Because timely removal of the indwelling urinary catheter is crucial for reducing catheter-associated urinary tract infection (CAUTI), nurses should be empowered and supported to take the initiative to remove the catheter when it is no longer appropriate (e.g., by contacting the physician or removing the catheter per approved protocol).

1. Policy to trigger prompt removal is key
   - **Stop orders** which prompt the clinician to remove the catheter by default after a certain time period or a set of clinical conditions has occurred (such as 24 or 48 hours post-operative) unless the catheter remains clinically appropriate.
     - Stop orders "expire" in the same fashion as restraint orders or antibiotic orders, unless action is taken by physicians.
   - **Urinary catheter reminders** simply alert doctors and bedside nurses to the fact that a Foley is being used by a patient and provide a list of the appropriate reasons to continue or discontinue the indwelling catheter.
     - Reminders are generally dispatched as a hospital unit eases into an infection prevention initiative.
     - The reminder is included in the patient's chart or is part of the patient's electronic record.
   - The use of **daily appropriateness tracking** can be helpful for decreasing unnecessary indwelling urinary catheters. Bedside nurses make a daily entry indicating whether any given Foley meets one or more of the appropriate indications for catheter use. If an in-place catheter fails that test, the nurse is to alert the appropriate physician caring for the patient and recommend the catheter's removal.
   - Some hospitals have had great success with a **nurse-initiated removal protocol** whereby a bedside nurse can initiate the removal of the indwelling urinary catheter without an attending physician order; however, this usually needs to be approved by a Medical Executive Committee first, and should be presented by a physician.

2. Resistance to early Foley removal, a common barrier
   - Educate staff members
     - Urinary catheters are often placed unnecessarily, remain in place without physician awareness, and are not removed promptly when no longer needed. Prolonged catheterization is the strongest risk factor for CAUTI.
     - For more information on infectious complications, click **Resources**, then **Overview > Infectious Complications**
     - For examples of power point presentations, click **Resources**, then **Educational Tools > Presentations**
   - Enlist champions and supporters
     - When physicians, especially urologists and surgeons are resistant, have the physician champion present information about the indications and non-indications for the indwelling urinary catheter at a medical staff meeting.
     - Engage a surgeon and/or urologist as a physician champion and work with them to establish conditions under which the catheter can be removed.

- Work with physician assistants or nurse practitioners to discontinue Foleys within 1 or 2 days after surgery

- Identify and promote other benefits to catheter removal
  - Earlier mobility
  - Decreased non-infectious complications (urine leakage, gross hematuria and urethral strictures)
  - Earlier discharge potential

3. Challenges and pearls to keep in mind when implementing catheter removal strategies
   - Capitalize on "nurse-to-nurse" communication at times of care transition (between shift and between units) as opportunities to reassess catheter need. Having a nurse champion on every shift may facilitate reassessment, especially if shift schedules make it difficult to share information.
   - Simple reminders are often ignored. It can be challenging to sustain the impact of reminders.
   - Reminder system chosen should be tailored to the care setting (stickers, electronic, etc.). Both low-tech and high-tech strategies have been effective.
   - If using electronic reminders/stop orders, make sure the reminder/stop order is directed at the primary team and not the consultants.
   - Using electronic catheter orders can increase catheter use inadvertently by making indwelling catheters easier to order than alternatives.
   - Physicians and/or nurses should document the rationale for leaving the catheter in if appropriate indications are not met. Documentation makes the rationale explicit and communicates it to the rest of the healthcare team.
   - Nurses may not be comfortable initially with the responsibility of removing urinary catheters without a physician order. Supportive nursing and physician leadership can help overcome nurses' reluctance to act.
   - Incontinence is a very tempting reason for placing a urinary catheter. Encourage bedside staff to avoid placing catheters for incontinence by providing other readily available strategies to manage incontinent patients, including bedside commodes, incontinence garments, condom catheters for male patients, and "people power" to provide prompted toileting and bed linen changes.

4. Further reading suggestions
   - Fakih MG, Rey JE, Pena ME, Szpunar S, Saravolatz LD. Sustained reductions in urinary catheter use over 5 years: bedside nurses view themselves responsible for evaluation of catheter necessity. *Am J Infect Control*. 2013;41(3):236-9.
   - Fink R, Gilmartin H, Richard A, Capezuti E, Boltz M, Wald H. Indwelling urinary catheter management and catheter associated urinary tract infection practices in Nursing Improving Care for Healthsystem Elders Hospitals. *Am J Infect Control*. 2012; 40:715-20.

- Meddings J, Rogers MA, Krein SL, Fakih MG, Olmsted RN, Saint S. Reducing unnecessary urinary catheter use and other strategies to prevent catheter-associated urinary tract infection: an integrative review. *BMJ Qual Saf*. 2014;23(4):277-89.
- Meddings J, Rogers MAM, Macy M, Saint S. Systematic review and meta-analysis: reminder systems to reduce catheter-associated urinary tract infections and urinary catheter use in hospitalized patients. *Clin Infect Dis*. 2010;51(5):550-60.
- Oman KS, Makic MB, Fink R, Schraeder N, Hulett T, Keech T, Wald H. Nurse-directed interventions to reduce catheter-associated urinary tract infections. *Am J Infect Control.* 2012;40:548-53.
- Patrizzi K, Fasnacht A, Manno M. A collaborative, nurse-driven initiative to reduce hospital-acquired urinary tract infections. *J Emerg Nurs*. 2009;35:536-9.