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# How To Improve the Use of Urine Dipstick Tests in Nursing Homes?

## A mixed-methods study

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### Introduction

Over the past years, evidence stating that urinalysis cannot reliably confirm **urinary tract infections (UTI)** in frail older adults accumulated, as asymptomatic bacteriuria is highly prevalent in this population. Current guidelines therefore advise **restrictive use of urine dipstick tests** in frail older adults. In **nursing home (NH)** practice, however, a positive result on a urine dipstick test is still commonly considered a confirmation of a UTI diagnosis. This results in **unnecessary antibiotic use** and - in turn - **antibiotic resistance**. The aims of this study were therefore:

- 1) To provide insight in the process of urine dipstick test use in nursing homes, and;
- 2) To investigate how this process can be improved.

### Methods

In this mixed-methods study, we **quantitatively** analyzed data of 294 UTI in NHs, from a previous study<sup>1</sup>. We assessed how often and in which situations urine dipstick tests were applied, and to what extent this was in line with the applicable UTI guideline for NH residents.

We **qualitatively** analyzed **interview data** from the abovementioned previous study, for content on urine dipstick test use. In addition, **focus group interviews** were held with 14 nursing staff members from 10 NHs, to gain insight in current work processes regarding urine dipstick test use, and in opportunities and requirements for improvement herein.

### Results

Of 113 cases where urine dipstick test use was **indicated** according to the applicable guideline, the dipstick test was used in 82 cases (75%). Of 130 cases where urine dipstick test use was **not indicated**, a dipstick test was performed in 67 cases (52%).

Interview and focus group data revealed several situations in which urine dipstick tests are **applied inappropriately**, for example in case of non UTI-related signs and symptoms, or to live up to expectations of the residents' family:

*"... it is part of taking the family members seriously... the least you can do is perform a urine dipstick test."*

Nursing staff members perceive the urine dipstick test as **"easy accessible"** and **"non-invasive for NH residents"**. They appreciate having a **"tangible"** tool that **"provides quick results"** in recognition of UTI: **"to measure is to know"**.

In order to **facilitate behavioral change** regarding dipstick test use, nursing staff members mentioned several things to be of importance. For example, it is a process that takes time and in which repetition of knowledge is important:

*"... you have to make sure you have the long-serving staff on board. Using urine dipstick tests is just very embedded in their practice. So I think you have to recall [the new insights] continuously."*

### Conclusions

To improve guideline-according urine dipstick use in NHs, efforts should be made to **enhance knowledge, skills and work processes** surrounding this topic. The text box below summarizes **recommendations** that can have a **favorable effect** on achieving this important change in everyday NH practice.

#### Improving guideline-according urine dipstick test use: recommendations for the change process

- ❖ Involve all relevant parties, including nursing staff
- ❖ Ensure clear communication to nursing staff (what needs to be changed and why?)
- ❖ Allow sufficient time for change to occur
- ❖ Ensure repetition of knowledge on a regular basis
- ❖ Be aware of nursing staff perceptions on urine dipstick use and meet their needs, for example:
  - Emphasize that their role in the process is not being *taken away*, but *changing* (nursing staff remains very important in the diagnostic process surrounding UTI!)
  - Think of tangible alternatives for urine dipstick tests, such as checklists for recognition of UTI-related signs and symptoms

#### References

1 Rutten JJS, van Buul LW, Smalbrugge M, et al. An Electronic Health Record Integrated Decision Tool and Supportive Interventions to Improve Antibiotic Prescribing for Urinary Tract Infections in Nursing Homes: A Cluster Randomized Controlled Trial. J Am Med Dir Assoc. 2022 Mar;23(3):387-393.