



National Audit Office

## Healthcare Associated Infections in Hospital Results of survey of hospital staff



National Audit Office

2009

# HEALTHCARE ASSOCIATED INFECTIONS IN HOSPITALS

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## Results of survey of hospital staff

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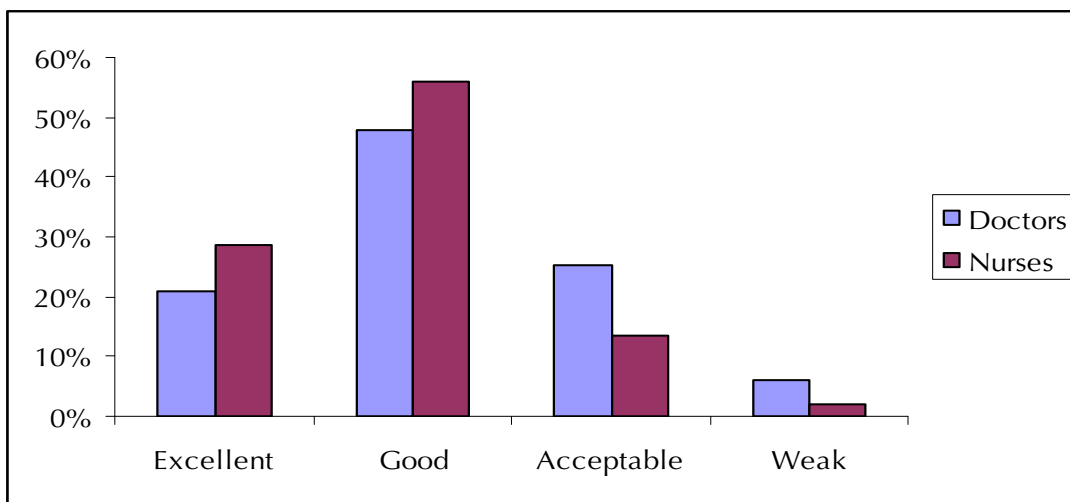
## Introduction and methodology

1. As part of the methodology for our study of healthcare associated infections in hospitals the National Audit Office (NAO) conducted two staff surveys between October and December 2008. One was a survey of hospital doctors and was run for us by Medix. The other was a survey of nurses and healthcare assistants working in hospitals and was run online by the NAO with assistance from the Royal College of Nursing. The nurses survey was advertised by the Royal College of Nursing and cascaded by the NAO to hospital trusts via strategic health authorities. Respondents to both surveys were anonymous. Certain demographic data was collected but no personal data or trust level data was collected. A total of 1,050 doctors and 1,551 nurses responded.
2. This report presents our analyses of these two surveys and is published separately on our website alongside the published NAO report on healthcare associated infections in hospitals (publication date June 2009).
3. The purpose of the surveys was to examine some of the key cultural and behavioural issues and staff opinions on improvements in compliance with infection control practice which were identified as issues in the NAO's two previous reports on the topic (HC 23 Session 1999-2000 and HC 876 Session 2003-04). The NAO worked with a consultant from Imperial College Healthcare NHS Trusts to develop and pilot both sets of questions. These are linked back to published academic papers where relevant (see Annex A). In general the questions are presented as statements, and a Likert Scale is used to assess respondent's level of agreement.
4. All percentages shown are "valid percentages" i.e. they exclude blank and not applicable responses. Note that due to constraints on the length of the questionnaire, certain questions were asked of nurses but not of doctors. Additionally, a section on 'cleaning' was included for nurses and a section on 'antibiotic prescribing' was included for doctors.
5. The data was stratified by the key demographic variables (see Annex B for a breakdown of this data). Some of the associations between variables and the outputs have been reported (note that association does not necessarily equal causation).
6. A Z-test for proportions was used to investigate the statistical significance of differences between sub-groups of staff. This was based on comparing the proportion of responders who agreed with the statement (grouping together those who strongly agreed with those who agreed) between sub-groups. All differences between doctors and nurses were found to be statistically significant at a five per cent level. Where differences between sub-groups of doctors and nurses (e.g. junior doctors and consultants, infection control nurses and non-infection control specialists) are discussed these are all significant at a five per cent level.

## Overall opinion on infection prevention and control and patient safety

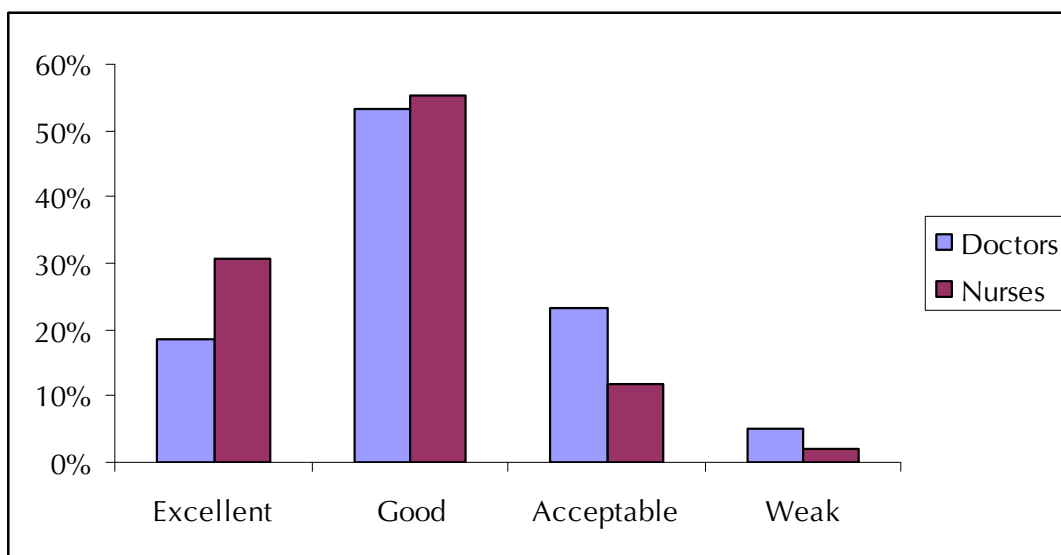
- Both doctors and nurses were positive about overall patient safety and infection prevention and control in their trusts (see figures 1 and 2). Sixty nine per cent of doctors and 85 per cent of nurses rated their hospital as either good or excellent on patient safety, and 72 per cent of doctors and 86 per cent of nurses rated their hospital as good or excellent on infection prevention and control.

