APPENDIX L

Maidstone and Tunbridge Wells NHS
NHS Trust

REPORT TO: **Trust Board**

REPORT FROM: **Acting Director for Infection Prevention and Control**

DATE: **May 2007**

SUBJECT: **Quarterly Infection Control Report**

RECOMMENDATION: **For information**

SUMMARY:
This is the first quarterly infection control report. It is aimed to provide the Board with an overview of all infections which are reportable to the Health Protection Agency on a mandatory basis as well as briefing them of any other issues relating to infection control.

The report will include MRSA bacteraemia and Clostridium difficile against plotted against the set targets as well as GRE bacteraemias, surgical site infection surveillance, MRSA acquisition data, analysis arising from mortality review of patients medical records who have clostridium difficile and have died. The report will also include a summary of any outbreaks which have occurred and any actions taken as a result.

FIT WITH CORPORATE OBJECTIVES:

- To provide safe quality services and experience for patients, staff and the public
- To deliver services which are efficient and productive
- To ensure effective governance of the Trust and its services
- To ensure we are a model employer in the local community and within the NHS
- To deliver financial viability and sustainability

KEY RISKS:

- To ensure action plans are implemented to reduce HCAI – in particular MRSA bacteraemias and *Clostridium difficile*

ACTION REQUIRED:

- To receive the report and note it's contents

Quarterly Infection Control Report – January to March 2007

1. Introduction

The Infection Control Team (ICT) have reviewed their reporting systems. There is to be a monthly report for the Trust Board as part of the Integrated Governance report, which will include the incidence of Meticillin resistant *Staphylococcus aureus* (MRSA) positive blood cultures (bacteraemias) against the target and *Clostridium difficile* toxin associated diarrhoea against the locally set target. Data for patients who have had either infection and have died and this is entered on the death certificate either as a main cause of death or a contributory factor will also be collated. All patients who have died but where this is not identified on the death certificate will also be monitored as an indicator for action or response to action.

There will also be a quarterly report covering the time periods January to March, April to June, July to September and October to December for each year. These will plot the monthly figures together to aid with trend analysis. All other data which is reported on a mandatory basis to the Health Protection Agency will also be included – Glycopeptide-Resistant Enterococci (GRE) bacteraemias and Surgical Site Infection Surveillance for orthopaedic surgery. Results from the mortality review of medical records for patients who have *Clostridium difficile* and have died will also be included. The quarterly report will also include an overview of other issues relating to Infection Control as well as summarising the activities carried out by the ICT and progress against compliance with the Health Act (2006), and the annual forward plan for infection control.

2. Overview of Infection Control Activities

The focus for the Infection Control Team has been to continue the implementation of the Annual Infection Control Programme, in particular the concentration on the action plans for MRSA bacteraemia reduction and *Clostridium difficile* associated diarrhoea.

There have been five outbreaks of infection during this quarter as summarised below:

- January 2007 - *Clostridium difficile*, Kent & Sussex Hospital (SUI declared)
- February 2007 – Norovirus, Kent & Sussex Hospital, Wards 3, 5 and 11a
- March 2007 – Norovirus, Kent & Sussex Hospital, Ward 3
- March 2007 – Norovirus, Maidstone Hospital (SUI declared)
- March 2007 – *Clostridium difficile*, Maidstone Hospital, Foster Clark Ward (SUI declared)

A detailed summary of each outbreak is included further on in the report.

It should also be noted that patients with confirmed *Clostridium difficile* infection were cohorted again onto Whatman Ward, bay D and side rooms 3 and 4, as the number of patients with this infection remaining within the hospital had reached a point where side room flexibility had been lost.

3. HCAI Statistics

The mandatory reportable organisms to the Health Protection Agency are graphically represented below:

3.1 MRSA Bacteraemia

Bacteraemia occurs when bacteria get into the bloodstream. Bloodstream infection is also sometimes called septicaemia, which implies greater severity/clinical significance. A wide variety of bacteria can cause bacteraemias, the one of the most common being *Staphylococcus aureus.*

Staphylococcus aureus is a bacterium that is a common coloniser of human skin and mucosa. *Staphylococcus aureus* can cause disease, particularly if there is an opportunity for the bacteria to enter the body. Illnesses such as skin and wound infections, urinary tract infections, pneumonia and bacteraemia (blood stream infection) may then develop. It can also cause food poisoning. Most strains of this bacterium are sensitive to many antibiotics, and infections can be effectively treated. Some *S. aureus* bacteria are resistant to the antibiotic meticillin, termed meticillin-resistant *Staphylococcus aureus* (MRSA).

The mandatory *Staphylococcus aureus* bacteraemia surveillance scheme began in April 2001.

This scheme is operated by the Health Protection Agency on behalf of the Department of Health. Data are requested monthly and are entered onto a web-based reporting system, now called the HCAI enhanced surveillance system.

The following are collected as part of the surveillance scheme:

- Total blood culture sets examined (a sample arising from a single venepuncture, irrespective of the number of bottles tested)
- Total number of positive blood cultures (all positive results for bacterial growth, including repeat specimens and contaminants)
- Total meticillin-sensitive *S. aureus* (MSSA) bacteraemias
- Total meticillin-resistant *S. aureus* (MRSA) bacteraemias

Positive blood cultures from the same patient within 14 days of the initial culture are considered to be part of the original episode and should not be reported. Duplicate reports, more than 14 days apart should be reported as these are considered to be a separate episode.

