

7.4

LOTHIAN NHS BOARD

Board Meeting
26 March 2008

Director of Public Health & Health Policy

HEALTHCARE ASSOCIATED INFECTION

1 Purpose of the Report

- 1.1 The purpose of this report is to update the Board on the work to reduce Healthcare Associated Infection across NHS Lothian.

2 Recommendations

- 2.1 The Board is recommended to support the following activities in delivering the agenda to reduce and manage healthcare associated infection:

- Mandatory surveillance activity within the clinical environments
- Implementation of insertion and care bundles for invasive devices
- Review of antibiotic recommendations for urinary tract infection within NHS Lothian Formulae
- Continuation of education programmes for prevention and management of healthcare associated infections including mandatory education from April 2008
- The Scottish Safer Patient Initiative
- Progressive implementation of the NHS Lothian Healthcare Associated Infection Audit Tool package
- Monitoring of healthcare associated infection incidents through DATIX database system
- Implementation of the national colour coding guidelines for cleaning materials and equipment by August 2008
- Ongoing review and development of endoscopy provision
- Allocation of funds for dental services decontamination overseen by dental services contract manager
- Inclusion of an infection control representative at planning stages of any building works in accordance with Health Technology Note 30 and Healthcare Associated Infection Scribe

3 Summary of the Issues

- Mandatory surveillance infection rates for arthroplasty and caesarean section reported from Health Protection Scotland as 0.35%.
- Staphylococcus aureus bacteraemia rates fell to 30 in January however this reduction was not sustained with an increase to 42

episodes in February 2008. Whilst this met the required HEAT target of 30% it was slightly above NHS Lothian's own target of 40%.

- Clostridium difficile rate for the last quarter was 1.6 per 1000 patient bed days.
- Ventilator Associated Pneumonia 10 / 1000 ventilation days Royal Infirmary and 3.9 / 1000 ventilation days Western General
- Norovirus 10 outbreaks in February 2008
- Community Urinary Tract Infection review
 - Nitrofurantoin for uncomplicated
 - Norfloxacin and ciprofloxacin in reserve for resistant organisms
- 53 healthcare associated infection related incidents logged in DATIX
- Audit results
- 94.8% Compliance with National Cleaning Standards
- The Endoscopy Competencies Framework has been ratified and is being implemented across NHS Lothian
- A centralised compliant decontamination facility and additional treatment room to accommodate the increased endoscopy service at St John's has been agreed
- Primary care decontamination audit phase one action plan at Scottish Government for review
- The Scottish Government has provided further funding of £810,500 to support improvements in decontamination in dental services
- Ongoing building works across NHS Lothian

Fiona Cameron
Head of Service Infection Control
19 March 2008

The following Appendices are attached:

- Appendix 1: Episodes of MRSA bacteraemia February 2006-January 2008
- Appendix 2: Episodes of MSSA bacteraemia February 2006-January 2008
- Appendix 3: Monthly Number of Staphylococcus aureus Bacteraemia Plotted Against Heat Targets - Lothian Health Board
- Appendix 4: Episodes of *C Difficile* associated diarrhoea (CDAD) February 2006-January 2008
- Appendix 5: Quarterly Rates of CDAD per 1000 occupied bed days From January to December 2007
- Appendix 6: Monthly rates of CDAD by sector
- Appendix 7: Annual Respiratory syncytial virus (RSV) surveillance at Royal Hospital for Sick Children (RHSC)
- Appendix 8: Norovirus Surveillance program

HAI FULL REPORT

1. Surveillance

1.1. Surveillance Programme

The NHS Lothian surveillance programme, which includes mandatory and non-mandatory surveillance, continues to be complied with across Lothian, with the requirements of HDL (2006) 38 being met.

1.2. Mandatory Surveillance

Results from the 2nd quarter mandatory surveillance of caesarean section and hip arthroplasty have been received and are currently being edited for dissemination to the appropriate areas. For the period 01 July 2007 to 30 September 2007, 1130 procedures were carried out and 32 infections were detected. This compares with 967 procedures and 17 infections for the previous period. It is believed the increase in the infection rates can be attributed to more effective detection methods by surveillance staff and a move to more robust and complete reporting. The 3rd Quarter data has been returned to Health Protection Scotland and it is expected the report will be returned by April 2008. Based on information submitted it is anticipated this report will show no significant increase

A review of the orthopaedic and caesarean section infection rates during 2007 will be completed and will be available for the board brief May 2008

1.3. Reduction of meticillin resistant and meticillin sensitive staphylococcus aureus

Staphylococcus aureus bacteraemia rates are stable (appendices 1,2). Thirty episodes of bacteraemia were reported in January 08 (5 MRSA, 25 MSSA). This compares with 44 episodes in September 2007 (20 and 24 respectively). In January the infection rate fell below the trajectory for the HEAT target at that point, however the rates are not yet declining consistently. This is actively being addressed through the Infection Control Team working with enhanced surveillance and supporting the clinical teams with root cause analysis. This will assist in identifying areas to focus a targeted approach to reducing infections. An update will be provided for May 2008 board brief

1.4. Clostridium difficile associated disease

Clostridium difficile rate for the last quarter was 1.6 per 1000 patient bed days. This rate demonstrates that we are stable at present (Appendix 4, 5, and 6).

