

NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Health and social care directorate

Quality standards and indicators

Briefing paper

Quality standard topic: Urinary tract infections in adults

Output: Prioritised quality improvement areas for development.

Date of Quality Standards Advisory Committee meeting: 04 September 2014

Contents

1	Introduction	2
2	Overview	2
3	Summary of suggestions	5
4	Suggested improvement areas	6
	Appendix 1: Suggestions from stakeholder engagement exercise	20

1 Introduction

This briefing paper presents a structured overview of potential quality improvement areas for falls. It provides the Committee with a basis for discussing and prioritising quality improvement areas for development into draft quality statements and measures for public consultation.

1.1 Structure

This briefing paper includes a brief description of the topic, a summary of each of the suggested quality improvement areas and supporting information.

If relevant, recommendations selected from the key development source below are included to help the Committee in considering potential statements and measures.

1.2 Development source

The key development source(s) referenced in this briefing paper is:

[Management of suspected bacterial urinary tract infection in adults](#). Scottish Intercollegiate Guidelines Network (2012).

2 Overview

2.1 Focus of quality standard

This quality standard covers the management of suspected community acquired bacterial urinary tract infection in adults aged 16 years and over. It includes adult women (including pregnant women) and men of all ages, patients with indwelling catheters and patients with comorbidities such as diabetes. The guideline does not address prophylaxis to prevent UTI after instrumentation or surgery, nor does it contain recommendations on the treatment of recurrent UTI.

2.2 Definition

Urinary tract infection (UTI) results from the presence and multiplication of microorganisms, within the urinary tract. A urinary tract infection can result in a number of clinical syndromes including acute and chronic pyelonephritis (kidney and renal pelvis), cystitis (bladder), urethritis (urethra), epididymitis (epididymis) and prostatitis (prostate gland). Infection may spread to surrounding tissues (e.g.

perinephric abscess) or to the bloodstream¹. A urinary tract infection is defined by a combination of clinical features and the presence of bacteria in the urine.

2.3 Incidence and prevalence

The incidence of UTI is highest in young women. Around 10–20% of women will experience a symptomatic UTI at some time. Most infections in adult men are complicated and related to abnormalities of the urinary tract, although a low incidence occurs spontaneously in otherwise healthy young men. UTI incidence increases with age for both sexes. It is estimated that 10% of males and 20% of females over the age of 65 have asymptomatic bacteriuria².

2.4 Management

For patients with symptoms of urinary tract infection and bacteriuria the main aim of treatment is relief of symptoms. Secondary outcomes are adverse effects of treatment or recurrence of symptoms. For asymptomatic patients the main outcome from treatment is prevention of future symptomatic episodes.

In people aged over 65 years asymptomatic bacteriuria is common but is not associated with increased morbidity. The diagnosis of UTI is particularly difficult in elderly patients, who are more likely to have asymptomatic bacteriuria as they get older. The prevalence of bacteriuria may be so high that urine culture ceases to be a diagnostic test. Elderly institutionalised patients frequently receive unnecessary antibiotic treatment for asymptomatic bacteriuria despite clear evidence of adverse effects with no compensating clinical benefit

Unnecessary use of tests and antibiotic treatment may be minimised by developing simple decision rules, diagnostic guidelines or other educational interventions. Prudent antibiotic prescribing is a key component of the UK's action plans for reducing antimicrobial resistance. Unnecessary antibiotic treatment of asymptomatic bacteriuria is associated with significantly increased risk of clinical adverse events including *Clostridium difficile* infection (CDI) or methicillin resistant *Staphylococcus aureus* (MRSA) infection, and the development of antibiotic-resistant UTIs. In people aged over 65 years asymptomatic bacteriuria is common but is not associated with increased morbidity. In patients with an indwelling urethral catheter, antibiotics do not generally eradicate asymptomatic bacteriuria.

¹ UK Standards for Microbiology Investigations: Investigation of Urine. Health Protection Agency (2012).

² Management of suspected bacterial urinary tract infection in adults. Scottish Intercollegiate Guidelines Network (2012).

2.5 National Outcome Frameworks

Tables 1–2 show the outcomes, overarching indicators and improvement areas from the frameworks that the quality standard could contribute to achieving.

Table 1 [NHS Outcomes Framework 2014–15](#)

Domain	Overarching indicators and improvement areas
3 Helping people to recover from episodes of ill health or following injury	<p>Overarching indicator</p> <p>3a Emergency admissions for acute conditions that should not usually require hospital admission.</p>
<p>Alignment across the health and social care system</p> <p>* Indicator shared with Public Health Outcomes Framework (PHOF)</p>	

Table 2 [Public health outcomes framework for England, 2013–2016](#)

Domain	Objectives and indicators
4 Healthcare public health and preventing premature mortality	<p>Objective</p> <p>Reduced numbers of people living with preventable ill health and people dying prematurely, while reducing the gap between communities</p> <p>Indicators</p> <p>4.13 Health-related quality of life for older people</p>

3 Summary of suggestions

3.1 Responses

In total 13 stakeholders responded to the 2-week engagement exercise 10/07/14-24/07/14.

Stakeholders were asked to suggest up to 5 areas for quality improvement. Specialist committee members were also invited to provide suggestions. The responses have been merged and summarised in table 3 for further consideration by the Committee.

Full details on the suggestions provided are given in appendix 3 for information.

Table 3 Summary of suggested quality improvement areas

Suggested area for improvement	Stakeholders
Prevention <ul style="list-style-type: none"> Reduction of incidence of indwelling urinary catheters in community (Prevention of CAUTIs) Regular review of people with comorbidities Public awareness 	SCM, Bladder and bowel foundation, CR board, Urology User Group Coalition
Accuracy of the UTI testing process	SCM X 2, Urology User Group Coalition
Antibiotics <ul style="list-style-type: none"> Appropriate use of antibiotics Effective alternatives Consideration when prescribing to the elderly and those with renal impairment Improved education around use 	SCMx2, NHS Leeds West Clinical Commissioning Group, Bladder & Bowel Foundation
UTIs in pregnant women <ul style="list-style-type: none"> Treatment during pregnancy 	Group B Strep Support
Bladder and bowel foundation Coloplast CR board Group B strep support NHS Leeds West CCG Royal College of pathologists Urology Trade Association Urology User Group Coalition UTI adults engagement responses SCM X 3 Specialist Committee Member	

4 Suggested improvement areas

4.1 Prevention

4.1.1 Summary of suggestions

Reduction of incidence of indwelling urinary catheters in community (Prevention of Catheter associated urinary tract infections - CAUTIs)

Stakeholders highlighted that reducing the incidence of IDCs will lead to a reduction in the CAUTIs rate, encouraging the development of integrated continence specialist services with joint working between all healthcare providers.

Regular review of people with comorbidities

Stakeholders suggested that patients often become susceptible to a UTI during a period of ill health. A change in health status often prompts a review by the GP, A&E and or community nurses but the presenting complaint takes precedent and UTI symptoms are overlooked or incorrectly treated.

