NHS Nottinghamshire

NHS Bath and North East Somerset Clinical Commissioning Group

To Dip or Not To Dip – a patient centred approach to improve the management of UTIs in the Care Home environment

Knowlex IPC 2017 12th July 2017 #IPC2017Leeds

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#ToDipOrNotToDip

To Dip or Not To Dip – a patient centred approach to improve the management of UTIs in the Care Home environment

- This is an evidence based systematic approach to improve the diagnosis and management of UTIs in residents in all 23 Nursing Homes in Bath and North East Somerset - Residential homes were not included

- It was delivered by the CCG care home pharmacist service working during 2015-16, aligned to the existing GP enhanced nursing home service, and funded by the CCG as a quality improvement project in 2014 - <£10K

- Why did we do this? Local clinical audit in 2013 identified residents were frequently prescribed antibiotics (19% - 48% of residents per care home) based on use of urine dip sticking - which guidelines do not support

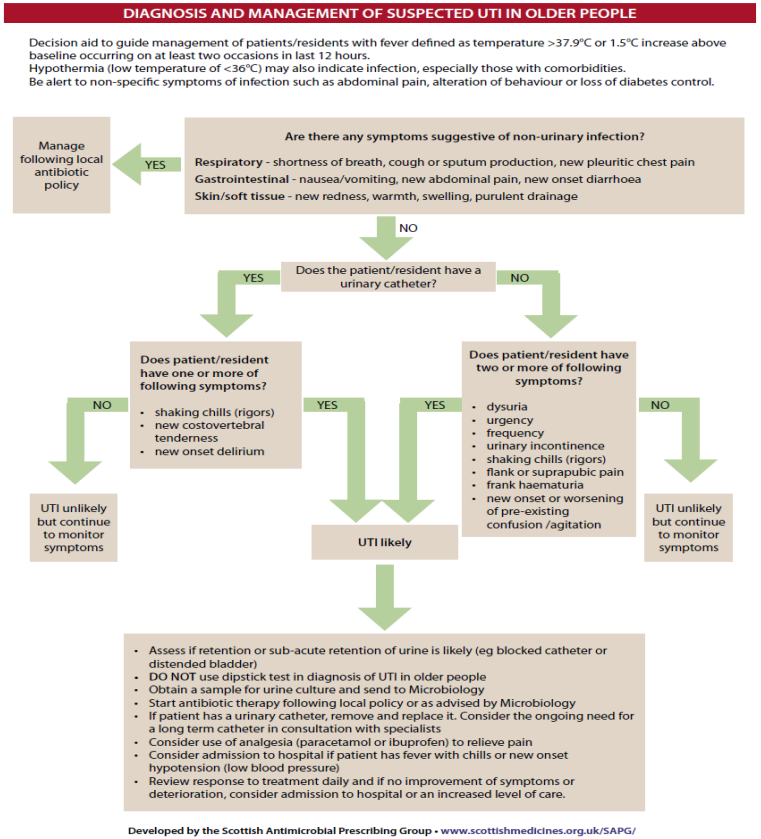
To Dip or Not To Dip – early results Jul-Dec 2015

Early evaluation showed

- **56% reduction in the proportion of residents who had an antibiotic for a UTI** 143 / 690 residents had at least one antibiotic for a UTI in 6 month period Jul-Dec 2015 after implementation
- **67% reduction in the number of antibiotic prescriptions** – 153 fewer in 8 NH with pre and post data
- **82% reduction in the number of residents prescribed antibiotic prophylaxis** 13 / 690 residents had antibiotic prophylaxis in 6 month period Jul-Dec 2015 after implementation
- **Unplanned hospital admissions for UTI, urosepsis and AKI reduced** in NH population following implementation

