

CEC eChartbook Portal Extract

Hand Hygiene Program

Hand Hygiene Compliance



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HAND HYGIENE PROGRAM

Hand Hygiene Compliance

Why is this important? Hand hygiene is a simple, low-cost action to prevent the spread of many micro-organisms that cause healthcare associated infections (HAIs). Improving the hand hygiene of health care staff is one of the most effective ways of preventing and reducing the spread of HAIs, making a major contribution to keeping patients safe. Increasingly this is becoming important in mind of public as well [1, 2].

On behalf of the NSW Ministry of Health (MoH), the Clinical Excellence Commission (CEC) is participating in the *Australian National Hand Hygiene Initiative* (NHHI). This is a key safety and quality initiative of the Australian Commission on Safety and Quality in Health Care [3] and has been developed by Hand Hygiene Australia [4].

In NSW, the NHHI started in late 2008, building on the *Clean Hands Save Lives* campaign from 2006-2007 [5]. It adopts the principles of the 5 Moments for Hand Hygiene [6]. The purpose is to develop a national approach to hand hygiene, through:

- alcohol-based hand rub at the point of patient care
- education and training of health care workers to conduct auditing of hand hygiene compliance and provide education on the 5 Moments for Hand Hygiene
- establishment of clearly defined outcome measures for accurate auditing applicable across all healthcare settings
- development of guidelines and audit tool/s based on the outcome measures
- online collection of hand hygiene compliance data and a reporting capability.

The 5 Moments for Hand Hygiene are based on those defined in the World Health Organization (WHO) *Guidelines on Hand Hygiene* [7]. Some minor modifications have been made for Australian conditions. A 'moment' is when there is a risk of transmission of harmful micro-organisms from one surface to

another via a person's hands. Hand Hygiene Australia (HHA) specifies five critical moments when health care workers should perform hand hygiene:

1. Before touching a patient
2. Before a procedure
3. After a procedure or body fluid exposure risk
4. After touching a patient
5. After touching a patient's surroundings.

Monitoring the effects of the NHHI involves assessing:

- the rates of hand hygiene compliance, as recorded by trained and validated observers
- the rates of *Staphylococcus aureus* bacteraemia (SAB).

NSW contributes hand hygiene compliance data to the national dataset through HHA. In December 2010, the Australian Government launched the *MyHospitals* website [8]. Two hospital-level safety and quality indicators are presented - SAB and hand hygiene compliance - from February 2012.

Grayson et al [9] evaluated the outcomes from the first two years of the Australian NHHI and concluded that it was associated with widespread sustained improvements in compliance among Australian health care workers. Although specific linking of SAB rate changes to the NHHI was not possible, further reductions in national SAB rates are expected.

Findings: For the three audit periods from Mar 2018 to Oct 2018, data was received from all 18 NSW local health districts and specialty networks (LHDs/SNs).

Chart HH01 highlights the continuous improvement in the percentage of hand hygiene compliance in NSW from 48.7 in Aug 2006 to 86.6 percent in Oct 2018,

following the introduction of the *Clean Hands Save Lives* program and National Hand Hygiene Initiative. The state average hand hygiene compliance in Oct 2018 was slightly higher than the national average (86.6 vs 85.4 percentage points, Chart HH01). Comparison of compliance between LHDs/SNs requires some caution. Differences in compliance, as measured by LHD/SN, by moment and by health care worker reflect differences in implementation, workforce demographics and geographical spread across NSW.

When interpreting hand hygiene compliance data, the observed number of moments for each indicator impacts on reliability [10]. The count of number of observed moments submitted by LHDs/SNs varies widely and is influenced by the number of facilities participating. Compliance was significantly different across LHDs/SNs, ranging from 80.3 (Children's Hospital Network) to 89.4 percent (Murrumbidgee and Western Sydney) in Oct 2018 (Chart HH02). While most LHDs/SNs have demonstrated improvement in compliance, variability across NSW continues, with further improvement possible.

Percentage of hand hygiene compliance for the different health care worker groups within hospitals in NSW show considerable variation (Chart HH03), from 72.5 percent for domestic staff (engaged in provision of food, cleaning and maintenance services) to 95.8 percent for Dental Assistant / Nurse in Oct 2018. Key health care worker groups providing 'hands-on' care, show continuing improvement.

Hand hygiene compliance rates for each of the 5 moments show continuous improvement across the four audit periods (Chart HH04). The distribution pattern for compliance across the moments typically shows that Moment 3 (after a procedure or body fluid exposure risk) is the one most commonly performed in Australia and internationally (94.0 percent). Compliance was also high for Moments 2 (before a procedure) and 4 (after touching patient) at 91.3 and 90.1 percent respectively in Oct 2018. The lowest compliance was recorded for Moment 5 (after touching patient's surroundings) (79.8 percent in Oct 2018, Chart HH04).

Analysis by health care worker group (Charts HH05-HH06) shows that doctor and nurse/midwife hand hygiene compliance rates differed across LHDs/SNs.

Doctors' compliance in Oct 2018 ranged from 57.7 (Southern NSW) to 83.3 percent (Nepean Blue Mountains), with a NSW average of 75.5 percent. Nursing/midwifery staff compliance ranged from 83.1 (Justice Health Network) to 92.4 percent (Western Sydney), with a NSW average of 89.9 percent.

Percentage of hand hygiene compliance differed by hospital peer groups (Chart HH07). Analysis by ward of treatment shows that hand hygiene compliance rates varied widely across the treatment facilities with the lowest in Emergency Department (79.2 percent) and the highest was observed in Dental (94.0 percent, Chart HH08).

Implications: The results up to Oct 2018 show that the uptake of the NHHI in NSW public hospitals has been very successful. The improvement of around 25.7 percentage points at state level achieved in between November 2009 and Oct 2018. A similar trend of improvement across LHDs/SNs indicates that the recognition of the importance of hand hygiene compliance in minimising the risk of transmission of infection to the patient is increasingly more widely acknowledged.

It is considered that hand hygiene compliance is related to a perception of risk to the health care worker [11], hence Moments 3 (after a procedure or body fluid exposure risk) and 4 (after touching a patient), have the highest compliance rates. Data shows that the health care workers tend to comply better with hand hygiene after patient care. This is a pattern observed across Australia and other nations using the 5 Moments for Hand Hygiene as an audit process.

