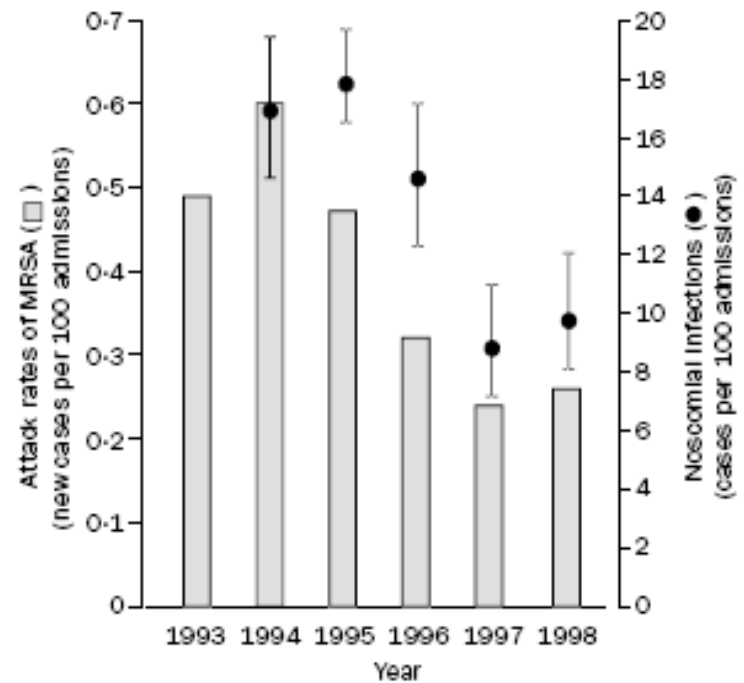


Figure 3: Trends in prevalence of nosocomial infections and annual attack rate of MRSA, 1993–98, University of Geneva Hospitals

Conclusions

- Requirements for success
 - Education and Communication
 - “Talking Walls’
 - Promotion of ABHRS
 - Routine observation and timely feedback
 - Involvement of institutional leaders

Australian Experience

- **Austin Health, Melbourne** (Johnson et al MJA 2005; 183: 509-14)
 - Modelled on Pittet approach
 - 3-year programme “Operation Clean Start”
 - MRSA screening of patients, HCW and environment
 - Feedback of results
 - Multimodal interventions
 - Alcohol/chlorhexidine hand hygiene solution
 - Alcohol impregnated wipes
 - MRSA decolonisation of patient ‘ever’ known to be colonised with MRSA
 - Culture change programme

Outcome measures

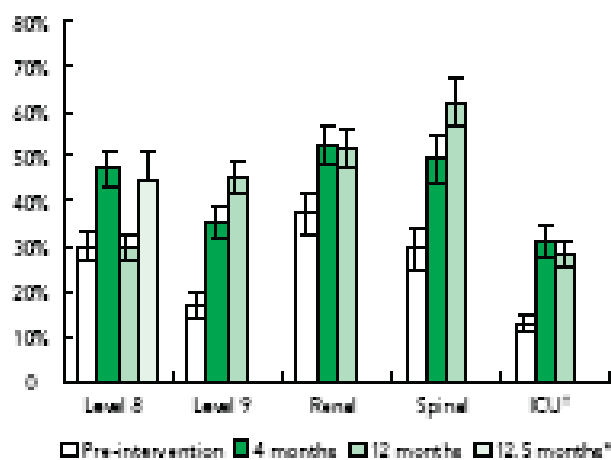
- Hand hygiene compliance
- Volume of ABHRS used
- MRSA colonisation rate
- Rates of MRSA infection
 - Bacteraemia
 - Clinical isolates

Results

- Compliance
 - 21% increased to 41%
- Volume of ABHR used
 - 5.7 L/1000 patient bed-days increased to 28.6 L
- MRSA Bacteraemia
 - Decreased by 57%
 - 53 fewer patient episodes
- Clinical isolates
 - Decreased by 40%
 - 1008 fewer MRSA isolates