Public awareness

Stakeholders highlighted the importance of improved public awareness of the prevention of UTIs e.g. Better hydration, diet, avoiding constipation to reduce incidence of UTI.

4.1.2 Selected recommendations from development source

Table 4 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 5 to help inform the Committee's discussion.

Table 4 Specific areas for quality improvement

Suggested quality improvement area	Suggested source guidance recommendations
Reduction of incidence of indwelling urinary catheters in the community (Prevention of CAUTIs)	Not directly covered in the identified development sources and no recommendations are presented.
Prevention	Management of bacterial UTI in patients with catheters SIGN Recommendation 6.1

Public awareness	Not directly covered in the identified development sources and no recommendations are presented.
------------------	--

Reduction of incidence of indwelling urinary catheters in the community (Prevention of CAUTIs)

This area is not directly covered in the identified development sources and no recommendations are presented relating to the suggested quality improvement area.

Regular review of people with comorbidities

SIGN 88 – Recommendation 6.1

In catheterised patients who present with fever:

- look for associated localising (loin or suprapubic tenderness) or systemic features.
- exclude other potential sources of infection.
- send off an appropriately taken urine sample for culture to determine the infecting organism and susceptibilities.
- consider antibiotic therapy taking into account the severity of the presentation and any comorbid factors.

Public awareness

This area is not directly covered in the identified development sources and no recommendations are presented relating to the suggested quality improvement area.

4.1.3 Current UK practice

Reduction of incidence of indwelling urinary catheters in the community (Prevention of CAUTIs)

The 2013 Continence Care Services report for England³ showed that Catheterisation is often a consequence of poor continence care - 25% of catheters are unnecessary: 60% of UTI relate to catheter insertion. The report also adds that CAUTI's are costly (extend length of stay by 6 days), life-threatening (13 - 30% mortality rate for CAUTI bacteraemia), and a national clinical priority. In addition nurse-led interventions can reduce catheterisation rates (by 42%) and CAUTI (by 57%) and are best delivered

³ Continence Care Services England 2013: survey report. All Party Parliamentary Group for Continence Care (2013).

CONFIDENTIAL

within an integrated continence service by daily evaluation of the need for catheterisation and prompt discontinuation when no longer necessary.

Regular review of people with comorbidities

The UK Standards for Microbiology Investigations report by the Health Protection Agency reports that people with impaired bladder innervation as a result of congenital or acquired disorders such as spina bifida and spinal cord injury are at increased risk of UTI. It is thought this may be as a result of impaired function of the bladder leading to incomplete emptying, or an increased requirement for instrumentation of the urinary tract to assist voiding.

Public awareness

No relevant published studies on current practice were highlighted for this suggested area for quality improvement.

4.2 Accuracy of the UTI testing process

4.2.1 Summary of suggestions

Reconsideration of the accuracy of the testing process for urinary tract infection

Stakeholders highlighted evidence to suggest that women experience symptoms which resolve with antibiotics even when initial testing with dipstick and culture are negative encouraging empirical treatment. Stakeholders queried if the threshold used for the current the urine dipstick test is still relevant. Stakeholders questioned if the testing criteria for the urine dipstick test should be updated to provide a more accurate baseline, this would provide an opportunity for targeted treatment and a faster symptom resolution.

4.2.2 Selected recommendations from development source

Table 5 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 5 to help inform the Committee’s discussion.

Table 5 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Reconsideration of the accuracy of the testing process for urinary tract infection	<p>Management of bacterial UTI in patients with catheters SIGN 2.4</p> <p>Management of bacterial UTI in adult women 3.2.3,</p> <p>Management of bacterial UTI in pregnant women 4.2</p> <p>Management of bacterial UTI in patients with catheters 6.2.1, 6.2.2,</p>

SIGN 88 – Management of bacterial UTI in patients with catheters Recommendation 2.4

- Do not rely on classical clinical symptoms or signs for predicting the likelihood of symptomatic UTI in catheterised patients.
- Do not use dipstick testing to diagnose UTI in catheterised patients.

CONFIDENTIAL

- Do not routinely prescribe antibiotic prophylaxis to prevent symptomatic UTI in patients with catheters.
- Do not treat catheterised patients with asymptomatic bacteriuria with an antibiotic.

SIGN 88 – Management of bacterial UTI in adult women Recommendation 3.2.3

Use dipstick tests to guide treatment decisions in otherwise healthy women under 65 years of age presenting with mild or ≤ 2 symptoms of UTI.

SIGN 88 – Management of bacterial UTI in pregnant women Recommendation 4.2

- Standard quantitative urine culture should be performed routinely at first antenatal visit.
- Confirm the presence of bacteriuria in urine with a second urine culture.
- Do not use dipstick testing to screen for bacterial UTI at the first or subsequent antenatal visits.

SIGN 88 – Management of bacterial UTI in patients with catheters Recommendation 6.2.1 and 6.2.2

Do not use laboratory microscopy to diagnose UTI in patients with catheters.

Do not use dipstick testing to diagnose UTI in patients with catheters.

4.2.3 Current UK practice

The quality of a urine sample will affect the ability to detect bacteria and confirm a diagnosis of UTI. Specimens can be divided into those with high risk of contamination (clean catch, CSU or midstream urine samples; MSU), or low risk (suprapubic aspirate; SPA or operatively obtained urine from ureter or kidney). Standard laboratory processing of urine samples is confined to a single initial specimen per patient, which detects conventional aerobic bacteria, normally at a value of $\geq 10^5$ cfu/ml. There is no bacterial count that can be taken as an absolute 'gold standard' for the diagnosis of UTI.

The criterion for the presence of significant bacteria was established from early work comparing SPA against MSU specimens in women suffering either from acute UUTI or who had asymptomatic UTI during pregnancy. A single positive MSU reliably determined the presence of a UTI at 10^5 cfu/ml in 80% of cases studied with two samples improving this to 95%.

CONFIDENTIAL

For women experiencing symptoms of urinary tract infection lower numbers of colony forming units may also reflect significant bacteria. A study comparing SPA against MSU specimens found that the best diagnostic criterion in women was $\geq 10^2$ cfu/ml (sensitivity 95%, specificity 85%)⁴.

The laboratory interpretation of a urine culture depends upon a combination of factors. These include the number of isolates cultured and their predominance, the specimen type, the clinical details, the presence or absence of pyuria and the numbers of organisms present. Conventional laboratory practice in the UK detects aerobic bacteria at a value of $\geq 10^4$ cfu/ml⁵.

⁴ Kass EH. Asymptomatic infections of the urinary tract. *Trans Assoc Am Physicians* 1956;69:56-64.

⁵ Stamm WE, Counts GW, Running KR, Fihn S, Turck M, Holmes KK. Diagnosis of coliform infection in acutely dysuric women. *N Engl J Med* 1982;307(8):463-8.