Moments 1 (before touching a patient) and 2 (before a procedure) potentially present a greater risk of transmission of micro-organisms to the patient, yet have lower compliance than 3 and 4. To minimise the risk of transmission of healthcare associated infections effectively, the CEC has developed an awareness campaign to improve compliance for Moment 1. Although hand hygiene compliance has shown improvement in all areas, a concentrated effort by all healthcare workers is required to ensure the results are sustained at a high level.

What we don't know: The optimum hand hygiene compliance rate, at which transmission of HAIs is minimised, is not known. Expert opinion suggests that at between 70 and 75 percent compliance, transmission is dramatically reduced. The Australian Institute of Health and Welfare (AIHW) has increased the national benchmark from 70 to 80 percent for reporting and analysis of hand hygiene compliance data on the *MyHospitals* website. NSW has adopted this benchmark for compliance, while focusing on continuous improvement for each local health district and specialty network.

References:

[1] Sydney Morning Herald. Doctors fail to wash hands before treating patients, study finds, April 28, 2014

[2] Azim S and McLaws M. Doctor, do you have a moment? National Hand Hygiene Initiative compliance in Australian hospitals. *Med J Aust* 2014; 200 (9): 1-4.

[3] Australian Commission on Safety and Quality in Health Care. National Hand Hygiene Initiative [Internet]. 2011 [cited 2012 Nov 28]. Available from: <http://www.safetyandquality.gov.au/our-work/healthcare-associated-infection/hand-hygiene/>

[4] Hand Hygiene Australia [Internet]. 2012 [cited 2012 Nov 28]. Available from: <http://www.hha.org.au>

[5] Clinical Excellence Commission. Clean hands save lives [Internet]. 2012 [cited 2012 Nov 28]. Available from: http://www.cec.health.nsw.gov.au/programs/clean_hands

[6] Hand Hygiene Australia. 5 Moments for Hand Hygiene [Internet]. 2012 [cited 2012 Nov 28]. Available from: <http://www.hha.org.au/home/5-moments-for-hand-hygiene.aspx>

[7] World Health Organization. WHO Guidelines on Hand Hygiene in Health Care [Internet]. 2012 [revised 2009; cited 2012 Nov 28]. Available from: http://apps.who.int/iris/bitstream/10665/44102/1/9789241597906_eng.pdf

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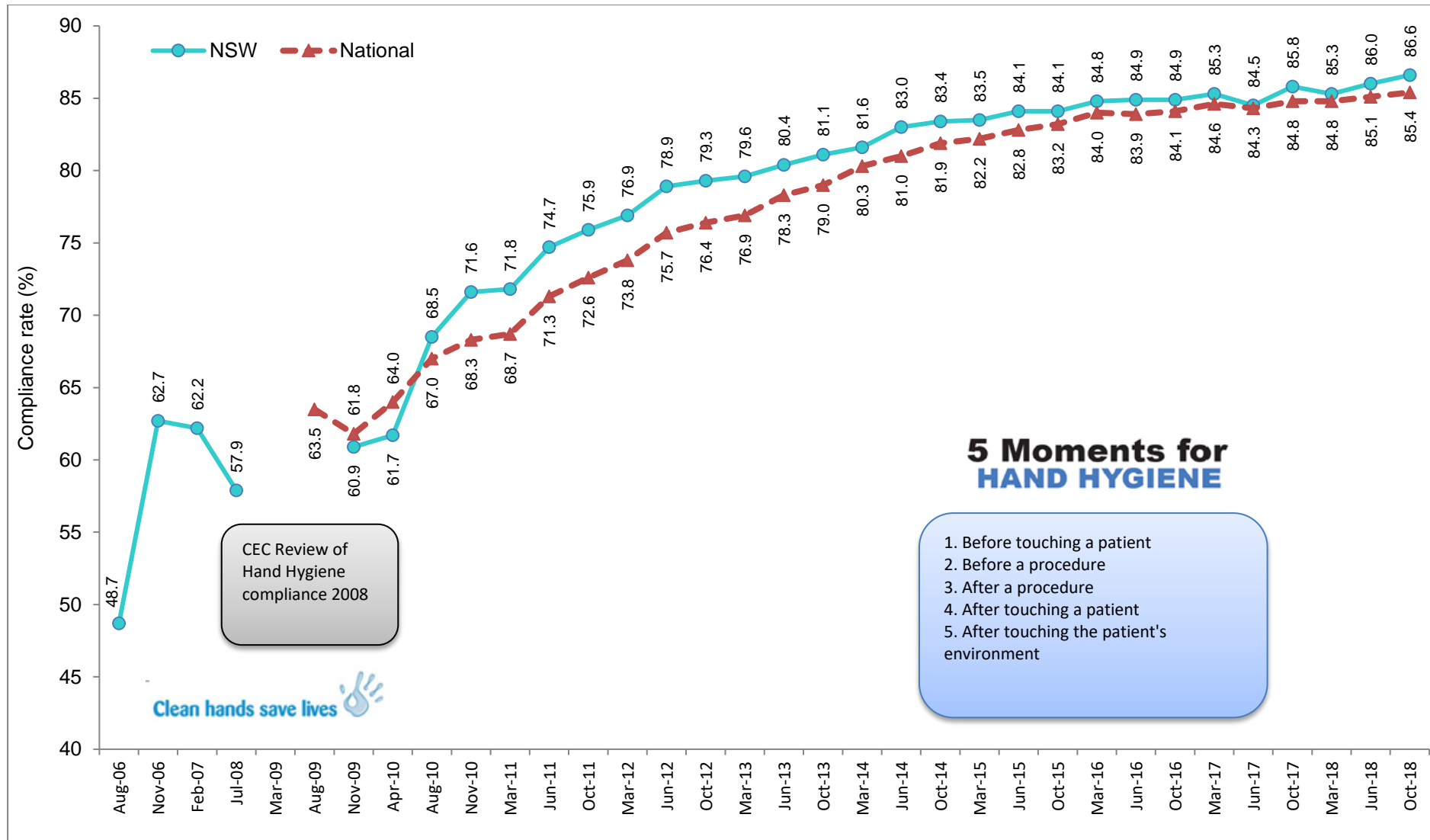
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[11] Whitby M, McLaws ML, Ross MW. Why healthcare workers don't wash their hands: a behavioural explanation. *Infect Control Hosp Epidemiol*. 2006 May; 27(5):484-92