**Figure 1: Give your hospital an overall rating on patient safety<sup>1</sup>**



NAO survey of hospital staff

**Figure 2: Give your hospital an overall rating for infection prevention and control**



NAO survey of hospital staff

<sup>1</sup> The following guidance was given in the survey questionnaire: ‘An excellent organisation would be one that continuously seeks to minimise patient harm that my result from the process of care delivery, and that demonstrates learning from patient safety incidents’

## Individual responsibility, trust culture and infection prevention and control

### Trust Leadership

**Figure 3: Trust Leadership**

Statement	Survey	Responses - Level of agreement (%)				
		Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Senior hospital leaders demonstrate commitment to improving infection rates	Nurses	44	47	6	2	1
	Doctors	32	53	11	3	1
Senior hospital leaders are visible (meetings, communications, walkarounds) in their efforts to improve infection rates	Nurses	26	45	16	11	2
Senior hospital leaders share a vision that encourages other staff to demonstrate commitment and take ownership for infection prevention improvements.	Nurses	30	50	14	5	1
	Doctors	24	52	17	6	1
I/ or My manager takes an active interest in our team exceeding infection prevention standards.	Nurses	44	41	10	4	1
	Doctors	22	45	23	8	2
I/ or My manager encourages my participation in, and my ideas on, infection prevention and control.	Nurses	44	38	12	5	1
	Doctors	22	45	23	8	2

NAO survey of hospital staff

- Overall doctors and nurses were positive about the leadership shown from senior hospital leaders in terms of commitment, visibility and vision on healthcare associated infection. Nurses were more positive about their direct manager than doctors, although both groups of staff agreed in the majority that their manager took an active interest in, and encouraged their participation in infection prevention and control (see figure 3). Junior doctors were less likely to agree (strongly agree, or agree) with these statements than consultants (see figure 4).

Figure 4: Junior doctors and consultants responses on trust leadership

Statement	Survey	Responses - Level of agreement (%)				
		Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I/ or My manager takes an active interest in our team exceeding infection prevention standards.	Consultants	30	48	18	4	0
	Junior doctors	17	42	27	11	3
I/ or My manager encourages my participation in, and my ideas on, infection prevention and control.	Consultants	24	47	21	7	1
	Junior doctors	17	38	32	10	3

NAO survey of hospital staff

### Performance management

- More staff agreed with our statements on performance management than disagreed. Generally staff have clear objectives and are assessed on infection prevention and control, and are provided with relevant data and carry out analyses in their teams. However, over a third of doctors reported not being assessed on infection prevention as part of their appraisal and a quarter reported not having clear objectives for infection prevention and control. Similarly, a quarter of doctors felt that their manager did not provide time, venues and resources for reflecting on and improving on, infection prevention and control performance. Nurses and doctors responding to our survey clearly felt that their own practice has an impact on infection prevention: 99 per cent of nurses and 86 per cent of doctors agreed (see figure 5).

**Figure 5: Performance management**

Statement	Survey	Responses - Level of agreement (%)				
		Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I have clear objectives for infection prevention and control in my regular review/ appraisal	Nurses	30	41	16	11	2
	Doctors	11	32	26	25	6
I am assessed on infection prevention and control as part of my regular review/ appraisal	Nurses	26	36	20	16	2
	Doctors	9	24	21	36	10
I feel that my own practice has an impact on infection prevention.	Nurses	73	26	1	0	0
	Doctors	31	55	9	4	1
I/ or My manager provides time, venues and resources for reflecting and improving on past infection control and prevention performance	Nurses	24	38	22	13	3
	Doctors	11	31	26	25	7
I am given data on healthcare-associated infections for our ward/department on a regular basis	Nurses	41	38	9	10	2
	Doctors	23	37	14	18	8
Our team analyses infection data and infection outbreaks to identify areas for improvement	Nurses	38	38	13	9	2
	Doctors	20	39	17	18	6

NAO survey of hospital staff

- Infection control nurses were more likely to agree that their manager provides time, venues and resources for reflecting on, and improving past infection control prevention performance. Eighty per cent of infection control nurses agreed compared with 59 per cent of nurses who are not specialised in infection control (see figure 6).

**Figure 6: Infection control nurses and other nurses responses on performance management**

Statement	Survey	Responses - Level of agreement (%)				
		Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I/ or My manager provides time, venues and resources for reflecting and improving on past infection control and prevention performance	Infection control nurses	42	38	9	9	2
	Other nurses	21	38	24	14	3

NAO survey of hospital staff

5. Junior doctors were less likely to agree that their manager provides time, venues and resources for reflecting on and improving past infection prevention performance. Twenty eight per cent of junior doctors agreed compared with 45 per cent of consultants. Similarly junior doctors were less likely to be given data on healthcare associated infections for their ward/ department on a regular basis. Thirty five per cent of junior doctors agreed compared with 63 per cent of consultants (see figure 7).