To Dip or Not To Dip - the what we did

- **Clever commissioning** – CCG incentivised nursing homes using a shadow CQUIN
- **The care home pharmacist team** – already existed, so extra funding was obtained to allow them to develop & deliver the intervention
- **Documentation and education** – used SIGN 88 guidance to structure documentation for UTI diagnosis, and implemented within an educational bundle in every nursing home delivered by the pharmacist
- **Communicated** with everybody – but could have done this better
- **Monitoring** – for unintended harm resulting in urosepsis
- **Evaluation** – pre and post audit occurred and a census



http://www.sign.ac.uk/guidelines/fulltext/88/index.html

Public Health England – guidance for diagnosis April 2011

https://www.gov.uk/government/publications/urinary-tract-infection-diagnosis

URINE CULTURE IN WOMEN AND MEN > 65 YEARS

- **Do not send urine for culture in asymptomatic elderly** with positive dipsticks
- Only send urine for **culture if two or more signs of infection**, especially dysuria, fever > 38 º or new incontinence.[4,5C]
- **Do not treat asymptomatic bacteriuria** in the elderly as it is very common.[1B+]
- Treating does not reduce mortality or prevent symptomatic episodes, but increases side effects & antibiotic resistance.[2,3,B+]

URINE CULTURE IN WOMEN AND MEN WITH CATHETERS

- **Do not treat asymptomatic bacteriuria** in those with indwelling catheters, as bacteriuria is very common and antibiotics increase side effects and antibiotic resistance.[1B+]
- Treatment does not reduce mortality or prevent symptomatic episodes, but increase side effects & antibiotic resistance.[2,3,B+]
- Only send urine for **culture in catheterised[7B-] if features of systemic infection**.[1,5,6C] However, always:
  - Exclude other sources of infection.[1C]
  - Check that the catheter drains correctly and is not blocked.
  - Consider need for continued catheterisation.
  - If the **catheter** has been in place for **more than 7 days, consider changing** it before/when starting antibiotic treatment.[1,6C, 8B+]
- **Do not give antibiotic prophylaxis for catheter changes** unless history of symptomatic UTIs due to catheter change. [9,10B+]

Public Heath England – treatment guidance May 2016

https://www.gov.uk/government/publications/managing-common-infections-guidance-for-primary-care

References: Nina, S et al (2014). Investigation of suspected urinary tract infection in older people. BMJ 349.
TARGET toolkit for training on UTI's from RCGP January 2017 http://www.rcgp.org.uk/~/link.aspx?_id=2FC34B3CA5B446F19CB795B37AFF5083&_z=z

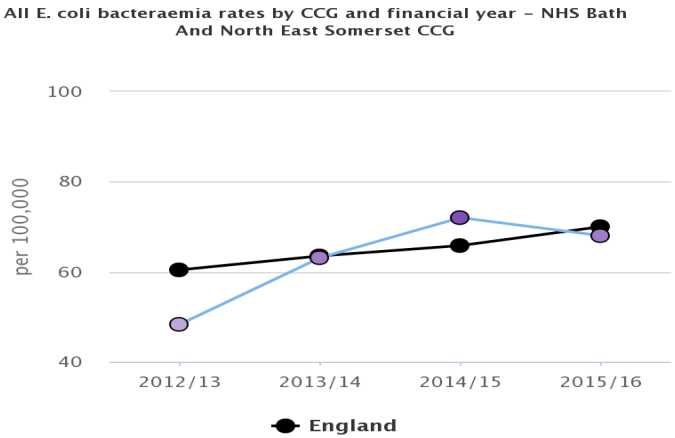
Reduction in inappropriate antibiotic prescribing for UTI in BANES Nursing Homes has been sustained over 18 months

