Research

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Optimising management of UTIs in primary care:

a qualitative study of patient and GP perspectives to inform the development of an evidence-based, shared decision-making resource

Abstract

Background
Urinary tract infections (UTIs) are one of the most common bacterial infections managed in general practice. Many women with symptoms of uncomplicated UTI may not benefit meaningfully from antibiotic treatment, but the evidence base is complex and there is no suitable shared decision-making resource to guide antibiotic treatment and symptomatic care for use in general practice consultations.

Aim
To develop an evidence-based, shared decision-making intervention leaflet to optimise management of uncomplicated UTI for women aged <65 years in the primary care setting.

Design and setting
Qualitative telephone interviews with GPs and patient focus group interviews.

Method
In-depth interviews were conducted to explore how consultation discussions around diagnosis, antibiotic use, self-care, safety netting, and prevention of UTI could be improved. Interview schedules were based on the Theoretical Domains Framework.

Results
Barriers to an effective joint consultation and appropriate prescribing included: lack of GP time, misunderstanding of depth of knowledge and miscommunication between the patient and the GP, nature of the consults (such as telephone consultations), and a history of previous antibiotic therapy.

Conclusion
Consultation time pressures combined with late symptom presentation are a challenge for even the most experienced of GPs: however, it is clear that enhanced patient–clinician shared decision making is urgently required when it comes to UTIs. This communication should incorporate the provision of self-care, safety netting, and preventive advice to help guide patients when to consult. A shared decision-making information leaflet was iteratively co-produced with patients, clinicians, and researchers at Public Health England using study data.

Keywords
drug resistance, microbial; qualitative research; urinary tract infections.

INTRODUCTION

There are few public health issues of greater importance than antimicrobial resistance (AMR).[1] In response to the O'Neill Review,[2] the UK Secretary of State for Health stated an important ambition: to reduce inappropriate antimicrobial prescribing by 50% by 2021.

Urinary tract infections (UTIs) are the most commonly seen bacterial infection in general practice.[3] Three-quarters of women will have a UTI in their lifetime, with *Escherichia coli* (*E. coli*) being the causative pathogen in 70–95% of cases.[4] In a recent study, 95% of women consulted a health professional for their most recent UTI; 74% reported being prescribed an antibiotic.[5] Another study[6] found that only 35.8% of urine samples cultured for suspected UTIs met laboratory threshold for UTI, suggesting that some symptomatic episodes may not be caused by bacterial infection in the urine.

Suboptimal diagnosis and management may contribute to treatment failure that may lead to upper UTI and in some cases a blood stream infection. Women that have taken antibiotics recently and those who experience recurrent episodes (three in the past 12 months) are more likely to present with an antibiotic-resistant infection.[7] Antibiotic-resistant urine infections in primary care are symptomatic for longer and are more expensive to treat.[8,9] By improving shared decision making,[10] self-care, and prevention this could reduce recurrent infections and improve women's health and wellbeing. Stewardship programmes and educational initiatives in the primary and secondary care settings are being increasingly implemented to improve the quality of appropriate prescribing. A recent respiratory tract infection patient-facing information leaflet has been welcome.[11] The authors were unable to identify any up-to-date, evidence-based, shared decision-making resource for use with patients consulting with symptoms of uncomplicated UTI.[12]

An understanding of the patient and GP behaviour during the consultation process, underpinned by behavioural theory, should help increase the likelihood of success of any intervention developed using the data to optimise the management of UTIs. There are many theories of behavioural change; however, the Theoretical Domains Framework (TDF) combines constructs from multiple theories into a single framework, which can be used to assess implementation and other behavioural problems, and inform intervention design.[13]

This study aimed to utilise the TDF to explore barriers to effective communication and prescribing, and develop a patient-facing UTI leaflet for women aged <65 years to help optimise the management of UTIs in the primary care setting.

