

Annual Epidemiological Report

October 2019

Hand Hygiene in Ireland, 2018

Key Facts

a) Observational Hand Hygiene Audits

- National data on direct observational hand hygiene compliance audits in acute hospitals were collated and reported for two audit periods during 2018
- For both periods (Period 15: June/July and Period 16: October/December), 53 hospitals participated (HSE: 44, private: 9):
 - **Period 15:** in total, 11,111 opportunities for hand hygiene were observed; achieving an average compliance of 91.4% (range = 74.8 - 97.1)
 - **Period 16:** in total, 11,127 opportunities for hand hygiene were observed; achieving an average compliance of 92.0% (range = 82.9 - 99.5)
- The overall compliance for periods 15 and 16 combined for HSE hospitals was 91.3%, just above the HSE target of 90%. However, the combined compliance for participating private hospitals was higher at 93.5%
- Compliance among nurses/midwives (93.8%) and allied health/other professionals (92.4%) was higher than among medical staff (83.0%)

b) Surveillance of Alcohol-Based Hand Rub Consumption

- Thirty-three hospitals participated in alcohol-based hand rub consumption surveillance in 2018, a decrease from 41 in 2017
- Compared to 2017, a 5% increase in the national median rate of alcohol-based hand rub (ABHR) consumption expressed as litres per 1,000 bed days used in acute hospitals in Ireland was observed in 2017 (32.4 versus 30.9)

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A) Observational Hand Hygiene Audits (OHHA)

Background for OHHA

In Ireland, public reporting of biannual hand hygiene compliance audit data from acute hospitals commenced in 2011. Each hospital must have a minimum of two trained lead hand hygiene auditors. Lead hand hygiene auditors can train local auditors using the National Standard Operating Procedure Manual. Lead hand hygiene auditors are trained by HPSC, and after having passed an inter-rater reliability test must undertake a minimum of two hand hygiene audits per year. Local hand hygiene auditors cannot train others to become hand hygiene auditors. 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. For practical reasons, in very low activity wards, number of observed opportunities as low as 25 were accepted.

Results for OHHA

For both periods (Period 15: June/July and Period 16: October/December), 53 hospitals participated (HSE: 44, private: 9):

- **Period 15:** in total, 11,111 opportunities for hand hygiene were observed; achieving an average compliance of 91.4% (range = 74.8 - 97.1)
- **Period 16:** in total, 11,127 opportunities for hand hygiene were observed; achieving an average compliance of 92.0% (range = 82.9 - 99.5)

Results for the two periods combined are displayed in Table 1 and Figure 1. At 91.3%, 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 93.5% in 2018.

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 2018, medical staff had the lowest compliance (83.0%), while nurses/midwives had the highest compliance (93.8%). Compliance for moment 5 (after touching patient surroundings) was the lowest at 87.9% and highest for moment 4 (after touching a patient) at 93.1%. Alcohol-based hand rub (ABHR) was used for 78.4% of hand hygiene actions, with the remainder using soap and water (21.6%).

Table 1. Hand hygiene compliance audit findings (combined for the two periods in 2018). Analysis by staff category and WHO 5 moments is provided for HSE hospitals only.

| | Hand Hygiene Opportunities | Hand Hygiene Actions | Percent Compliance | Lower 95% Confidence Interval | Upper 95% Confidence Interval |
|---------------------|----------------------------|----------------------|--------------------|-------------------------------|-------------------------------|
| Overall | 22,238 | 20,390 | 91.7% | 91.3% | 92.1% |
| HSE Hospitals | 18,472 | 16,869 | 91.3% | 90.9% | 91.7% |
| Private Hospitals | 3,766 | 3,521 | 93.5% | 92.7% | 94.3% |
| Nurse/Midwife | 10,865 | 10,194 | 93.8% | 93.4% | 94.3% |
| Auxiliary | 3,095 | 2,794 | 90.3% | 89.2% | 91.4% |
| Medical | 3,076 | 2,553 | 83.0% | 81.5% | 84.5% |
| Allied health/Other | 1,436 | 1,328 | 92.5% | 91.1% | 93.9% |
| Moment 1 | 5,133 | 4,743 | 92.4% | 91.6% | 93.2% |
| Moment 2 | 996 | 926 | 93.0% | 91.3% | 94.6% |
| Moment 3 | 1,215 | 1,128 | 92.8% | 91.3% | 94.3% |
| Moment 4 | 6,516 | 6,064 | 93.1% | 92.4% | 93.7% |
| Moment 5 | 5,214 | 4,582 | 87.9% | 86.9% | 88.8% |