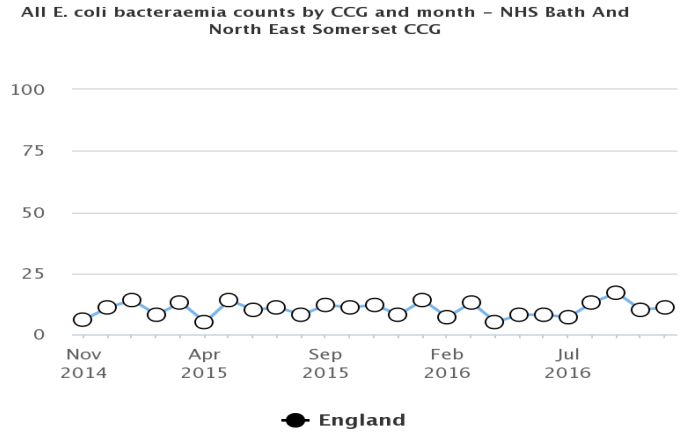
	Pre intervention in 8 nursing homes (May-Oct 2013)	Post intervention in 8 nursing homes (Jul-Dec 2015)	Difference pre and post intervention in 8 nursing homes	All 22 nursing homes (Jul-Dec 2015)	All 20 nursing homes (Jan-Jun 2016)
N of residents prescribed one or more acute course antibiotics / all residents	101/234 43% (95% CI 37% - 50%)	50/265 19% (95% CI 14% - 23%)	24% absolute reduction in the proportion of residents prescribed an antibiotic (95% CI 16% - 32%) p<0.0001	143/690 21% (95%CI 18% - 23%)	141/700 21%
N of acute course antibiotic prescriptions for UTI / all residents prescribed an acute course antibiotic for UTI	223/101	70/50	153 fewer antibiotic prescriptions (67% relative reduction)	204/143	244/141
N of residents prescribed antibiotic prophylaxis for UTI / all residents	28/234 12% (95% CI 8% - 16%)	5/265 2% (95% CI 0.3% - 3.5%)	10% absolute reduction in the proportion of residents prescribed prophylaxis (23 fewer residents) (95% CI 6% - 14%) p<0.0001	13/690 1.9% (95% CI 0.8% - 2.9%)	19/700 2.7%
Use of catheters in 700 residents in 20 Nursing Homes 6 month period Jan-Jun 2016	60 residents had a urinary catheter at some point in time during this period 28 residents had 45 CAUTI 26 residents with indwelling catheters had 1 or more acute courses of antibiotics for UTI (N=41 courses) 2 residents using ISC had 1 or more acute courses of antibiotics for UTI. (N=4 courses) 3 residents prescribed antibiotic prophylaxis for UTI due to indwelling catheter also had CAUTI				

To Dip or Not To Dip - what we do next

- **Commissioning** – the CCG will fund continuation of the model, and will adopt a similar approach for the AKI programme
- **The care home pharmacist team** – has extended to cover residential homes so we will now audit UTI management in this population
- **Documentation and education** – need to **review and improve use** of the documentation and include AKI in rolling education bundle
- **Communicated** with everybody – but could have done this better and now need to share the results locally and nationally **and share data**
- **Monitoring** – retrospective audit in all nursing homes **every 3 months** to produce a **run chart** for CCG care home quality dashboard
- **Continual Improvement** – need to continue to improve antimicrobial stewardship and documentation **lots still to do** using **PDSA cycle**

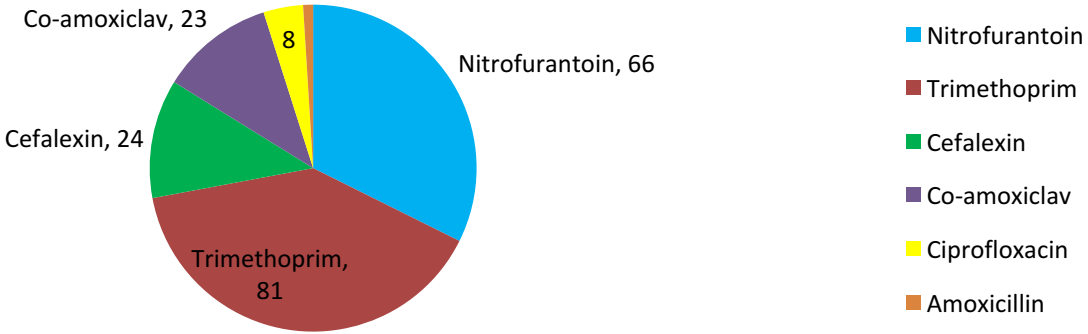
NHS BANES CCG E.coli BSI rates started to decline in FY 2015/16, bucking the national trend. This aligned with the CCG Nursing Home quality improvement programme To Dip Or Not To Dip - improving the management of UTI in care home residents. This continues to deliver a sustained reduction in inappropriate use of antibiotics, reducing the risk of resistant in this vulnerable patient group. In addition an Acute Kidney Injury reduction programme is being delivered by the CCG care home pharmacy service, as part of a CCG led primary care AKI programme





Antibiotic prescribing for UTI in all Nursing Homes over 6 month period post implementation - room for improvement