METHOD

Participant selection and recruitment
Patient recruitment. Women who were aged ≥16 years, who had experienced a UTI

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How this fits in

The UK Secretary of State for Health stated an ambition to reduce inappropriate antimicrobial prescribing by 50% by 2021. Urinary tract infections (UTIs) precede about 50% of *E. coli* bacteraemia. Recent research found that only 25% of urine samples cultured for suspected UTIs met laboratory threshold for UTI, suggesting potential inappropriate prescribing. This study aimed to utilise the Theoretical Domains Framework to explore barriers to effective communication and prescribing, and develop a patient-facing UTI leaflet for women aged <65 years to help optimise the management of UTIs in the primary care setting.

in <12 months, and previously consulted a GP regarding their symptoms, were invited via the Public Health England (PHE) People's Panel (comprises 1600 members of the public who were recruited through a national random sample survey) to take part in a focus group to discuss their previous experience of a UTI and GP consultation. All responders fitting the aforementioned criteria were invited to take part in a focus group. Panel members were sent a letter of invitation with a study information leaflet, and were given 95 GBP towards their travel and costs for the day.

GP recruitment. A study recruitment item was issued in the Royal College of General Practitioners (RCGP) clinical news newsletter, seeking GPs with previous experience of consultations with women who had a UTI to take part in a 30-minute telephone interview to discuss their views of UTIs and their experience of UTI consultations. The newsletter went out to all RCGP members. GPs were offered a 20 GBP high-street voucher in acknowledgement of their contribution to the study.

Interview schedule
Facilitators used a flexible interview schedule exploring all aspects of the management of UTI based on the TDF[13] and included both closed and open-ended questions (Supplementary Table S1).

The focus group schedule aimed to evaluate women's experiences of UTI; any associated GP consultation; their attitudes towards self-caring for their urinary symptoms; their attitudes towards preventive measures; and their needs and expectations from a GP consultation.

The GP interview schedule aimed to evaluate the GP decision-making process; their views on patient expectations; their interaction with the patient during the consultation; and their provision of self-care and preventive measures information. To help identify and eliminate bias, GPs were also asked whether they had a specific interest in UTI research.

Interviews were carried out by trained researchers with no clinical knowledge of, or personal experience of, UTIs. Following the interview, participants were asked to comment on a draft version of a UTI information leaflet.

Each GP telephone interview lasted approximately 30 minutes; focus groups lasted approximately 2 hours.

All participants gave informed consent prior to interview.

Intervention development
Leaflet development was an iterative process based on findings from both the patient and GP interviews. An initial draft leaflet was developed based on research expertise in the area of UTI and leaflet development.[14] This draft was shown to participants at the first focus group and the first five GPs who were interviewed. Based on comments received from experts in the field and interview findings, the leaflet was then modified and version 2 was shown to the next focus group and the next five GPs. The process continued, version 3 to version 4, and so on, until data saturation was achieved and all interviews were complete.

Data analysis
All interviews were recorded, with permission, and transcribed verbatim by a professional company. A researcher reviewed them for accuracy. Two researchers independently read transcripts multiple times, coded the transcripts based on the TDF domains, and performed thematic analysis. To assess researcher consensus, all extracted themes and subthemes were reviewed in a meeting. Disagreements were discussed and a final theme or subtheme was chosen. The use of NVivo software (version 10) facilitated the organisation of the data. The one sheet of paper (OSOP) method was used to clarify findings within, and between, themes.[15]

RESULTS
Between June and October 2016, 29 women were interviewed across four focus groups in three areas of England: London ($n = 14$), Birmingham ($n = 8$), and Leeds ($n = 7$).