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	Total Blood Cultures Processed	Total Positive Blood Cultures (All organisms)	Total MSSA Positive Blood Cultures (Actual)	Hospital Acquired	Community Acquired	Total MRSA Positive Blood Cultures (Actual)	Hospital Acquired	Community Acquired	Projected MRSA Positive Blood Cultures
Apr-06	787	112	**3**	0	3	**4**	3	1	3
May-06	857	157	**6**	2	4	**8**	4	4	3
Jun-06	940	149	**4**	1	3	**6**	3	3	3
Jul-06	943	171	**3**	1	2	**2**	1	1	3
Aug-06	842	166	**9**	2	7	**4**	3	1	3
Sep-06	863	162	**3**	1	2	**5**	4	1	2
Oct-06	976	172	**7**	2	5	**1**	0	1	2
Nov-06	907	162	**6**	0	6	**5**	4	1	2
Dec-06	951	162	**5**	1	4	**5**	4	1	2
Jan-07	1038	202	**6**	3	3	**1**	1	0	2
Feb-07	938	170	**3**	0	3	**0**	0	0	2
Mar-07	920	155	**4**	1	3	**0**	0	0	2
Totals	**10962**	**1940**	**59**	**14**	**45**	**41**	**27**	**14**	**38**

Table 1: Illustration of total blood cultures processed within the microbiology laboratory, total amount which become positive and of those which were MSSA and MRSA positive broken down by hospital or community acquired and performance against agreed target for MRSA

Following root cause analysis of each bacteraemia, main sources for infection have been identified as the presence of indwelling peripheral IV line and pre-existing urinary tract infection, associated with indwelling urethral catheter. A peripheral line audit carried out on the Maidstone site in February identified key actions in association with the management of care of these lines, namely documentation of insertion dates. This has triggered actions to improve this documentation and management of indwelling devices in general in conjunction with a more extensive roll out of the Saving Lives Programme, in association with the Chief Nurse, which will audit care and management of indwelling devices by staff at ward and department level and enable them to learn from the audit findings and identify key areas for action.

The National and Local Picture for MRSA Bacteraemia

The table below illustrates the Trusts position compared nationally with regard to reporting of actual numbers for MRSA bacteraemia.

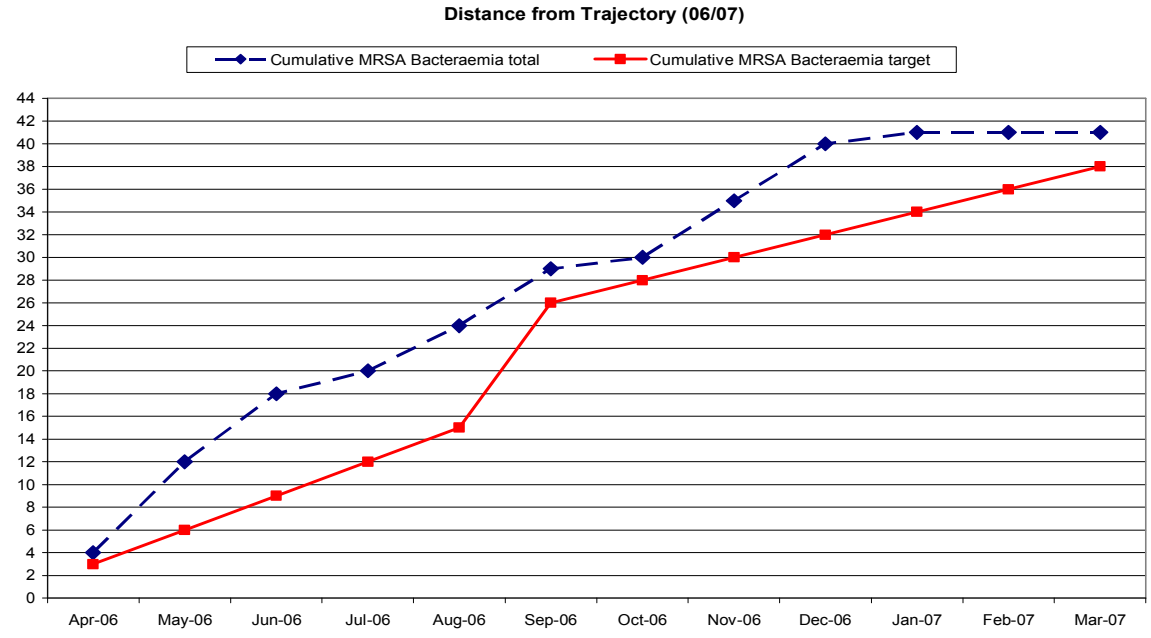
It can be seen that for quarters one and two 2006/07 the Trust was in the bottom third of Trusts reporting the highest actual number for MRSA bacteraemia. For quarter three, it can be seen that the Trust improved to be in the middle third.

	April-June 2006	July-September 2006	October-December 2006
Total Number of Trusts reporting	172	172	172
Trust position (from the highest number of reports)	32	54	63

Table 2: Illustration of Trust Performance compared with the National Picture for MRSA Bacteraemia Reports

The MRSA bacteraemia performance can then be illustrated, as below, as a year end performance against an agreed trajectory or target.

Figure 1: Trust Performance against MRSA Bacteraemia Target (1st April 2006 to 31st March 2007)



The target for 2007/2008 is 23 MRSA bacteraemias.

3.2 *Clostridium difficile*

Clostridium difficile in patients above 65 years of age is part of mandatory reporting to the Health Protection Agency. Internally we have monitored the total number of cases in all age groups for the past year. C. difficile may occur as sporadic cases, or as part of an outbreak. There are a number of predisposing factors for C. difficile infection including underlying conditions, antibiotic usage, age etc.

