

NQF-ENDORSED VOLUNTARY CONSENSUS STANDARDS FOR HOSPITAL CARE

Measure Information Form

Measure Set: Surgical Care Improvement Project (SCIP)

Set Measure ID#: SCIP-Inf-9

Performance Measure Name: Urinary catheter removed on Postoperative Day 1 (POD 1) or Postoperative Day 2 (POD 2) with day of surgery being day zero

Description: Surgical patients with urinary catheter removed on Postoperative Day 1 or Postoperative Day 2 with day of surgery being day zero.

Rationale: It is well-established that the risk of catheter-associated urinary tract infection (UTI) increases with increasing duration of indwelling urinary catheterization. In 2000, Saint reported the results of a pooled analysis of 10 prospective trials dating from 1983 to 1995 which estimated that bacteriuria will develop in 26% of patients after 2 to 10 days of catheterization (95% CI 23-25%). Additional pooled analyses demonstrated that 24% (95% CI 16% to 32%) of those patients will develop symptomatic UTI and bacteremia will develop in 3.6%. Among surgical patients, two studies of postoperative patients discharged to subacute care with urinary catheters were more likely to be readmitted to the hospital with a UTI compared with those who had catheters removed prior to hospital discharges (Wald, 2005 and Wald, 2008). Among selected major surgical patients in the Surgical Infection Project (SIP) cohort, Wald demonstrated (in press) that 85% had perioperative indwelling catheters placed and half of those patients had catheters for greater than 2 days postoperatively. These patients were twice as likely to develop UTIs prior to hospital discharge. On multivariate analysis, those who had indwelling bladder catheters for more than 2 days postoperatively were 21% more likely to develop UTI, significantly less likely to be discharged to home, and had a significant increase in mortality at 30 days. Additional analyses suggest that there is sizeable variation in the duration of postoperative catheterization among hospitals and that hospital factors may account for this variation. In 2006, Stephan reported the results of a multifaceted intervention study in orthopedic surgery patients in which protocols limiting the use and duration of postoperative catheterization played a large role. They reported a resultant 60% reduction in UTI incidence-density.

Type of Measure: Process

Improvement Noted As: An increase in the rate

Numerator Statement: Number of surgical patients whose urinary catheter is removed on POD 1 or POD 2 with day of surgery being day zero.

Included Populations: Not Applicable

Excluded Populations: None

Data Elements:

Catheter Removed

Denominator Statement: All selected surgical patients with a catheter in place postoperatively.

Included Populations:

An ICD-9-CM Principal Procedure Code of selected surgeries (as defined in Appendix A, Table 5.10 for ICD-9-CM codes).

Excluded Populations:

- Patients less than 18 years of age
- Patients who have a length of Stay greater than 120 days
- Patients whose ICD-9-CM principal procedure was performed entirely by *Laparoscope*
- Patients enrolled in clinical trials
- Patients who had a urological, gynecological or perineal procedure performed (refer to Appendix A, Table 5.16 for ICD-9-CM codes)
- Patients whose ICD-9-CM principal procedure occurred prior to the date of admission
- Patients who had other procedures requiring general or spinal anesthesia that occurred within 3 days (4 days for CABG or Other Cardiac Surgery) prior to or after the procedure of interest (during separate surgical episodes) during this hospital stay
- Patients who expired perioperatively
- Patients whose length of stay was less than two days postoperatively
- Patients who had a suprapubic catheter or had intermittent catheterization preoperatively
- Patients who had a urethral catheter, a suprapubic catheter or who were being intermittently catheterized prior to the perioperative period
- Patients who did not have a catheter in place postoperatively
- Patients who had physician/APN/PA documentation of a reason for not removing the urinary catheter postoperatively

Data Elements:

- *Admission Date*
- *Anesthesia End Date*
- *Anesthesia Start Date*
- *Birthdate*
- *Clinical Trial*
- *Discharge Date*

- *ICD-9-CM Principal Diagnosis Code*
- *ICD-9-CM Principal Procedure Code*
- *ICD-9-CM Other Procedure Code*
- *Laparoscope*
- *Other Surgeries*
- *Perioperative Death*
- *Reasons for Continuing Urinary Catheterization*
- *Urinary Catheter*

Risk Adjustment: No

Data Collection Approach: Retrospective data sources for required data elements include administrative data and medical records.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.

