ACUTE SPINE BLADDER MANAGEMENT ALGORITHM

**Clinical Presentation**
- Neurological Deficit?
  - No
  - Patient medically stable?
    - Yes
      - Urine output less than 2400 mL/24hr
    - No
      - Reassess daily

- Indwelling urinary catheter (Consider antimicrobial/antiseptic impregnated catheter)
  - C0-T1 (AIS A|B|C) (*no or limited hand function)
  - C0-T2 (AIS D | Central Cord)
  - T2 and Below
  - Conus | Cauda Equina

- Patient emotionally ready for intermittent catheterization?
  - No
  - Reassess daily
  - Yes
  - Remove indwelling urinary catheter

**AIS A | B | C | D**
- Yes
- Conus | Cauda Equina
- Female
- Male
- No

**Patient on I/O Catheterization:**
- Goal: Bladder volume less than 500ml at all times

**Patient able to ambulate and/or transfer to commode?**
- No
- Reassess daily
- Yes
- Thoricolumbar incision?
  - No
    - Yes
      - Male or Female?
        - Male
          - Yes
            - Remove urinary catheter and offer urinal*
          - No
            - Reconsider
        - Female
          - Yes
            - Remove urinary catheter and offer bedpan*
          - No
            - Reconsider
  - Yes
    - Male
      - Yes
        - Remove urinary catheter and offer urinal*
        - Reconsider
      - No
        - Reassess daily
    - Female
      - Yes
        - Remove urinary catheter and offer bedpan*
        - Reconsider
      - No
        - Reassess daily

**Patient medically stable?**
- Yes
  - Recheck PVR q1h
  - PVR less than 250ml?
    - No
      - Yes
        - Remove urinary catheter and offer urinal*
      - No
        - Recheck PVR q1h
  - Yes
    - No further interventions
    - Bladder scan
    - If less than 300ml repeat scan q1h
    - Consider if patient is physically and emotionally ready to receive self-intermittent catheterization education

**Patient emotionally ready for intermittent catheterization?**
- Yes
  - In/Out Catheter
  - PVR less than 100ml x3?
    - Yes
      - Patient able to void in 4-6 hours?
        - Yes
          - In/Out catheter
          - Yes
            - Bladder scan
            - If greater than or equal to 300ml
          - No
            - Recheck PVR q1h
        - No
          - No further interventions
          - Bladder scan
          - If greater than or equal to 300ml
    - No
      - Recheck PVR q1h
      - PVR less than 100ml x3?
        - Yes
          - Patient able to void in 4-6 hours?
            - Yes
              - In/Out catheter
            - No
              - No further interventions
        - No
          - No further interventions

**Abbreviations:**
- AIS: American Spinal Injury Association Impairment Scale
- PVR: Post Void Residual

**Symbols:**
- Decision Starting Point
- Decision
- Action Taken
- Clinical Presentation

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**Intermittent Catheterization Decision Loop**

- In/Out Catheter
- PVR less than 100ml x3?
  - Yes
    - Patient able to void in 4-6 hours?
      - Yes
        - In/Out catheter
      - No
        - No further interventions
  - No
    - Recheck PVR q1h

**Unexplained Urinary Retention:**
- 1. Rule out Urinary Tract Infection (UTI)
- 2. Refer to Spine Team and/or Physiatry

**Patient on I/O Catheterization:**
- 1. Rule out Urinary Tract Infection (UTI)
- 2. Refer to Spine Team and/or Physiatry