Annual Report

Infection Prevention and Control

April 2012 - March 2013

Public Health
Nottinghamshire County
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1. Executive Summary

- The Public Health infection prevention and control annual report summarizes the progress made during 2012-13 to ensure the prevention and control of healthcare associated infections (HCAI) across services commissioned by NHS Nottinghamshire County Primary Care Trust. This report focuses on key achievements, areas for improvement and future planning required by the newly formed Clinical Commissioning Groups (CCG) who will take over this responsibility from April 2013.

- NHS Nottinghamshire County achieved a 40% reduction in MRSA bacteraemia cases this year with 4 cases less than the previous year. However the challenging target of a 60% reduction was not met and was breached by 2 cases. From April 2013 the Government considers it unacceptable for a patient to acquire a MRSA blood stream infection whilst receiving healthcare therefore the future objective for all CCGs across Nottinghamshire County will be zero occurrences. This will require a sustained effort to reduce the number of cases from 6 to 0 over the coming year, a 100% reduction.

- Sherwood Forest Hospital Foundation Trust maintained their position of no MRSA bacteraemia cases for the second year running which represents a major achievement. Nottingham University Hospitals Trust breached their objective by 1 case with an end of year total of 5.

- The *Clostridium difficile* objective was met this year by NHS Nottinghamshire County; this is a key achievement as the trust breached this target last year. Sherwood Forest Hospital Foundation Trust met their objective after exceeding their trajectory last year demonstrating an improvement. Nottingham University Hospitals Trust exceeded their target by 5 cases and work is ongoing to meet the further reduction required over 2013-14. Future *Clostridium difficile* objectives have been set and will prove challenging for the responsible CCG. The overall reduction in cases required for Nottinghamshire County over the next year is 78 cases shared across the 5 CCGs.

- This year has seen a changing NHS landscape and a difficult and challenging period of transition. The planned closure of NHS Nottinghamshire County 31st March 2013, the formation of 5 shadow Clinical Commissioning Groups in addition to the transfer of Public Health staff including the Infection Control Matrons to Local Authority has been complex. The following year will see a review of the current infection control arrangements across Nottinghamshire to reflect the change of responsibility over to Local Authority.

2. Infection Control Arrangements

2.1. Trust Board

The joint Chief Executive of NHS Nottinghamshire County and Nottinghamshire City has overall responsibility for the quality of the services commissioned for patients across Nottinghamshire.

From April 2013 the Chief operating Officer in the Clinical Commissioning Group and the Chief Executive of NHS England will have responsibility within their own organization to Annual IPC Report Public Health
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ensure that the services they commission are meeting essential requirements for infection prevention and control and that those services providing health and social care activities are registered with the Care Quality Commission (CQC). Local Authorities will be responsible for health protection and gaining assurance that the public health and social care services they commission meet essential quality and safety standards including infection prevention and control.

2.2. Infection Prevention and Control Team

The profile of Infection prevention and control has risen significantly over the last few years with the introduction of the Health and Social Care Act 2008 and the national reduction targets in place for both MRSA bacteraemia and Clostridium difficile infection. Infection prevention and control is a fundamental part of patient care and an essential element of patient safety; increasingly providers of healthcare are coming under regulation with the Care Quality Commission to ensure compliance with essential standards. The Infection Control Matrons support the Primary Care Trust and future Clinical Commissioning Groups (CCG) with infection control expertise to ensure healthcare associated infection (HCAI) remains high on the agenda. The main focus is to eliminate all avoidable HCAI and to raise standards and sustain continued improvements in infection prevention and control practice.

The infection control team is part of the Public Health Directorate and consists of two Infection Control Matrons working 1.8 whole time equivalent hours. The team greatly reduced in size 2010-11 and the substantial work completed before this time has provided key intelligence for the development of the targeted audit programme that is now in place. The service has a key role in implementing and monitoring improvements in infection prevention and control across commissioned services from local providers and independent contractor services including Nursing Homes, NHS Dentists and GP practices. The team is accountable to the Director of Public Health for Nottinghamshire County and covers a population size of approximately 660,000 spread out over a large geographical area. The recent transition has been complex and challenging for the team with the planned closure of the Primary Care Trust and formation of five shadow Clinical Commissioning Groups, formation of a new Area Team for NHS England and the future move of the Infection control service from NHS into Local Authority from April 2013. Since October 2012 the service provision has been reduced as one full time Matron left on maternity leave leaving one part-time Matron to cover the service, these hours were increased to full time from January 2013 after efforts to find suitable maternity cover were unsuccessful. The reduction in team has impacted on the ability to offer a pro-active service and has resulted in a dramatically reduced programme of work that has relied heavily upon work completed in preceding years which has put strain on the existing service. Despite these challenges sustained progress has been achieved with the HCAI reduction agenda and a clear focus has been maintained.

The Health Protection Agency (Public Health England) provide support to the team with out of hours cover and communicable disease control across the County.

Microbiology support is provided by Sherwood Forest Hospital Foundation trust for the north of the county. There is a Consultant Microbiologist from Nottingham University Hospitals Trust to provide support with the south of the county and in addition is funded to provide advice in an Infection Control Doctor role providing support to the infection control team for community patient management. There are funded MRSA screening posts at both acute trusts to provide follow up advice and collect surveillance data on new and chronically
colonised MRSA patients who are discharged from hospital back into the community. This service operates differently across the two trusts.

2.3. Nottingham City and Nottinghamshire County Health Communities Infection Control Group

This group meets quarterly and has economy wide stakeholder involvement. The key focus of the group is to share performance, good practice, and learning and re-enforce collaborative working on key HCAI reduction plans. This group is not currently meeting as a result of the organizational changes that are ongoing. The value of join working is widely recognized and there are plans that this group will be re-established later in 2013 with CCG leadership.

