

# National Hand Hygiene NHS Campaign

## Compliance with Hand Hygiene - Audit Report



**It takes just  
15 seconds  
to clean  
your hands.**

Hand hygiene is vitally important in the prevention and control of healthcare associated infections. Please visit [www.washyourhandsofthem.com](http://www.washyourhandsofthem.com) for more information.

**Germ. Wash your hands of them.**



Health  
Protection  
Scotland



healthier  
scotland  
SCOTTISH GOVERNMENT

## **Germ. Wash your hands of them**

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

## Acknowledgements

This report would not have been completed within schedule without the cooperation and support of Local Health Board Co-ordinators and other staff within NHS boards who participated in hand hygiene audits. Their collaboration is gratefully acknowledged. In addition, this report would not have been completed without the help and support of the project team and others within Health Protection Scotland (HPS). Support from the Scottish Government Health Directorate (SGHD) Healthcare Associated Infection (HAI) Policy Unit is also gratefully acknowledged.

© Health Protection Scotland, NHS National Services Scotland,

Gyle Square, 1 South Gyle Crescent, Edinburgh, EH12 9EB

First published January 2010

### For all enquiries please contact:

HAI & IC Group  
1 Cadogan Square  
Cadogan Street  
Glasgow  
G2 7HF

**Tel:** 0141 300 1100

**Fax:** 0141 300 1170

**Email:** [NSS.Washyourhandsofthem@nhs.net](mailto:NSS.Washyourhandsofthem@nhs.net)

Reference this report as: Health Protection Scotland (HPS) (January 2010) National Hand Hygiene NHS Campaign Compliance with Hand Hygiene - Audit Report Health Protection Scotland (Report): Glasgow

### Hand Hygiene Campaign project team:

Margaret Tannahill  
Laura McHard (nee Boyd)  
Emma McFarlane  
Chucks Iwuagwu

### For further information go to:

<http://www.washyourhandsofthem.com>

<http://www.hps.scot.nhs.uk/haic/ic/index.aspx>

<http://www.scotland.gov.uk/Topics/Health/NHS-Scotland/19529/2005>

### Acronyms

AHP (Allied Health Professional), HAI (Healthcare Associated Infection), HPS (Health Protection Scotland), SGHD (Scottish Government Health Directorate), WHO (World Health Organization).

## Contents

1. Executive Summary	1
2. Introduction	2
3. Results	3
3.1 Audit results for Compliance with Hand Hygiene Opportunities - Scotland	3
3.2 Audit results for Compliance with Hand Hygiene Opportunities by NHS Board	4
3.3 Audit results for Compliance with Hand Hygiene Opportunities by Staff Group	5
4. Discussion	6
5. References	7
6. Appendix	8
Appendix I - Audit Results for Compliance with Hand Hygiene Opportunities by NHS board including 95% confidence intervals	8

## List of Figures

Figure 1: Audit Results for Compliance with Hand Hygiene Opportunities - Scotland	3
Figure 2: Audit Results for Compliance with Hand Hygiene Opportunities by NHS Board	4
Figure 3: Audit Results for Compliance with Hand Hygiene Opportunities by Staff Group	5

## List of Tables

Table 1: Summary of Results	1
Appendix 1 - Table 2: Audit results for Compliance with Hand Hygiene Opportunities by NHS Board including 95% confidence intervals	8

# 1. Executive Summary

“Hand hygiene is the entrance door to better infection control and safer patient care”<sup>1</sup>

This is the 5th bi-monthly report on hand hygiene compliance across NHSScotland prepared for the Scottish Government Health Directorate (SGHD) Healthcare Associated Infection (HAI) Task Force. It forms part of the zero tolerance approach to non compliance with hand hygiene launched by the Cabinet Secretary for Health and Wellbeing on 26 January 2009. The report presents graphical data from Scotland’s fourteen territorial NHS boards along with two special NHS boards (Scottish Ambulance Service and NHS National Waiting Times Centre Board, Golden Jubilee National Hospital).