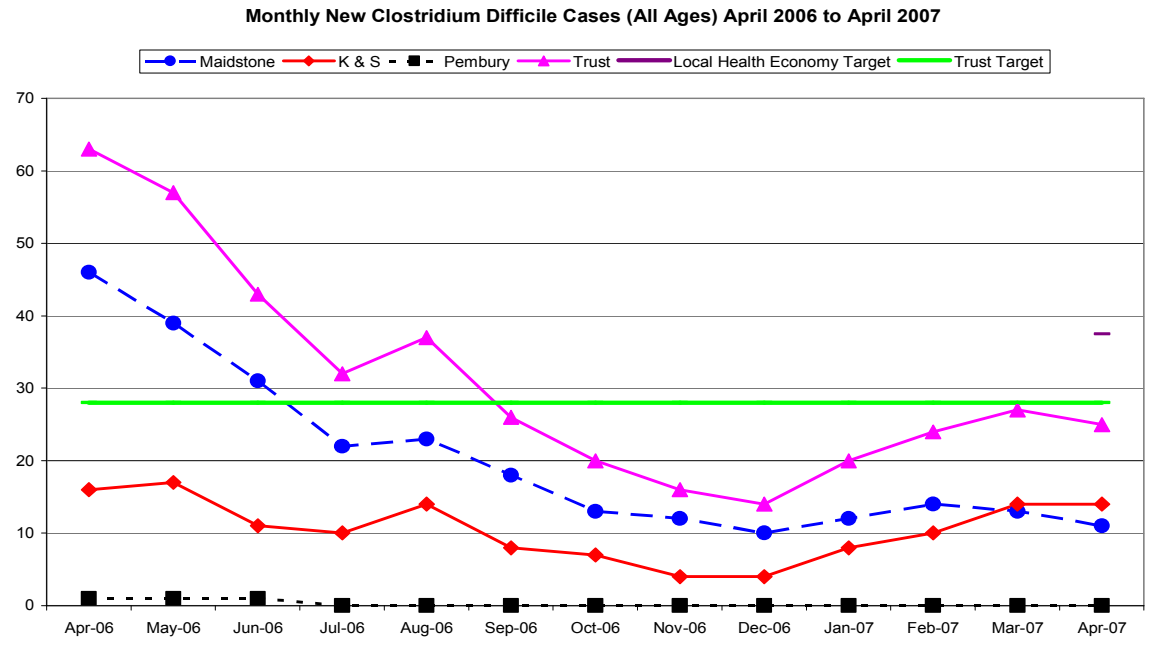
From 1st April 2007 the criteria for mandatory reporting of C. difficile is changing to encompass all positive results in patients above 2 years of age. The reporting will be through the web based system which is in existence for MRSA bacteraemias.

Along with this, Trusts now have to set locally agreed targets with the PCTs for C. difficile. The target we have within the SLA with WK PCT is 450 for the year. This equates to 37.5 per month for the Trust as a whole. We have our internally trigger threshold of 28 per month, divided across each site with a split of 20 at Maidstone and 8 at Kent & Sussex. This enables to ICT to have triggers for action arising from their monthly surveillance.

The graph below illustrates the outbreak of C. difficile that occurred from April 2006 and how the implementation of control measures has brought the incidence of new cases down throughout the year.

We have been experiencing a rise in incidence particularly on the Kent & Sussex site since January of this year, details of outbreaks associated with this rise are detailed later in this report.

Figure 2: Monthly new in hospital cases of *Clostridium difficile* (All ages) by site (1st April 2006 to 31st March 2007)



The National and Local Picture for *Clostridium difficile*

The table below illustrates the Trusts position compared nationally with regard to reporting of actual numbers for *Clostridium difficile* in patients >65 years of age.

It can be seen that for quarters one and two 2006/07 the Trust was in the bottom third of Trusts reporting the highest actual number for *Clostridium difficile* (improving from the bottom of the bottom third to the top of the bottom third from quarter one to quarter two). For quarter three, it can be seen that the Trust maintained in the middle third.

	April-June 2006	July-September 2006	October-December 2006
Total Number of Trusts reporting	172	172	172
Trust position (from the highest number of reports)	14	54	52

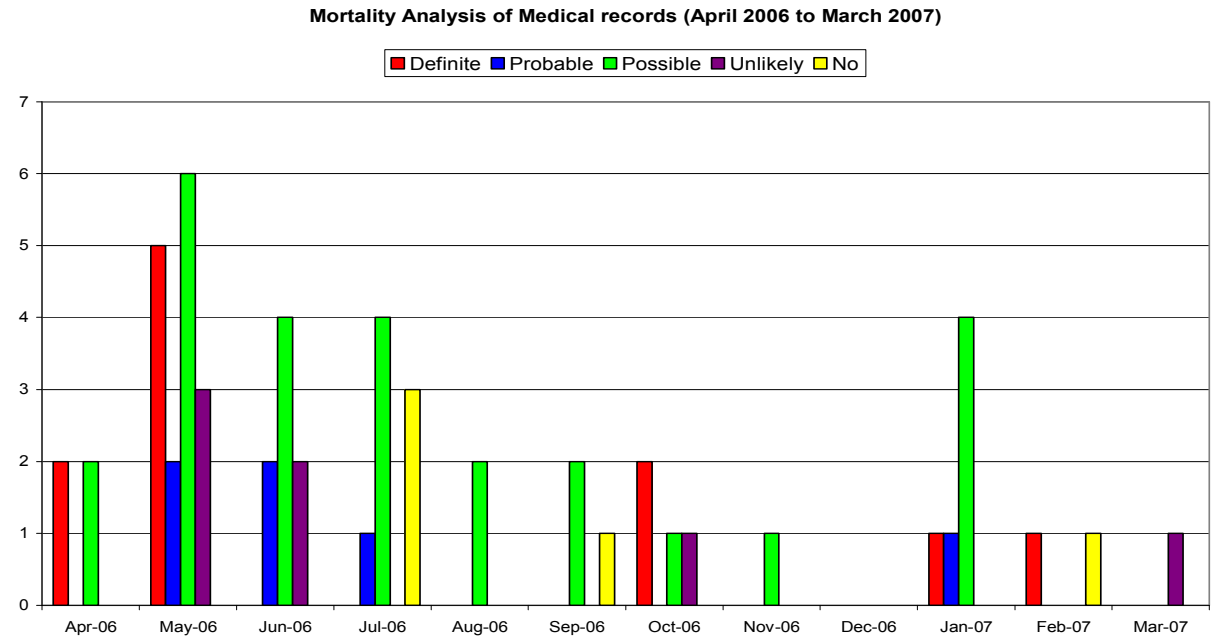
Table 3: Illustration of Trust Performance compared with the National Picture for *Clostridium difficile* Reports

3.3 Patients Who Have Had Clostridium Difficile and Have Died

As part of the ongoing reporting and review processes undertaken within the ICT, the collation of data pertaining to patients who have had C. difficile and have died continues. This commenced during the outbreak of 2006 and will be an ongoing part of the ICT activities.