Table 1. GP and patient demographics

GPs (N = 20)

Sex	
Male	7
Female	13

Years in practice	
<1	1
1–5	6
6–10	6
≥10	7

Occupation	
Trainee GP	2
Salaried GP	12
GP/clinical lecturer	4
GP/researcher	1
Locum GP	1

Patients (N = 29)

Age, years	
20–29	3
30–39	6
40–49	8
50–59	10
≥60	2

Ethnicity	
White	17
Asian Pakistani	2
Asian other	1
Black Caribbean	3
Mixed	1
Not specified	5

UTIs in past 5 years, n	
0	1
1–2	13
3–5	5
6–10	5
≥11	1
Not specified	4

UTI = urinary tract infections.

Women varied in age, ethnicity, and the number of UTIs they experienced in the past year (Table 1). Twenty individual GP interviews took place over the phone. Over half of GPs were salaried GPs (*n* = 12) with no specific interest in research. Further GP demographics can also be seen in Table 1.

Meta-themes

Data analysis identified key domains from the TDF that influenced GP and patient behaviour associated with the management of urinary symptoms (Supplementary Table S1). In comparing the patient and GP responses based on the TDF, five meta-themes were identified (Table 2) that highlight differing views between the GP and patient regarding the consultation process and treatment of UTIs.

Patient knowledge of UTIs. GPs reported that they believed women were quite knowledgeable about UTIs, either because women talk to each other about their UTI or because they have had previous personal experience of a UTI:

'UTIs are very, generally a very quick consultation, women seem to know a lot about them.' (GP2)

This study found a large variation in patient knowledge around UTIs. Many women felt that a UTI was something that happened to them that they could not control. Many felt it to be a private matter and some expressed that this [the focus group] was the first time they had spoken openly about their UTI to other women. Interviews highlighted a lack of knowledge in the following areas.

First, UTI experience: many women discussed not knowing what was happening to them when they had their first UTI and what to do about it. They described not going to see their GP until either the pain got 'too bad' or until their second episode:

'My first time I were diagnosing myself, like, oh, it's kidney stones or it's this or my gall, it, I was blowing it out of proportion kind of thing ...' (FG [focus group] 4)

Second, prevalence: some women expressed shock at learning how prevalent UTIs were. Older women wrongly assumed that it was age related, expressing surprise at seeing younger women in attendance:

'It's obviously far, far, far more prevalent than I realised. I thought for example it was older ... I thought I was just very young to be getting these things.' (FG1)

Third, types of UTI and causes of urinary symptoms: there was a lack of knowledge about the causes of urinary symptoms and the different types of UTI, particularly the difference between cystitis (bladder infection) and other UTIs (for example, kidney infection). The women appeared to associate a UTI with intense pain and did not view cystitis as a painful enough illness to call it a UTI:

'I've had cystitis maybe twice, and that's a different, but the one I had with the UTI was a completely different situation.' (FG2)

None of the women appeared to know that urinary symptoms can be caused by inflammation or infection of the urethra post-sexual intercourse, although many associated sexual intercourse with the development of a UTI.

View of the consultation. Although many GP participants reported managing the condition by telephone, they said that they carried out a similar routine when consulting face-to-face. They report being skilled at liaising with the patient and listening to their symptoms, diagnosing a UTI and providing the appropriate treatment:

'... you just let the patient talk for a minute and see what they say ... you might not need to ask them any of the extra questions, to be honest.' (GP1)

As many of the GPs reported that they considered women were already quite knowledgeable, they saw the UTI consultation as quite a straightforward process. In contrast, women felt that they were not being heard, possibly because they were not asked many questions. Many felt that GPs viewed the consultation as routine, showing lack of empathy or understanding of the patient's needs, and hurried the consultation to catch up on time:

'If you have a doctor who is willing to forget about the time he's got for each patient and sit down and listen to you and let you explain ... But when they have this time limit, 10 minutes, they shoo you away.' (FG2)

Treatment expectations. Most GPs reported that women expected antibiotic therapy for their UTI:

'People expect antibiotics usually.' (GP18)

Some stated that their prescribing behaviour is influenced by the patient:

