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Preventing Urinary Tract Infection

Strategies for older people living in care homes

Project summary

Project Summary

‘StOP UTI’ - Strategies for Older People living in care homes to prevent Urinary Tract Infection: a realist synthesis of the evidence

Background

This project reviewed the evidence for strategies to prevent and recognise UTI. It describes the factors that have been found to support effective implementation of these strategies for older people living in care homes. The method we used is called ‘realist synthesis’. It draws on multiple types of evidence from research, improvement projects and information gathered from stakeholders, including residents and family carers, care home staff and managers, primary care clinicians, specialist practitioners and commissioners of care. This method enabled us to understand how interventions to prevent and recognise UTI can be delivered effectively by staff working in care homes.

We used the evidence we found to develop a programme theory, which explains how interventions work, for whom and what conditions are required to achieve the best outcomes for preventing and recognising UTI in older people living in care homes.

Throughout the research we involved of a wide range of clinical and consumer stakeholders to ensure the practical relevance and potential for implementation of improvement strategies.

This helped us to avoid a ‘one size fits all’ approach by considering the varying contexts in which care is delivered and the challenges presented by residents with complex health needs.

Following completion of the research we hosted two round table discussions in 2023 with participants from across the care system to deliberate our findings, identify relevant policy levers for implementation and help shape our policy brief. Participants included practitioners working in community services, general practice and other roles that support care homes, senior leaders working at local and national level and a PPIE representative.

Our findings have been organised into three theory areas, which draw together strategies found to be important in care homes for the prevention and recognition of UTI. Each of these includes a set of interventions, an explanation of how and why they work and the outcomes they produce.

The three theory areas we identified are (1) Strategies to support accurate recognition of UTI, (2) Care strategies for residents to prevent UTI and catheter-associated UTI (CAUTI) and (3) Making best practice happen (Figure 1).

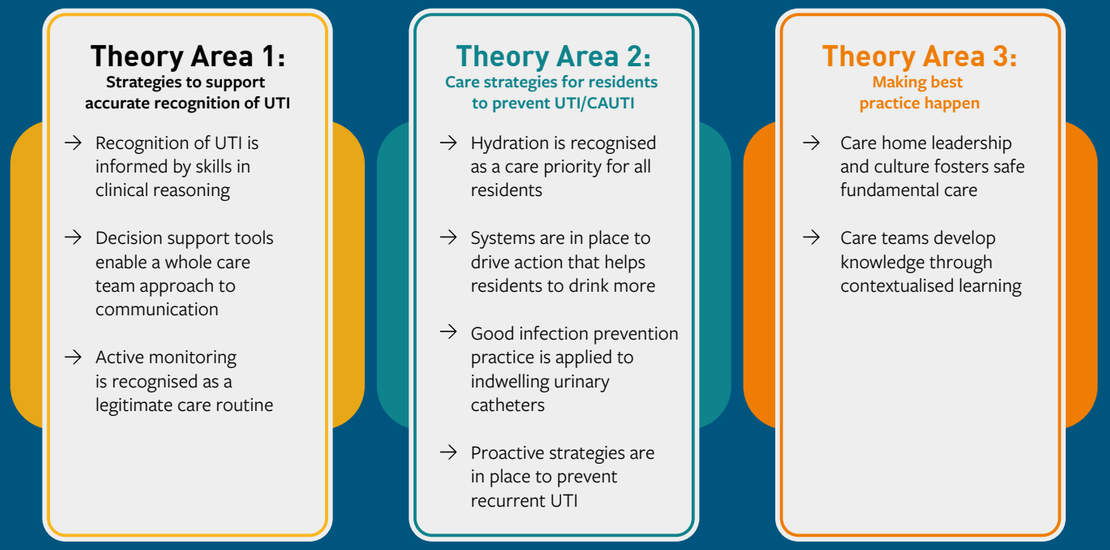

Figure 1: Summary of strategies for the prevention and accurate recognition of UTI in care home settings

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Theory Area 1

Strategies to support accurate recognition of UTI

Care home staff have an important role in identifying symptoms of suspected UTI in their residents and conveying relevant information to healthcare professionals. However, diagnostic flowcharts used by primary care prescribers to support the diagnosis of UTI contain complex medical language that is difficult for non-medically trained care home staff to apply. Moreover, older people often present with non-specific signs and symptoms, which makes it difficult to distinguish UTI from a range of other potential causes. We found evidence for three strategies that supported the accurate recognition of UTI.