Measure Analysis Suggestions: The process-owners for timing of catheter removal, as assessed in this measure, may include clinicians and support staff on the nursing unit. Opportunities may exist in several arenas which, when addressed jointly, can generate true process improvement.

Sampling: Yes, please refer to the measure set specific sampling requirements and for additional information see the Population and Sampling Specifications Section.

Data Reported As: Overall aggregate rate for all surgeries and stratified rates by data element *ICD-9-CM Principal Procedure Code*, generated from count data reported as a proportion.

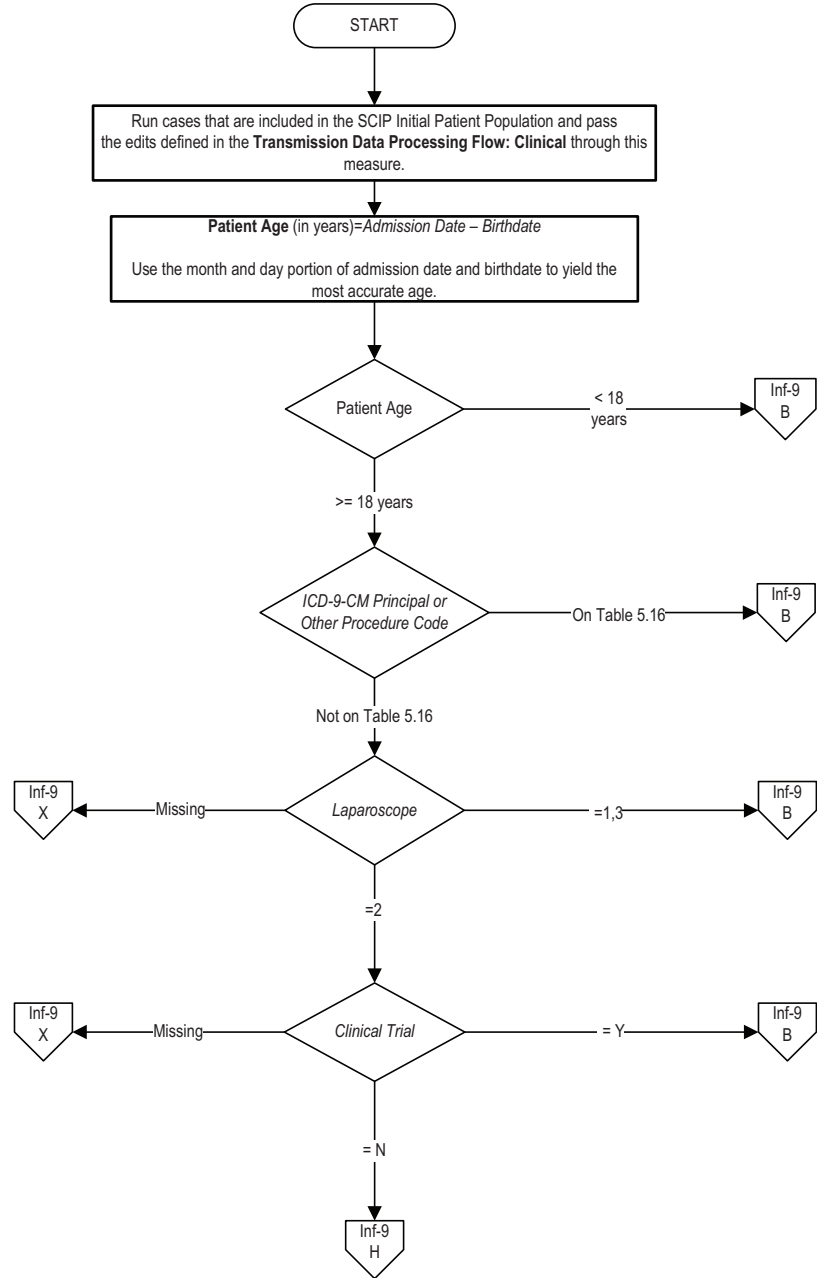
Selected References:

