



Mansfield and Ashfield CCG
Newark and Sherwood CCG
Nottingham North and East CCG
Nottingham West CCG
Rushcliffe CCG

Community Infection Prevention and Control

Annual Report

2016-17



Contents

Executive Summary.....	4
Key Achievements.....	4
Challenges	5
1. Purpose.....	6
2. Background.....	6
3. Quality and Performance Monitoring Processes/Assurance Processes.....	6
4. National Priorities	7
5. Local Priorities.....	7
5.1 Nottinghamshire Infection Prevention and Control Group.....	7
6. Targets and Performance.....	8
6.1 MRSA Blood Stream Infection (BSI)	8
6.2 <i>Clostridium difficile</i>	9
6.21 Root Cause Analysis (RCA).....	13
6.22 Areas of good practice identified from RCA	13
6.3 MRSA	13
6.31 Sherwood Forest Hospitals Foundation Trust (SFHT).....	13
7. Panton-Valentine Leukocidin (PVL)	14
8. Meticillin-Sensitive Staphylococcus aureus Blood Stream Infection (MSSA BSI).....	14
9. <i>Escherichia coli</i> Blood Stream Infection (<i>E. coli</i>).....	15
10. Carbapenemase-producing Enterobacteriaceae (CPE)	17
11. Community Outbreaks (excluding Local Partnerships services).....	17
11.1 Root Cause Analysis – Outbreaks	18
12. Infection Prevention and Control Audit Programme	18
12.1 Care Homes	18
12.2 General Practice.....	19
13. Construction/Building Works.....	19
14. Antimicrobial Stewardship (AMS).....	19

15. Priorities for 2017-18	20
15.1 <i>Clostridium difficile</i>	20
15.2 Gram-negative BSIs	21
16. Conclusion.....	22
17. References	23
Appendix 1 Infection Prevention and Control Annual Report for Care Homes March 2017	24
Appendix 2 To Dip or Not to Dip Project Progress Report for Phase 1.....	26
Appendix 3 Planned Programme of Work April 2017 - March 2018	42
Appendix 4 Findings From <i>Clostridium difficile</i> infection Case Surveillance	51
Appendix 5 Infection Prevention and Control Annual Report for Nottinghamshire County General Practices March 2017.....	82
Appendix 6 Summary report following case reviews for Escherichia-coli Bloodstream Infection	86

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Executive Summary

Infection prevention (including cleanliness) must be part of everyday practice and consistently applied to ensure that people who use health and social care services receive safe and effective care. (Health and Social Care Act 2008).

This annual report outlines the work of the Nottinghamshire Community Infection Prevention and Control Team (CIPCT) during 2016/17, including performance against nationally set trajectories for Meticillin-resistant *Staphylococcus aureus* blood stream infection (MRSA BSI) and *Clostridium difficile* infections (CDI), key achievements and challenges. The team provide a comprehensive service to 5 Clinical Commissioning Groups (CCGs), Mansfield and Ashfield, Newark and Sherwood, Nottingham North and East, Nottingham West and Rushcliffe.

Key Achievements

- The MRSA BSI zero tolerance target has been achieved for community cases 2016/17 across all 5 CCGs. Although community cases have occurred, application of the Post Infection Review process by the CIPCT has resulted in all cases being attributed to either the acute trust or to a third party. No lapses in care have been identified in the community. This is a positive reflection on the work of the team in supporting providers to manage cases of MRSA identified in the community effectively.
- The national objectives for *Clostridium difficile* have been achieved for 2016/17 in Mansfield and Ashfield, Nottingham North and East and Nottingham West CCGs. All community acquired cases are followed up with the GP, a case review and a further 7 day follow up are completed to ensure that the patients are improving. Management of the patient is discussed, any poor practice or prescribing issues are followed up and a referral is made to the CCG Prescribing Advisor aligned to the practice for learning support with the appropriate clinician to support with quality improvement.
- Pro-active root cause analysis case reviews commenced in 2016 to identify key themes and learning from community acquired cases of *Escherichia coli* bacteraemia. A new piece of work in advance of the anticipated mandatory requirements to reduce these cases.
- All nursing and residential homes have been audited for the second year running, with significant improvements made in the number of homes who previously did not have full hand hygiene facilities in residents' rooms available for staff and visiting health professionals. See [Appendix 1](#)
- All GP practices across the 5 CCGs have received an infection prevention and control audit; this work contributes to the quality assurance processes within the CCG. The audits support the work of the Primary Care Team and Care Quality Commission (CQC) to facilitate future work on improvements within practices where needed. One practice in Mansfield and Ashfield has made considerable improvements in their premises and their management of Infection Prevention and Control following our initial audit visit.
- The CIPCT have built up strong relationships with colleagues in the CQC following a request from them to meet with team members to share knowledge and intelligence. This is to support with improving infection prevention and control standards locally.
- The "To Dip or Not to Dip" Project, based on a quality improvement initiative in the South West of England by NHS Bath and North East Somerset CCG, has been adopted and promoted by the CIPCT. It uses an assessment tool based on national guidance (NICE and SIGN88) to improve the prevention and management of urinary tract infections and antimicrobial stewardship in care homes. Training and educational resources have been developed to support care home staff with implementation of the improvement tools in pilot sites across the county. See [Appendix 2](#)

- Close working with NHS property services has improved communications; the team give advanced notice to them when going out to audit NHS Estates, to ensure that they are aware of any potential action plans which will have an impact upon their workload. Both teams have benefitted from working together and have gained improved understanding of each other's roles and responsibilities. The CIPCT have been involved in providing expertise for a number of new building projects and refurbishments across providers to ensure IPC standards are considered during the planning stage.

Challenges

- The reporting of *Escherichia coli* (*E. coli*) blood stream infections (BSI) has been mandatory since 2011. In preparation for further work to reduce these cases nationally, the CIPCT have been proactively reviewing cases to gather themes and learning for future prevention. This work has been problematic due to the difficulties in gaining patient consent and access to the clinical records despite written consent. Fewer case reviews were completed than anticipated. Work to improve the communication and support for this work amongst general practice is ongoing as this will be key to reducing the acquisition rates locally.
- The challenge will be even greater over 2017/18 as *E. coli* BSI reduction has been included in the CCG quality premium. There is a national requirement to reduce Gram-negative BSI rates across the whole health economy by 10% in the first year with an ambition to reduce them by 50% by 2021. Gram-negative bloodstream infections are considered to be a contributory factor in 5500 deaths in 2015. A whole health economy consistent approach is needed to gather the required primary care data to contribute to the learning and prevention of these cases; 51% are associated with urinary tract infections. Work is ongoing to determine improved access to patient records for the purpose of this mandated requirement.
- Quality assurance visits in care homes continue to improve the current provision of hand hygiene facilities for staff and visiting professionals in residents' rooms and infection prevention and control standards. This work is in conjunction with other health and social care and CQC colleagues.

1. Purpose

The purpose of this report is to provide Nottinghamshire County Council (NCC) and the 5 Nottinghamshire County CCGs with a summary of the work of the Nottinghamshire Community Infection Prevention and Control Team (CIPCT) including key achievements over the past year, the remaining challenges for improvement and the position on healthcare associated infection (HCAI) performance against nationally set trajectories during 2016/17.

2. Background

The CIPCT is hosted by Mansfield and Ashfield Clinical Commissioning Group on behalf of NCC, Newark and Sherwood, Rushcliffe, Nottingham North and East and Nottingham West CCG. The team are commissioned by Public Health and work to a service specification. This arrangement will continue until April 2018. The enhanced CIPCT works across organisational boundaries to provide a comprehensive service across Nottinghamshire. See [Appendix 3](#) for CIPCT Annual Programme of Work

Public Health England (PHE) provides expert advice to the team and provides out of hours cover. Microbiology expertise is provided by an Infection Control Doctor Service that covers those patients accessing Nottingham University Hospitals Trust (NUHT).

3. Quality and Performance Monitoring Processes/Assurance Processes

The CIPCT provide IPC expertise to assist the CCG Quality Teams in performance monitoring the providers below:

- SFHT
- NUHT
- Nottinghamshire Healthcare Foundation Trust including Local Partnerships (LP)
- Care homes with nursing beds
- NEMS Community Benefit Services Limited
- Independent Providers

Assurance processes include:

Quality Monitoring

- Quality dashboards
- Quality scrutiny panels
- Quality visits
- Audit
- RCA investigations and PIRs

Quality Improvement

- Improvement action plans developed in response to quality monitoring
- Safety Thermometer
- Metrics for financial re-investment

Surveillance

- Mandatory reporting of HCAs through the Data Capture System
- Public Health England weekly incident and quarterly HCAI reports
- Local recording of HCAs including MRSA screens and BSI, CDI, *E. coli* BSI. Whilst not considered to be a HCAI local surveillance includes Panton Valentine Leukocidin infection (PVL)

Contractual

- Service Specification reviews
- Relevant IPC performance indicators included within Quality Schedules and dashboards
- Contract monitoring and performance review
- Implementation of the contractual sanctions / escalation process as necessary

Assurance regarding IPC practice and performance for associate commissioned services is provided by the relevant Co-ordinating Commissioner quality teams.

4. National Priorities

The prevention and control of HCAI continues to be a national priority and whilst improvements have been made there are still cases occurring that are considered to be avoidable at a cost to both the health of our population and a financial cost to the CCGs and Local Authority. The rate of Meticillin-resistant *Staphylococcus aureus* (MRSA) bacteraemia remained steady in 2015/16 compared with 2014/15. In contrast, rates of Meticillin-sensitive *Staphylococcus aureus* (MSSA) and *Escherichia coli* (*E. coli*) rates both increased between 2014/15 and 2015/16. The rate of *Clostridium difficile* infection (CDI) has remained relatively stable between 2014/15 and 2015/16. (PHE 2016)

The incidence of MRSA BSI and *Clostridium difficile* are included as indicators in the NHS Outcomes Framework 2016/17. The collection and reporting of the statistics by the NHS is mandatory through the Health and Social Care Act 2008 Code of Practice on the prevention and control of infections and related guidance. Mandatory reporting also remains in place via the Data Capture System for *Escherichia coli* and Meticillin-sensitive *Staphylococcus aureus* BSI cases are monitored by Public Health England.

5. Local Priorities

- To prevent avoidable healthcare associated infections.
- MRSA and *Clostridium difficile* infections remain a key focus for the CCGs. Work will continue to build on the success achieved over 2016/17 and to improve on the number of *Clostridium difficile* cases that are avoidable or poorly managed.
- Reducing cases of *E. coli* BSI with an emphasis on those associated with a urinary source, whole health economy work to provide key messages to the local population on improved hydration and prevention of urinary tract infection. Monitoring of Panton Valentine Leukocidin (PVL) and Carbapenemase-producing Enterobacteriaceae (CPE) cases will continue and all samples will be sent for typing to identify local strains.
- MRSA reduction, both Nottingham University Hospitals and Sherwood Forest Hospitals Foundation Trusts (SFHT) continue to screen for MRSA in line with the revised Department of Health guidance Implementation of modified admission MRSA screening guidance for NHS (2014). For community cases the locally agreed MRSA strategy will continue to be applied with the aim of reducing community carriage of MRSA. A risk based approach for MRSA screening was applied to Local Partnership services and as a result, all admissions into Lings Bar Hospital are screened. Patients admitted to Podiatric Day Surgery, John Eastwood Hospice and Intermediate Care units are individually risk assessed and screened as required.
- To support with new ways of working in primary care to ensure infection prevention and control is embedded across all clinical services and to contribute to the priorities of the Nottinghamshire Sustainability and Transformation Plan
- To maintain a zero tolerance to all MRSA BSIs for all Acute Trusts and CCGs. To implement and complete the Post Infection Review process (PIR) within the 14 day timescale.

5.1 Nottinghamshire Infection Prevention and Control Group

The Nottinghamshire Infection Prevention and Control Group is a long established forum within Nottinghamshire. The overall aim of this group is to bring together key stakeholders in IPC and prescribing across the whole health economy, including both Nottingham city and Nottinghamshire County to fulfil responsibilities and maintain consistent high standards of safe, quality care. This group has been led by the CIPCT over 2016/17. Key work includes partnership working on antimicrobial stewardship (AMS), and *E. coli* bacteraemia prevention. This collaborative work on improved prophylactic prescribing and the prevention of urinary tract infection has been recognised nationally and the AMS group chaired by the Community Infection Control Doctor have been shortlisted for an Antibiotic Guardian Award 2017. The finals are to be held later in 2017.

6. Targets and Performance

6.1 MRSA BSI

NHS England introduced a zero tolerance to all MRSA BSIs for all Acute Trusts and CCGs from 1 April 2013. This guidance was revised in April 2014 to include the Post Infection Review process (PIR), third party assignment and changes in the responsibility for the stage 2 arbitration processes. The timescale for completing the PIR is 14 days. All pre 48 hour BSI are provisionally attributed to the CCG until the review is complete; after which they may be re-assigned. Learning following review is disseminated at a local and national level. Since the introduction of the PIR process, rates of CCG-assigned cases have fallen each year.

For the purposes of reporting, all cases of MRSA BSI are attributed to the organisation that the patients GP is listed under, therefore hospital acquired cases (post-48 hours after admission) contribute to the CCG total in addition to the community cases (pre-48 hour cases).

Community (pre 48 Hour) MRSA BSI cases

Organisation	14/15	15/16	16/17	Organisation attributed to for 16/17 following PIR	Comments
Mansfield and Ashfield CCG	4	0	1	Third party	
Newark and Sherwood CCG	1	1	0		
Nottingham North and East CCG	1	0	4	3 - Third party 1 - NUHT	NUHT case was a contaminant
Nottingham West CCG	1	0	0		
Rushcliffe CCG	1	1	1	NUHT (pre 48 hours)	

Acute Trust (post 48 Hour) MRSA BSI cases

Organisation	14/15	15/16	16/17	Comments 2016/17
Sherwood Forest Hospitals Trust		1	0	
Nottingham University Hospitals Trust		6	5	1 contaminant and 3 cases were avoidable, 1 case was unavoidable

MRSA BSI cases 2016-17

CCG	Total infection count	Pre 48 hours	Post 48 hours	CCG assigned	Trust Assigned	3rd Party Assigned
Mansfield and Ashfield	3	1	2	0	2	1
Newark and Sherwood	0	0	0	0	0	0
Notts North and East	4	3	1	0	1	3
Notts West	0	0	0	0	0	0
Rushcliffe	1	1	0	0	1	0
Total	8	5	3	0	4	4

NHS Mansfield and Ashfield Clinical Commissioning Group

One MRSA BSI was identified and as this case was assigned to a third party it was not assigned to the CCG. The CCG successfully met the requirement of zero cases and this has been achieved by the CCG for 2 consecutive years.

Newark and Sherwood Clinical Commissioning Group

No MRSA BSI were identified achieving the objective of zero assigned cases, an improvement on last year's one case against a plan of zero.

Nottingham North and East Clinical Commissioning Group

4 cases of MRSA BSI were identified, following PIR no cases were assigned to the CCG. One was a contaminated sample and 3 were assigned to a third party. The CCG have again successfully achieved the objective of zero CCG cases.

Nottingham West Clinical Commissioning Group

The CCG successfully achieved the MRSA BSI objective of zero cases. This has been achieved by the CCG for 2 consecutive years

Rushcliffe Clinical Commissioning Group

One community MRSA BSI was identified, following the PIR this case was later assigned to NUHT. The CCG successfully achieved the required target of zero.

Nottingham University Hospitals Trust (NUHT)

NUHT breached the MRSA BSI objective, reporting 5 MRSA BSI against a plan of zero. Following the post infection reviews, 3 cases were considered to be clinically avoidable, one clinically unavoidable and one contaminant avoidable. The Trust continues to have an MRSA reduction plan in place, which is monitored internally and at quarterly reviews with commissioners

Sherwood Forest Hospitals Trust (SFHT)

The trust successfully achieved the zero tolerance objective with no reported cases.

6.2 *Clostridium difficile* Infection

Data

Diagnosis of a pre or post 72 hour *Clostridium difficile* case is based on the Public Health England definition:

- Pre-72 hour / Community Acquired = diagnosis confirmed by a stool sample taken within 72 hours of admission to hospital or via GP sampling
- Post-72 hour / Hospital Acquired = diagnosis confirmed by a stool sample taken 72 hours after admission to hospital.
- All *Clostridium difficile* toxin positive cases undergo a mandatory case review to determine the overall quality of the care provided and to identify any lessons for learning

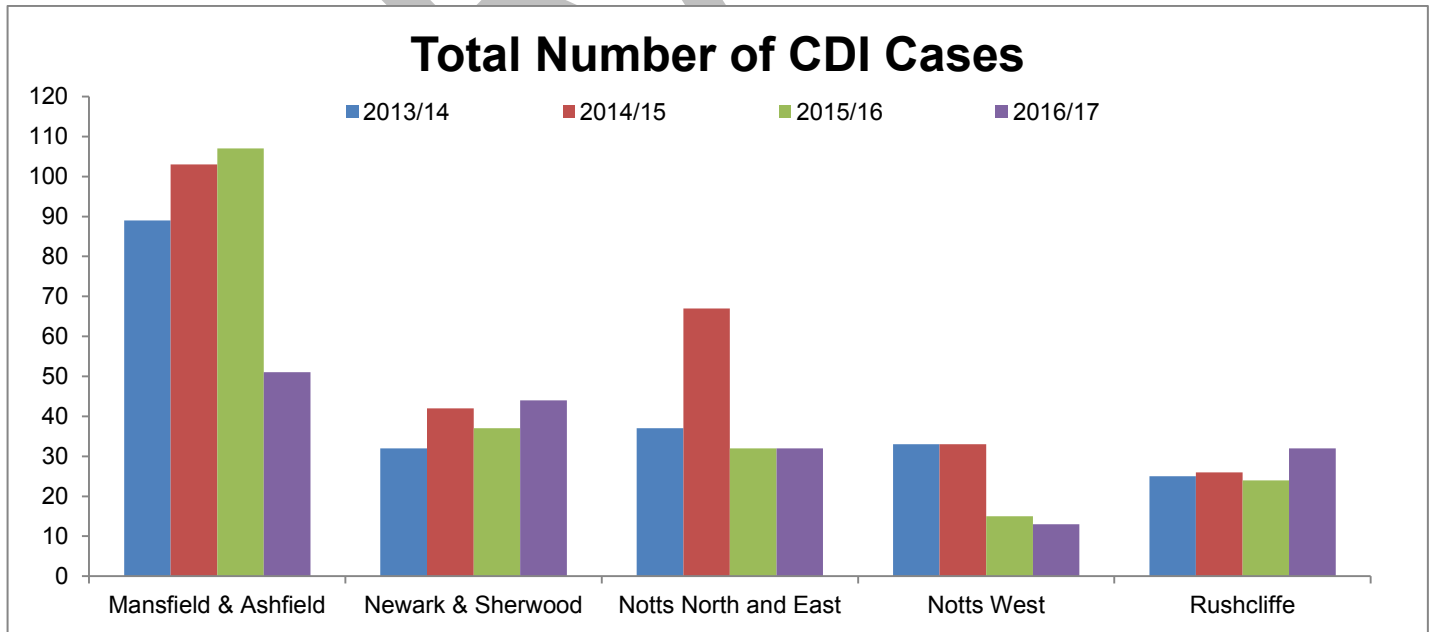
The CDI limit for CCGs is population based with all cases in members of their population counted towards their total. Acute trusts have a limit based on bed-day rate, with all CDI identified after 3 days (post 72 hours) of admission counted towards their total.

The table below shows that 3 of the 5 CCGs have achieved a number of cases below their targets. Newark and Sherwood and Rushcliffe are over target by 5 and 8 cases respectively.

CCG	CDI target 2016/17	Actual Cases	Pre 72 hour (Community cases)	Post 72 hour (Trust cases)	Summary
NHS Mansfield and Ashfield CCG	94	51	37	14	This is a significant improvement. There were 107 total cases 2015/16 including 73 community cases
NHS Newark and Sherwood CCG	39	44	24	20	There was a slight drop in community cases (1) when compared to 2015/16
NHS Nottingham North & East CCG	47	32	16	16	The total remains the same but there was a reduction in community cases by 6
NHS Nottingham West CCG	21	13	6	7	This was a sustained improvement, with a reduction by 2 cases when compared 2015/16
NHS Rushcliffe CCG	24	32	12	20	There was a slight drop in community cases (1) when compared to 2015/16
Total all CCGs	225	172	95	77	

The graph below shows the large reduction in total CDI cases in Mansfield and Ashfield CCG and Nottingham West CCG over the previous 2 years.

Graph 1 – Total number of *Clostridium difficile* Infection (CDI) cases all CCGs 2013/14 – 2016/17



Mansfield and Ashfield Clinical Commissioning Group

There has been one root cause analysis review completed for a deceased patient. *Clostridium difficile* infection was considered to be a contributory factor on the death certificate. The patient had received minimal primary care involvement as the bulk of their care was provided by NUHT. The case was highly complex and deemed unavoidable as no lapse in care was identified from the review. The CCG has successfully achieved this year's target of 94 with only 51 cases. This is a considerable improvement (59% reduction) compare to last year's breach of 107 cases against plan of 94.

Newark and Sherwood Clinical Commissioning Group

There has been one root cause analysis review completed in a deceased patient where *Clostridium difficile* infection was considered to be a contributory factor on the death certificate. Following review there were a number of areas identified for improvement. An action plan was put in place and learning has been shared across the county and with the individual practice. See [Appendix 4](#) for case review.

The overall CDI target has been breached by 5 cases, (44 against a plan of 39) compared to last year's plan of 39 and only 37 cases. There was a slight reduction in community cases seen. However, action has been taken to highlight the key learning from case reviews and guidance has been widely disseminated across care providers. Support when prescribing concerns are identified is provided by the primary care pharmacists who work with the GP practice to make improvements and improve learning.

Nottingham North and East Clinical Commissioning Group

Similarly to 2015/16 the CCG had 32 CDI cases against a plan of 47, a notable achievement and a sustained improvement for 2 consecutive years

Nottingham West Clinical Commissioning Group

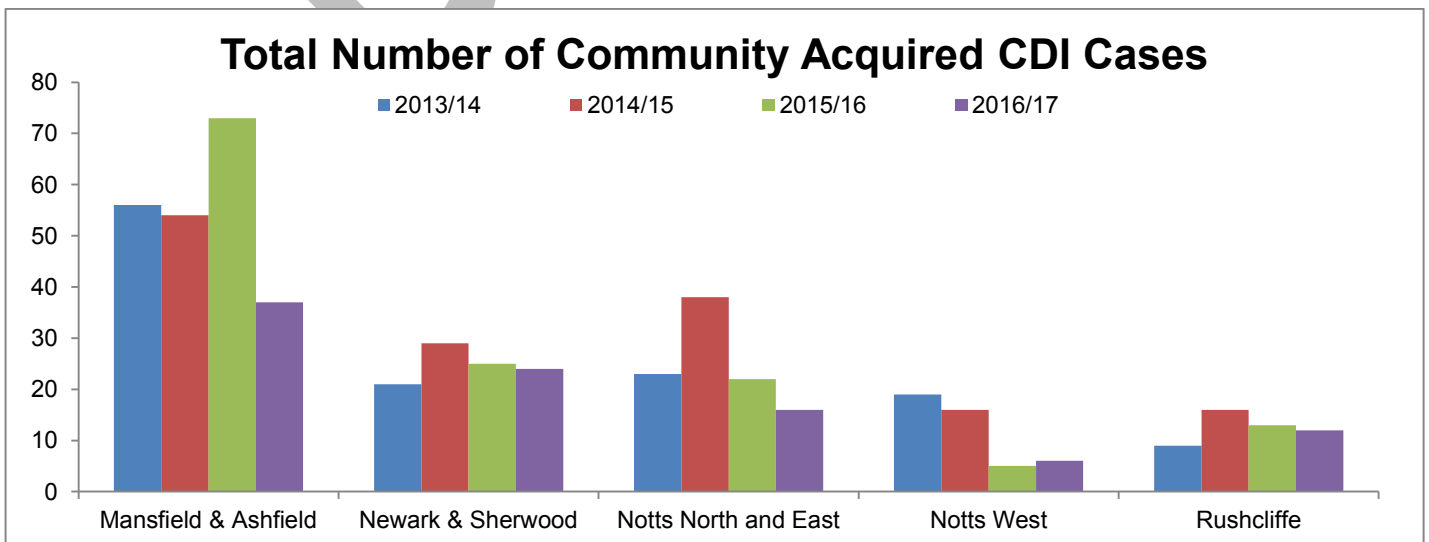
13 CDI cases occurred against a plan of 21. The target has been achieved for 2 consecutive years. This is a sustained improvement and is commendable.

