

**ACRONYM:** ImpresU

**Title:** Improving rational prescribing for UTI in frail elderly

**Keywords:** frail elderly, Urinary tract infections, Antibiotic stewardship, Antimicrobial resistance, residential facilities, home care, prevention.

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**Abstract:**

Frail elderly, particularly those receiving home care or living in a care home, constitute a vulnerable and under researched population. They are frequently diagnosed with urinary tract infection (UTI) and almost 60% of the antibiotics (AB) used in this population are for UTI. However, a substantial part of these prescriptions might not be necessary, because presenting signs and symptoms (S&S) are erroneously ascribed to a UTI. Diagnosing UTI is challenging in frail elderly, due to atypical illness presentation, the lack of reliable diagnostics and the high prevalence of (asymptomatic) bacteriuria. Combined with the influence of contextual factors, such as beliefs and expectations of patients and caregivers, these factors increase the risk of AB overuse. This applies especially to AB courses that are prescribed for UTI with non-specific S&S, i.e. S&S not directly related to the urinary tract (e.g. mental status change, agitation, altered consciousness, lack of appetite). Another driver of AB overuse in this population of frail elderly is recurrent UTI, which may lead to monthly courses of AB. Previous studies have shown that antimicrobial resistance is a growing problem in long term care and that the risk of transmission of resistant organisms between health care settings is increasing. Therefore, antibiotic stewardship interventions (ASI) are much needed in the continuum of home care and institutional care settings for frail elderly. For this purpose, the studies proposed here aim to reduce AB overuse for UTI in this population through implementation of a new algorithm - developed by an international Delphi panel - to support clinical decision making on signs and symptoms that justify a 'watchful waiting' approach in cases of suspected UTI in frail elderly. As a first step, we will develop a conceptual

model of factors that contribute to the prescribing decision in this population. Next, using a modified participatory action research approach, we will develop and implement a tailored ASI. Core of this intervention will be the implementation of the decision support algorithm. This will be combined with complementary interventions, selected together with the study participants (care staff, nurses, physicians) using the conceptual model and applying this to their specific setting and care practice. In addition, we will conduct a double blinded RCT on the safety and effectivity of prophylactic treatment with methenamine hippurate in older women with recurrent UTI. The results of this trial will help to further strengthen ASI in this group of patients.