1.1

Recognition of UTI is informed by skills in clinical reasoning

The contact that care home support workers have with residents means they notice changes in their behaviour that may be signs or symptoms of UTI such as lethargy, increased confusion, irritability or aggression and changes in their urine. However, the ability of care home staff to interpret these changes is influenced by their understanding and beliefs about UTI signs and symptoms. Fear of missing a UTI diagnosis is also a driver for attributing non-specific signs and symptoms to UTI, especially if the resident has a history of infection. This is reinforced through misplaced emphasis among care home staff and GPs on perceived objective measures, such as urine dipstick results, to confirm their suspicions of a UTI without assessing for other potential causes or evidence of localised symptoms. As a result, residents may receive antimicrobial treatment for UTI when it is not the actual cause of the problem.

There was evidence that improving the accuracy with which UTI is recognised requires care home staff to have better knowledge of the signs and symptoms and skill in clinical reasoning to discriminate alternative explanations.

1.2

Decision support tools enable a whole care team approach to communication

Care staff have a key role in recognising when a resident could have a UTI but may be reluctant to share their concerns because of perceived professional barriers or a lack of confidence in their interpretation or ability to communicate their concerns using the correct technical language.

Addressing communication barriers in relation to suspected infection and supporting appropriate action. This could be achieved by using decision support tools designed to enable staff to convey accurate and relevant information about a resident's signs and symptoms. Such tools are more likely to be used when they reflect the symptoms seen by care staff and use terms they understand. They can give staff more confidence in deciding when to escalate their concerns to care professionals, especially if their value is demonstrated through discussion and reflection on the observed signs. They are more likely to be successful where the whole care team see they should be actively involved in UTI recognition and where they are motivated to communicate their observations because their input is valued.