Please refer to the main report published in May 2009<sup>2</sup> for a full description of the methodology and limitations associated with this report. The report is available at: <http://www.hps.scot.nhs.uk/haic/ic/nationalhandhygienecampaign.aspx>.

This 5th bi-monthly report, as with previous National Audit Reports, describes occasions when NHS staff have taken the opportunity to carry out hand hygiene at the points in delivering clinical care as described in the World Health Organization (WHO) published guidance on ‘Your 5 moments for hand hygiene’.<sup>3</sup> It is not the aim of this national report to describe any other aspects of hand hygiene performance outwith compliance with opportunities, for example the use of correct hand hygiene technique. Compliance with taking the opportunity for hand hygiene is 94% in this 5th bi-monthly report.

NHS boards submit the results of their hand hygiene compliance audits to Health Protection Scotland (HPS) following mandatory bi-monthly audit periods. Results for the 2nd, 3rd, 4th and 5th bi-monthly audit periods are summarised below.

**Table 1: Summary of Results**

	<b>2nd Bi-monthly Audit Period</b> <b>11-22 May 2009</b> <b>(Mean % plus Confidence Intervals)</b>	<b>3rd Bi-monthly Audit Period</b> <b>20-31 July 2009</b> <b>(Mean % plus Confidence Intervals)</b>	<b>4th Bi-monthly Audit Period</b> <b>21 Sept-2 Oct 2009</b> <b>(Mean % plus Confidence Intervals)</b>	<b>5th Bi-monthly Audit Period</b> <b>23 Nov-2 Dec 2009</b> <b>(Mean % plus Confidence Intervals)</b>
National Compliance	93% (92% to 94%)	93% (92% to 94%)	92% (91% to 93%)	94% (93% to 95%)
National Compliance: Nurse	94% (93% to 95%)	94% (93% to 95%)	94% (93% to 95%)	95% (94% to 96%)
National Compliance: Medical	86% (82% to 90%)	87% (83% to 91%)	88% (84% to 92%)	86% (82% to 90%)
National Compliance: Ancillary/Others	93% (90% to 96%)	94% (91% to 97%)	91% (88% to 94%)	94% (92% to 96%)
National Compliance: AHP	95% (92% to 98%)	95% (93% to 97%)	90% (87% to 93%)	96% (94% to 98%)

## 2. Introduction

Hand hygiene is considered one of the most effective measures in reducing and preventing the incidence of avoidable illness, in particular HAI.<sup>4,5</sup> All staff within healthcare settings should be aware of this and perform hand hygiene effectively and in a timely fashion.<sup>3,6</sup> Audit is one of a number of effective approaches, identified by the WHO, in promoting compliance with hand hygiene in healthcare settings.<sup>3</sup>

Results showing compliance with hand hygiene opportunities are often reported in the published literature. For example, hand hygiene compliance data from various countries, published by the WHO, describe results ranging from 5% to 76% before interventions and 30% to 92% after interventions.<sup>3</sup> Seminal work conducted in Geneva found a baseline compliance rate of 48% rising to 66% after interventions.<sup>7</sup> Similarly, the introduction of a hand hygiene culture-change program in Australia reported a base-line compliance level of 20% increasing to 53%, 12 months after the introduction of interventions.<sup>8</sup> An institution-wide hand hygiene programme was introduced over a three year period in America and involved wide availability of hand hygiene products in addition to monitoring of hand hygiene compliance. Throughout the hand hygiene programme, compliance increased steadily reaching 90% after the first year of the programme.<sup>9</sup>

Pilot work conducted in two wards within six trusts across England between June 2003 and January 2004, as part of the 'cleanyourhands' campaign, found results ranging from 39% to 70% across the six trusts that took part.<sup>10</sup> The success of the pilot campaign led to its introduction across an entire trust with individual ward compliance levels ranging from 29% to 66%.<sup>11</sup>

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. The national approach to compliance monitoring being undertaken across Scotland is different from other methods reported in the literature which monitor compliance with hand hygiene at hospital or hospital grouping level.