- Saint S. Clinical and economic consequences of nosocomial catheter-related bacteremia. *Am J Infect Control* 2000; 28: 68-75.
- Stephan F, Sax H, Wachsmuth M, et al. Reduction of urinary tract infection and antibiotic use after surgery: a controlled, prospective before-after study. *Clin Infect Dis.* 2006; 42; 1544.
- Wald HL, Ma A, Bratzler DW, Kramer AM. Indwelling Urinary Catheter Use in the Postoperative Period: Analysis of The National Surgical Infection Prevention Project Data. *Arch Surg.* In press.
- Wald H, Epstein A, Kramer A. Extended Urinary Catheterization Among Hip Fracture Patients Discharged to Skilled Nursing Facilities. *Med Care* 2005; 43:1009-1017.
- Wald HL, Epstein AM, Radcliff TA, Kramer AM. Extended Use of Urinary Catheters in Older Surgical Patients: A Patient Safety Problem? *Infect Cont Hosp Epidemiol* 2008; 29:116-124.

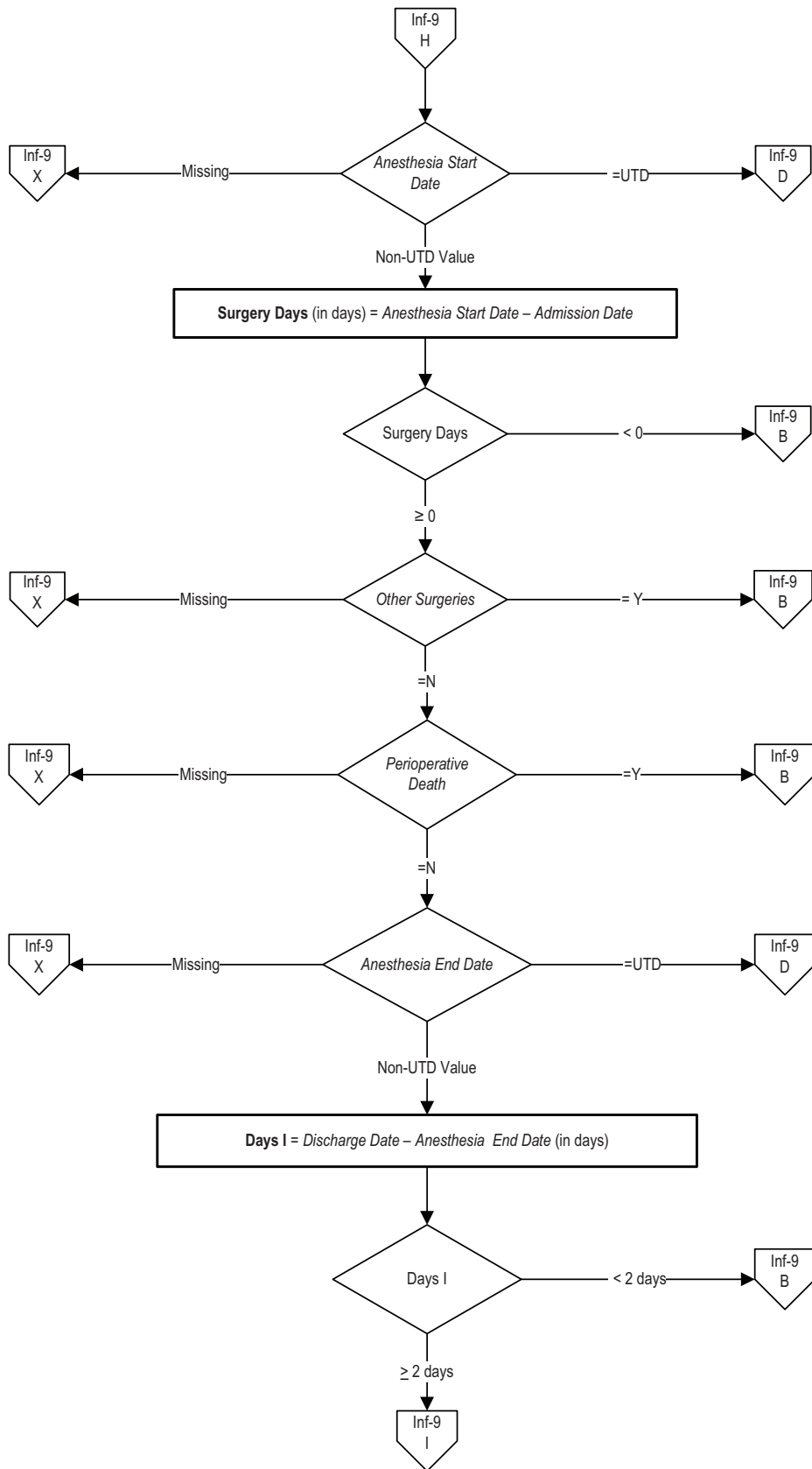
SCIP-Inf-9: Urinary catheter removed on Postoperative Day 1 (POD 1) or Postoperative Day 2 (POD 2) with day of surgery being day zero.