1.3

Active monitoring is recognised as a legitimate care routine

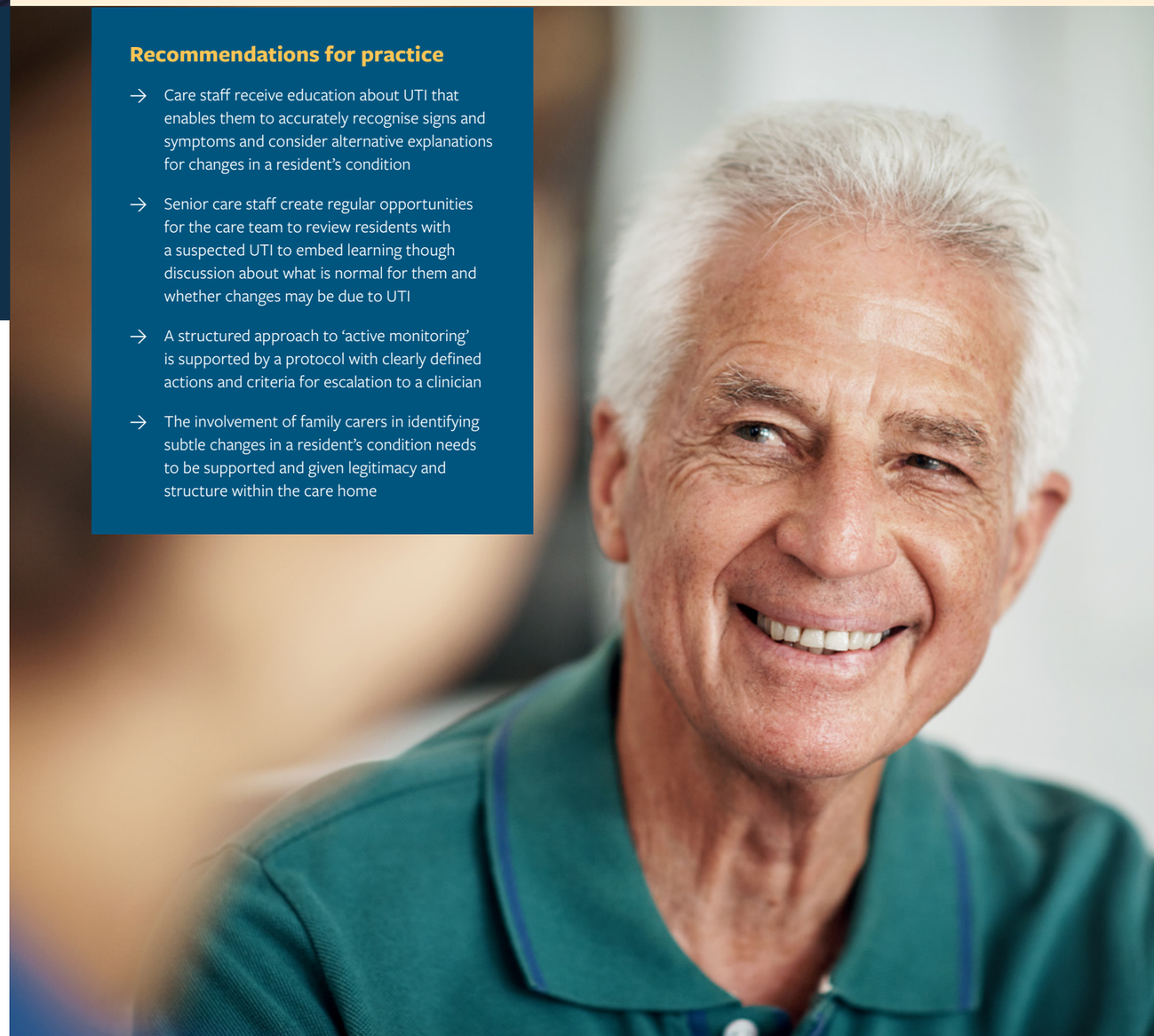
Identifying UTI in older adults can be difficult as early signs and symptoms can sometimes be similar to other infections or medical conditions. For example, symptoms linked to dehydration and changes in cognitive function can be mistaken for a UTI. Diagnosis is even harder in individuals with dementia who may be unable to effectively communicate how they are feeling. Concerns from care staff and family about a UTI being missed can result in pressure for GPs to prescribe antibiotics.

Where there is uncertainty in whether changes in the resident's condition are due to a UTI, then a period of 'active monitoring' should be put in place. This includes actions such as increasing a resident's fluid intake and regular monitoring of vital signs e.g., blood pressure, temperature, pulse rate. Protocols for active monitoring can be initiated by a clinician or care home staff in partnership with family carers. Their use is facilitated in care homes where the care team and family carers accept this approach as a proactive step in response to uncertainty about UTI diagnosis.

These protocols can allow staff the time to consider other causes of the observed changes in the resident's condition using a specific set of rules to indicate when their condition should be reported to a clinician. Family carers, who are often first to recognise changes in the condition of the resident, need to be involved in decisions by care staff to apply active monitoring, including discussion of the risks and benefits.

Recommendations for practice

- → Care staff receive education about UTI that enables them to accurately recognise signs and symptoms and consider alternative explanations for changes in a resident's condition
- → Senior care staff create regular opportunities for the care team to review residents with a suspected UTI to embed learning though discussion about what is normal for them and whether changes may be due to UTI
- → A structured approach to 'active monitoring' is supported by a protocol with clearly defined actions and criteria for escalation to a clinician
- → The involvement of family carers in identifying subtle changes in a resident's condition needs to be supported and given legitimacy and structure within the care home



Theory Area 2

Care strategies for residents to prevent UTI

We found evidence for four interventions that contributed to the prevention of UTI or catheter-associated urinary tract infection (CAUTI). Two of these were focused on ensuring that residents were well-hydrated, the third described strategies aimed at preventing UTI associated with urinary catheters and the fourth related to preventing individual residents developing repeated UTI.