**Figure 7: Junior doctors and consultants responses on performance management**

Statement	Survey	Responses - Level of agreement (%)				
		Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I/ or My manager provides time, venues and resources for reflecting and improving on past infection control and prevention performance	Consultants	12	33	26	23	6
	Junior doctors	7	21	32	28	12
I am given data on healthcare-associated infections for our ward/department on a regular basis	Consultants	25	37	15	16	7
	Junior doctors	12	33	22	25	8

NAO survey of hospital staff

6. Infection control doctors were more likely to agree that they had clear objectives for infection prevention and control. Sixty four per cent of infection control doctors agreed compared with 39 per cent of doctors who are not specialised in infection control. Similarly infection control doctors were more likely to be assessed on infection prevention and control as part of their appraisal. Fifty per cent of infection control doctors agreed compared with 29 per cent of doctors who are not specialised in infection control (see figure 8).



Figure 8: Infection control doctors and other doctors responses on performance management

Statement	Survey	Responses - Level of agreement (%)				
		Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I have clear objectives for infection prevention and control in my regular review/ appraisal	Infection control doctors	24	40	23	11	2
	Other doctors	9	30	30	25	6
I am assessed on infection prevention and control as part of my regular review/ appraisal	Infection control doctors	19	36	21	19	5
	Other doctors	8	21	26	35	10

NAO survey of hospital staff

### Team working

7. In general, staff responding to our survey regularly met with their team to review existing infection control procedures and process, although 23 per cent of doctors disagreed with this. Although more respondents agreed than disagreed that they had opportunities to meet with other teams across the hospital to discuss and improve infection prevention, 19 per cent of nurses and 35 per cent of doctors disagreed (see figure 9).

**Figure 9: Team working**

Statement	Survey	Responses - Level of agreement (%)				
		Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
As a team, we regularly review existing infection control procedures and processes to understand how to make them more effective	Nurses	33	45	14	7	1
	Doctors	15	41	21	19	4
We have opportunities to meet with other teams across the hospital to discuss and agree how to improve infection prevention	Nurses	23	36	22	16	3
	Doctors	9	34	22	29	6

NAO survey of hospital staff

8. Infection control specialists were more likely to meet with other teams across the hospital to discuss infection prevention, than those who are not specialised in infection control. Eighty three per cent of infection control nurses agreed with this statement compared with 53 per cent of nurses who are not specialised in infection control. Seventy four per cent of infection control doctors agreed with this statement compared with 39 per cent of doctors who are not specialised in infection control (see figure 10).

**Figure 10: Infection control specialists responses on team working**

Statement	Survey	Responses - Level of agreement (%)				
		Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
We have opportunities to meet with other teams across the hospital to discuss and agree how to improve infection prevention	Infection control nurses	41	42	12	4	1
	Other nurses	19	34	24	18	5
We have opportunities to meet with other teams across the hospital to discuss and agree how to improve infection prevention	Infection control doctors	25	49	15	10	1
	Other doctors	8	31	25	30	6

NAO survey of hospital staff

## Reporting

**Figure 11: Reporting**

Statement	Survey	Responses - Level of agreement (%)				
		Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I am encouraged to report infection control incidents (including near misses)	Nurses	48	43	6	2	1
	Doctors	19	49	19	11	2
I am confident that incidents I report will be dealt with fairly and consistently	Nurses	39	45	11	4	1
	Doctors	15	47	22	11	5
I/ or My manager feeds back information from incidents reported by my team	Nurses	31	41	16	10	2
	Doctors	15	41	26	15	3

NAO survey of hospital staff

9. The majority of staff responding to our survey felt that they were encouraged to report infection control incidents, that they would be dealt with fairly and that they would receive feedback (see figure 11). However, doctors were less likely to agree than nurses, and junior doctors less likely to agree than consultants (see figure 12).

**Figure 12: Junior doctors and consultants responses on reporting**

Statement	Survey	Responses - Level of agreement (%)				
		Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I am encouraged to report infection control incidents (including near misses)	Consultant	20	50	19	10	1
	Junior doctor	12	46	22	15	5
I am confident that incidents I report will be dealt with fairly and consistently	Consultant	17	45	23	11	4
	Junior doctor	11	47	26	9	7
I/ or My manager feeds back information from incidents reported by my team	Consultant	16	43	23	14	4
	Junior doctor	8	32	34	21	6

NAO survey of hospital staff

## Root cause analysis

10. The majority of doctors and nurses felt that root cause analysis was being carried out effectively. However, a significant minority of doctors did not feel that the results from root cause analysis were being fed back or were leading to improvements (see figure 13).