### 3. Results

#### 3.1 Audit results for Compliance with Hand Hygiene Opportunities - Scotland

Based on the data submitted by NHS boards, audit results for compliance with hand hygiene opportunities have been established for Scotland as a whole for the 2nd, 3rd, 4th and 5th bi-monthly audit periods.

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

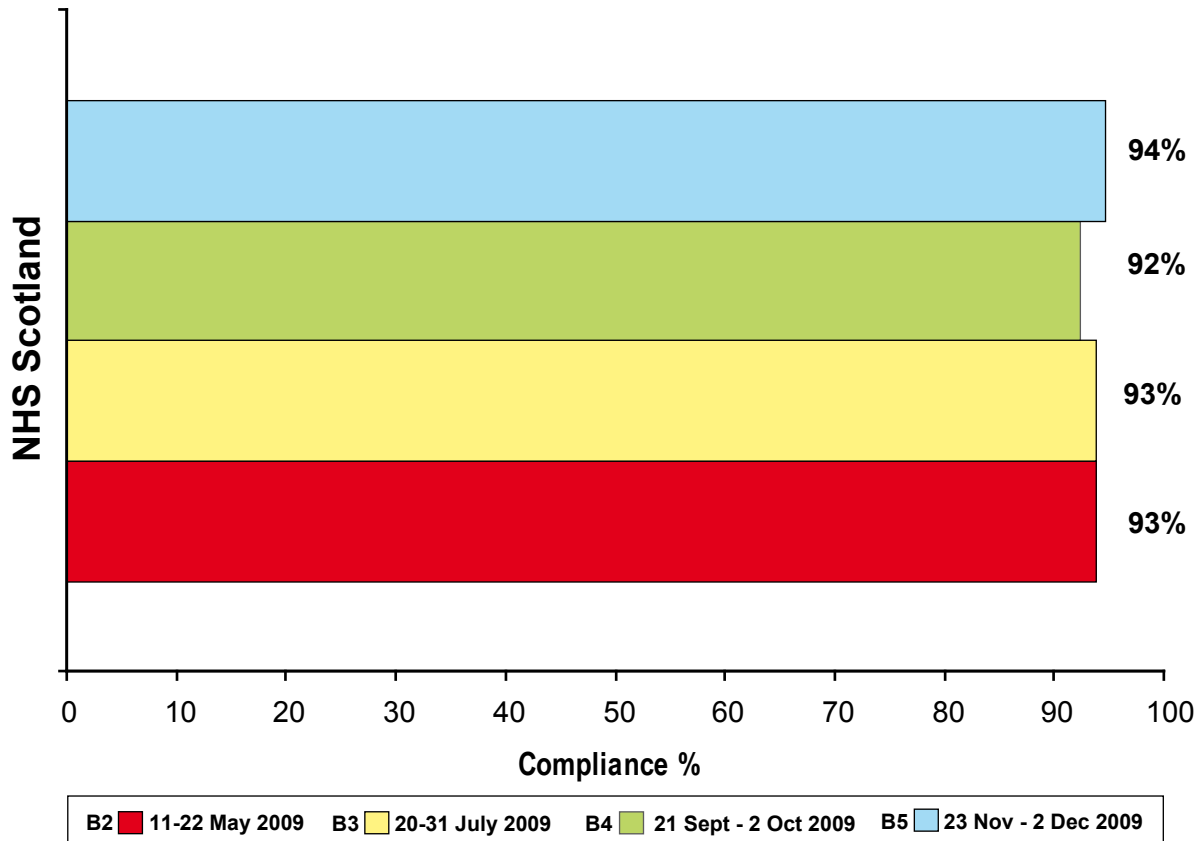


Figure 1 indicates that national compliance with hand hygiene was 93% (92% to 94%) in the 2nd bi-monthly audit period and this compliance rate was sustained at 93% (92% to 94%) in the 3rd bi-monthly audit period. Hand hygiene compliance in the 4th bi-monthly audit period was 92% (91% to 93%) rising to 94% (93% to 95%) in the 5th bi-monthly audit period.