4.3 *Antibiotics*

4.3.1 **Summary of suggestions**

Appropriate use of antibiotics

Antibiotic treatment should be specific to culture from urine samples to enable a more rapid response to treatment than the traditional method of broad spectrum medication, therefore samples should be processed in a timely manner at point of contact. Evidence was also highlighted that suggests patients who are given broad spectrum antibiotics often need a repeated, extended or alternate course which increases the patient discomfort, length of time to be symptomatic and higher costs of treatment.

Effective alternatives

Stakeholders highlighted effective alternatives to antibiotics have the potential to improve public health. D-Mannose was given as a specific example of something that appears to be a valid alternative to antibiotics for the prevention of E-Coli infection in some individuals

Consideration when prescribing to the elderly and those with renal impairment

Stakeholders highlighted the importance of prescribing antibiotics at the doses outlined as appropriate for renal function and age of the patient. Evidence was also highlighted that shows some antibiotics are not effective when given to those in renal impairment including the elderly population.

Improved education around use

Stakeholders suggested that there is a lack of understanding around the use of antibiotics and why they are no longer first line treatment. It was suggested that if there were a greater understanding about the risks of anti-microbial resistance it would encourage proactive self-management.

4.3.2 **Selected recommendations from development source**

Table 6 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 6 to help inform the Committee's discussion.

Table 6 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Appropriate use of antibiotics	Management of bacterial UTI in adult women SIGN 88 Recommendation 2.1 Symptomatic bacterial, LUTI SIGN 88 Recommendation 3.4.1 Symptomatic bacterial, UUTI SIGN 88 Recommendation 3.4.2 Management of bacterial UTI in patients with catheters SIGN 88 Recommendation 6.1
Effective alternatives	Non antibiotic treatment SIGN 88 Recommendation 3.5.1 and 3.5.2
Consideration when prescribing to the elderly and those with renal impairment	Management of bacterial UTI in adult women SIGN 88 Recommendation 3.4.1 Non antibiotic treatment SIGN 88 Recommendation 3.5.1 and 3.5.2
Improved education around use	Not directly covered in the identified development sources and no recommendations are presented.

Appropriate use of antibiotics

SIGN 88 Recommendation 2.1

Use dipstick tests to guide treatment decisions in otherwise healthy women under 65 years of age presenting with mild or ≤ 2 symptoms of UTI.

SIGN 88 Recommendation 3.4.1

Take urine for culture to guide change of antibiotic for patients who do not respond to trimethoprim or nitrofurantoin

SIGN 88 Recommendation 3.4.2

Where hospital admission is not required, take a midstream urine sample for culture and begin a course of antibiotics. Admit the patient to hospital if there is no response to the antibiotic within 24 hours.

SIGN 88 Recommendation 6.1

In catheterised patients who present with fever:

CONFIDENTIAL

- look for associated localising (loin or supra-pubic tenderness) or systemic features
- exclude other potential sources of infection
- send off an appropriately taken urine sample for culture to determine the infecting organism and
- susceptibility to antibiotics
- consider antibiotic therapy taking into account the severity of the presentation and any comorbid factors.

Effective alternatives

SIGN 88 Recommendation 3.5.1

Advise women with recurrent UTI to consider using cranberry products to reduce the frequency of recurrence.

SIGN 88 Recommendation 3.5.2

Consider the use of methenamine hippurate to prevent symptomatic UTI in patients without known upper renal tract abnormalities.

Consideration when prescribing to the elderly and those with renal impairment

SIGN 88 Recommendation 3.4.1

Particular care should be taken when using nitrofurantoin in the elderly, who may be at increased risk of toxicity.

SIGN 88 Recommendation 3.5.1

Advise women with recurrent UTI to consider using cranberry products to reduce the frequency of recurrence.

SIGN 88 Recommendation 3.5.2

Consider the use of methenamine hippurate to prevent symptomatic UTI in patients without known upper renal tract abnormalities.

Improved education around use

Not directly covered in the identified development sources and no recommendations are presented.

4.3.3 Current UK practice

Appropriate use of antibiotics

Resistance to antibiotics is a problem increasingly faced by health services. Broad spectrum antibiotics (eg co-amoxiclav, quinolones and cephalosporins) should be avoided as they increase the risk of *Clostridium difficile* infection, MRSA and resistant UTIs. Guidance from the Health Protection Agency (HPA)⁶ suggests considering narrow spectrum antibiotics such as trimethoprim or nitrofurantoin as first line treatments. For second line treatment, performing urine culture in all patients whose first line treatment has failed and prescribing against the urine culture results and any patient hypersensitivity or adverse event history is recommended

Each year about one woman in 20 will go to the doctor with symptoms of cystitis. About half these women have a bacterial infection. It is important that only those women with the bacterial infection take antibiotics and that they only take the recommended course of 3 days⁷.

Numerous pieces of research carried out show infections due to multiresistant organisms including extended-spectrum beta-lactamase (ESBL) *E. coli* are increasing in the community^{8,9,10}. Susceptibility results are essential to guide treatment. Oral antibiotics such as nitrofurantoin, pivmecillinam and occasionally trimethoprim are often effective.

Effective alternatives

There is some evidence to show the effectiveness of cranberry products for the prevention of recurrent urinary tract infections.

Consideration when prescribing to the elderly and those with renal impairment

The Nitrofurantoin is contraindicated in the presence of significant renal impairment. The British National Formulary advises against its use in patients with GFR < 60¹¹.

Improved education around use

The suggested improvement area for improvements in education and awareness is based on stakeholders' knowledge and experience. Stakeholders drew attention to lack of education, although no published studies were provided.

⁶ Health Protection Agency, British Infection Association. Management of infection guidance for primary care for consultation and local adaptation. London: HPA; 2010

⁷ <http://www.antibioticresistance.org.uk/ARFAQs.nsf/categories/Cystitis?OpenDocument>

⁸ Health Protection Agency. Extended-Spectrum Beta-Lactamases (ESBLs). London: HPA; 2011

⁹ Risks of extended-spectrum beta-lactamases. *Drug Therap Bull* 2008;46(3):21-4

¹⁰ Naber KG, Schito G, Botto H, Palou J, Mazzei T. Surveillance study in Europe and Brazil on clinical aspects and antimicrobial resistance epidemiology in females with cystitis (ARESC): implications for empiric therapy. *Eur Urol* 2008;54(5):1164-78

¹¹ British National Formulary. London: BMJ Group. Royal Pharmaceutical Society; 2012

4.4 Contenance Services

4.4.1 Summary of suggestions

Timely referral to specialist services

Stakeholders highlighted timely referral and access to specialist continence services allows improved education and conservative measures to enable the patient to take control of their own health, more cost effective than repeated GP / secondary care appointments

Improved education for health workers

Stakeholders commented that improved education and awareness around continence issues will lead to better understanding of patients and promote lifestyle changes that could lead to a reduction in complications such as UTIs.