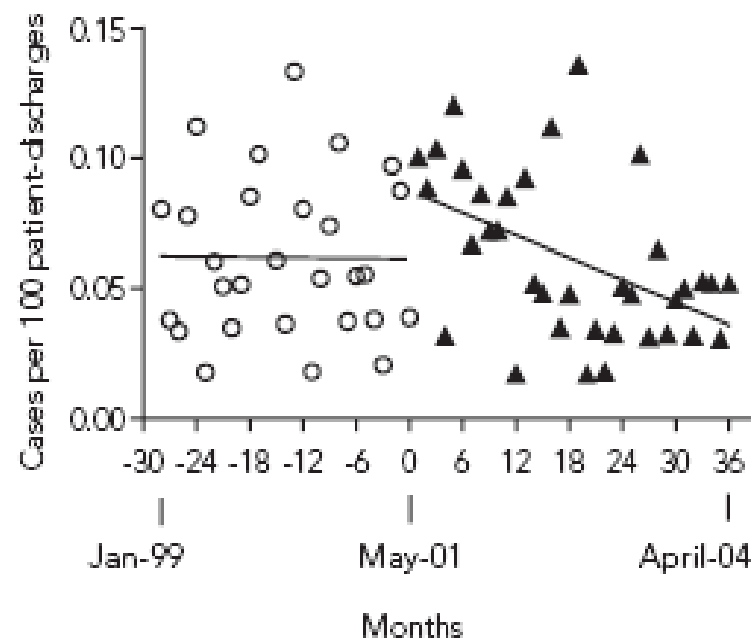
Results

2 Health care worker hand hygiene compliance



The bars show proportion of observed hand-hygiene opportunities in which recommended protocols were followed, with 95% confidence intervals.

B: Patient-episodes of MRSA bacteraemia

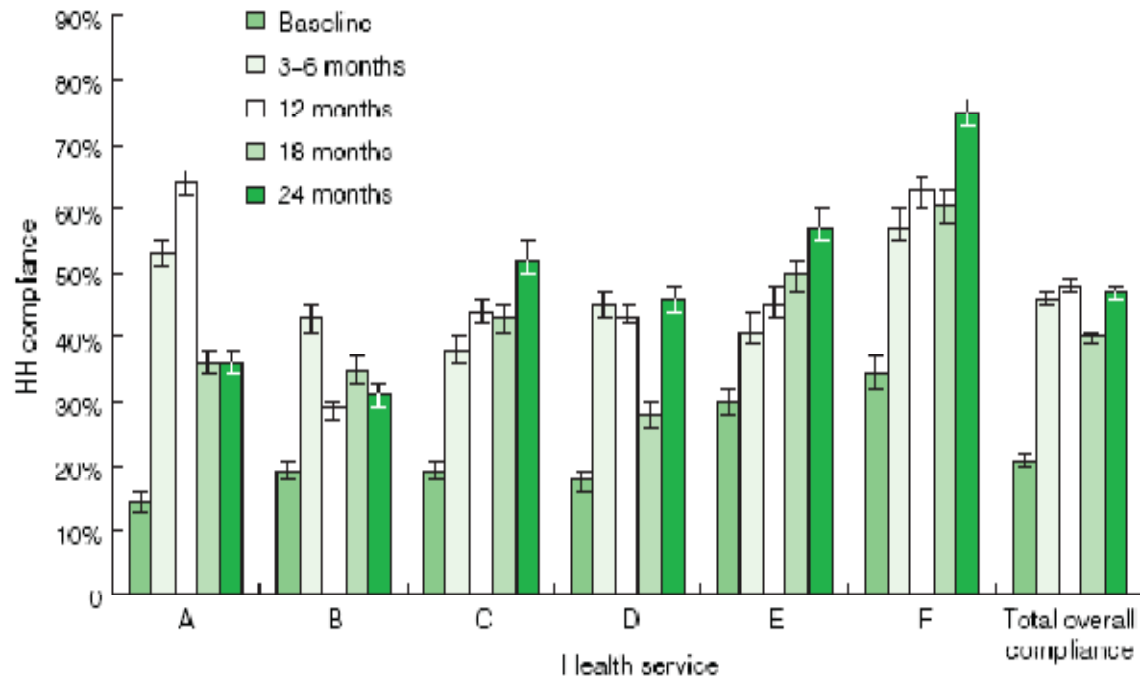


Hand Hygiene Victoria

- Single institution programme piloted in 6 Victorian Hospitals (Grayson et al MJA 2008; 188: 633-40)
 - Components of the programme
 - ABHRS
 - Generic HHCC training programme
 - Centrally based support
 - Regular schedule for data reporting and feedback
 - Funding
 - Outcome measures
 - Hand hygiene compliance rates
 - MRSA bacteraemia and clinical isolates
 - ABHRS utilisation