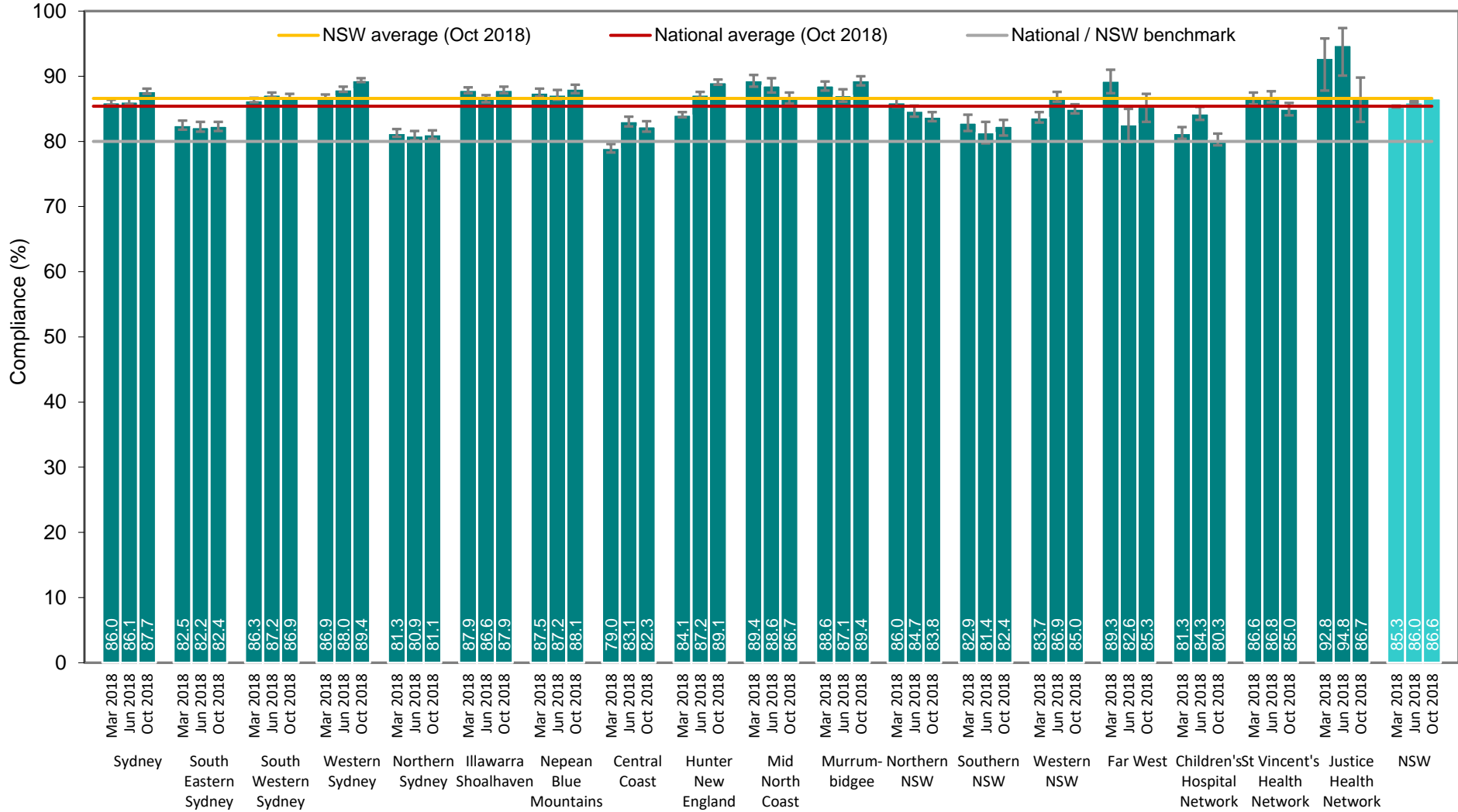
Chart HH01 - Hand Hygiene compliance (all staff)

Trends in overall percentage of Hand Hygiene compliance by all staff, NSW and Australia, Aug 2006 – Oct 2018



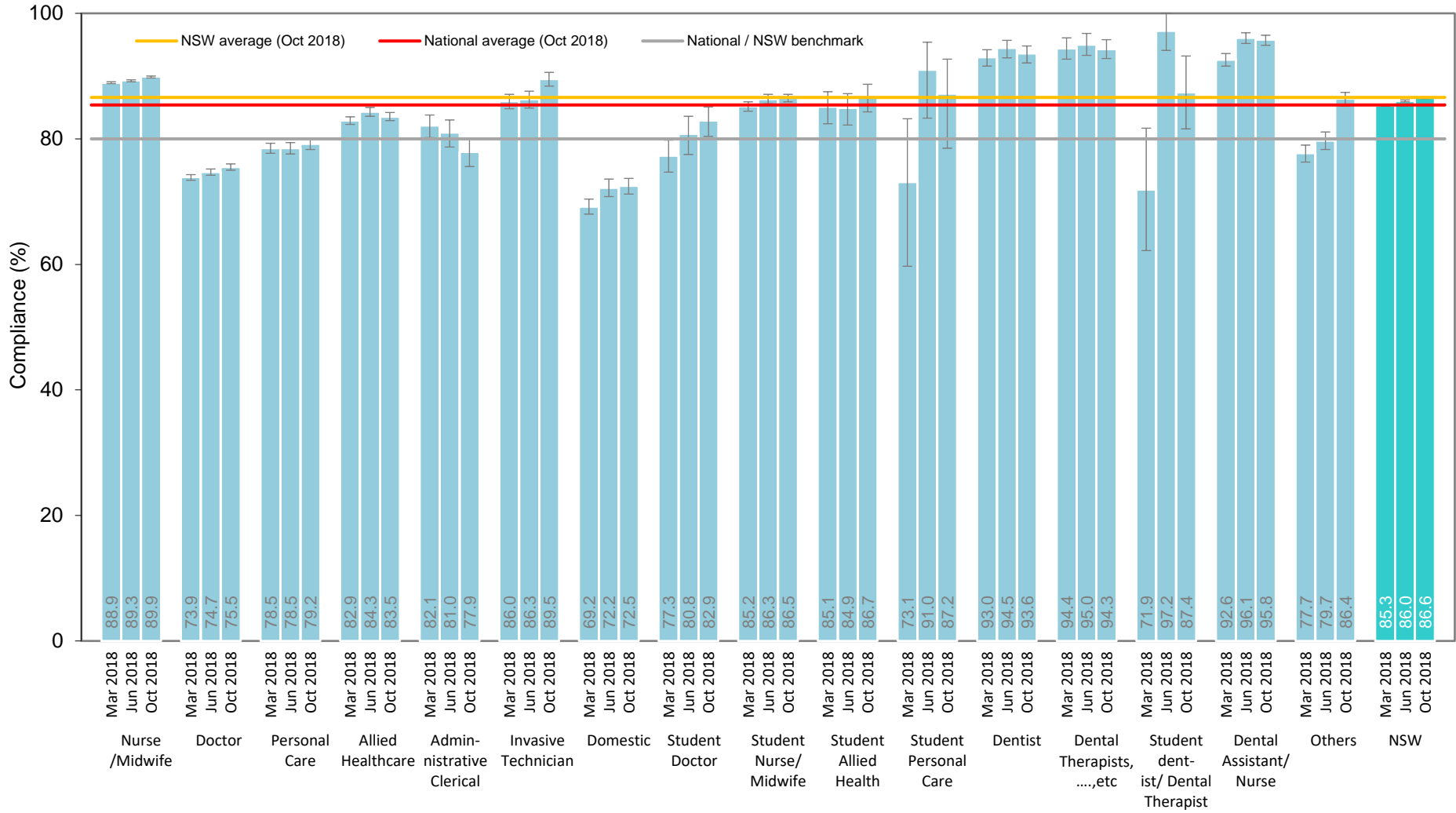
Source: Hand Hygiene Australia, Clinical Excellence Commission.