Table 2. Overarching meta-themes identified from GP and patient interviews

Meta-theme	GP view	Patient view	Associated TDF domains
1. Patient knowledge of UTIs	Women are very knowledgeable about their UTI	There is a large variation in patient knowledge: • first experience • prevalence • types of UTI and causes of urinary symptoms	Knowledge Skills Professional role and identity Beliefs about capabilities Beliefs about consequences Memory, attention, and decision making Environmental context and resources Social influence
2. View of the consultation	Majority are telephone consultations Listen to the patient symptoms Query red-flag symptoms Decide on appropriate treatment	Many find the consultation frustrating Do not feel like they are being listened to Feel that GP views them as a catch-up consultation	Knowledge Skills Professional role and identity Beliefs about capabilities Beliefs about consequences Memory, attention, and decision making Environmental context and resources Emotion
3. Treatment expectations	Women generally expect antibiotics	Do not want a quick fix: • wants advice • wants reassurance	Skills Professional role and identity Beliefs about consequences Intentions Goals Memory, attention, and decision making Environmental context and resources Social influence Emotion
4. Self-care, safety netting, and prevention	Mainly give safety-netting advice Other advice usually only given to more experienced patients Do not give preventive advice as there is no evidence base	It is the less experienced, not the more experienced, who want self-care advice Value prevention advice Seek information elsewhere	Knowledge Skills Professional role and identity Beliefs about capabilities Beliefs about consequences Reinforcement Goals Memory, attention, and decision making Environmental context and resources Social influence Emotion Behavioural regulation
5. Awareness of AMR	Aware that AMR is a major issue Have observed UTI treatment failure AMR needs to be addressed	Aware of the AMR issue Misunderstanding of what exactly it is Concerned antibiotics will not be prescribed in the future	Knowledge Skills Beliefs about consequences Goals Memory, attention, and decision making Social influence Emotion Behavioural regulation

AMR = antimicrobial resistance. TDF = Theoretical Domains Framework. UTI = urinary tract infection.

'Oh I think they always influence what we do ... I think it's unlikely that a GP can say they've never been influenced by a patient to prescribe antibiotics because, at the end of the day, there are certain demands on our time and that does happen, and that sometimes may be for lack of back-up, lack of resources.' (GP10)

Some also expressed concern about how late women present with a UTI and the fear of upper tract infections; as such,

GPs reported a low antibiotic prescribing threshold:

'I think certainly any systemic upset, have a low threshold for obviously treating that because you're worrying about your upper tract infections and I'm sure most people would say the same.' (GP20)

Patient's antibiotic prescribing expectations varied; while women wanted treatment for the pain, they did not
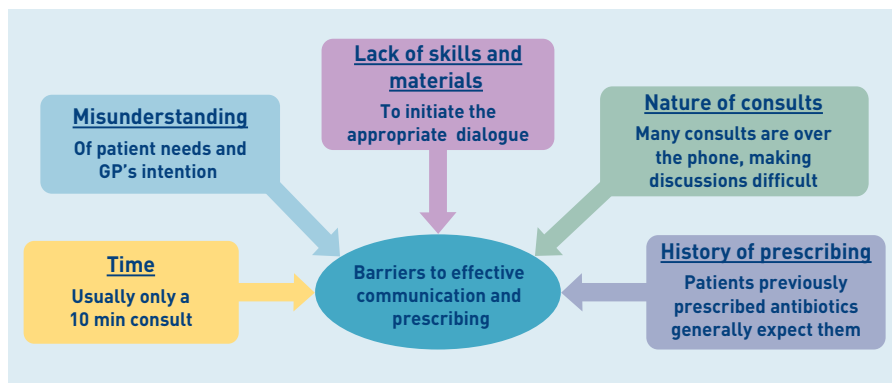
Figure 1. Barriers to effective communication of the UTI consultation and optimal prescribing.
UTI = urinary tract infection.

necessarily want a quick fix that might not be best for them:

'... as in here's a cure, off you go. Maybe how did you get it, why you've got it, what you can do to prevent it again.' (FG2)