Antibiotic choice as a proportion of 204 antibiotic prescriptions for UTI in 143/690 residents in 22 nursing homes - after implementing use of Sign 88 diagnostic criteria 6 months Jul-Dec 2015



To Dip or Not To Dip – a patient centred approach to improve the management of UTIs in the Care Home environment

Key messages from Bath and North East Somerset

- Use of an evidence based algorithm to diagnosis UTI in nursing home residents does improve care and is sustained
- Delivered within an educational bundle by care home pharmacists
- 56% reduction in the number of residents prescribed antibiotics
- 82% reduction in the number of residents prescribed antibiotics prophylactically
- 67% reduction in the number of antibiotic prescriptions
- Improved appropriate management of UTI
- Reduction in unplanned admissions for UTI, urosepsis and AKI
- Reduced calls to GP practices for inappropriately diagnosed UTI
- Include hydration messages within the educational content
- Shared widely – and look what Nottingham did next!

Nottinghamshire Project Outline

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Overarching Priorities: Patient safety, Improved Quality of care for UTI, Antimicrobial Stewardship

- ❑ Assess current practice in the diagnosis and management of UTIs in Nottinghamshire care homes:
  - ➢ Baseline data on antibiotic prescriptions in pilot homes for 1 year, collated by Clinical Pharmacists
  - ➢ Unplanned admissions data for UTI, urosepsis and AKI from pilot care homes
  - ➢ Analysed by Microbiology Lead, Community Geriatrics and Project Manager, supported by Data Analyst
- ❑ Pilot a QIP designed to local needs:
  - ➢ Assessment tool for care home staff to use and communicate with GPs
  - ➢ Education on use of the tool for care home staff, reducing dehydration and UTIs
  - ➢ GP engagement for using the assessment tool and guidance
- ❑ Measure the impact, in terms of:
  - ➢ Antibiotic prescribing for acute UTI and prophylaxis
  - ➢ Unplanned admissions for UTI, urosepsis and AKI
  - ➢ Feedback from Care Homes, Matrons and GPs
- ❑ Plan for sustainability post-project period, and wider adoption to other areas

To Dip or Not to Dip Project In Nottinghamshire

NHS Nottinghamshire

Our Shared Purpose

"To improve quality in UTI diagnosis and management in Nottinghamshire Care

To Dip Or Not To Dip Project Team

Dr Annie Joseph - Microbiology Lead
Olu Ogunbuyide - Project Manager
Dr Vivienne Weston - Microbiology Project Supervisor
Sally Bird - Infection Prevention and Control Lead
Dr Adrian Blundell – Consultant Geriatrician

Care Homes Quality Managers for South and Mid Notts

Matthew Adlem

PEACH collaborative

Dr Adam Gordon

Nottingham West CCG

Clinical Pharmacists, Community Geriatricians, Community Matrons, Data Analyst, GPs and Care Homes

Pilot – started Jan 2017

2 GP Practices and 6 Care Homes

Wider Roll-Out to other care homes and practices in Nottingham West CCG

End of March 2017

Mansfield & Ashfield CCG

Clinical Pharmacists, Care Homes Nurses Team, GPs, Care Homes and Data

Pilot – started March 2017

2 GP Practices and 3 Care Homes

Wider Roll-Out to other care homes and practices in Mansfield & Ashfield CCG

July 2017

Nottingham North & East CCG

Clinical Pharmacists, Care Homes Professional Team, GPs, Care Homes and Data Analyst

Pilot – started June 2017
Locality 3

7 GP Practices and 9 Care Homes

Wider Roll-Out to Locality 1 and 2

Aim: Q2 2017

Newark and Sherwood CCG

Discussions with Head of Prescribing about capacity of Clinical Pharmacists

Rushcliffe CCG

Project to commence September 2017

To Dip Or Not To Dip?

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Aim of the project

- Improve awareness on preventing and diagnosing UTIs in care home staff
- Reduce unnecessary dipstick testing of urine samples
- Reduce unnecessary antibiotic use in residents
- Improve communication between care homes and GPs about residents with suspected UTI
- Appropriate sending of urine samples for culture and sensitivity test

How to achieve?

