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# Limit the Use of Urinary Catheters in Elderly Patients Presenting to The Emergency Department

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### Abstract

Urinary catheterization has risks, and its use should be limited. Instrumentation of the urinary tract is responsible for up to 80% of nosocomial urinary tract infections. Other side effects are common including urinary retention when attempting to remove the catheter. Urinary catheterization is not indicated to obtain a urine sample for culture in hospitalized elderly patients with a suspected urinary tract infection who cannot provide a urine specimen on demand. The risks of catheterization are clear and urinary culture results can lead to inappropriate treatment, whereas the physician’s clinical assessment rather than the culture results are most important in directing antibiotic therapy.

### Opinion

Urinary catheterization has risks, and its use should be limited. Instrumentation of the urinary tract is responsible for up to 80% of nosocomial urinary tract infections [1] and 30% of all nosocomial infections reported by acute care hospitals [2]. There are also other side effects of urethral catheterization. In the multicenter US Veterans Administration study [3] that included medical and surgical patients of all ages, non-infectious complications were 5 times more common than catheter related infections. After removal around 20% of the patients suffered from urgency or bladder spasms, had urine leaks, difficulty starting or stopping the stream or burning on urination. Furthermore, there were 7.0% with a catheter on follow-up, 14-30 days after discharge, frequently causing discomfort, blood in the urine, and trauma to the skin related to catheter securement or catheter placement. Other common side effects included restrictions in activities of daily living, and visits to the emergency department for changing catheters because of blockage [3]. Infrequent complications include urethral strictures and false passages during placement [4, 5].

In the older patient, obtaining a sample for culturing the urine often requires a urinary catheterization procedure that can lead to an increased rate of urethral catheters during hospitalization [6, 7] and after discharge [8]. In one study, 38.7% of 664 febrile elderly patients required urinary catheterization to obtain a sample for culturing [6] leading to an increased risk for an indwelling urinary catheter in the hospital and on discharge. In another study of elderly patients catheterized in order to obtain a urine specimen for culture, 59% had an extra-urinary tract presentation, the catheter was not removed in 11% that increased the risk for an indwelling catheter on follow-up by 5-fold [8]. Therefore, the infectious and noninfectious risks of a urine catheterization needs to be taken into account when considering the recommendation for urine cultures in elderly febrile patients who cannot provide a urine specimen on request [9, 10]. Today we recommend that urethral catheterization is not indicated in patients who cannot provide a urine specimen on demand (Table 1) according to a policy we introduced in 2010 [7].

Table 1: Urethral Catheterization

Restricted indications for urine catheterization
Monitoring urinary output for clinical purposes is acceptable only if multiple daily measurements are needed in the unstable patient (septic shock), (not including CHF unless unresponsive to initial treatment) and the patient is unable to urinate on command.
Catheterization for palliative care is accepted only when informed consent has been given by the patient or family.
Catheterization in patients with urinary retention is only justified if there is a documented decrease in renal function and/or patient discomfort.
Incontinence posing a risk to the patient.
Not to obtain a urine culture, unless the patient is unstable and can't provide a urine sample on demand.

This recommendation assumes that the benefits of information from the urine culture does not out weight the risks of introducing a urinary catheter. The risks are clear where the benefits might be minor. First of all, for patients who respond to antibiotics (eg becomes afebrile), and the culture reveals a resistant organism, a change in antibiotics will increase the prevalence of ESBL resistance [11] without any proven benefit. In a study that included 316 patients (33.8%) with bacterial resistance to initial antibiotic therapy, 2/3 responded anyways, and the none of the other patients died of urosepsis. An inappropriate change in antibiotic therapy occurred in 115/191 (60.2%) patients who responded despite bacterial resistance to antibiotic therapy. The potential benefits are



- (1) The ability to stop antibiotics in the patients who becomes asymptomatic and have a negative culture.
- (2) A more directed change in the antibiotic therapy in the unresponsive patient with a resistant organism.
- (3) lowering the likelihood of a urinary tract infection in a patient with a negative culture who is unresponsive, that might aid the physician in considering an alternative source rather than just changing the antibiotics.

On the other hand, because there is no gold standard definition for a UTI, the diagnosis of a UTI nearly always has a high degree of uncertainty [12]. In older people, the prevalence of asymptomatic bacteriuria is so high that it cannot be considered an abnormal finding with reported frequencies 15-50% in various settings [12]. The physician's clinical assessment rather than the culture results are most important in determining the need for antibiotic therapy. The patient with sepsis or admission to an intensive care unit requires broad spectrum antibiotics but in all other elderly patients admitted, the preferable treatment options are unclear, and besides the disutility of the introduction of the urinary catheter, the results of the culture are likely to cause more harm than good.

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