The use of chlorclean for environmental cleaning as part of the pilot project to reduce the rate of clostridium difficile infections in pilot wards identified as having increasing potential of clostridium difficile occurring (medical, colorectal and care of elderly) wards by 30% was temporarily suspended. Domestic staff raised issues around product safety. These have been addressed through occupational health and Health and safety.

Further training is being provided on solution preparation and once complete the trial will recommence in April.

The prevention and control of clostridium difficile is under further review by the infection control team and clinicians. A new policy is currently under development and it is anticipated this will be available for consultation at Lothian Infection Control Advisory Committee in August 2008

1.5. Development and implementation of additional surveillance programmes

1.5.1. Hospital in Europe Link for Infection Control

Data for Ventilator Associated Pneumonia and Catheter Related Blood Stream Infections continues to be collated. Rates for reporting period October – December 2007 are detailed in the table below:

| | Ventilator Associated Pneumonia | Catheter related blood stream infections |
|---------------------------|---------------------------------|--|
| Edinburgh Royal Infirmary | 10 / 1000 ventilation days | 0 |
| Western General Hospital | 3.9 / 1000 ventilation days | 8.1 / 1000 catheter days |
| St John's Hospital | | 1 |

The variation in rates across the units reflects occupancy and patient demographics. It should also be noted the data for Western General provides a baseline following the introduction of surveillance into this area.

1.5.2. Cardiothoracic Patients

Progress has been made in collection and collation of data from the cardiothoracic wards (RIE102, RIE103, RIE111 and RIE112). Enhanced surveillance of MRSA has been embedded and cumulative updates of MRSA acquisition are issued weekly. The data shows a low incidence within the unit with no evidence of cross infection

1.5.3. Antibiotic resistance

As part of the antimicrobial review programme urinary tract antibiotic resistance data from primary care sector has been reviewed. *E. Coli* and enterococci together accounted for about 80% of all organisms isolated from urine specimens referred by the GPs. This review has identified that nitrofurantoin appears to be the best choice for treatment of uncomplicated UTI in the community.

Resistance to norfloxacin and ciprofloxacin remain low at less than 6% for all the Gram-negative organisms (except for *P. aeruginosa*). The review

recommends these drugs be to be held as reserve, and not routinely used to treat uncomplicated UTI in the community. This should be reflected in the drug formulae and will be raised with the antimicrobial review group.

1.5.4. Respiratory Syncytial Virus

January saw a gradual decrease in the numbers of Respiratory Syncytial *Virus* positive cases, with 74 positive cases compared to 106 for the same period in 2007. (Appendix 7)

1.5.5. Norovirus

The incidence of Norovirus continues to be closely monitored, with the number of incidents remaining relatively static during the three month period December 2007 – February 2008 (Appendix 8). The incidence of Norovirus is reported weekly to the Scottish Government.

Prompt identification of Norovirus is key to implementing prevention and control measures. To complement the existing policy a Standard Operating Procedure for specimen submission and handling is under development to facilitate prompt diagnosis.

1.5.6. Healthcare associate infection national prevalence survey

It is anticipated that a 2nd National Point Prevalence Survey of Healthcare Associated Infection will be carried out within the next 3 years. In preparation for this NHS Boards are being provided with training and tools to facilitate local surveillance and prevalence surveys by Health Protection Scotland. Representatives from the Infection Control Team attended the training programme March 2008. Health Protection Scotland has agreed to provide further training locally to those team members who were unable to attend. This will help target specific areas using a nationally agreed tool.

2. National hand hygiene campaign

The 3rd phase of the National Hand Hygiene Campaign Audits took place Feb 18th – Feb 29th 2008 throughout NHS Lothian's hospitals. A total of 28 hand hygiene audits were undertaken over the two-week period. The results of the audits demonstrated an overall reduction in compliance of 2% (80% compared to 82% in September 2007). Review of the audit results highlighted improvement in compliance by medical and nursing staff groups, with allied health professionals and ancillary staff groups showing a reduction in compliance. A full report of the results will be released in the National Hand Hygiene Audit Report on 10th April 2008.