Education sessions and resources for care home staff

Recommend not using urine dipsticks for investigating UTI

GPs following local guidelines for treating UTIs

Using an assessment and communication tool with local GPs

Use of red top bottles which contains boric acid for preserving the urine

Practical Approach

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- ❑ Meeting with Primary Care Pharmacists to agree collection of baseline data
- ❑ Meeting with Care Home Community Healthcare Providers
- ❑ Meeting with GP Practices to inform about project and share their current baseline data
- ❑ Meeting with Care Home Managers to inform them about the project
  - ➢ Arrange training dates for care home staff
  - ➢ Deliver training to care home staff on recognising signs and symptoms of UTI, Dehydration, impact of dipstick testing and the use of Assessment Tool
- ❑ Inform GP Practice of Care Homes training has been delivered to
- ❑ Commence the 3 months pilot
- ❑ Collection of 3 months post pilot intervention data by Primary Care Pharmacist
- ❑ Send pilot report to GP practices and Care Homes
- ❑ Regular monitoring of the project through monthly data provided by Primary Care Pharmacist and quarterly project report sent to GP Practices and Care Homes

Assessment Tool

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Older People >65 years with Suspected Urinary 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.

Resident:..... **DOB:**.....

Carer:..... **Date:**.....

Care Home:.....

Any symptoms suggesting alternative diagnosis?	Tick if present
Increased breathlessness or new cough	
Diarrhoea and vomiting	
A new red warm area of skin	

Any ticks → **UTI unlikely** Seek guidance as appropriate

No ticks

Does the person have a catheter?

YES

New Problem	Tick if present
Inappropriate shivering/chills or High or low temperature >38°C or <36°C if measured document .....°C	
New lower back pain	
New or worsening confusion or agitation	

1 or more ticks

2 or more ticks

UTI Possible - Actions needed	Tick when done
For nursing residents Phone, fax or securely email form to GP Practice	
For residential residents Phone Care Home Hub on 0300 083 0100 or phone, fax or securely email form to GP Practice	
Obtain urine sample and arrange catheter change if catheterised: see reverse of form	
Outside Mon - Fri normal working hours, phone 111 as normal	

NO

New Problem	Tick if present
Pain on passing urine	
Need to pass urine urgently or new or worse incontinence	
Need to pass urine much more often than usual	
Pain between belly button and pubic hair	
Blood in urine	
Inappropriate shivering/chills or High or low temperature >38°C or <36°C if measured document .....°C	
New lower back pain	
New or worsening confusion or agitation	

No ticks

Less than 2 ticks

UTI unlikely

If concerned about resident, please seek guidance from GP or Care Homes Team

Assessment Tool

NHS Nottinghamshire

Residents with Urinary Catheters: Sampling & Changing

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.

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

For Residential Residents:

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

Fill red top urine bottle to 20ml line

Fill in resident details carefully

Residents without Urinary Catheter: Obtaining a Urine Sample

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).

Referral Pathway

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- Care Home staff complete Assessment Tool based on the signs & symptoms of the resident. Urine dipstick NOT used in assessment or diagnosis.

- In normal working hours, Care Home staff:

  - For nursing residents: fax the completed Assessment Tool to the GP practice, and call GP reception to confirm receipt of the form.

  - For residential residents: contact the Community provider to discuss with the healthcare professional, using the information on the form

- Outside of normal working hours, care homes to contact 111 as usual. Can use the completed assessment tool to help in the communication of resident's symptoms with out-of-hours providers.

- Care Home staff to obtain urine sample from resident, using a red-top boric acid specimen container to be supplied by the GP Practice and deliver to the GP surgery as soon as possible for transfer to the laboratory. Samples received in red-top bottle can be processed in Microbiology lab if received within 96 hours of specimen being obtained.

- GP Receptionist scans Assessment tool on to resident's GP record on SystemOne /EMIS with the relevant coded entry for UTI and tasks to the duty/on-call GP for clinical decision regarding need for antibiotics or face-to-face review of the resident.

  - Templates for SystmOne and EMIS are currently being developed to streamline this process.

- Original Assessment form is filed in the resident's notes at the care home.