3. Surveillance and Monitoring of Healthcare Associated Infection (HCAI)

Performance monitoring and assurance frameworks are in place for all commissioned services. NHS Trusts are required to submit formal monthly reports on their performance and position against quality schedules this includes agreed monthly trajectories for both MRSA and Clostridium difficile. NHS Nottinghamshire County is responsible for the performance monitoring of Sherwood Forest Hospital Foundation Trust. NHS Nottingham City performance manages Nottingham University Hospital Trust. Quality scrutiny panels are in place for contract monitoring and performance review of all providers, HCAI is included as a standard agenda item. Contracts and agreements include financial penalties for those trusts in breach of HCAI targets.

3.1. Infection Surveillance

The infection control team collects local surveillance data to facilitate early detection of clusters and outbreaks of infection and monitoring of trends in HCAI. An alert system is in place and specimen results are received from Sherwood Forest Hospitals Foundation Trust and Nottingham University Hospital Trust, this provides data on community patients with alert organisms these include Meticillin-Resistant Staphylococcus Aureus (MRSA), Clostridium difficile, Extended Spectrum Beta Lactamase (ESBL), Panton Valentine Leukocidin (PVL) and Norovirus cases

All care home residents with known infections are followed up by the Infection Control Matrons and the care and management is discussed with care staff to ensure that optimum treatment is achieved for the patient. Any patient management concerns including prescribing and clinical management are reported for investigation and follow up actions; this is to promote best practice and to drive up standards of care. Care homes are expected to report outbreaks (2 or more cases of same infection) to the infection control team this allows for early reporting and ensures care homes are offered timely management advice, an essential factor in trying to reduce inappropriate admissions to hospital and prolonged service disruption.

All PVL infections are followed up and infection control expertise offered to support GP and care staff, the management of these cases is important in the fight to reduce re-occurrence and spread. This infection is most associated with recurring skin and soft tissue infections but can in rare cases cause more invasive infections, the most serious of these is necrotising haemorrhagic pneumonia this is linked with a high mortality rate. PVL is more prevalent in healthy young members of the population.

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All toxin positive cases and carriers of community acquired *Clostridium difficile* are followed up by the Infection Control Matrons and infection control expertise is offered to GPs as needed in the management of their patient, and risks of possible relapse and its management are discussed. Clinicians are advised to highlight the infection on the patient record in order to prompt caution for future prescribing and to alert emergency care providers of the result. There is an increased risk of relapse and re-occurrence with this patient group. All toxin positive cases are included in the mandatory reporting and these are counted against the nationally set objective.

There are funded MRSA screening posts at both local acute trusts. This service is in place to provide follow up advice and collect surveillance data on new and chronically colonised MRSA patients who are discharged from hospital back into the community, the service operates differently across the two trusts. The Infection Control Matrons follow up all new and high risk patients who are colonized with MRSA and reside in a county care home. Mandatory MRSA screening is in place across Sherwood Forest Hospitals Foundation Trust and Nottingham University Hospitals Trust; rates are monitored to ensure compliance with national requirements. Admission screening is in place across 4 rehabilitation wards at lings Bar Community Hospital, care here is provided by County Health Partnerships, and screening compliance has been 100% during the period 2012-13.

### 3.2. Mandatory Surveillance

**MRSA**

The Department of Health (DH) Mandatory Enhanced Surveillance Scheme has been used to measure the effectiveness of infection prevention & control practices in all NHS Trusts. The reporting of all MRSA bacteraemia (bloodstream) infections whether acquired in hospital or community must be recorded onto the database on a monthly basis. Hospital acquired cases are identified after 48 hours of admission to hospital and community cases are those that present in community or within 48 hours of admission. Primary care organisation (PCO) cases are population based and include those patients registered with a GP practice within the PCO boundary. Nationally set objectives apply to both acute trusts and NHS Nottinghamshire County. The PCO targets will be applied to individual Clinical Commissioning Groups (CCG) after April 2013.

NHS Nottinghamshire County had a 40% improvement in the number of MRSA bacteraemia cases 2012-13 having 4 cases less than last year. Despite this reduction the trust breached the target of 4, by 2 cases with a year end total of 6 reported.

The chart below shows actual MRSA bacteraemia (MRSAb) cases against the plan for the year 2012-13.
The chart below demonstrates the reduction in total PCO MRSA cases seen during the period 2010-2013.

![Total PCO MRSAb Cases]

**Clostridium difficile (C.difficile)**

*Clostridium difficile* is a spore forming bacterium, which is present as one of the 'normal' bacteria in the gut of up to 3% of healthy adults and is more common in children under 2yrs where it rarely causes problems. People over the age of 65 years are more susceptible to the bacterium causing disease. *C.difficile* particularly causes illness when antibiotics disturb the balance of 'normal' bacteria in the gut. All cases of *C.difficile* are followed up by the Infection Control Matrons to ensure early treatment is in place if required and to determine the likely cause and precautions needed for future prevention. Themes are gathered monthly to try and establish common causes and underlying co-morbidities which may then aid the development of future reduction plans.