**Figure 13: Root cause analysis**

Statement	Survey	Responses - Level of agreement (%)				
		Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Feedback from the analysis of themes from incidents (such as root cause analysis) is given to all staff in the unit at team meetings/via notice boards/other communication mechanism	Nurses	22	45	18	13	2
	Doctors	14	39	20	23	4
Our team has implemented improvements as a result of undertaking analysis of themes from incidents (such as root cause analysis)	Nurses	26	43	21	9	1
	Doctors	16	38	27	16	3

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## Training, learning and development

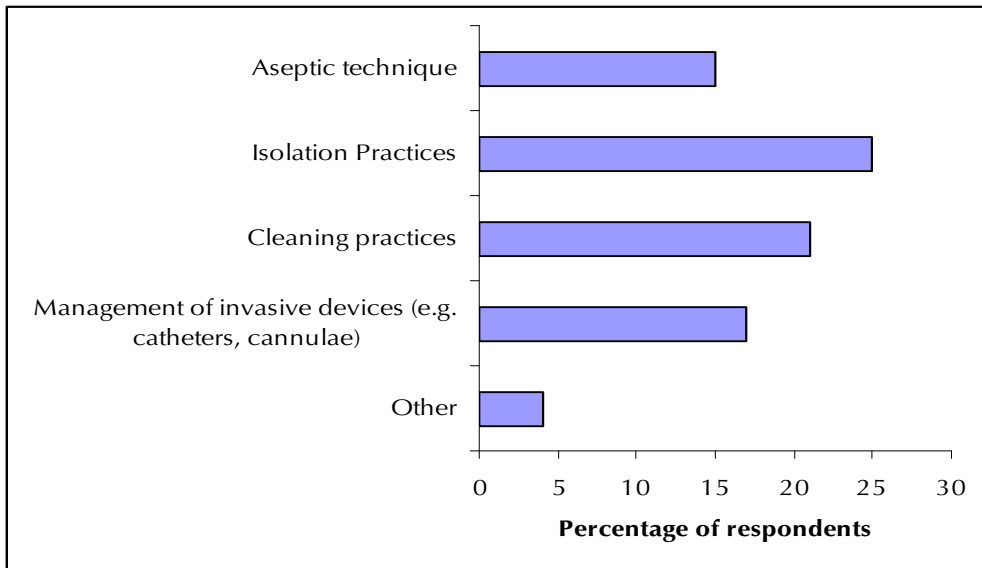
**Figure 14: Training, learning and development**

Statement	Survey	Responses - Level of agreement (%)				
		Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I feel that I have had sufficient training and education on infection prevention and control in the last 12 months	Nurses	42	44	9	6	1
	Doctors	22	52	17	8	1

NAO survey of hospital staff

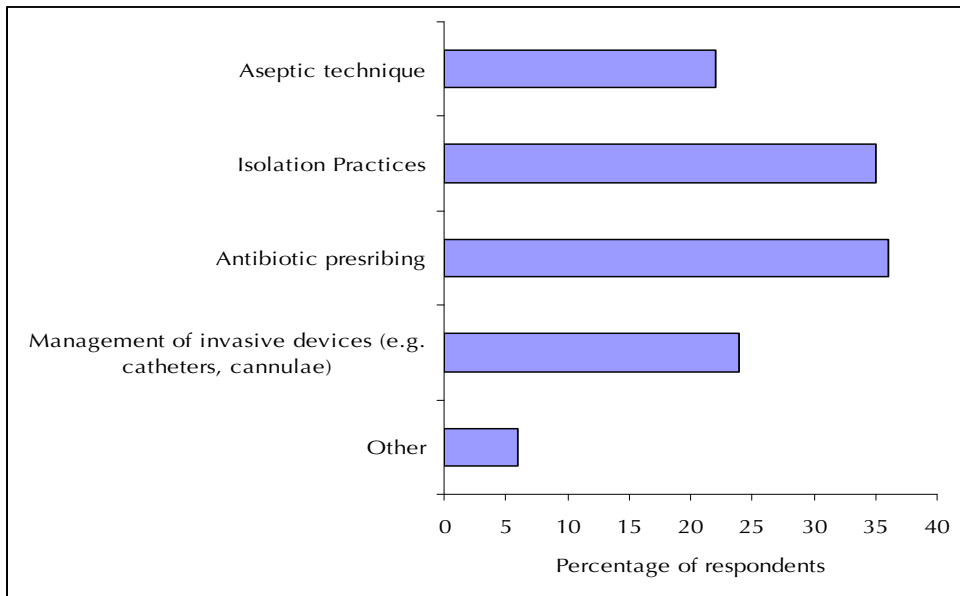
11. The majority of doctors and nurses felt that in the last year they had had sufficient training on infection prevention and control (see figure 14). However, when asked if there were any further areas of training they would benefit from receiving they listed a number of areas (see figure 15 and 16). Where nurses and doctors responding entered 'other' they were asked to describe what. Responses were varied, recurrent themes included hand hygiene and training on specific infections.

**Figure 15: Are there any particular areas of infection prevention and control practice that you feel you would benefit from receiving training in (nurses)?**



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**Figure 16: Are there any particular areas of infection prevention and control practice that you feel you would benefit from receiving training in (doctors)?**



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### Compliance with good infection control practices within trusts

- Both doctors and nurses reported that infection control policies and guidance are easily accessible, updated regularly and are unified and clear. They also reported that staff complied with guidance because they understood why it made a difference to infection rates, not simply because they were told to (see figure 17).

Figure 17: Compliance with guidance

Statement	Survey	Responses - Level of agreement (%)				
		Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
The infection prevention and control policies/ guidelines, in my Trust, are easily accessible and updated regularly	Nurses	43	48	6	3	0
	Doctors	26	55	13	5	1
The infection prevention and control policies/ guidelines, in my Trust, are unified and clear	Nurses	38	48	8	5	1
	Doctors	22	51	18	7	2
Staff in my Trust comply with infection prevention and control policies/ guidelines because they understand why they make a difference to infection rates, not simply because they are told to	Nurses	28	51	14	6	1
	Doctors	16	48	23	10	3

NAO survey of hospital staff

13. Both doctors and nurses reported a good understanding of the need for hand hygiene (figure 18). We also asked nurses what they felt their compliance with the World Health Organisation's Five 'Moments for Hand Hygiene', as used by the National Patient Safety Agency (figure 19). Compliance was high amongst all aspects, although the need to clean hands after contact with the patient area may need to be reinforced.