### 3.2 Audit results for Compliance with Hand Hygiene Opportunities by NHS Board

Audit results for compliance with hand hygiene opportunities have been established for each NHS board for the 2nd, 3rd, 4th and 5th bi-monthly audit periods.

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

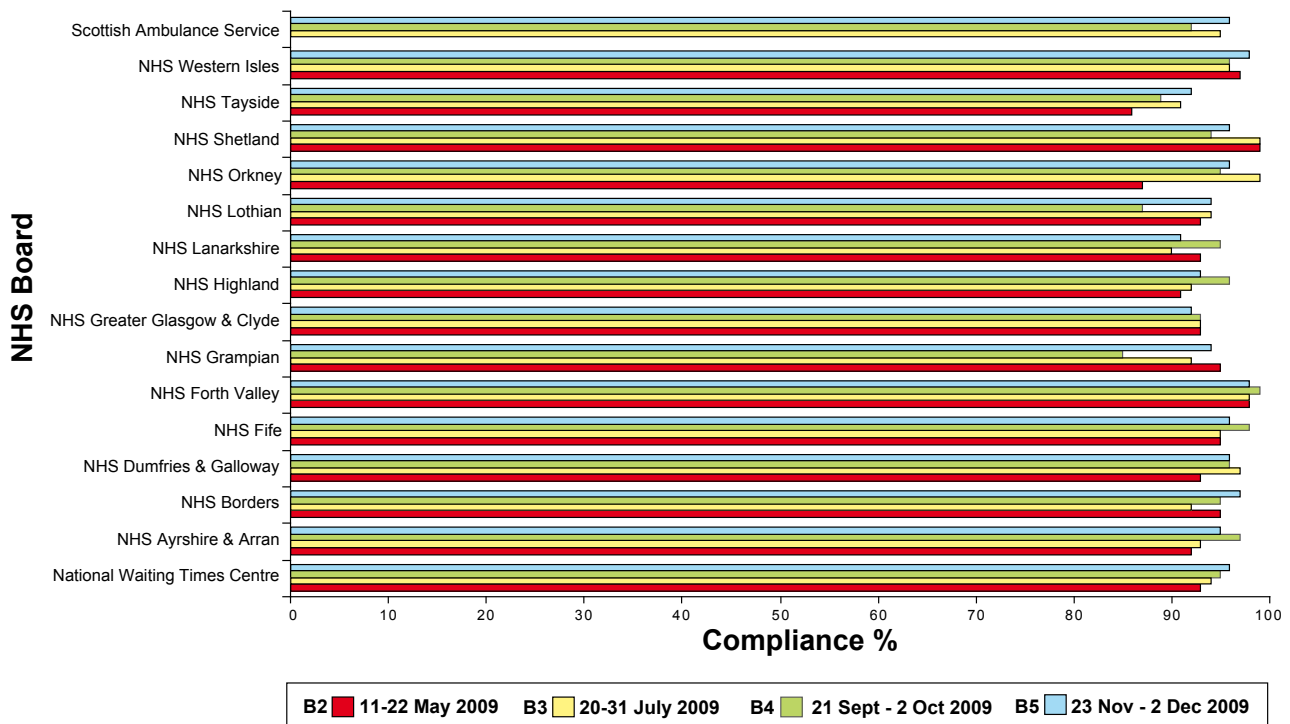


Figure 2 indicates that compliance percentages for the 2nd bi-monthly audit period ranged from 86% to 99% (mean 93%) for each NHS board<sup>i</sup> whilst for the 3rd and 4th bi-monthly audit periods overall compliance with hand hygiene ranged from 90% to 99% (mean 93%) and 85% to 99% (mean 92%) respectively. In the 5th bi-monthly audit period compliance percentages for each board ranged from 91% to 98% (mean 94%).

