

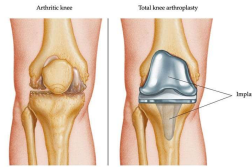
# Scanning for Success: A Tool to Predict Postoperative Urinary Retention and Incontinence in Knee Arthroplasty Patients

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## PICOT Question

In total knee arthroplasty patients who receive mepivacaine spinal, does a bladder scan prior to PACU transfer reduce urinary retention.

## Background



**Anesthesia:**  
Change to shorter-acting spinal medication to facilitate earlier ambulation & patient discharge

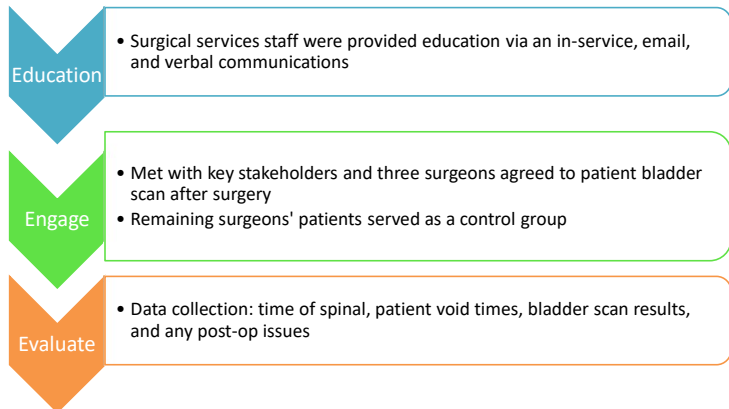
**Surgeons:**  
Discontinued straight catheter practice, felt no longer necessary in the OR

**PACU nurses:**  
Reported increased bladder distension and incontinence

## Evidence Table

Article	Key Finding/Evidence
Indwelling catheter increases the risk of urinary tract infection in total knee arthroplasty – Shuai & Li (2021)	<ul style="list-style-type: none"> <li>Catheters were associated with a higher risk of UTI</li> <li>Longer times for first urination than those without indwelling catheters</li> </ul>
Avoiding bladder catheterization in total knee arthroplasty: patient selection criteria and low-dose spinal anesthesia – Karason & Olafsson (2013)	<ul style="list-style-type: none"> <li>PACU RNs bladder scanned patients on arrival and every 2 hours until patients void</li> <li>Straight catheterization for bladder volume greater than 400 ml</li> <li>88% of study participants voided without intervention</li> </ul>
Decreasing the incidence of postoperative urinary retention (POUR) & incontinence with total joint replacement patients after spinal anesthesia in the post-anesthesia unit: a quality improvement project – Wishart, 2019)	<ul style="list-style-type: none"> <li>POUR can increase the risk of incontinence</li> <li>POUR can also lead to bladder atrophy, hypertension, and UTIs</li> <li>PACU RNs did bladder scan within 1 hour of arrival (if volume was greater than 400 ml, a straight catheter was performed)</li> <li>Results showed that bladder scanning helps detect POUR early and if treated can decrease incontinence</li> </ul>
Incidence, outcomes, and prediction of postoperative urinary retention (POUR) after a nonurological procedure - Abul-Muhsin et al. (2020)	<ul style="list-style-type: none"> <li>Goal was to study risk factors that contribute to POUR</li> <li>Predictors of POUR was found to be age, knee replacement, and history of BPH</li> </ul>
Postoperative urinary retention: risk factors, bladder filling rate and time to catheterization: an observational study as part of a randomized controlled trial – Brouwer (2021)	<ul style="list-style-type: none"> <li>Patients measured their maximum bladder capacity (MBC)</li> <li>Rather than using a fixed volume limit as an indicator of bladder overdistension, the MBC was used</li> <li>Bladder volumes were assessed hourly and when MBC was reached, and patients were unable to void, catheterization was performed</li> </ul>

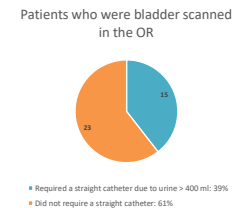
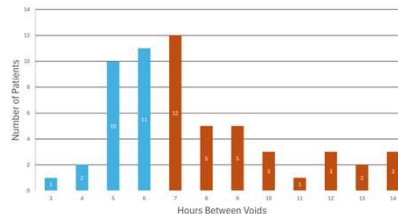
## Implementation



## Outcome

Data was collected on 93 total knee arthroplasty patients who received spinal anesthesia. 41% (38) had a bladder scan in OR. 62% (58) had documentation of pre & post procedure void times, but 59% of these did not have appropriate post procedure documentation (void, bladder scan, or straight catheterization within 6h) highlighting a documentation gap.

-- 39% (15 of 38 scanned patients) required straight catheterization for residual of 400 ml or greater  
 -- 13% (7 of 55 unscanned patients) had documented post procedure urinary complications (incontinence, bladder distention, and/or pain associated with bladder distention)



## Challenges

**Documentation –**

- Difficult for nurses to adjust documentation to capture project data elements, but it led to increased communication about patient void times
- Difficult to analyze data due to incomplete charting on patient void times

## Conclusion

- Bladder scanning appears to be more beneficial after surgery when patients can communicate their need to void
- Nurses should follow their hospital's urinary protocol to determine if a bladder scan or straight catheter is necessary
- Patient urinary needs are based on a variety of factors and nurses should assess and treat each patient according to their needs