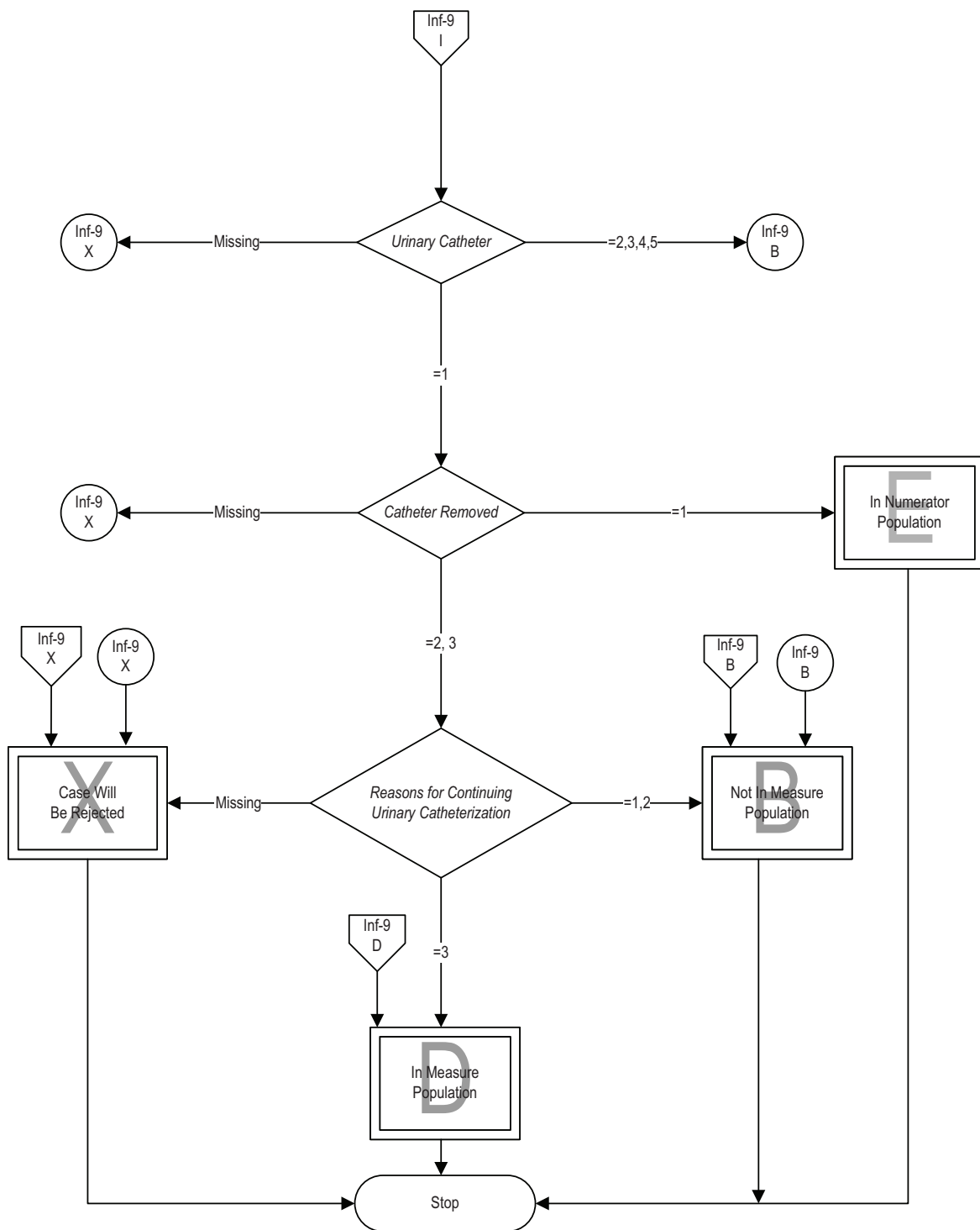
Numerator: Number of surgical patients whose urinary catheter is removed on POD 1 or POD 2 with day of surgery being day zero.

