

National Hand Hygiene NHS Campaign

Compliance with Hand Hygiene - Audit Report



Germs. Wash your hands of them

Prepared for the Scottish Government Health Directorate HAI Task Force
by Health Protection Scotland

Acknowledgements

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<http://www.washyourhandsofthem.com>

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Acronyms

AHP	Allied Health Professional
HAI	Healthcare Associated Infection
HPS	Health Protection Scotland
ICM	Infection Control Manager
IHI	Institute for Healthcare Improvement
ICNA	Infection Control Nurses Association (now known as the Infection Prevention Society)
LHBC	Local Health Board Co-ordinator
NPSA	National Patient Safety Agency
RAG	Red, Amber, Green
SE	Scottish Executive
SEHD	Scottish Executive Health Department
SGHD	Scottish Government Health Directorate
WHO	World Health Organisation

For the purposes of this report the term hand hygiene refers to the process of cleaning hands by performing hand washing or using alcohol hand rub solutions.

1. Executive Summary

The Scottish Government Health Directorate (SGHD) Healthcare Associated Infection (HAI) Task Force requested that a Hand Hygiene Campaign be rolled out across NHS Scotland. Health Protection Scotland was asked to lead on this work and there was a requirement that NHS Boards would take part in Campaign activities.

Scotland's Hand Hygiene Campaign, 'Germs. Wash your hands of them' was officially launched in January 2007. As part of the NHS element of this Campaign, monitoring of hand hygiene compliance within NHS Boards was deemed appropriate in helping to achieve the Campaign's aim of reducing avoidable illness amongst patients and staff. This is the first country level report on hand hygiene compliance to be published.

It is well recognised that hand hygiene is the single most important factor in reducing and preventing avoidable illnesses, e.g. healthcare associated infections. All staff within healthcare settings in particular must recognise this and perform hand hygiene effectively and in a timely fashion^{1,2}. Audit is one of a number of effective approaches identified by the World Health Organisation (WHO) in ensuring compliance with hand hygiene in healthcare settings¹.

All operational NHS Boards as well as two special NHS Boards in Scotland have taken part in monitoring staff compliance with hand hygiene, utilising an audit tool and complimentary protocol produced to support a standardised approach in Scotland. Boards have submitted results on their hand hygiene compliance audits to Health Protection Scotland (HPS) following two mandatory audit periods in 2007.

The overall audit result for hand hygiene compliance in Scotland during the 1st audit period (15-28 February) was 68%. The overall result for Scotland from the 2nd audit period (3-14 September) was 79%. Compliance percentages within NHS Boards for the 1st audit period ranged from 50%-94%. For the 2nd audit period they ranged from 59%-94%. Overall results for compliance with hand hygiene opportunities within staff groups ranged from 50%-75% in the 1st audit period. For the 2nd audit period they ranged from 62%-84%.

Details of each NHS Board's hand hygiene compliance are featured within this report. There are a number of limitations to this type of data collection which are also described.

2. Introduction

“Hand hygiene is the entrance door to better infection control and safer patient care”³

This report was prepared for the Healthcare Associated Infection Task Force. It provides results on hand hygiene compliance for Scotland, by NHS Board and by staff group for two national mandatory audit periods of 15 to 28 February 2007 and 3 to 14 September 2007. Data are presented in graphical format and feature a RAG (red, amber, green) status of compliance (tables featuring the results can also be found in the appendices). Scotland's 14 operational NHS Boards are represented as are two special NHS Boards (Golden Jubilee National Hospital National Waiting Times Centre and The State Hospital).

Considering that hand hygiene is recognised as the single most important factor in reducing and preventing avoidable illnesses such as HAI, compliance results are often found in the published literature. Hand hygiene compliance data published by WHO describe results ranging from 5% to 76% before interventions and 30% to 92% after interventions¹. Seminal work conducted in Geneva found a baseline compliance rate of 48% rising to 66% after interventions⁴. Pilot work conducted in England between June 2003 and January 2004, as part of the **cleanyourhands** campaign, found results ranging from 39% to 70% in the six Trusts that took part⁵. Such results tend to be based on single clinical areas, hospitals or at times groups of hospitals and compliance rates are dependant on definitions and methods employed for audit, which do differ. This is the first report to present hand hygiene compliance data at country level.