The trajectory set for Nottinghamshire County 2012-13 was no more than 231 toxin positive cases. The trust was successful in meeting this target with a year end total of 229. County wide working on *Clostridium difficile* reduction led to local meetings with colleagues from the Health Protection Agency and Nottingham University Hospitals Trust to ascertain suggested ways of working to reducing numbers further with particular emphasis on the south of the county and to discuss possible research projects to review local carriage rates of the infection. These meetings were in response to the high numbers of differing ribotype strains seen in the samples reviewed by Nottingham University Hospitals Trust indicating that the rise in rates was not due to direct cross-infection. In addition a number of patients with *Clostridium difficile* infection in the community do not fit the expected clinical picture as they had not had recent antibiotic exposure or recent hospital admission. The review was to explore the differing possibilities for the increasing number of strains seen, however it was inconclusive and led to the consideration that the local population may have higher than expected colonisation rates or the possibility of a changing clostridium difficile epidemiology. Funding was later secured by NHS Nottingham City for research into local carriage rates of the local population by Nottingham University.

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The chart below shows *C. difficile* total PCO data and the community acquired cases against the plan.

![C. difficile PCO data](chart.png)

The chart above demonstrates *C. difficile* total PCO data cases against the plan April 2009 – March 2013

**Meticillin Sensitive Staphylococcus Aureus Blood Stream Infection (MSSAb)**

Mandatory surveillance started in January 2011. Currently no trajectories have been set. 126 MSSAb cases were reported 2012-13 across Nottinghamshire County patients. MSSA rates remain relatively constant despite the improving infection prevention control practice across healthcare providers and additional measures in place to reduce MRSA bacteraemia.

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Escherichia Coli Blood Stream Infection (E.coli)

Nationally set reduction targets are not in place for E.coli bacteraemia, mandatory reporting started June 2011 and rates remain high. NHS Nottinghamshire County PCO total figures for 2012-13 are 519 cases for the year.

3.3 Sherwood Forest Hospitals Foundation Trust (SFHT)

Sherwood Forest Hospitals Foundation Trust (SFHT) reported no cases of MRSA bacteraemia for the second year running. Clostridium difficile rates have fallen this year and the objective of 36 was met 2012-13 with a total of 29 cases.

The chart below shows all toxin positive post 72 hour cases reported by SFHT 2012-13

3.4 Nottingham University Hospitals Trust (NUHT)

The number of reported MRSA bacteraemia cases reached 5 cases against an objective of 4. A contract query notice was issued September 2012 by commissioners in response to concerns over a possible breach of the MRSA target. Following meetings and service review, a revised MRSA reduction plan was implemented and performance monitoring enhanced. The contract query notice was later closed following these actions.

The chart below demonstrates NUHT acquired MRSAb cases 2012-13
Acute trusts have an objective based on the number of *Clostridium difficile* toxin positive cases reported after 3 days (72 hours) of admission as these cases are deemed trust acquired. The trust target was a maximum of 133 cases; this was breached by 5 with a 2012-13 outturn of 138 reported cases.

The chart below demonstrates NUHT acquired *C.difficile* cases 2012-13

4. Route Cause Analysis

A route cause analysis (RCA) investigation is completed following each MRSA bacteraemia and *Clostridium difficile* death where it is documented on the death certificate as a significant contributory factor. The Infection Control Matrons lead this process of review, this includes cross collaborative working with the acute trusts and multidisciplinary review meetings with representation from all those involved in the patients care. Final reports anonymise patient identifiable data, provide actions for improvement where required, in addition to highlighting areas of good practice. Anonymised reports and themes are shared across the county for further learning.
Over 2012/13 The Infection Control Matrons completed 3 MRSA bacteraemia RCA investigations on behalf of independent contractors 2 in Newark and Sherwood and 1 in Nottingham West, they supported County Health Partnerships with 3 further cases 1 at Lings Bar Community Hospital and 2 in Nottingham East. (See appendix A)

RCA investigations were completed on 1 deceased patient where C. difficile infection was found to be a contributory factor and documented on the death certificate, this is a significant reduction on the 5 cases seen over 2011-12. The main contributory factors in this case were the frail elderly state of the patient and infection from the highly virulent 027 strain of C. difficile. The Infection Control Matrons complete a case review on all community acquired toxin positive C. difficile cases, 127 cases were examined 2012-13. (See appendix B)

5. Outbreaks

Norovirus is the most common cause of diarrhoea and vomiting in England and Wales. Outbreaks cause disruption to care services and when present in a care home lead to temporary closure of the home until the outbreak is over. During 2012-13 there were 37 reported outbreaks of diarrhoea and vomiting in Nottinghamshire County care homes with the majority of cases between November and April. All incidents are followed up by the Infection Control Matrons to ensure the outbreak is managed appropriately to minimize spread, establish cause by obtaining specimens and ensure patients are regularly reviewed and where possible adequately hydrated to prevent hospitalisation. A Norovirus pack and guidance was issued to care homes in October, this year it includes a 15 minute fluid balance chart. A visit was made to the Royal Wolverhampton Hospital NHS Trust to establish any learning after they previously experienced high numbers of Norovirus outbreaks within their trust and local community. A number of measures made key improvements and one was the introduction of the 15 minute fluid balance chart in care homes to reduce the number of residents admitted for rehydration, when oral hydration failed a community based re-hydration service was made available reducing hospital admissions for Norovirus. Outbreak reviews established that admission of a patient with Norovirus from a care home for hydration often led to hospital outbreaks. National Norovirus surveillance is completed by the Health Protection Agency (HPA) all NHS Nottinghamshire County cases are reported to the HPA and wider health economy to alert other services of potential service issues. Outbreaks occurring within the acute trust are reportable; these are monitored by the Quality and Safety teams.