The graph below illustrates data following mortality analysis of the medical records of those patients who have had C. difficile and have died and this is reported on the death certificate as either a main cause of death or contributory factor.

Figure 3: Mortality Analysis of Medical Records for Patients who have C. difficile and have died



This graph illustrates that there have been a further three patients whose death was either definitely or probably as a direct result of C. difficile for quarter 4 of 2006/07.

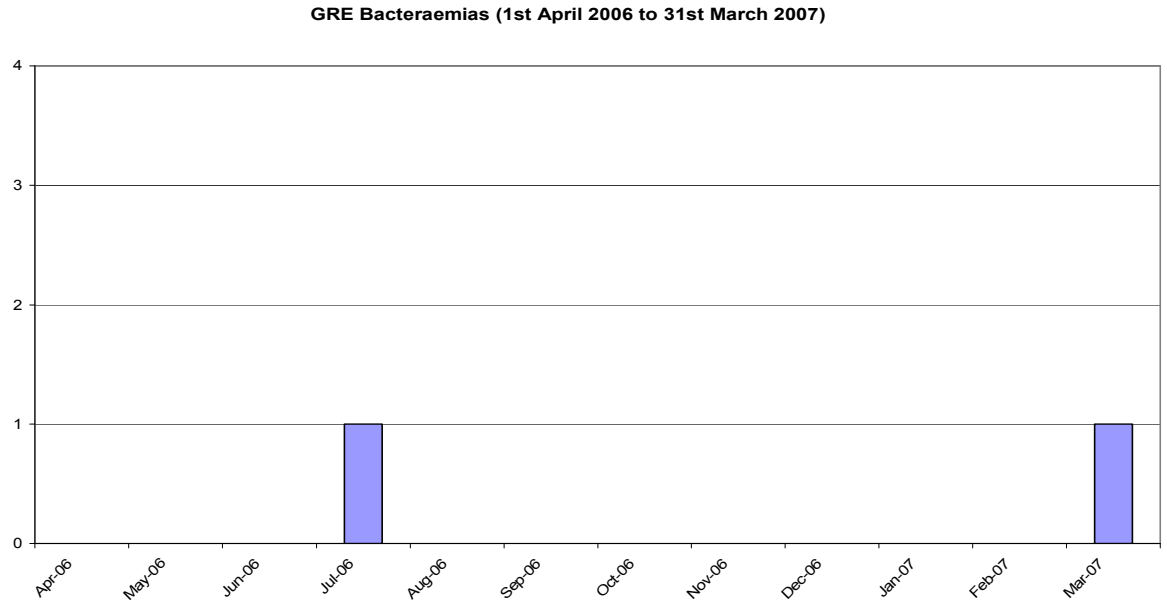
3.4 Glycopeptide-Resistant Enterococci (GRE) Bacteraemias

Enterococci are bacteria that are commonly found in the bowel of normal healthy individuals. They can cause a range of illnesses including urinary tract infections, bacteraemia (blood stream infections) and wound infections.

The two most common species of Enterococci are *E. faecalis* and *E. faecium*. During the mid-1980s enterococci with resistance to glycopeptide antibiotics such as vancomycin and teicoplanin emerged, termed glycopeptide-resistant enterococci (GRE). Most GRE are *E. faecium*.

GRE surveillance has been mandatory since September 2003.

Figure 4: GRE bacteraemias from 1st April 2006 to 31st March 2007



Neither of these patients is thought to have acquired GRE as result of cross infection on hospital.

3.5 Mandatory Surgical Site Infection Surveillance

In *Getting Ahead of the Curve* the prevention of healthcare associated infection (HCAI) was highlighted as a priority for action by the Chief Medical Officer. A component of the strategy for action is surveillance, including surveillance of Surgical Site Infections (SSI). A sub-group of the Department of Health's Healthcare Associated Infection Surveillance Steering Group made recommendations for extending surveillance of SSI in orthopaedic surgery to all English Trusts, greater ownership of the surveillance by orthopaedic professionals and the development of systems to enable local data handling. Subsequently, surveillance of SSI in orthopaedic surgery became mandatory from April 2004.

Below are graphs illustrating the total number of operations for each of the procedures which are mandatory – knee replacement, hip replacement and hemi-arthroplasty, for each site (Kent & Sussex and Maidstone) followed by a graph for

each illustrating the infection rates for each for each site up to the quarter October to December 2006.

Although the Trust is up to date with this data collection and submission to the Health Protection Agency (HPA), there is always a time lag in the reports returning from the HPA following their analysis as they need to wait for data from all hospitals taking part in order to put the figures of all hospitals in the reports.

Following the data below for Oct-Dec 2006 is the raw data collated internally for Jan-Mar 2007. It needs to be borne in mind that this is raw data and may be altered once analysed by the HPA and will not put local data in perspective to all hospitals.

Figure 5: Total knee replacement operations and associated infections Jan 2005-Dec 2006