3. Background to the Campaign

Scotland's Hand Hygiene Campaign, 'Germs. Wash your hands of them' was launched in January 2007, with the aim of reducing avoidable illness amongst staff, patients and the general public. This followed commitment by the Scottish Executive Health Department (SEHD) in 2005 to an overall HAI reduction programme including hand hygiene initiatives. At the request of the SEHD in a Chief Nursing Officer (CNO) Letter (2006)⁶, this Campaign has been led by HPS with strong support from the HAI Task Force and is part of the pledge to WHO's Global Patient Safety Challenge, Clean Care is Safer Care Programme. Its primary strategy of raising awareness through social marketing has included a number of elements:

- a public media campaign, involving Press and TV adverts and partnership marketing;
- a specific NHS Campaign including provision of posters and leaflets;
- a schools and nurseries pack including stickers, example activities and a DVD, aimed at 3-6 year olds.

A web site has been made available to provide information on the Campaign and features specific details of the NHS Campaign elements. (<http://www.washyourhandsofthem.com>)

It was agreed at an early stage in the NHS Campaign that there would be three mandatory audit periods throughout the Campaign when data would be collected over a two week period and submitted to the project team at HPS. This aimed to allow local areas to have access to data and therefore feedback to clinical settings to address any partial or minimal compliance. It also aimed to present overall compliance data for Scotland to the Scottish Government Health Directorate. It was acknowledged that audit is not an exact science and that Campaign specific measures should not detract from the local activities that have been on-going for many years by local infection control teams but build on and complement these.

4. Methodology

4.1 Method

- Following rapid review of available hand hygiene audit tools, permission was given to adapt the Infection Control Nurses Association tool (ICNA)^{7,8}.
- The electronic tool developed was installed on Tablet PCs that were provided to all LHBCs for use when auditing throughout each NHS Board.
- Training days were held to provide LHBCs, and other associated infection control staff, with guidance on using the tool to ensure a standardised approach to collecting the audit data. The tool was tested during this training. This was facilitated by observing healthcare activities on video while the LHBCs completed an audit 'real time'.

4.2 Definitions and Approach

The National Minimum Audit Dataset Protocol and Resource Pack produced to complement the audit tool detailed information on relevant definitions and on a recommended standardised approach*.

4.2.1 Definitions

- An audit was defined as the monitoring conducted in one physical location e.g. observations undertaken within one ward. An audit was recommended to be completed within one day.
- A RAG status was described, as featured in the ICNA audit tool. The compliance parameters featured were established through piloting and extensive consultation with infection control practitioners. This status is:
 - Green = compliant - >85%
 - Amber = partially compliant - 75%-84%
 - Red = minimally compliance - <75%
- WHO's 'Your 5 moments for hand hygiene'^{9,10} was approved as appropriate for use in monitoring the opportunities taken for hand hygiene at the most important times (see Appendix II).
- In order to reflect staff groups' compliance in Scotland four groups were defined, as nurses, doctors, allied health professionals (AHPs) and ancillary/others, as per SE Workforce Planning information¹¹ (see Appendix III). Example percentages were given in relation to the opportunities that could be observed within those staff groups, reflecting the staffing balance within NHSScotland¹².

* The other elements of the audit tool and associated protocol, for example, hand hygiene technique, were included to support further monitoring and regular feedback to staff at local level and are not detailed as part of this report. The protocol can be found at <http://www.washyourhandsofthem.com>