There were 5 suspected scabies outbreaks and 2 respiratory outbreaks reported to the Infection control team in care homes across Nottinghamshire county 2012-13

6. Audit

Historically the Infection Control Team has provided a regular audit programme, annually across nursing homes and GP practices. All NHS dental practices were audited over 2010-2012. For the last two years capacity has been greatly reduced and reliant on the intelligence gathered previously. This year has seen further reduction in the service due to maternity leave resulting in 1 Infection Control Matron since October 2012. A targeted audit programme is in place across nursing homes, GP practices and NHS dental practices this is based upon previous audit work, complaints and service concerns. All independent contractors are expected to complete their own internal audits and retain copies as evidence of good practice for commissioners. The Infection Control Matrons have offered infection control advice and guidance to assist with CQC registration as requested. Residential homes
have been audited following concerns highlighted from CQC visits and around patient care issues.

All areas audited and found to be none compliant with expected standards are asked to submit an action plan within a given timescale, to address the issues raised by the Infection Control Matron. Once improvements are in place the contractor will be included in future targeted audit plans to ensure standards are maintained. Where progress is not made with actions, concerns are highlighted to the CCG Quality and Safety teams, Quality Development Team Nottinghamshire County Council, Contracting Team, Medical Directorate and CQC as appropriate. The following targeted audits have been completed 2012-13 a number of care homes have received more than one visit this is not reflected in the figures below

Nursing Home audit 17
Residential Home audit 16
GP audit 28
NHS dental audit 11

7. Decontamination

All NHS dental practices across NHS Nottinghamshire County are registered under CCQ. Those found not to be fully compliant following CQC inspection or service concerns/complaints have had a follow up visit some have been unannounced and action plans have been requested and followed up until improvements and compliance is met. All GP practices across NHS Nottinghamshire County should be compliant with current decontamination guidance either using single use disposable instruments and/or a certified central sterilization service department for the re-processing of instruments

8. Future Planning

The Infection Control Matrons have moved to Local Authority along with the Public Health Directorate, the primary function will be to provide specialist community infection prevention and control advice and support. A service review is planned across Nottinghamshire to assess the current provision and ensure that the future team meets the needs of the Public Health function and Local Authority responsibilities. Plans are in place to recruit an additional staff member on a temporary contract to cover maternity leave and the service review process.

A continued driver in the reduction of HCAI has been the mandatory reporting of HCAI cases and the challenging objectives set for trusts to meet these targets. These are rigorously performance managed through the commissioning process. The infection prevention specialists will continue to challenge and monitor providers with regard to their performance against trajectory to ensure that these infections are kept under control. The CCG objectives for MRSAb and *C. difficile* will be challenging over the coming year. The ‘quality premium’ is intended to reward CCGs for improvements in the quality of the services that they commission and for associated improvements in health outcomes and reducing inequalities. Preventing HCAI accounts for 12.5% of quality premium payment, based on one of the objectives for Domain 5 of the NHS Outcomes Framework, failure to meet set HCAI objectives will have a direct financial impact on the responsible CCG.

The infection Control Matrons work closely with health community colleagues including the Care Quality Commission around issues of compliance that arise in both NHS organisations
and independent care organisations including care homes and independent contractor services. Specialist knowledge is key to ensuring patient safety in regard to robust infection prevention and control practice. Audit review and route cause analysis have also been an effective way to ensure that providers put in actions to improve and take their infection prevention responsibilities seriously.

The European Sharps Directive comes into effect May 2013. Providers will need to ensure that they meet the requirements needed; this includes the use of needle safety devices and the phasing out of re-sheathing needles which is most likely to affect NHS dentistry.

The national guidance on zero tolerance of MRSA blood stream infections and the new Post Infection Review (PIR) will come into force from April 2013; this replaces route cause analysis for MRSA blood stream infections. The timescale for this investigation has changed from 45 days to 7 working days. This process will be led by the CCG with support from the Infection Control Matron, this process will require strong partnership working by all those organizations involved in the patient’s care prior to the bacteraemia occurring. In exceptional cases where the assignment of the case is not agreed between CCG and acute trust the Director of Public Health will be informed and will be required complete a 14 day review of the case

9. Conclusion

This report provides an update to the Board with regard to infection prevention and control across Nottinghamshire County. This paper has highlighted key areas of achievement, in addition to raising future risks and required actions. The Infection Prevention Matrons continue to work in partnership with both local commissioners and providers through a period of huge re-organisational change. It is crucial that sight is not lost of the importance of infection prevention and control and its role in a sustained and continued reduction in HCAI across Nottinghamshire.
### Appendix A

**MRSAb Community Themes**

**RCA Themes 2012-13**

Route cause analysis was completed on 3 reported MRSA bacteraemia cases on behalf of the independent contractors. 2 cases were in Newark and Sherwood and 1 case in Nottingham West.