2.1

Hydration is recognised as a care priority for all residents

There is evidence that the risk of UTI is decreased if fluid intake can be maintained above recommended levels (2L per day for adult women and 2.5L per day for men). Older people are more likely to become dehydrated because of reduced renal function and thirst reflex associated with age, cognitive and physical impairments and dependency on others to provide and support their fluid consumption.

Ensuring that frail older people residing in care homes consume enough fluids in the hours they are awake can be challenging as supporting residents to drink is one of many competing care priorities and its importance for preventing UTI and other health conditions is not always recognised by care home staff.

Care home managers and unit/team leaders who determine care routines and allocate staff to tasks need to recognise resident hydration as a priority and identify the required resources to support this, including staff time, a wide range of fluids that meet resident preferences and encourage them to drink and appropriately designed drinking vessels. Focused education and training can help care home staff to understand the importance of hydration in reducing the risk of UTI, appreciate age-related changes that affect residents' experiences of thirst and taste and dispel myths about hydration.

Recommendations for practice

- Care staff receive education on the importance of hydration and recognise supporting residents to drink as a c care priority to improve health and minimise the risk of UTI and other avoidable conditions
- Care routines are designed to incorporate and prioritise sufficient opportunities to support residents to drink the recommended intake every day
- Systems are in place to ensure that residents are offered a wide choice of fluids throughout the day in well-designed cups/mugs

2.2

Systems are in place to drive action that helps residents to drink more

Knowing how much fluid a resident has consumed is important because it ensures that poor fluid intakes do not go unnoticed and unaddressed by staff. Setting daily fluid intake targets for individual residents or other more general care targets, such as completion of a specified number of drinks rounds during the day can focus staff's attention on the importance of hydration and the actual amount consumed by residents. Involving residents and family carers in setting targets can also support fluid consumption in some residents.

Having systems or processes in place for both accurately monitoring intakes and driving action in response to residents with poor fluid consumption can be helpful for staff in promptly initiating interventions where indicated. There is evidence that such systems can be facilitated by approaches such as drinks diaries and where the infrastructure allows, digital solutions. Alongside such systems, the organisational support and positive reinforcement from managers is also necessary in signposting to staff the importance of hydration in the allocation of staff duties.

Recommendations for practice

- Care staff set realistic daily fluid target intakes for residents, involving residents and family carers where practical, which are monitored and reviewed regularly
- Systems are in place to accurately measure fluid intake, alert staff when a resident's intake is poor and drive action to help the resident drink more
- Care home managers provide organisational support and positive reinforcement for hydration as a care priority

2.3

Good infection prevention practice is applied to indwelling urinary catheters

Residents who have an indwelling urinary catheter (IUC) are at increased risk of developing infections because the catheter provides a route for microorganisms to gain access to the bladder, either directly from the urethral opening or when the catheter drainage system is handled. Once an IUC has been in place for a few weeks it will always have microorganisms in the drainage system and CAUTI occurs if these are able to invade the surface of the bladder. Appropriate identification and treatment of CAUTI requires careful assessment of symptoms e.g., fever, rather than relying solely on positive urine cultures and non-specific signs such as cloudy urine as these are not reliable indicators of CAUTI.

The longer the catheter is in place the greater the risk that CAUTI will occur and repeated infections are common. Therefore, the most effective intervention to prevent CAUTI is to remove the catheter if there is no good indication for its use. IUC should not be used to manage incontinence or poor mobility. If a long-term catheter is necessary (e.g., chronic urinary retention due to obstruction or nerve damage), handling the drainage system carefully to minimise the risk of microbial contamination is important.

Recommendations for practice

- → Care staff set realistic daily fluid target intakes for residents, involving residents and family carers where practical, which are monitored and reviewed regularly
- → Systems are in place to accurately measure fluid intake, alert staff when a resident's intake is poor and drive action to help the resident drink more
- → Care home managers provide organisational support and positive reinforcement for hydration as a care priority

2.4

Proactive strategies are in place to prevent recurrent UTI

Older people are at greater risk of developing UTI and if three or more UTI occur within 12 months the person is considered to have recurrent UTI. Repeated antibiotic treatment for UTI increases the risk of antibiotic-resistant invasive infections and hospital admissions. There are a range of well-evidenced pharmacological therapies available to reduce the risk of recurrent UTI, which are supported by expert clinical guidelines.