In addition to the audit requirements of the National Hand Hygiene Campaign, local hand hygiene audits are being undertaken regularly by a variety of staff groups with action plans being generated from audit feedback.

Initiatives to improve compliance and to meet the 90% target by November 2008 set by the Minister for Health and Wellbeing are continually taking place throughout Lothian, with a core aim to improve hand hygiene practice, leading to a reduction in avoidable illness. Forthcoming events include:

- Student Nurses in Orthopaedic Directorate, educating and training visitors on effective hand hygiene at the entrance to wards using Ultra Violet light boxes. If successful, it is hoped to repeat this initiative throughout other directorates.
- Staff in the Haemophilia Unit planning to teach parents and carers on effective hand hygiene for paediatric patients attending the unit.
- Training is being provided to enable additional staff groups and members of the patient/public forum to perform hand hygiene audits.

3. Education and training

3.1 Cleanliness Champions

To date 661 staff across NHS Lothian have completed the programme. A further 898 are currently registered. The Cleanliness Champions take an active role in ongoing audits in their clinical areas and promote good practice.

Liaison with the non-registered workforce planning team is in progress to ensure that all SVQ2 and SVQ3 candidates are enabled to complete the Cleanliness Champion Programme. Two of the aforementioned team have almost completed the Champions Programme and will assist and support future study days for Clinical Support workers. These days will include Acute Services, Community Health Partnerships and Royal Edinburgh and Associated Services.

The Infection Control Service has supported the staff of the City Mortuary in undertaking the programme. The mortuary Manager and 4 mortuary technicians have completed the programme.

3.2 Hand Hygiene

The hand hygiene coordinator, infection control team and cleanliness champions are continuing to deliver hand hygiene education and training throughout the organisation to all staff groups. It is an essential component to ensure widespread dissemination in order to achieve the 90% compliance required by November 2008 as highlighted under 3.2.

3.3 Mandatory training

A standardised presentation on the prevention and control of infection has been developed for inclusion in the mandatory education programme that commences in April 2008. This will ensure consistency of education provided across Lothian.

3.4 Additional training

The first of three infection control study days planned for 2008 “Health Care a Risky Business” is scheduled for May 14th and is open to all staff.

Programmed and ad-hoc education sessions continue to be provided by the Infection Control Nurses based on needs assessment and special request. These have included SHO Induction, student nurses, dental new starts and updates, GP practices and Health Centre staff.

4. Scottish Patient Safety Initiative

As part of the Scottish Patient Safety Initiative clinical staff aim to reduce the rates of infection in Ventilator Associated Pneumonia and Catheter Related Blood Stream Infections. This builds on the surveillance of these areas already included in the HELICS programme (see 3.1.3.1). The Infection Control Team is working closely with the clinical teams to facilitate and progress these initiatives.

An NHS Lothian Insertion Care Bundle has been implemented and a maintenance care bundle is under development. The surveillance data being collated will provide evidence of the impact of the care bundles on the reduction of infection rates.

The second learning session of the Scottish Safer Patient Initiative is scheduled to take place in May 2008. Representatives from NHS Lothian including the Infection Control Team will attend.

5. Healthcare associated infection control audit

The NHS Lothian Healthcare Associated Infection Audit Tool package is currently being used within Acute Services. The audit development group plans to develop specialist area audit tools to supplement and complement the generic tools. A further roll out of awareness and education sessions is being planned for all sites. Compliance in completing the audit tools is increasing steadily. This audit package provides clinical staff with a tool to assess and monitor practice and provides automatic action plans when improvements are required.

The audit package is being phased into the hospitals in the Community Health Partnerships and Royal Edinburgh and Associated Services Community Hospitals.

In addition to the above the Infection Control Team undertakes a programme of audits as detailed in the Infection Control Annual Programme and ad-hoc audits as required. This includes participation in Patient Environment Action Team audits.

6. Cleaning services

6.1. National framework for monitoring cleaning services

The 3rd Quarterly (October to December) Compliance report was published in February 2008. NHS Lothian's overall total score for this period was 94.8%. This is an increase of 0.2% on the previous quarter.

All NHS Lothian's healthcare facilities received an overall green compliance rating for this quarter.

Peer reviews with public involvement continue as a means of validating the self-monitoring results.

NHS Lothian's Domestic Services is presently working with the Scottish Ambulance Service (SAS) in looking at the possibility of providing a cleaning service to Lothian's SAS premises and vehicles. The costings related to this are under review by the SAS.

6.2. National colour code scheme

The HAI Task Force has recommended that NHS Scotland move to an agreed national colour coding method for cleaning materials and equipment, in line with other UK countries. NHS Lothian is in the process of implementing the system by August 2008.