To Dip or Not To Dip training animation

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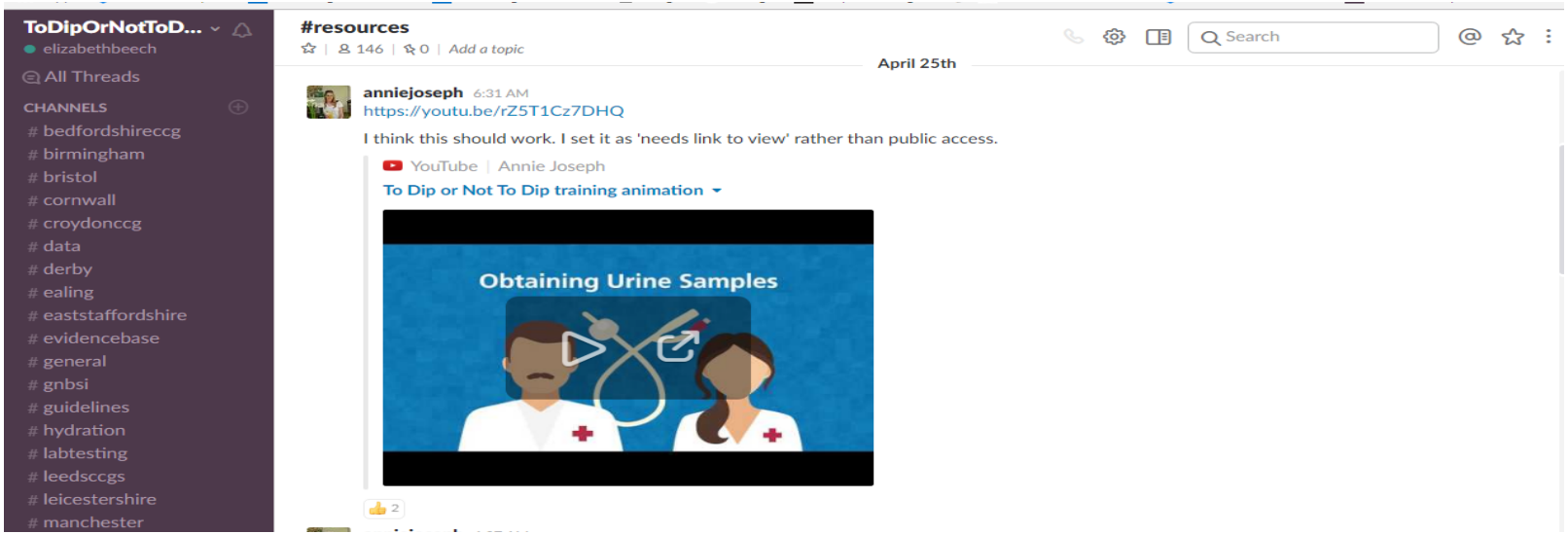

Summary of Pilot Baseline data

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Nottingham West CCG

- January – December 2016
- 6 Care Homes, 2 GP practices
- 243 antibiotic prescriptions analysed
- 100 residents included
- 58.8% of residents received at least one course of antibiotics for UTI in 12 months
- Average number of treatment courses per resident: 2.4
- Percentage of residents on UTI prophylaxis: <1%