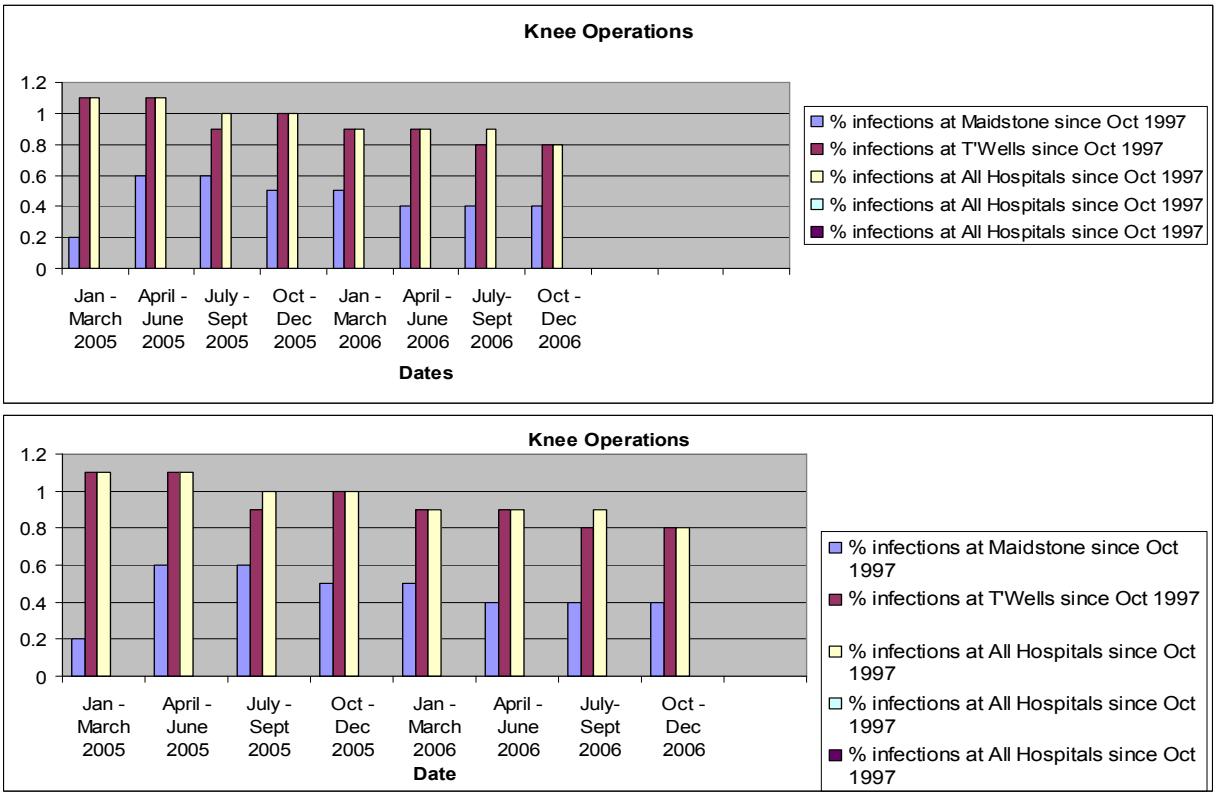
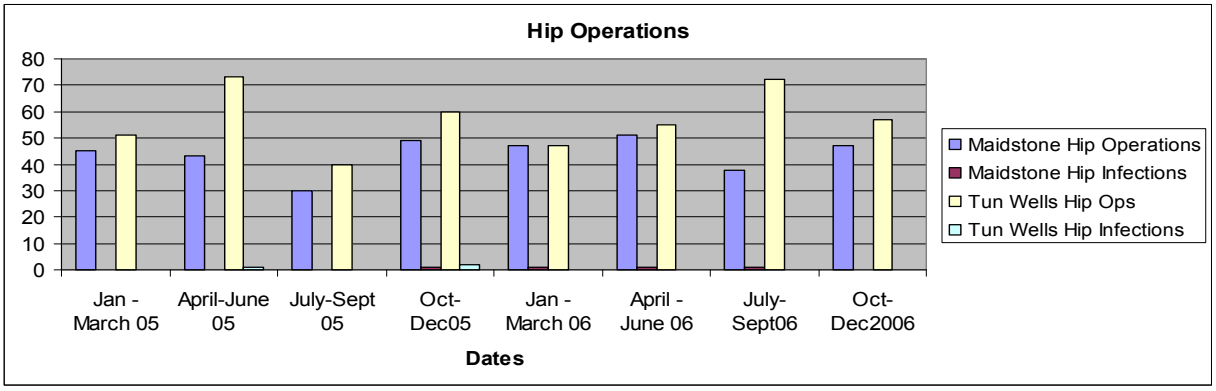


Figure 6: Total hip replacement operations and associated infections Jan 2005-Dec 2006



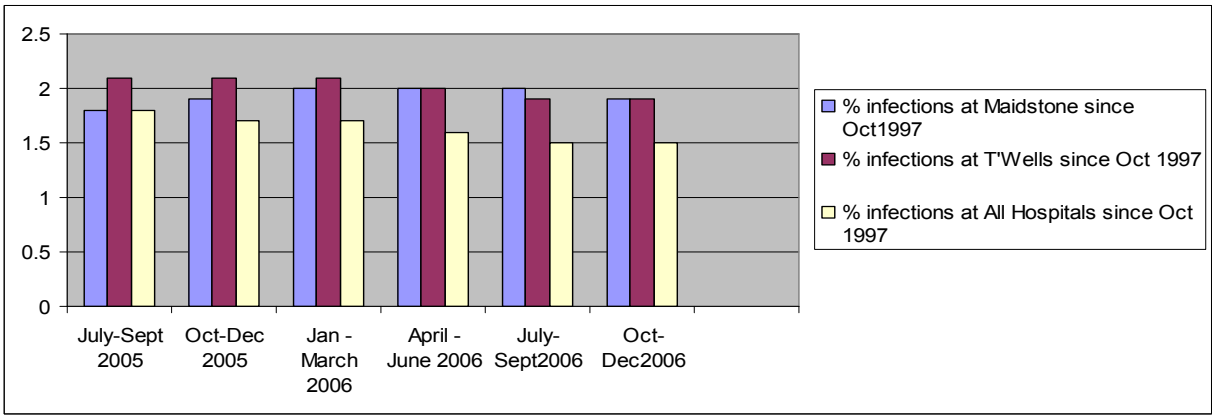
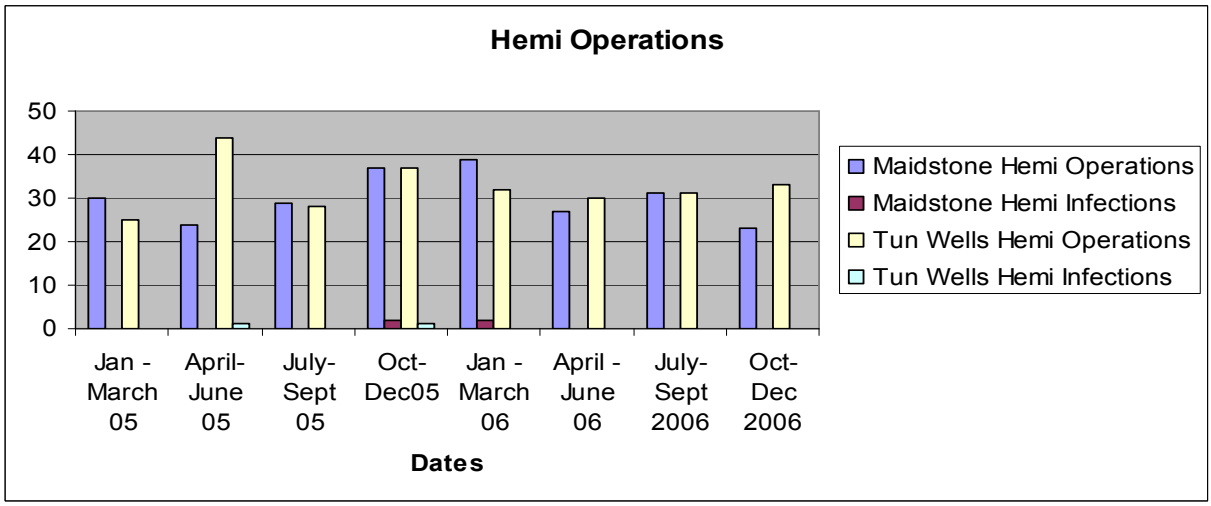