6.3. Laundry

The monitoring of inappropriate items sent to the laundry continues, for the period October to December 2007, 180 inappropriate items were received at the laundry. This is an increase from July – Sept 2007 figures of 150. Of these 180 items, 38 were full urine bags, 5 full sharps bins, 8 needles and 2 patient samples. All these items pose an infection risk to laundry staff. This matter is being addressed through senior management implementing randomised spot checks within the clinical areas.

7. Decontamination

Progress against the action plans developed under the auspices of the NHS Lothian Decontamination Strategy Group continues to be monitored monthly. Work on developing the 2008-2009 Decontamination Work Plan has been started and this will be presented to the group in April. The aim is to move NHS Lothian closer to compliance with recommendations of the HDL (2001) 10.

Funding for upgrade of the Western General Hospital Oncology

Outpatients Department (including a washer disinfectant) has now been agreed and the plans have been redrafted to ensure maximum utilisation of available space. The plans have been forwarded to Health Protection Scotland for review. A reply is awaited.

Local decontamination facilities within the Ear Nose and Throat department in the Lauriston Building, including a washer-disinfectant have been approved.

7.1. Primary care decontamination audit

Audits in the independent dental sector are progressing well with all audits expected to be completed by first week in April.

Phase 1 of the managed services PCAT action plans, which identifies priority areas has now been sent to the Scottish Government for review. Phase 2 and 3 action plans, which identify medium and low-level priorities, are progressing well.

7.2. Endoscopy

The Short-Life Working agreed timescales and preliminary actions required to address issues around structure, process, equipment, risk management and training in Endoscopy services across NHS Lothian. It is anticipated that this work will now be completed and reported on by the end of April 2008.

The Endoscopy Competencies Framework has been ratified and is being implemented across NHS Lothian.

Consultation on draft guidelines for manual washing is currently being consulted on.

The plans for a centralised endoscopy unit at St Johns Hospital continue to progress well. The findings of the Short Life Working Group will assist in informing choice of disinfectant medium and equipment for this project. A centralised compliant decontamination facility and additional treatment room to accommodate the increased endoscopy service at St John's has been agreed. During the period of the upgrade the need to maintain existing compliance, where possible and practical, has been given high priority.

Four of the initial 6 HEPA filtered endoscope storage cabinets have now been delivered and installed, with delivery and installation of the remaining two cabinets planned. Further funding to install HEPA storage cabinets in all areas that undertake endoscopy procedures are being considered. Progress will be reported at the next Decontamination Strategy Group.

7.3. Dental services

The business case to develop a central sterilizing department at the Dental Institute is ongoing and progress will be reported at the next Decontamination Strategy Group.

The Scottish Government has provided further funding of £810,500 to support improvements in decontamination in dental services. Allocation of the funds is monitored through a funding group chaired by the contracts managers for dental services.

8. Incidents

During the two-month period January to February 2008, 158 incidents with the category of Infection Control were submitted through the DATIX as follows:

| Area | Number of Incidents |
|------------------------------|---------------------|
| Western General Hospital | 22 |
| St John's Hospital | 28 |
| Royal Infirmary of Edinburgh | 75 |
| Liberton Hospital | 4 |
| Royal Victoria Hospital | 3 |
| Royal Edinburgh Hospital | 5 |
| Other | 16 |
| Not identified | 5 |

The main categories listed were Healthcare Associated Infection (34%), Healthcare Sterile Service Department Unit (6%), Hazard (17%), Sharps (41%), and Other 2%

Of the 53 HAI Incidents recorded 30 were related to alerts from carrying out the Healthcare Associated Infection audits, 16 related to hand hygiene, 3 related to equipment and environment and 8 related to sharps audits.

Sharps incidents accounted for 65 of the reported incidents, of which 53 resulted in a sharps injury. A comprehensive training package has been delivered by Frontier the company that supplies NHS Lothian with the sharps bins.

Hazard incidents accounted for 16.5% (26) of the total, 13 of which related to exposure to blood or body fluids and the inappropriate use of, or lack of Personal Protective Equipment. This highlighted issues related to the supply of nitrile gloves. This has been addressed

9. Lothian Infection Control Advisory Committee Work Programme

The Lothian Infection Control Advisory Committee work programme continues to be monitored and reviewed at Lothian Infection Control Advisory Committee. 2008 – 2009 work programmes will be submitted in May.

