

# Cost savings from simple interventions to reduce unnecessary urinary investigations

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## WHY WAS A CHANGE IN PRACTICE NEEDED?

There is pressure on the NHS as a whole to reduce costs to meet the challenge of the *NHS Five Year Forward View* of delivering an estimated £22 billion of productivity improvements by 2020/2021.<sup>1</sup> One opportunity to save money is to deliver care according to best practice guidelines. We therefore decided to focus on managing patients with suspected bacterial urinary tract infections (UTIs) as there are best practice guidelines available. In 2014 our integrated Sexual Health Service in the North East of England sent 849 mid-stream urine (MSU) samples to the local laboratory costing £3956. The Scottish Intercollegiate Guidelines Network (SIGN) has produced a guideline for the management of suspected bacterial UTIs in adults (SIGN 88) which provides recommendations, based on current evidence for best practice, for diagnosing and managing adults with community acquired lower UTIs.<sup>2</sup>

A summary of the SIGN 88 guideline for the management of suspected bacterial UTIs in adults is shown in [box](#).

The signs and symptoms of a UTI, as defined by the SIGN 88 guideline, are<sup>2</sup>;

- ▶ dysuria
- ▶ urgency
- ▶ frequency
- ▶ polyuria
- ▶ suprapubic tenderness
- ▶ fever
- ▶ flank pain.

## HOW DID WE GO ABOUT IMPLEMENTING THIS CHANGE?

We were keen to assess whether improved compliance with the SIGN 88 guideline

led to a reduction in unnecessary MSU requests and therefore a cost saving for our service. We undertook three specific interventions aimed at reducing the number of unnecessary MSU requests from a Level 3 integrated sexual health service.

1. We performed a baseline audit to see how we complied with the SIGN 88 guideline and presented the audit findings to staff in March 2015. This audit looked at a random sample of patients for whom an MSU had been sent. It found that MSUs were sent routinely for these patients, irrespective of their signs and symptoms. For example, 38% of patients with a negative MSU had had no signs or symptoms of a UTI and therefore an MSU should not have been sent. MSUs were also sent unnecessarily for patients who were empirically treated with antibiotics.
2. In April 2015 we emailed staff a summary of the SIGN 88 guideline.
3. In April 2015 we also placed a laminated sheet with a summary of the SIGN 88 guideline above all urinalysis machines in the department.
4. We repeated the audit and presented the audit findings to staff as a learning opportunity in November 2016. Our repeat audit showed an improvement and MSUs had been sent unnecessarily in only 28% of patients.

Following the re-audit of our compliance with the SIGN 88 guideline in November 2016 we assessed whether the specific interventions mentioned above had resulted in a further fall in the number of MSU requests made by our department ([table 1](#)).

We also looked at the fall in the total number of MSU requests annually in 2014 (pre-interventions), 2015 and 2016 (see [table 2](#)).



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### Box Summary of Scottish Intercollegiate Guidelines Network (SIGN) guideline for management of suspected bacterial urinary tract infections in adults

- ▶ Consider empirical treatment with an antibiotic for otherwise healthy women aged less than 65 years presenting with severe or  $\geq 3$  symptoms of a urinary tract infection (UTI)
- ▶ Use dipstick tests to guide treatment decisions in otherwise healthy women under 65 years of age presenting with mild or  $\leq 2$  symptoms of a UTI
- ▶ Routine urine culture is not required to manage lower UTIs (LUTI) in women
- ▶ Take urine for culture to guide change of antibiotic for patients who do not respond to trimethoprim or nitrofurantoin
- ▶ Treat non-pregnant women of any age with symptoms or signs of an acute LUTI with a 3-day course of trimethoprim or nitrofurantoin

### WHAT ADVICE WOULD YOU GIVE TO OTHERS WHO MIGHT BE CONSIDERING A SIMILAR COURSE OF ACTION?

By following the SIGN 88 guideline for investigating lower urinary tract symptoms we reduced the number of unnecessary MSU cultures in our organisation and made a significant annual saving. These simple interventions led to improved compliance with national guidelines and also updated clinical staff on best practice. We have a number of part-time clinical staff in the service so we chose to share the SIGN 88 guideline with them by email and at an educational event. Evidence suggests that using educational materials in combination with other methods such as interactive educational meetings and clinical audit with feedback is more effective at changing practice than using educational materials alone.<sup>3</sup>

**Table 1** Mid-stream urine (MSU) requests before and after the interventions

Time period	MSU requests (n)	Percentage reduction in MSU requests (%)
January 2015 to March 2015 (pre-interventions)	164	
January 2016 to March 2016	108	34
January 2017 to March 2017	56	66

**Table 2** Total number of mid-stream urine (MSU) requests per year

Year	MSU requests (n)	Percentage reduction in MSU requests (%)
2014 (pre-interventions)	849	
2015	542	36
2016	407	52

### WHAT OUTCOME RESULTED FROM THE CHANGE IN PRACTICE?

These simple interventions, reminding staff of the SIGN 88 best practice guideline, improved staff knowledge and understanding, which led to fewer unnecessary requests for MSUs and a significant cost saving for the service. The cost of performing microscopy and culture on an MSU sample at our local NHS laboratory is £4.66. There was a 65.9% reduction in the number of MSU requests when the January–March 2015 (pre-interventions) figures were compared with the same quarter in 2017. This is a saving of £503.28 per quarter. Comparing the annual figures for 2014 (pre-interventions) and 2016, the reduction in unnecessary MSU requests of 442 (52%) led to an annual saving of £2060.

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