Rushcliffe Clinical Commissioning Group

The CDI objective was breached with 32 cases against a plan of 24 compared to last year's target of 28 cases and only 24 actual cases. There was a slight reduction in community cases overall however there was an increase in trust acquired cases that contributed to the overall breach. Actions have been taken to learn from case reviews where it was an avoidable case and guidance has been widely disseminated across both primary and secondary care.

The graph below again shows that the reduction in CDI cases are mainly in the community cases in both in Mansfield and Ashfield and Nottingham West, with smaller reductions seen in the other 3 CCGs.

Graph 2 – Total number of Community Acquired CDI Cases all CCGs 2013/14 – 2016/17

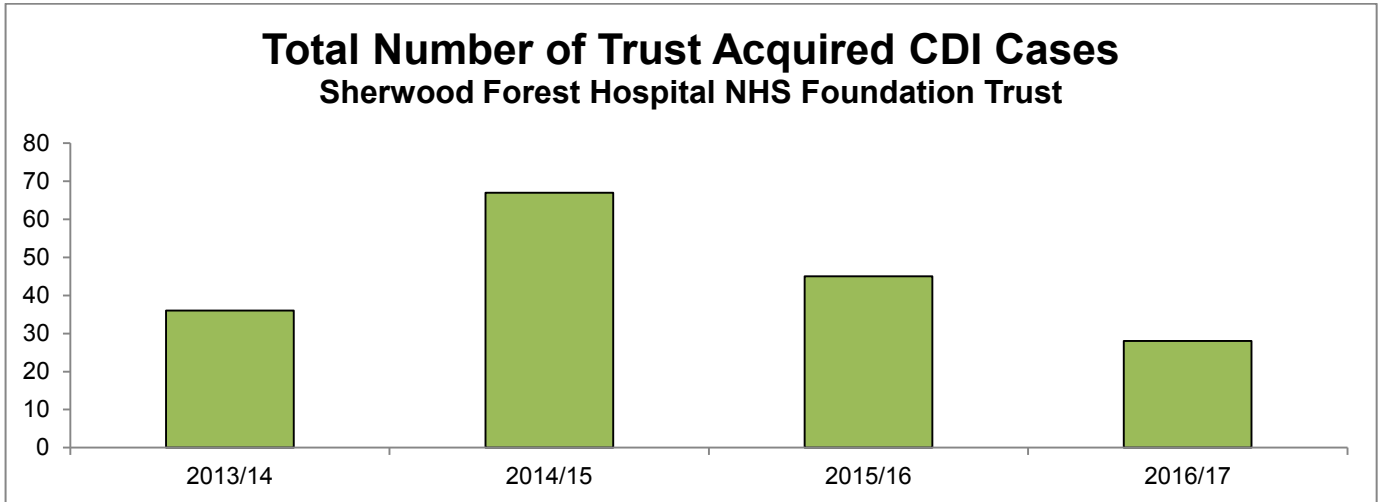


Sherwood Forest Hospitals Foundation Trust

The graph below show the decrease of about 50% in the number of trust acquired CDI cases since 2014/15

- The Trust has had no serious incidents or outbreaks due to CDI this year.
- The Trust continues to have a CDI reduction plan in place.

Graph 3 below shows the Total number of Trust Acquired CDI Cases Sherwood Forest Hospitals Foundation Trust 2013/14 – 2016/17



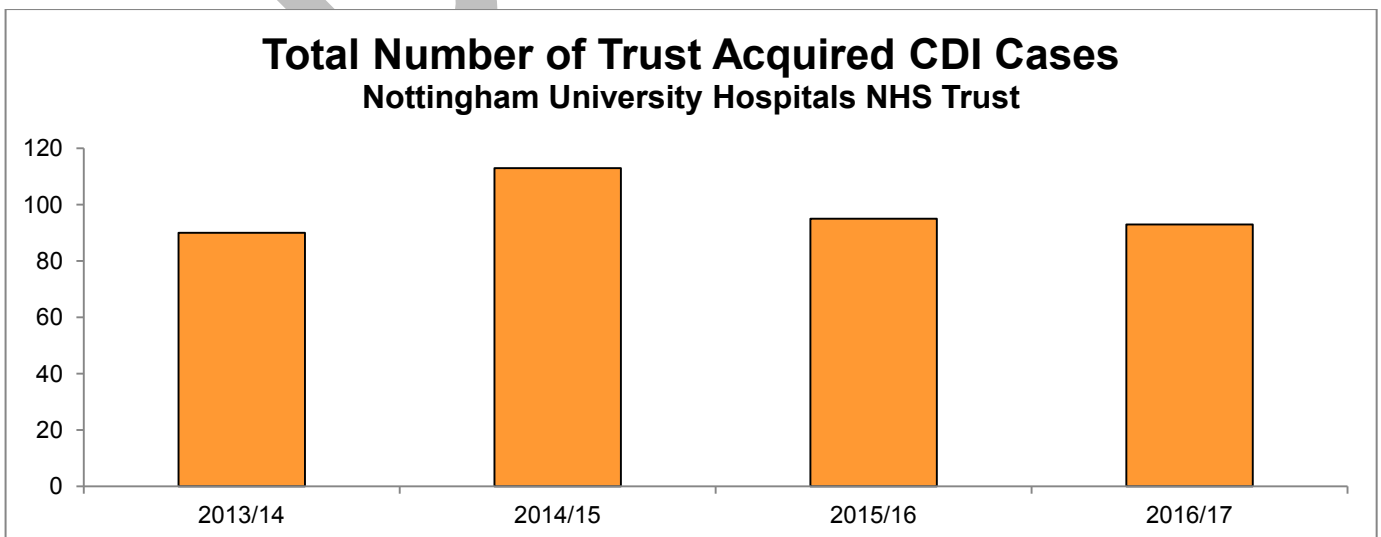
The trust achieved the CDI objective with 28 post-72 hour CDI cases against a plan of 48. This is a significant improvement when compared to last year.

Nottingham University Hospitals NHS Trust

NUHT breached their CDI objective of 91 cases with 93 reported Trust acquired cases. This was a reduction in cases when compared with the previous year where 95 cases were reported but further improvement is required to meet the set objective.

The graph below shows a small reduction in cases since 2014/15 and numbers in 2016/17 being similar to those in 2015/16

Graph 4 Total number of Trust Acquired CDI Cases Nottingham University NHSTrust 2013/14 – 2016/17



From a total of 93 NUHT attributed cases 25 (27%) patients were identified with a lapse in care and a total of 16 (17%) patients were identified with potentially avoidable *Clostridium difficile*.
Lapses in care included:

- 6 incidences of cross infection
- 10 incidences of inappropriate antibiotic prescribing
- 9 patients with a delay in diagnosis
- 4 with a delay in treatment

Some patients were identified with more than one type of lapse in care. There were a total of 5 patients with an identified CDI related death (Part 1 on the death certificate) in 2016/17.

The Trust continues to have a CDI Development Action Plan in place which aims to remove and sustain very low levels of environmental contamination of *C.difficile* spores to reduce the risk of cross infection whilst providing the required accommodation for this to be implemented.

The Trust continues to send regular peer comparators of MRSA BSI and CDI information to their Board.

6.21 Root Cause Analysis (RCA)

All CDI associated deaths and those resulting in serious complications are investigated using the RCA process. There have been 2 RCA investigations completed over 2016-17 for community acquired cases. One case in Newark and Sherwood CCG resulted in a death and the RCA investigation identified several learning points for the practice involved, including inappropriate prescribing outside of the Nottinghamshire Antimicrobial Prescribing Guidance for Primary Care, delays in sampling and a delay in treatment. The second RCA in a deceased patient in Mansfield and Ashfield CCG was led by NUHT as this was a complex patient under specialist treatment and there was no recent involvement from Primary Care. The main care was provided in Outpatients at NUHT. The outcome of this investigation was that no lapses in care were found and no learning was identified, the case was unavoidable.

6.22 Areas of good practice identified from RCA include:

- Excellent end of life care provided by the GP
- Antibiotics were stopped to allow the bowel to rest
- Not prescribing anti-motility agents
- Treatment given on notification of result
- Emergency contact details were given to patient resulting in prompt access to the admissions ward

6.3 MRSA

6.31 Sherwood Forest Hospitals Foundation Trust

There were 4 MRSA colonisation (not infection) outbreaks identified during the year, all 4 outbreaks were on different ward areas at different times and there was no crossover of patients. The following table identifies the main themes.

The table below shows MRSA colonisation outbreaks reported by Sherwood Forest Hospitals Foundation Trust 2016-17

Month	Type	Critical Issues	Actions Required
October 2016	MRSA colonisation	<ul style="list-style-type: none"> • 2 patients involved with the same SPA type • Nursed in beds next to each other 	<ul style="list-style-type: none"> • Monitoring of standards through audit including MRSA screening

		<ul style="list-style-type: none"> • Screening compliance • Cross infection 	<ul style="list-style-type: none"> • Implementation of bed side isolation precautions for patients who can't be isolated in a side room
December 2016	MRSA colonisation	<ul style="list-style-type: none"> • 3 patients involved with the same SPA type • Environmental issues • Cross infection 	<ul style="list-style-type: none"> • Monitoring of standards through audit • All staff to be involved in cleaning the environment
February 2017	MRSA colonisation	<ul style="list-style-type: none"> • 5 patients involved, only 2 had the same SPA type • Cleaning patient equipment between use • Use of personal protective equipment • Cross infection 	<ul style="list-style-type: none"> • Monitoring of standards through audit including use of personal protective equipment • Cleaning Schedules implemented
March 2017	MRSA colonisation	<ul style="list-style-type: none"> • 3 patients involved 2 new positive patients and 1 patient with a history of MRSA. All with the same SPA type • Movement of a positive patient around the ward. The index case was in a side room but would mobilise around the ward going into other patient's areas despite explanation as to why he shouldn't do that. • Cross infection 	<ul style="list-style-type: none"> • Monitoring of standards through audit • Closer monitoring of difficult to manage patients

7. Panton-Valentine Leukocidin (PVL)

PVL predominantly causes recurrent skin and soft tissue infections, but can lead to serious invasive infections such as necrotising haemorrhagic pneumonia, associated with a high mortality rate. There is no national requirement to test for PVL infection and there is variation locally. Public Health England (PHE) is responsible for national policy development and guidance for the management of this infection and they are notified of all complex cases and family outbreaks.

PVL infections continue to be a challenge. The incision and drainage clinic at NUHT is treating abscesses/boils identified in General Practice and is increasing testing and diagnosis of PVL in South Nottinghamshire. All MRSA PVL cases are routinely sent to Public Health England for typing to assess which strains are prevalent locally. Testing for PVL is completed at SFHT following request from the GP.

There were no cases of PVL MRSA bacteraemia in 2016-17

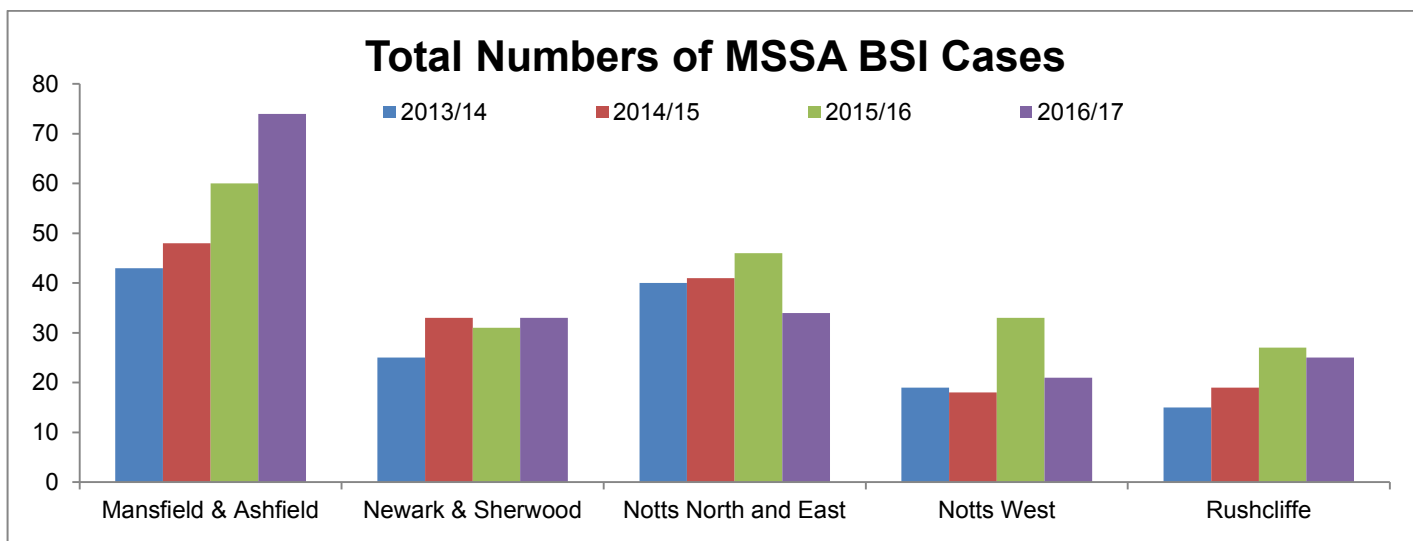
There have been 14 new PVL infection cases and 18 further positive PVL samples in previously identified patients with a reoccurrence of the infection during 2016-17. This is a reduction in cases when compared with the previous year.

8. Meticillin-Sensitive Staphylococcus aureus Blood Stream Infection (MSSA BSI)

Mandatory surveillance started in 2011 and to date there are no trajectories set. Rates of infection are slowly increasing nationally. Currently there are no investigations undertaken for MSSA cases. However nationally and locally there has not been the same reduction seen as for MRSA.

The graph below shows the total number of cases attributed to the CCGs and demonstrates a steady rise in cases in Mansfield and Ashfield compared to the other CCGs which have stayed reasonably static. This is despite the robust measures in place for successfully reducing MRSA BSI cases.

Graph 5 Total numbers of MSSA BSI cases all CCGs 2013/14 – 2016/17



9. *Escherichia coli* Blood Stream Infection (*E. coli* BSI)

The rate of *E. coli* BSI increased from 65.8 cases per 100,000 population in 2014/15 to 70.1 cases per 100,000 population in 2015/16 (PHE 2016). Nottinghamshire rates are higher than the England average at 97.7

Area	Count	Value
England	37,670	70.1*
Nottinghamshire	980	97.7*
NHS Mansfield And Ashfield CCG	222	113.6
NHS Newark & Sherwood CCG	129	109.1
NHS Nottingham City CCG	290	92.1
NHS Nottingham North And East CCG	150	100.6
NHS Nottingham West CCG	96	85.7
NHS Rushcliffe CCG	93	81.6

Source: HCAI Mandatory Surveillance Data

Graph 6 above shows the *E. coli* BSI rates by CCG and financial data taken from PHE Fingertips data

Mandatory surveillance started in 2011. There is increasing emergence of multi-drug resistant strains of these infections (Extended-spectrum beta-lactamases commonly abbreviated as ESBL). This increasing resistance is making these cases difficult to treat due to limited selection of available antibiotics. From April 2017 there is a new national ambition to reduce Gram-negative BSIs infections (*E. coli*, *Klebsiella* and *Pseudomonas aeruginosa*) by 50% by 2021 with a 10% reduction in 17/18. This requires all organisations to work together to plan how this will be achieved. Reporting is required to include a number of risk factors relating to each infection episode, the information for which cannot be gained in isolation.

CCGs will be expected to produce a plan that describes how they will contribute to achieving this reduction and will be required to gather the required primary care data sets. How this will be achieved is yet to be agreed.

In anticipation of this new ambition during 2016/17 the CIPCT have been undertaking Root Cause Analysis reviews on selected patients with *E coli* blood stream infections.

The acute trusts have supported the team with gaining patient consent for those cases who are deemed to be a community acquired case with a urinary source. Approximately two thirds of *E. coli* BSI cases are considered to be community acquired and approximately 51% have a urinary source. See report [Appendix 6](#).

CIPCT have been integral to work implemented across Nottinghamshire in preparation for the mandatory changes. Locally work around addressing the reduction in the number of *E. coli* BSI cases is being considered and tackling dehydration in older people during the summer months is one of the campaign areas. Data on the rates of these infections is not statistically significantly higher in the summer months to support this, however tackling dehydration is considered to be an area for improvement.

The CIPCT employed a Project Manager in November 2016 to pilot and implement the ‘To Dip or Not to Dip’ project – a patient centred approach to improve the management of urinary tract infections in the care home environment. The first pilot of the ‘To Dip or Not to Dip’ project started in January 2017 in the Eastwood area of Nottingham West CCG. The pilot was active in 2 practices and 6 care homes. The pilot was later extended to the remaining care homes in Nottingham West CCG.

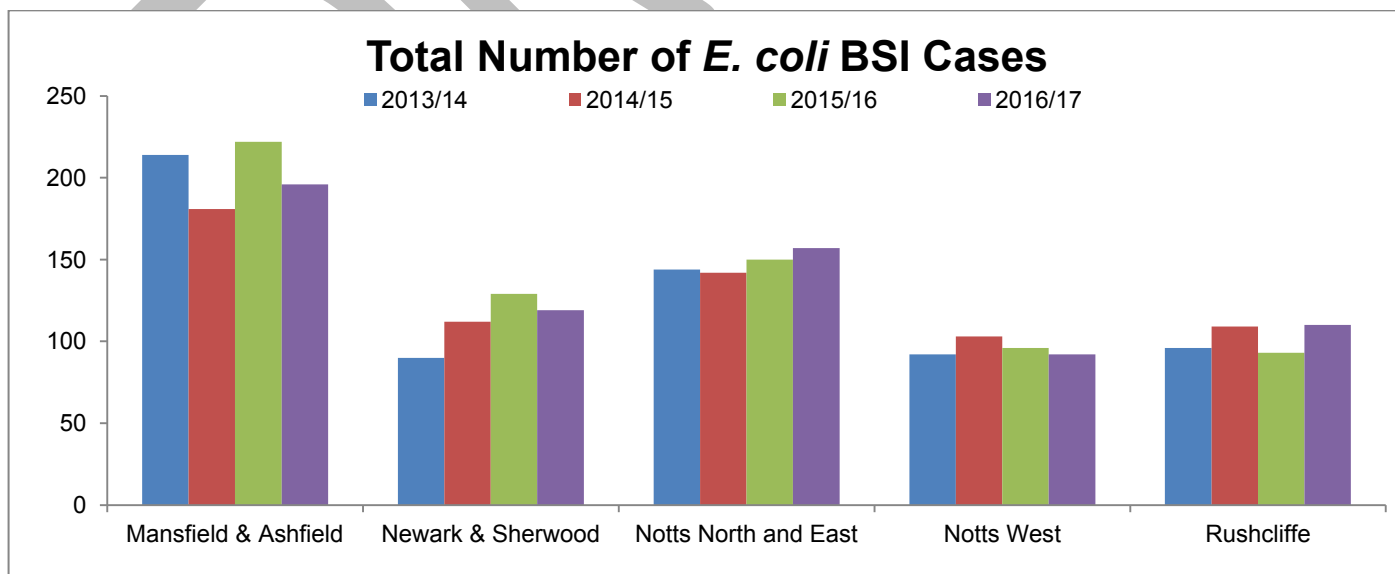
The second pilot is currently underway in Mansfield and Ashfield CCG. Implementation of the project in Newark and Sherwood, Nottingham North East and Rushcliffe CCGs is anticipated from June 2017.

Outcomes from the project in South West of England by NHS Bath and North East Somerset CCG showed a significant reduction in antibiotic prescriptions for urinary tract infection (UTI) and a reduction in emergency admissions for UTI, urosepsis and dehydration from care homes. See [Appendix 2](#)

A new Sepsis working group has been established to identify gaps in training, to enable shared learning to be disseminated between primary and secondary care and implementation locally of national and regional work in relation to sepsis.

The graph below demonstrates that over the past 4 years *E. coli* BSI rates locally have remained fairly static in 4 CCGs but show a more obvious increase in Newark and Sherwood CCG. Further work is required to understand the local variations.

Graph 6 Total number of *E. coli* blood stream infections 2013/14 – 2016/17



10. Carbapenemase-producing Enterobacteriaceae (CPE)

The increase in incidence of antimicrobial-resistant organisms including CPE remains a concern to the community setting; these organisms are often resistant to multiple drug classes. Some areas in England are seeing increasing numbers of CPE. To date in the East Midlands there generally remains a low incidence. However locally there have been notifications of 3 cases discharged into the community setting over 2016/17. These cases were first identified at NUHT where an outbreak was declared on the respiratory unit. In addition there was an isolated case of infection identified in another area of the trust. The samples were all NDM1 Enterobacter cloacae, further typing by Public Health England (PHE) revealed that these cases were all the same and that it was a new Nottingham Strain not known to the current national database. These cases are concerning as transmission of this type of highly resistant organism is not endemic in this country. PHE have issued both an acute trust and a community toolkit for managing and reducing spread of these organisms. The CIPCT have issued the toolkits locally and have raised awareness through local provider newsletters. With no single effective antibiotic treatments available the focus needs to be on robust prevention measures across healthcare to ensure numbers remain low and to reduce the risk of cross infection.

11. Community Outbreaks (excluding Local Partnerships services)

There were 116 reported outbreaks within care homes across all 5 CCGs during 2016-17, compared to 70 cases last year. Anecdotal evidence suggests that this may be due to the improved relationships between the care homes and the CIPC team forged during annual audit visits resulting in improved reporting. All outbreaks are followed up daily by the team to ensure appropriate management is in place to minimise spread, facilitating earlier re opening of the home and ensuring all relevant agencies are informed of updates.

The advice given includes improving hydration messages to reduce unnecessary admissions. Visits are made if the team feel additional support is needed for quality improvements. For 2016/17 8 support visits have been made.

Norovirus remains the leading cause of diarrhoea and vomiting. Symptoms range from being mild to causing more serious disease affecting the vulnerable and elderly.

The CIPCT focus on giving early support and guidance and issue a Norovirus guidance pack annually prior to the winter season. When Norovirus is more prevalent stool sampling and diagnosis has improved with the increased support provided by the CIPCT. This year has seen a change in the strain types seen locally which has impacted on the number of staff affected in outbreaks as they have not had previous exposure to the virus.

This year has seen an increase in the number of respiratory outbreaks reported to the CIPCT. Difficulties in gaining early testing in the community have been improved as the team now hold stocks of viral swabs that are issued as needed. This supports with gaining a prompt diagnosis and where appropriate the results can be used to inform decision making in regard to early use of antiviral medications.

The tables below show the outbreaks which have occurred in care homes across the 5 CCGs and the number of supportive visits which have taken place as a result to advise and support care homes who the team have identified a need for improvements in the management of the outbreak. Diarrhoea and Vomiting is the most commonly occurring outbreak and numbers are higher in Mansfield and Ashfield than in the other CCGs.

CCG	Diarrhoea and/or vomiting	Respiratory	Scabies	Invasive Group A Streptococcus (IGAS)	Total outbreaks
Newark and Sherwood CCG	14	3	1	0	18
Mansfield and Ashfield CCG	26	11	8	0	45

CCG	Diarrhoea and/or vomiting	Respiratory	Scabies	Invasive Group A Streptococcus (IGAS)	Total outbreaks
Nottingham North & East CCG	20	6	1	0	27
Nottingham West CCG	10	5	0	0	15
Rushcliffe CCG	5	6	0	1	12
Total	75	31	10	1	117

CCG	Number of support visits	Type of Outbreak
Newark and Sherwood CCG	1	Diarrhoea and Vomiting
Mansfield and Ashfield CCG	4	2 Diarrhoea and Vomiting 2 Scabies
Nottingham North & East CCG	2	1 Diarrhoea and Vomiting 1 <i>Clostridium difficile</i> infection
Nottingham West CCG	0	
Rushcliffe CCG	1 1	Diarrhoea and Vomiting IGAS
Total	9	

11.1 Root Cause Analysis – Outbreaks

Outbreaks of significance in care homes are reported and a root cause analysis investigation is completed. An Invasive Group A Streptococcus outbreak occurred in a care home in Rushcliffe CCG with 4 residents testing positive. Support was provided by PHE as this is a notifiable disease. Environmental and staff swabbing was completed and the most likely source of contamination was thought to be due to cross contamination through poor practice in hand hygiene and inappropriate use of personal protective equipment, alongside the use of difficult to clean furnishings in the care home that had become contaminated. These issues were identified and addressed by the CIPCT and PHE colleagues. Supportive visits were made by CIPCT in response to the outbreak and once treatment and changes had been implemented the care home re-opened.