10. Building Works

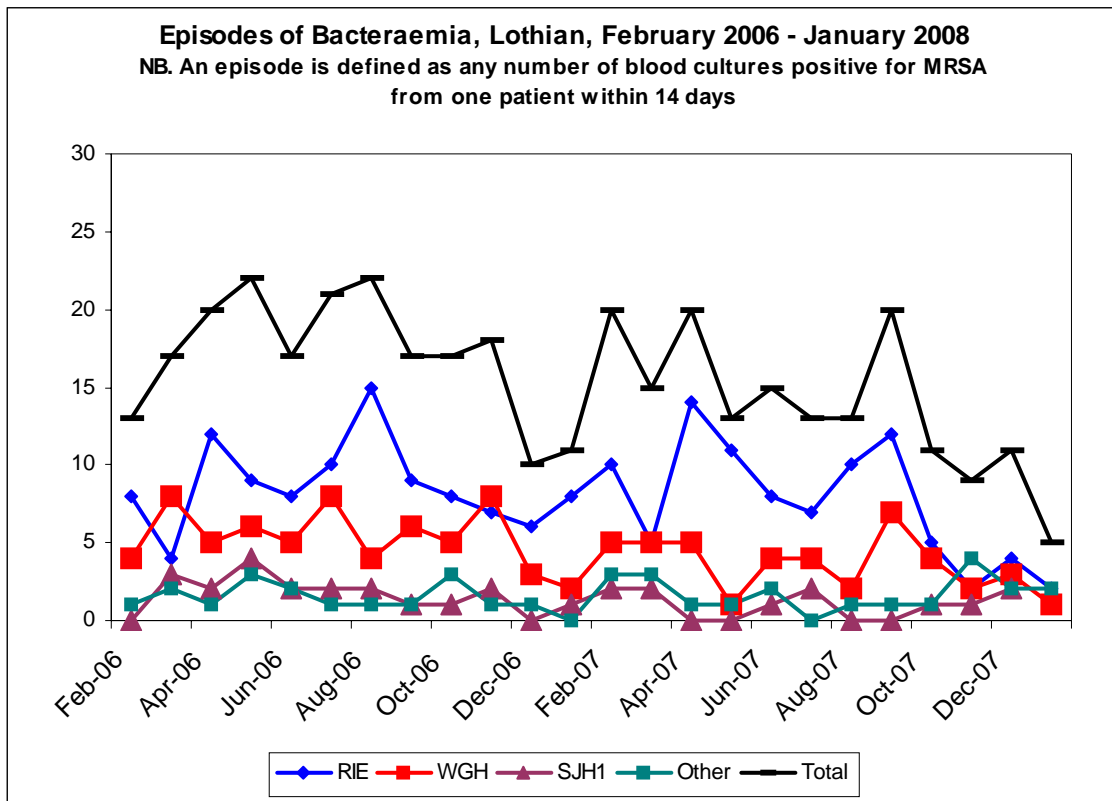
In accordance with Health Technology Note 30 and Healthcare Associated Infection Scribe the Infection Control Nurses continue to be involved in planning and development of healthcare facilities, including:

| Royal Hospital Sick Children | Lauriston Building | Western General Hospital | St John's Hospital |
|---|---------------------------|--|---|
| Proposed Clinical Research Centre, located within the Child Life & Health | Audiology booths | Medical physics Workshop with designated decontamination area. | Vanguard mobile theatre |
| Front entrance refurbishment | | Reconfiguration of Breast Unit | Endoscopy suite and Observation ward re-commissioning |

