9.2 Hand Hygiene in Acute Hospitals

a) Biannual Audit of Hand Hygiene Compliance

Summary

- On a background of on-going hand hygiene compliance audits in acute hospitals, national data were collated and reported for two audit periods during 2016
- For both periods (Period 11: May/June and Period 12: October/November), 53 hospitals participated (HSE; 44, private; 9)
  - **Period 11:** In total, 11,089 opportunities for hand hygiene were observed and an average compliance of 90.5% was reported (range = 81.4 – 96.7)
  - **Period 12:** In total, 11,111 opportunities for hand hygiene were observed; and an average compliance of 91.2% was reported (range = 70.5 - 98.1)
- The overall compliance for periods 11 and 12 combined for HSE hospitals was 90.5%, just above the HSE target (90%). However, compliance for private hospitals was higher at 92.5%

Background

In Ireland, public reporting of biannual hand hygiene compliance audit data from acute hospitals commenced in 2011. Healthcare workers (HCWs) are observed for their compliance against the '5 moments of hand hygiene' by trained auditors using the WHO methodology for hand hygiene audits. Each hospital is required to measure HCW compliance against 30 hand hygiene opportunities for each of seven randomly-selected wards, resulting in a maximum of 210 opportunities per hospital per period.

Results

For both periods (Period 11: May/June and Period 12: October/November), 53 hospitals participated (HSE; 44, private; 9):

- **Period 11:** In total, 11,089 opportunities for hand hygiene were observed and an average compliance of 90.5% was reported (range = 81.4 – 96.7)
- **Period 12:** In total, 11,111 opportunities for hand hygiene were observed; and an average compliance of 91.2% was reported (range = 70.5 - 98.1)

Table 1. 2016 hand hygiene compliance audit findings (combined for two periods). Analysis by staff category and WHO 5 moments is provided for HSE hospitals only.

	Hand Hygiene Opportunities	Hand Hygiene Actions	% Compliance	Lower 95% Confidence Interval	Upper 95% Confidence Interval
Overall	22,200	20,170	90.9	90.5	91.3
HSE Hospitals	18,427	16,679	90.5	90.1	91.0
Private Hospitals	3,773	3,491	92.5	91.7	93.4
Nurse/Midwife	10,518	9,843	93.6	93.1	94.1
Auxiliary	2,915	2,580	88.5	87.3	89.7
Medical	3,442	2,832	82.3	80.9	83.7
Allied health/Other	1,552	1,424	91.8	90.3	93.2
Moment 1	4,890	4,500	92.0	91.2	92.8
Moment 2	1,023	905	88.5	86.4	90.5
Moment 3	1,326	1,204	90.8	89.2	92.4
Moment 4	6,465	6,017	93.1	92.4	93.7
Moment 5	5,382	4,667	86.7	85.7	87.7

Staff category: Auxiliary = healthcare assistants, porters, catering and household services; Allied health/Other = physiotherapists, radiographer, dieticians, social workers and pharmacists
Five moments for hand hygiene: (1) Before touching a patient; (2) Before clean/aseptic procedure; (3) After body fluid exposure; (4) After touching a patient; (5) After touching patient surroundings

Results for the two periods combined are displayed in Table 1 and Figure 1. At 90.5%, compliance for HSE hospitals was just above the HSE target of 90%, with a trend of increasing compliance observed over time (Figure 2). Private hospitals reported an overall compliance of 92.5% in 2016.
Table 1 and Figure 1 also display further analysis of hand hygiene compliance for participating HSE hospitals only, by HCW category and breakdown by the WHO five moments for hand hygiene. In 2016, medical staff had the lowest compliance (82.3%), while nurses/midwives had the highest compliance (93.8%). Compliance for moment 5 (after touching patient surroundings) was the lowest at 86.7% and highest for moment 4 (after touching a patient) at 93.1%. Alcohol-based hand rub (ABHR) was used for 76.1% of hand hygiene actions, with the remainder using soap and water (23.9%).