4.2.2 Approach

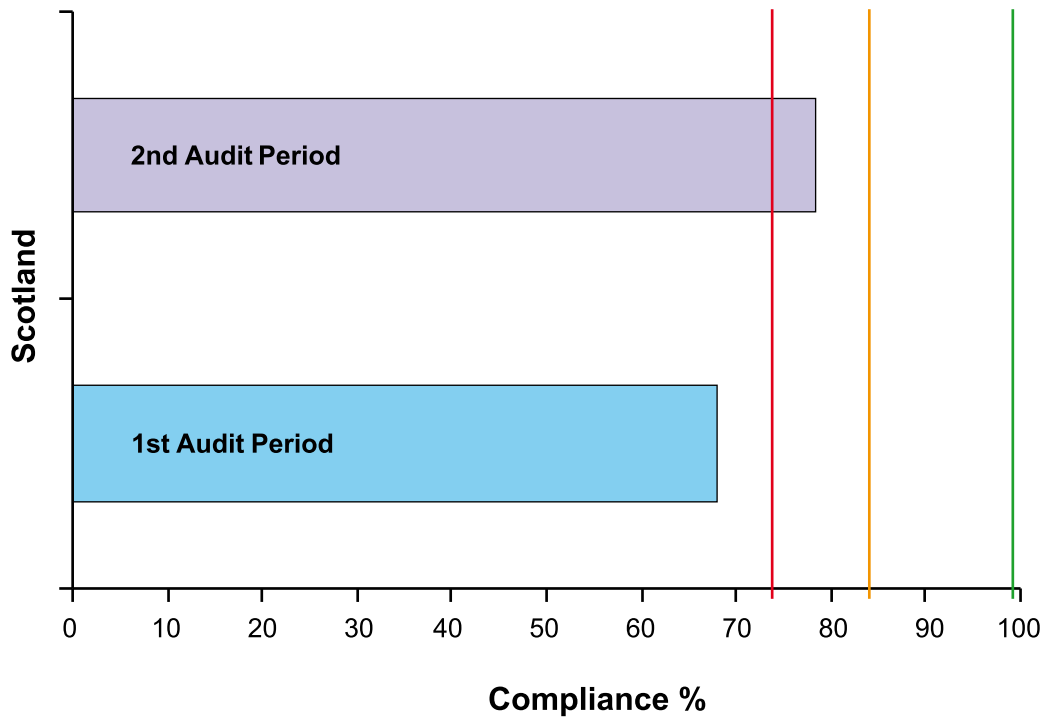
- The approach at NHS Board level included LHBCs, or those others they had trained, going to a range of clinical settings, which were suggested within the protocol, and performing audits.
- Twenty opportunities were recommended to be observed during an audit, i.e. in one day, in order to monitor the compliance of a range of staff with the 'Your 5 moments for hand hygiene'.
- This implied that at least 10 audits could be performed during the mandatory audit periods of two weeks (or 10 working days).
- It was recommended that audit data results were fed back to staff.
- The arrangements for transferring data to HPS were detailed within the protocol.
- Throughout this time project support was also available to answer queries.
- An approach within HPS to ensure safe data management was adhered to, as detailed within the protocol.
- Quality assurance and reporting standard operating procedures were also followed within HPS. Validation of the data was addressed through the use of Microsoft Access quality assurance queries. Quality assurance was also enhanced by the fact that the audit tool was designed with built in rules to reduce the risk of missing data or impossible or illogical entries. In addition cross checking of the final audit results produced from the database with an NHS Board was performed.

5. Results

5.1 Audit results for Compliance with Hand Hygiene Opportunities - Scotland

Based on the data submitted by the Boards, audit results for compliance with hand hygiene opportunities have been established for Scotland as a whole, for each mandatory audit period.

Figure 1: Audit Results for Compliance with Hand Hygiene Opportunities - Scotland



RAG Status:

- Green = compliant - >85%
- Amber = partially compliant - 75%-84%
- Red = minimally compliance - <75%