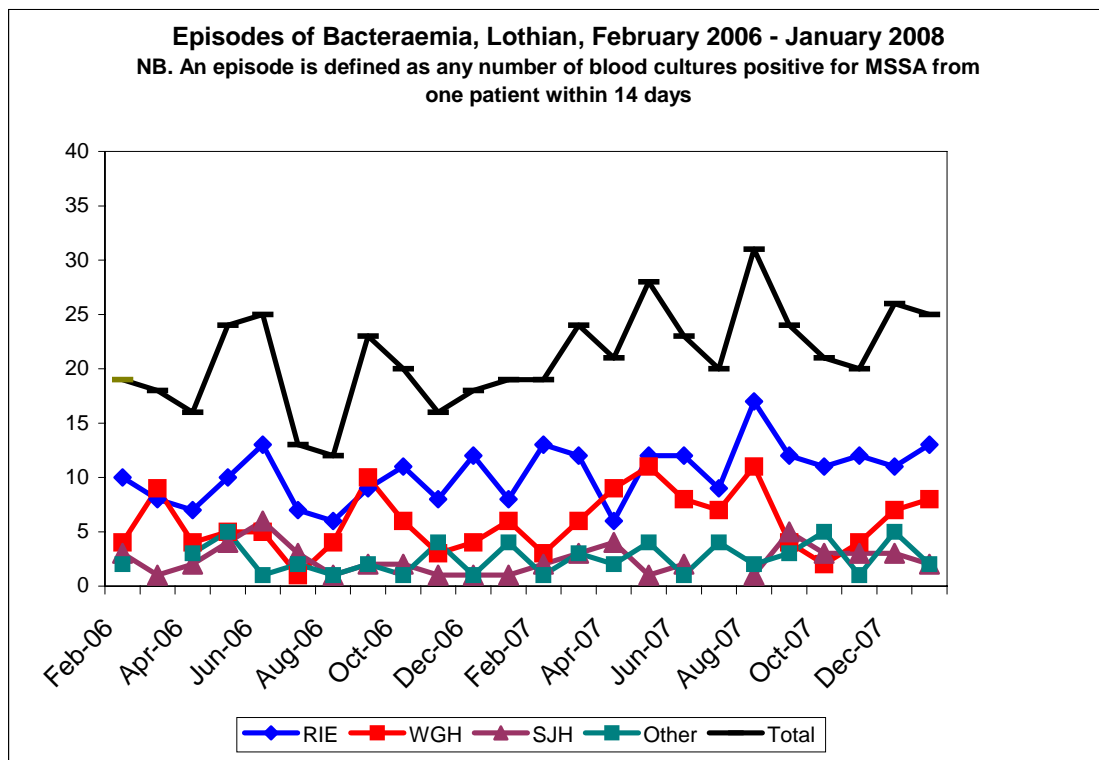
Equality and Diversity Impact Assessment

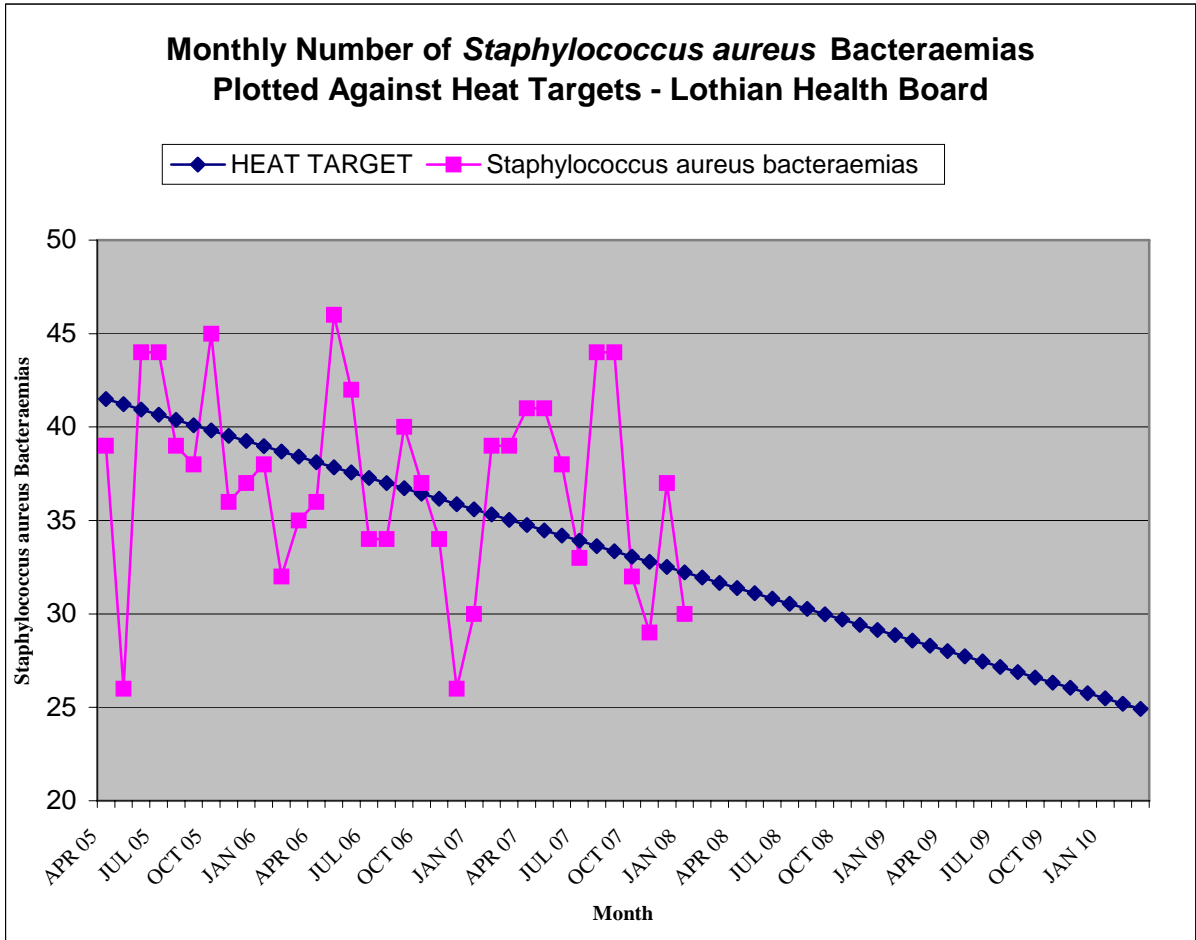
Healthcare Associated Infections may impact to varying degrees on different population groups. Lothian Infection Control Advisory Committee will consider the implications of this for surveillance and ways of monitoring.