Their needs centred on advice on symptom duration, and pain and discomfort management:

'There must be something you can put like a cream that'll make it go cold.' (FG1)

They wanted validation of their illness; and reassurance that the infection will not 'move to the kidneys':

'You don't need a prescription all the time ... You just maybe need a bit of reassurance.' (FG2)

However, those who were prescribed antibiotics said that they would take them out of fear:

'... getting the antibiotics and taking them might be better than not taking them at all because you don't know what could develop within that 48 hours.' (FG1)

There were a few women who expressed a preference for immediate antibiotic therapy. This preference was usually based on their experience of successful past treatment with antibiotics:

'When I have the antibiotics it gets rid of it.' (FG4)

'... was spiking a very high temperature and feeling like I had the flu, I would go to the GP and I would want antibiotics, to be honest with you, because if it gets to that stage it can go to your kidneys, and that's dangerous.' (FG1)

Self-care, safety netting, and prevention. GPs stated that they tailored advice to the individual patient; usually gave self-care advice to patients presenting with UTI symptoms for the first time; and provided more detailed information to those with recurring episodes:

'If she's only had one or two [episodes] or something like that ... I usually say drink lots of fluids. If it's someone who's had like more long-term ones, you might talk more about things like: is there an aching after sex or things like that ... But it depends often in the individual cases ... ' (GP3)

The majority of GPs stated that they always provided safety-netting advice, mainly because of concern about the infection deteriorating. Few GPs provided self-care or prevention advice citing a lack of supporting evidence:

'How to help prevent, I probably don't particularly mention those, because again that's because there's not the evidence there, so I don't bother to go into it.' (GP5)

In contrast to GP reasoning, it was the women who had less experience of a UTI who were keen to receive self-care and prevention advice:

'I found that when I went to the doctor's for the advice ... you weren't getting much information.' (FG3)

Women who had recurrent UTI had developed their own self-care routine.
Women with only one or two episodes of UTIs were unaware of any preventive measures they could take; however, they were eager to receive such information and were prepared to make behavioural changes as a result:

'I would like more information about what we can do for ourselves.' (FG3)

Awareness of AMR. All GPs were very aware that AMR is a huge problem:

'It's a really big problem. It's a problem across the whole board.' (GP14)

Many reported having to manage antibiotic treatment failure as a result:

Interviewer: 'Have you ever encountered treatment failure because of resistance?
GP13: Oh yeah, definitely, yeah. Have I ever seen treatment failure because of resistance? Oh yes of course ...'

Patients also reported being aware of AMR, although some women thought that it was the individual who became resistant to the antibiotics rather than the infecting organism:

'I'm aware that there's going to come a time when my body's going to reject them [the antibiotic].*'* (FG4)

Patients were concerned by information provided by the facilitators that effective antibiotics may not be available in the future, and for many this guided their opinions as to whether or not they needed and/or wanted antibiotics for their UTI:

'... I've got a feeling they're going to stop giving antibiotics.' (FG3)

Despite being aware of AMR, participants who were previously prescribed antibiotics for their urinary symptoms expressed strong views on the need for antibiotics in every case to treat their UTI:

'... now I know the first signs and I just know that I need those antibiotics ... I just need a dose of antibiotics and then it's gone.' (FG1)

One woman stated that the information that antibiotic use increases the risk of resistance may be of benefit to someone who is 'new to UTIs':

'If I was shown this and I read this stuff about antibiotics ... maybe I can live with my symptoms for another 24 hours if I have rushed off to the doctor at the first little twinge. Not necessarily in my position but somebody who was new to UTIs.' (FG1)

Intervention development
Barriers to an effective joint consultation and appropriate prescribing that emerged from the analysis included: lack of GP time; misunderstanding of depth of knowledge between GP and patient; miscommunication between the patient and the GP; nature of the consults (for example, telephone consultations); a history of previous antibiotic therapy; and the lack of a succinct, up-to-date summary of the evidence base with implications for management (Figure 1).

