Postpartum Urinary Retention (PPUR) Management Guidelines

Marika Vukomanovich DNP, RNC-OB, C-ONQS

Assistant professor at Metropolitan State University, St. Paul, MN

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Why do we need to talk about urinary retention?

"Typically healthy, normal OB patients who entrust their care to us, undergo procedures and may be harmed by something we did or did not do" (quoted with Dr. Philip Rauk's permission).

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Introduction to the clinical problem/issue

Postpartum Urinary Retention (PPUR) is a relatively common event resulting in bladder distention which may lead to serious short- and long-term problems such as pain, upper and lower urinary tract infections and urinary incontinence.

Lack of standardized definition and consistent diagnostic criteria for PPUR

Variety of practices for the management of the condition

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Definition

Post-Partum Urinary Retention (PPUR) is defined as the inability to spontaneously void **six hours** after delivery or indwelling catheter removal, and/or a post-void residual volume grater than or equal to **150mL** of urine measured by bladder scanner or catheterization.

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Pregnancy, labor, delivery, oh my!

- Urinary bladder is one of the organs affected by pregnancy related relaxation, causing it to be susceptible to rapid overdistension.
- Pregnancy physiologically causes fluid retention
- Patients are often loaded with IV fluids in labor
- Pitocin is a fluid retentive hormone

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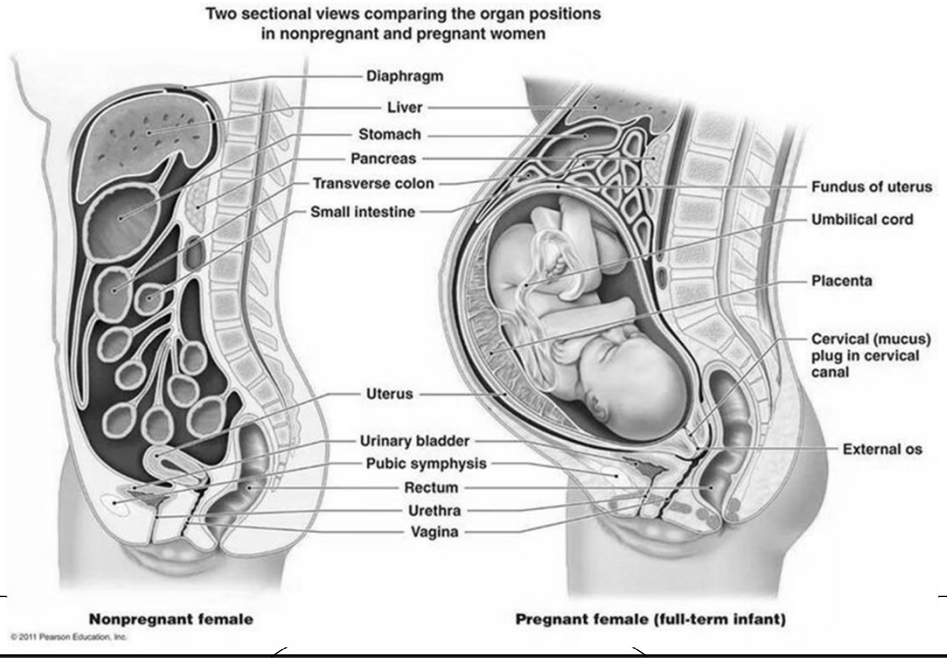

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Risk Factors for developing PPUR[4]

- Primigravida
- Prolonged labor
- Prolonged stage 2 (>1 hour)
- Operative vaginal birth (vacuum, forceps)
- Epidural, intrathecal or spinal block
- Cesarean birth with prolonged immobility
- Perineal injury including hematoma, bruising, swelling, tears or an episiotomy

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Risks	Why
• primigravida • need for a catheter in labor • perineal injury including hematoma, bruising, swelling, tears or an episiotomy	• Vaginal delivery can be traumatic for the pelvic floor muscles and innervations. This can result in hypotonus or reduced bladder sensitivity, as well as peri-urethral, and vulvar edema which can be the cause of obstruction.

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Risks	Why
• prolonged labor, especially a prolonged 2nd stage (>1 hour) • Operative vaginal birth (vacuum, forceps)	• pushing efforts produce high pressures on the pelvic floor muscles, and operative delivery can lead to pelvic, pudendal, and urinary nerve injury.
• Epidural, Intrathecal or Spinal block • Cesarean birth	• Regional anesthesia anesthetizes the bladder nerves, thus diminishing the urge to void. This can cause the bladder to become over-distended, which reduces the contractility of the bladder, further increasing risk of urinary retention.

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Knowing the risk factors for PPUR can help OB nurses manage labor process by:

- **<u>avoiding unnecessary interventions</u>**:
  - Frequent exams
  - Manual stretching of the perineum
  - Indwelling catheter unless ordered

- **<u>utilizing helpful techniques</u>**:
  - Laboring down if possible
  - Open glottis pushing
  - Pushing only when feeling the urge
  - Frequent position changes
  - Frequent bladder emptying
  - Intermittent catheter with labor epidural

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Signs and symptoms of PPUR

-absence of the urge to void
- inability to void within 6 hours of birth OR within 6 hours of catheter removal
- increased urinary frequency
- increased urgency
- lower abdominal pain
- palpable bladder
- overflow incontinence
- voided volumes less than 200mL.
- slow start and/or slow flow of urine
- sense of incomplete bladder emptying

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Why is standardized PPUR management important?