Results: Pilot HH Compliance

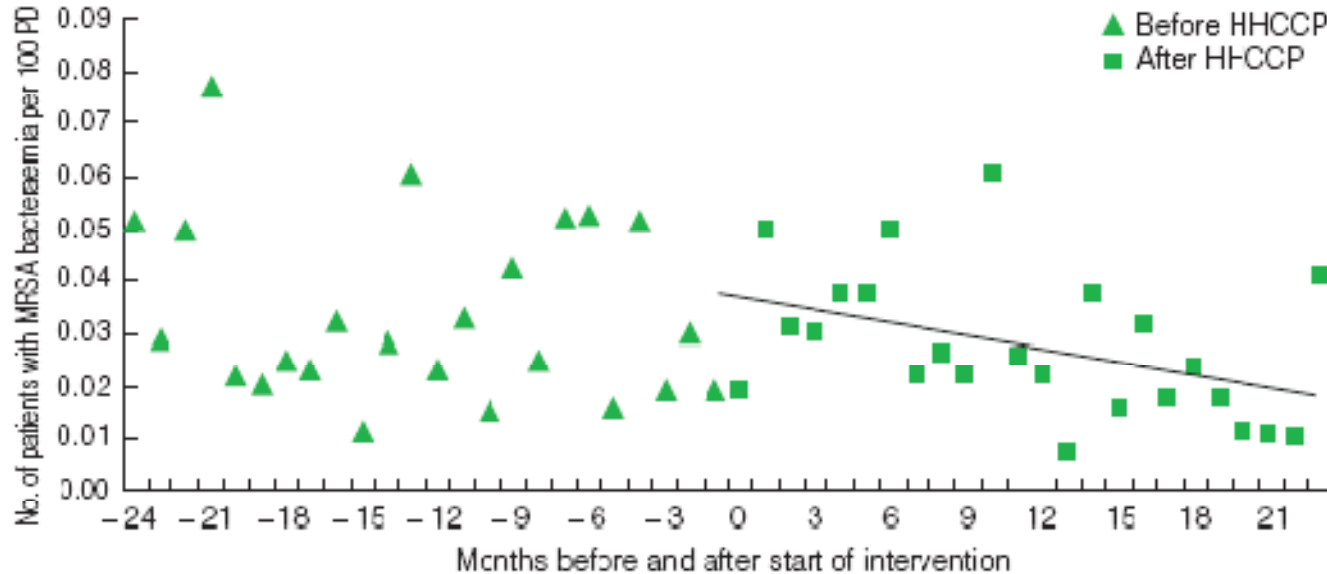
1 Pilot program: hand hygiene (HH) compliance at each of the six pilot program hospitals before and after introduction of the HHCCP*



HHCCP = hand hygiene culture-change program. * Mean HH compliance increased significantly over the 24 months of the pilot study ($P < 0.001$). ♦

Results: MRSA bacteraemia

3 Pilot program: number of patients with MRSA bacteraemia per 100 patient discharges (PD) per month before and after introduction of the HHCCP*



HHCCP = hand hygiene culture-change program. MRSA = methicillin-resistant *Staphylococcus aureus*.

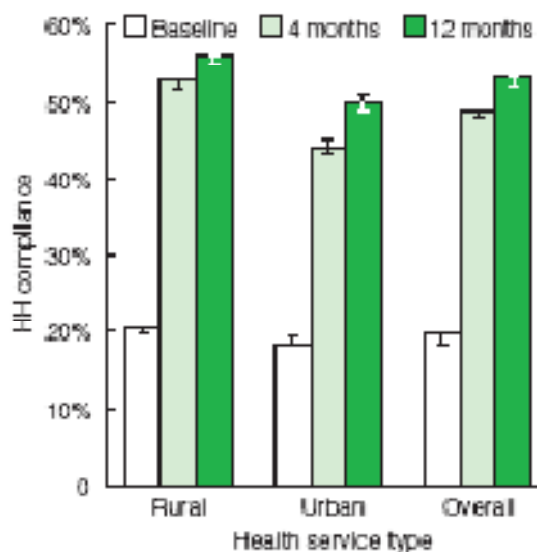
* A statistically significant reduction in bacteraemias was noted at 24 months after the start of the intervention ($P = 0.035$ for trend).

Statewide Rollout

- 75 of 77 Victorian Hospitals
 - Staged rollout
 - Local implementation of structured programme
 - Project Officer
 - Central support for programme
 - ABHRS
 - De-Bug, Avagard or alcohol-only products