In summary:

- Nine NHS boards measured an increase in hand hygiene compliance compared to the 4th bi-monthly audit period with a statistically significant increase in hand hygiene compliance occurring in one NHS board.
- One NHS board sustained the same level of compliance with hand hygiene as measured during the 4th bi-monthly audit period.
- Six NHS boards measured a decrease in hand hygiene compliance compared to the 4th bi-monthly audit period although no decrease in compliance was statistically significant.

Also see Appendix I for Table 2: Audit results for Compliance with Hand Hygiene Opportunities by NHS Board. This gives details of the numbers of opportunities observed and taken within each NHS board, along with 95% confidence intervals.

<sup>i</sup> The NHS National Waiting Times Centre and Scottish Ambulance Service are categorised as a special boards as their composition is exceptionally different to other NHS boards.

### 3.3 Audit results for Compliance with Hand Hygiene Opportunities by Staff Group

Audit results for compliance with hand hygiene opportunities have been established for each of the defined staff groups for the 2nd, 3rd, 4th and 5th bi-monthly audit periods.

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

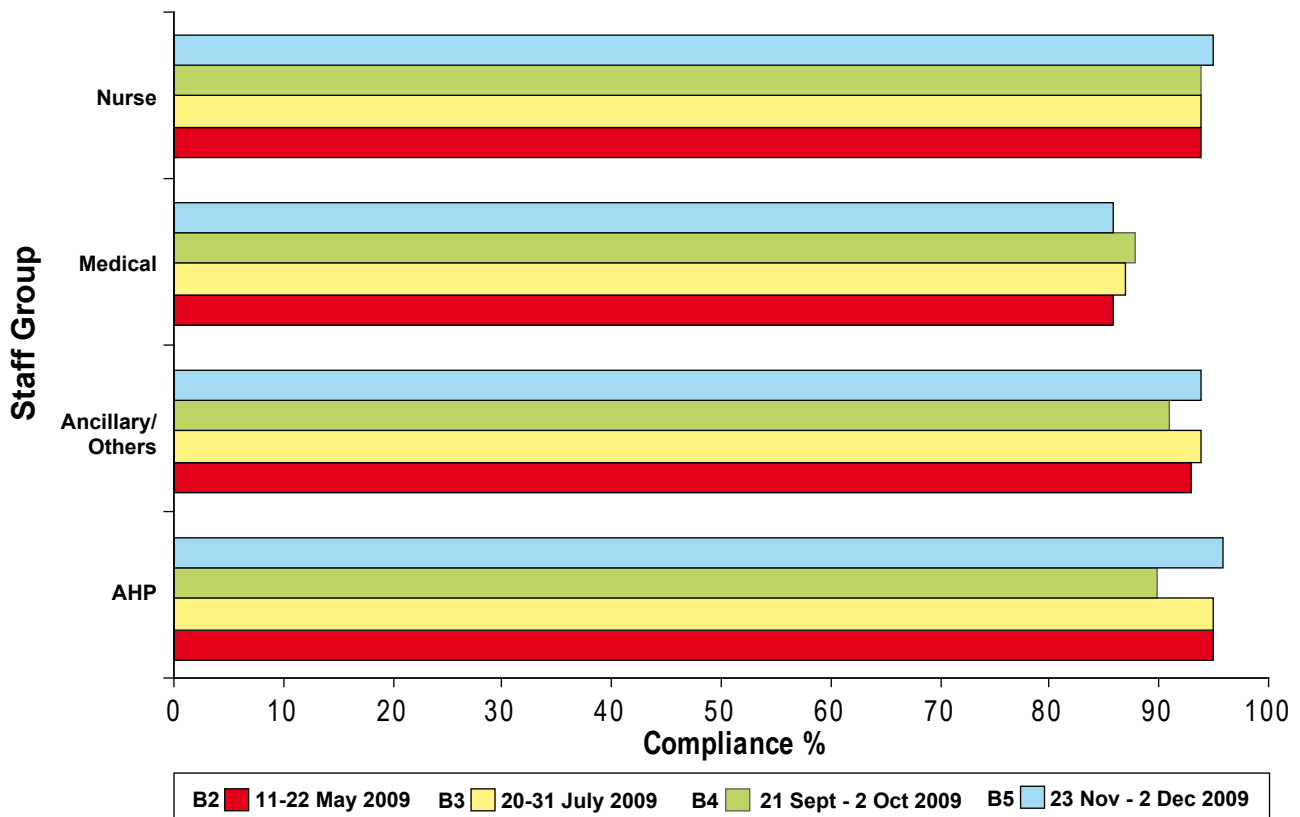


Figure 3 indicates that the compliance percentage for defined staff groups in the 2nd bi-monthly audit period ranged from 86% to 95% whilst the range for defined staff groups in the 3rd bi-monthly audit period was 87% to 95%. Hand hygiene compliance ranged from 88% to 94% and 86% to 96% among defined staff groups for the 4th and 5th bi-monthly audit periods respectively.

Compliance with hand hygiene was highest among the AHP staff group at 96% (94% to 98%). Hand hygiene compliance among the nurse staff group increased to 95% (94% to 96%) although this increase was not statistically significant. The ancillary/others staff group measured an increase in hand hygiene compliance to 94% (92% to 96%) in the 5th bi-monthly audit period whilst hand hygiene compliance among the medical staff group decreased to 86% (82% to 90%).

In summary:

- Nurse - Hand hygiene compliance increased to 95% in the 5th bi-monthly audit period although this increase was not statistically significant.
- Medical - Hand hygiene compliance decreased to 86% in the 5th bi-monthly audit period, although this decrease was not statistically significant.