Figure 18: Hand hygiene

Statement	Survey	Responses - Level of agreement (%)				
		Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Staff in my trust understand the importance of hand hygiene in preventing the risk of transmission of infections	Nurses	58	38	2	2	0
	Doctors	43	50	6	1	0
Staff in my trust understand when it is appropriate to use alcohol gel, and when it is appropriate to use soap and water, when washing their hands	Nurses	48	44	5	3	0

NAO survey of hospital staff

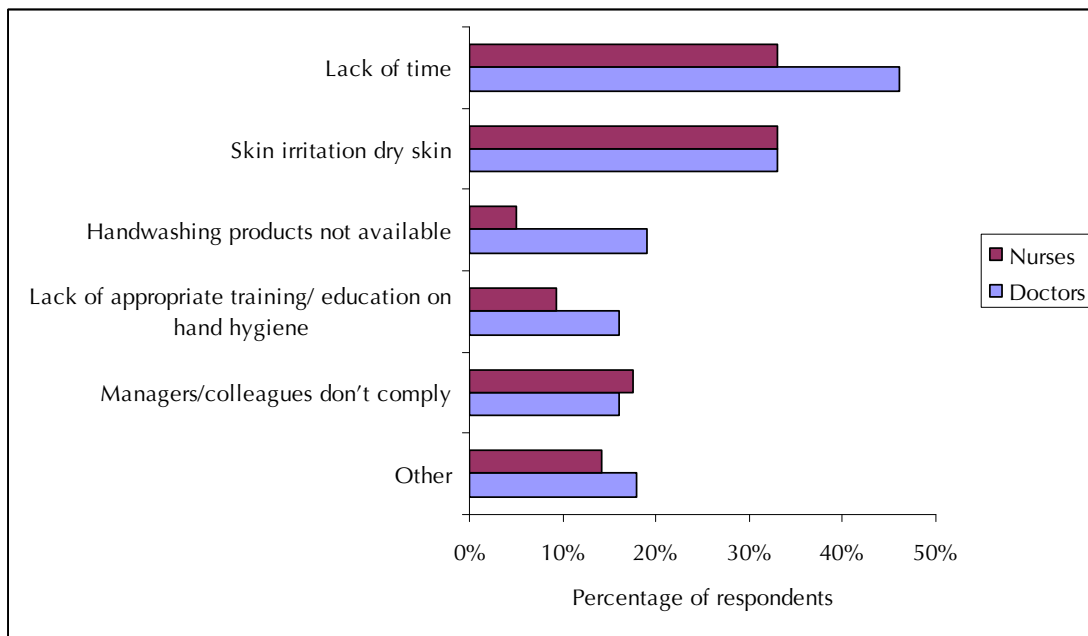
**Figure 19: For each of the instances below, how often would you normally clean your hands (nurses)?**

	Always	Sometimes	Rarely	Never
Before patient contact	92	8	0	0
After patient contact	98	2	0	0
After contact with the patient environment e.g. bed area	83	16	1	0
Before aseptic procedures	100	0	0	0
After contact with bodily fluids	100	0	0	0
After risk of contact with bodily fluids	99	1	0	0

NAO survey of hospital staff

14. Figure 20 shows the main reasons listed by staff for non-compliance with hand hygiene. A ‘lack of time’ was the most common response from both doctors and nurses. ‘Other’ responses from doctors focused on forgetfulness, whilst nurses highlighted a perceived lack of compliance amongst doctors.

**Figure 20: Staff in my trust do not always wash their hands properly because:**



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15. As part of our scoping work stakeholders described the importance of cleaners having clearly defined roles and being an integral part of the ward team. Figure 21 shows that nurses responding to our survey felt this to be the case in their trusts.

Figure 21: Cleaning

Statement	Survey	Responses - Level of agreement (%)				
		Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Cleaners' tasks are clearly defined so that their work is not duplicated by other staff	Nurses	21	47	16	13	3
Cleaners are seen as an integral part of the ward team	Nurses	39	41	8	9	3

NAO survey of hospital staff

16. Doctors responding to our survey felt that they complied with antibiotic guidelines and that their lead clinicians took an interest in antibiotic prescribing (see figure 22).

Figure 22: Antibiotic prescribing

Statement	Survey	Responses - Level of agreement (%)				
		Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I know and follow the antibiotic prescribing guidelines in my area	Doctors	29	56	11	3	1
I and/or the lead clinician take(s) an interest in antibiotic prescribing	Doctors	27	47	16	8	2

NAO survey of hospital staff

17. Figure 23 shows that nurses and doctors felt that they had sufficient materials and equipment for infection prevention and control. However, where respondents disagreed they were asked to detail what further resources they would like to be made available. The most common responses from nurses were: more basic infection control provisions (gloves, aprons, gels etc); soap for sensitive skin; and, more staff. The most common responses from doctors were: alcohol gel; more hand washing facilities; and, more staff.