Staff category: Auxiliary = healthcare assistants, porters, catering and household services; Allied health/Other = physiotherapists, radiographers, 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

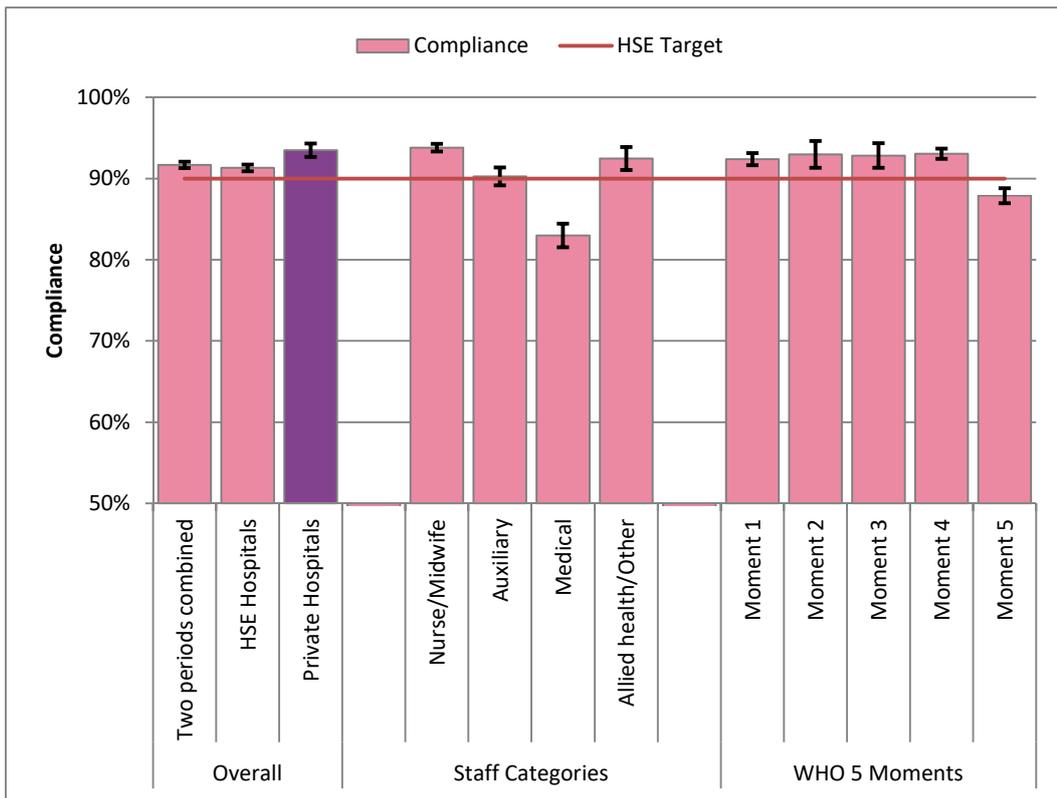


Figure 1. Summary of hand hygiene compliance 2018 (combined for two audit periods). 95% CI shown in black bars and HSE 2018 target of 90% shown as red line. Analysis by staff category and WHO 5 moments is provided for HSE hospitals only.