12. Infection Prevention and Control Audit Programme

12.1 Care Homes

A proactive audit programme has been in place since the recruitment of the augmented CIPCT in 2015/16. During 2016/17 all residential (excluding learning disability homes) and nursing homes have received proactive audits. Audits are undertaken in line with the Infection Prevention Society audit tools and the Health and Social Care Act 2008.

Following the audits, home managers are requested to produce an action plan in response to any findings and recommendations for standard improvement. On occasions a review visit is required to ensure compliance with the action plan, if refurbishments are taking place or are planned or if there are significant concerns.

All reports are shared with the CCG quality leads, Nottinghamshire County Council and the Care Quality Commission and the team work closely with such colleagues to respond reactively where concerns have been raised. See [Appendix 1](#) for further information.

One of the main areas of concern identified during the audits of 2015/16 on residential homes was the large percentage (48%) of homes without adequate provision of hand washing facilities for staff and visiting professionals in residents rooms (disposable paper towels and liquid soap). There has been a significant improvement in this during the audits for 2016/17 (12% increase). 4 Nursing homes when audited this year did not have hand washing facilities in resident' rooms but all 4 have since remedied this.

The table below shows the number of sites audited (it does not reflect areas where more than one visit was made)

CCG	Residential Care Home	Care Homes with Nursing
Mansfield and Ashfield CCG	22	19
Newark and Sherwood CCG	17	12
NHS Nottingham North & East CCG	24	17
NHS Nottingham West CCG	11	7
NHS Rushcliffe CCG	12	8
Total	86	63

12.2 General Practice

All GP practices have been audited during 2016/17 by the CIPCT. The CIPCT work closely with the Primary Care Quality Teams and audit reports are shared, this includes attending the Primary Care Quality sub-groups for Nottingham North and East, Rushcliffe and Nottingham West CCGs and the Primary Care Performance Review Group in Mid Nottinghamshire.

These groups act as central information sharing points for concerns, good practice and to ensure robust assurance processes are in place with regard to the quality of primary care delivered to patients. See [Appendix 5](#)

13. Construction/Building Works

The CIPCT provide support to GP practices and care homes with new builds and refurbishments to ensure that buildings are fit for purpose and meet best practice requirements. New work is reviewed and approved once completed and compliant. See [Appendix 5](#)

14. Antimicrobial Stewardship (AMS)

The UK 5 Year Antimicrobial Resistance Strategy (2013-18) was published in September 2013. The overall aim of the Strategy is to slow the development and spread of anti-microbial resistance (AMR) by focusing activities around 3 strategic aims:-

- Improve the knowledge and understanding of AMR
- Conserve and steward the effectiveness of existing treatments
- Stimulate the development of new antibiotics, diagnostics and novel therapies

These aims are underpinned by actions in 7 key areas: one of these key areas is improving infection prevention and control practices. This group has prioritised working on raising public awareness and enhancing public engagement on antibiotic resistance and why it is important to the public and APR research documentation of known antibiotic allergy status. The group includes a lay member and their input has been integral to the work of this group. A pack was produced with public involvement. This includes: What is antibiotic resistance and why it is important to the public?, side effects that antibiotics can cause, what constitutes inappropriate use of antibiotics and how the public can prevent infections, which in turn prevents the need for antibiotics. The pack has been shared across local GP practice patient participation groups.

15. Priorities for 2017-18

The key aims in 2017-18 will be:

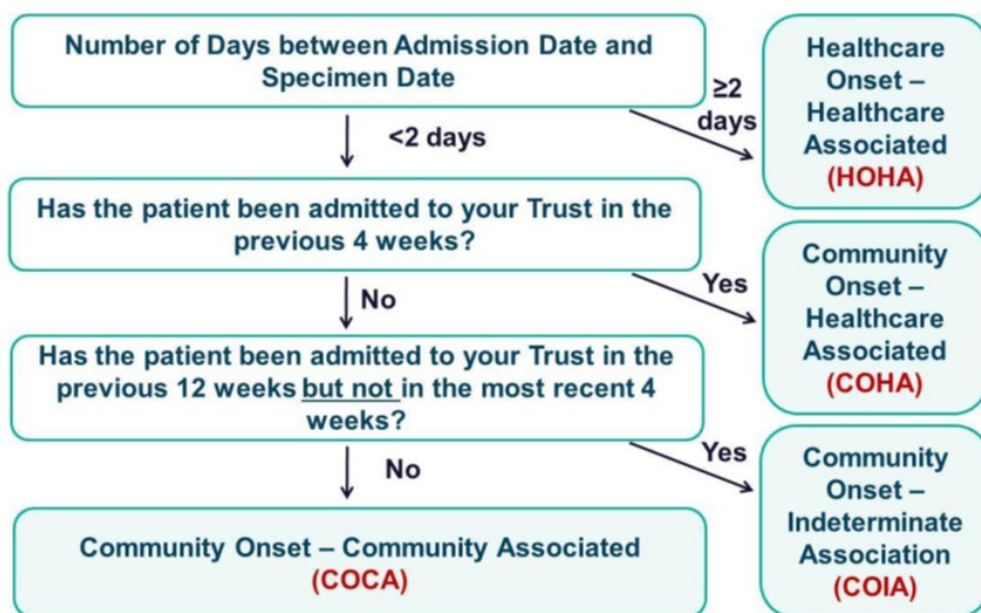
- To build on the work that has been completed over 2016-17 to prevent avoidable healthcare-associated infections, improve patient safety and to ensure that this work is sustainable and embedded across commissioned providers of services.
- Complete the planned Annual Programme of Work (see appendix 1) and continue to improve and sustain high standards of infection prevention and control practice.
- To improve the ease of access to IPC information for clinicians by continually updating clinical pathways and disseminating new guidance as it arises.
- To work with the local health economy on reducing preventable *E. coli* BSI and urinary tract infections and to implement the 'Dip or Not to Dip' project across Nottinghamshire care homes.

15.1 *Clostridium difficile* Infection

Newark and Sherwood and Rushcliffe CCGs have breached their CDI objectives for 2016/17. This includes both Trust and community acquired cases. Work will continue with SFHT, NUHT and prescribing colleagues to reduce avoidable CDI cases and to ensure that antibiotic prescribing is appropriate. All inappropriate prescribing will continue to be challenged and support from the practice Prescribing Advisors will be requested to reinforce adherence to prescribing guidance and to provide education to the GP practice.

NHS England CDI objectives for 2017/18 remain the same as for 2016/17 (see [Appendix 3](#)). NHS Improvement have advised this should not be interpreted as suggesting that all organisations have reached an 'irreducible minimum' of CDI cases, the need to reduce CDI cases continues. From April 2017 there will be a change to the current CDI data collection from secondary care, with the requirement for additional mandatory fields including earlier admission data to the same reporting Trust. The new algorithm below reflects the new 'time to onset and prior healthcare interaction data/question flow' and includes a change from pre 72 hours to 48 hours for community acquired cases.

This does not constitute a formal change to the current criteria used for the apportionment of cases. However this will be used to inform future changes and developments to the current CDI algorithm.



CCG	CDI case objective 2017/18
NHS Mansfield & Ashfield CCG	94
NHS Newark & Sherwood CCG	39
NHS Nottingham North and East CCG	47
NHS Nottingham North and East CCG	47
NHS Nottingham West CCG	21
NHS Rushcliffe CCG	24
SFHT	48
NUHT	91

CIPCT objectives for 2017-18:

- To undertake proactive audits on all residential and nursing homes in the 5 CCGs across the county with the aim of improving the quality and safety of care for the residents. A continued audit process is required to ensure effective prevention methods are embedded and best practice becomes standard.
- To undertake proactive audits in all dental practices in the 5 CCGs across the county and work closely with CQC to ensure, that a safe and effective service is provided for patients.
- To undertake case reviews on all patients with a positive *Clostridium difficile* toxin or PCR test with a view to identify key themes and reducing hospital admissions in line with the CCGs objectives.
- To continue to ensure that MRSA patients are followed up appropriately in line with the CCGs quality and safety agenda and the community MRSA strategy. To continue to embed best practice with the aim to achieve a zero tolerance of all avoidable infections and to challenge cases using the PIR process where there has been minimal healthcare involvement and where cases are deemed unavoidable. To undertake Post Infection Reviews (PIR) and Root Cause Analysis (RCA) in line with national Guidance and the CCGs quality and safety agenda.
- To undertake RCA's on patients diagnosed with an *E. coli* BSI to identify common themes with the aim of creating a greater understanding of the reasons behind the increase in the number of cases.
- To implement the national process to address the increasing numbers of *E. coli* BSI (Expected April 2017).
- To work with all relevant stakeholders (NHS England, CCG, NCC, Acute Trusts, Public Health England) across the health community, attending meetings and working groups to ensure consistent evidence based services are provided.
- To contribute to the anti-microbial resistance strategy (AMR).
- To manage and monitor outbreaks effectively in care homes.

15.2 Gram-negative BSIs

Work over the coming year will focus on collaborative working to reduce avoidable *Escherichia coli* BSIs with the aim of reducing cases to meet the national 10% reduction targets detailed in the quality premium.

This will be challenging as rates across the East Midlands remain higher than the national average. This work will rely on the additional need for primary care information to complete the full picture needed for comprehensive case reviews. Analysis of themes will then be used to determine the local actions needed.

CCG	All <i>E. coli</i> BSI cases attributed to CCG Jan-Dec 2016 Baseline data set	<i>E. coli</i> BSI CCG Quality Premium 2017-18 10% reduction
Mansfield & Ashfield	201	181
Newark & Sherwood	135	122
Rushcliffe	107	82
Nottingham North & East	154	139
Nottingham West	91	96

The table above details the Quality Premium *E. coli* BSI reduction target 2017-18

16. Conclusion

CCGs have a duty to ensure that all commissioned and social care services are providing clean, safe and effective care across their population to minimise the risk of infection to patients, staff, carers, and visitors. The team has continued to build on the successes seen last year with sustained improvements made over 2016/17. The increased IPCT resource continues to play a key role in assurance alongside keeping infection prevention high on the agenda and ensuring it is embedded into everyday practice.

The challenge will be in sustaining this level of achievement and ensuring that best practice is consistently applied across all provider services making further improvements in those areas where this has not yet been achieved. As care moves closer to home there will be a greater emphasis on care in the community. It is essential that health and social care services have robust infection prevention systems in place to ensure that the increasing demand on services does not diminish the ability to deliver safe and effective care for patients. It is recognised that there are many challenges for both commissioners and provider organisations in HCAI reduction. Reducing healthcare-associated infections continues to be a high priority that supports duty and accountability by demonstrating:

- Continuous monitoring of providers.
- Highlighting and addressing where providers are not meeting required standards.
- Collaborative working to improve performance, quality and patient safety and embedding best practice.
- Remaining patient focused.

17. References

Department of Health UK (2013) Five Year Antimicrobial Resistance Strategy 2013 to 2018, London

Department of Health (2008) Health and Social Care Act Code of Practice on the prevention and control of infections, London

Department of Health (2014) NHS Outcomes Framework 2015/16, London

Department of Health (2014) Revised guidance - Implementation of modified admission MRSA screening guidance for NHS

Office of National Statistics (2015) Assessment of compliance with the Code of Practice for Official Statistics, London

Public Health England (2016) Annual Epidemiological Commentary Mandatory MRSA, MSSA and E. coli bacteraemia and C. difficile infection data

NHS England Quality Premium Guidance for CCGs 2016/17

NHS England Guidance on the reporting and monitoring arrangements and post infection review process for MRSA bloodstream infections from April 2014 v2

Public Health England NHS Improvement Preventing healthcare associated Gram-negative bloodstream infections: an improvement resource 2017

Public Health England Toolkit for managing Carbapenemase-producing Enterobacteriaceae in non-acute and community settings 2015

Health and Social Care (Safety and Quality) Act 2015 The Stationery Office

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Appendix 1 Infection Prevention and Control Annual Report for Care Homes March 2017

1. Introduction

This paper will provide an update on the proactive audit programme outcomes in care homes.

2. Background

All residential and nursing care homes have been proactively audited in 2016/17 (excluding learning disability homes) across Nottinghamshire County (excluding Bassetlaw). In addition a number of reactive audits have taken place in response to concerns being raised by colleagues in the Care Quality Commission (CQC), Nottinghamshire County Council (NCC) and Clinical Commissioning Groups (CCG).

3. Progress to date

One hundred and fifty homes have been audited in 16/17 with a number of homes being re visited due to the level of concern at either the lack of hand washing facilities for staff and visiting health professionals to use in the residents' rooms or due to the lack of progress made in residential homes since the previous audit visit in 2015/16. The table below illustrates the improvements which have been made with regards to hand washing facilities in residential homes (82) audited in 15/16 and 16/17. (Please note homes with Nursing were only audited on a reactive basis in 15/16, hence the tables do not include homes with nursing.)

Residential Homes hand hygiene

CCGs	No hand wash facilities in residents rooms in 2015/16	No hand wash facilities in residents rooms 2016/17	Improvement
Mansfield and Ashfield Newark and Sherwood	15/38 (39%)	8/38 (21%)	18%
Nottingham North and East, Nottingham West and Rushcliffe	23/43 (53%)	6/43 (14%)	39%

Of the 19 homes with nursing which were audited in 15/16 on a reactive basis, 4 did not have hand wash facilities in residents' rooms. When re audited in 16/17 all have now remedied this.

Many residential homes audited in 15/16 and 16/17 have made progress with the issues outlined on their audit report. Progress is recorded by the team as totally completed, mostly completed, partially completed and not completed. The table below shows the numbers of homes within each category.

CCGs	Actions Fully Completed	Actions Mostly Completed	Actions Partially Completed	No Actions Completed
Mansfield and Ashfield Newark and Sherwood	9 (24%)	4 (11%)	18 (47%)	6 (16%)
Nottingham North and East, Nottingham West and Rushcliffe	5 (12%)	10 (23%)	27 (63%)	1 (2%)

3 reactive audits have been undertaken in learning disability homes where other agencies have raised concerns around infection prevention and control, and the team have responded as a priority to undertake an audit reporting back to the referring agency.

2 members of the team have attended a local meeting of CQC Inspectors and advised them on the role of the team. This has resulted in more contact for local intelligence from CQC colleagues prior to their inspections.

4. Newsletter

A quarterly newsletter is sent out to all care homes, containing current topics of interest, advice, and support on common issues the team find during audits or outbreaks such as lack of occupation health services available for staff (Hepatitis B vaccinations) how to record fridge temperatures, influenza, how to obtain a stool sample and sharing of examples of good practice.

5. Areas of concern

6 homes in Mansfield and Ashfield and Newark and Sherwood and 1 in Nottingham North and East, Nottingham West and Rushcliffe had not completed any of the actions detailed in their action plans following the second round of audits. These homes have had an extra review visit and the concerns have been raised with CQC, NCC and CCG colleagues

Themes are very similar to those in 15/16 such as lack of appropriate sluice facilities for the cleaning of commode pans, hand sluicing of soiled laundry, cleaning issues, incorrect reading and recording of fridge temperature and lack of occupation health facilities for staff to get vaccinated for Influenza and Hepatitis B.

The team will continue to work with these homes and provide support to assist them in achieving national and local guidance, informing colleagues as appropriate.

6. Action

The team will continue to undertake supportive proactive audits in line with the planned annual audit programme.

7. Conclusion

The team continue to be well received on their unannounced visits and receive many positive comments in response.

Nikki Hughes
IPC Matron Lead for Care Homes

Appendix 2 To Dip or Not to Dip Project Progress Report for Phase 1

To Dip or Not To Dip (TDONTD) is a quality improvement project which aims to improve the quality of diagnosis and management of urinary tract infections (UTI) in older people living in care homes. Designed and implemented in NHS Bath and North-East Somerset in 2013, it successfully reduced antibiotic use for UTI by 67% (relative reduction), whilst also seeing a reduction in emergency admissions for UTIs and dehydration. It involves the introduction of an evidence-based UTI assessment tool for use by care homes staff, based on Scottish National Guidelines. Educational interventions (training sessions and resources) are provided to the home.

Project Actions Phase 1 (November 2016 – May 2017)

1. Identify Project Team and Induction for Project Manager

The project team members were identified and the post of the project manager was filled and the project manager commenced on 14th November 2016.

2. Develop Audit Tools

The Project Lead met on several occasions with the Community Geriatricians to develop a draft assessment tool and this was updated as new changes were made after sharing with other healthcare professionals.

3. Identification of Pilot GP practices and Care Homes

3.1 Nottingham West CCG:

To Dip or Not to Dip Project was taken to the Clinical Development Committee by Dr Kevin Lim and this was supported and agreed to be rolled out to the practices and care homes in Nottingham West. A decision was made to commence the first pilot in Nottinghamshire in the Eastwood area due to the geographical location of the care homes and the 2 practices covering the care home residents.

Between mid-November and mid December 2016, the Project Lead and Project Manager met with the GP Leads and Primary Care Pharmacists of the 2 practices (Church Street and Church Walk Practices) and the care home managers of the 6 care homes (Alexandra House, Ashton Court, Edward House, Eastwood House, Moorlands and The Rookery) to introduce the project and discuss current and future requirements of the pilot sites.

3.2 Mansfield and Ashfield CCG:

To Dip or Not to Dip Project was approved by the Primary Care Group and was supported to be rolled out to the practices and care homes in Mansfield and Ashfield CCG. The findings from the pilot will be taken to the Clinical Executive Group. Due to the capacity of the Primary Care Pharmacists and geographical location, a decision was made by the project team to commence the second pilot in the Warsop area. The 2 pilot practices involved in the pilot are Meden Vale and Riverbank practices and 3 care homes Woodlands, Sycamore & Poplars and The Oaklands.

The Project Lead and Project Manager met with the GP leads of both practices, shared some outcomes of the baseline data and Care Home Managers of the 3 care homes to introduce the project at the end of February 2017.

4. Pilot Promotion, Support and Building Relationships with Health Professionals:

The project team started building relationships from November 2016 with other health and social care professionals working with care homes such as:

- Primary Care Pharmacists in Nottingham West CCG and Mansfield and Ashfield CCG for the collection and collation of pre-pilot and post pilot data and deadline for completion of reports.
- Community Geriatricians based at Nottinghamshire University Hospitals NHS Trust to provide clinical input for the project especially the development of the assessment tool and project resources.
- Community Matrons Team (Nottinghamshire Healthcare Foundation Trust) covering Beeston, Stapleford and Eastwood area: The Community Matrons assess, review and prescribe antibiotics for residential care home residents as well as train care home staff. Met to introduce the project, discuss and develop project resources such as Care homes training presentation, posters, and leaflets. The Community Matrons have been instrumental in the implementation and planning for sustainability of the pathway moving forward
- Integrated Care Team: Attended their team meeting and met with District nurses, Community Occupational Therapists and Physiotherapists etc. to introduce the project and to ensure that all care homes health professionals are raising the awareness of the project and the most essential message of not using dipsticks in the diagnosis of suspected UTIs in over 65 care home residents
- Information and Analytics team: Met with the Data analyst to discuss collection of pre and post intervention data for UTI and dehydration related emergency hospital admissions from care homes

5. Development of Project Educational Resources

In December 2016, the development of the project resources commenced as this was needed for the care homes training. There was an integrated and multi-disciplinary working approach to develop the posters, leaflets, training handbook and DVD.

6. Refine Plans

The Project plans were refined because it was decided by the project team that the project resources would be required for the wider launch of the project to GP practices and Care homes not involved in the pilot to aid the successful implementation of the project. As a result of this the Project plans for Phase 1 and 2 were revised.

6.1 Project Plan Phase 1

November 16	December 16	January 17	February 17	March 17	April 17	May 17
Phase one						
Identify Project Team Induction						
Develop audit tools	Identify Care Homes & GP Practice					
	Data Collection and analysis					
	Refine plans	Collation of Themes and Findings				

				Report and action plan	Submit final report	
				Planning for QIP including obtaining resources for phase 2		
			Recruit to Phase 2			Start QIP phase 2 Induction

6.2 Revised Project Plan Phase 1

November 16	December 16	January 17	February 17	March 17	April 17	May 17
Phase one						
Identify Project Team Induction	Identify Care Homes & GP Practice					
Develop audit tools	Pilot Promotion, Support and Building relationships with Health Professionals					
	Develop project resources for Care Homes training	Training for pilot care home staff				
	Refine Plans	Data Collection and Analysis				
			Recruit to Phase 2			
			Planning for QIP including obtaining resources for phase 2			
				Collation of Themes and Findings		
				Project Report and Action Plan		
						Submit final report

6.3 Project Plan Phase 2

May 17	June 17	July 17	Aug 17	Sept 17	Oct 17	Nov 17	Dec 17	Jan 17	Feb 17	
Phase 2										
Planning QIP and arrange resources										
	Plan QIP	Roll out of QIP								

	programme								
									Evaluation
									Final Report

6.4 Revised Project Plan Phase 2

May 17	June 17	July 17	Aug 17	Sept 17	Oct 17	Nov 17	Dec 17	Jan 17	Feb 17
Phase 2									
Planning QIP and meeting with Nottingham North & East, Rushcliffe and Newark & Sherwood CCGs									
Plan QIP programme	Roll out of QIP								
									Evaluation
									Final Report

7. Delivering Training to Pilot Care Homes

7.1 Nottingham West:

The care home training commenced in January 2017, 74 care home staff were trained at 10 different training sessions and the Community Matrons attended the training sessions. Below is the list of care homes, number of training sessions and number of staff trained in each care home

Care Homes	Training Sessions	Staff Trained
The Rookery	2	11
Eastwood House	2	10
Moorlands	1	4
Alexandra House	1	5
Edwards House	1	19
Ashton Court	1	15
Acer Court	1	7
Alder House	1	3
Total	10	74

Additional training sessions were delivered to Acer Court and Alder House Care homes at the request of the Community Matron and the GP Lead.

7.2 Mansfield and Ashfield CCG:

The Care homes training commenced beginning of March 2017, 67 care home staff were trained at 4 training sessions and the Care Homes Nurses attended the training sessions in order to cascade the training to the district nurses. Below is the list of care homes, number of training sessions and number of staff trained in each care home.

Care Homes	Training Sessions	Staff Trained
Sycamore & Poplars	1	20
Woodlands	2	35
The Oaklands	1	12
Total	4	67

8. Patient Data Collection from Pilot GP practices

The project team met with the Primary Care Pharmacist in Nottingham West and Mansfield and Ashfield CCG to discuss the data collection of data pre and post pilot. Dawn Gajree designed the template to pull off the baseline data from the GP practice clinical systems and the deadline for sending of pre – pilot reports were February 2017. Some Primary Care Pharmacists in Nottingham West were not able to meet the February 2017 deadline due to capacity and increased work load, but all reports were received mid-March 2017.

8.1 Nottingham West Baseline Report

As part of the Nottingham West CCG pilot, baseline data were collected by Primary Care Pharmacists for a period of 12 months (January – December 2016) in 5 GP practices (Church Street, Church Walk, West End, Abbey and Hickings Lanes) 15 Care Homes and a total of 324 residents. 180 residents had no antibiotics for UTI and 144 residents where prescribed a total of 307 antibiotics which is 44% of the total number of residents in the 15 care homes. This means an average of 2 courses of antibiotics for UTI were prescribed per care home resident.

8.1.1 Nature of Encounter

48% of the 144 residents' nature of encounter was by telephone call to the GP practice requesting antibiotics, 32% were face to face and 20% of residents had no records.

8.1.2 Signs and Symptoms

Out of the 144 residents prescribed antibiotics, 21% had UTI signs and symptoms based on the national guidelines, 57% had non-specific symptoms recorded such as confusion or offensive urine etc and 22% had no symptoms recorded.