Chart HH02 - Hand Hygiene compliance (all staff)
 Percentage of Hand Hygiene compliance by LHD/SN, NSW and Australia (all staff), Mar 2018 – Oct 2018



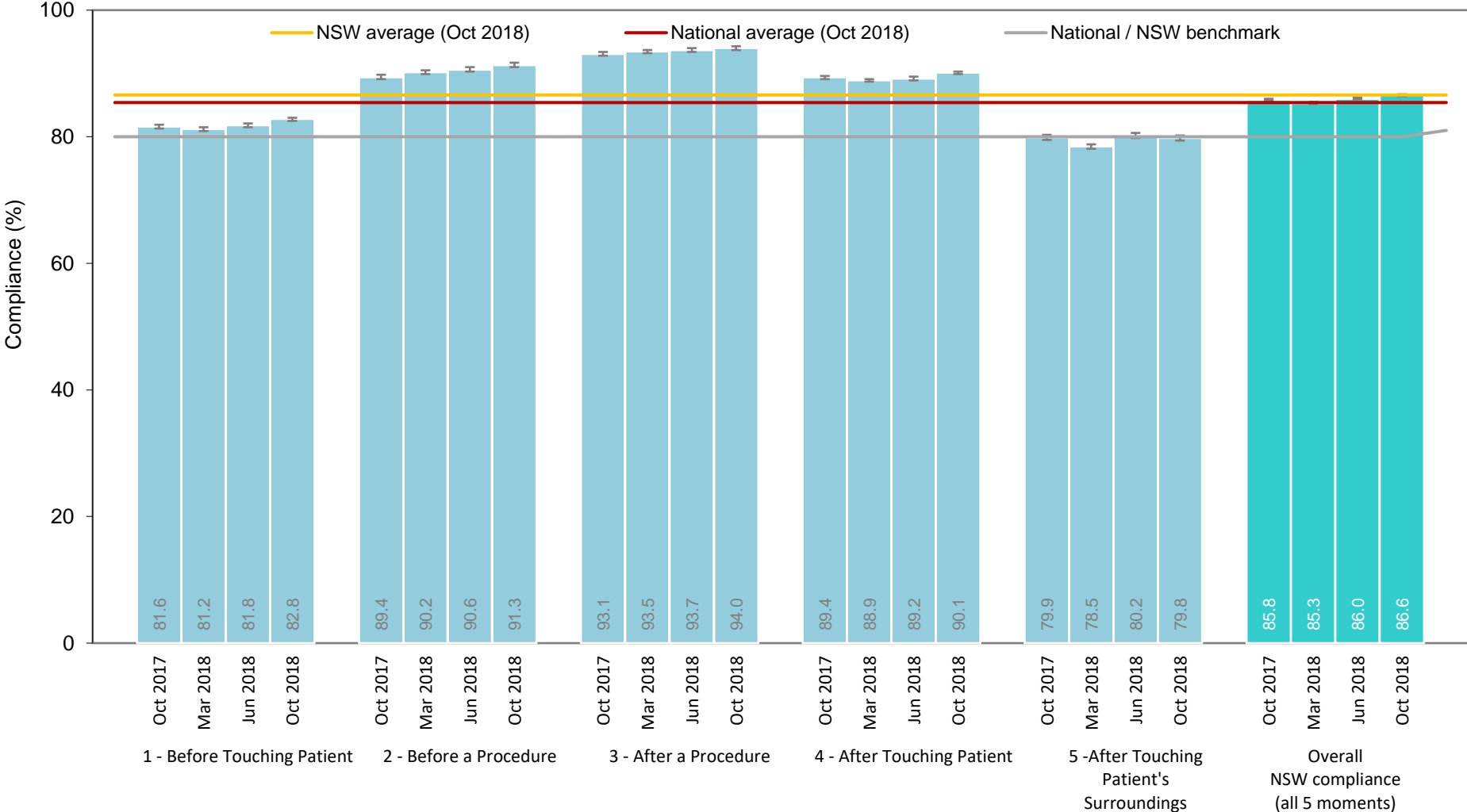
Source: Hand Hygiene Australia, Clinical Excellence Commission.

Chart HH03 - Hand Hygiene compliance (healthcare workers)
 Percentage of Hand Hygiene compliance by category of healthcare workers, Mar 2018 – Oct 2018



Source: Hand Hygiene Australia, Clinical Excellence Commission.