Mansfield and Ashfield CCG

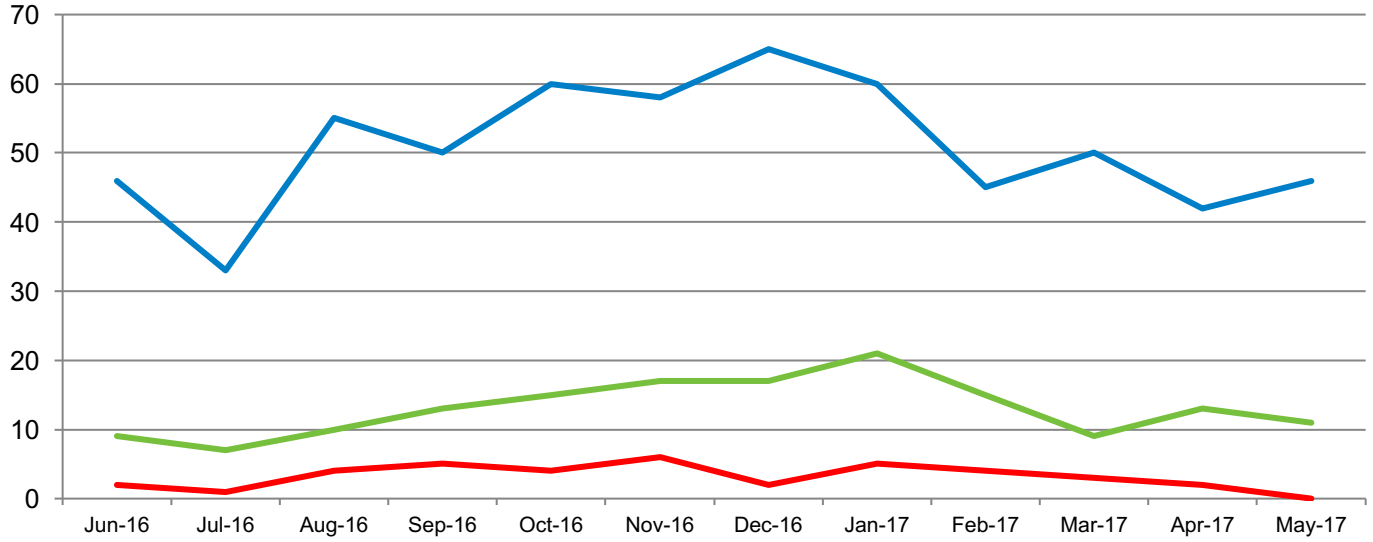
- January – December 2016
- 3 Care Homes, 2 GP practices
- 87 antibiotic prescriptions
- 37 residents included
- 74% of residents received at least one course of antibiotics for UTI in 12 months
- Average number of treatment courses per resident: 2.4
- Percentage of residents on UTI prophylaxis: 8%

Reduction in inappropriate antibiotic prescribing for UTI in Nottingham West CCG and Mansfield & Ashfield Pilot over 3 months

	Nottingham West CCG Pilot			Mansfield and Ashfield CCG Pilot		
	Pre intervention in 6 Care homes (Jan - Mar 2016)	Post intervention in 6 Care homes (Jan- Mar 2017)	Difference pre and post intervention in 6 care homes	Pre intervention in 3 Care homes (Mar- May 2016)	Post intervention in 3 Care homes (Mar- May 2017)	Difference pre and post intervention in 3 care homes
N of residents prescribed one or more acute course antibiotics / all residents	33/170 19%	25/163 15%	4% reduction in the proportion of residents prescribed an antibiotic	19/50 38%	6/80 8%	30% absolute reduction in the proportion of residents prescribed an antibiotic
N of acute course antibiotic prescriptions for UTI / all residents prescribed an acute course antibiotic for UTI	52/33 1.6 courses	36/25 1.4 courses per resident	16 fewer antibiotic prescriptions (44% relative reduction)	24/19 1.3 courses per resident	7/6 1.2 courses per resident	17 fewer antibiotic prescriptions (71% relative reduction)
N of residents prescribed antibiotic prophylaxis for UTI / all residents	0/170 0%	1/163 0.6%	New resident and prophylactic antibiotics stopped within a week.	1/50 2%	1/80 1.25%	Two different care home residents