Most cases of PPUR are transient lasting less than 48 hours after delivery, however…

Urinary retention is a risk factor for postpartum hemorrhage

Even one episode of overdistended bladder can result in lasting problems with urination, bladder infections and renal obstruction

Subjective assessment is often inaccurate, especially with high BMI

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Did you know?

- After delivery, patients produce 1.03 to 1.4 ml/ kg/ hr of urine, which is almost twice as much as in a non-pregnancy related state.[3]
- Bladder scanning increases the chances of identifying PPUR 2.7 times compared to clinical signs alone.[5]

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Most strategies for bladder management do not address issues related to PPUR and focus on CAUTI prevention; management of urinary catheters related to surgical procedures; or management of catheters in patients with spinal cord injuries.

CAUTI is an uncommon problem in postpartum patient population as most patients have a urinary catheter in place for <24 hours and CAUTI rates are generally <1%.

Evidence-based guidelines are needed to standardize nursing practice for bladder care in the postpartum period because of the unique circumstances surrounding pregnancy and birthing of a newborn.

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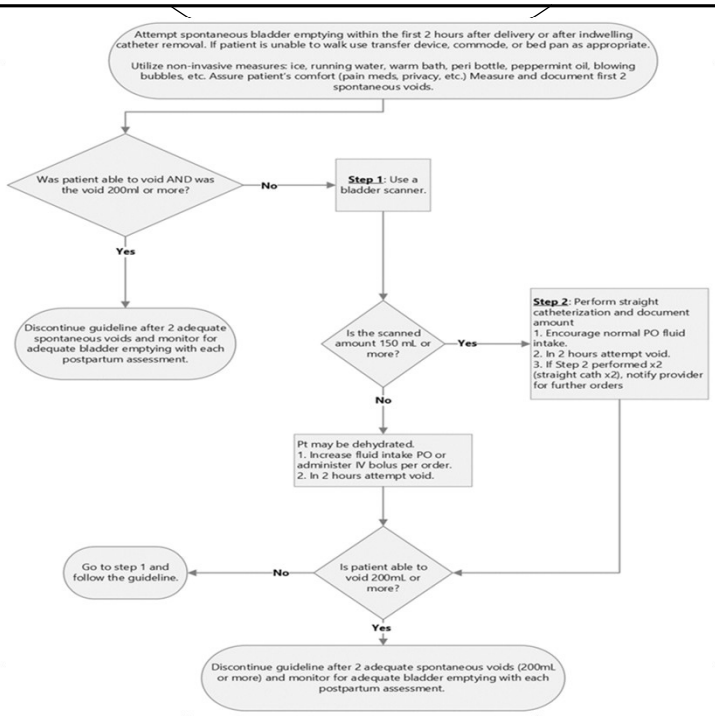

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You may think that these volumes are too small…

The Law of Laplace correlates volume and wall tension:[1]

It is easier for the smaller bladder to produce pressure necessary to initiate and maintain urine stream.

The wall tension is much higher in a distended bladder thus higher possibility for tissue injury.

Maximum volume of less than 500ml protects the bladder from damage and promotes return to normal function.

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Non-invasive ways to promote urination

- Application of cold packs on the perineum to reduce edema.
- Early mobilization
- Frequent attempts to empty bladder
- Access to a warm bath
- Ensuring the patient is afforded privacy and pain control
- Peri bottle
- Blowing bubbles through a straw
- Bladder scanning

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Bladder scanning

- Bladder scanning increases the chances of identifying PPUR 2.7 times compared to clinical signs alone.
- Bladder scanners have many reported benefits, including ease of use, requires minimal training, quick results, accurate, non-invasive, and are well-accepted by patients.
- The volume obtained is accurate within 25 ml to 75 ml compared to straight catheter obtained post void residual (PVR)

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Bladder scanning after Cesarean

Do not remove dressing to scan bladder for PVR.

Place scanner wand above or below the dressing and aim toward the bladder avoiding pubis symphysis shadow. The fleshing of all arrows indicates best placement.

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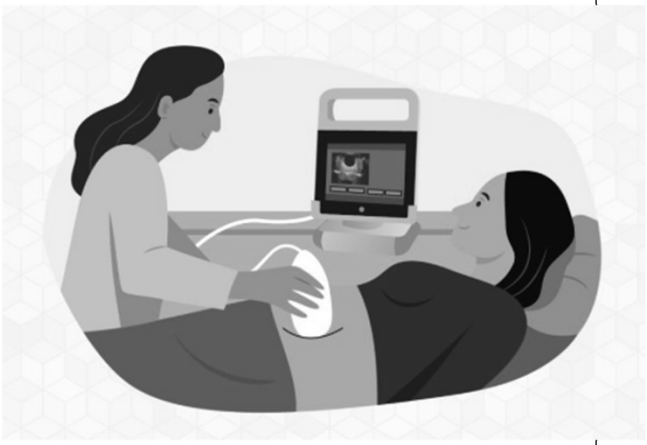
Remember!



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- Patients are partners in their care.
- Evaluate clinical situation and consider patient care needs.
- Patients may decline to have a straight catheter placed, or to have sleeping or breastfeeding interrupted at the times recommended by the algorithm.
- A lower bladder volume threshold reduces the risk of bladder overdistension.

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Further considerations for PPUR prevention and rehabilitation

Labor: according to the literature, different anesthesia medications provided during Cesarean affect bladder differently depending on a dose and a combination of medications.

Postpartum: physical therapists specializing in pelvic floor health and rehab can be very helpful, but underutilized.

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