Figure 23: Costs and resources

Statement	Survey	Responses - Level of agreement (%)				
		Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I have at my disposal, all the materials and equipment I need for infection control and prevention	Nurses	46	44	6	4	0
	Doctors	22	54	15	8	1

NAO survey of hospital staff



## Annex A: Evidence base for questions on organisational culture and individual behaviour

Construct	Statements	Evidence base
Leadership	Senior hospital leaders demonstrate commitment to improving infection rates	Provonost, P. Et al. (2003) Evaluation of the culture of safety: survey of clinicians and managers in an academic medical center. <i>Quality and Safety in Healthcare</i> 12, 405-410
	Senior hospital leaders are visible (meetings, communications, walkarounds) in their efforts to improve infection rates	Flin, R., Yule, S. (2004) Leadership for safety: industrial experience. <i>Quality and Safety in Healthcare</i> 13: 45-51
	Senior hospital leaders share a vision that encourages other staff to demonstrate commitment and take ownership for infection prevention improvements	Brown, M.E., Trevino, L.K. (2006) Ethical Leadership: A review and future directions. <i>The Leadership Quarterly</i> 17:6, 595-616
	My manager takes an active interest in our team exceeding infection prevention standards	Burke, C.S. Et al (2007) Trust in Leadership: A multi-level review and integration. <i>Leadership Quarterly</i> 18:606-632
	My manager encourages my participation in, and ideas on infection prevention improvements	Barling, J., Kelloway, E., Loughlin, C. (2002) Development and Test of a Model linking Safety-Specific Transformational Leadership and Occupational Safety. ( <i>Journal of Applied Psychology</i> . 87:3, 488-496)
Performance	I have clear objectives for infection prevention and control in my regular review/ appraisal	Rollinson, D. (2005) <i>Organisational Behaviour and Analysis</i> . 3rd edition. Pearson Education UK
	I am assessed on infection prevention and control as part of my regular review/ appraisal	Rollinson, D. (2005) <i>Organisational Behaviour and Analysis</i> . 3rd edition. Pearson Education UK
	I feel that my own practice has an impact on infection prevention	Ovretveit, J et al. (2002) Quality collaboratives: lessons from research. <i>Quality and Safety in Healthcare</i> 11: 345-351
	My manager provides time, venues and resources for reflecting and improving on past infection prevention and control performance	Ovretveit, J et al. (2002) Quality collaboratives: lessons from research. <i>Quality and Safety in Healthcare</i> 11: 345-351
	I am given data on healthcare associated infections for my ward/ clinical area on a regular basis	Garvin, D. Et al. (2008) Is Yours a Learning Organization? <i>Harvard Business Review</i> 86:3, 109-116

Teamwork	As a team, we regularly review existing infection control procedures and processes to understand how to make them more effective	Garvin, D. Et al. (2008) Is Yours a Learning Organization? Harvard Business Review 86:3, 109-116
	We have opportunities to meet with other teams across the hospital to discuss and agree how to improve infection prevention	Rivard P. et al (2006) Enhancing Patient Safety through Organizational Learning: Are Patient Safety Indicators a step in the right direction? Health Services Research 41:4 Part II, 1633 - 1653
Reporting	I am encouraged to report infection control incidents (including near misses)	Firth-Cozens, J (2004) Organisational trust: the keystone to patient safety
	I am confident that incidents I report will be dealt with fairly and consistently	Firth-Cozens, J (2004) Organisational trust: the keystone to patient safety
	My manager feeds back information from incidents reported by my team	Firth-Cozens, J (2004) Organisational trust: the keystone to patient safety
Root Cause Analysis	Feedback from the analysis of themes from incidents (such as root cause analysis) is given to all staff in the unit at team meetings/via notice boards/other communication mechanism	Carroll, JS. & Edmondson, A.(2002) Leading Organisational Learning in Healthcare. Quality and Safety in Healthcare 11: 51-56
	Our team has implemented improvements as a result of undertaking analysis of themes from incidents (such as root cause analysis)	Roberts, K.H. Et al (2005) A case of the birth and death of a high reliability healthcare organisation. Quality and Safety in Healthcare 14: 216-220
Training, learning and development	I feel that I have had sufficient training and education on infection prevention and control in the last 12 months	Healthcare Commission Staff Survey

