**Background**

- Numerous studies have identified urinary tract infections (UTIs) to impact between 13.6% - 48.1% stroke patients
- Ifejika-Jones et al. (2013) noticed that symptomatic UTIs in acute care is an independent predictor of discharge destination with 57% less likely of being discharged home and 38% less likely to be discharged to a rehabilitation center
- Due to our current automated order set, every patient admitted to stroke rehab has urine samples collected and sent to the lab for Urinalysis, C&S

**Aim**

**Rationale:**

1. Clinical practice and Choosing Wisely Canada guidelines recommend urine studies only in symptomatic patients
2. Prevent colonization and antimicrobial resistance
3. Avoid over-administering antibiotics and their side effects e.g. C. difficile infections
4. Cost associated with each test

**Methods**

| Literature review | Frishbone diagram | PDSA #1
|-------------------|-------------------|------------------
| No. of patients admitted – age, gender, stroke type | Proposed change – addresses the automatic order on admission | Chart Audit
| No. of urine studies sent | Unit clerk to not enter unaddressed orders, notify provider with a sticker | Repeat Audit
| A preproject Ethics Community Consensus Initiative (AECICI) Ethics Screening Tool = 6 | Confirm no formal ethics application is required with Research Ethics Board | Plan, Do, Study, Act worksheets

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**PDSA #1**

**Plan: Conduct a baseline chart audit on urine study results of patients admitted to stroke rehabilitation (Unit 3A) over 1 month**

**Do:**

- 23 charts audited; 1 patient had urine studies upon admission
- Estimated cost = $25
- Although positive, the patient was NOT treated for a UTI, and had a long-term indwelling Foley catheter
- Of the 22 patients, 5 had urine studies sent later between 2 – 30 days post admission (the patient who had studies sent on admission was not one of them)
- For the 5 sent, 3 had positive cultures
- 2 patients were treated for a UTI

**Study:**

- 28 charts audited; 27 patients had urine studies upon admission
- Only 3 showed positive C&S but none with symptoms, and no antimicrobial treatment required
- As per Ma et al. (2019), the Reference Median Cost (from 6 labs in Canada) of a standard urinalysis with microscopy is $10, and urine culture is $15.
- For the 27 patients who had urine studies on admission over that 2-week period, $650 were spent with no clear clinical benefit for the cost

**Process Assessment**

**Outcome Measures:**

- Number of urine studies sent on admission – 1/23 (intentional)
- Number of orders crossed out – 2/23
- Number of stickers required to be placed on the chart – 1 (in error: the order had been crossed out)
- Estimated cost of tests sent – $25

**Process Measures:**

- Number of stickers that were missed – none, 1 placed in error
- Number of meetings held – 2 (Nurse Practitioner and Unit Clerk)
- Number of views under the YouTube video – 10
- Number of pamphlets on the unit – 3

**Balancing Measures:**

- Number of UTIs later identified – 2 (9% of our unit over 4 weeks)
- Number of urine studies needed to be added on after admission – 5 urinalysis, 5 C&S – $125

**Conclusions**

1. There are risks associated with treatment of asymptomatic bacteriuria. Unnecessary urine studies and antibiotics contribute to unneeded financial expense for the health care system (at admission, ~$650 on 27 inpatients prior vs $25 during our intervention period).
2. Of the 23 stroke rehabilitation inpatients who did NOT have urine screening, 22% (5/23) were investigated for UTI as source of infection at a later point during their admission, and 9% (2/23) were treated for a UTI.

There appears to be no benefit in conducting screening urine studies at the time of admission in stroke rehabilitation inpatients. This practice has been successfully discontinued at our site.

**References**