4.4.2 Selected recommendations from development source

Table 7 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 7 to help inform the Committee's discussion.

Table 7 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Timely referral to specialist services	Not directly covered in the identified development sources and no recommendations are presented.
Improved education for health workers	Not directly covered in the identified development sources and no recommendations are presented.

Timely referral to specialist services

Not directly covered in the identified development sources and no recommendations are presented.

Improved education for health workers

Not directly covered in the identified development sources and no recommendations are presented.

4.4.3 Current UK practice

Timely referral to specialist services

The Contenance Care Services for England 2013 by the All Party Parliamentary Group for Continence Care ¹² highlights the importance of proactive continence care. The report highlights:

- Annually there are 224,670 admissions for UTI (HES, 2009-2010). These hospitalisations are costly (mean length of stay 9 days), and patients tend to be older (mean age 69 years)
- UI is twice as common in women presenting to GPs with UTI, and 12 times as common in men aged 60+ with recurrent UTI. Addressing continence issues through commissioned services makes clinical and economic sense.
- Bowel care via continence services reduces UTI rate in high risk patients (UTI-related costs cut by 66% in spinal cord injured patients)
- Untreated LUTS in men may progress to urinary retention¹⁰ (27,000 hospital admissions HES, 2010)
- Constipation is treatable and preventable but has significant morbidity in youngest and oldest if untreated. Out of 39,643 emergency admissions, 11,093 were aged 0-18 years and 20,710 aged 75+ (HES, 2010).

Improved education for health workers

Not directly covered in the identified development sources and no recommendations are presented.

¹² Contenance Care Services England 2013: survey report. All Party Parliamentary Group for Continence Care (2013)

4.5 UTI in pregnancy

4.5.1 Summary of suggestions

Treatment during pregnancy

Stakeholders highlighted that Prompt treatment of Group B Streptococcus (GBS) bacteriuria in pregnancy is important to minimise the risk of preterm birth and pyelonephritis affecting maternal and fetal outcome. They also referred to evidence to suggest. GBS bacteriuria detected during pregnancy should be treated at the time AND should prompt the offer of intrapartum antibiotic prophylaxis.

4.5.2 Selected recommendations from development source

Table 7 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 7 to help inform the Committee’s discussion.

Table 7 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Treatment during pregnancy	Management of bacterial UTI in pregnant women SIGN 88 Recommendation 2.2,

Treatment during pregnancy

SIGN 88 Recommendation 2.2

Treat symptomatic UTI in pregnant women with an antibiotic.

Treat asymptomatic bacteriuria detected during pregnancy with an antibiotic.

4.5.3 Current UK practice

Treatment during pregnancy

The Health Protection Agency reports evidence from Studies in the UK showing asymptomatic bacteriuria (persistent colonisation of the urinary tract without urinary symptoms) occurs in 2–5% of pregnant women. Unless detected and treated early, there is an increased risk of preterm birth and pyelonephritis affecting maternal and fetal outcome. In about 30% of patients acute pyelonephritis occurs, especially at the

time of delivery. It has been reported that 20–40% of pregnant women with untreated bacteriuria will develop pyelonephritis¹³.

A longitudinal study by Stenqvist et al on bacteriuria in pregnancy showed that most women acquire bacteriuria in the first trimester of pregnancy and that screening between 16-20 weeks is the optimal timing for diagnosis. Another study by Gratacos et al showed the effectiveness of a screening programme based on diagnosis of asymptomatic bacteriuria with two urine cultures in the first trimester. This showed that bacteria was present in 77 of the 1652 women who were included in the study.

¹³ UK Standards for Microbiology Investigations: Investigation of Urine. Health Protection Agency (2012).

Appendix 1: Suggestions from stakeholder engagement exercise

ID	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
01	SCM Sharon Holroyd	Key area for quality improvement 1 Reduction of incidence of indwelling urinary catheters in community	Evidence suggests ISC is a better way of managing bladder drainage for many patients and significantly reduces the incidence of catheter associated infections	Reduction in incidence of CaUTI by using an alternate method of bladder drainage which is cost effective and offers the patient more control over their condition. Also will reduce admission to hospital	EAUN Guidelines 2013
01	SCM Sharon Holroyd	Key area for quality improvement 2	Timely referral to specialist continence services for people with repeated UTI symptoms can offer conservative measures and education / prevention leading to improved patient outcome and experience (audits from 2005/6/10 show significant deficits in training, diagnosis, treatment and patient communication which can be improved through use of specialist nursing teams)	Access to specialist nurse support can offer better education and conservative measures to enable the patient to take control of their own health, more cost effective than repeated GP / secondary care appointments	Continence Care Services England 2013: survey report. All Party Parliamentary Group for Continence Care (2013). National audit of continence care:
01	SCM Sharon Holroyd	Key area for quality improvement 3	Antibiotic treatment should be specific to culture from urine sample to effect a more rapid response to treatment than the traditional method of broad spectrum medication, therefore samples should be processed in a timely manner at point of contact	Patients who are given broad spectrum antibiotics often need a repeated, extended or alternate course which increases the patient discomfort, length of time to be symptomatic and higher costs of treatment. Accurate POCT facilities by use of an appropriate urine analyser will ensure a prompt and effective treatment plan for patients with symptomatic UTIs	Management of suspected bacterial urinary tract infection in adults. Scottish Intercollegiate Guidelines Network (2012). UK Standards for Microbiology Investigations: Investigation of Urine. Health Protection Agency (2012).

CONFIDENTIAL

ID	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
01	SCM Sharon Holroyd	<p>Key area for quality improvement 4</p> <p>Improved education on continence for all health workers – consider bladder and bowel essential elements of care not basic</p>	<p>The Francis Report recently highlighted lack of evidence of care relating to continence. Improving HCP knowledge and attitude to this vital area of care leads to a better patient experience</p>	<p>Better education, higher profile of continence issues will lead to better understanding by patients and HCPs and promote lifestyle changes that could lead to a reduction in complications such as UTIs</p>	<p>Continence Care Services England 2013: survey report. All Party Parliamentary Group for Continence Care (2013).</p> <p>National audit of continence care: The Francis Report</p>
01	SCM Sharon Holroyd	<p>Key area for quality improvement 5</p> <p>Question the placement of indwelling catheters on discharge from acute sector, promote earlier and more aggressively managed TWOCS</p>	<p>Reduce the incidence of IDCs will reduce the CaUTIs rate, encouraging staff and patients to question care between primary and secondary</p>	<p>Promote and develop integrated continence specialist services with joint working between all healthcare providers and involve social care to promote healthy lifestyle, the right to question elements of care</p>	<p>Continence Care Services England 2013: survey report. All Party Parliamentary Group for Continence Care (2013).</p> <p>National audit of continence care:</p>
01	SCM Sharon Holroyd	<p>Additional developmental areas of emergent practice</p> <p>Continence should be seen as essential and not basic elements of care – robust education and awareness for professionals and public</p>			
02	SCM Susannah Fraser	<p>Key area for quality improvement 1</p>			