<table>
<thead>
<tr>
<th>Date</th>
<th>CCG</th>
<th>Issues Identified</th>
<th>Actions Taken</th>
<th>Good Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 2012</td>
<td>Newark &amp; Sherwood</td>
<td>Male patient over 70yrs with learning difficulties and multiple comorbidities. Recent discharge from hospital with acquired MRSA skin colonization which was treated appropriately and cleared. Patient had long term urinary catheter due to problems with enlarged prostate, they also had a large obstructive renal calculi. They were under regular urology care who support district nurses with advice on catheter issues-patient often difficult to catheterize. No service delivery issues were identified and a confirmed Route cause was not identified. Most likely cause urinary catheter, contributory factor re-occurrence of MRSA skin colonization. Staff performing venepuncture must wear appropriate PPE.</td>
<td>Very few actions identified. Action plan completed new policy put in place.</td>
<td>Good documentation and communication across all agencies.</td>
</tr>
<tr>
<td>February</td>
<td>Nottingham West</td>
<td>Male patient over 70yrs Nursing home resident with long term problematic urinary catheter for enlarged prostate, under care of urology outreach team as difficult and traumatic to catheterize. Known multiple co-morbidities and history of MRSA (treated), pruritis and dry flakey skin condition. Poor Documentation identified- Aseptic technique for.</td>
<td>Action Plan in place to review documentation and urology management. Consideration and review of policy.</td>
<td>Excellent care home documentation. Good communication form GP and discharging ward (verbal).</td>
</tr>
<tr>
<td>Month</td>
<td>Location</td>
<td>Details</td>
<td>Actions/Recommendations</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>-------------------</td>
<td>------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>March</td>
<td>Newark &amp; Sherwood</td>
<td>Female over 70yrs care home resident with severe dementia and behavioral issues. History of urinary incontinence and urine infections (not confirmed). No recent admissions and no history of MRSA or screening. Found to be MRSA positive on screen and in urine on admission to hospital. Likely cause - untreated urine infection. Issues - Action around blood culture policy/training for hospital locum staff. No service delivery issues. Difficulty in obtaining urine specimen for un-cooperative patient. Contributory factor.</td>
<td>Few actions for follow up. Action plan in place for hospital.</td>
<td></td>
</tr>
</tbody>
</table>
HPD IPC Review of MRSA cases 2012/13  
MRSA Bacteraemia

<table>
<thead>
<tr>
<th>Date</th>
<th>Issues identified</th>
<th>Action taken</th>
</tr>
</thead>
</table>
| July 12| Patient admitted to LBH in March 2012 for rehabilitation with mobility. The patient has known vascular dementia. All MRSA screens on admission were negative. The patient developed a wound to the ankle and was swabbed by the ward team for MRSA as routine – this was the first positive result.  
-Ward Doctor obtained a blood culture sample without following the correct procedure as follows:  
  - Incorrect skin cleaning swab used.  
  - Gloves not worn which is against policy for venepuncture.  
Patient also very uncooperative with procedure which made the venepuncture technique difficult to execute well.  
This sample was a probable contaminant.                                                                                             | Re-training for medical staff and clinical team in venepuncture technique and blood culture technique.  
Ensure clinical staff adhere to use of correct skin prep and procedure for blood cultures/venepuncture  
A 'blood culture box' was put together for each ward containing all correct equipment for the procedure |
| Oct 12 | Patient was found to be MRSA positive in a chronic wound on admission to acute services.  
-Swabbing for MRSA on admission was not part of the current Intermediate care and MRSA policies.                                                                                                            | -Screening of high risk patients to be undertaken on admission  
MRSA policy amended to reflect this, currently out for consultation  
-Training has been delivered to intermediate care teams on the policy and screening requirements |
| Dec 12 | It was difficult to establish conclusively a definitive root cause for this case. The evidence shows that the most likely source of the bacteraemia was the chronic leg ulcer. It is possible that had the patient been more concordant with some of the management plans and referrals to specialist clinics for investigations, healing of the legs could have been more achievable and therefore the risk of acquiring an infection would have been reduced.  
-GP practice unaware of MRSA status, broad spectrum antibiotics had been prescribed for wound infection | -To prevent unnecessary prescribing of antibiotics, nurses to inform the doctor when taking wound swabs and to recommend they await the swab results before prescribing antibiotics due to the patients MRSA history. The nursing team to follow up results and action accordingly. Document in nursing notes.  
-GP notes alerted with MRSA status |
Community Themes from Cases of Community Acquired *C. difficile* Infection 2012-13

FINDINGS FROM *Clostridium difficile* CASE SURVEILLANCE
April 2012- March 2013

During 2011/2012 NHS Nottinghamshire County saw a reduction in the number of PCO attributed *Clostridium difficile* Infection (CDI) cases by over 100 cases, this still resulted in a breach of the total trajectory by 4 cases. In the Nottinghamshire healthcare community, action has been taken to carry out investigations on all *clostridium difficile* toxin positive cases in the community setting, this includes GP samples and those cases presenting within 72 hours of admission, to ascertain the potential causes of these cases and to gather common themes. *C. difficile* remains the most important cause of healthcare-associated diarrhoea and is increasingly important as a community pathogen. Cases of CDI in the South of the county, analysed by NUHT laboratories over 2011/12 have revealed multiple different ribo-types and no association i.e. ward, bay or bed, with these cases. Where 2 or more cases have been investigated within the community in Nottinghamshire County, where a similar pattern has been seen with patients presenting with different ribotypes rather than potential cross infection. A theory has been suggested that the epidemiology of CDI has changed and that many of these ribotypes are resident bowel flora. Funding has been secured by NHS Nottingham City to carry out a research project to look at local carriage rates to establish if these differ from the national rates. NHS Nottinghamshire County will assist with this project where required. The Health protection Agency is currently looking at the local CDI epidemiology.

Since April 2012 a standardised two stage testing approach has been implemented nationally by the Department of Health which consists of a *GDH EIA (or a **NAAT /PCR) test to screen samples followed by a sensitive toxin EIA test (or a cytotoxin assay). If the first test is negative then the second test does not need to be performed. All GDH EIA (NAAT) positive, Toxin EIA or cytotoxin positive results are for mandatory reporting to HPA. This has resulted in changes to the testing regimes across both NUHT and SFHT to meet the new guidance.*

(* GDH -Glutamate Dehydrogenase * EIA - Enzyme immunoassay ** NAAT/PCR - toxin gene)

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RCCG/GB/13/115

Here are the Q1 findings April – June 2012. There are a total of 26 pre-72 hour community attributed cases for the year to date, this compares with a total of 46 cases in the same period last year, an overall improvement of 43%.

Results
12 cases were identified on the MESS data as community acquired cases for the month of April. 5 cases from SFHT and 7 cases from NUHT.