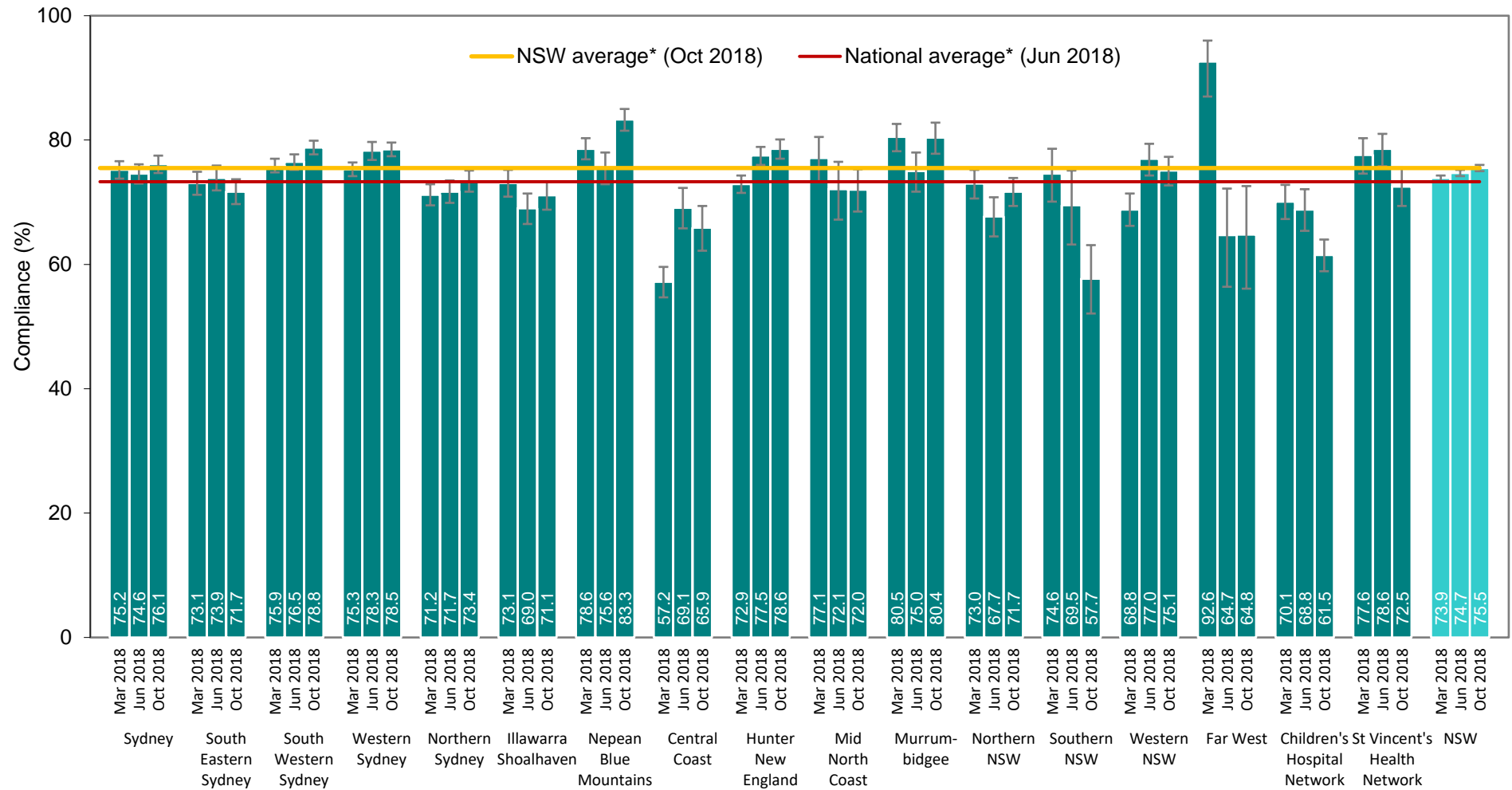
Chart HH04 - Hand Hygiene compliance (5 moments)
 Percentage of Hand Hygiene compliance by moments, Oct 2017 – Oct 2018



Source: Hand Hygiene Australia, Clinical Excellence Commission.

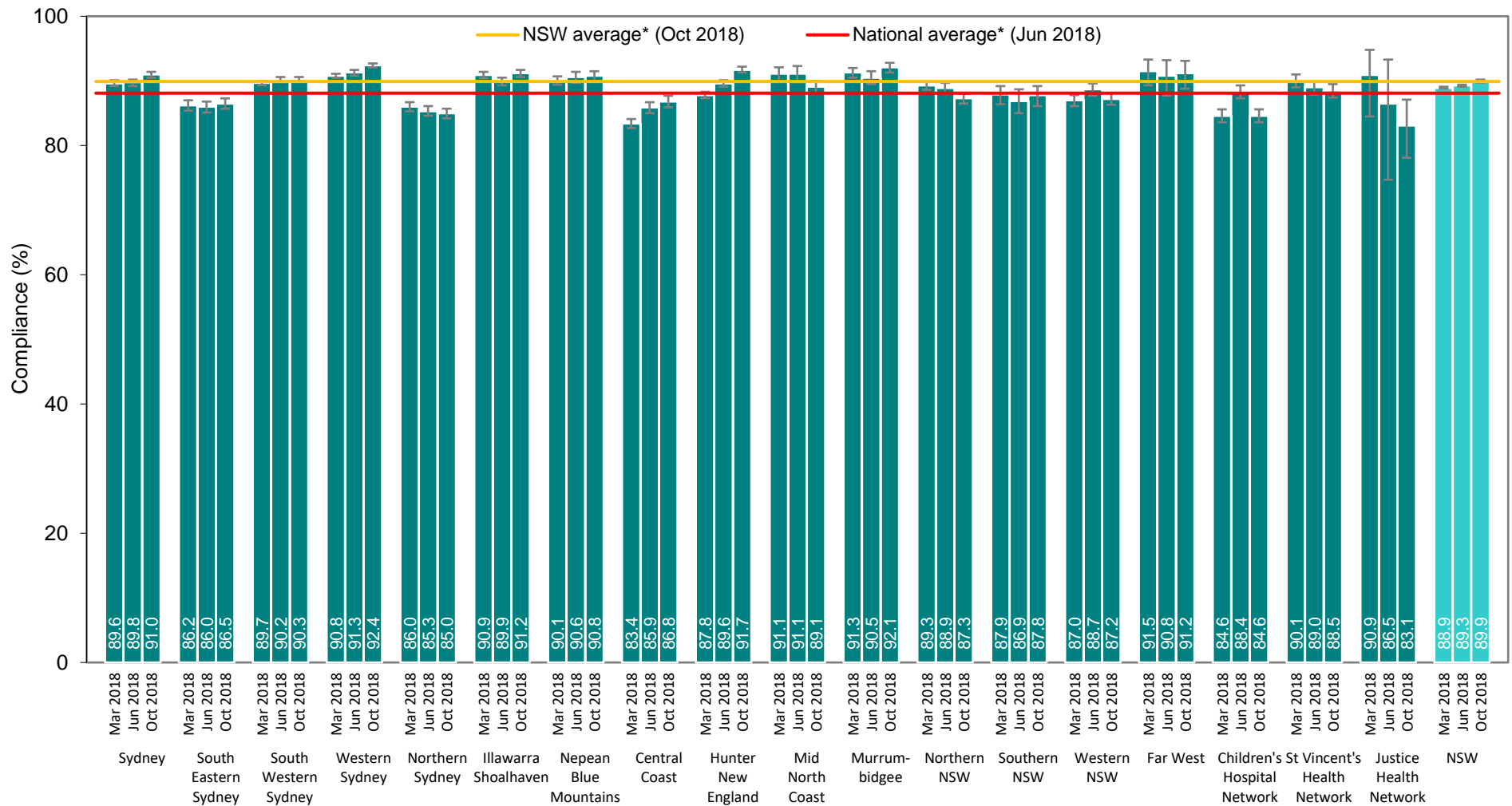
Chart HH05 - Hand Hygiene compliance (Doctor)