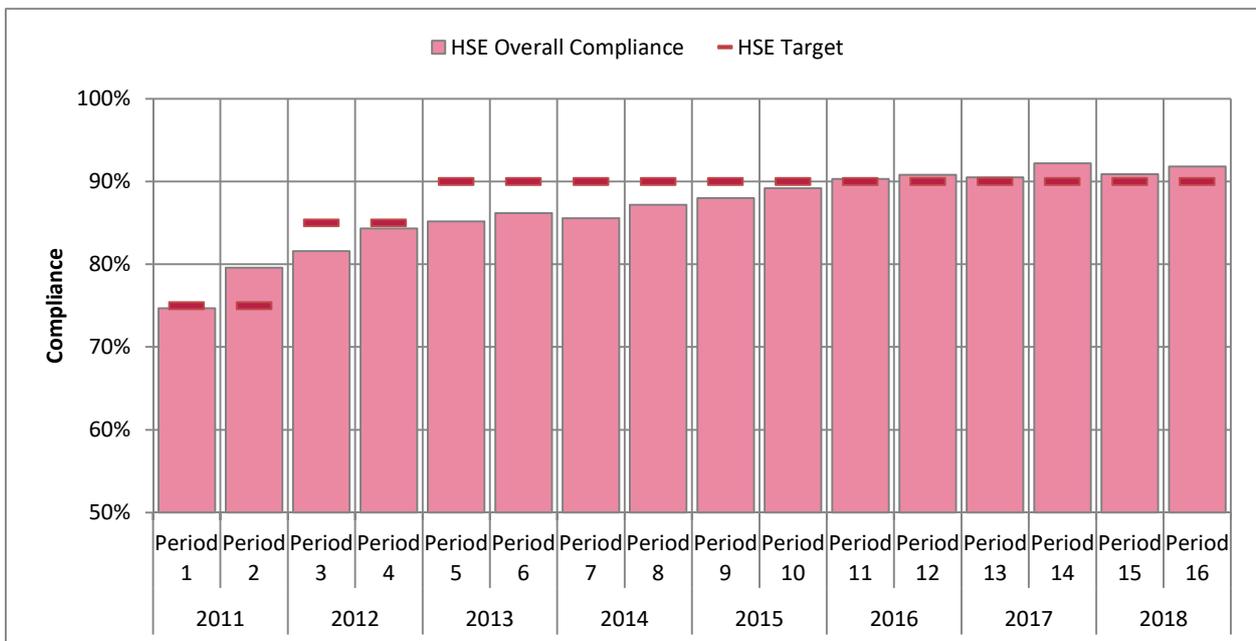


Figure 2. Overall hand hygiene audit compliance in HSE acute hospitals: 2011 – 2018. HSE target for each year is shown as red line.

B) Surveillance of Alcohol-Based Hand Rub Consumption (ABHR)

Background for ABHR

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).

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.

Results for ABHR

In 2018, a 5% increase in the national median rate of ABHR consumption expressed as litres per 1,000 bed days used (L/1,000 BDU) in acute hospitals in Ireland was observed (32.4 versus 30.9) (Table 2, Figure 3). 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.

Table 2. Annual national ABHR consumption rates in acute public hospitals in Ireland: 2006 – 2018

| | 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 |
| 2017 | 41 | 30.9 | 8.5 - 73.4 |
| 2018 | 33 | 32.4 | 8.9 - 75.6 |

* 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.