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>Recent history of antibiotics</th>
<th>No recent antibiotics</th>
<th>Constipation/On laxatives</th>
<th>PPI/H2 Ant.</th>
<th>Repeat episodes</th>
<th>Care home resident</th>
<th>Recent admissions to hospital</th>
<th>Other bowel disease</th>
<th>Chemo-therapy</th>
<th>Diabetes</th>
<th>Renal disease</th>
<th>Under 65</th>
<th>Over 65</th>
</tr>
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<tbody>
<tr>
<td>June</td>
<td>5</td>
<td>2</td>
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</tr>
<tr>
<td></td>
<td>71%</td>
<td>29%</td>
<td>86%</td>
<td>14%</td>
<td>0%</td>
<td>14%</td>
<td>29%</td>
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<td>86%</td>
<td>0%</td>
<td>43%</td>
<td>29%</td>
<td>29%</td>
<td>29%</td>
<td>71%</td>
</tr>
</tbody>
</table>

Table 1: Themes / trends from community *C. difficile* cases April 2012

7 cases were identified on the MESS data as community acquired cases for the month of May. 5 cases from SFHT and 2 cases from NUHT.

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>Recent history of antibiotics</th>
<th>No recent antibiotics</th>
<th>Constipation/On laxatives</th>
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<th>Diabetes</th>
<th>Renal disease</th>
<th>Under 65</th>
<th>Over 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>May</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>71%</td>
<td>29%</td>
<td>86%</td>
<td>14%</td>
<td>0%</td>
<td>14%</td>
<td>29%</td>
<td>0%</td>
<td>86%</td>
<td>0%</td>
<td>43%</td>
<td>29%</td>
<td>29%</td>
<td>29%</td>
<td>71%</td>
</tr>
</tbody>
</table>

Table 2: Themes / trends from community *C. difficile* cases May 2012

7 cases were identified on the MESS data as community acquired cases for the month of June. 2 cases from SFHT and 5 cases from NUHT.

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>Recent history of antibiotics</th>
<th>No recent antibiotics</th>
<th>Constipation/On laxatives</th>
<th>PPI/H2 Ant.</th>
<th>Repeat episodes</th>
<th>Care home resident</th>
<th>Recent admissions to hospital</th>
<th>Other bowel disease</th>
<th>Chemo-therapy</th>
<th>Diabetes</th>
<th>Renal disease</th>
<th>Under 65</th>
<th>Over 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>June</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>71%</td>
<td>29%</td>
<td>71%</td>
<td>29%</td>
<td>14%</td>
<td>43%</td>
<td>14%</td>
<td>14%</td>
<td>86%</td>
<td>43%</td>
<td>29%</td>
<td>14%</td>
<td>43%</td>
<td>29%</td>
<td>71%</td>
</tr>
</tbody>
</table>

Annual IPC Report Public Health
Sally Bird Infection Control Matron May 2013
Table 3: Themes / trends from community C. *difficile* cases June 2012

Here are the Q2 findings July – September 2012. There are a total of 29 pre-72 hour community attributed cases for this quarter, this compares with a total of 36 cases in the same period last year, an overall improvement of 19%

12 cases were identified on the MESS data as community acquired cases for the month of July, 4 cases from SFHT and 8 cases from NUHT

| Male | Female | Recent | No recent | Constipation/ | PPI/H2 | Repeat | Care | Recent | Other | Chemo | Diabetes | Renal | Under | Over |
|------|--------|--------|-----------|--------------|--------|--------|      | admissions | bowel | therapy | disease | disease | 65     | 65    |
| 3    | 9      | 11     | 1         | 2            | 5      | 4      | 3    | 9      | 4     | 2     | 2       | 2     | 4     | 8    |
| 25%  | 75%    | 92%    | 8%        | 17%          | 42%    | 33%    | 25%  | 75%    | 33%   | 17%   | 17%     | 17%   | 33%   | 67% |

Table 4: Themes / trends from community C. *difficile* cases July 2012

8 cases were identified on the MESS data as community acquired cases for the month of August, 2 cases from SFHT and 6 cases from NUHT

| Male | Female | Recent | No recent | Constipation/ | PPI/H2 | Repeat | Care | Recent | Other | Chemo | Diabetes | Renal | Under | Over |
|------|--------|--------|-----------|--------------|--------|--------|      | admissions | bowel | therapy | disease | disease | 65     | 65    |
| 4    | 4      | 8      | 0         | 1            | 5      | 3      | 1    | 6      | 3     | 1     | 0       | 2     | 1     | 7    |
| 50%  | 50%    | 100%   | 0%        | 13%          | 63%    | 38%    | 13%  | 75%    | 38%   | 13%   | 0%      | 25%   | 13%   | 87% |

Table 5: Themes / trends from community C. *difficile* cases August 2012

9 cases were identified on the MESS data as community acquired cases for the month of September, 5 cases from SFHT and 3 cases from NUHT and 1 Norwich/Norfolk (patient on holiday)

| Male | Female | Recent | No recent | Constipation/ | PPI/H2 | Repeat | Care | Recent | Other | Chemo | Diabetes | Renal | Under | Over |
|------|--------|--------|-----------|--------------|--------|--------|      | admissions | bowel | therapy | disease | disease | 65     | 65    |
| 4    | 5      | 6      | 3         | 0            | 4      | 3      | 1    | 8      | 1     | 3     | 2       | 0     | 2     | 7    |
| 44%  | 56%    | 67%    | 33%       | 0%           | 44%    | 33%    | 11%  | 89%    | 11%   | 33%   | 22%     | 0%    | 22%   | 78% |

Table 6: Themes / trends from community C. *difficile* cases September 2012

Annual IPC Report Public Health
Sally Bird Infection Control Matron May 2013
Here are the Q3 findings October–December 2012. There are a total of 36 pre-72 hour community attributed cases for this quarter, this compares with a total of 23 cases in the same period last year, demonstrating a fall in the progress made in the previous quarters.