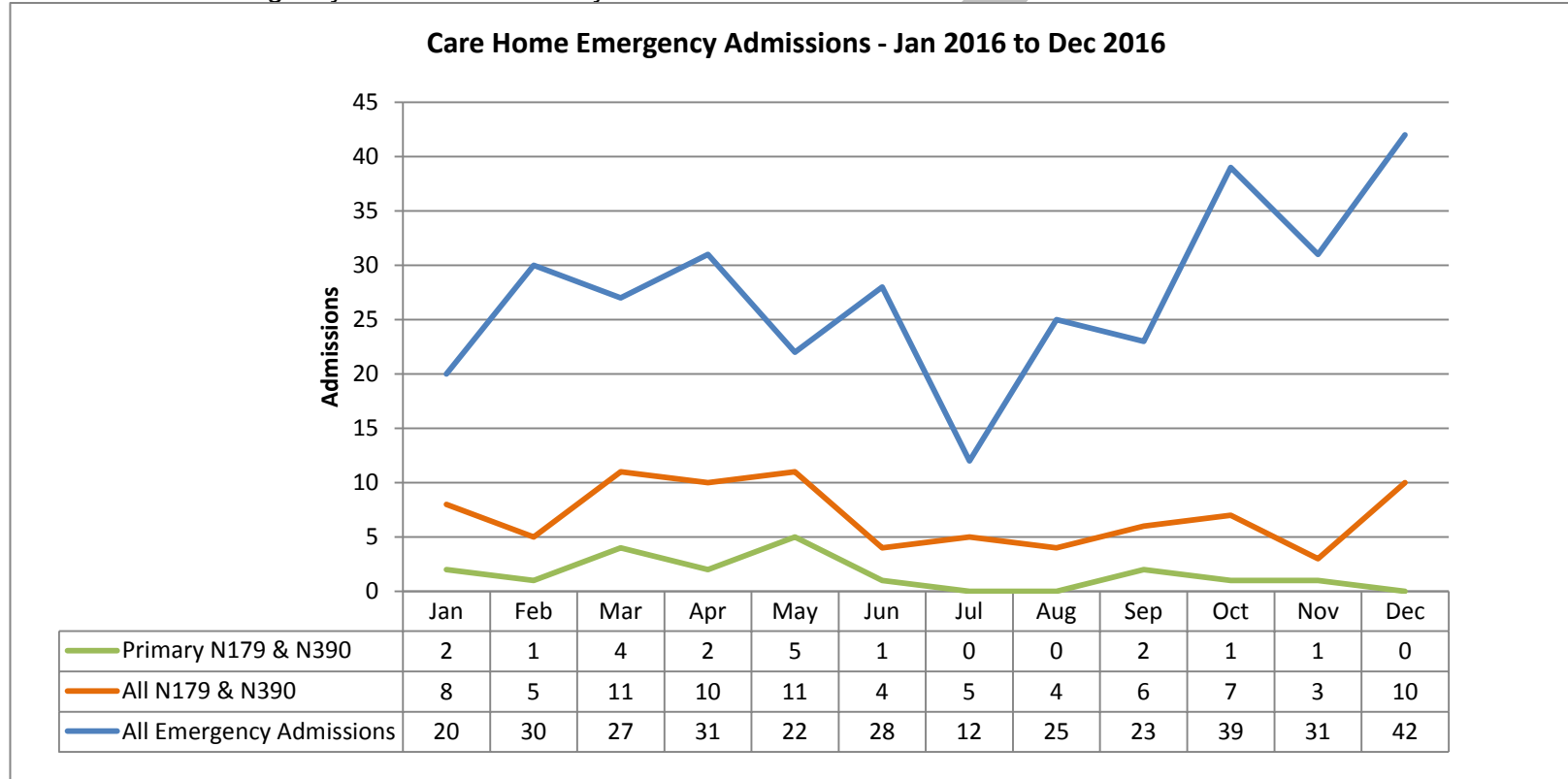
8.1.3 Urine Dipstick and Urine Culture

69% of the 144 care home residents had a urine dipstick performed and only 23% had urine sent for culture in the laboratory.

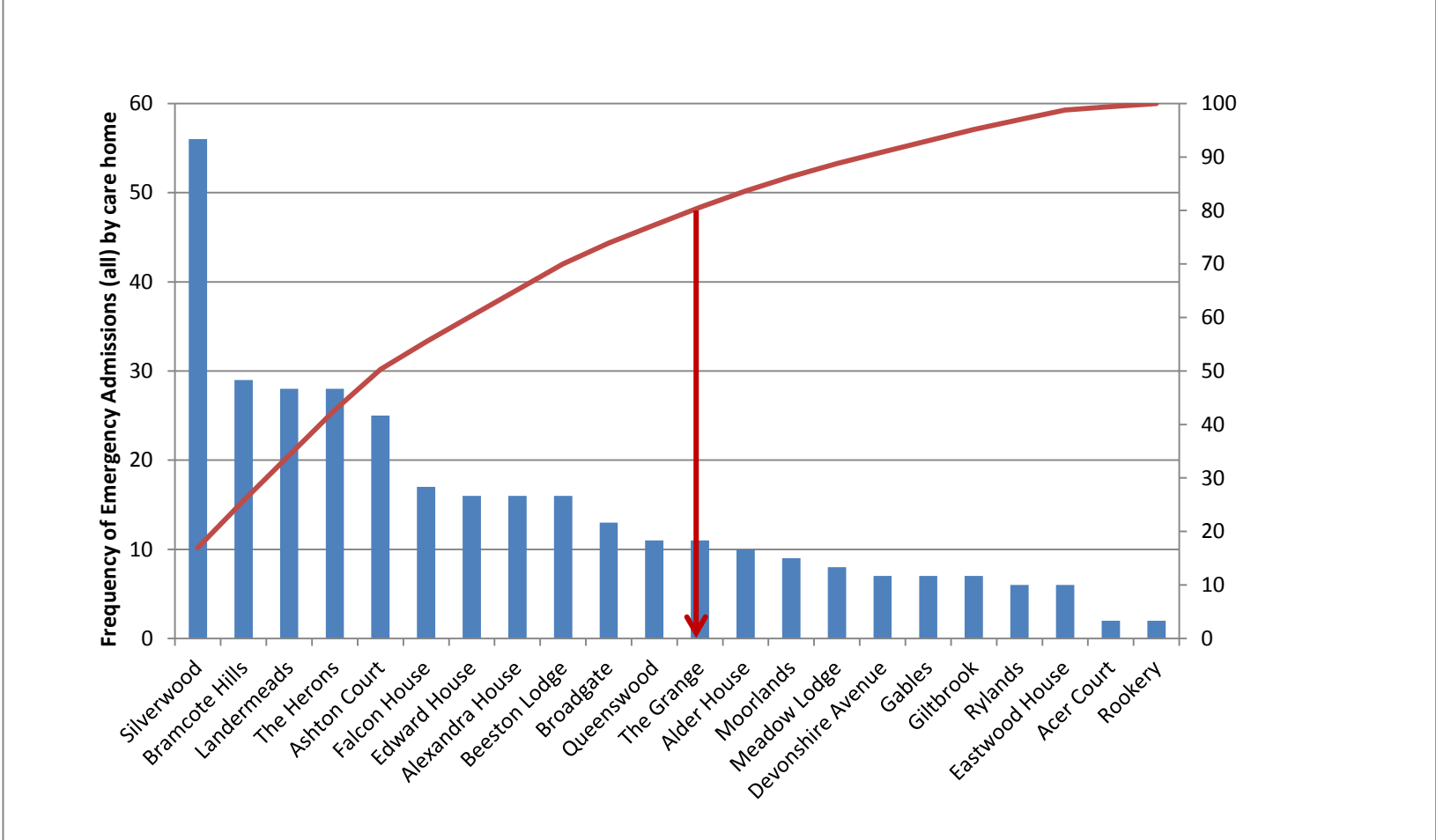
8.2 Nottingham West Care Homes UTI and Dehydration Emergency Admissions

As well as monitoring the pre pilot antibiotics prescribed for the care homes residents, the emergency admissions for UTI and Dehydration are being monitored as well and below are the graphs.

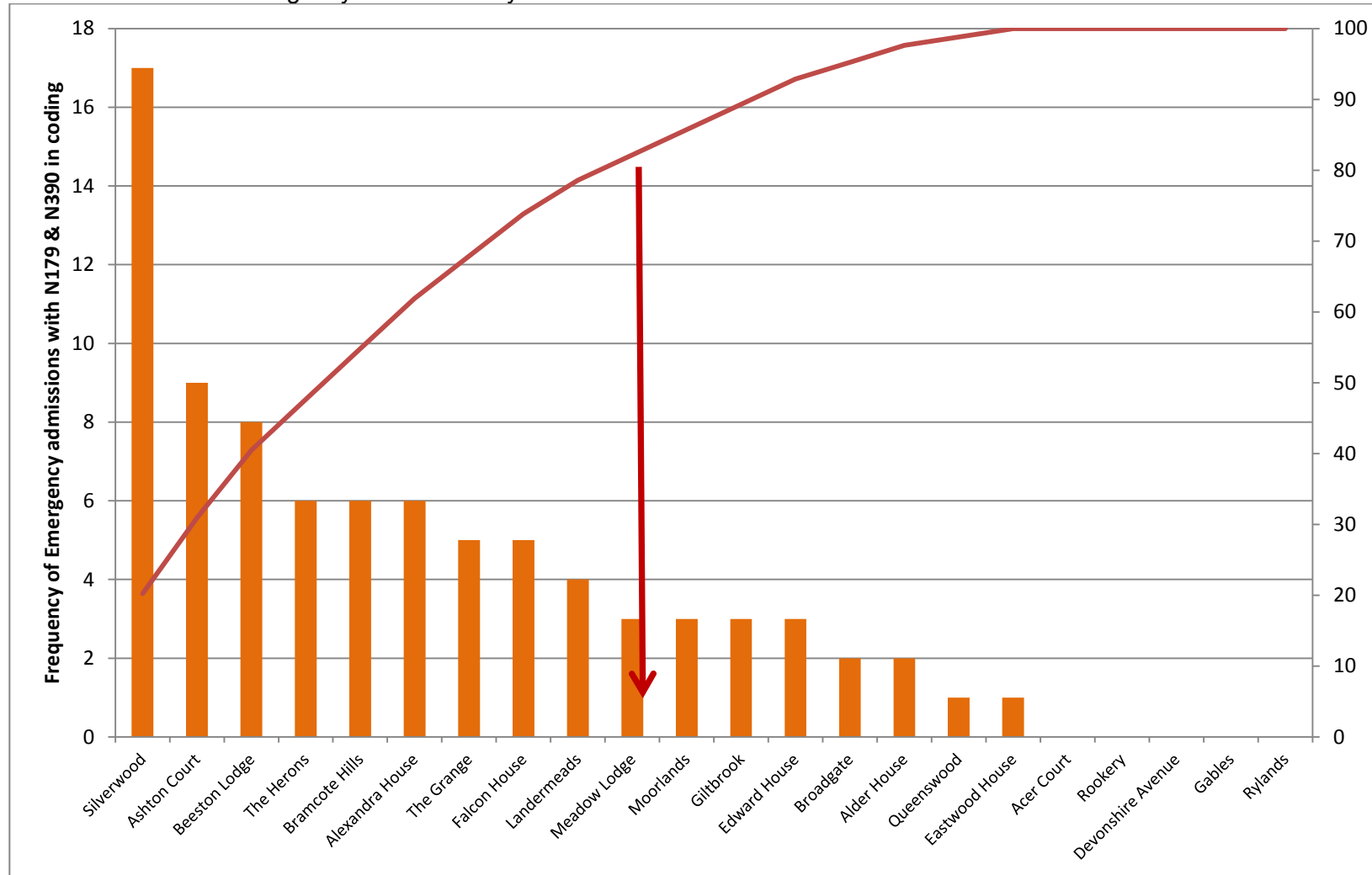
8.2.1 Care Home Emergency Admissions January – December 2016



8.2.2 All Emergency Admissions by Care Homes



8.2.3 N179 and N390 Emergency Admissions by Care Homes



8.3 Mansfield and Ashfield Baseline Report from January – December 2016
 In Mansfield and Ashfield the project team received baseline report for the 2 practices involved in the pilot.

8.3.1 Riverbank Practice:
 17 residents received antibiotics for UTI out of 21 residents (81%) and there were 46 courses of antibiotics with an average of 2.3 courses per resident. 3 residents were on long-term antibiotic prophylaxis (14%).

Prescribing Themes:

- 15% had no clinical information documented in record
- Choice of antibiotic:
 - 19/46 (41%) prescriptions were for non-guideline antibiotics
 - Amoxicillin used first-line leading to failure and admission for urosepsis
 - Cefradine (non-formulary), Cefalexin low-dose
 - Trimethoprim chosen 16/46 (35%) times; only 4 had confirmed sensitivities, therefore 75% of these are inappropriate choice
- Duration of antibiotic:
 - 61% incorrect duration for lower UTI
 - Only 10% females received a 3d course as per guidelines

Urine dipsticks:

- 82% had a dipstick result recorded
- 30% of these were negative but antibiotics given anyway (not used for NPV)
- 43% of these were positive (expected range is 40-50% given prevalence of ASB)

8.3.2 Meden Vale Practice:

20 residents out of a total of 29 residents received antibiotics (69%) and there were 34 courses of antibiotics with an average of 1.7 courses per resident. 1 resident (3%) on long-term antibiotic prophylaxis for 7 months

Prescribing themes:

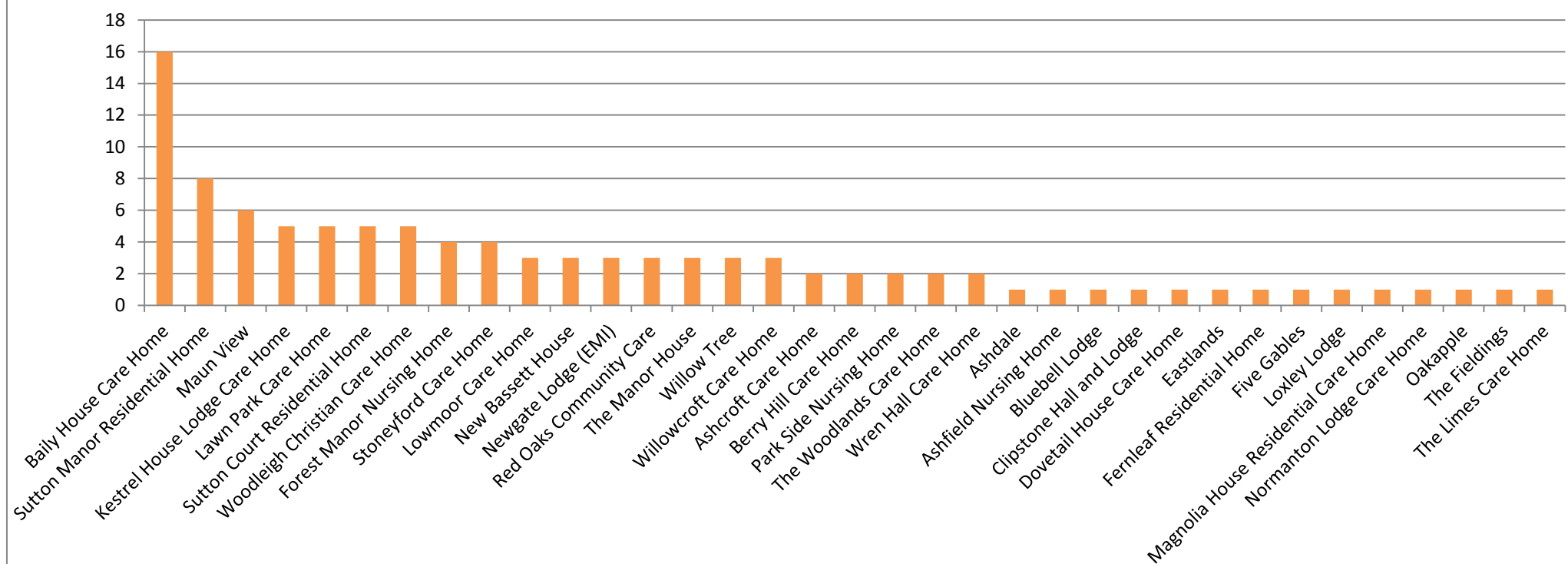
- 18% had no clinical information documented in record
- 44% prescriptions were made following telephone call
- Choice of antibiotic:
 - 18/34 (53%) prescriptions were for non-guideline antibiotics
 - Amoxicillin used first-line (e.g. ?LRTI & UTI)
 - Cefalexin low-dose
 - Trimethoprim chosen 9/34 (26%) times; only 1 had confirmed sensitivities prior to prescribing
- Duration of antibiotic:
 - 16/34 (47%) received 5 day courses; included males and females
 - 8/28 (29%) females treated for UTI received 3 day course, rest had 5 or 7 days

Urine dipsticks:

- 44% had a dipstick result recorded
- 10/34 episodes (29%) had either no clinical information or positive urine dipstick alone, documented prior to prescribing

8.4 Mansfield and Ashfield Care Homes UTI and Dehydration Emergency Admissions

Frequency of Emergency Admission for N179 and N390 for January - December 2016



9. Post Intervention Pilot

9.1 Nottingham West:

The pilot in the Eastwood area ended 22nd March 2017 and there was a wider launch to extend the project to the remaining care homes in Nottingham West CCG at the Care Homes Forum on the 22nd of March 2017. Letters were sent out a week before the Care Home forum to each care home and GP practices with summary of the local data, the pathway, assessment tool and use of red-top bottles for urine samples. The Care Homes Forum was well attended with 20 staff from 10 different care homes in attendance and there were different presentations from other health care professionals.

The Community Matrons presented the To Dip or Not to Dip training while the Project Lead presented data on findings from the baseline report and there was positive feedback from the staff.

As part of the implementation of the project across Nottingham West, information and benefits about the project were included in the GP and Quality Count Newsletters and a PLT session is being arranged to present the project specifically to the GPs. Care homes with high numbers of residents and admissions (above) were targeted individually with extra sessions for staff not present at the Care Homes Forum. The extra training sessions for the 6 care homes (Silverwood, Beeston Lodge, The Herons, Bramcote Hills, Landermeads and Falcon House) took place first and second week of April 2017. Post pilot data for Nottingham West CCG were received early April and the project team are currently analysing the data.

9.2 Mansfield & Ashfield:

The pilot is still ongoing in the Mansfield and Ashfield CCG till end of April 2017, after which the post pilot data will be available. Also the project team would be working with the Nottinghamshire Healthcare Care Homes Team and targeting the large care homes with high admission rates in Mansfield and Ashfield CCG. The project team has been allocated a stand at the PLT session on the 26th of April 2017; this will enable the team to be able to speak to other GPs not involved in the pilot.

10. Recruit to Phase 2

The current Project Manager will continue in post and will continue to work on the implementation of phase 2 of the project until the project completion date March 2018.

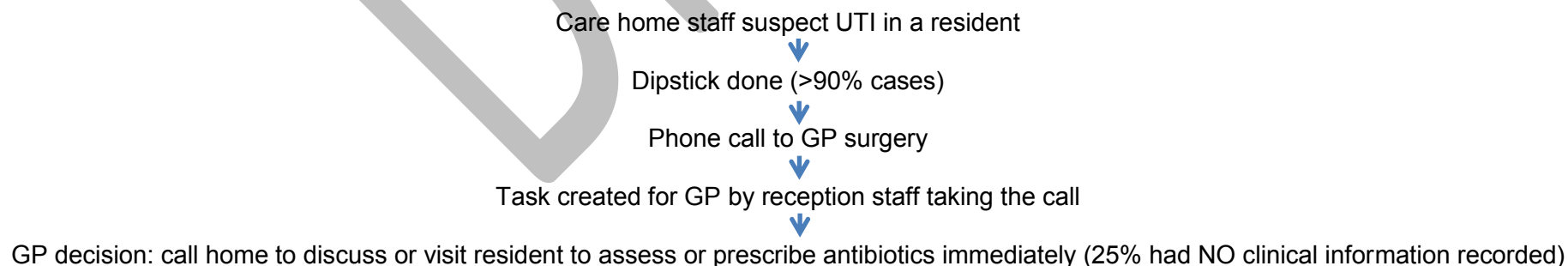
11. Planning for QIP and Obtaining Resources

As part of the project, funding was provided and approved by Public Health Nottinghamshire County Council for professionally produced resources. In February 2017, 2 printing companies were approached for the professional redesigning and printing of the educational project resources after which the project team approved a printing company called Blue Step.

In March 2017, the educational resources were professionally designed and printed in readiness for the wider launch and sent to all the care homes and GP practices before the Care Homes Forum. The Training DVD was not ready for the roll out in March due to inadequate time allocated by the printing company; the DVD has now been completed and would be delivered to the care homes and GP practices.

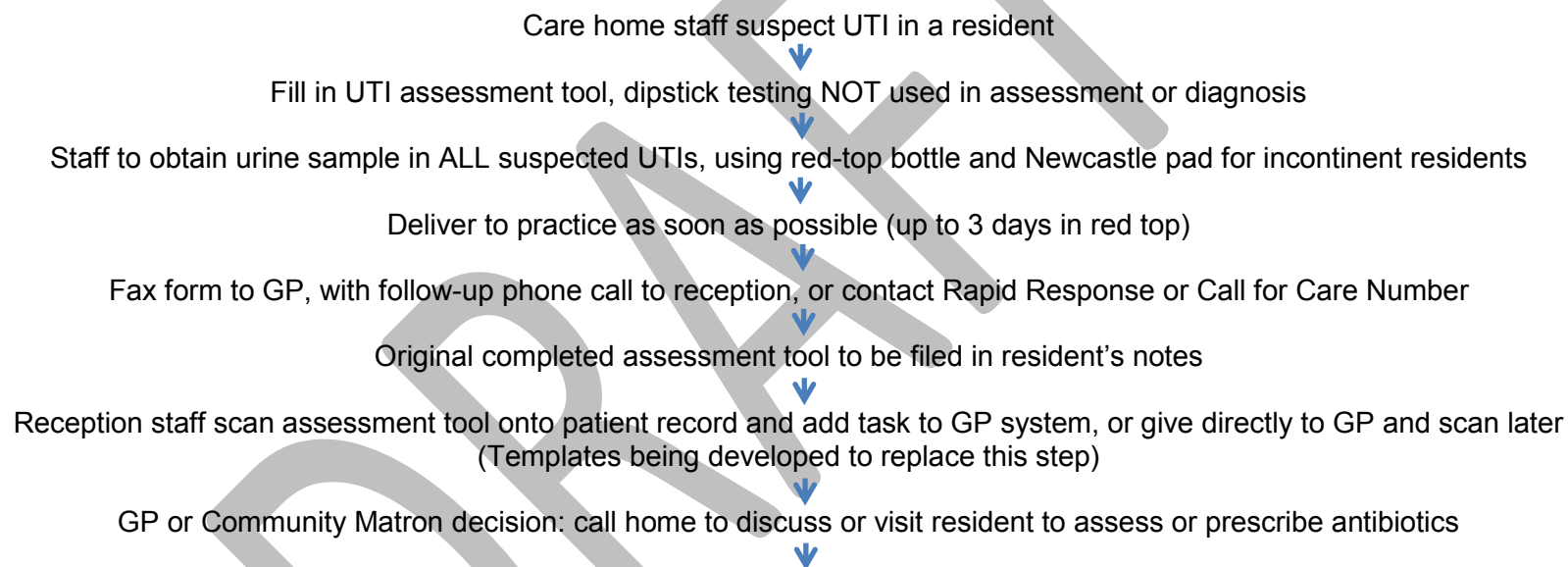
12. Collation of Themes and Findings

12.1 Summary of pre pilot UTI care pathway in Nottingham West and Mansfield and Ashfield CCGs:



- 12.2 Below are the themes and findings discovered before the pilot?
- Little or no clinical assessment for care home residents with suspected UTI
 - Use of dipstick test to diagnose UTI
 - No clinical information of resident's signs and symptoms recorded on GP practice clinical systems
 - Antibiotics prescribed without clinical assessment
 - Care home staff requesting antibiotics via telephone
 - First line course of antibiotic (Nitrofurantoin) not prescribed by the GP for residents without resistance
 - Urine samples not sent for culture to determine the correct antibiotics for the residents

12.3 Summary of UTI Care Pathway with the introduction of To Dip or Not to Dip



***Out of hours:** Contact 111 as usual but can use assessment tool to record signs and symptoms to help in the communication of resident's symptoms with out-of-hours providers, but form should not be faxed.

13. Project Report and Plan

The project report and plan is regularly updated as the project progresses.

14. Submit Final Report

The final report will be completed once all the data has been collected from the pilot areas anticipated to be June 2017.