Percentage of Hand Hygiene compliance for Doctor by LHD/SN, NSW, Mar 2018 – Oct 2018



Note: * Average compliance rate for Doctor.
 Source: Hand Hygiene Australia, Clinical Excellence Commission.

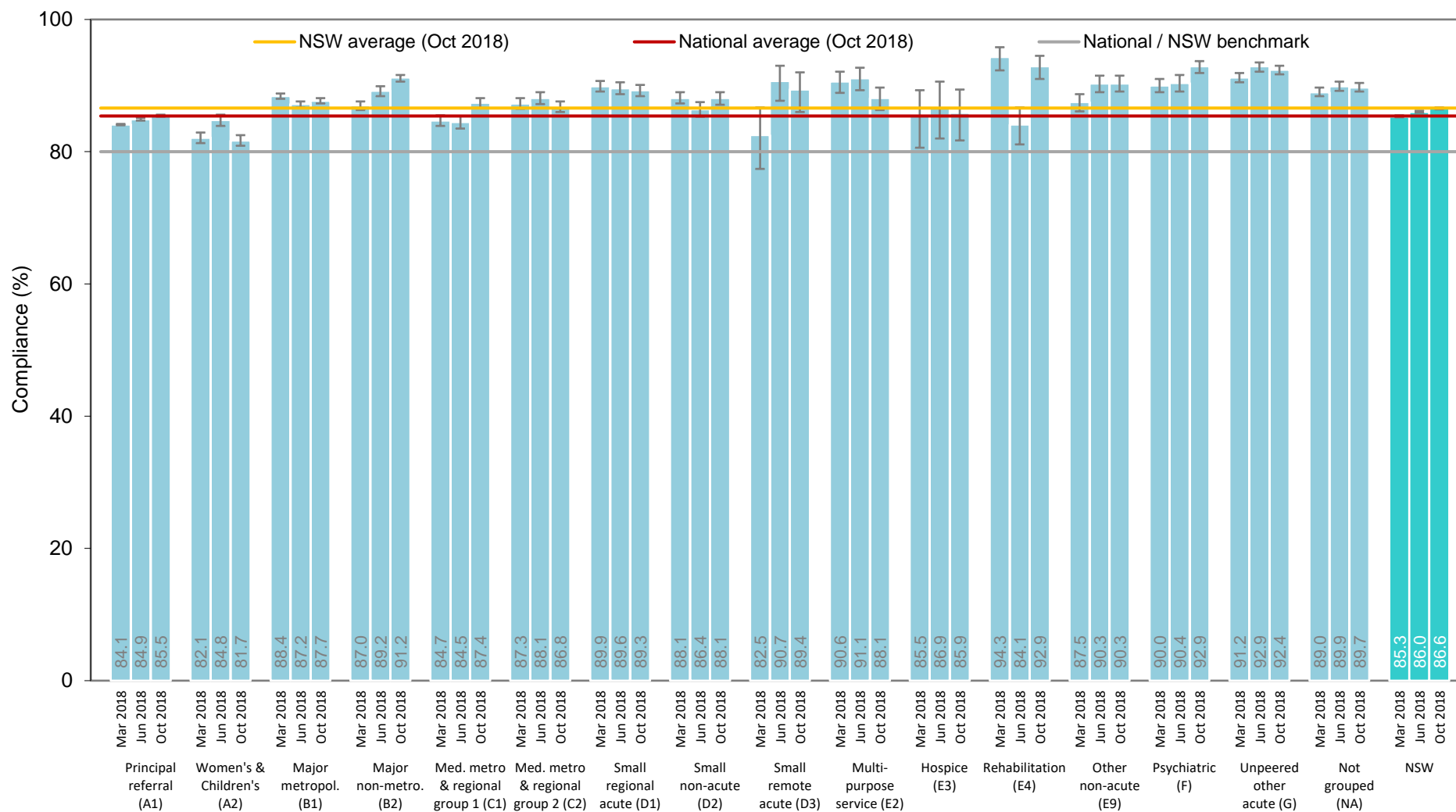
Chart HH06 - Hand Hygiene compliance (Nurse/Midwife)
 Percentage of Hand Hygiene compliance for Nurse/Midwife by LHD/SN, NSW, Mar 2018 – Oct 2018



Note: * Average compliance rate for Nurse/Midwife.
 Source: Hand Hygiene Australia, Clinical Excellence Commission.