Figure 7: Total hemiarthroplasty operations and associated infections Jan 2005 to Dec 2006



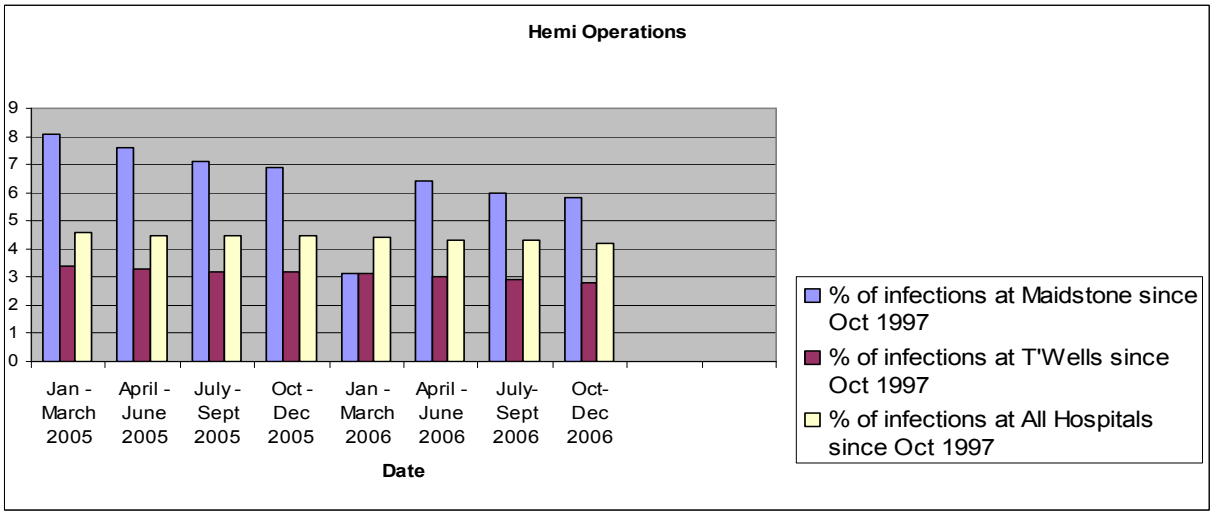


Table 4: Raw data Collected Internally January to March 2007

	Kent & Sussex	Maidstone
Hip Operations Performed	55	34
Surgical Site Infections	1	1
Knee Operations performed	52	55
Surgical Site Infections	1	0
Hemiarthroplasty Operations Performed	43	19
Surgical Site Infections	3	1

3.6 MRSA Acquisition Data

In addition to Mandatory surveillance the Infection Control Team also collate data relating to new MRSA acquisitions (both infections and colonisations), other than bacteraemias as illustrated in the graphs below.

There will shortly be a revised MRSA guidelines document to be issued from the Infection Control Team which recommends increased screening in line with national Guidelines. The new acquisition line as illustrated below will start to rise as a result of this as the more screening carried, the more new cases will be found. This will enable us to know our population and the carriage rate of MRSA and plan for appropriate placement and procedures accordingly, thereby reducing the risk of cross infection from the unknown carrier.

Figure 8: Illustration of MRSA positive results (new and previously known cases)