10 cases were identified on the MESS data as community acquired cases for the month of October, 6 cases from SFHT and 4 cases from NUHT.

<table>
<thead>
<tr>
<th>Male</th>
<th>Female</th>
<th>Recent history of antibiotics</th>
<th>No recent antibiotics</th>
<th>Constipation/On laxatives</th>
<th>PPI/H2 Ant.</th>
<th>Repeat episodes</th>
<th>Care home resident</th>
<th>Recent admissions to hospital</th>
<th>Other bowel disease</th>
<th>Chemotherapy</th>
<th>Diabetes</th>
<th>Renal disease</th>
<th>Under 65</th>
<th>Over 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9</td>
<td>8</td>
<td>2</td>
<td>6</td>
<td>6</td>
<td>0</td>
<td>2</td>
<td>8</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>10%</td>
<td>90%</td>
<td>80%</td>
<td>20%</td>
<td>60%</td>
<td>60%</td>
<td>0%</td>
<td>20%</td>
<td>80%</td>
<td>0%</td>
<td>20%</td>
<td>10%</td>
<td>30%</td>
<td>20%</td>
<td>80%</td>
</tr>
</tbody>
</table>

Table 7: Themes / trends from community *C. difficile* cases October 2012

8 cases were identified on the MESS data as community acquired cases for the month of November, 4 cases from SFHT and 4 cases from NUHT.

<table>
<thead>
<tr>
<th>Male</th>
<th>Female</th>
<th>Recent history of antibiotics</th>
<th>No recent antibiotics</th>
<th>Constipation/On laxatives</th>
<th>PPI/H2 Ant.</th>
<th>Repeat episodes</th>
<th>Care home resident</th>
<th>Recent admissions to hospital</th>
<th>Other bowel disease</th>
<th>Chemotherapy</th>
<th>Diabetes</th>
<th>Renal disease</th>
<th>Under 65</th>
<th>Over 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>5</td>
<td>8</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>6</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>38%</td>
<td>62%</td>
<td>80%</td>
<td>0%</td>
<td>13%</td>
<td>62%</td>
<td>25%</td>
<td>0%</td>
<td>75%</td>
<td>25%</td>
<td>38%</td>
<td>0%</td>
<td>25%</td>
<td>13%</td>
<td>87%</td>
</tr>
</tbody>
</table>

Table 8: Themes / trends from community *C. difficile* cases November 2012

18 cases were identified on the MESS data as community acquired cases for the month of December, 10 cases from SFHT and 8 cases from NUHT.

<table>
<thead>
<tr>
<th>Male</th>
<th>Female</th>
<th>Recent history of antibiotics</th>
<th>No recent antibiotics</th>
<th>Constipation/On laxatives</th>
<th>PPI/H2 Ant.</th>
<th>Repeat episodes</th>
<th>Care home resident</th>
<th>Recent admissions to hospital</th>
<th>Other bowel disease</th>
<th>Chemotherapy</th>
<th>Diabetes</th>
<th>Renal disease</th>
<th>Under 65</th>
<th>Over 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>10</td>
<td>14</td>
<td>4</td>
<td>4</td>
<td>9</td>
<td>4</td>
<td>3</td>
<td>14</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>44%</td>
<td>56%</td>
<td>78%</td>
<td>22%</td>
<td>22%</td>
<td>50%</td>
<td>22%</td>
<td>17%</td>
<td>78%</td>
<td>6%</td>
<td>6%</td>
<td>11%</td>
<td>22%</td>
<td>39%</td>
<td>61%</td>
</tr>
</tbody>
</table>

Table 9: Themes / trends from community *C. difficile* cases December 2012

Annual IPC Report Public Health
Sally Bird Infection Control Matron May 2013
Here are the Q4 findings January – March 2013. There are a total of 36 pre-72 hour community attributed cases for this quarter, this compares with a total of 33 cases in the same period last year.

9 cases were identified on the MESS data as community acquired cases for the month of January, 7 cases from SFHT and 2 cases from NUHT

### Table 10: Themes / trends from community C. *difficile* cases January 2013

<table>
<thead>
<tr>
<th>Male</th>
<th>Female</th>
<th>Recent history of antibiotics</th>
<th>No recent antibiotics</th>
<th>Constipation/On laxatives</th>
<th>PPI/H2 Ant.</th>
<th>Repeat episodes</th>
<th>Care home resident</th>
<th>Recent admissions to hospital</th>
<th>Other bowel disease</th>
<th>Chemo-therapy</th>
<th>Diabetes</th>
<th>Renal disease</th>
<th>Under 65</th>
<th>Over 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>7</td>
<td>8</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>22%</td>
<td>78%</td>
<td>11%</td>
<td>33%</td>
<td>44%</td>
<td>22%</td>
<td>22%</td>
<td>67%</td>
<td>33%</td>
<td>22%</td>
<td>11%</td>
<td>11%</td>
<td>33%</td>
<td>67%</td>
<td></td>
</tr>
</tbody>
</table>

13 cases were identified on the MESS data as community acquired cases for the month of February, 11 cases from SFHT and 2 cases from NUHT