CONFIDENTIAL

ID	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
		D-Mannose as a prophylaxis for E-Coli infection	D-Mannose would appear to be a valid alternative to antibiotics for the prevention of E-Coli infection in some individuals.	<p>Effective alternatives to antibiotics have the potential to improve public health.</p> <p>According to the Scottish Intercollegiate Guidelines Network, repeated or prolonged treatment with antibiotics is likely to contribute to the problem of antibiotic resistance.</p>	<p>There is evidence to support the use of D-Mannose in the treatment of e-coli infection.</p> <p>http://www.ncbi.nlm.nih.gov/pubmed/23633128 Please see the trial results at the following link which suggests that D-Mannose performs better as a prophylaxis than Nitrofurantoin.</p>
02	SCM Susannah Fraser	<p>Key area for quality improvement 2</p> <p>An exploration and re-consideration of the accuracy of the testing process for urinary tract infection for repeated and on-going bladder pain.</p>	<p>According to the Scottish Intercollegiate Guidelines Network an infection is formally diagnosed when conventional aerobic bacteria are found normally at a value of greater than 10,000 cfu ml</p> <p>This threshold was based on a study done in 1957 on 74 women with acute pyelonephritis and 337 asymptomatic controls.</p>	<p>There is evidence to suggest that women experience symptoms which resolve with antibiotics even when initial testing with dipstick and culture are negative encouraging empirical treatment.</p> <p>This can lead to un-diagnosis of people and overuse of non-specific antibiotics.</p> <p>If testing criteria was updated to provide a more accurate baseline, this would provide an opportunity for targeted treatment and a faster symptom resolution.</p>	<p>Professor Malone-Lee states on his website (http://www.ucl.ac.uk/slms/people/show.php?personid=85)</p> <p>“Many persons with lower urinary tract symptoms are living with chronic infections that go untreated because of contemporary guidelines. Many urine infections involve intracellular bacterial colonisation of the urothelium by mixed pathogens that are fastidious and extremely difficult to treat by conventional methods.</p>
02	SCM Susannah Fraser	<p>Key area for quality improvement 3</p> <p>Improve advice to</p>	This is important because the	The cost of treating sufferers with	

CONFIDENTIAL

ID	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
		GPs for recurrent UTI sufferers and sufferers of on-going bladder pain. Ask them to consider more in-depth testing (ie. broth culture) or re-examination of a specimen for a quantity of bugs below 10,000	current testing regime may not be picking up infection or chronic inflammation (interstitial cystitis/painful bladder syndrome) in women with on-going bladder symptoms which can leave sufferers without resolution to the problem and repeated incorrect prescription of antibiotics.	<p>a chronic condition is more onerous (some are unable to work).</p> <p>Some may be being prescribed antibiotics unnecessarily at a time when the government are trying to reduce unnecessary use of these drugs.</p>	
02	SCM Susannah Fraser	<p>Key area for quality improvement 4</p> <p>Licensing of the Uromune vaccine for urinary tract infection.</p>	The vaccine would appear to be a viable alternative to antibiotics	<p>Chief Medical Officer for England, Professor Dame Sally Davies described the threat of antimicrobial resistance (to antibiotics) as a ‘ticking time bomb’ and said the dangers it posed should be ranked along with terrorism.</p> <p>According to the Scottish Intercollegiate Guidelines network, repeated or prolonged treatment with antibiotics is likely to contribute to the problem of antibiotic resistance.</p> <p>Effective alternatives to antibiotics have the potential to improve public health.</p>	Further details of this vaccine can be found at the following link http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3536982/
03	Helen Whiteside	If an antimicrobial is required:	There is good evidence that some antibiotics are not	Antibiotics should be prescribed at the doses outlined as	“Use of nitrofurantoin for urinary tract infections is contraindicated

ID	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
		<p>Ensure choose antimicrobial and dose for those with renal impairment and the elderly</p>	<p>effective when given to those in renal impairment including the elderly population. An example is nitrofurantoin, commonly prescribed in primary care for UTIs.</p> <p>Ineffective treatment results in:</p> <ul style="list-style-type: none"> longer infection duration with clinical risks associated with this antimicrobial exposure which will influence resistance patterns <p>There is good evidence that these same patient groups can also be harmed by excessive side effects from antimicrobials (and other medicines) when the doses used are too high for their renal function resulting in high concentrations in the body than required</p> <p>Antimicrobial prescribing guidance in Summary of Product Characteristics from drug manufacturers clearly state appropriate doses. This should be clearly reflected in guidance and quality standards.</p>	<p>appropriate for renal function and age of the patient.</p> <p>Any choice or doses in the guidance and standards need to reflect this to ensure no harm comes to patients from excessive doses or ineffective choices.</p> <p>Currently drug choices and doses in national and local guidance invariably only quotes the standard adult dose which is then used by prescribers for all adult patients.</p> <p>Antimicrobial choice should be optimised to appropriate drug and dose for an individual to minimise antimicrobial resistance, maximise effectiveness and minimise side effects</p>	<p>in patients with <60 mL/min creatinine clearance. Healthcare professionals should be aware of a patient's current renal function when prescribing, especially for elderly patients" http://www.mhra.gov.uk/Safetyinformation/DrugSafetyUpdate/CON300402</p> <p>Summary of Product characteristics for Nitrofurantoin http://www.medicines.org.uk/emc/medicine/22540</p> <p>Note they use creatinine clearance. This is NOT the same as e-GFR quoted by many pathology laboratories. http://www.gloshospitals.nhs.uk/en/Trust-Staff/Antibiotic-Guidelines/Renal/Nitrofurantoin-renal/</p> <p>Side effects of antimicrobials in older people http://cid.oxfordjournals.org/content/40/7/997.full.pdf http://www.uspharmacist.com/content/d/senior_care/c/40385/</p> <p>Resistance UK resistance strategy 2013-2018 https://www.gov.uk/government/uploads/system/uploads/attach</p>