Nottingham West CCG Emergency Admissions Data

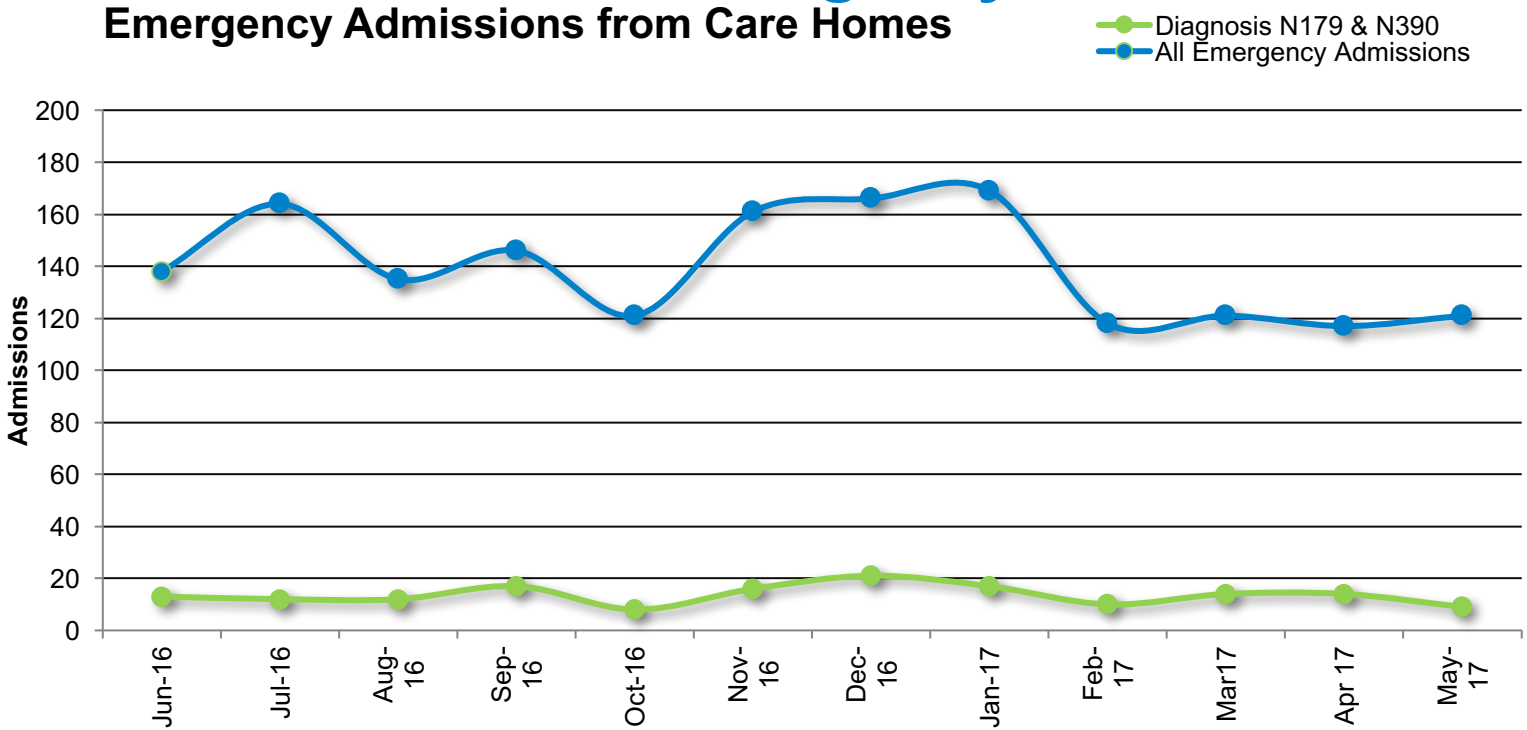
Emergency Admissions from Care Homes - June 2016 to May 2017



	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17
All Emergency Admissions	46	33	55	50	60	58	65	60	45	50	42	46
All N179 and N390	9	7	10	13	15	17	17	21	15	9	13	11
Primary N179 and N390	2	1	4	5	4	6	2	5	4	3	2	0

Mansfield & Ashfield CCG Emergency Admissions Data

Emergency Admissions from Care Homes



	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar17	Apr 17	May-17
Diagnosis N179 & N390	13	12	12	17	8	16	21	17	10	14	14	9
All Emergency Admissions	138	164	135	146	121	161	166	169	118	121	117	121

** Primary diagnosis of N179 & N390 (Urinary tract infection, not site specific & Acute renal failure, Unspecified)

Post Pilot Intervention Findings

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- Reduction in the number of antibiotics for residents with suspected UTI
- Dipstick testing significantly reduced
- Increase in the number of urine samples sent for culture
- Increase use of Assessment tool for communication between GP practices and Care Homes
- Care home staff recognise signs and symptoms of UTI and dehydration
- Reduction in the number of telephone calls from Care homes requesting antibiotics from GP practices
- GP practices are prescribing based on the local antibiotic guidelines for UTI
- Early indications of a reduction in the number of emergency admissions for UTI and dehydration

Challenges

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- Non - engagement of some Care Home Managers
- High Turnover of Care Home staff
- Capacity of Primary Care Pharmacist to collect baseline and post intervention data
- Uploading of Assessment tool on to clinical systems by GP receptionist
- Project not incentivised
- Changing practice of external healthcare providers
- Sustainability of the project

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