In older women, risk factors for recurrent UTI include urinary incontinence and vaginal changes due to oestrogen deficiency. In older men, risk factors include abnormalities of the structure of the urinary tract or incomplete bladder emptying. Urology and continence advisory services have a role to play in evaluating these complex underlying risk factors and recommending appropriate preventive therapy.

It is important for care home staff to have greater awareness of potential treatment options for recurrent UTI and recognise it as a health problem that impacts on the safety of residents.

Recommendations for practice

- → Care home staff and primary care practitioners have systems in place to identify residents who experience 3 or more UTI in 12 months
- → Proactive management is initiated for residents with recurrent UTI, including a personalised multidisciplinary assessment and advice from continence advisory or urology services if necessary

Theory Area 3

Making best practice happen

We identified overarching components that were fundamental to the successful implementation of strategies for both the prevention and accurate recognition of UTI. These have been brought together in theory area 3.

3.1

Care home leadership and culture fosters safe fundamental care

Care home managers have a pivotal role in the prioritisation and delivery of best practice within care homes. Making best practice happen requires leaders to involve all of the team, recognising individual talents and valuing junior staff who are often closest to the resident. When leaders actively and visibly endorse new ways of working, such as agreeing changes to routines and allocation of staffing resources, staff are empowered to be more actively involved with change efforts and have the confidence to prioritise care activity towards preventing UTI/CAUTI. Evidence suggests that stable leadership, staff time to commit to fundamental care, some autonomy over implementing change and interventions that fit with the daily work of the care home are key to engagement of staff and underpin the success of change efforts.

Having access to expertise and resources can facilitate improvement. Sustained change is more likely when there are demonstrable benefits to residents and staff. Care home leaders need to regularly review and adapt work processes to ensure changes are embedded into care routines. Priorities identified by regulators and commissioners of care are also important to influence what care home managers understand as important and how care home resources are deployed. The key recommendations for practice from the evidence are listed below.

Recommendations for practice

- → Care home managers demonstrate their active and visible endorsement for implementing changes in practice that support personalised care
- → Staff are given time, support and resources to implement change
- → Managers and leaders facilitate engagement of the whole care team in improving care and reviewing and adapting work processes to meet improvement aims
- → Commissioners and regulators of care identify UTI prevention and accurate recognition as a priority area of care for care homes and facilitate access to relevant expertise to support improvement activity

3.2

Care teams develop knowledge through contextualised learning

In the UK, most direct care of residents is delivered by care assistants with limited formal training. Qualified nursing staff in care homes are mostly in leadership roles and have responsibility for care planning, medications and other clinical tasks. Although they may have knowledge of UTI, they are less likely to have had training on strategies to support its prevention and recognition. Since residential care homes employ few registered nurses, non-professional staff have a wider responsibility for decision making about resident care.

Education and training of care home staff has challenges, including limited access to specialist expertise to design and deliver it, difficulty in creating time for staff to receive education and managing the continuous demand due to a high staff turnover. Although digital solutions can help, staff prefer to learn face-to-face and can have difficulty finding time to watch videos.

Recommendations for practice

- Education is effective when it is:
- Designed to support care staff to develop skills in reflection, creating a safety culture, leadership and empowering others
- Contextualised to the roles of care staff at different levels and is relevant to their practice
- Flexible and uses a range of delivery modes
- Informed by experts
- Practical resources at the point of care are useful to remind staff about what they have learnt from formal education.

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Full report

https://fundingawards.nihr.ac.uk/award/NIHR130396#

Project pages

https://www.southampton.ac.uk/research/groups/bladder-bowel-management/preventing-urinary-tract-infections

https://www.uwl.ac.uk/research/research-centres-and-groups/richard-wells-centre/stop-uti

Research methodology paper

https://doi.org/10.1111/jan.15707

Results paper

https://doi.org/10.1136/bmjqs-2023-016967

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