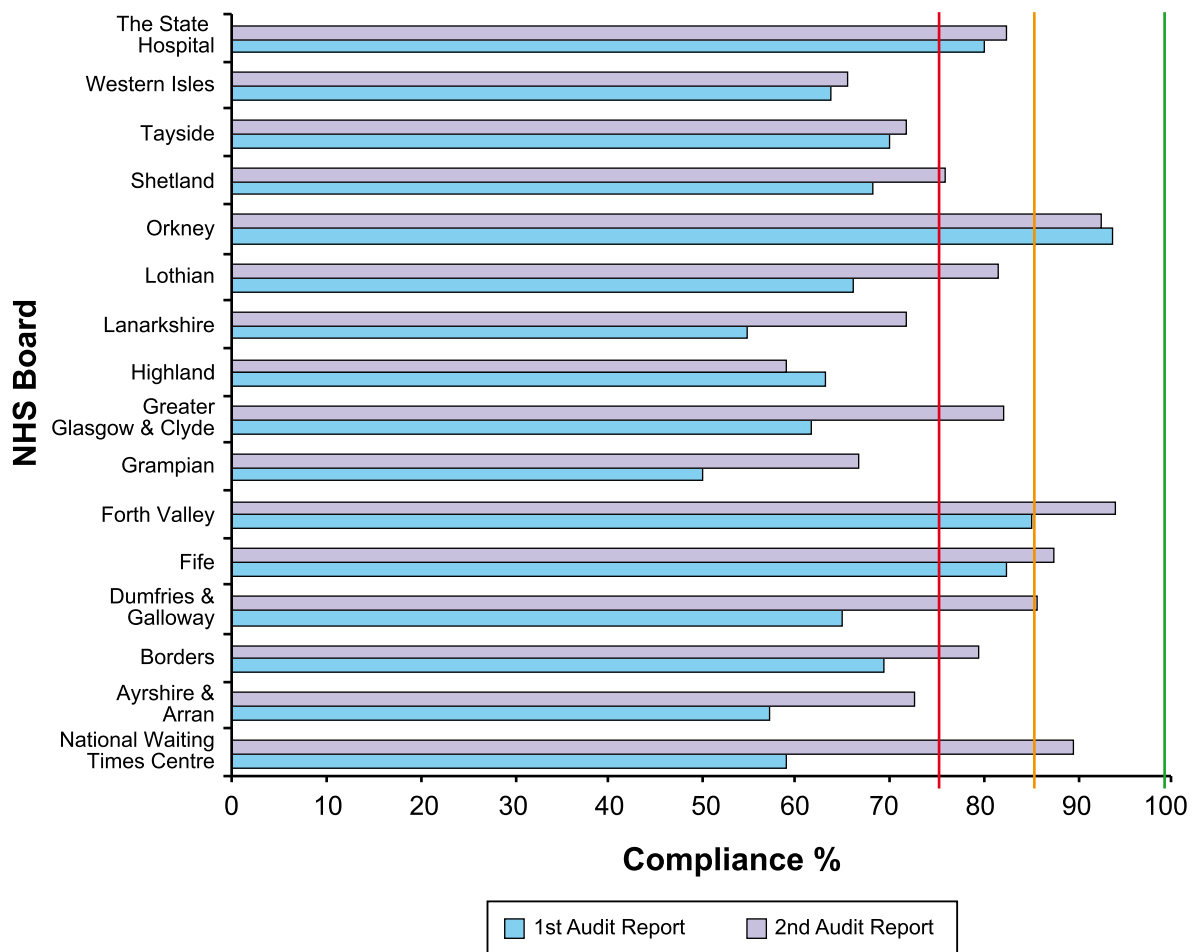
Figure 1 indicates that compliance increased from 68% in the 1st audit period to 79% in the 2nd audit period. This 11% increase was statistically significant ($p < .001$). Overall, as per the RAG status, Scotland is amber (partially compliant) following the 2nd audit period.

Also see Appendix IV for Table 1: Audit results for Compliance with Hand Hygiene Opportunities – Scotland.

5.2 Audit Results for Compliance with Hand Hygiene Opportunities by NHS Board

Audit results for compliance with hand hygiene opportunities are presented for each NHS Board, for each mandatory audit period.

Figure 2: Audit Results for Compliance with Hand Hygiene Opportunities by NHS Board



RAG Status:

- Green = compliant - >85%
- Amber = partially compliant - 75%-84%
- Red = minimally compliance - <75%

Figure 2 indicates that compliance percentages for the 1st audit period ranged from 50%-94% (mean 68%). For the 2nd audit period they ranged from 59%-94% (mean 79%). Four different Boards had the lowest and highest compliance each time. Of the 16 NHS Boards, five were green (compliant), five were amber (partially compliant) and six were red (minimally compliant) following the 2nd audit period*.