The UTI leaflet. The authors used interviewee suggestions, and the barriers identified from the data analysis, to co-develop a patient-facing leaflet to be used during consultations with females presenting with a suspected non-complicated UTI. The

TARGET Your Infection — Urinary Tract Infection (TYI—UTI) information leaflet for uncomplicated UTIs was designed to be shared during the consultation and taken home by the patient for future reference (Supplementary Figure S1).[16] When used in this way the leaflet aims to facilitate dialogue between the GP and patient, covering the areas of misunderstanding found in this study, including the management decisions, safety-netting advice, antibiotic resistance, prevention of a UTI, and shared decisions about management. Six main evidence-based sections each address ≥1 of the aforementioned barriers to effective consultation. All six main evidence-based sections combined provide a succinct, up-to-date summary of the evidence base with implications for management:

1. Possible urinary symptoms: addresses the knowledge, misunderstanding, and lack of skills barriers. It acts as a checklist for GPs and shows the patient that the GP is considering their symptoms.

2. Outcomes and recommended care, developed in line with national UTI prescribing guidance: addresses the misunderstanding, lack of skills, and history of prescribing barriers. It outlines the patient care plan options while providing the GP with evidence as to why they do not always need to prescribe antibiotics.

3. Types of urinary infections using a pictorial guide: addresses the knowledge barrier. Women felt that being able to visualise where and what their UTI was gave them a better understanding of their condition.

4. Self-care and safety-netting advice: addresses the misunderstanding and lack of skills and time barriers. This facilitates information sharing without using the consultation time.

5. Preventive advice: addresses the misunderstanding and lack of skills and time barriers. Women felt this information was invaluable for their future health.

6. Antibiotic resistance: addresses the misunderstanding, lack of skills and time, and history of prescribing barriers. GPs are provided with a reference as to why antibiotics are not always the best treatment option while educating the patient on the dangers of unnecessary antibiotic use.

The fully referenced leaflet provides the GP with the evidence base they felt was previously lacking (Supplementary Figure S1).[16]

DISCUSSION

Summary

This study used the TDF to develop an interview schedule to help identify patient and GP attitudes towards UTIs and the consultation process. The meta-themes highlight a difference of opinion, or misunderstandings, between the GP and the patient. Examination of the data using the TDF suggests that these misunderstandings can be explained by lack of effective communication between the patient and the GP. A draft evidence-based leaflet to enhance shared decision making in the consultation was co-developed with patients, clinicians, and researchers at PHE that aims to address identified barriers to effective communication about symptoms of uncomplicated UTI.

Strengths and limitations

A strength of this study lies in capturing the views of women who all, apart from one, had experienced a UTI and a GP consultation for a UTI in <5 years; were from a diverse age range; and varied in their frequency of UTI occurrence. These findings are particularly important because they reflect current issues experienced by women.

A further strength is that neither of the interviewers had clinical knowledge of, or personal experience of, UTIs; therefore, they could not bring unconscious bias to either the interviews or data analysis.

Although there were almost twice as many female to male GPs interviewed, all GPs had previously diagnosed a UTI; were widespread across England; varied in the number of years in practice and practice size; and were from across a range of urban and suburban practices.

Gaining insight from both the patient and GP perspective allowed comparison of participants' perceptions and identified differences between the groups.

A study limitation is that there were no interviews conducted with prescribing nurses who often consult for patients who have a suspected UTI; they may have had different opinions from the GPs.

The authors deliberately chose not to ask women about consultations with urgent care and walk-in centre clinicians, which may be viewed as a study limitation; however, this is a very different clinical setting and would require the attention of a separate study.

Although the interviews were carried out across England, no participant addresses or information were collected on where they may have lived when they had previous UTIs. As such, it is unknown if the GP consultation being discussed happened in a rural or urban practice, which may influence the findings.