Project Issues

- Capacity of the Primary Care Pharmacists
- Geographical location of the Care Homes and GP Practices

Project Risks

- Cascading of the training to other staff who did not attend the training and other healthcare professionals
- High turnover of care home staff
- Pharmacists pulling the correct report
- Some Care Home Managers not engaging
- Training DVD and Hand book not delivered to the care homes at the same time
- Inability to get a PLT slot during the pilot

Project Lessons Learnt

- Choice of Printing company
- Timescale for DVD animation
- Early booking of PLT slot

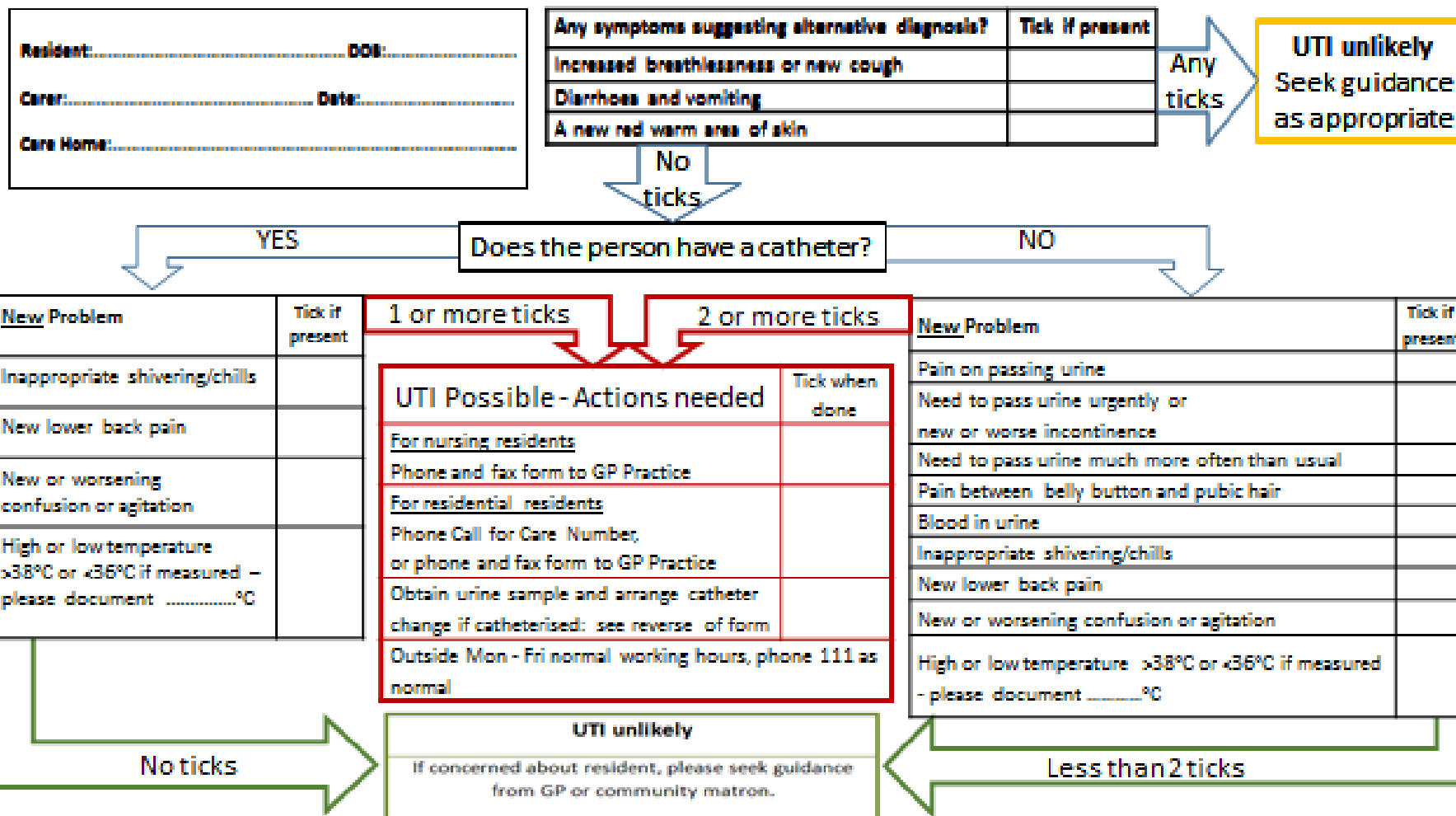
Phase 2

This phase involves the implementation of the project across the CCGs in Nottinghamshire. This is reliant on areas having a Primary Care Pharmacist or identified lead for data collection, agreement and sign up to the project from GPs and associated care homes.

1. 1 Mansfield and Ashfield Assessment tool Page 1

Older People >65 years with Suspected Urine Tract Infection (UTI) - Guidance for Care Home staff

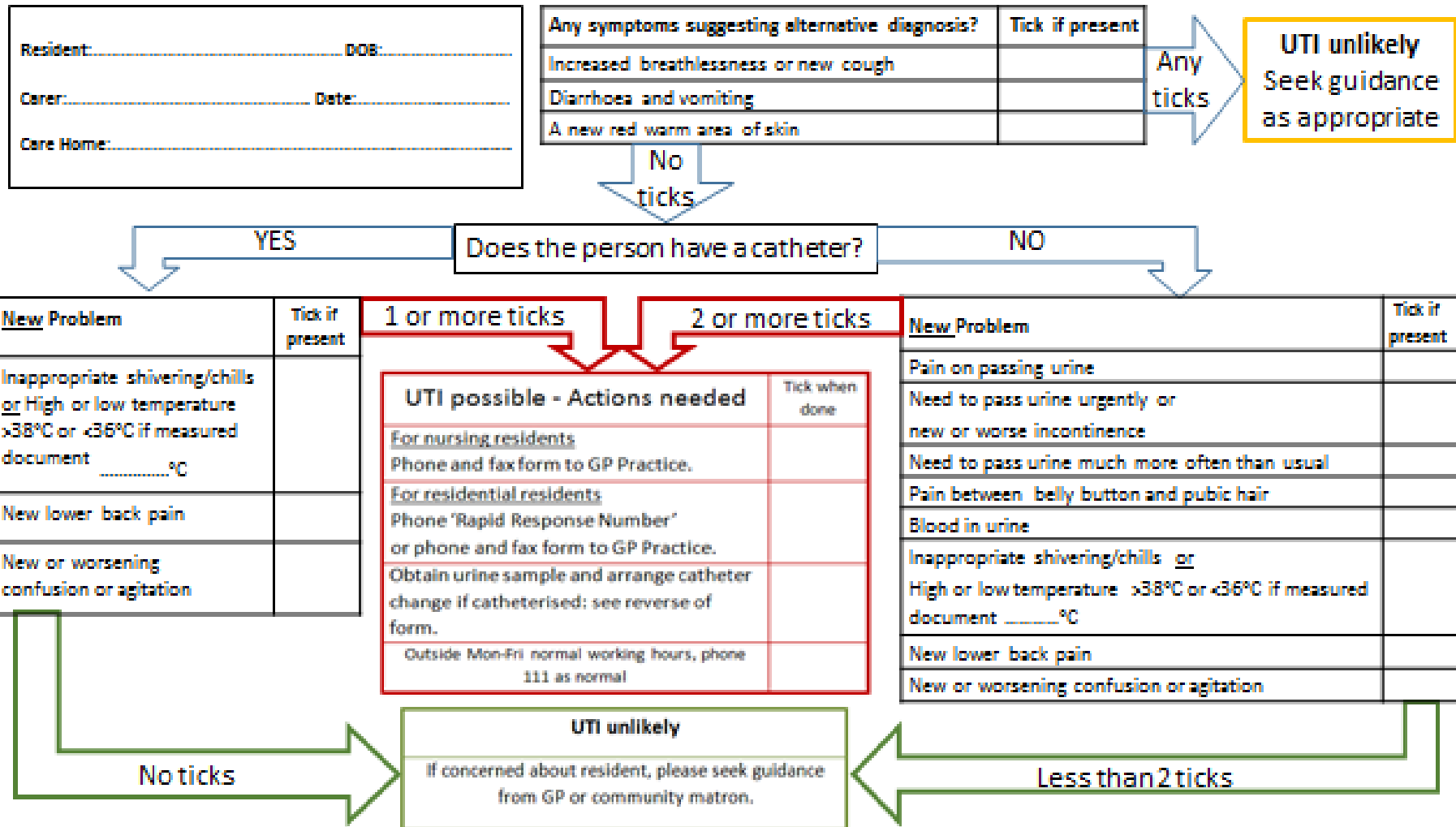
Complete resident's details, flow chart and actions (file in resident's notes after). **DO NOT PERFORM URINE DIPSTICK** – No longer recommended in >65yrs.



1.2 Nottingham West Assessment Tool Page 1

Older People >65 years with Suspected Urine Infection (UTI) - Guidance for Care Home staff

Complete resident's details, flow chart and actions (file in resident's notes after). **DO NOT PERFORM URINE DIPSTICK** – No longer recommended in >65yrs.



**Residents with Urinary Catheters:
Sampling & Changing**



**Residents without a Urinary
Catheter: Obtaining a Urine Sample**



For Nursing Residents:

- Registered Nurse only to take catheter urine sample using aseptic non-touch technique.
- If antibiotics are commenced for UTI, catheter change should be performed by Registered Nurse as soon as possible.

For Residential Residents:

- Contact District Nursing Team to arrange for a sample to be taken.
- If antibiotics are commenced for UTI, catheter change should be arranged with District Nurses as soon as possible.

**Urine cultures are very important in the elderly
to guide antibiotic choice.**

- Try to obtain a urine sample when the resident is in the middle of passing urine (rather than at the start).
- Put the urine in a Red Top urine bottle, filling to the 20ml line.
- Fill in the resident's details and type of sample carefully to help the lab to process the sample.
- Samples should be taken to the GP practice *as soon as possible*. If there is a delay, they can be refrigerated until taken to the GP practice at the next possible opportunity.
- Ensure the GP practice know what to write on the request card (the information from the assessment tool).



*If there is not enough urine to fill to 20ml line, then use a white top specimen bottle instead

Fill red top urine bottle to 20ml line

Fill in resident details carefully

Appendix 3 Infection Prevention and Control Team Planned Programme of Work April 2017 - March 2018

PLAN	ACTION	RESPONSIBILITY	MONITORING	TIMESCALES
<p>1) Systems to manage and monitor the prevention and control of infection – criterion 1 Health and Social Care Act 2008</p> <p>Domain 5 NHS Framework- Treating and caring for people in a safe environment and protecting them from avoidable harm</p>	<ul style="list-style-type: none"> • Provide support and leadership to commissioned and contracted services when investigating community acquired MRSA bloodstream infections (BSI). Complete the review within given timescale -14 working days • Support the DPH with representation in NHSE PIR stage 2 arbitration process MRSA BSI. • Provide support and leadership to commissioned and contracted services in undertaking a root cause analysis (RCA) investigation for a <i>Clostridium difficile</i> death or colectomy resulting from <i>Clostridium difficile</i> infection. Complete review within given SI timescale of 60 days • Support HCAI leads within CCG's and quality teams in LA with gaining quality assurance in relation to infection prevention and control • Attend relevant groups and committees supporting the Infection Prevention and Control Agenda • Complete up to 4 pro-active root cause analysis (RCA) investigations for <i>Escherichia-coli</i> /MSSA bacteraemia to identify key themes and gain learning for future prevention. This is subject to patient consent being acquired from the acute Trust and access to the patient information from the GP practice. • Consider plans to support with monthly patient 	<p>Head of Service Infection Prevention & Control Team</p> <p>Director of Public Health/NHS England</p> <p>Head of Service Infection Prevention & Control Team</p> <p>Head of Service Infection Prevention & Control Team</p> <p>Head of Service Infection Prevention & Control Team</p> <p>Head of Service Infection Prevention & Control Team</p> <p>Head of Service Infection Prevention & Control Team</p>	<p>LA Contract Meetings</p> <p>Strategic Partnership Steering Group</p>	<p>Quarterly</p>

PLAN	ACTION	RESPONSIBILITY	MONITORING	TIMESCALES
	<p>data set collection for all community acquired <i>Escherichia-coli</i> bacteraemia and thematic review subject to IG requirements needed to access medical records and contractual arrangements. Once in place and agreed this will replace the root cause analysis reviews detailed above(anticipated to start July 2017)</p> <ul style="list-style-type: none"> Complete an annual report to report on performance, to include key themes, local HCAI rates, learning and future planning 	<p>Control Team</p> <p>Head of Service Infection Prevention & Control Team</p>	<p>Strategic Partnership Steering Group</p> <p>LA Contract Meetings</p>	<p>(If agreed to start July 2017)</p> <p>Annual July 2018</p>
<p>2) Provide and maintain a clean and appropriate environment in managed premises that facilitates the prevention and control of infections – criterion 2 Health and Social Care Act 2008.</p> <p>Domain 5 NHS Framework</p>	<ul style="list-style-type: none"> A programme of pro-active audits of nursing and residential care homes will be completed over the next year as part of the annual review A programme of pro-active NHS Dental audits will be completed over the next year with priority to those practices identified as none compliant with CQC IPC requirements A targeted programme will be in place for GP practices. GP audits will take place where concerns are raised. Planned audits will commence April 18 as part of the biennial programme A targeted programme will be in place for learning disability care homes. Audits will take place where concerns are raised. Provide advice and guidance on refurbishments and new builds within the NHS and private sector for care homes. 	<p>IPC Lead for Care Homes (NH)</p> <p>IPC Lead for GP/Dental (WW)</p> <p>Head of Service Infection Prevention & Control Team</p>	<p>LA Contract Meetings</p> <p>Strategic Partnership Steering Group</p>	<p>Quarterly</p>

PLAN	ACTION	RESPONSIBILITY	MONITORING	TIMESCALES
	<p><i>difficile</i> infection in conjunction with the GP practice to identify learning and any lapses in care. Collate themes and provide report quarterly on community cases.</p> <ul style="list-style-type: none"> • Complete targeted training to commissioned and contracted services including GPs/care homes/NHS dentists as required in response to concerns in IPC care, clinical practice following investigation 	<p>Head of Service Infection Prevention & Control Team</p>	<p>LA Contract Meetings</p>	<p>Quarterly</p>

DRAFT

Infection Prevention and Control Team Planned Audit Programme (April 2017 - March 2018)

Introduction

Auditing clinical practice against infection prevention and control (IPC) standards is a well-recognised process to identify poor practice requiring improvement, risk, and quality assurance. The audit process will identify key quality factors and compliance; it is a well-established means of monitoring and assessing quality improvement. All those services registered with CQC are required to meet expected standards as detailed in the Health and Social Care Act (DOH 2008) and included in compliance is the need for providers to complete an audit programme to demonstrate that monitoring of infection prevention and cleanliness is in place.

Aim

- To ensure the risk of infection to service users accessing a health and social care setting is minimised.
- To contribute to a reduction in healthcare associated infection across Nottinghamshire County.
- To improve compliance with the Health and Social Care Act 2008.

Objective

- To complete the clinical audit programme as detailed in the Section 75 agreement and accompanying service specification in place with Nottinghamshire County Council. To support Clinical Commissioning Groups across Nottinghamshire County and the local Authority in the quality monitoring of their commissioned services and in supporting with quality improvements as required across those services.
- To ensure all staff have easy access to relevant information and fully implement infection prevention and control recommendations following audit and that actions are followed up as required.
- Those actions are taken to highlight those areas of concern with commissioners and the regulator where a breach in compliance is identified.
- To improve and sustain IPC standards across all commissioned/contracted services.

THE AUDIT PROGRAMME

Audit Tools

Audit tools have been adapted from accredited Infection Prevention Society (IPS) audit standards in addition to criterion listed within the Health and Social Care Act 2008. The programme of audit carried out by the IPCT will be planned according to priority and the perceived level of clinical risk, based on previous audit findings. Audits to care homes are unannounced visits, audits of GP and NHS dental practices will be pre-planned unless as a direct result of a compliance issue that has been raised formally. Action plans where required will be requested from the Manager registered IPC lead in the service

Action Planning

In order to demonstrate assurances that the areas of concern highlighted during the audit process are being addressed, a completed action plan will be required to be returned to IPCT within the timescale for completion identified on the report. The IPC team will provide recommendations and advise on any actions required. The action plan must include all the main recommendations, timescales for completion and identified lead. Those services not compliant with the provision of an action plan will be highlighted to quality monitoring teams and the information will be shared with the regulator.

Frequency of Audits

Audits will be completed as detailed in the service specification agreement.

- To undertake infection prevention and control proactive audit within all care homes including nursing beds and residential beds annually (excluding learning disability units and Bassetlaw CCG) The audit process will normally consist of an initial visit and up to 2 further visits if required to ensure feedback and review of action plans.
- To complete an infection prevention and control pro-active audit within all GP and NHS dental practices every 2 years. The audit process will normally consist of an initial visit and up to 2 further visits if required to ensure feedback and review of action plan.

LOCATION	AREA	FREQUENCY	COMMENTS
Care homes with nursing beds (63 current)	Across 5 Nottinghamshire CCGS <ul style="list-style-type: none"> • Mansfield & Ashfield CCG • Newark & Sherwood CCG • Nottingham North & East CCG • Nottingham West CCG • Rushcliffe CCG 	Annual rolling programme	New homes are planned and others are planning to close numbers are approximate (5 new homes anticipated over 2017)
Care homes registered for residential care with local authority (excludes LD) (current 82)	Across 5 Nottinghamshire CCGS	Annual rolling programme	
Care homes registered for residential care with learning disability	Across 5 Nottinghamshire CCGS	Not included in routine audit programme	Re-active audits will be completed where Infection Prevention & Control concerns are raised
General Practice 91 (111 sites)	Across 5 Nottinghamshire CCGS	Every 2 years rolling programme	Audit programme to re-start April 2018. (1 st year 2016-17). Re-active audits to be completed where Infection Prevention & Control concerns are raised 2017-18. Sites are merging which may decrease number of practices but not sites
NHS Dental Practices (77 on current NHSE information provided)	Across 5 Nottinghamshire CCGS	Every 2 years rolling programme	Audit programme will start April 2017. 1 Dental Practice with a minimal NHS contract value is not included as agreed with NHS England. 1 practice not included in audit programme by NHSE

Infection Prevention and Control Team To Dip or Not to Dip Project (Nottinghamshire) (November 2016 - March 2018)

The Nottinghamshire “To Dip or Not to Dip” is a quality improvement project for care homes. The aim of the project is to reduce inappropriate antibiotic prescribing for urinary tract infections (UTIs) in care homes. The project is developing a new care pathway based on a recent quality improvement initiative undertaken in West NHS Bath and North East Somerset and uses an assessment tool based on national guidance, training sessions and resources for the care homes on UTI management and prevention.

The project has 2 phases and has been funded collaboratively to improve the management of UTI in care home residents. This work aims to contribute to a reduction in antimicrobial prescribing and inappropriate prescribing. This supports the work of Clinical Commissioning Groups, Local Authority and the high impact changes outlined in the Nottinghamshire Sustainability and Transformation Plan (STP) on care and prevention. The infection Prevention & Control Team have employed a Project Manager (fixed term) to assist with the project pilot and then to implement the quality improvement work across all 5 CCGs. This work contributes to the infection prevention agenda, the need to reduce gram negative blood stream infections by 50% by 2020 and a reduction of inappropriate antibiotic prescribing for urinary tract infection over 2017-18.

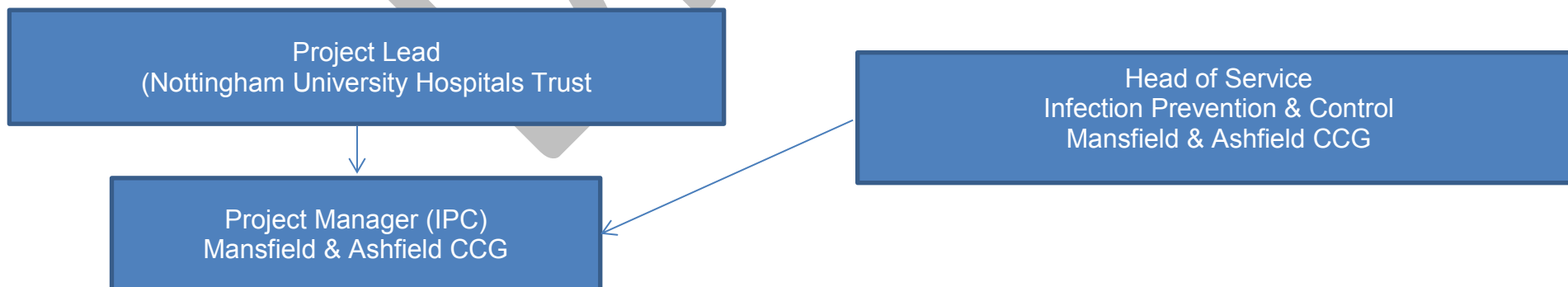
To Dip or Not to Dip Phase 1 (November 2016 - May 2017)

Phase one includes securing GP engagement, promotion and support for the pilot, collection and analysis of patient data, building relationships with health and social care professionals and the development of training packages and resources.

The first pilot of the project started in January 2017 in Nottingham West. The pilot project is currently active in 2 practices and 6 Care Homes. Data was collected and anonymised on emergency admissions and current antibiotic use in care homes from January - December 2016 and is being used to inform the future development of the project. Plans are in place to implement the project across all GP practices and Care Homes across NW CCG based on the pilot findings. The second pilot of the phase 1 of the project will commence on the 08 March in 2 GP practices and 3 Care Homes in Mansfield CCG.

To Dip or Not to Dip Phase 2 (June 2017 - March 2018)

The second phase of the project will focus on quality improvement through implementation of the care pathway and cascade of supporting resources. It is envisaged that the project will seek to engage with GP practices and aligned Care Homes across the 5 CCGs. This work will be reliant on pharmacy support to assist with the patient data collection.



PHASE ONE PILOT AREA	START DATE	NUMBER CARE HOMES	DURATION	RESPONSIBILITY	MONITORING	COMMENTS
Nottingham West CCG	January 2017	6	3 month pilot	Dr A Joseph Project lead Nottingham University Hospitals Trust O. Ogunbuyide Project Manager Infection Prevention & Control Team Mansfield & Ashfield CCG	Sally Bird Strategic Partnership Steering Group	Some care homes had training late due to availability of staff to attend. Roll out after 3 months with any changes.
Mansfield & Ashfield CCG	March 2017	3	3 month pilot	Dr A Joseph Project lead Nottingham University Hospitals Trust O. Ogunbuyide Project Manager Infection Prevention & Control Team Mansfield & Ashfield CCG	Sally Bird Strategic Partnership Steering Group	Roll out after 3 months with any changes.

PHASE ONE IMPLEMENTATION	START DATE	NUMBER CARE HOMES	DURATION	RESPONSIBILITY	MONITORING	COMMENTS
Nottingham West CCG	22 March 2017	22	Ongoing with 6 month data review	O. Ogunbuyide Project Manager Infection Prevention & Control Team Mansfield & Ashfield CCG	Sally Bird Strategic Partnership Steering Group	Care homes are aligned to GP practices

PHASE 2	START DATE	NUMBER CARE HOMES	DURATION	RESPONSIBILITY	COMMENTS
Mansfield & Ashfield CCG	June 2017	tbc	Ongoing with 6 month data review	O. Ogunbuyide Project Manager Infection Prevention & Control Team Mansfield & Ashfield CCG	Sign up is required by GPs and those involved in data collection and all associated care homes
Nottingham North & East CCG	tbc	tbc		O. Ogunbuyide Project Manager Infection Prevention & Control Team Mansfield & Ashfield CCG	Pilot sites planned with 3 GP practices and aligned care homes. Sign up is required by GPs and those involved in data collection and all associated care homes
Rushcliffe CCG	tbc	tbc		O. Ogunbuyide Project Manager Infection Prevention & Control Team Mansfield & Ashfield CCG	Sign up is required by GPs and those involved in data collection and all associated care homes
Newark & Sherwood CCG	tbc	tbc		O. Ogunbuyide Project Manager Infection Prevention & Control Team Mansfield & Ashfield CCG	Sign up is required by GPs and those involved in data collection and all associated care homes

**Appendix 4 Findings from *Clostridium difficile* Case Surveillance Mid Nottinghamshire
April 2016-March 2017**

CCG	Total Community Acquired CDI Cases April 2013-March 2014	Total Community Acquired CDI Cases April 2014-March 2015	Total Community Acquired CDI Cases April 2015 - March 2016	Total Community Acquired CDI Cases April 2016 - March 2017	Total CDI cases April 2013 - March 2014	Total CDI cases April 2014 - March 2015	Total CDI cases April 2015 - March 2016	Total CDI cases April 2016 - March 2017	Objective Set Total CDI cases 2016/17
NHS Newark & Sherwood CCG	21	29	25	24	32	42	37	44	39
NHS Mansfield & Ashfield CCG	56	54	73	36	89	103	107	51	94

Table 1: shows CCG Objectives set by NHS England and actual cases of community and all CCG cases *Clostridium difficile* infection (CDI)

*For the purposes of reporting a community case CDI is either a toxin positive stool sample taken by the GP from a patient in the community or a toxin positive sample taken within 72 hours of admission to hospital (pre72 hr cases). Information is gathered by telephone discussion with the individual practice.