Chart HH07 - Hand Hygiene compliance (peer group)

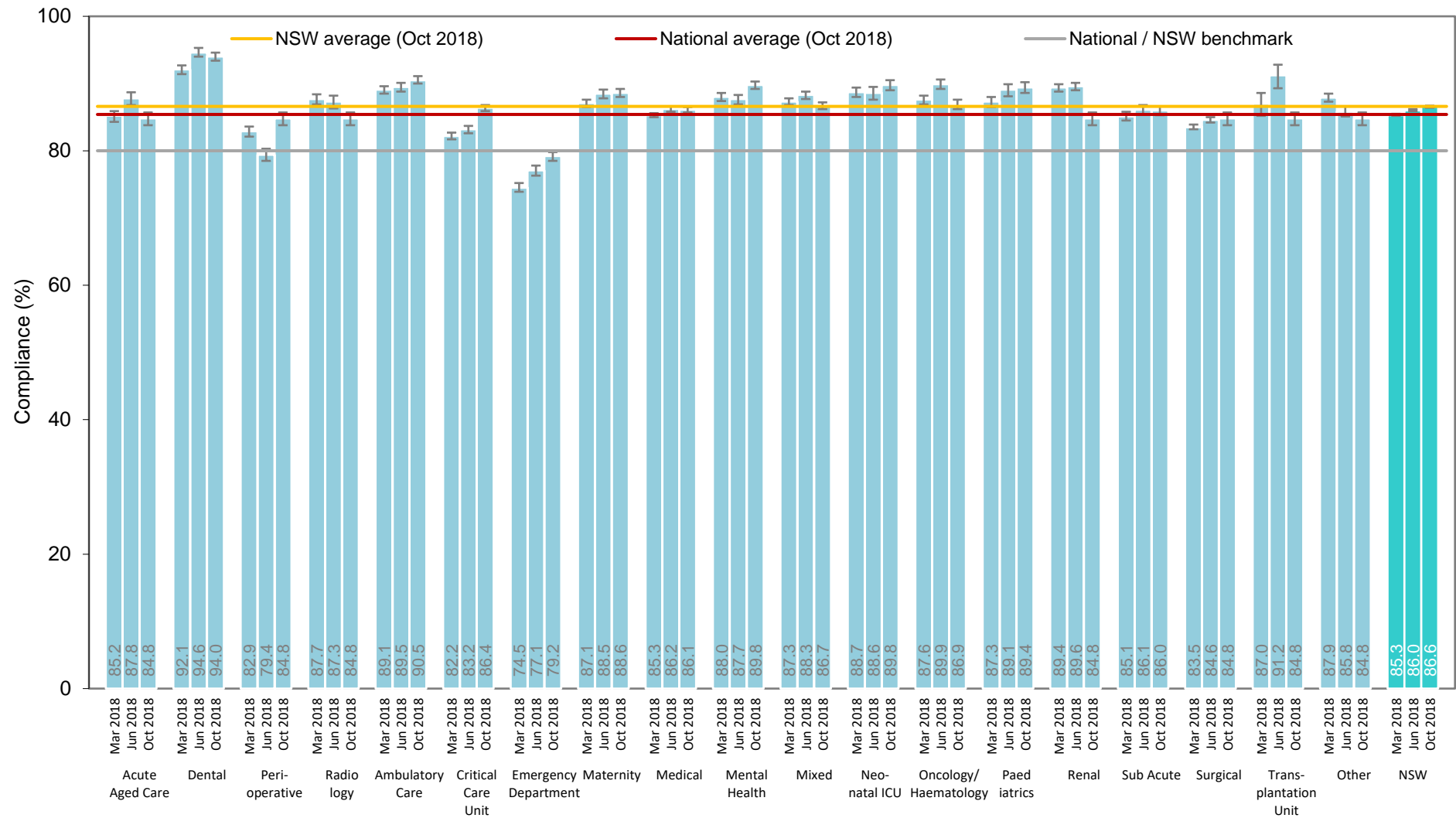
Percentage of Hand Hygiene compliance by Hospital peer group, NSW and Australia (all staff), Mar 2018 – Oct 2018



Note: Hospital peer groups are as of AIHW definition. Source: Hand Hygiene Australia, Clinical Excellence Commission.

Chart HH08 - Hand Hygiene compliance (type of ward)

Percentage of Hand Hygiene compliance for all staff by type of ward, NSW and Australia, Mar 2018 – Oct 2018



Source: Hand Hygiene Australia, Clinical Excellence Commission.

Data Definitions

Chart:	HH01 – HH02
Admin Status:	Current, Oct 2018
Indicator Name:	Hand Hygiene compliance (all staff)
Description:	Trends in overall Hand Hygiene compliance (%) by all staff, NSW and Australia, Aug 2006 – Oct 2018
Dimension:	Patient safety
Clinical Area:	Initiatives in safety and quality health care
Data Inclusions:	All hand hygiene opportunities by all health care worker
Data Exclusions:	None
Numerator:	Total number of times all health care worker washed their hands before and after patient contact
Denominator:	Total number of opportunities where all health care worker were supposed to washed their hands before and after patient contact
Standardisation:	None (percentage of compliance was calculated)
Data Source:	Hand Hygiene Australia, Clinical Excellence Commission and NSW Ministry of Health
Comments:	The optimum hand hygiene compliance rate, at which transmission of HAIs is minimised, is not known. Expert opinion suggests that at between 70 – 75 percent compliance, transmission is dramatically reduced. Although specific linking of improved rates of hand hygiene compliance to the rates of <i>Staphylococcus aureus</i> bacteraemias (SAB) is not possible, due to the many factors which impact on SAB rates, expert opinion suggests that as hand hygiene compliance improves, further decline in national SAB rates is expected.

Chart:	HH03
Admin Status:	Current, Oct 2018
Indicator Name:	Hand Hygiene compliance (healthcare workers)
Description:	Hand Hygiene compliance (%) by category of healthcare workers, Mar 2018 – Oct 2018
Dimension:	Patient safety
Clinical Area:	Initiatives in safety and quality health care
Data Inclusions:	All hand hygiene opportunities by all health care worker
Data Exclusions:	None
Numerator:	Total number of times all health care worker washed their hands before and after a patient contact by type of health care worker
Denominator:	Total number of opportunities where all health care worker were supposed to wash their hands before and after patient contact by each health care worker group
Standardisation:	None (percentage of compliance was calculated)
Data Source:	Hand Hygiene Australia, Clinical Excellence Commission and NSW Ministry of Health
Comments:	The optimum hand hygiene compliance rate at which transmission of HAIs is minimised is not known. Expert opinion suggests that at between 70 – 75 percent compliance, transmission is dramatically reduced. Although specific linking of improved rates of hand hygiene compliance to the rates of <i>Staphylococcus aureus</i> bacteraemias (SAB) is not possible, due to the many factors which impact on SAB rates, expert opinion suggests that as hand hygiene compliance improves, further decline in national SAB rates is expected.