APPENDIX 1

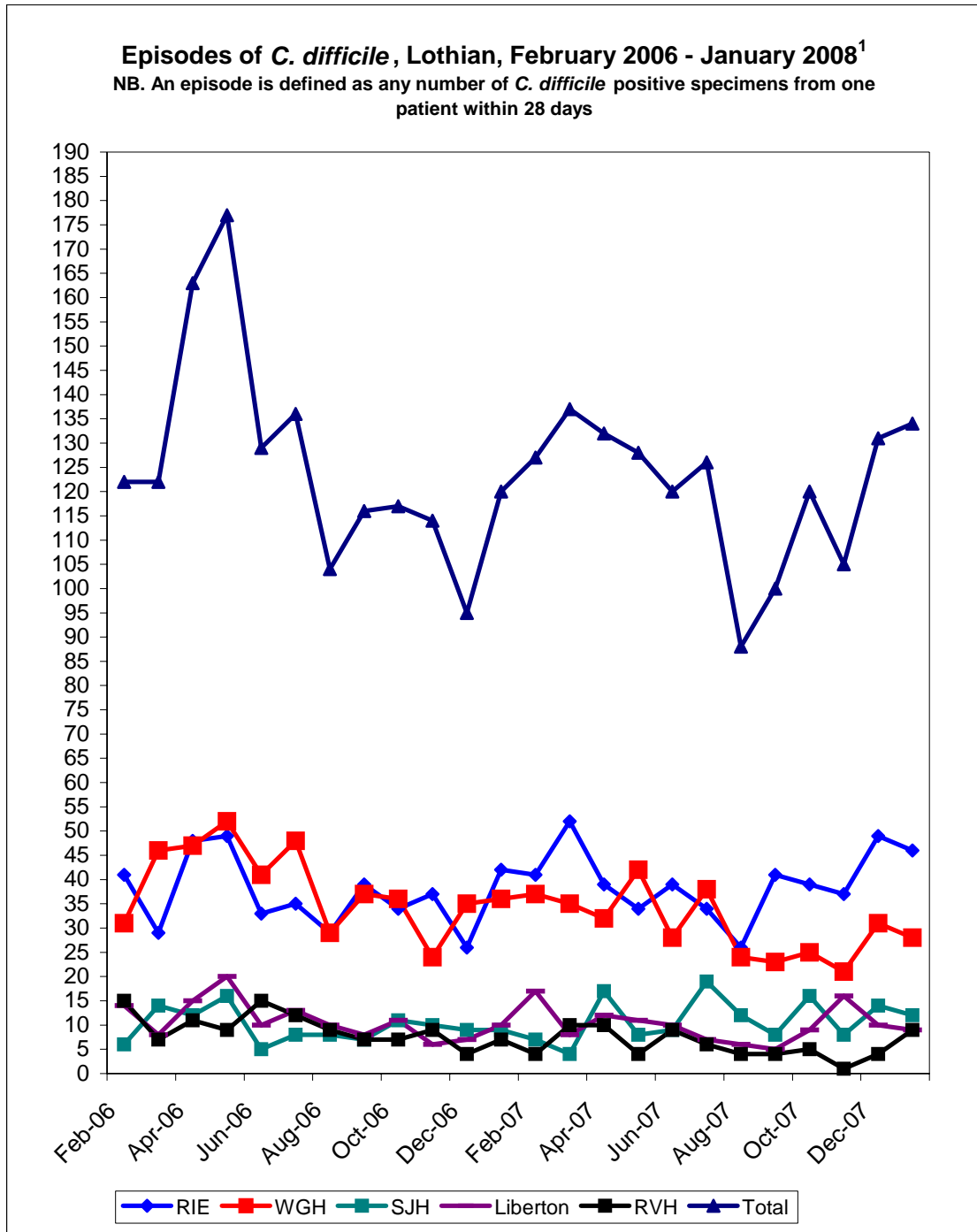


APPENDIX 2





APPENDIX 4



APPENDIX 5

Quarterly Rates of CDAD per 1000 occupied bed days From January to December 2007

C. *Difficile* Rates per 1000 patient bed days by quarter*

| | Jan-Mar | Apr-Jun | Jul-Sep | Oct-Dec |
|---------------------|---------|---------|---------|---------|
| Acute Sector | 1.65 | 1.64 | 1.42 | 1.60 |

*These figures include all ages.