NHS Mansfield & Ashfield CCG
Quarter One
April-June 2016

There were 10 community acquired CDI Cases and 16 cases in total including all trust acquired infections for quarter one. This compares with 21 community cases and 35 total cases in the same period 2015-16. This is a significant reduction in cases.

Male	Female	Sample taken during 72 hours of admission to hospital	GP sample	No recent antibiotics	Recent history of antibiotics	On laxatives	PPI/H2 Ant.	Repeat episodes	Care home resident	Recent admission to hospital Last 3 months	Other bowel disease	Chemotherapy	Diabetes	Renal disease	Under 65	Over 65
5	5	4	6	2	8	1	5	5	2	9	3	2	1	2	1	9
50%	50%	40%	60%	20%	80%	10%	50%	50%	20%	90%	3%	20%	10%	20%	10%	90%

Table 1: Themes / trends from community acquired *Clostridium difficile* cases Mansfield and Ashfield CCG April-June 2016

Themes identified from the 7 patients receiving antibiotics* show:

*Antibiotic prescribing in the 3 months prior to positive stool sample result

GP only

- 1 patient received Flucloxacillin from the out of hours service

Acute Trust only

- 1 patient had IV Tazocin as an inpatient (SFHT) for sepsis
- 1 patient had IV Tazocin as an inpatient (SFHT) for sepsis followed by Trimethoprim for urinary tract infection
- 1 patient was treated with IV Tazocin, Meropenem and Ertepenem for e-coli urosepsis
- 1 patient was treated with IV Tazocin for suspected sepsis/urosepsis

Both GP and Acute Trust

- 1 complex patient was treated with IV antibiotics and then oral Co-amoxiclav for aspiration pneumonia, a further course of Amoxicillin was prescribed by the GP
- 1 patient was treated with Ciprofloxacin for urinary tract infection and IV antibiotics for ESBL urosepsis, Clarithromycin was given for penile discharge
- 1 patient is a relapse case on chemotherapy treatment and this includes prophylactic antibiotics

Summary

- 1 patient had no recent antibiotics, they are a complex relapse case whose original episode occurred following antibiotic treatment
- None of these cases were linked to any identified cross infection concerns
- 1 case was referred for learning re prescribing of loperamide
-

NHS Mansfield & Ashfield CCG
Quarter Two
July- September 2016

There were 7 community acquired cases and 8 cases in total including trust apportioned infections for quarter two. This compares with 19 community cases and 24 total cases in the same period 2015-16. This is a significant reduction in cases.

Male	Female	Sample taken during 72 hours of admission to hospital	GP sample	No recent antibiotics	Recent history of antibiotics	On laxatives	PPI/H2 Ant.	Repeat episodes	Care home resident	Recent admission to hospital Last 3 months	Other bowel disease	Chemo-therapy	Diabetes	Renal disease	Under 65	Over 65
2	5	5	2	1	6	2	4	0	2	3	1	2	1	1	1	6
29%	71%	71%	29%	14%	86%	29%	57%	0%	29%	43%	14%	29%	14%	14%	14%	86%

Table 2: Themes / trends from community acquired *Clostridium difficile* cases Mansfield and Ashfield CCG July- September 2016

Themes identified from the 6 patients receiving antibiotics* show:

*Antibiotic prescribing in the 3 months prior to positive stool sample result

GP only

- 1 patient received Flucloxacillin and Phenoxymethylpenicillin from the GP for bilateral cellulitis
- 1 patient received Flucloxacillin from the GP after a minor surgical procedure
- 1 patient received Nitrofurantoin then Co-amoxiclav for urinary tract infection
- 1 patient received Nitrofurantoin then Ciprofloxacin following an MSU result

Acute Trust only

- 1 highly complex oncology patient had antibiotics following a nephrectomy and then as part of ongoing chemotherapy and management regime IV Vancomycin, Cefotaxime, Metronidazole and prophylactic Co-trimoxazole
- 1 highly complex oncology patient had antibiotics following an allergenic bone marrow transplant including IV penicillin for 4 weeks and prophylactic Co-trimoxazole. This patient is deceased and an RCA review is being completed. This case was attributed to the community as the stool sample was taken on admission however the patient had not seen a GP for 4 months as an inpatient followed by regular review through the oncology clinic therefore the case is being led by the acute trust.

Summary

- 1 patient had no recent antibiotics they reside in a care home and are not of regular laxatives or a PPI
- None of these cases were linked to any identified cross infection concerns

NHS Mansfield & Ashfield CCG
Quarter Three
October- December 2016

There were 13 community acquired cases and 16 cases in total including trust apportioned infections for quarter three. This compares with 14 community cases and 16 total cases in the same period 2015-16. This is a significant reduction in cases.

Male	Female	Sample taken during 72 hours of admission to hospital	GP sample	No recent antibiotics	Recent history of antibiotics	On laxatives	PPI/H2 Ant.	Repeat episodes	Care home resident	Recent admission to hospital Last 3 months	Other bowel disease	Chemo-therapy	Diabetes	Renal disease	Under 65	Over 65
3	10	9	4	3	10	5	4	4	3	8	5	2	2	2	3	10
23%	77%	69%	31%	23%	77%	38%	31%	31%	38%	62%	38%	15%	15%	15%	23%	77%

Table 3: Themes / trends from community acquired *Clostridium difficile* cases Mansfield and Ashfield CCG October- December 2016

Themes identified from the 10 patients receiving antibiotics* show:

*Antibiotic prescribing in the 3 months prior to positive stool sample result

GP only

- 1 patient received Cephalexin for a urinary tract infection (UTI) and cellulitis (history of antibiotic allergies including penicillin)

Acute Trust only

- 1 highly complex oncology patient had antibiotics following a nephrectomy and then as part of ongoing chemotherapy and management regime IV Vancomycin, Cefotaxime, Metronidazole and prophylactic Co-trimoxazole this case is recurrence from an earlier episode of disease
- 1 patient (oncology) was treated on 2 occasions for neutropenic sepsis with IV Tazocin and oral Co-amoxiclav and Ciprofloxacin
- 1 patient treated with Augmentin by the eye clinic for infection
- 1 patient treated with IV Tazocin, Vancomycin and oral Co-amoxiclav for urosepsis

Both GP and Acute Trust

- 1 patient treated with Amoxicillin for a chest infection by GP, Acute trust treated with IV Tazocin for urosepsis
- 1 patient treated with Nitrofurantoin for UTI (resistant) and Amoxicillin in acute trust, later treated by GP with Co-amoxiclav

Other

- 1 patient was treated abroad for diarrhoea, they were prescribed Cephalexin plus another antibiotic for an infected bite, they self-medicated with loperamide

Summary

- No lapse in care was identified
- None of these cases were linked to any identified cross infection concerns
- 4 patients had no history of recent antibiotic exposure. 3 of these patients have presented with CDI in the last 12 months.

NHS Mansfield & Ashfield CCG
Quarter Four
January to March 2017

There were 6 community acquired cases and 11 cases in total including trust apportioned infections for quarter four. This compares with 19 community cases and 31 total cases in the same period 2016-17. This is a significant reduction in cases.

Male	Female	Sample taken during 72 hours of admission to hospital	GP sample	No recent antibiotics	Recent history of antibiotics	On laxatives	PPI/H2 Ant.	Repeat episodes	Care home resident	Recent admission to hospital Last 3 months	Other bowel disease	Chemotherapy	Diabetes	Renal disease	Under 65	Over 65
3	3	3	3	1	5	2	2	2	1	6	3	2	1	0	3	3
50%	50%	50%	50%	17%	83%	33%	33%	33%	17%	100%	50%	33%	17%	0%	50%	50%

Table 4: Themes / trends from community acquired *Clostridium difficile* cases Mansfield and Ashfield CCG January to March 2017

Themes identified from the 5 patients receiving antibiotics* show:

*Antibiotic prescribing in the 3 months prior to positive stool sample result

GP only

- One patient had received Amoxicillin for Pneumonia

Acute Trust only

- One patient who was on chemotherapy had received IV Tazocin in hospital, for a pyrexia. This patient counted for two cases in this quarter

Both GP and Acute Trust

- One patient had received IV Tazocin and Flucloxacillin in hospital for Urosepsis and oral Nitrofurantoin for suspect UTI in community
- One patient had received Amoxicillin and Trimethoprim from the GP and IV Flucloxacillin in hospital. Lapses in care were identified by the GP, inappropriate prescribing of Loperamide, delay in sampling and did not treat on suspicion, hence delay in treatment.

Other

- One patient had received no antibiotics and was a relapse

Summary

- One lapse in care was identified,
- None of these cases were linked to any identified cross infection concerns
- One patients had no history of recent antibiotic exposure

NHS Newark & Sherwood CCG
Quarter One
April-June 2016

There were 5 community acquired CDI Cases and 8 cases in total including all trust acquired infections. This compares with 11 community cases and 13 total cases in the same period of the previous year, a decrease in community cases by 6.

Male	Female	Sample taken during 72 hours of admission to hospital	GP sample	No recent antibiotics	Recent history of antibiotics	On laxatives	PPI/H2 Ant.	Repeat episodes	Care home resident	Recent admission to hospital Last 3 months	Other bowel disease	Chemo-therapy	Diabetes	Renal disease	Under 65	Over 65
4	1	2	3	0	5	1	5	0	2	3	3	0	0	2	1	4
80%	20%	40%	60%	0%	100%	20%	100%	0%	40%	60%	60%	0%	0%	40%	20%	80%

Table 1: Themes / trends from community acquired *Clostridium difficile* cases Newark & Sherwood CCG April -June 2016

Themes identified from the 5 community patients receiving antibiotics* show:

*Antibiotic prescribing in the 3 months prior to positive stool sample result

GP only

- 1 patient had Flucloxacillin for an infected nail bed
- 1 patient was treated with Amoxicillin for a suspected urinary tract infection this case was referred to the prescribing advisor for support and learning

Acute trust only

- 1 patient was treated with IV antibiotics for pneumonia (SFHT)
- 1 patient was treated with antibiotics for a chest infection –no details provided

Both GP and Acute Trust

- 1 patient had Flucloxacillin for cellulitis by the GP and a course of Co-amoxiclav for a chest infection (LCH)

Summary

- 1 case was referred to the practice prescribing advisor for review
- None of these cases were linked to any identified cross infection concerns

NHS Newark & Sherwood CCG
Quarter Two
July- September 2016

There were 8 community acquired CDI Cases and 16 cases in total including all trust acquired infections for quarter two. This compares with 7 community cases and 10 total cases in the same period of the previous year. One case has been challenged with Public Health England as it has been reported twice by different trusts within the same 28 day period- application for the duplicate to be removed has been made, themes are based on 7 cases.

Male	Female	Sample taken during 72 hours of admission to hospital	GP sample	No recent antibiotics	Recent history of antibiotics	On laxatives	PPI/H2 Ant.	Repeat episodes	Care home resident	Recent admission to hospital Last 3 months	Other bowel disease	Chemotherapy	Diabetes	Renal disease	Under 65	Over 65
0	7	4	3	1	6	4	4	4	0	6	5	0	0	0	0	7
0%	100%	57%	43%	14%	86%	57%	57%	57%	0%	86%	71%	0%	0%	0%	0%	100%

Table 2: Themes / trends from community acquired *Clostridium difficile* cases Newark & Sherwood CCG July-September 2016

Themes identified from the 6 community patients receiving antibiotics* show:

*Antibiotic prescribing in the 3 months prior to positive stool sample result

GP only

- 1 patient had GP only antibiotics, Flucloxacillin, Amoxyl and Co-amoxiclav for cellulitis and Cephalexin for proven urinary infection. This patient is deceased and *Clostridium difficile* was considered to be a contributory factor. An RCA was completed and there was significant GP learning around the prescribing of antibiotics and the use of a prescribing protocol that was not Nottinghamshire based an action plan is in place
- 1 patient had relapse disease following an acute trust attributed infection; this case is complex and has diverticular disease. They were treated with Co-amoxiclav by the out of hours service and Cephalexin by the GP for diverticular disease. There was learning identified in this case re treatment on suspicion by GP/Community Matron as this was a re-occurrence and there was a delay in treatment

Acute trust only

- 1 patient was treated with IV Tazocin and Amoxicillin for urinary tract infection following a nephrectomy. This is a complex oncology patient with Ca rectum and diverticular disease. This patient had relapse disease and accounts for 2 episodes of infection during quarter two
- 1 patient was treated with Co-amoxiclav for a kidney infection they are a complex oncology patient and account for 2 episodes of infection during quarter two as the patient had relapse disease.

Summary

- None of these cases were linked to any identified cross infection concerns

NHS Newark & Sherwood CCG
Quarter Three
October- December 2016

There were 2 community acquired CDI Cases and 5 cases in total including all trust acquired infections for quarter three. This is an improvement when compared against the previous year with 4 community and 2 Trust acquired cases.

Male	Female	Sample taken during 72 hours of admission to hospital	GP sample	No recent antibiotics	Recent history of antibiotics	On laxatives	PPI/H2 Ant.	Repeat episodes	Care home resident	Recent admission to hospital Last 3 months	Other bowel disease	Chemo-therapy	Diabetes	Renal disease	Under 65	Over 65
1	1	1	1	0	2	0	0	0	0	1	0	0	0	0	1	1
50%	50%	50%	50%	0%	100%	0%	0%	0%	0%	50%	0%	0%	0%	0%	50%	50%

Table 3: Themes / trends from community acquired *Clostridium difficile* cases Newark & Sherwood CCG October- December 2016

Themes identified from the 2 community patients receiving antibiotics* show:

*Antibiotic prescribing in the 3 months prior to positive stool sample result

Acute trust only

- 1 patient was treated with Augmentin for suspected urosepsis, they have a history of bladder carcinoma

Other

- 1 patient was treated by the out-of –hours service with Amoxicillin for a dental abscess

Summary

- None of these cases were linked to any identified cross infection concerns
- No lapse in care was identified

NHS Newark & Sherwood CCG
Quarter Four
January to March 2017

There were 10 community acquired CDI Cases and 16 cases in total including all trust acquired infections for quarter four. In comparison to this quarter in the previous year where there were only 3 community and 8 cases in total

Male	Fem ale	Sample taken during 72 hours of admission to hospital	GP sample	No recent antibiotics	Recent history of antibiotics	On laxatives	PPI/H2 Ant.	Repeat episodes	Care home resident	Recent admission to hospital Last 3 months	Other bowel disease	Chemo- therapy	Diabetes	Renal disease	Under 65	Over 65
5	5	2	8	0	10	3	2	3	2	6	1	1	1	1	1	9
50%	50%	20%	80%	0%	100%	30%	20%	30%	20%	60%	10%	10%	10%	10%	10%	90%

Table 4: Themes / trends from community acquired *Clostridium difficile* cases Newark & Sherwood CCG January to March 2017

Themes identified from the 10 community patients receiving antibiotics* show:

*Antibiotic prescribing in the 3 months prior to positive stool sample result

GP Only

- 1 patient had appropriately received Clarithromycin, metronidazole and Amoxicillin for h pylori. This patient was poorly managed, results were not acted upon and the patient wasn't treated on suspicion and had been given loperamide. This patient had a history of diverticulitis
- 1 patient had been prescribed Augmentin and Clarithromycin for a suspected chest infection, outside of the antimicrobial prescribing guidance
- 1 patient was treated with Flucloxacillin for cellulitis and later Clarithromycin for a chest infection

Acute trust only

- 1 patient was a relapse and had received IV antibiotics in hospital
- 1 patient was diagnose with Urosepsis and treated with IV antibiotics, patient is a diabetic and on the EOL pathway
- 1 patient had received Flucloxacillin as prophylaxis during a pace maker fitting
- 1 patient was treated with Ceftriaxone and Acyclovir (Lincoln)

Both GP and Acute Trust

- 1 patient had received Ciprofloxacin for a UTI from the GP, and IV Tazocin and Co amoxiclav during a hospital admission. This patient had Metastatic Cancer
- 1 patient was admitted with urosepsis –given Tazocin and Co-amoxiclav later treated with Nitrofurantoin by GP for UTI
- 1 patient was admitted with wound infection treated with Co-amoxiclav, later given Flucloxacillin by GP

Summary

- There were 2 lapses in care in General Practice.

Root Cause Analysis (RCA)

All *C. diff* associated deaths and those resulting in serious complications are investigated using the RCA process. There have been 2 RCA investigations completed for deceased patients over 2016-17 for community acquired cases. One RCA in Newark and Sherwood CCG identified several learning points for the practice involved including inappropriate prescribing outside of the Nottinghamshire Guidance, delays in stool sampling and a delay in treatment. The second RCA in Mansfield and Ashfield CCG and was led by NUHT due to lack of involvement from Primary Care and a large involvement from Out Patients at NUHT. This was a complex oncology patient and the outcome of this investigation was that no lapses in care were found and the case was unavoidable with no learning identified

Summary across Mid Nottinghamshire CCGs

- Total number of *Clostridium difficile* cases across both CCG's over April 2016 – March 2017 - 95
- A decrease of 49 cases when compared to the total of 144 for 2015-16.
- Community acquired cases – 60 (63%)
- A decrease of 38 (39%) cases compared with 98 cases for the same period 2015-16.
- Cases over the age of 65 years - 49 (82%)
- Number of cases who received antibiotics in the last 3 months - 52 (87%)
- An increase of 10% when compared to 77% for 15/16.
- Number of Community acquired cases who received antibiotics solely from their GP 13 (22%)
- Number of Community acquired cases who received antibiotics during a recent admission (None from GP) – 19 (32%)
- Number of Community acquired cases who received antibiotics from both GP and the acute trust - 9 (15%)

There is increasing evidence that acid-suppressing medications, in particular proton pump inhibitors (PPIs) may be a risk factor for CDI

- Patients taking a PPI at the time of diagnosis - 26 (43%)
- Compared to 15/16 – 35 (36%)
- 30 (32%) out of the total number of cases had been identified from GPs requesting a stool sample

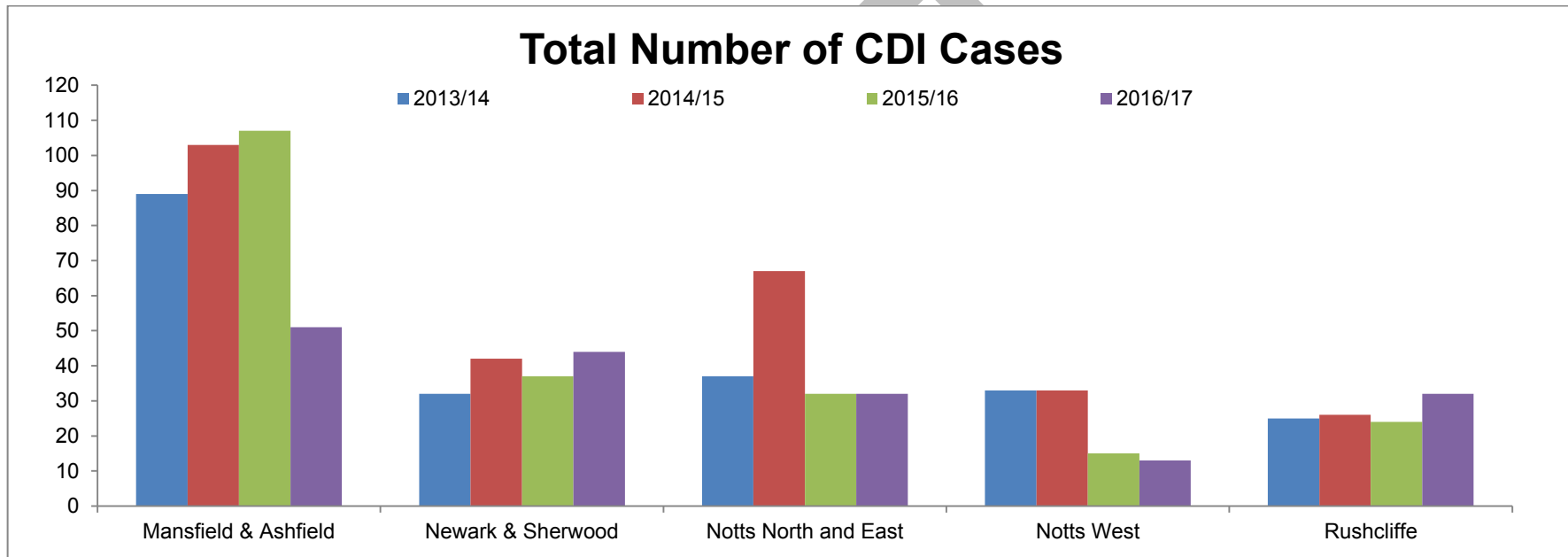
As with previous years the majority of community CDI cases seen are from patients living in their own home rather than those from a care home setting and are isolated cases.

From the information provided by GPs antibiotic prescribing was in line with the Primary Care Antimicrobial Prescribing Guidance in the majority of cases. In the small number of cases where inappropriate prescribing was identified in the community these were referred to the prescribing advisors linked to the individual practice for further support and training. Poor prescribing issues identified in the acute trusts have been raised for review and learning, in particular poor prescribing. Information is gathered on each community case that the team are notified of to establish possible links and risk factors.

The use of Loperamide remains a concern, and is considered to be a lapse in care unless there is clear evidence for its use. On completion of the case review by the IPC team with the GP, they are requested to add an alert (read code) to the patient record as a future prompt in addition a special patient

note is requested from the practice to provide the out of hours service with the CDI information to aid with appropriate future prescribing. A follow up call is made to the practice to ensure that a patient review has been completed as per national guidance

Newark and Sherwood are over target by 5 cases (44 against a plan of 39) compared to last year's plan of 39 and only 37 cases. A number of concerns have been raised with the prescribing teams across the CCG, where lapses in care have been identified – poor prescribing and delays in treatment. An article has been written regarding the management of *Clostridium difficile* for the Mid Notts newsletters.



Graph 1 – Total number of CDI cases all CCGs 2013/14 – 2016/17

Selected Learning & Themes from Cases Reviews with Sub Optimal Care County CCGs

***Clostridium difficile* Infection (Toxin positive)**

Case 1

- 78yr old female
- Lives in own home
- No previous history *Clostridium difficile* Infection (CDI)
- Recent use PPI
- History of recent treatment for *H. pylori* by GP (previous 4 weeks – Clarithromycin and Metronidazole later changed to Amoxicillin)
- Patient presented 10 days later with loose stools - no stool sample sent, presented again after a further 6 days with loose stools, sample requested but started on Loperamide
- Stool sample obtained 2 days later –tested positive for *Clostridium difficile* Infection this was reported to the practice on a Friday
- 3 days later (Monday) the practice was contacted by the Infection Prevention & Control Team to complete a case review
- No action had been taken on receipt of the positive result on the Friday
- GP advised to review the patient, stop loperamide and commence appropriate treatment.

Advice given and actions:

- Missed opportunity to treat on suspicion of CDI in patient with known history of recent antibiotics in the last 3 months
- Lack of reference to CDI guidance and Antimicrobial Prescribing Guidelines
- Inappropriate use of Loperamide and potential risks of bowel perforation and increased mortality in patients with CDI
- The Practice completed a significant event analysis and learning was shared across clinicians

Case 2

- 89yr old female
- Lives in own home
- No previous history CDI
- Regular use PPI
- History of irritable bowel syndrome, COPD, CVA, cellulitis
- Recent admission in last 2 months for cellulitis treated with IV and oral antibiotics –Flucloxacillin
- Recent treatment with Amoxicillin and Trimethoprim by GP

- Presented to GP with diarrhoea - prescribed Loperamide and stool sample taken

Advice given and actions:

- Re missed opportunity to treat on suspicion of CDI in patient with known history of recent antibiotics in the last 3 months
- Lack of reference to CDI guidance and Antimicrobial Prescribing Guidelines
- Inappropriate use of Loperamide and potential risks of bowel perforation and increased mortality in patients with CDI
- Learning shared across the practice , CDI guidance re-issue

Case 3

- 58yr old female
- Lives in own home
- No previous history CDI
- Recent appendectomy (perforated appendix) in last month treated with Cefalexin as an inpatient
- Presented to GP with history diarrhoea- GP suspected gastroenteritis and prescribed Loperamide stool sample requested
- Patient re-presented and changed to Codeine as getting side effects from Loperamide, stool sample sent
- Stool sample reported as positive CDI 4 days later
- Patient treated with Metronidazole, 7 day review advised by IPC team as per guidance
- Follow up call from IPC team to ensure 7 day review completed, this had not been carried out. GP later contacted patient who remained symptomatic changed to Vancomycin with good response

Advice given and actions:

- Missed opportunity to treat on suspicion of CDI in patient with known history of recent antibiotics in last 3 months
- Advice given re use of CDI guidance and antimicrobial prescribing guidelines
- Inappropriate use of Loperamide and Codeine potential risks of bowel perforation and increased mortality in patients with CDI
- Advice given re poor follow up of the patient after starting treatment and risk of inappropriate admission where this does not occur –learning for GP, guidance shared at the practice for clinical learning

Root Cause Analysis Review (RCA)

Case History 1

- 89yr old female living in own home
- Multiple co-morbidities – DNAR agreed with patient following recent anaemia and decision taken to not investigate further
- Over a 6 month period the patient had received 8 courses of antibiotics
- The patient visited the practice on 3 occasions with a history of diarrhoea. The GP documentation highlights *Clostridium difficile* suspected due to the high volume of recent antibiotics
- Over 3 visits no stool sample was requested and no action was taken to treat on suspicion of *Clostridium difficile* infection
- 5 days after the first presentation a sample was sent but no treatment started
- 6 days after the first presentation treatment with Metronidazole was started. The patient deteriorated and died 2 weeks after the first presentation
- *Clostridium difficile* infection was considered to be the main cause of death and was recorded on part 1 of the death certificate.