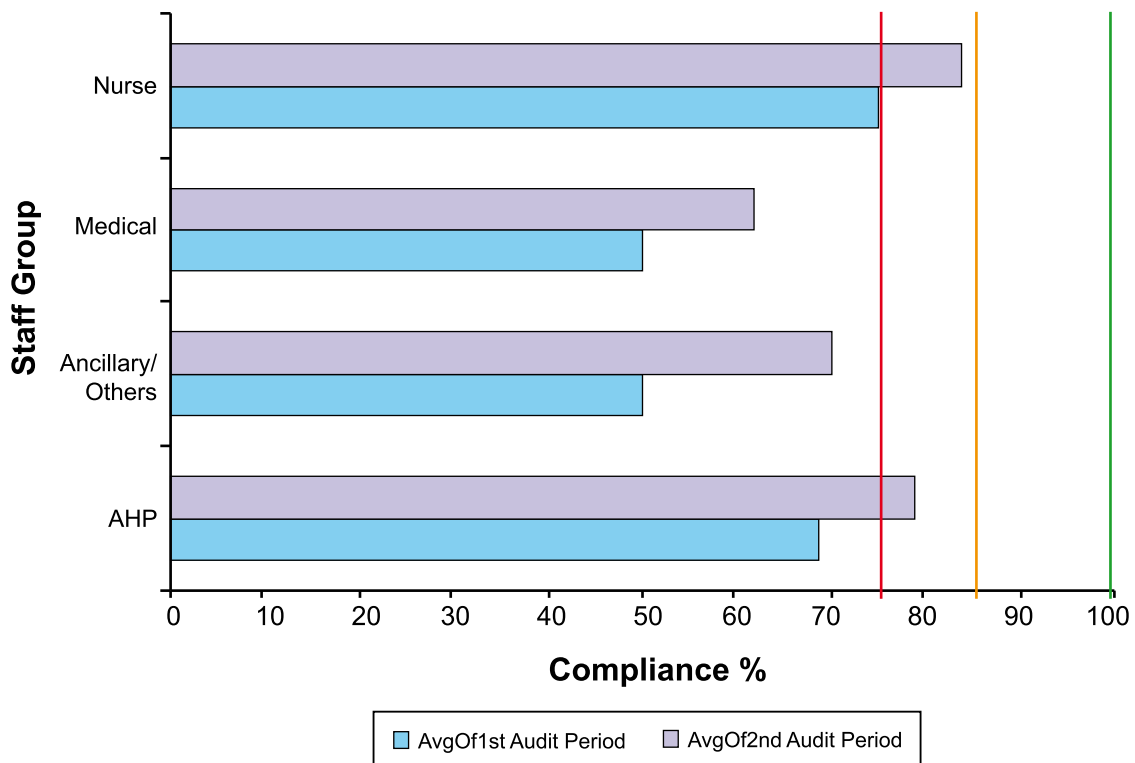
Also see Appendix V for Table 2: Audit results for Compliance with Hand Hygiene Opportunities by NHS Board.

* Both The State Hospital, along with the National Waiting Times Centre, are categorised as Special Boards as their circumstances are exceptionally different to other NHS Operational Boards (for example there are not multiple sites within these Boards).

5.3 Audit results for Compliance with Hand Hygiene Opportunities by Staff Group

Overall audit results for compliance with hand hygiene opportunities are presented for each of the defined staff groups, for each mandatory audit period.

Figure 3: Audit Results for Compliance with Hand Hygiene Opportunities by Staff Group



RAG Status:

- Green = compliant - >85%
- Amber = partially compliant - 75%-84%
- Red = minimally compliance - <75%

Figure 3 indicates that compliance percentages for the 1st audit period ranged from 50%-75% (mean 61%). For the 2nd audit period they ranged from 62%-84% (mean 74%). Nurses and AHPs were amber (partially compliant) and medical staff and ancillary/other staff were red (minimally compliant) following the 2nd audit period.

Also see Appendix VI for Table 3: Audit Results for Compliance with Hand Hygiene Opportunities by Staff Group.

6. Discussion

This is the first report to present hand hygiene compliance data at a country level and is an excellent first step in understanding compliance throughout NHSScotland.

The initial results for Scotland established in the 1st audit period (68%), and the subsequent result from the 2nd audit period (79%) suggest that compliance in Scotland compares favourably to rates from hospitals / single clinical areas of 5% to 92% within the published literature^{1,4,5}.

A statistical test has shown that the difference between the 1st and the 2nd audit periods is significantly different which is a considerable achievement to date. Overall, as per the RAG status, Scotland is now amber (partially compliant).