- Ancillary/others - Hand hygiene compliance increased to 94% in the 5th bi-monthly audit period, although the increase in compliance was not statistically significant.
- AHP - Hand hygiene compliance increased significantly to 96% in the 5th bi-monthly audit period.

## 4. Discussion

This is the 5th bi-monthly report to present hand hygiene compliance data at a national level throughout NHSScotland.

Compliance with opportunities for hand hygiene was 93% in the 2nd bi-monthly audit period and was sustained at 93% in the 3rd bi-monthly audit period. Hand hygiene compliance was 92% in the 4th bi-monthly audit period increasing to 94% in the 5th bi-monthly audit period. The results obtained for all bi-monthly audit periods suggest that compliance with opportunities for hand hygiene in Scotland compares favourably to rates from hospitals/single clinical areas of 5% to 92% within the published literature.<sup>3,7,8,10</sup>

Hand hygiene compliance at NHS board level for the 5th bi-monthly audit period ranged from 91% to 98%. By presenting 95% confidence intervals around the NHS board results, it is possible to assess the accuracy of these observed results (which are an estimate of the true overall compliance obtained through observation of a sample). Therefore, we can be 95% confident that the true compliance figure can be found within these intervals. In the 5th bi-monthly audit period, nine NHS boards measured an increase in the level of hand hygiene compliance compared to the 4th bi-monthly audit period, with NHS Grampian demonstrating a statistically significant increase in compliance. Furthermore, one NHS board sustained the same level of compliance with hand hygiene in the 5th bi-monthly audit period as was measured in the 4th bi-monthly audit period. Hand hygiene compliance in six NHS boards decreased in the 5th bi-monthly audit period compared to the 4th bi-monthly audit period although no decrease in compliance was statistically significant. Although ranges of compliance results and confidence intervals are presented within the report, caution should be taken when attempting to make any comparison between NHS boards as they can differ in their composition. The overall aim of presenting these results is to allow monitoring within NHS boards and to provide an indication of hand hygiene compliance amongst staff. Any small differences presented that show either minimal increase or decrease in compliance percentages between NHS boards should be interpreted with caution as these are unlikely to be statistically significant.