Significant Learning

- 5 out of the 8 episodes of antibiotic prescribing were not compliant with the Nottinghamshire Antimicrobial Prescribing Guidelines for Primary Care
- There was a delay in obtaining and sending a stool sample
- The patient was not treated on suspicion of *Clostridium difficile*

Good Practice

- End of Life Care GP
- Stopping antibiotics to allow bowel to rest
- Not prescribing anti-motility agents
- Treatment given on notification of result

Recommendations

- All staff to refer to Nottinghamshire Prescribing Guidelines when prescribing antibiotics
- Reiterate the importance of obtaining timely stool samples
- All staff to refer to 'Updated Guidance on the Management and Treatment of *Clostridium difficile* infection 2013'

Actions Taken

- Re-circulate Nottinghamshire Antimicrobial Prescribing Guidelines to practice staff
- Issue the link to *Clostridium difficile* guidance on GP newsletters
- Practice to remove all Derby Hospitals NHS Trust prescribing guidance
- Share with Nottinghamshire Wide RCA Review Group for wider learning

**FINDINGS FROM *Clostridium difficile* CASE SURVEILLANCE SOUTH NOTTINGHAMSHIRE CCGS
April 2016 – March 2017**

CCG	Total Community Acquired CDI cases April 2013-March 2014	Total Community Acquired CDI cases April 2014-March 2015	Total Community Acquired CDI cases April 2015-March 2016	Total Community Acquired CDI cases April 2016-March 2017	Total CDI cases April 2013-March 2014	Total CDI cases April 2014-March 2015	Total CDI cases April 2015-March 2016	Total CDI cases April 2016-March 2017	Objective Set Total CDI cases 2016/17
NHS Nottingham North & East CCG	23	38	22	16	37	67	32	32	47
NHS Nottingham West CCG	19	16	5	6	33	33	15	13	21
NHS Rushcliffe CCG	9	16	13	12	25	26	24	32	24

Table 1: shows CCG Objectives set by NHS England and actual cases *Clostridium difficile* infection (CDI)

**For the purposes of reporting a community case CDI is either a toxin positive stool sample taken by the GP from a patient in the community or a toxin positive sample taken within 72 hours of admission to hospital (pre72 hr cases).

NHS Nottingham North & East CCG
Quarter One
April-June 2016

There were 3 community acquired CDI Cases reported on the Data Capture System , 1 deceased case in April has been logged under home address rather than GP code and this has been challenged with Public Health England (PHE) as the patient was registered with a City GP and is undergoing a RCA investigation. PHE will not amend the data as this was taken from the NHS spine, so the case will remain attributed to NNE. Finding are based on the 2 actual community cases. There were 6 acute trust acquired cases bringing the total to 9, this compares with the 11 total cases recorded against the same period last year.

Male	Female	Hospital sample pre 72hrs	GP Sample	No recent antibiotics	Recent history of antibiotics	On laxatives	PPI H2Ant	Repeat episode	Care home resident	Recent admission to hospital	Other bowel disease	Chemotherapy	Diabetes	Renal disease	Under 65	Over 65
1	1	2	0	1	1	0	1	0	1	2	0	0	1	0	2	0
50%	50%	100%	0%	50%	50%	0%	50%	0%	50%	100%	0%	0%	50%	0%	100%	0%

Table 1: Themes / trends from 2 community attributed *C.difficile* cases NHS Nottingham North & East CCG April-June 2016

Themes identified from the 1 patient receiving recent antibiotics (last 3 months) show:

*Antibiotic prescribing in the 3 months prior to positive stool sample result

GP prescribing only

- No cases

Acute trust only

- 1 case was treated with a 3 week course of Co-amoxiclav for acinomyces following earlier treatment in March with IV antibiotics

Summary

- One case is linked to a period of increased incidence
- No prescribing issues were identified with the information provided.

NHS Nottingham North & East CCG
Quarter Two
July-September 2016

There were 6 community acquired CDI Cases and 3 trust acquired cases for quarter two. This is a decrease in community cases by 1 and a decrease in trust cases by 3 when compared with the same period last year.

Male	Female	Hospital sample pre 72hrs	GP Sample	No recent antibiotics	Recent history of antibiotics	On laxatives	PPI H2Ant	Repeat episode	Care home resident	Recent admission to hospital	Other bowel disease	Chemotherapy	Diabetes	Renal disease	Under 65	Over 65
5	1	4	2	1	5	2	3	2	2	3	2	0	2	1	2	4
83%	17%	67%	33%	17%	83%	33%	50%	33%	33%	50%	33%	0%	33%	17%	33%	67%

Table 1: Themes / trends from community attributed *C.difficile* cases NHS Nottingham North & East CCG July-September 2016

Themes identified from the patients receiving recent antibiotics (last 3 months) show:

*Antibiotic prescribing in the 3 months prior to positive stool sample result

GP prescribing only

- 1 case was treated with Amoxicillin for diverticular disease
- 1 case was treated with Co-amoxiclav for aspiration pneumonia
- 1 case was treated with Flucloxacillin for an infected foot wound (swab taken)
- 1 case was treated with Ciprofloxacin for urinary tract infection (out of hours service Citycare are investigating this prescribing) The GP changed this to Nitrofurantoin. Lapses in the management of the patient were identified including not sending a stool sample and treating on suspicion support with practice learning is in place

Acute trust only

- 1 case was treated with IV Tazocin for peritonitis

GP and Acute trust prescribing

- None

Summary

- 1 case had no antibiotic history
- No cases were linked to any identified cross infection concerns in the community

NHS Nottingham North & East CCG
Quarter Three
October- December 2016

There were 3 community acquired CDI Cases and 4 trust acquired cases for quarter three. This is a decrease in community cases by 6 and an increase in Trust cases by 4 when compared against the same period last year. One case is considered to be a lapse in care as there were missed opportunities to treat the patient by NEMS, GP, and NUHT, action has been taken across all 3 services to learn and prevent a similar re-occurrence

Male	Female	Hospital sample pre 72hrs	GP Sample	No recent antibiotics	Recent history of antibiotics	On laxatives	PPI H2Ant	Repeat episode	Care home resident	Recent admission to hospital	Other bowel disease	Chemotherapy	Diabetes	Renal disease	Under 65	Over 65
1	2	3	0	0	3	1	2	3	0	2	0	0	0	0	0	3
33%	67%	100%	0%	0%	100%	33%	67%	100%	0%	67%	0%	0%	0%	0%	0%	100%

Table 3: Themes / trends from community attributed *C.difficile* cases NHS Nottingham North & East CCG October-December 2016

Themes identified from the patients receiving recent antibiotics (last 3 months) show:

*Antibiotic prescribing in the 3 months prior to positive stool sample result

GP prescribing only

- 1 case was treated with Amoxicillin for a chest infection (known COPD)

Acute trust only

- 1 case was treated with Ciprofloxacin and Metronidazole for Cholecystitis

GP and Acute trust prescribing

- 1 case presented to NEMS out of hours service with diarrhoea and was treated with Ciprofloxacin for suspected UTI, they then presented to GP and were given Nitrofurantoin for UTI.

Summary

- 1 case was identified as a lapse in care with inappropriate antibiotic prescribing and sub-optimal management of the patient
- No cases were linked to any identified cross infection concerns in the community

**NHS Nottingham North & East CCG
Quarter Four
January –March 2017**

There were 4 community acquired CDI Cases and 3 trust acquired cases for quarter four. This is an increase in community cases of 3 and a decrease in trust cases of 1 when compared against the same period last year.

Male	Female	Hospital sample pre 72hrs	GP Sample	No recent antibiotics	Recent history of antibiotics	On laxatives	PPI H2Ant	Repeat episode	Care home resident	Recent admission to hospital	Other bowel disease	Chemotherapy	Diabetes	Renal disease	Under 65	Over 65
0	4	4	0	3	1	2	1	2	0	3	2	0	0	1	1	3
0%	100%	100%	0%	75%	25%	50%	25%	50%	0%	75%	50%	0%	0%	25%	25%	75%

Table 4: Themes / trends from community attributed *C.difficile* cases NHS Nottingham North & East CCG January –March 2017

Themes identified from the patients receiving recent antibiotics (last 3 months) show:

*Antibiotic prescribing in the 3 months prior to positive stool sample result

Other

- One patient had been prescribed IV Tazocin in Lings Bar Hospital, this was considered a lapse in care as there were no details of the rationale for prescribing, there was a delay in sampling as sample was sent in the wrong container and the patient was not treated on suspicion. LC

Summary

- One patient counts for two cases, and has also presented in previous quarters and has refused a faecal transplant. VM

**NHS Nottingham West CCG
Quarter One
April-June 2016**

There were no community acquired CDI Cases and 3 cases in total including all trust acquired infections quarter one. This is an improvement in community cases when compared with the same period in 2015/16 when there was 1 community acquired case and 2 trust acquired cases however overall numbers remain the same at 3 for the quarter.

**NHS Nottingham West CCG
Quarter Two
July-September 2016**

There were 3 community acquired CDI Case and 6 cases in total including all trust acquired infections for quarter two. This is an increase in community cases by 2 when compared with the same period last year. .

Male	Female	Hospital sample pre 72hrs	GP Sample	No recent antibiotics	Recent history of antibiotics	On laxatives	PPI H2Ant	Repeat episode	Care home resident	Recent admission to hospital	Other bowel disease	Chemotherapy	Diabetes	Renal disease	Under 65	Over 65
2	1	2	1	1	2	0	2	0	0	2	0	0	0	0	1	2
67%	33%	66%	33%	33%	66%	0%	66%	0%	0%	66%	0%	0%	0%	0%	33%	66%

Table 2: Themes / trends from community attributed *C.difficile* cases NHS Nottingham West CCG July-September 2016

Themes identified from the patient receiving recent antibiotics (last 3 months) show:

*Antibiotic prescribing in the 3 months prior to positive stool sample result

GP prescribing only

- 1x case was treated with Co-amoxiclav for suspected diverticulitis (no previous history)

Acute trust only

- 1x case was treated with Clindamycin for cellulitis and infected leg ulcers (penicillin allergy)

Summary

- 1 x case had no recent antibiotic history but did have an old history of Clarithromycin (5 months)
- No identified lapses in care
- No cases were linked to any identified cross infection concerns in the community

**NHS Nottingham West CCG
Quarter Three
October- December 2016**

There were 2 community acquired CDI Case and 3 cases in total including all trust acquired infections. This is an increase in community cases by 2 when compared with the same period last year. .

Male	Female	Hospital sample pre 72hrs	GP Sample	No recent antibiotics	Recent history of antibiotics	On laxatives	PPI H2Ant	Repeat episode	Care home resident	Recent admission to hospital	Other bowel disease	Chemotherapy	Diabetes	Renal disease	Under 65	Over 65
1	1	1	1	0	2	0	1	0	0	1	0	1	2	1	1	1
50%	50%	50%	50%	0%	100%	0%	50%	0%	0%	50%	0%	50%	100%	50%	50%	50%

Table 3: Themes / trends from community attributed *C.difficile* cases NHS Nottingham West CCG October- December 2016

Themes identified from the patient receiving recent antibiotics (last 3 months) show:

*Antibiotic prescribing in the 3 months prior to positive stool sample result

GP & Acute Trust Prescribing

- 1x complex oncology patient was treated with IV Tazocin and Co-amoxiclav for e-coli sepsis in hospital. Treated by GP with Clarithromycin for a chest infection

Acute trust only

- 1x case was treated with Co-amoxiclav for an infected finger

Summary

- No identified lapses in care
- No cases were linked to any identified cross infection concerns in the community

**NHS Nottingham West CCG
Quarter Four
January – March 2017**

There were 1 community acquired CDI Case and there are no trust acquired infections. This is the same as the number of community cases when compared to the same period last year.

Male	Female	Hospital sample pre 72hrs	GP Sample	No recent antibiotics	Recent history of antibiotics	On laxatives	PPI H2Ant	Repeat episode	Care home resident	Recent admission to hospital	Other bowel disease	Chemotherapy	Diabetes	Renal disease	Under 65	Over 65
0	1	1	0	0	1	0	1	0	0	1	0	0	0	0	1	0
0%	100%	100%	0%	0%	100%	0%	100%	0%	0%	100%	0%	0%	0%	0%	100%	0%

Table 4: Themes / trends from community attributed *C.difficile* cases NHS Nottingham West CCG January – March 2017

Themes identified from the patient receiving recent antibiotics (last 3 months) show:

*Antibiotic prescribing in the 3 months prior to positive stool sample result

Acute trust only

- One patient had Cephalexin post appendisectomy. There was a lapse in care due to the inappropriate prescribing of Loperamide and Codeine

**NHS Rushcliffe CCG
Quarter One
April-June 2016**

There were 3 community acquired CDI Cases and 7 cases in total including all trust acquired infections for quarter one. This is the same as the previous year .

Male	Female	Hospital sample pre 72hrs	GP Sample	No recent antibiotics	Recent history of antibiotics	On laxatives	PPI H2Ant	Repeat episode	Care home resident	Recent admission to hospital	Other bowel disease	Chemotherapy	Diabetes	Renal disease	Under 65	Over 65
3	0	3	0	0	3	1	2	0	0	3	3	0	0	2	0	3
100%	0%	100%	0%	0%	100%	33%	67%	0%	0%	100%	100%	0%	0%	67%	0%	100%

Table 1: Themes / trends from community attributed *C.difficile* cases NHS Rushcliffe CCG April – June 2016

Themes identified from the 3 patients receiving recent antibiotics (last 3 months) show:

GP and Acute trust Prescribing

- 1 case was treated for pneumonia and was discharged on Clarithromycin
- 1 oncology patient has prophylactic Septrin as part on an ongoing chemotherapy treatment plan.

Acute Trust Prescribing

- 1 case received Co-amoxiclav for lower respiratory tract infection review of this case has been requested as treatment BD, thought to have had antibiotics for a suspected urinary tract infection (UTI) but this was unclear. Treated with Nitrofurantoin for UTI by GP.

Summary

- No cases were linked to any identified cross infection concerns in the community
- No identified lapses in care

**NHS Rushcliffe CCG
Quarter Two
July-September 2016**

There were 5 community acquired CDI Cases and 10 cases in total including all trust acquired infections for quarter two. The community acquired cases remain the same and there has been an increase of 3 trust apportioned cases when compared to the same period last year.

Male	Female	Hospital sample pre 72hrs	GP Sample	No recent antibiotics	Recent history of antibiotics	On laxatives	PPI H2Ant	Repeat episode	Care home resident	Recent admission to hospital	Other bowel disease	Chemotherapy	Diabetes	Renal disease	Under 65	Over 65
2	3	1	4	1	4	0	2	2	0	5	2	1	2	0	1	5
40%	60%	20%	805	20%	80%	0%	40%	40%	0%	100%	40%	20%	40%	0%	20%	100%

Table 2: Themes / trends from community attributed *C.difficile* cases NHS Rushcliffe CCG July-September 2016

Themes identified from the 4 patients receiving recent antibiotics (last 3 months) show:

GP and Acute Trust Prescribing

- 1 case was treated for pneumonia and a UTI with IV Tazocin and oral Co-amoxiclav a further course of Co-amoxiclav was then issued by the GP
- 1 case was given Clarithromycin for an insect bite and Clindamycin for abdominal pain in the USA

Acute Trust Prescribing only

- 1 case received IV Ceftriaxone for long term osteomyelitis
- 1 case was treated with Flucloxacillin, Doxycycline and Rifampicin for infected knee replacements

Summary

- 1 case has a long standing history of erratic bowel habits and weight loss they are under investigation and had had a prolonged hospital admission with no history of recent antibiotics they currently in a community hospital no recent GP contact
- No cases were identified as lapses in community care
- No cases were linked to any identified cross infection concerns in the community

**NHS Rushcliffe CCG
Quarter Three
October-December 2016**

There were 4 community acquired CDI Cases and 13 cases in total including all trust acquired infections for quarter three. There is an increase in community acquired cases by 2 and an increase of 7 trust apportioned cases when compared against the same period last year.

Male	Female	Hospital sample pre 72hrs	GP Sample	No recent antibiotics	Recent history of antibiotics	On laxatives	PPI H2Ant	Repeat episode	Care home resident	Recent admission to hospital	Other bowel disease	Chemotherapy	Diabetes	Renal disease	Under 65	Over 65
1	3	3	1	2	2	1	3	0	0	1	2	2	1	0	1	3
25%	75%	75%	25%	50%	50%	25%	75%	0%	0%	25%	50%	50%	25%	0%	25%	75%

Table 3: Themes / trends from community attributed *C.difficile* cases NHS Rushcliffe CCG October-December 2016

Themes identified from the 2 patients receiving recent antibiotics (last 3 months) show:

GP Prescribing

- 1 case was treated with Doxycycline for a chest infection and Nitrofurantoin for proven urinary tract infection (UTI)
- 1 case was treated in South Africa with antibiotics and received Nitrofurantoin for UTI from GP

Themes from the 2 cases not receiving antibiotics prior to the onset of disease are: 1 case is complex and has metastatic bowel carcinoma. The other case has alcoholic liver disease and takes a high dose PPI following a large gastric bleed.

Summary

- No cases were linked to any identified cross infection concerns in the community
- No identified lapses in care

**NHS Rushcliffe CCG
Quarter Four
January to March 2017**

There were 0 community acquired CDI Cases and 2 cases in total including all trust acquired infections for quarter four. There is a decrease in community acquired cases of 3 and a decrease of 1 trust apportioned cases when compared against the same period last year.

Summary across South Nottinghamshire CCGs

- Total number of *Clostridium difficile* cases across the three CCG's over April 2016 – March 2017 - 77
- An increase of 6 cases when compared to the total of 71 for 2015-16.

- Community acquired cases – 34 (44%)
- A decrease of 6 (15%) cases compared with 40 cases for the same period 2015-16.

- Cases over the age of 65 years - 24 (71%)

- Number of cases who received antibiotics in the last 3 months - 21 (62%)
- A decrease of 29% when compared to 91% for 15/16.
- Number of Community acquired cases who received antibiotics solely from their GP 8 (24%)
- Number of Community acquired cases who received antibiotics during a recent admission (None from GP) – 9 (26%)
- Number of Community acquired cases who received antibiotics from both GP and the acute trust – 5 (15%)

There is increasing evidence that acid-suppressing medications, in particular proton pump inhibitors (PPIs) may be a risk factor for CDI

- Patients taking a PPI at the time of diagnosis - 18 (53%)
- Compared to 15/16 – 21 (45%)
- 9 (12%) out of the total number of cases had been identified from GPs requesting a stool sample

As with previous years the majority of community CDI cases seen are from patients living in their own home rather than those from a care home setting and are isolated cases.

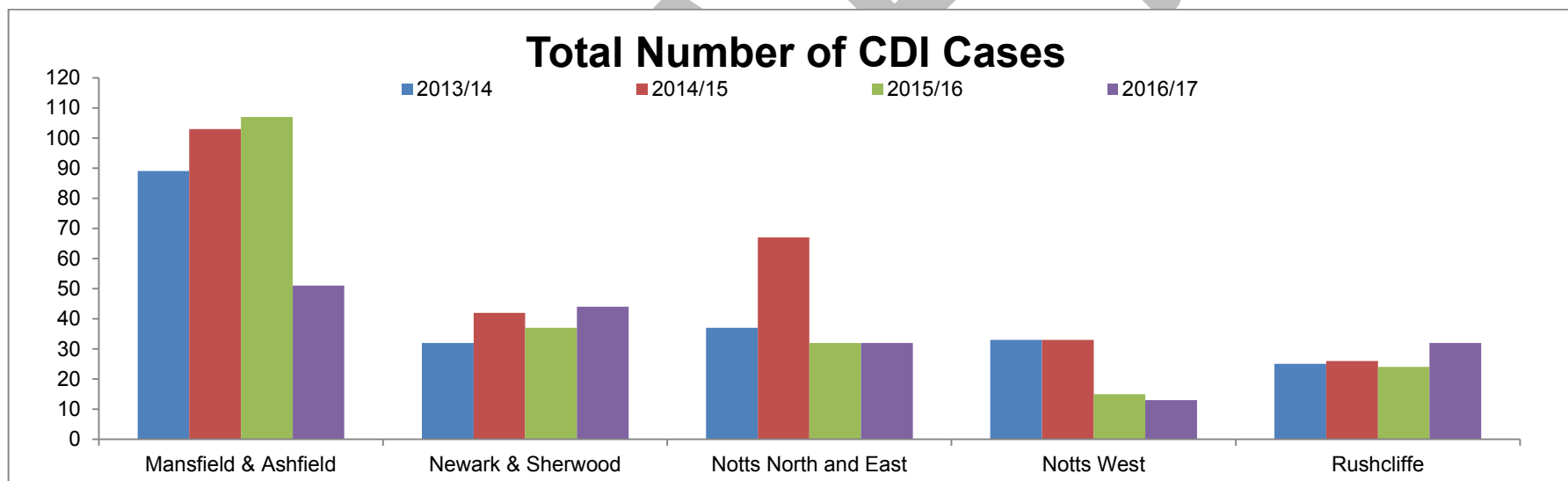
Rushcliffe are over target by 8 cases with 32 cases against a plan of 24 compared to last year's target of 28 cases and only 24 actual cases. This is due to the large number of post 72 (hospital acquired cases) not to the number of Community acquired cases.

From the information provided by GPs, antibiotic prescribing was in line with the Primary Care Antimicrobial Prescribing Guidance in the majority of cases. In the small number of cases where inappropriate prescribing was identified in the community these were referred to the prescribing advisors linked to the individual practice for further support and training. Poor prescribing issues identified in the acute trusts have been raised for review and learning, in particular poor prescribing. Information is gathered on each community case that the team are notified of to establish possible links and risk factors.

There was a lapse in care at Lings Bar Hospital, where there was a delay in sampling, sample was sent in the wrong container and the patient was not treated on suspicion.

A second lapse in care occurred in NEMS where inappropriate prescribing took place outside of the Nottinghamshire guidelines. Both cases were followed up appropriately with these organisations.

On completion of the case review by the team with the GP, they are requested to add an alert (read code) to the patient record as a future prompt in addition a special patient note is requested from the practice to provide the out of hours service with the CDI information to aid with appropriate future prescribing.



Graph 1 – Total number of CDI cases all 5 County CCGs 2013/14 – 2016/17

Root Cause Analysis (RCA)

All *C. diff* associated deaths and those resulting in serious complications are investigated using the RCA process. There have been 2 RCA investigations completed for deceased patients over 2016-17 for community acquired cases. One RCA in Newark and Sherwood CCG identified several learning points for the practice involved including inappropriate prescribing outside of the Nottinghamshire Guidance, delays in stool sampling and a delay in treatment. The second RCA in Mansfield and Ashfield CCG and was led by NUHT due to lack of involvement from Primary Care and a large involvement from Out Patients at NUHT. This was a complex oncology patient and the outcome of this investigation was that no lapses in care were found and the case was unavoidable with no learning identified

Summary across Mid Nottinghamshire CCGs

- Total number of *Clostridium difficile* cases across both CCG's over April 2016 – March 2017 - 95
- A decrease of 49 cases when compared to the total of 144 for 2015-16.
- Community acquired cases – 60 (63%)
- A decrease of 38 (39%) cases compared with 98 cases for the same period 2015-16.
- Cases over the age of 65 years - 49 (82%)
- Number of cases who received antibiotics in the last 3 months - 52 (87%)
- An increase of 10% when compared to 77% for 15/16.
- Number of Community acquired cases who received antibiotics solely from their GP 13 (22%)
- Number of Community acquired cases who received antibiotics during a recent admission (None from GP) – 19 (32%)
- Number of Community acquired cases who received antibiotics from both GP and the acute trust - 9 (15%)

There is increasing evidence that acid-suppressing medications, in particular proton pump inhibitors (PPIs) may be a risk factor for CDI

- Patients taking a PPI at the time of diagnosis - 26 (43%)
- Compared to 15/16 – 35 (36%)
- 30 (32%) out of the total number of cases had been identified from GPs requesting a stool sample

As with previous years the majority of community CDI cases seen are from patients living in their own home rather than those from a care home setting and are isolated cases.