CONFIDENTIAL

ID	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
					<p>ment_data/file/244058/20130902_UK_5_year_AMR_strategy.pdf</p> <p>WHO factsheet http://www.who.int/mediacentre/factsheets/fs194/en/</p>
04	Ann Pallitt	Additional developmental areas of emergent practice Whole document	Thank you for asking us to comment on the document. I have added some references that might be useful .		<p>I have found the following documents to be useful and they may be worth referring tot for the development of the recommendations</p> <p>SWAB Guidelines Complicated Urinary Tract Infections 2013 Ned Tijdschr Geneeskd. 2013;157(36):A6608. [Unambiguous practice guidelines on urinary tract infections in primary and secondary care]. [Article in Dutch] van Asselt KM¹, Prins JM, van der Weele GM, Knottnerus BJ, van Pinxteren B, Geerlings SE. I have also found it on the internet in English</p>
05	Rajesh Ramachandran	Reduction in Catheter associated Urinary Tract Infections (CAUTIs) in Adults	<ul style="list-style-type: none"> • CAUTIs are one of the most common hospital associated infections • Considerable staff time and other costs are expended to treat and reduce the rate of CAUTIs 	<ul style="list-style-type: none"> • Recent information that we have received (FOI) and safety thermometer data show that the CAUTI rate varies dramatically by Trust. It ranged from some Trusts reporting 0 in 2012/13 to others many hundreds. 	<p><i>epic3 (2013) - National Evidence-Based Guidelines for Preventing Healthcare-Associated Infections in NHS Hospitals in England</i> at http://www.his.org.uk/files/3113/8693/4808/epic3_National_Evidence-Based_Guidelines_for_Preventi</p>

ID	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
			<ul style="list-style-type: none"> The financial burden of CAUTIs on the NHS is estimated at £99 million per annum (epic3 p.S32) The average cost of treating each CAUTI is £1,968 (epic3 p.S32) <p>This is currently difficult to assess due to the absence of a clear standard definition of what constitutes a CAUTI</p>	<ul style="list-style-type: none"> There are clear guidelines setting out how to achieve necessary improvements, including: epic3 (2013) - National Evidence-Based Guidelines for Preventing Healthcare-Associated Infections in NHS Hospitals in England: This recommends the use of a closed drainage system and maintenance of the connection between the catheter and the drainage system Diagnosis, Prevention, and Treatment of Catheter-Associated Urinary Tract Infection in Adults (2009) International Clinical Practice Guidelines from the Infectious Diseases Society of America: This recommends maintaining a closed drainage system and use of a preconnected system (a catheter attached to the tubing of a closed drainage bag). Also the use of antimicrobial (silver alloy) may be considered to reduce or delay the onset of Catheter associated bacteriuria. 	<p>ng_HCAI_in_NHSE.pdf</p> <p><i>Diagnosis, Prevention, and Treatment of Catheter-Associated Urinary Tract Infection in Adults (2009) International Clinical Practice Guidelines from the Infectious Diseases Society of America, at http://cid.oxfordjournals.org/content/50/5/625.long</i></p>
06	Debbie Gordon	A national drive to educate the public on UTI prevention.	Improved public awareness on the prevention of UTIs could reduce incidence of UTI (currently half of all women experience a UTI at	The general public often state that it is they themselves who ‘become resistant to antibiotics’, rather than the resistant organism itself. Changing this perception along	http://www.nice.org.uk/guidance/cg54/resources/guidance-urinary-tract-infection-in-children-pdf

ID	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
			some point in their life) E.g. Better hydration, diet, avoiding constipation etc	with raising awareness would help to encourage better self-management and prevention.	
06	Debbie Gordon	Further educate the public on use / abuse of antibiotics.	The public as a rule do not understand why antibiotics are no longer first line treatment and often expect to receive antibiotics if they have symptoms of a UTI. If there was a greater understanding about the risks of anti-microbial resistance it would encourage proactive self-management.	In roughly 40% of UTIs seen in primary care there is no bug, so providing that symptoms are mild, they could be managed through diet and other means than antibiotics.	G. Gopal Rao and Mehoor Patel Urinary tract infection in hospitalized elderly patients in the United Kingdom: the importance of making an accurate diagnosis in the post broad-spectrum antibiotic era J. Antimicrob. Chemother. (2009) 63 (1): 5-6 first published online November 19,
06	Debbie Gordon	Regular review of at risk patients e.g those with comorbidities that increase the likelihood of developing a UTI	Patients often become susceptible to a UTI during a period of ill health. A change in health status often prompts a review by the GP, A&E and or community nurses but the presenting complaint takes precedent and UTI symptoms are overlooked or incorrectly treated.	Missed UTI's often lead to unnecessary hospital admissions particularly when they are masked by a comorbidity. E.g CVA or Dementia This is particularly evident in patients using intermittent self-catheterisation or an indwelling catheter.	Continece Care Cervices England 2013: survey report. All Party Parliamentary Group for Continece Care (2013). NHS Outcomes Framework. 3a. Emergency admissions for acute conditions that should not usually require hospital admission. Department of Health (2014).
06	Debbie Gordon	Improved awareness on antibiotic resistance in relation to UTI specific bugs amongst healthcare professionals	Improving the education of all Health Care Professionals about the risks associated with resistant E.Coli and Klebsiella would help to disseminate the importance of avoiding antibiotic overuse.	A lack of understanding in this area amongst health care professionals leads to variable prescribing of antibiotics - in some cases multiple antibiotics are prescribed.	G. Gopal Rao and Mehoor Patel Urinary tract infection in hospitalized elderly patients in the United Kingdom: the importance of making an accurate diagnosis in the post broad-spectrum antibiotic eraJ. Antimicrob.

CONFIDENTIAL

ID	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
					Chemother. (2009) 63 (1): 5-6 first published online November 19,
06	Debbie Gordon	A National UTI pathway written in conjunction with a Microbiologist needs to be embedded into health care to ensure that the Holistic needs of the Patients are met and antimicrobial resistance is minimised.	Currently there is too much variation across the country in the way that suspected UTI is managed.	All care workers (qualified and non-qualified) need to be able to identify signs of a UTI and implement basic self-help strategies. All care workers should understand the importance of early identification, self-management and onward referral where necessary. This co-ordinated response across the country should ensure that anyone suspected of having a UTI is treated quickly and proactively wherever they live.	UK Standards for Microbiology Investigations: Investigation of Urine. Health Protection Agency (2012).
06	Debbie Gordon	Investment in research is essential	There are a number of innovative testing products / preventative measures in this field	Repeat UTI's amongst at risk patient groups need to be reduced. Prevention is the key and in many cases vigilant care and identification can prevent crisis.	The POETIC study is an example of good practice that should be more widely adopted.
07	Aishah Malik	No comments	No comments	No comments	No comments
08	Martin Beynon	Adults with chronic urinary retention should be offered intermittent self-catheterisation as the initial outlet for the management of their condition.	Evidence has suggested that adults with chronic urinary retention are subject to an increased likelihood of UTIs.	Intermittent self-catheterisation can lead to a decrease in the amount of adults with chronic urinary retention suffering from a urinary tract infection.	Existing NICE guidance (CG97) suggests that men with chronic urinary retention should be offered intermittent catheterisation, either self or carer administered. http://publications.nice.org.uk/lo