Acute sector – Quarterly numbers

| | Jan-Mar | Apr-Jun | Jul-Sep | Oct-Dec |
|-----------------|------------|------------|------------|------------|
| Liberton | 35 | 33 | 18 | 35 |
| RIE | 135 | 112 | 101 | 125 |
| RVH | 21 | 23 | 14 | 10 |
| SJH | 20 | 34 | 39 | 38 |
| WGH | 108 | 102 | 85 | 77 |
| TOTAL | 319 | 304 | 257 | 285 |

Primary Care – Quarterly numbers

| | Jan-Mar | Apr-Jun | Jul-Sep | Oct-Dec |
|------------------|-----------|-----------|-----------|-----------|
| AAH | 7 | 13 | 12 | 16 |
| Roodlands | <5 | 12 | 7 | 8 |
| GP | 25 | 24 | 23 | 34 |
| Others | 14 | 12 | 7 | 5 |
| TOTAL | 50 | 61 | 49 | 63 |

We are not reporting denominators for primary care at present. The next board brief (28th May) will contain the January to March quarter rates.

APPENDIX 6

Monthly rates of CDAD by sector

Acute sector

| Site | Nov-07 (All included) | Nov-07 (>65 Years) | Dec-07 (All included) | Dec-07 (>65 Years) | Jan-07 (All included) | Jan-07 (>65 Years) |
|--------------|-----------------------------|--------------------------|-----------------------------|--------------------------|-----------------------------|--------------------------|
| Liberton | 16 | 16 | 10 | 10 | 9 | 9 |
| RIE | 37 | 29 | 49 | 47 | 46 | 33 |
| RVH | <5 | <5 | <5 | <5 | 9 | 7 |
| SJH | 8 | 8 | 14 | 13 | 12 | 12 |
| WGH | 21 | 17 | 31 | 25 | 28 | 20 |
| Total | 83 | 71 | 108 | 99 | 104 | 81 |

Primary care

| Site | Nov-07 (All included) | Nov-07 (>65 Years) | Dec-07 (All included) | Dec-07 (>65 Years) | Jan-07 (All included) | Jan-07 (>65 Years) |
|--------------|-----------------------------|--------------------------|-----------------------------|--------------------------|-----------------------------|--------------------------|
| AAH | 5 | 5 | 5 | 5 | <5 | <5 |
| Roodlands | <5 | <5 | <5 | <5 | 7 | 7 |
| GP | 11 | 7 | 11 | 10 | 14 | 14 |
| Others | <5 | <5 | <5 | <5 | <5 | <5 |
| Total | 19 | 15 | 19 | 17 | 25 | 25 |

Most cases both in the acute (78%) and primary sector (100%) are in patients over 65 years of age in January.

APPENDIX 7

Annual Respiratory Syncytial Virus surveillance at Royal Hospital for Sick Children

| Year | 2006-2007 | 2007-2008 |
|---|--------------------------------|-------------------------------|
| NPT start date | 13 th November 2006 | 1 st November 2007 |
| Report period | 01/1/2007-31/1/2007 | 1/1/2008-31/1/2008 |
| Number of patients tested in A&E | 121 | 119 |
| Number NPT positive | 72 | 57 |
| Number Virology positive (A+E)* | Unknown** | 49 |
| Number Virology positive (other wards) | 41 | 25 |
| Number NPT negative virology pos, | 7 | 7 |
| Number NPT pos & Virology negative | 14 | 15 |
| Number nosocomial cases | 0 | 5 |
| Total Number of cases | 106 | 74 |

* 3 pts positive by NPT, no sample sent to virology. 2 samples have no NPT result recorded. 2 patients did not have NPT done.

** In January 2007 virology tested every 5th positive from A+E

Norovirus Surveillance program

This year the Norovirus season started on September and is still on going. A total of 64 incidents of gastro-enteritis have been investigated until present date. Norovirus was confirmed on 49 instances (77%), 15 are unknown but presumed Norovirus on epidemiological grounds. The trend suggests that the worst of the season is over.

| Month | Number of incidents |
|-----------------|---------------------|
| September | 2 |
| October | 7 |
| November | 22 |
| December | 12 |
| January (2008) | 11 |
| February (2008) | 10 |