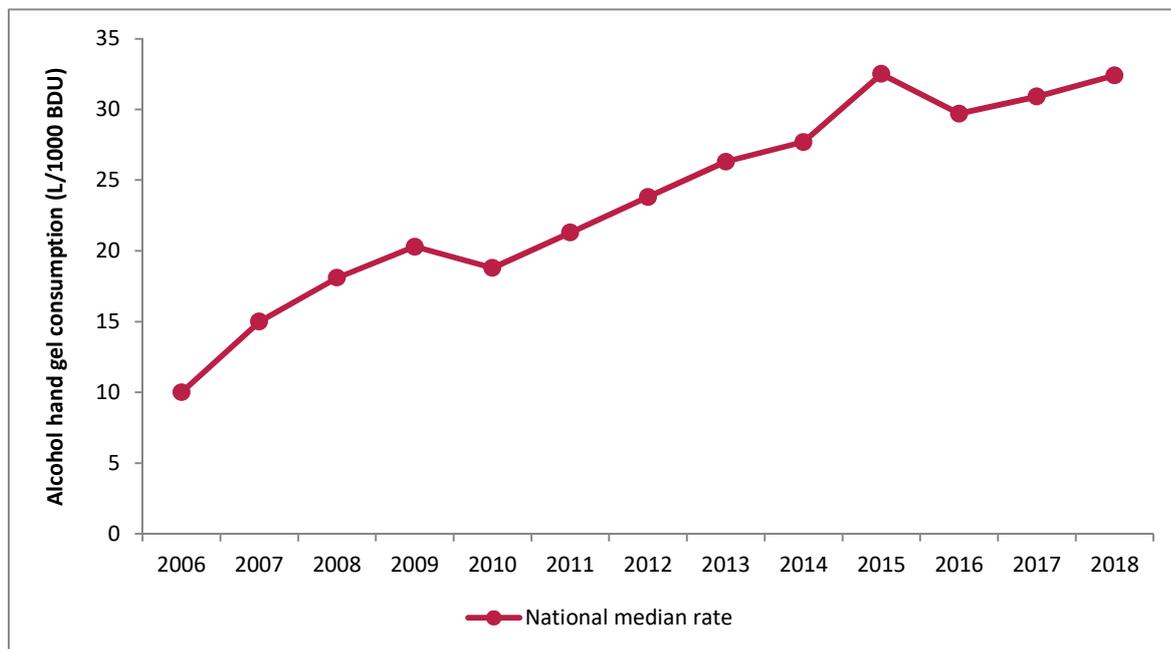


Figure 3. Annual national ABHR consumption rates in acute public hospitals in Ireland: 2006 – 2018

Public Health Implications

Hand hygiene is recognised as the single most important measure that individuals can take to interrupt the spread of communicable diseases. High levels of hand hygiene compliance among healthcare workers have been linked to reductions in the incidence of healthcare-associated infections and spread of multiple drug-resistant organisms.

The two surveillance measures presented in this report (observational audit and alcohol hand rub consumption) are both associated with well recognised caveats and biases. Nevertheless, the fact that both measures steadily increased in parallel over a number of years supports the conclusion that there has been a genuine, and sustained, improvement in hand hygiene compliance among healthcare workers. These data, along with observational data from other sources, suggest that hand hygiene has become the social norm among healthcare workers in Irish hospitals.

Other countries have demonstrated a similar improvement over time. While it is not possible to directly compare results between countries, the reported compliance in Ireland is generally higher than that reported elsewhere. Other countries have reported a similar distribution in terms of compliance among different staff groups (highest among nurses/midwives and among allied health/other professionals, lowest among medical doctors and auxiliary staff) and between different WHO “moments” (with moment 5 consistently associated with the lowest compliance). These variations underline the need for ongoing multi-modal hand hygiene programmes.

Technical notes

Caveats for OHHA

- 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 HCWs 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.

Caveats for ABHR

- The inter-hospital variation in ABHR consumption rates, 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 may have undergone a change in suppliers and the products restocked over a relatively short period of time. It is expected that there will be occasional outliers of this nature.

Further information available on HPSC website

Further information on acute hospital hand hygiene compliance audit in Ireland is available on the HPSC website: <https://www.hpsc.ie/a-z/microbiologyantimicrobialresistance/europeansurveillanceofantimicrobialconsumptionesac/publicmicrobreports/> and on acute hospital ABHR consumption in Ireland is available on the HPSC website: <https://www.hpsc.ie/A-Z/Gastroenteric/Handwashing/>

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