The results presented in this report show that staff group compliance ranged from 86% to 96%. The AHP staff group measured a statistically significant increase in hand hygiene compliance from 90% to 96% in the 5th bi-monthly audit period. Compliance with hand hygiene in the medical staff group decreased from 88% to 86% in the 5th bi-monthly audit period, although this decrease was not statistically significant. The nurse staff group compliance level increased to 95% in the 5th bi-monthly audit period although this increase in compliance was not statistically significant. Lastly, the ancillary/others staff group measured an increase in hand hygiene compliance to 94% in the 5th bi-monthly audit period although the increase in compliance was not statistically significant.

A range of studies show that compliance varies between staff groups,<sup>3,11,12</sup> therefore, it is necessary to understand the reasons for variation in order to target interventions at relevant groups to improve compliance with hand hygiene. As such, a range of relevant campaign materials are being developed including a focus on community healthcare staff.

WHO clearly summarises that there are many factors that influence adherence to hand hygiene compliance, including skin irritation, lack of supplies and time pressures. WHO states that sustainability of hand hygiene compliance over time is an ongoing challenge.<sup>3</sup> Efforts continue throughout NHSScotland to ensure that both recommended initiatives such as the supply of hand hygiene solutions<sup>13</sup> and locally identified actions to improve compliance are implemented. Other elements of the Campaign are aimed at promoting sustainable improvements in hand hygiene throughout Scotland to aid NHSScotland's approach to zero tolerance.

## 5. References

1. Pittet, D., University of Geneva Hospitals, Geneva, Switzerland and Leader, World Health Organization First Global Patient Safety Challenge, Personal Communication, Jun. 11, 2007.
2. Health Protection Scotland (HPS) (May 2009) National Hand Hygiene NHS Campaign Compliance with Hand Hygiene – Audit Report Health Protection Scotland (Report): Glasgow available from: <http://www.hps.scot.nhs.uk/haic/ic/nationalhandhygienecampaign.aspx>
3. WHO. WHO Guidelines on Hand Hygiene in Health Care, First Global Patient Safety Challenge: Clean Care is Safer Care 2009: WHO, Geneva.
4. Johnson PDR, Martin R, Burrell LJ, Grabsch EA, Kirsa SW, O’Keeffe J, Mayall BC, Edmonds D, Barr W, Bolger C, Naidoo H, Grayson ML. Efficacy of an alcohol methicillin-resistant *Staphylococcus aureus* (MRSA) infection. *Medical Journal of Australia* 2005; **183**, 509-514.
5. Lepelletier D, Corvec S, Caillon J, Reynaud A, Rozé JC, Gras-Leguen C. Eradication of methicillin-resistant *Staphylococcus aureus* in a neonatal intensive care unit: Which measures for which success? *American Journal of Infection Control* 2009; **37**(3), 195-200.
6. Larson EL. APIC guideline for handwashing and hand antisepsis in health care settings. *American Journal of Infection Control* 1995; **23**(4), 251-269.
7. Pittet D, Hugonnet S, Harbarth S, Mourouga P, Sauvan V, Touveneau S, Perneger TV. Effectiveness of a hospital-wide programme to improve compliance with hand hygiene, *The Lancet* 2000; **356**, 1307-1312.
8. Grayson ML, Jarvie LJ, Johnson PDR, Jodoin ME, McMullan C, Gregory RHC, Bellis K, Cunnington K, Wilson FL, Quin D, Kelly AM. Significant reductions in methicillin-resistant *Staphylococcus aureus* bacteraemia and clinical isolates associated with a multisite, hand hygiene culture-change program and subsequent successful statewide roll-out. *Medical Journal of Australia* 2008; **188**, 633-640.
9. Ancona R, Boehler R, Chapman L. Sustained hand hygiene initiative reduces MRSA transmission. *Journal of Clinical Outcomes Management* 2009; **16** (4).
10. NPSA. Observation of hand hygiene tool. 2004:NPSA, London.
11. Randle J, Clarke M, Storr J. Hand hygiene compliance in healthcare workers. *Journal of Hospital Infection* 2006; **64**, 205-209.
12. Wendt C, Knautz D, von Baum H. Differences in hand hygiene behaviour related to the contamination risk of healthcare activities in different groups of healthcare workers. *Infection Control and Hospital Epidemiology* 2004; **25**, 203-206.
13. SEHD. CNO (2005) 1 Alcohol Based Handrubs and Infection Control. 2005:SEHD, Edinburgh.