CONFIDENTIAL

ID	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
					wer-urinary-tract-symptoms-cg97/guidance
08	Martin Beynon	Awareness should be raised amongst healthcare professionals in primary and secondary care settings of intermittent self-catheterisation.	The chance of urinary tract infections amongst adults with chronic urinary retention can be reduced through intermittent self-catheterisation. To fully ensure that patients are capable of using self-catheterisation as a method of managing their condition, healthcare professions in primary and secondary care settings themselves must have the knowledge and expertise on self-catheterisation to provide sufficient advice and training to patients who require it.	Patient outcomes will be diminished if options like intermittent self-catheterisation cannot be provided by healthcare professionals. Inadequate training, education and awareness could result in patients either not learning about it as an option, or worse, by receiving advice or instruction that could result in a catheter-associated urinary tract infection, and therefore an unnecessary and costly admissions to hospital.	The European Association of Urology Nurses produced guidance which highlighted the importance of correct education for intermittent self-catheterisation. Vahr S, Cobussen-Boekhorst H, Eikenboom J, Geng V, Holroyd S, Lester M, Pearce I, Vandewinkel C. Catheterisation. Urethral intermittent in adults: dilatation, urethral intermittent in adults. Arnhem (The Netherlands): European Association of Urology Nurses (EAUN); 2013 Mar. 96 p.
08	Martin Beynon	There should be greater understanding of the link between bowel problems, particularly neurogenic bowel, and bladder health, including the number of UTIs.	There is a link between bowel health and bladder health, and taking steps to improve bowel health can reduce the number of UTIs.	Bowel health is an area which is often neglected. By acknowledging that there is a link between bowel problems and incidence of UTIs – which can be reduced with successful management –outcomes can be improved.	NHS Choices notes the link between constipation and UTIs: http://www.nhs.uk/Conditions/Urinary-tract-infection-adults/Pages/Prevention.aspx
09	Jane Plumb	Group B Streptococci detected in the urine during pregnancy should prompt treatment at the time	Group B Streptococcus (GBS) is the most common cause of severe infection in newborn babies, and of meningitis in babies in their	Some health professionals are not be aware that GBS bacteriuria detected during pregnancy should BOTH be treated at the time AND should prompt the offer of	NICE Antibiotics for Neonatal Infection Guideline – recommendations 1.3.1.1 and 1.3.1.2 http://www.nice.org.uk/guidance/

ID	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
		<p>plus the offer of intrapartum antibiotic prophylaxis as soon as possible once labour has started</p>	<p>first three months of life.</p> <p>Prompt treatment of GBS bacteriuria in pregnancy is important to minimise the risk of preterm birth and pyelonephritis affecting maternal and fetal outcome.</p> <p>Offering intrapartum antibiotic prophylaxis to women where GBS has been detected in the urine during the current pregnancy is important to reduce the risk of potentially life-threatening group B Strep infection in newborn babies.</p>	<p>intrapartum antibiotic prophylaxis.</p> <p>Not treating in either circumstance increases the risk of potentially life-threatening consequences for the mother and/or her baby.</p> <p>Ensuring GBS bacteriuria is treated in pregnancy and prompts the offer of intrapartum antibiotic prophylaxis should reduce both morbidity in pregnant women plus morbidity and mortality in newborn babies.</p>	<p>CG149/chapter/1-Guidance#intrapartum-antibiotics-2</p> <p>RCOG Greentop GBS guidelines – recommendation 5.1 http://www.rcog.org.uk/files/rcog-corp/GTG36_GBS.pdf</p> <p>PHE Investigation of Urine B41 http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1317132858791</p>
10	Ben Chiu	<p>Intermittent self-catheterisation should be the first line management for people with chronic urinary retention</p>	<p>Individuals with chronic urinary retention are predisposed to urinary tract infections.</p>	<p>By ensuring that those with chronic urinary retention have their condition effectively managed through methods like intermittent self-catheterisation, the likelihood that they will suffer from a urinary tract infection is reduced.</p>	<p>NICE Clinical Guideline 97 (Lower urinary tract symptoms) states that clinicians should “consider offering intermittent self- or carer-administered catheterisation instead of surgery in men with chronic retention who you suspect have markedly impaired bladder function”</p> <p>http://publications.nice.org.uk/lower-urinary-tract-symptoms-cg97/guidance</p> <p>The following article provides a link between chronic urinary retention and urinary tract infections:</p>

CONFIDENTIAL

ID	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
					<p>Gray, M. (2000a). Urinary retention: Management in the acute care setting part1. American Journal of Nursing, 100(7), 40-48.</p>
10	Ben Chiu	<p>Increasing awareness of intermittent self-catheterisation amongst healthcare professionals in primary and secondary care settings</p>	<p>Intermittent self-catheterisation is an effective method of treating conditions like chronic urinary retention, which can potentially lead to urinary tract infections. In order to allow patients to self-manage their condition, and to reduce the risk of UTI, patients must be fully educated on intermittent self-catheterisation.</p> <p>It is important that healthcare professionals interacting with the patient are aware of intermittent self-catheterisation and are able to provide adequate training and advice to the patient on how to self-catheterise.</p>	<p>Weak education, training and awareness of intermittent self-catheterisation amongst healthcare professionals may lead to patient harm, either by failing to provide treatment options, or by failing to provide proper advice and instruction. Types of patient harm include can unnecessary catheter-associated urinary tract infections which result in admissions to hospital.</p> <p>Proper education and training is a prerequisite for learning the right technique and for long-term compliance.</p>	<p>The following document outlines the importance of education and training for intermittent self-catheterisation:</p> <p>Vahr S, Cobussen-Boekhorst H, Eikenboom J, Geng V, Holroyd S, Lester M, Pearce I, Vandewinkel C. Catheterisation. Urethral intermittent in adults: dilatation, urethral intermittent in adults. Arnhem (The Netherlands): European Association of Urology Nurses (EAUN); 2013 Mar. 96 p.</p>
11	SCM Priya Khanna	<p>Standards in Laboratory reporting of urine culture and sensitivity</p>	<p>Accurate laboratory diagnosis plays a key role in the management of UTI and antibiotic therapy. There is no fixed bacterial count that can be taken as an absolute 'gold standard' for the diagnosis of UTI. (SIGN 88). The laboratory diagnosis of</p>	<p>Quality standard in this area will improve consistency in reporting and improve standard of diagnosis and management of UTI</p>	<p>1.UK standards for microbiology investigations: B41 Investigation of urine http://www.hpa.org.uk/webc/hpa/webfile/hpaweb_c/1317132858791 2. Diagnosis of UTI: quick reference guide for primary Care http://www.hpa.org.uk/webc/hpa</p>