Chart:	HH04
Admin Status:	Current, Oct 2018
Indicator Name:	Hand Hygiene compliance (5 moments)
Description:	Hand Hygiene compliance (%) by moments, Oct 2017 – Oct 2018
Dimension:	Patient safety
Clinical Area:	Initiatives in safety and quality health care
Data Inclusions:	All hand hygiene opportunities by all health care worker
Data Exclusions:	None
Numerator:	Total number of times all health care worker washed their hands during each of the five moments occurred
Denominator:	Total number of opportunities where all health care worker were supposed to wash their hands during each of the five moments occurred
Standardisation:	None (percentage of compliance was calculated)
Data Source:	Hand Hygiene Australia, Clinical Excellence Commission and NSW Ministry of Health
Comments:	The optimum hand hygiene compliance rate at which transmission of HAIs is minimised is not known. Expert opinion suggests that at between 70 – 75 percent compliance, transmission is dramatically reduced. Although specific linking of improved rates of hand hygiene compliance to the rates of <i>Staphylococcus aureus</i> bacteraemias (SAB) is not possible, due to the many factors which impact on SAB rates, expert opinion suggests that as hand hygiene compliance improves further, decline in national SAB rates is expected.

Chart:	HH05
Admin Status:	Current, Oct 2018
Indicator Name:	Hand Hygiene compliance (Doctor)
Description:	Hand hygiene compliance (%) for Doctor by LHD/SN, NSW, Mar 2018 – Oct 2018
Dimension:	Patient safety
Clinical Area:	Initiatives in safety and quality health care
Data Inclusions:	All hand hygiene opportunities by doctor
Data Exclusions:	None
Numerator:	Total number of times doctors washed hands before and after a patient contact
Denominator:	Total number of opportunities where doctors were supposed to wash their hands before and after patient contact
Standardisation:	None (percentage of compliance was calculated)
Data Source:	Hand Hygiene Australia, Clinical Excellence Commission and NSW Ministry of Health
Comments:	The optimum hand hygiene compliance rate at which transmission of HAIs is minimised is not known. Expert opinion suggests that at between 70 – 75 percent compliance, transmission is dramatically reduced. Although specific linking of improved rates of hand hygiene compliance to the rates of <i>Staphylococcus aureus</i> bacteraemias (SAB) is not possible, due to the many factors which impact on SAB rates, expert opinion suggests that as hand hygiene compliance improves further, decline in national SAB rates is expected.

Chart:	HH06
Admin Status:	Current, Oct 2018
Indicator Name:	Hand Hygiene compliance (Nurse/Midwife)
Description:	Hand Hygiene compliance (%) for Nurse/Midwife by LHD/SN, NSW, Mar 2018 – Oct 2018
Dimension:	Patient safety
Clinical Area:	Initiatives in safety and quality health care
Data Inclusions:	All hand hygiene opportunities by nurse/midwife
Data Exclusions:	None
Numerator:	Total number of times nurses/midwives washed their hands before and after a patient contact
Denominator:	Total number of opportunities where nurses/midwives were supposed to wash their hands before and after patient contact
Standardisation:	None (percentage of compliance was calculated)
Data Source:	Hand Hygiene Australia, Clinical Excellence Commission and NSW Ministry of Health
Comments:	The optimum hand hygiene compliance rate at which transmission of HAIs is minimised is not known. Expert opinion suggests that at between 70 – 75 percent compliance, transmission is dramatically reduced. Although specific linking of improved rates of hand hygiene compliance to the rates of <i>Staphylococcus aureus</i> bacteraemias (SAB) is not possible, due to the many factors which impact on SAB rates, expert opinion suggests that as hand hygiene compliance improves, further decline in national SAB rates is expected.

Chart:	HH07
Admin Status:	Current, Oct 2018
Indicator Name:	Hand hygiene compliance (peer group)
Description:	Hand Hygiene compliance by Hospital peer group, NSW and Australia (all staff), Mar 2018 – Oct 2018
Dimension:	Patient safety
Clinical Area:	Initiatives in safety and quality health care
Data Inclusions:	All hand hygiene opportunities by peer group of hospital
Data Exclusions:	None
Numerator:	Total number of times all health care worker washed their hands before and after a patient contact by peer group of hospital
Denominator:	Total number of opportunities where all health care worker were supposed to wash their hands before and after patient contact by peer group of hospital
Standardisation:	None (percentage of compliance was calculated)
Data Source:	Hand Hygiene Australia, Clinical Excellence Commission and NSW Ministry of Health
Comments:	The optimum hand hygiene compliance rate at which transmission of HAIs is minimised is not known. Expert opinion suggests that at between 70 – 75 percent compliance, transmission is dramatically reduced. Although specific linking of improved rates of hand hygiene compliance to the rates of <i>Staphylococcus aureus</i> bacteraemias (SAB) is not possible, due to the many factors which impact on SAB rates, expert opinion suggests that as hand hygiene compliance improves, further decline in national SAB rates is expected.

Chart:	HH08
Admin Status:	Current, Oct 2018
Indicator Name:	Hand Hygiene compliance (type of ward)
Description:	Hand Hygiene compliance for all staff by type of ward, NSW and Australia, Mar 2018 – Oct 2018
Dimension:	Patient safety
Clinical Area:	Initiatives in safety and quality health care
Data Inclusions:	All hand hygiene opportunities by ward of treatment
Data Exclusions:	None
Numerator:	Total number of times all health care worker washed their hands before and after a patient contact by ward of treatment
Denominator:	Total number of opportunities where all health care worker were supposed to wash their hands before and after patient contact by ward of treatment
Standardisation:	None (percentage of compliance was calculated)
Data Source:	Hand Hygiene Australia, Clinical Excellence Commission and NSW Ministry of Health
Comments:	The optimum hand hygiene compliance rate at which transmission of HAIs is minimised is not known. Expert opinion suggests that at between 70 – 75 percent compliance, transmission is dramatically reduced. Although specific linking of improved rates of hand hygiene compliance to the rates of <i>Staphylococcus aureus</i> bacteraemias (SAB) is not possible, due to the many factors which impact on SAB rates, expert opinion suggests that as hand hygiene compliance improves, further decline in national SAB rates is expected.