### Table 11: Themes / trends from community C. *difficile* cases February 2013

<table>
<thead>
<tr>
<th>Male</th>
<th>Female</th>
<th>Recent history of antibiotics</th>
<th>No recent antibiotics</th>
<th>Constipation/On laxatives</th>
<th>PPI/H2 Ant.</th>
<th>Repeat episodes</th>
<th>Care home resident</th>
<th>Recent admissions to hospital</th>
<th>Other bowel disease</th>
<th>Chemo-therapy</th>
<th>Diabetes</th>
<th>Renal disease</th>
<th>Under 65</th>
<th>Over 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>9</td>
<td>12</td>
<td>1</td>
<td>3</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td>10</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>31%</td>
<td>69%</td>
<td>8%</td>
<td>23%</td>
<td>46%</td>
<td>31%</td>
<td>31%</td>
<td>77%</td>
<td>23%</td>
<td>31%</td>
<td>23%</td>
<td>8%</td>
<td>0%</td>
<td>87%</td>
<td></td>
</tr>
</tbody>
</table>

14 cases were identified on the MESS data as community acquired cases for the month of March, 6 cases from SFHT and 8 cases from NUHT

### Table 12: Themes / trends from community C. *difficile* cases March 2013

<table>
<thead>
<tr>
<th>Male</th>
<th>Female</th>
<th>Recent history of antibiotics</th>
<th>No recent antibiotics</th>
<th>Constipation/On laxatives</th>
<th>PPI/H2 Ant.</th>
<th>Repeat episodes</th>
<th>Care home resident</th>
<th>Recent admissions to hospital</th>
<th>Other bowel disease</th>
<th>Chemo-therapy</th>
<th>Diabetes</th>
<th>Renal disease</th>
<th>Under 65</th>
<th>Over 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>6</td>
<td>12</td>
<td>2</td>
<td>6</td>
<td>9</td>
<td>3</td>
<td>3</td>
<td>12</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>57%</td>
<td>43%</td>
<td>14%</td>
<td>43%</td>
<td>64%</td>
<td>21%</td>
<td>21%</td>
<td>86%</td>
<td>7%</td>
<td>21%</td>
<td>7%</td>
<td>21%</td>
<td>7%</td>
<td>93%</td>
<td></td>
</tr>
</tbody>
</table>
In summary

The number of patients identified with *C. difficile* infection between April and March 2013 pre-72 hour community attributed cases is 127 this compares with a total of 140 in the same period last year and shows an overall improvement of 13 cases (9% reduction) for the year end. For the total number of *C. difficile* PCO attributable cases to year end the trust came under trajectory by 2 cases and achieved a reduction total of 8 cases when compared to year end figures 2011-12

Themes at year end:

- 109 out of the 127 (86%) cases have had a course of recent antibiotics which fits with the normal clinical picture seen. This type of infection is often related to the use of broad spectrum antibiotics, which disrupt the protective normal bacterial flora of the gut, allowing multiplication of large numbers of the *C. difficile* bacteria. From information provided it appears that there is no evidence of inappropriate prescribing, either due to there being microbiological results to support antibiotic therapy or clear adherence to the Nottinghamshire Antimicrobial Prescribing Guidance.
- 100 out of 127 cases (79%) have experienced a recent hospital admission in the last 6 months
- 99 out of 127 cases (78%) are over the age of 65 which fits with the expected clinical picture
- The majority of cases this year are patients residing in their own home 104 out of 127 (82%), this challenges the view that CDI is more prevalent in care home patients with only 23 living in a care home facility.
- 60 out of 127 (47%) patients were on PPI/H2 antagonist

Table 13: Shows all community acquired *C. difficile* cases
Over last 3 years

![Pre 72 hr C.difficile Cases](image)
Whilst the number of *C. difficile* cases is falling over Nottinghamshire County the progress is very gradual. Objectives set for the 5 Clinical Commissioning Groups 2012-13 were based on 188 cases seen between October 2010 and September 2012 which is 39 cases less than year end total of 227. This will be a huge challenge to meet and will require collaborative working with the wider community and the local acute trusts to reduce numbers further over the coming year.

<table>
<thead>
<tr>
<th>CCG</th>
<th>CDI numbers October 2011 to September 2012</th>
<th>Objective numbers (rounded)</th>
<th>Percentage reduction on baseline required</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHS Newark &amp; Sherwood CCG</td>
<td>36</td>
<td>29</td>
<td>19 %</td>
</tr>
<tr>
<td>NHS Nottingham North &amp; East CCG</td>
<td>41</td>
<td>33</td>
<td>20 %</td>
</tr>
<tr>
<td>NHS Nottingham West CCG</td>
<td>20</td>
<td>17</td>
<td>15 %</td>
</tr>
<tr>
<td>NHS Rushcliffe CCG</td>
<td>23</td>
<td>20</td>
<td>13 %</td>
</tr>
<tr>
<td>NHS Mansfield &amp; Ashfield CCG</td>
<td>68</td>
<td>52</td>
<td>24 %</td>
</tr>
<tr>
<td>Total</td>
<td>188</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CCGs will need to focus on their local action plans recommendations include the following:

- Ensuring there are robust antimicrobial stewardship processes in place both in community and provider setting
- Ensure appropriate stool sampling is requested appropriately
- Ensure that other community winter initiatives (at home antibiotics) do not impact on CDI cases
- Ensure patients with history of *C. difficile* infection are highlighted on the patient record within the GP practice and that this information is communicated if the patient requires hospital referral. These patients will have an increased risk of re-occurrence in particular if given further courses antibiotics
- Consider review of guidance on PPI use, a number of research articles have linked risk of development of *C. difficile* associated disease with long term PPI use whilst not conclusive it warrants consideration
- Monitoring of transfer and discharge information to ensure *C. difficile* and other HCAI are documented appropriately where known
- Education
- Monitoring of infection prevention and control practice