Results for each NHS Board, which ranged from 50%-94% in the 1st audit period and 59%-94% in the 2nd audit period, also compare favourably to the published literature^{1,4,5} and show that considerable achievements have been made at Board level. Although these ranges are presented within the report, caution should be taken when attempting to make any comparison between Boards as they can differ in their composition. Audit results are primarily aimed at monitoring and comparing trends within Boards.

The results featured for the staff groupings also concur with the evidence found within the published literature, which states that overall certain staff groups are consistently associated with low compliance¹. As the range of studies show that compliance varies, it is necessary to understand this variation in order to target relevant groups and direct resources to problem areas.

WHO clearly summarises that there are many factors that influence adherence to hand hygiene compliance, including skin irritation, lack of supplies, time pressures. In addition, sustainability over time can also be an on-going challenge¹. Among other initiatives, supply of hand hygiene solutions has been addressed in Scotland¹³. Other elements of the Campaign have also aimed to promote sustainable improvements in hand hygiene.

As described, the RAG status used within this Report categorises compliance as greater than 85% which has previously been considered an excellent standard to achieve. However, it has been established from recent literature and presented by WHO that reliably achieving hand hygiene compliance of at least 90% is one of the markers of safe healthcare¹. This concurs with the patient safety approach of applying the principles of reliability to healthcare in order to increase consistency during care delivery and ultimately improve patient outcomes¹⁴. The Institute for Healthcare Improvement (IHI) also recommend that healthcare organisations should set a target for hand hygiene compliance of 90% or higher, which, they argue “helps change the focus from hand hygiene as a laudable practice to hand hygiene as a mandatory procedure”¹⁵. This supports the Scottish Patient Safety Alliance Programme which is now underway throughout the country.

NHS Boards have subsequently been advised, in November 2007, that the SGHD expect at least 90% hand hygiene compliance by November 2008. Plans to support measures for increasing compliance in NHSScotland are being addressed, some of these are featured in Section 8, Next Steps.

7. Limitations

It should be noted that hand hygiene is only one, albeit the most important, factor in reducing avoidable illness such as HAI. Therefore, caution should be taken when attempting to review these results against any available infection rates.

Caution should also be taken when attempting to make any comparisons between Boards as Boards differ in their composition. Both The State Hospital, along with the National Waiting Times Centre, are categorised as Special Boards as their circumstances are exceptionally different to other NHS Operational Boards (for example there are not multiple sites within these Boards). The overall aim of presenting these results is to give an indication of hand hygiene compliance amongst staff and allow Boards to compare their data with others. Audit results however are primarily aimed at monitoring and comparing trends within Boards.

It was not the aim of this national report to describe any other aspects of hand hygiene performance out with compliance with opportunities, e.g. use of the correct hand hygiene technique.

It should be acknowledged that in the context of this Campaign, auditing aims to measure processes that contribute to effective hand hygiene performance. Audit results do not present the same robust scientific data as surveillance data, however, aim to provide valuable and contextual information that can help target hand hygiene activities to improve compliance where required in each area by utilising a cyclical approach¹⁶.

It has been recognised that 'being observed' in practice, e.g. during auditing, can lead to falsely elevated compliance rates¹⁷. Entry into wards in order to conduct audits was considered and a variety of strategies suggested in an attempt to ensure changes in staff practices related to being observed were minimised as far as possible, e.g. it was preferable that LHBCs said they were in an area to observe aspects of infection control practices if asked about this, without focussing on the subject of hand hygiene in particular.

Areas within Boards/hospitals audited during the 1st and 2nd audit periods were not expected to be the same. If this were to be the case there would be no guarantee that the practices of the same staff would be audited, therefore, such data would not be comparable. Areas to be audited were recommended, however, there will have been variation between Boards. The numbers of audits completed by each Board also varies.

8. Next Steps

Next steps have been established in order to address hand hygiene compliance throughout NHSScotland.