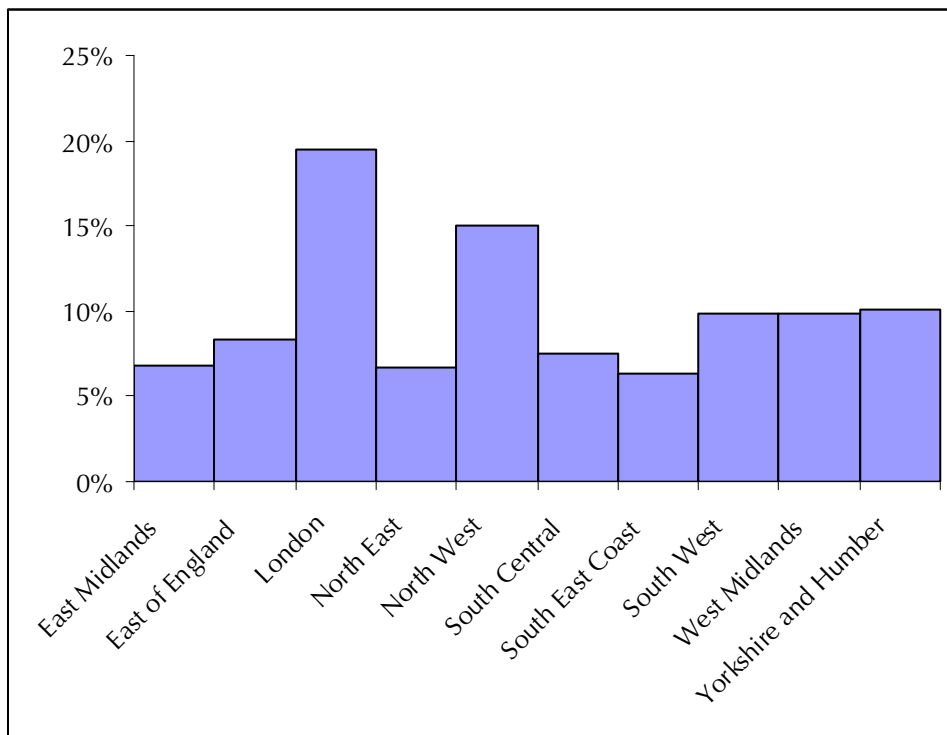
## Annex B: Demographics

- B.1 For both surveys we attempted to get a good spread across the strategic health authority regions from our samples, in order to avoid any regional bias. We were also aware there was a risk that infection control specialists may skew the results of certain questions so collected data on whether the respondent was a member of the infection control team in order to test for this.
- B.2 Although the sample sizes are large some caution should be placed on interpreting the data. The samples cannot be said to have been completely random, there will be some respondent bias.

### Survey of doctors

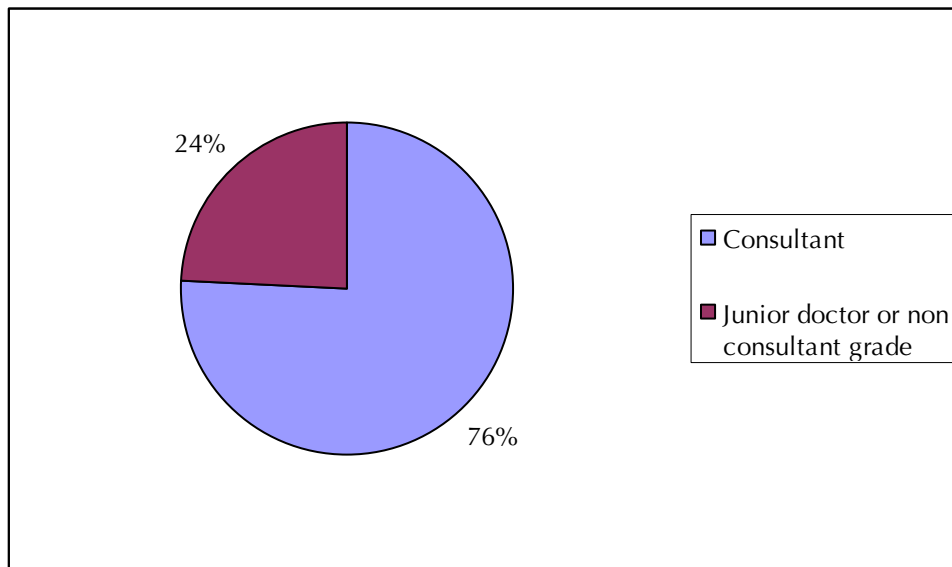
- B.3 In total 1,050 doctors completed our survey. We collected demographic data on their strategic health authority region, whether they were a junior doctor or a consultant, or whether they were a specialist in infection control. The results broke down as follows (figures 24 to 26):

**Figure 24: Region of Respondents**



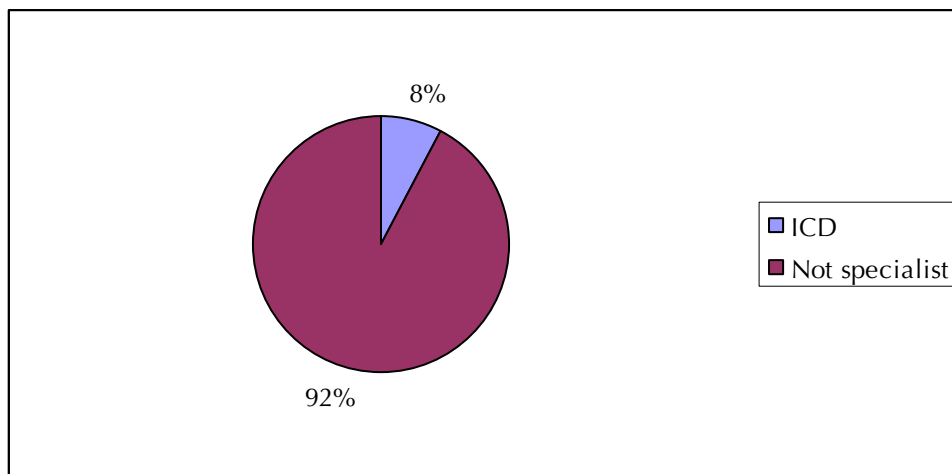
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Figure 25: Grade of Respondents



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Figure 26: Whether respondents were a member of the infection control team