Limitations of current methodology

- While standardised hand hygiene auditor training and validation (with inter-rater reliability testing) should ensure that measurement of hand hygiene is comparable, these results have not been validated by external auditors
- All auditors measured hand hygiene compliance in the facility in which they work. Therefore, there may be an element of bias in the results
- It is possible that hand hygiene auditing may not have been performed in a comparable fashion in all hospitals and these results may not reflect HCW compliance at all times
- Compliance with hand hygiene is measured by auditors observing HCW undertaking patient care and who may change their behaviour if aware that they are being observed (Hawthorne effect). However, it is also known that this diminishes over time and HCWs under observation may not be aware of the presence of the auditor due to the many competing demands on their attention.
- Auditors are requested to give immediate feedback to ward staff following an audit, thereby increasing awareness and knowledge of hand hygiene. This risk of bias should be balanced by the benefits of increasing local staff's knowledge and awareness of hand hygiene.

Further information on acute hospital hand hygiene compliance audit in Ireland is available on the HPSC website: http://www.hpsc.ie/a-z/microbiologyantimicrobialresistance/europeansurveillanceofantimicrobialconsumptionesac/publicmicrobreports/

b) Surveillance of Alcohol-Based Hand Rub Consumption

2016 Summary

- Thirty-seven hospitals participated in ABHR surveillance, a reduction from 39 in 2015
- A 9% reduction in the national median rate of alcohol-based hand rub (ABHR) consumption expressed as litres per 1,000 bed days used (L/1,000 BDU) in acute hospitals in Ireland was observed (29.7 versus 32.5)

Background

National and international guidelines recommend alcohol-based hand rub (ABHR) as the recommended product for hand hygiene where hands are not visibly soiled. Measurement of hospital-level ABHR consumption, inclusive of gel and foam formulations, is expressed as a rate: volume in litres per 1,000 bed days used (L/1,000 BDU). ABHR consumption is a recommended process measure of hand hygiene activity by both the World Health Organization (WHO) and the US Centers for Disease Control & Prevention (CDC).

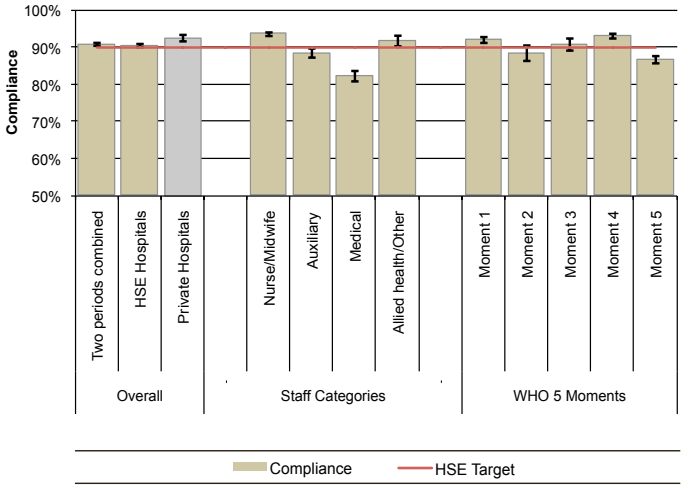

Figure 1. Summary of hand hygiene compliance 2016 (combined for two audit periods). 95% CI shown in black bars and HSE 2016 target of 90% shown as red line. Analysis by staff category and WHO 5 moments is provided for HSE hospitals only.