Comparison with existing literature

Effective doctor–patient communication is an integral part of the consultation process that achieves an evidence-based prescribing decision while maximising patient empowerment and satisfaction with care.[10,17–20] Effective collaborative communication can have beneficial effects for both the patient and the doctor, allowing for a satisfactory and informative consultation while fostering a meaningful and trustworthy relationship.[21–23] On the other hand, lack of effective communication can leave patients feeling disempowered, frustrated with their care, and less likely to adhere to their treatment regimen.[21]

Worryingly, the study findings around the lack of symptom information shared between the doctor and patient mirrored that of research around UTI published in 1998,[24] suggesting that little has changed in the past 20 years. GPs participating in the present study reported that they often did not feel the need to further question the patient after giving them the 'golden minute' to explain their symptoms. Rink[24] also found that GPs varied in how they questioned patients about their symptoms. This current study also identified patient frustration resulting from the lack of exploration by the GP about their condition, or the internalisation of the GP thought process, resulting in the patient feeling either reluctant to question the GP's decision or discuss their concerns on a subject that some feel embarrassed about. Research in 2010 highlighted that women can struggle to discuss the symptoms of UTIs.[25] This suboptimal communication may lead to a misdiagnosis, inappropriate prescribing of antibiotics, and lack of patient education, which in turn may result in increased patient expectation for antibiotic therapy.

GPs from the present study stated that many women do not seek medical intervention until quite late, which correlates with findings from other studies focusing on patients' views. These studies highlight that women only consult when the severity of symptoms, the duration of illness, or failed self-care are sufficiently severe to prompt a visit.[25,26] GPs suggest that this lack of early consultation can result in them having a low prescribing threshold because of fear of complications.

Although GPs in the present study reported that women almost always expected antibiotic treatment, the authors, and other researchers,[25,27] found that many women interviewed were open to, and some even preferred, an alternative to antibiotic therapy. Those who had a preference for, or expectation of, antibiotic therapy usually had experienced successful antibiotic treatment.[25] Although antibiotic therapy for UTIs may be seen by many GPs as the most effective treatment, as few as 25% of women with urinary symptoms may have a UTI proven on culture, and many with symptoms of uncomplicated UTI recover without antibiotic treatment.[6,28] Antibiotic resistance is increasing; therefore, a reduction in antibiotic use is needed. Studies have found that women with UTI symptoms are willing to delay antibiotic treatment when asked by their GP.[25,29] The 2018 National Institute for Health and Care Excellence (NICE) antimicrobial prescribing guidance for UTIs (lower) suggests offering a delayed or back-up antibiotic prescription[30] for those not requiring immediate treatment. However, if women are asked to delay taking an antibiotic, the rationale behind the decision must be clearly explained and the patient's worries addressed.[25]

Implications for practice

Consultation time pressures, combined with late symptom presentation, are a challenge for even the most experienced of GPs; however, it is clear that enhanced patient–clinician shared decision making is urgently required when it comes to UTIs. Using the developed UTI patient information leaflet as an educational and reference tool, and personalising it in consultations, might enhance patient empowerment by either considering and building in preventive measures to their daily lives; better self-care when urinary symptoms present; or recognising when to visit their GP following the identification of urinary symptoms; all of which may reduce the need for unnecessary antibiotic therapy and prevent *E. coli* bacteraemia, reconsultations, or hospitalisations. Further research should involve evaluation of the leaflet[16] in the primary care setting to assess its effectiveness in improving the management of women aged <65 years presenting to a GP with urinary symptoms.

The TARGET Your Infection UTI information leaflet has been endorsed by NICE[31] and is freely available via the TARGET antibiotics website (http://www.rcgp.org.uk/TARGETantibiotics), or via supplementary data available at the present article's location on the *BJGP* website. To maximise use the leaflet should be promoted via GP computer systems, NHS information sources, and through other professional bodies.

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