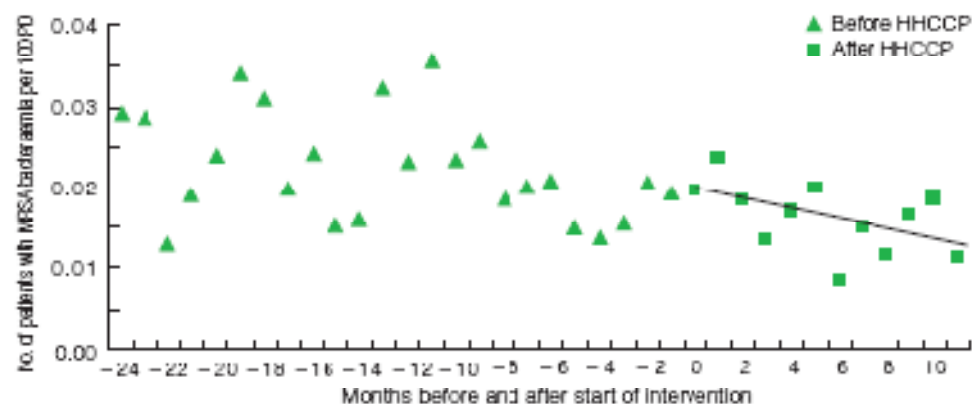
Results: HH Compliance and MRSA bacteraemia

6 Statewide roll-out: hand hygiene (HH) compliance before and after introduction of the HHCCP, by health service type*



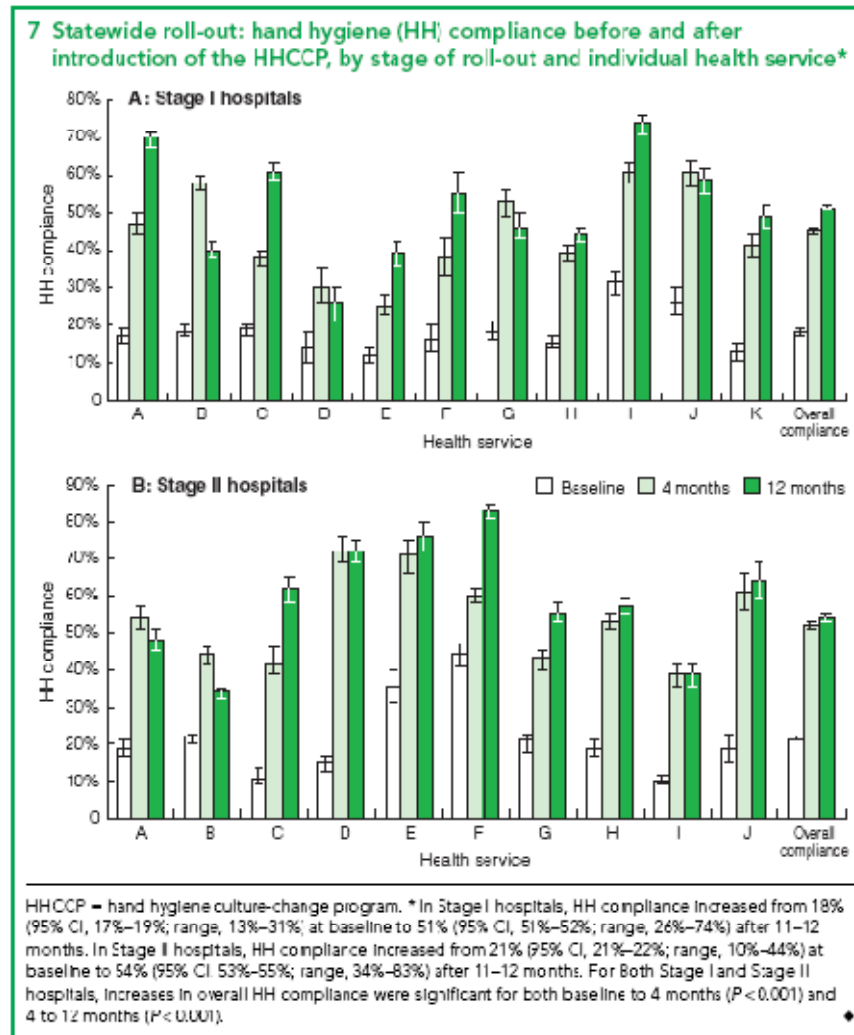
HHCCP = hand hygiene culture-change program.
 * Overall HH compliance (for all hospitals [Stages I and II]) increased from 20% at baseline to 53% at 11–12 months. Increases in overall HH compliance were significant for both baseline to 4 months ($P < 0.001$) and 4 to 12 months ($P < 0.001$). ♦

8 Statewide roll-out: patients with MRSA bacteraemia per 100 patient discharges (PD) per month before and after introduction of the HHCCP*



HHCCP = hand hygiene culture-change program. MRSA = methicillin-resistant *Staphylococcus aureus*.
 * The number of patients with MRSA bacteraemia per 100 PD fell from 0.029 at 24 months before the intervention to 0.012 at 12 months after the start of the intervention ($P = 0.09$ for trend). ♦

Results: Statewide roll-out



Summary

- Active HHCP required to produce a change in compliance
- Measuring changes in the process is important = hand hygiene compliance
- Measuring the benefit seen by the improvement in the process = infection rates