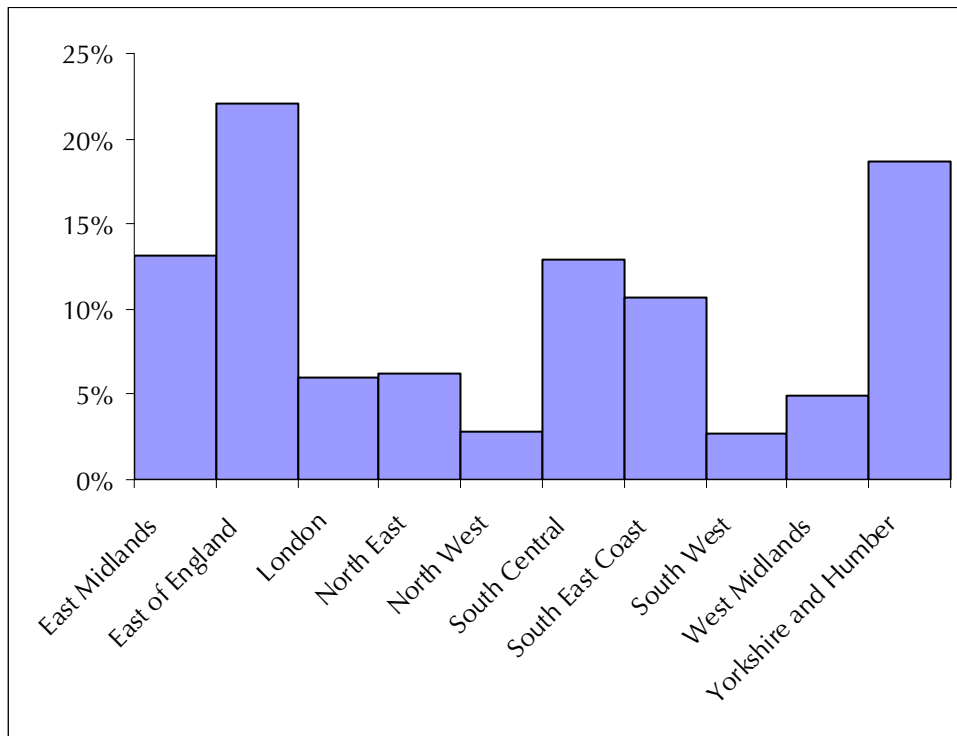
NAO survey of hospital staff

B.4 Although the sampling method used was not entirely random (the sample is drawn from Medix’s email database), a good spread across regions and grades has been achieved. In total 83 infection control doctors completed the survey, representing 30 per cent of all infection control doctors in hospital trusts based on results from our trust census.

**Survey of nurses and healthcare assistants**

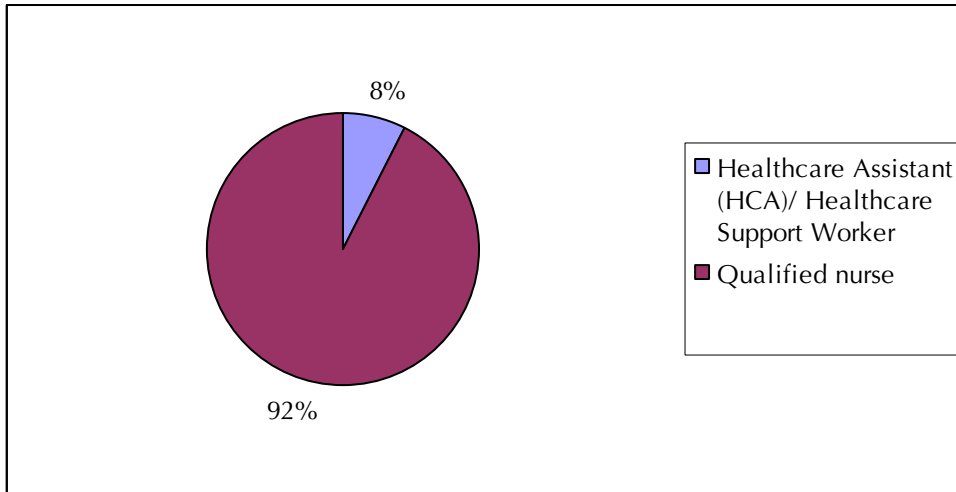
B.5 In total 1,551 nurses and healthcare assistants completed our survey. We collected demographic data on their Strategic Health Authority region, whether they were a nurse or a healthcare assistant, or whether they were a specialist in infection control. The results broke down as follows (figures 27 to 29):

**Figure 27: Region of Respondents**



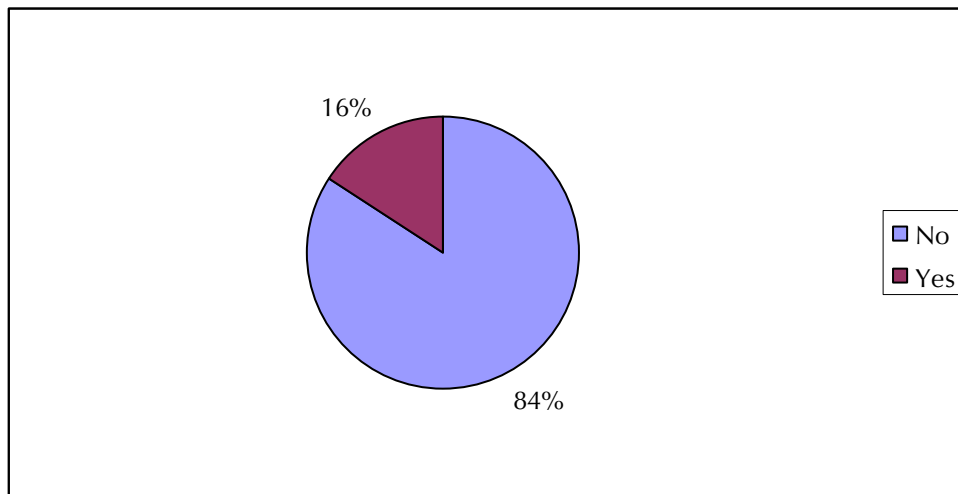
NAO survey of hospital staff

**Figure 28: Job of Respondents**



NAO survey of hospital staff

Figure 29: Whether respondents were a member of the infection control team



NAO survey of hospital staff

B.6 From our trust census we estimated that there are currently 740 infection control nurses working in hospital trusts. Nearly a third (247) of these responded to our trust census.