From the information provided by GPs antibiotic prescribing was in line with the Primary Care Antimicrobial Prescribing Guidance in the majority of cases. In the small number of cases where inappropriate prescribing was identified in the community these were referred to the prescribing advisors linked to the individual practice for further support and training. Poor prescribing issues identified in the acute trusts have been raised for review and learning, in particular poor prescribing. Information is gathered on each community case that the team are notified of to establish possible links and risk factors.

Selected Learning & Themes from Cases Reviews with Sub Optimal Care County CCGs

Clostridium difficile Infection (Toxin positive)

Case 1

- 78yr old female
- Lives in own home
- No previous history *Clostridium difficile* Infection (CDI)
- Recent use PPI
- History of recent treatment for *H. pylori* by GP (previous 4 weeks – Clarithromycin and Metronidazole later changed to Amoxicillin)
- Patient presented 10 days later with loose stools - no stool sample sent, presented again after a further 6 days with loose stools, sample requested but started on Loperamide
- Stool sample obtained 2 days later –tested positive for *Clostridium difficile* Infection this was reported to the practice on a Friday
- 3 days later (Monday) the practice was contacted by the Infection Prevention & Control Team to complete a case review
- No action had been taken on receipt of the positive result on the Friday
- GP advised to review the patient, stop loperamide and commence appropriate treatment.

Advice given and actions:

- Missed opportunity to treat on suspicion of CDI in patient with known history of recent antibiotics in the last 3 months
- Lack of reference to CDI guidance and Antimicrobial Prescribing Guidelines
- Inappropriate use of Loperamide and potential risks of bowel perforation and increased mortality in patients with CDI
- The Practice completed a significant event analysis and learning was shared across clinicians

Case 2

- 89yr old female
- Lives in own home
- No previous history CDI
- Regular use PPI
- History of irritable bowel syndrome, COPD, CVA, cellulitis
- Recent admission in last 2 months for cellulitis treated with IV and oral antibiotics –Flucloxacillin

- Recent treatment with Amoxicillin and Trimethoprim by GP
- Presented to GP with diarrhoea - prescribed Loperamide and stool sample taken

Advice given and actions:

- Re missed opportunity to treat on suspicion of CDI in patient with known history of recent antibiotics in the last 3 months
- Lack of reference to CDI guidance and Antimicrobial Prescribing Guidelines
- Inappropriate use of Loperamide and potential risks of bowel perforation and increased mortality in patients with CDI
- Learning shared across the practice , CDI guidance re-issue

Case 3

- 58yr old female
- Lives in own home
- No previous history CDI
- Recent appendectomy (perforated appendix) in last month treated with Cefalexin as an inpatient
- Presented to GP with history diarrhoea- GP suspected gastroenteritis and prescribed Loperamide stool sample requested
- Patient re-presented and changed to Codeine as getting side effects from Loperamide, stool sample sent
- Stool sample reported as positive CDI 4 days later
- Patient treated with Metronidazole, 7 day review advised by IPC team as per guidance
- Follow up call from IPC team to ensure 7 day review completed, this had not been carried out. GP later contacted patient who remained symptomatic changed to Vancomycin with good response

Advice given and actions:

- Missed opportunity to treat on suspicion of CDI in patient with known history of recent antibiotics in last 3 months
- Advice given re use of CDI guidance and antimicrobial prescribing guidelines
- Inappropriate use of Loperamide and Codeine potential risks of bowel perforation and increased mortality in patients with CDI
- Advice given re poor follow up of the patient after starting treatment and risk of inappropriate admission where this does not occur –learning for GP, guidance shared at the practice for clinical learning

Root Cause Analysis Review (RCA)

Case History 1

- 89yr old female living in own home
- Multiple co-morbidities – DNAR agreed with patient following recent anaemia and decision taken to not investigate further
- Over a 6 month period the patient had received 8 courses of antibiotics
- The patient visited the practice on 3 occasions with a history of diarrhoea. The GP documentation highlights *Clostridium difficile* suspected due to the high volume of recent antibiotics
- Over 3 visits no stool sample was requested and no action was taken to treat on suspicion of *Clostridium difficile* infection
- 5 days after the first presentation a sample was sent but no treatment started
- 6 days after the first presentation treatment with Metronidazole was started. The patient deteriorated and died 2 weeks after the first presentation
- *Clostridium difficile* infection was considered to be the main cause of death and was recorded on part 1 of the death certificate.

Significant Learning

- 5 out of the 8 episodes of antibiotic prescribing were not compliant with the Nottinghamshire Antimicrobial Prescribing Guidelines for Primary Care
- There was a delay in obtaining and sending a stool sample
- The patient was not treated on suspicion of *Clostridium difficile*

Good Practice

- End of Life Care GP
- Stopping antibiotics to allow bowel to rest
- Not prescribing anti-motility agents
- Treatment given on notification of result

Recommendations

- All staff to refer to Nottinghamshire Prescribing Guidelines when prescribing antibiotics
- Reiterate the importance of obtaining timely stool samples
- All staff to refer to 'Updated Guidance on the Management and Treatment of *Clostridium difficile* infection 2013'

Actions Taken

- Re-circulate Nottinghamshire Antimicrobial Prescribing Guidelines to practice staff
- Issue the link to *Clostridium difficile* guidance on GP newsletters
- Practice to remove all Derby Hospitals NHS Trust prescribing guidance
- Share with Nottinghamshire Wide RCA Review Group for wider learning

Appendix 5 Infection Prevention and Control Annual Report for Nottinghamshire County General Practices March 2017

Introduction

This paper will provide an update on outcomes following the proactive audit programme in GP practices.

Background

Audit is a quality improvement tool that aims to improve infection prevention and control standards within general practice. The audit programme currently runs every 2 years. The audit tool has been developed by the Infection Control Matron who leads the IPC audit programme for general practice. Each section of the audit tool has been based on various legislation and guidance including:

- The Health and Social Care Act 2008: code of practice for the prevention and control of infections
- Health Building Note 00-09 Infection Control in the Built Environment
- HTM 03-01 Heating and Ventilation Systems
- HBN 00-10 Part A: Flooring
- HBN 00-10 Part B: Walls and Ceilings
- HBN 00-10 Part C: Sanitary Assemblies
- Guidance on Environmental Requirements for Minor Surgery in General Practice
- The National Specifications for Cleanliness in the NHS: Guidance on Setting and Measuring Performance Outcomes in Primary Care Medical and Dental Premises
- HTM 07-01: Safe Management of Healthcare Waste
- NICE Quality Standard 61 Infection Prevention and Control
- The Green Book: Immunisation against Infectious Diseases

GP practices were asked to provide an action plan following audit and were given 2 weeks to submit this. Review visits were then carried out where required, to check progress with actions. Where applicable; significant concerns were raised through the Primary Care Quality Groups within each Clinical Commissioning Group (CCG).

In Mansfield and Ashfield and Newark and Sherwood each practice receives a RAG rating following audit to provide a quality measure for the CCG. The RAG rating tool is based on 5 of the most relevant criterion taken from The Health and Social Care Act 2008 and includes:

- Criterion 1: Systems to manage and monitor the prevention and control of infection. These systems use risk assessments and consider the susceptibility of service users and any risks that their environment and other users may pose to them.
- Criterion 2: Provide and maintain a clean and appropriate environment in managed premises that facilitates the prevention and control of infections.
- Criterion 6: Systems to ensure that all care workers (including contractors and volunteers) are aware of and discharge their responsibilities in the process of preventing and controlling infection.
- Criterion 9: Have and adhere to policies, designed for the individual's care and provider organisations that will help to prevent and control infections.
- Criterion 10: Providers have a system in place to manage the occupational health needs and obligations of staff in relation to infection.

Themes

The audit process enables common themes to be gathered, themes have been identified for individual CCG's and can be found in the tables within this report.

The information given below gives specific detail for each of the themes identified:

Policies:

- Lack of infection control policies
- Inaccurate and not up to date policies
- Lack detail

Waste:

- Lack of cytotoxic sharp bins
- Incorrect waste segregation
- No labelling of sharp bins and temporary closure mechanisms not used

Flooring:

- Flooring not fully sealed
- Flooring not covered
- Flooring in poor condition
- Carpets in clinical rooms

Cleaning:

- Poor cleaning standards
- Lack of schedules or schedules lack detail and signatures
- No colour coded equipment
- Cloths not disposable
- Cleaning equipment dirty
- Lack of audit of cleaning processes

Fixtures and Fittings:

- Hand hygiene sinks not compliant
- Privacy curtains not disposable
- Poor work areas, cupboards, worktops etc

Vaccines:

- No service agreement in place
- Vaccines touching the sides of the fridge
- Vaccines stored outside the original packaging
- Data loggers not being used effectively
- Temperatures outside the range and no action taken
- No process in place for the receipt and storage of vaccines

Education:

- Lack of regular training

Audit:

- Lack of audit
- Lack of action plans following audit

Minor Surgery:

- Lack of appropriate ventilation
- Re-using hyfracator tips / lack of single use
- Lack of policy
- Poor cleaning standards
- Expired equipment

Mansfield and Ashfield CCG

32% of practices were RAG rated green, 39% of practices were RAG rated amber and 29% of practices were RAG rated red. Review visits took place with practices rated red and by the end of 2016/17 43% of practices were RAG rated green, 57% of practices were RAG rated amber and no practices were RAG rated red.

- **Minor Surgery**

14% of practices were informed to temporarily stop performing minor surgery as rooms were not fit for purpose. Practices were given support to improve standards to ensure that patients received safe and effective care during minor surgery. Practices were advised to re-commence minor surgery only following a review visit of the premises to ensure that actions had been completed and it is fit for purpose.

- **New Builds/Refurbishment**

10% of practices were given support and advice when completing refurbishments to ensure compliance with relevant legislation and guidance.

Newark and Sherwood CCG

33% of practices were RAG rated green, 53% of practices were RAG rated amber and 13% of practices were RAG rated red. By the end of 2016/17 33% of practices were RAG rated green, 60% of practices were RAG rated amber and 7% of practices were RAG rated red. One practice remains RAG rated red as they are waiting funding to commence a programme of refurbishment.

- **Minor Surgery**

One practice was informed to temporarily stop performing minor surgery as the room was not fit for purpose. Practices were given support to improve standards to ensure that patients received safe and effective care during minor surgery. Practices were advised to re-commence minor surgery only following a review visit of the premises to ensure that actions had been completed and it is fit for purpose.

- **New Builds/Refurbishment**

13% of practices were given support and advice when completing refurbishments to ensure compliance with relevant legislation and guidance.

Mansfield and Ashfield CCG / Newark and Sherwood CCG

Themes	M&A CCG	N&S CCG
Policies	17 (61%)	7 (44%)
Waste	9 (32%)	7 (44%)
Expired Stock	10 (36%)	
Flooring	16 (57%)	8 (50%)
Cleaning	17 (61%)	8 (50%)
Fixtures and Fittings	13 (46%)	
Vaccines	20 (71%)	9 (56%)
Minor ops	7 (25%)	6 (38%)

*note that Rosemary Street and Oak Tree Lane have been included as 2 separate practices

*note that Farnfield and Ravenshead have been included as 2 separate practices

Rushcliffe CCG

- **Minor Surgery**

No practices were asked to stop minor surgery.

- **New Builds/Refurbishment**

One practice received advice when completing refurbishments to ensure compliance with relevant legislation and guidance.

Nottingham North and East CCG

- **Minor Surgery**

One practice was informed to temporarily stop performing minor surgery as the room was not fit for purpose. Practices were given support to improve standards to ensure that patients received safe and effective care during minor surgery. Practices were advised to re-commence minor surgery only following a review visit of the premises to ensure that actions had been completed and it is fit for purpose.

- **New Builds/Refurbishment**

One practice received advice when completing refurbishments to ensure compliance with relevant legislation and guidance.

Nottingham West

- **Minor Surgery**

15% of practices were informed to temporarily stop performing minor surgery as rooms were not fit for purpose. Practices were given support to improve standards to ensure that patients received safe and effective care during minor surgery. Practices were advised to re-commence minor surgery only following a review visit of the premises to ensure that actions had been completed and it is fit for purpose.

- **New Builds/Refurbishment**

One practice received advice when completing refurbishments to ensure compliance with relevant legislation and guidance.

Rushcliffe CCG / Nottingham North and East CCG / Nottingham West CCG

Theme	Rushcliffe CCG	NNE CCG	NW CCG
Policies	13 (72%)	17 (81%)	8 (62%)
Education	9 (50%)	9 (43%)	5 (38%)
Flooring	7 (39%)	15 (71%)	9 (69%)
Cleaning	10 (56%)	13 (62%)	7 (54%)
Fixtures and Fittings	10 (56%)	11 (52%)	8 (62%)
Vaccines	13 (72%)	15 (71%)	9 (69%)
Minor ops	6 (33%)	8 (38%)	7 (54%)
Audit		8 (38%)	

Future Planning 2017/18 and 2018/19

During 2017/18 all GP practices will be asked for an update on their action plan and regular infection control messages will continue to be shared with practices via local CCG newsletters to address the identified common themes; and to ensure that the importance of infection control remains at the forefront.

Where infection control concerns are raised either through complaints, external organisations or colleagues within the CCG, reactive audits will take place.

The next audit programme for GP practices will commence in April 2018 with emphasis on addressing common themes identified.

Wendy Walker
Infection Control Matron - Lead for GP's

Appendix 6 Summary report following case reviews for Escherichia-coli Bloodstream Infection

The reporting of all *Escherichia coli* bloodstream infections (*E. coli* BSI) has been mandatory since 2011. Nationally counts and rates of infection have been increasing year-on- year.

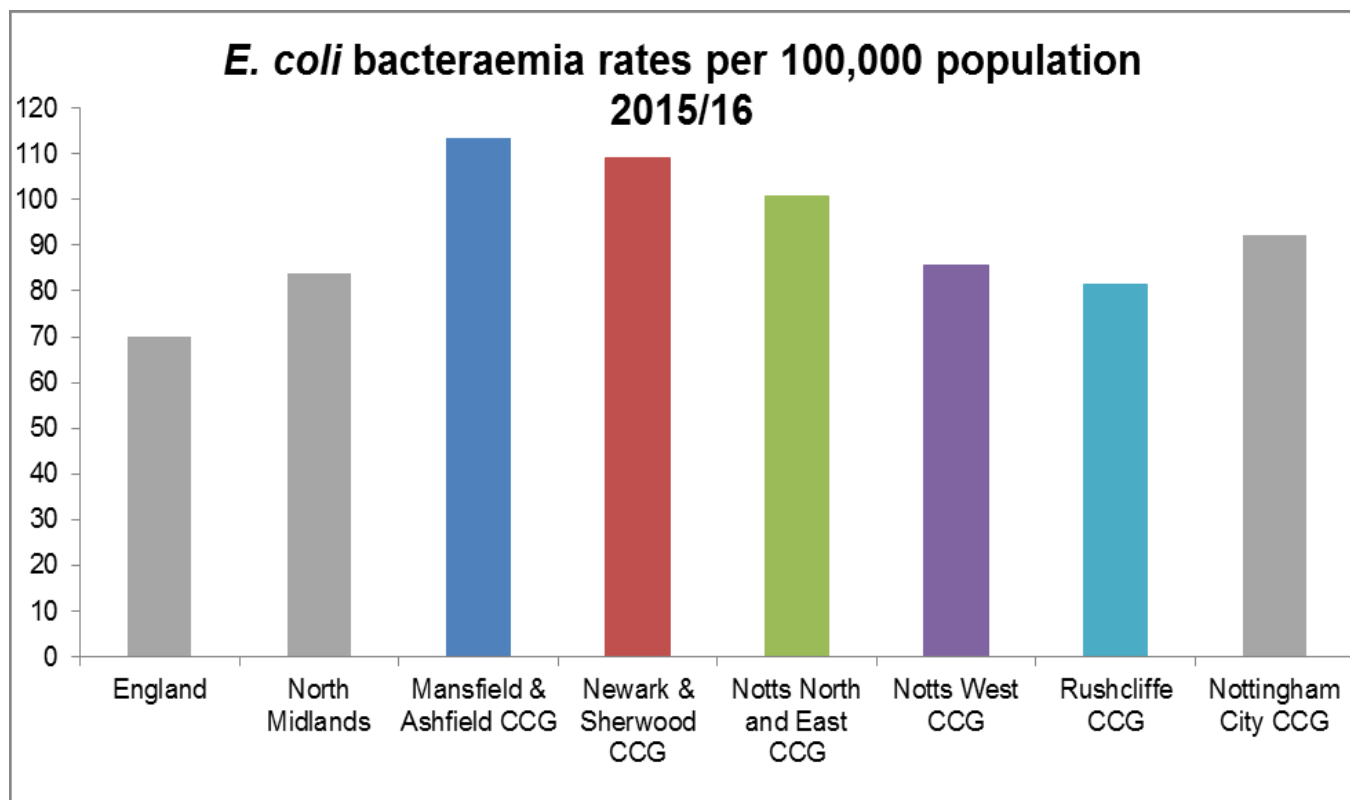
The Community Infection Prevention and Control team (CIPCT) have been undertaking a root cause analysis review on community onset *E. coli* BSI of urinary origin to identify possible preventable factors. As this work is not a statutory requirement patient consent is required and this will affect the data collected as all patients required capacity to consent and needed to survive the episode of infection.

Criteria for completing RCA review:

- Confirmed community patient with *E. coli* BSI from a urinary source
- Patient registered with GP in a Nottinghamshire County CCG
- Over 18yrs
- Capacity to consent

Escherichia-coli

Escherichia-coli is a gram negative bacterium commonly found in faeces and the intestine of animals and people where it forms part of the normal gut flora. Although most types of *E. coli* live harmlessly in the gut, some types can cause a range of infections including urinary tract and intestinal infection. Blood stream infections (bacteraemia , BSI) may be caused by primary infections spreading to the blood. Rates of *E. coli* bacteraemia are reported by Public Health England (PHE) per 100,000 population. The rates are higher in the local area than the National rate and are continuing to rise. *E. coli* infections are a source of concern for CIPCT's, as increasing antibiotic resistance makes these common infections more difficult to treat in community settings resulting in increased hospital admissions. It would appear from the current and previous years data that there is an increase in cases locally over the summer months, this may be linked to dehydration, however this theory will require further analysis.



Graph 1: shows rates CCG *E. coli* BSI per 100,000 April 2015-March 2016

CCG	England	Mansfield & Ashfield CCG	Newark & Sherwood	Nottingham North & East	Nottingham West	Rushcliffe
Rate per 100,00	70.0	113.6	109.1	100.6	85.7	81.6

Table 1: shows *E. coli* BSI rates reported by Public Health England (PHE) per 100,000 population

This thematic review has been completed using available information from root cause analysis investigations completed on reported cases of *E. coli* BSI from a urinary source. In each case the past medical history and recent healthcare interactions were reviewed with particular attention paid to the preceding 4 weeks before the bacteraemia, previous antibiotic usage was noted. The average age of those included in the reviews is 63 yrs. (range 42-93). The data may be skewed as consent and capacity is required for all case reviews and this may account for the low average age as rates are generally higher in those over 65yrs. Consent was gained in all cases and information was given to the patient about the process and reason for the case review. The final report was shared with the GP and the patient was informed that they could request a copy.

CCG	Number of <i>E. coli</i> BSI case reviews
Mansfield & Ashfield	4
Newark & Sherwood	1
Nottingham North & East	6
Rushcliffe	6
Nottingham West	4
Total	21

Table 2: shows the number of *E. coli* BSI case reviews completed in each CCG.

Main Themes	Numbers
Male	10
Female	11
Over 65yrs	10
Under 65yrs	11
Care home resident	1
Diabetes	6
COPD	2
Admission in past 28 days	14
Vascular device/manipulation in past 28 days (where known)	2
Surgery in past 28 days	3 2x TRUS biopsy/1x abdominal surgery
Hepatobiliary procedure in past 28 days	1
Catheter including trials /changes last 28 days	6
Open wound past 28 days	1
Diabetic foot ulcer past 28 days	0
Course of antibiotic previous 6 months	18
Course of antibiotic past month GP	7
Number of hospital antibiotic courses past 28 days (where known)	6
Previous <i>E. coli</i> BSI	4
History of constipation	2
Prophylaxis for UTI	2
Main Themes	Numbers
Prophylaxis other	1 (COPD)
Urinary tract lesions/ enlarged prostate	6
History pyelonephritis (last 3 months)	2

Table 3: shows the themes identified from the *E. coli* BSI case reviews across all 5 Nottinghamshire CCGs 2016-17

Other Findings

- No evidence of urinary tract infection (UTI) prevention information following 1st urinary tract infection
- Failure to investigate cause of incontinence or make a specialist referral x2
- Inappropriate use of Trimethoprim x2
- Undiagnosed bladder lesions
- Non adherence to the Nottinghamshire Antimicrobial Prescribing Guidelines –in particular use of Co-amoxiclav for first line treatment UTI
- Failure to use Nitrofurantoin with EGFR 50 used Trimethoprim when there was resistance shown in earlier samples taken
- Failure to alter prophylaxis following resistance to Trimethoprim on sampling (continued for over 12 months x 1 case)
- Untreated/undetected pyelonephritis -no urinary symptoms
- Cephalexin prophylaxis for COPD x1 given without Microbiology advice (Acute Trust)

Good Practice

- Good communication by the GP with the patient and other care providers
- Appropriate sampling and treatment for UTI
- Clear evidence of diabetes checks and patient advice
- Documentation with evidence of catheter advice given and hydration messages
- Good follow up and referral by the Acute Trust

Challenges

- This work was undertaken as a pro-active piece of work. As this was not a mandatory area for review, individual patient consent was required. This leaves gaps in the themes for all those patients not reviewed due to lack of capacity, frailty and mortality
- Approaches differed between Acute Trusts with the documentation required and the support for gaining patient consent on behalf of the team
- Agreeing a process for access to the patient record with the GP practice despite written consent
- Information Governance and data sharing
- Difficulty for the CIPCT with access to system one for case reviews at selected GP practices despite patient consent, active smart card access and enabled audit checks being available
- Delay whilst GP practices contact the patient again despite consent being in place and gained by a registered professional

Future Need

The Secretary of State for Health has launched an important ambition to reduce healthcare associated Gram-negative blood stream infections by 50% by March 2021. One of the main priorities is to focus on reducing *Escherichia coli* BSIs as they account for around 55% of all Gram negative BSI.

Latest data shows that the local area has high rates of *E. coli* BSI when compared with other areas in the country and that these continue to increase. Preventing BSI not only improves health but it should also reduce the need to prescribe antimicrobials thereby supporting the work to reduce antibiotic resistance. The Quality Premium 2017-19 rewards CCGs for improvements in the quality of services they commission. This scheme includes reducing gram negative blood stream infections (BSI) across the whole health economy this must be a 10% or greater reduction in all *E. coli* BSI over 2017-18. Approximately 75% of *E. coli* BSI cases originate in the community. Collection and reporting of a core primary care data set is needed from July 2017 and is the responsibility of the CCG. Data sharing agreements will need to be agreed within primary care to ensure that this work is completed in a timely and responsive manner.

CCG	All <i>E. coli</i> BSI cases attributed to CCG Jan-Dec 2016 Baseline data set	<i>E. coli</i> BSI CCG Quality Premium target for FY 2017-18
Mansfield and Ashfield	201	181
Newark & Sherwood	135	122
Nottingham North and East	154	139
Nottingham West	91	82
Rushcliffe	107	96
Total	688	620

Summary

The reduction of *E. coli* BSI cases will be a difficult challenge to meet. The focus needs to be a whole health economy approach. In Nottinghamshire a local working party has been formed with representation from health, social care and patient participation groups. There will be an early focus on key public messages around improving hydration. The collection and analysis of the primary care data set may identify opportunities to reduce risks not currently identified and this data will be used to inform the work of the group going forward. The benefits of reducing these infections are improved patient safety and patient experience through reducing infection rates and length of hospital stay. There are financial savings to be gained from preventing admission and the need for treatment for a blood stream infection.

Sally Bird
 Head of Service
 Infection Prevention & Control Team
 Mansfield & Ashfield CCG