- The 2nd national report will be published by HPS following the 3rd mandatory audit period, when audits will again be conducted by NHS Boards, between 18-29 February 2008. The report will be presented in this same format to ensure continuity of reporting for the three mandatory audit periods set at the outset of the Campaign in January 2007.
- The announcement by the Cabinet Secretary for Health and Well Being on 26 November 2007, regarding the Scottish Government's plans to invest in a strong three-year programme of work to tackle HAI more effectively, clarified that hand hygiene continues to be a key element in the next HAI Delivery Plan. Details include:
 - Funding to allow LHBC posts within NHS Boards to continue for at least two years;
 - Quarterly auditing of hand hygiene compliance undertaken by NHS Boards with reports being compiled and issued by HPS;
 - An expectation that NHS Boards' hand hygiene compliance will be at least 90% by November 2008.
- Based on feedback from the three mandatory audits, and taking into account the aim of at least 90% hand hygiene compliance by November 2008, a review of the audit process in 2008 will allow the data collection tool to be amended as appropriate and the approach for subsequent audits to be reaffirmed.
- Training in order to allow validation of audit data will be provided by HPS. This will enable LHBCs to conduct validation audits between NHS Boards.
- A range of measures aimed at improving compliance will be co-ordinated by LHBCs, supported by HPS. These will be focussed on priority areas where the most improvement can and should be made and will include the provision of enhanced educational tools. Sharing of innovative and proven measures to improve compliance will also be important and a review of action plans completed by LHBCs will help inform this. Compliance with the WHO's 'Your 5 moments for hand hygiene' is critical in ensuring patient safety and will be focussed upon in developing the next steps.

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10. Appendices

Appendix I - Compliance and Evaluation Sub-Group

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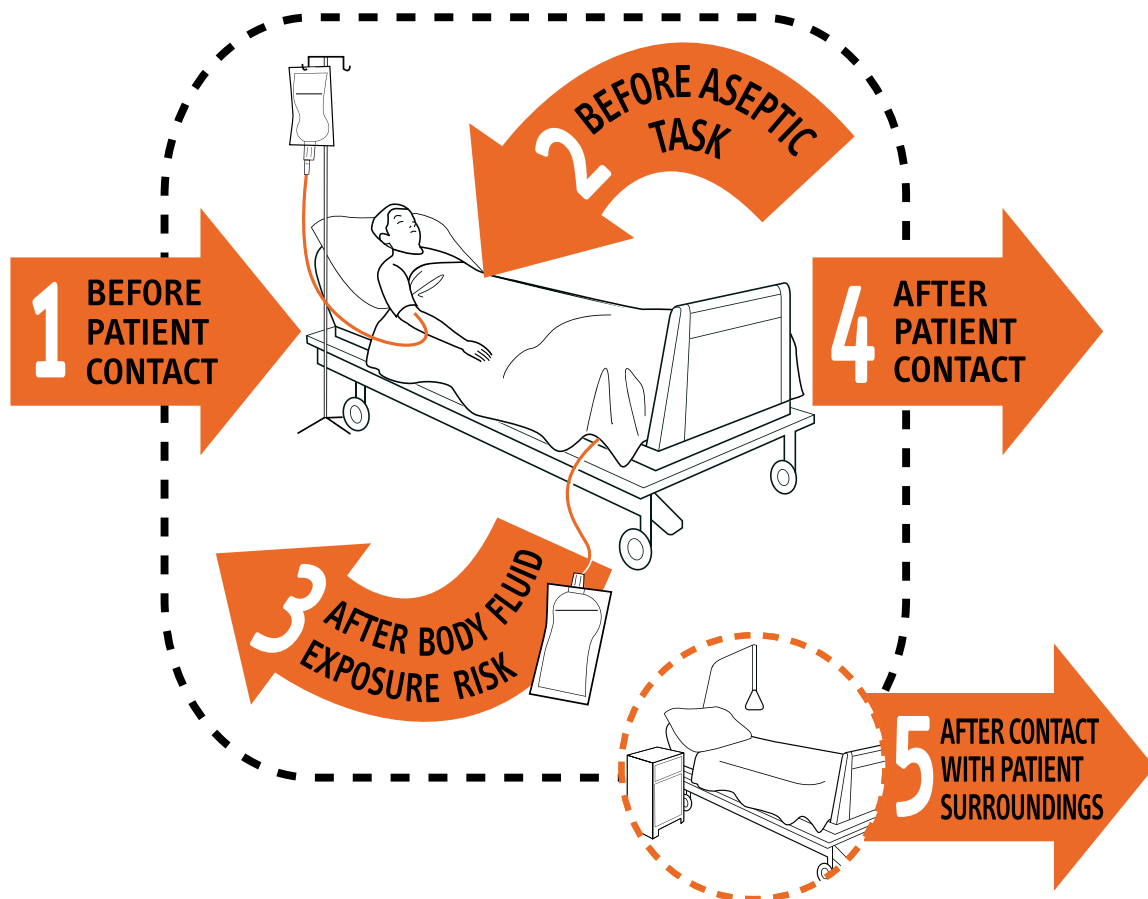
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Your 5 moments for HAND HYGIENE