CONFIDENTIAL

ID	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
			UTI depends on type of specimen, clinical symptoms, colony count. There is considerable inter-laboratory variation in interpretation and reporting of urine culture in UK.		webfile/hpaweb_c/1194947404720 3.Guidelines on urological infections: European Association of urology Appendix 16 http://www.uroweb.org/gls/pdf/18_Urological%20infections_LR.pdf 4. SIGN 88- Management of suspected bacterial urinary tract infection in adults
11	SCM Priya Khanna	Guidance on collection of urine for diagnosis of UTI	Proper collection of an uncontaminated urine sample is essential for the correct diagnosis and management of UTI. Moreover, inappropriate and unnecessary prescribing can occur if antimicrobials are given based on the result from a contaminated specimen.	Antimicrobial stewardship plays a key role in preventing emergence of antibiotic resistance. Thus, a 'quality standard for collection of urine' will reduce inaccurate reports which in turn will reduce inappropriate antimicrobial prescribing	Vickie J. Dolan, Nancy E. Cornish. Urine specimen collection Urologic Nursing. 2013;33(5):249-256. http://www.medscape.com/viewarticle/817506_1?src=emailthis
11	SCM Priya Khanna	Introduction of 'Catheter Passports' for patients with long term urinary catheters	Patients with long term urinary catheters commonly experience blockages, encrustations and catheter-associated infections. NICE clinical audit tool on catheter maintenance (CG 139) recommends patient specific care regimen for patients with a long-term indwelling urinary catheter	A new approach to tackle catheter UTIs is by introduction of 'catheter passport' which contains essential information for individualized care of the long term catheter. Patients with catheter are often in the community and access a range of services. The catheter passport will bridge the gap in communication between different professionals and services	Codd, J. (2014). Implementation of a patient-held urinary catheter passport to improve catheter management, by prompting for early removal and enhancing patient compliance. <i>Journal of Infection Prevention</i> , 15(3), 88-92
12	Margaret Ojo	No comments	No comments	No comments	No comments
13	Julia Ogiehor	Treatment according	Evidence suggests that	An increase in C. diff resulting	The following article highlights

ID	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
		to local protocols approved by the microbiologist team, with avoidance of broad-spectrum antibiotics, and consideration of patient needs.	<p>broad-spectrum antibiotic usage, notably as a means of treating urinary tract infections, can lead to increases in cases of C. diff.</p> <p>In terms of patient needs and capabilities, it must be considered that some patients, for example those with reduced kidney function or older people, may be unable to comply with certain treatments due to their condition.</p>	from broad spectrum antibiotic usage places patients in a position of harm. An increased risk of healthcare related infections runs contrary to what NICE Clinical Guideline 139 (prevention and control of healthcare-associated infections in primary and community care) seeks to achieve.	<p>the problems associated with broad-spectrum antibiotics for usage with UTIs:</p> <p>G. Gopal Rao and Mehoor Patel Urinary tract infection in hospitalized elderly patients in the United Kingdom: the importance of making an accurate diagnosis in the post broad-spectrum antibiotic eraJ. Antimicrob. Chemother. (2009) 63 (1): 5-6 first published online November 19, 2008doi:10.1093/jac/dkn458</p> <p>NICE Clinical Guideline 148 (urinary incontinence in neurological disease) states that prior to prescribing antibiotic prophylaxis for UTI, clinicians should “refer to local protocols approved by a microbiologist or discuss suitable regimens with a microbiologist”. http://www.nice.org.uk/guidance/cg148/resources/guidance-urinary-incontinence-in-neurological-disease-pdf</p>
13	Julia Ogiehor	Clinicians must record risk factors for UTI and serious underlying pathology as part of patient history and	The knowledge of the following are important when considering a diagnosis of urinary tract infection: presenting symptoms; findings on examination;	By failing to record risk factors for UTI and underlying pathology, clinicians run the risk of providing incorrect or inappropriate treatments. This may result in the problem not being addressed, as	The NICE clinical knowledge summary for Urinary tract infection (lower) – women, lists a number of factors that should be considered when diagnosing UTI. Link available here:

ID	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
		examination, in order to identify onward referral or further investigation.	<p>results of urine testing; potential risk factors.</p> <p>The recording of risk factors is particularly important when determining whether onward referral or further investigations are needed.</p>	well as patient safety being compromised.	<p>http://cks.nice.org.uk/urinary-tract-infection-lower-women#!diagnosis</p> <p>NICE Clinical Guideline 148 (urinary incontinence in neurological disease) explains that clinicians should look at patient history, specifically stating that clinicians should consider antibiotic prophylaxis for patients who have a history of symptomatic urinary tract infection or experience trauma during catheterisation.</p> <p>http://www.nice.org.uk/guidance/cg148/resources/guidance-urinary-incontinence-in-neurological-disease-pdf</p>
13	Julia Ogiehor	Education which enables those using catheters to recognise the symptoms of UTIs.	<p>By recognising the potential symptoms of UTIs early, treatment can begin as soon as possible.</p> <p>Patients who suffer from neurological conditions, or those who are frail and elderly, may need help recognising symptoms of UTIs as UTIs can be atypical for that condition.</p>	Early intervention can reduce morbidity, increase quality of life and prevent hospital admission.	<p>NICE Clinical Guideline 54 (urinary tract infection in children) states that children and young people and/or their parents or carers should receive advice on recognising the symptoms of UTI. The provision of advice should also apply to adults, particularly the elderly, disabled and vulnerable.</p> <p>http://www.nice.org.uk/guidance/cg54/resources/guidance-urinary-tract-infection-in-children-pdf</p>
13	Julia Ogiehor	Regular reviews of patient catheter usage and the	Patients have different needs and preferences, and whilst some feel comfortable using	Although all forms of urinary catheterisation run the risk of UTI, the incidence rate tends to be	The following research articles found that intermittent self-catheterisation resulted in lower

ID	Stakeholder	Key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
		<p>provision of advice and choice on alternative catheterisation methods, such as intermittent self-catheterisation.</p>	<p>certain types of catheters (or certain catheterisation methods) others do not. Users of catheters require education and advice on alternative catheters and catheterisation methods. Failure to provide advice and access to catheters (or modes of catheterisation) appropriate to a person's individual needs may result in their safety being compromised.</p>	<p>lower in people who carry out intermittent self-catheterisation.</p>	<p>incidence rates of UTIs:</p> <p>Pilloni S, Krhut J, Mair D, et al. Intermittent catheterisation in older people: a valuable alternative to an indwelling catheter? Age Ageing 2005;34:57–60.</p> <p>Shaw C, Logan K, Webber I, et al. Effect of clean intermittent self-catheterisation on quality of life: a qualitative study. J Adv Nurs 2008;61:641–50.</p>
13	Julia Ogiehor	<p>Education on the ways in which users of intermittent self-catheterisation can prevent the occurrence of UTIs.</p>	<p>A failure to provide users of catheters with an adequate understanding of methods like intermittent self-catheterisation can ultimately result in conditions such as UTIs.</p>	<p>By ensuring that users have an adequate understanding of intermittent self-catheterisation, and by ensuring the early identification of treatment, incidences of morbidity and hospital admissions can be reduced, whilst also improving the quality of life of users.</p>	<p>NICE Clinical Guideline 139 (prevention and control of healthcare-associated infections in primary and community care) highlights that people requiring catheters should be educated on use, and be assessed on the type of catheter used.</p> <p>http://www.nice.org.uk/guidance/cg139/resources/guidance-infection-pdf</p>