Denominator: All selected surgical patients with a catheter in place postoperatively.



Variable Key:
Patient Age
Surgery Days
Days I





SCIP-Infection (Inf)-9: Urinary catheter removed on Postoperative Day 1 (POD 1) or Postoperative Day 2 (POD 2) with day of surgery being day zero.

Numerator: Number of surgical patients whose urinary catheter is removed on POD 1 or POD 2 with day of surgery being day zero.

Denominator: All selected surgical patients with a catheter in place postoperatively.

Variable Key: Patient Age, Surgery Days, Days I

1. Start processing. Run cases that are included in the Surgical Care Improvement Project (SCIP) Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure.
2. Calculate Patient Age. The Patient Age, in years, is equal to the Admission Date minus the Birthdate. Use the month and day portion of admission date and birthdate to yield the most accurate age.
3. Check Patient Age
 - a. If Patient Age is less than 18 years, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
 - b. If Patient Age is greater than or equal to 18 years, continue processing and proceed to ICD-9-CM Principal Procedure Code.
4. Check ICD-9-CM Principal or Other Procedure Code
 - a. If the ICD-9-CM Principal or Other Procedure Code is on Table 5.16, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
 - b. If the ICD-9-CM Principal or Other Procedure Code is not on Table 5.16, continue processing and proceed to Laparoscope.
5. Check Laparoscope
 - a. If Laparoscope is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If Laparoscope equals 1 or 3, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
 - c. If Laparoscope equals 2, continue processing and proceed to Clinical Trial.

6. Check Clinical Trial
 - a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
 - c. If Clinical Trial equals No, continue processing and proceed to Anesthesia Start Date.
7. Check Anesthesia Start Date
 - a. If the Anesthesia Start Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If the Anesthesia Start Date equals Unable To Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
 - c. If Anesthesia Start Date equals a Non Unable To Determine Value, continue processing and proceed to the Surgery Days calculation.
8. Calculate Surgery Days. Surgery Days, in days, is equal to the Anesthesia Start Date minus the Admission Date.
9. Check Surgery Days
 - a. If the Surgery Days is less than zero, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
 - b. If the Surgery Days is greater than or equal to zero, continue processing and proceed to Other Surgeries.
10. Check Other Surgeries
 - a. If Other Surgeries is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If Other Surgeries equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
 - c. If Other Surgeries equals No, continue processing and proceed to Perioperative Death.
11. Check Perioperative Death
 - a. If Perioperative Death is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.

- b. If Perioperative Death equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
 - c. If Perioperative Death equals No, continue processing and proceed to Anesthesia End Date.
12. Check Anesthesia End Date
- a. If the Anesthesia End Date is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If the Anesthesia End Date equals Unable to Determine, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
 - c. If the Anesthesia End Date equals a Non Unable to Determine value, continue processing and proceed to the Days I calculation.
13. Calculate Days I. Days I, in days, is equal to the Discharge Date minus the Anesthesia End Date.
14. Check Days I
- a. If Days I is less than 2 days, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
 - b. If Days I is greater than or equal to 2 days, continue processing and proceed to Urinary Catheter.
15. Check Urinary Catheter
- a. If Urinary Catheter is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If Urinary Catheter equals 2, 3, 4, or 5, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
 - c. If Urinary Catheter equals 1, continue processing and proceed to Catheter Removed.
16. Check Catheter Removed
- a. If Catheter Removed is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If Catheter Removed equals 1, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing.
 - c. If Catheter Removed equals 2 or 3, continue processing and check Reasons for Continuing Urinary Catheterization.

17. Check Reasons for Continuing Urinary Catheterization
 - a. If Reasons for Continuing Urinary Catheterization is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If Reasons for Continuing Urinary Catheterization equals 1 or 2, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
 - c. If Reasons for Continuing Urinary Catheterization equals 3, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.