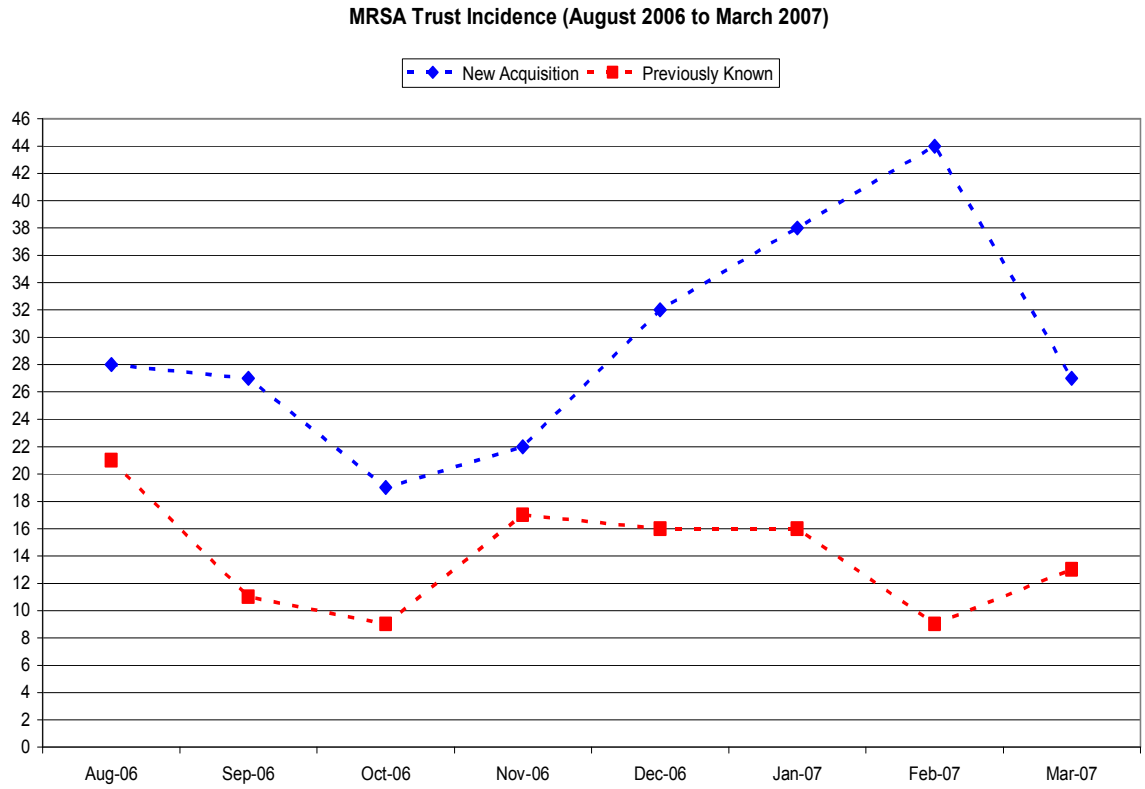
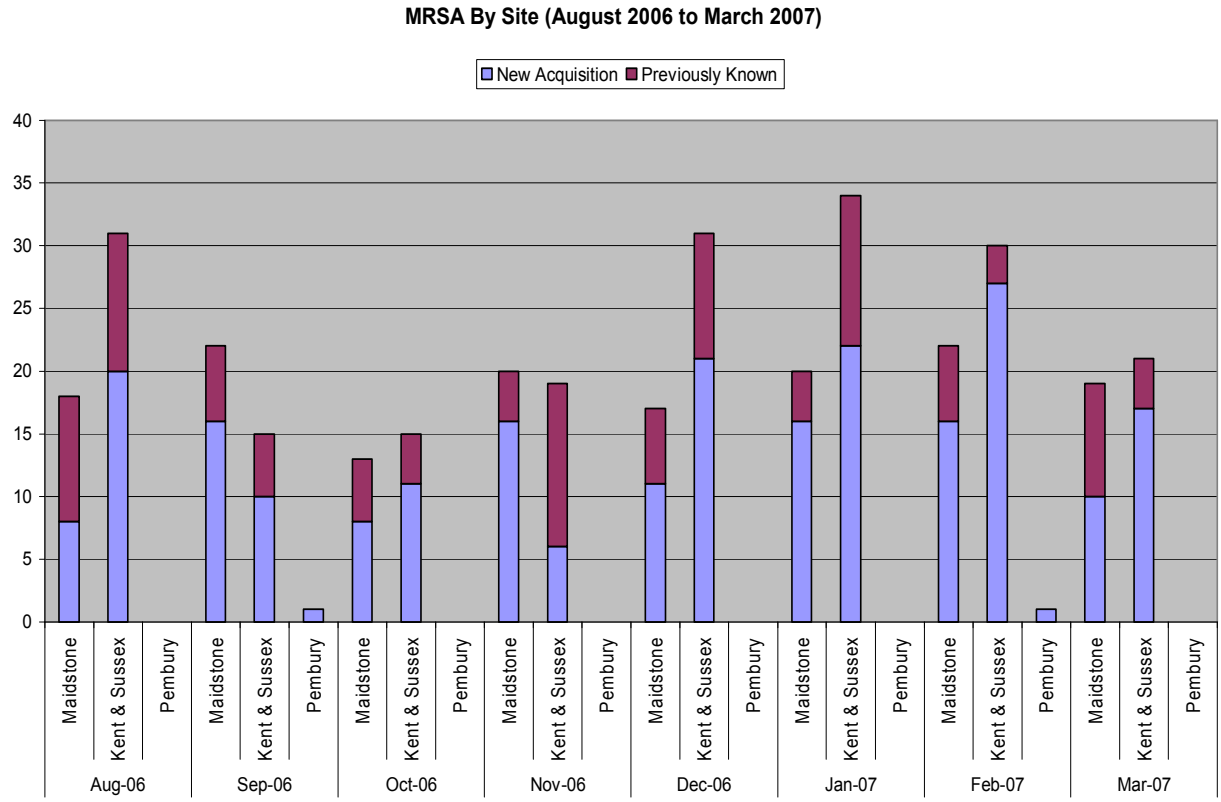


Figure 9: Illustration of MRSA positive results (new and previously known cases) by site



4.0 Outbreaks

Table 5: Summary of Reported Outbreaks of Infection 1st January 2007 to 31st March 2007

Date of outbreak	Type of outbreak	Number of patients involved	Number of wards	Number of staff affected	Actions	Wards closed	Number of beds lost	Date outbreak declared over
30th January 2007	CDT (K&S)	**11** (plus 4 identified as false positives due to a lab. error 3 - Ward 10 1 – ICU)	**8** Ward 10 = 3 (1 via GP post discharge) Ward 5 = 1 Ward 8 = 1 Ward 12 = 1 Ward 14a =1 (via GP post discharge) Ward 11a = 3 (2 via GP post discharge) Ward 9 = 1	**None**	**1**. • Outbreak declared • SUI declared • Reported to HPU **2.** Cases identified, isolated with dedicated toilet facilities and barrier nursed **3**. Stool charts implemented **4.** Patients prescribed the necessary systemic treatment, antibiotic review **5.** Patient / visitor information given **6.** Daily out break meeting held **7.** Enhanced cleaning with Actichlor plus **8.** Increase in cleaning personnel **9.** Implementation of daily diarrhoea assessment form **10**. Restricted visiting	**None**	None as all patients accommodated in single rooms	**9th February 2007**