## 6. Appendix

### Appendix I - Audit Results for Compliance with Hand Hygiene Opportunities by NHS board including 95% confidence intervals

Appendix 1 - Table 2: Audit results for Compliance with Hand Hygiene Opportunities by NHS Board including 95% confidence intervals

NHS board	2nd Bi-monthly Audit Period (%)			3rd Bi-monthly Audit Period (%)			4th Bi-monthly Audit Period (%)			5th Bi-monthly Audit Period (%)		
	11-22 May 2009			20-31 July 2009			21 Sept-2 Oct 2009			23 Nov-2 Dec 2009		
	Opps Obs*	Opps Taken**	% (CI)	Opps Obs	Opps Taken	% (CI)	Opps Obs	Opps Taken	% (CI)	Opps Obs	Opps Taken	% (CI)
Scottish Ambulance Service	-	-	-	300	284	95% (92%, 98%)	300	277	92% (89%, 95%)	300	287	96% (94%, 98%)
NHS Western Isles	300	291	97% (95%, 99%)	300	287	96% (94%, 98%)	300	289	96% (94%, 98%)	300	293	98% (96%, 100%)
NHS Tayside	300	259	86% (82%, 90%)	300	272	91% (88%, 94%)	300	268	89% (86%, 92%)	300	275	92% (89%, 95%)
NHS Shetland	300	296	99% (98%, 100%)	300	298	99% (98%, 100%)	300	283	94% (91%, 97%)	300	289	96% (94%, 98%)
NHS Orkney	300	260	87% (83%, 91%)	300	297	99% (98%, 100%)	300	285	95% (93%, 97%)	300	289	96% (94%, 98%)
NHS Lothian	300	279	93% (90%, 96%)	300	281	94% (91%, 97%)	300	261	87% (83%, 91%)	300	282	94% (91%, 97%)
NHS Lanarkshire	300	280	93% (90%, 96%)	300	269	90% (87%, 93%)	300	286	95% (93%, 97%)	300	273	91% (88%, 94%)
NHS Highland	300	274	91% (88%, 94%)	300	277	92% (89%, 95%)	300	288	96% (94%, 98%)	300	279	93% (90%, 96%)
NHS Greater Glasgow & Clyde	300	280	93% (90%, 96%)	300	280	93% (90%, 96%)	300	279	93% (90%, 96%)	300	276	92% (89%, 95%)
NHS Grampian	300	284	95% (92%, 98%)	300	275	92% (89%, 95%)	300	254	85% (81%, 89%)	300	282	94% (91%, 97%)
NHS Forth Valley	300	293	98% (96%, 100%)	300	295	98% (97%, 99%)	300	296	99% (98%, 100%)	300	293	98% (96%, 100%)
NHS Fife	300	286	95% (93%, 97%)	300	285	95% (93%, 97%)	300	295	98% (97%, 99%)	300	289	96% (94%, 98%)
NHS Dumfries & Galloway	300	278	93% (90%, 96%)	300	290	97% (95%, 99%)	300	288	96% (94%, 98%)	300	288	96% (94%, 98%)
NHS Borders	300	284	95% (92%, 98%)	300	277	92% (89%, 95%)	300	286	95% (93%, 97%)	300	290	97% (95%, 99%)
NHS Ayrshire & Arran	300	276	92% (89%, 95%)	300	280	93% (90%, 96%)	300	290	97% (95%, 99%)	300	286	95% (93%, 97%)
National Waiting Times Centre	300	280	93% (90%, 96%)	300	282	94% (91%, 97%)	300	285	95% (93%, 97%)	300	287	96% (94%, 98%)

\*Opps Obs = opportunities observed

\*\*Opps Taken = opportunities taken



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