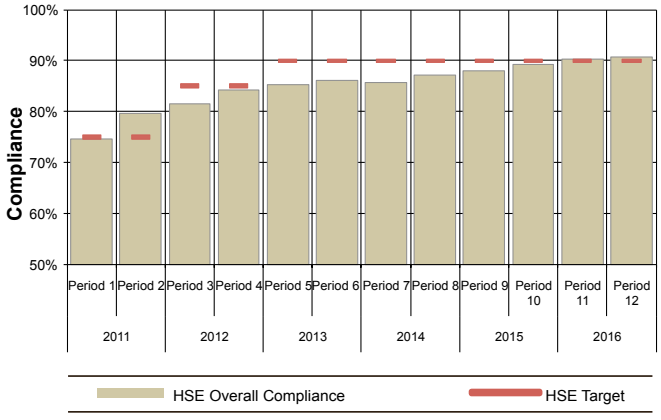

Figure 2. Overall hand hygiene audit compliance in HSE acute hospitals: 2011 – 2016. HSE target for each year shown as red line.

ABHR consumption data in acute public hospitals in Ireland has been collated by HPSC since 2006. The data are collected quarterly from participating hospitals. Depending on the hospital, ABHR consumption data originates from one of two sources:

1. Pharmacy: The total volume of ABHR dispensed to wards, clinics and other hospital areas
2. Supplies Department: The total volume of ABHR purchased by the hospital

Quantities used for pre-operative surgical hand hygiene were excluded.

In 2016, a 9% reduction in the national median rate of alcohol-based hand rub (ABHR) consumption expressed as litres per 1,000 bed days used (L/1,000 BDU) in acute hospitals in Ireland was observed (29.7 versus 32.5) (Table 1). While any observed decrease is undesirable, the underlying trend over three years has remained relatively stable. Using the median ABHR consumption figure provides a stable indicator of the national rate over time. However, the volume of ABHR consumed remains a crude measure of hand hygiene activity at individual hospital level and must be viewed in conjunction with other indicators, such as direct observation of hand hygiene compliance. As ABHR is the recommended product for the vast majority of hand hygiene opportunities in hospital settings, surveillance of ABHR consumption remains a useful process measure for hand hygiene activity.

Caveats to the ABHR surveillance system

- The inter-hospital variation in ABHR consumption rates (14.7 – 74.0), although not as wide as observed in past years may be explained by different local methods for data collection and reporting, along with differences in the type and range of hand hygiene agents used
- This surveillance system includes ABHR only, and does not include other hand hygiene agents (e.g., liquid soap)
- ABHR consumption data does not capture information on a hospital's hand hygiene frequency, opportunities or technique, nor does it distinguish between who has used the ABHR (visitor, patient or healthcare worker)
- The data are prone to reporting artefacts, particularly for hospitals that report supplies (rather than pharmacy dispensing) data. For example, the hospital with the highest reported rate in past years had undergone a change in suppliers and the products had been restocked in all areas of the hospital over a relatively short period of time. It is expected that there will be occasional outliers of this nature.

Further information on acute hospital ABHR consumption in Ireland is available on the HPSC website: http://www.hpsc.ie/A-Z/Gastroenteric/Handwashing/

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Sincere thanks to colleagues working in acute hospital infection prevention and control teams, pharmacy and stores departments across Ireland for submitting hand hygiene compliance audit and ABHR consumption data.

Table 1. Annual national ABHR consumption rates in acute public hospitals in Ireland: 2006 – 2016.

	Number of participating hospitals	National consumption rate*	Range for participating hospitals
2006	52	10	0.5 - 29.0
2007	50	15	5.2 - 47.1
2008	50	18.1	5.9 - 67.0
2009	49	20.3	4.1 - 47.7
2010	45	18.8	4.2 - 36.4
2011	43	21.3	10.9 - 130.0
2012	44	23.8	9.6 - 160.0
2013	44	26.3	16.4 - 132.5
2014	43	27.7	4.3 - 72.1
2015	39	32.5	10.1 - 96.8
2016	37	29.7	14.7 - 74.0

* The consumption rate is the total volume of ABHR consumed in the defined time period in litres per 1,000 bed-days used. The national consumption rate represents the median of the national sample for each time period.