15th February 2007	Norovirus (K&S)	**28**	**3** wards involved • Ward 11a • Ward 3 • Ward 5	**8**	**Ward 11a:** • Two patients identified with Norovirus: one was discharged the other transferred to ward 3 • Eleven beds were closed for 24 hours. The ward was terminally cleaned and re-opened. **Wards 3 & 5:** **1**. Outbreak declared. **2**. Daily out break meetings and reports **3.** Implementation of daily diarrhoea assessment form **4.** Enhanced cleaning with Actichlor plus **5.** Increase in cleaning personnel **6.** Patient /visitor and staff information provided on Norovirus. **7.** Use of ward closure posters. **8**. Restricted visiting	**3** • Ward 11a for 24 hours • Ward 3 for the duration of the outbreak • Ward 5 closed for 5 days	**17**	**2nd March 2007**
9th March 2007	Norovirus (K&S)	**13**	**1** Ward 3	**2**	**1**. Minor outbreak declared **2.** Daily monitoring with daily reports **3.** Use of strict universal precautions **4.** Enhanced cleaning with Actichlor plus **5**. Patient / visitor and staff	**1**	**6**	**21st March 2007**

					information provided on Norovirus. **6**. Restricted visiting **7.** Use of ward closure posters.			
24th March 2007	Norovirus (Maidstone)	**127** (+3)	**14** Primary wards affected with highest incidence : Cornwallis : 26 John Day ; 21 Jonathan Saunders : 14 Foster Clark : 15 Whatman : 13 Boxley : 10	**28** staff directly related to affected wards **Plus : 29** other staff reported from other areas of hospital	**1**. • Major outbreak declared • SUI declared • Reported to HPU **2.** Daily assessment and advice by IC team issued on management **2.** Implementation of daily diarrhoea assessment form **3.** Daily out break meetings - Commenced 26/03/07 **4.** Trust wide daily Outbreak Summaries issued from 26/03/07 **5.** Enhanced cleaning with Actichlor plus **7.** Night time cleaners used for terminal cleans and increased cleaning of affected wards toilets/ sluice rooms overnight help **8.** Rationalization of domestic and tea ladies movements **9**. Restricted visiting **10**.Patient /visitor and staff information provided on Norovirus. **11.** Use of ward closure posters	**Cornwallis** 24/03/07 - 07/04/07 Bay A remained closed till 14/04/07 **John Day** 26/03/07 – 09/04/07 **Boxley** Bay A 25/03/07 – 29/03/07 Bay B 31/03/07— 7/04/07 Bay C 09/04/07- 10/04/07 Bay B 09/04/07- 14/04/07 **Culpepper**	**114** **61** **21** **12**	**13th April 2007**

					13. HCC notification of outbreak **14.** External communication – radio and local newspaper **15.** Extraordinary meeting of Kent Wide ICC **16.** Close liaison with bed management	Bay C 25/03/07 Whole ward closed 28/03/07 -01/04/07 **Jonathan Saunders** Bays A+B 27/03/07 Bay A re-opened 07/04/07 Bay B re-opened 12/04/07 **Pye Oliver** Bay B 29/03/07 Whole ward closed 31/03/07 re-opened 03/04/07 **Whatman** BaysB+D 29/03/07 Whole ward closed 03/04/07 Bay B reopened 06/04/07 Bay C+D re-	**31** **40** **18** **39**	

						opened 08/04/07 Bay A re-opened 14/04/07 **Foster Clark** Bay –B closed 29/03/07 Whole ward closed 31/03/07 Bay B-re-opened 06/04/07 Bay C=D re-opened 09/04/07 Bay A re-opened 13/04/07 **Mercer Ward** Bay A+D closed 03/04/07-09/04/07 Bay A closed 10/04/07-11/04/07 **Whitehead**	**17** **6**	

						Bay A closed 03/04/07-11/04/07		
31st March 2007	CDT (Maidstone)	**4** patients identified between 27/03/07-02/04/07	**1** Foster clark	None	1. SUI declared 2. Isolation / cohorting of CDT positive patients to Bay B and later into Side Rooms 3. Designated staff following strict isolation/ barrier nursing precautions cared for CDT positive patients. 4. Disinfection cleaning throughout whole ward with particular attention to affected bay/ sluice room/ toilets 5. Information on CDT given to both patient relatives and visitors. 6. Review of antibiotic history of CDT positive patients 7. Ribotyping of specimens – revealed all 4 samples to be type 106. 8. Review of environmental cleanliness of ward 9. Close liaison with bed management	In midst of Norovirus outbreak 24/03/07-13/04/07	Beds lost part of the above figure during that period	**07th April, 2007**

5. Other Infection Control Team Activities

5.1 The Health Act 2006

The Health Act 2006, which introduces a code of conduct for minimising the risk of healthcare associated infection, came into force with effect from 2nd October 2006. A gap analysis has been fully undertaken which was presented to the Trust Board earlier this year and an action plan has been compiled to ensure that the Trust is fully compliant.

5.2 Commodes

An audit of commode chairs was carried out across both sites in September for K&S and November 2006 for Maidstone. A large numbers of commodes had physical faecal staining and a number had to be condemned. Those that were identified as needing to be condemned were all replaced. Following this audit there was an intensive awareness raising campaign regarding decontamination.

The audit is to be repeated on 24th and 25th May for both sites.

5.3 Macerator Installation

There is a programme of replacing bed pan washers with macerators on the Kent & Sussex and Pembury sites which is well underway. There is also a programme to replace a numbers of macerators on all sites which are in need of replacement which is happening along side the bed pan replacement programme. The ICT have been involved in each stage of the planning for this programme to ensure all infection control considerations are risk assessed and managed. All areas needing macerator installation to replace bed pan washers are using maceratable bed pans and urinals and disposing of them as clinical waste in the interim.

5.4 Bed Reduction Programme (K&S)

All beds identified for removal from the balcony end of the wards have now been removed. There is to be a programme of work commencing after the macerator installation programme to install hand wash basins to that end of the ward and to reconfigure the curtain tracking to accommodate the bed reduction. Ward 14a is to be used as a decant area for patients whilst work is carried out on each ward.

6. Recommendation

Board is asked to note this report.

APPENDIX L