1 BEFORE PATIENT CONTACT	WHEN? Clean your hands before touching a patient when approaching him or her WHY? To protect the patient against harmful germs carried on your hands
2 BEFORE AN ASEPTIC TASK	WHEN? Clean your hands immediately before any aseptic task WHY? To protect the patient against harmful germs, including the patient's own germs, entering his or her body
3 AFTER BODY FLUID EXPOSURE RISK	WHEN? Clean your hands immediately after an exposure risk to body fluids (and after glove removal) WHY? To protect yourself and the health-care environment from harmful patient germs
4 AFTER PATIENT CONTACT	WHEN? Clean your hands after touching a patient and his or her immediate surroundings when leaving WHY? To protect yourself and the health-care environment from harmful patient germs
5 AFTER CONTACT WITH PATIENT SURROUNDINGS	WHEN? Clean your hands after touching any object or furniture in the patient's immediate surroundings, when leaving - even without touching the patient WHY? To protect yourself and the health-care environment from harmful patient germs



WHO acknowledges the Hôpitaux Universitaires de Genève (HUG), in particular the members of the Infection Control Programme, for their active participation in developing this material.



October 2006, version 1.

Appendix III - Table of Staff Group Definitions

For the purposes of the audit the staff groups provided as options are defined, however, this is not an exhaustive list¹¹.

Staff Group	Definition
Nurse	All nurses, midwives, health visitors – both registered and non-registered, i.e. including healthcare support.
Medical	All doctors and dentists – qualified and in-training, including consultants, GPs, staff and associate specialists.
Allied Health Professionals (AHP)	Arts therapists, podiatrists, dieticians, occupational therapists, orthoptists, physiotherapists, radiographers, speech and language therapists, prosthetists and orthotists, and including healthcare support that work within these groups, e.g. dietetic assistants.
Ancillary staff and professionals who have patient contact	Pharmacists, psychologists, Medical Technical Officers (MTO) or Healthcare Scientists, for example, cardiac, respiratory and audiology technicians, phlebotomists, medical photographers, medical records staff, domestic staff, housekeeping staff, porters, catering staff.

Appendix IV - Table 1: Audit Results for Compliance with Hand Hygiene Opportunities - Scotland

1st Audit Period (15-28 February)	2nd Audit Period (3-14 September)
68%	79%

RAG Status:

- Green = compliant - >85%
- Amber = partially compliant - 75%-84%
- Red = minimally compliance - <75%

Appendix V - Table 2: Audit Results for Compliance with Hand Hygiene Opportunities by NHS Board

NHS Board	1st Audit Period (%)	2nd Audit Period (%)
The State Hospital	80	83
NHS Western Isles	64	66
NHS Tayside	70	72
NHS Shetland	68	76
NHS Orkney	94	93
NHS Lothian	66	82
NHS Lanarkshire	55	72
NHS Highland	63	59
NHS Greater Glasgow and Clyde	62	82
NHS Grampian	50	67
NHS Forth Valley	85	94
NHS Fife	82	87
NHS Dumfries and Galloway	65	86
NHS Borders	69	79
NHS Ayrshire & Arran	57	73
National Waiting Times Centre	59	90

RAG Status:

- Green = compliant - >85%
- Amber = partially compliant - 75%-84%
- Red = minimally compliance - <75%

Appendix VI - Table 3: Audit Results for Compliance with Hand Hygiene Opportunities by Staff Group

Professional Staff Group	1st Audit Period (%)	2nd Audit Period (%)
Nurse	75	84
Medical	50	62
Ancillary/Others	50	70
AHP	69	79

RAG Status:

- Green = compliant - >85%
- Amber = partially compliant - 75%-84%
- Red = minimally compliance - <75%



<http://www.hps.scot.nhs.uk>