REDUCE CATHETER ASSOCIATED URINARY TRACT INFECTION (CAUTI) RATE IN JCH WARDS

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- ✓ SAFETY
- ✓ QUALITY
- ❑ PATIENT EXPERIENCE
- ❑ PRODUCTIVITY
- ❑ COST

Define Problem, Set Aim

Problem/Opportunity for Improvement

- Studies showed CAUTI is one of the most common health care associated infections and leading cause of secondary blood stream infection resulting in morbidity and mortality(1,2). Between January 2020 to June 2020, there was an increase number of patients with Catheter Associated Urinary Tract Infections (CAUTI) reported in Jurong Community Hospital (JCH).
- JCH CAUTI rate per 1,000 patient days has increased from 3.02 in year 2019 to 5.86 in year 2020.
- The result 5.86 is above the target of JCH key performance indicator (KPI). This affects the reputation of organizational performance when benchmarked with nation average. It also impact on patients' well being and potential extension of hospital stay that ultimately increase the hospital cost and patients' dissatisfaction.

Aim

The aim is to reduce inpatient CAUTI rates in JCH wards from 5.86 per 1,000 catheter days to 3.5 per 1,000 catheter days by December 2020 to improve the quality of care.

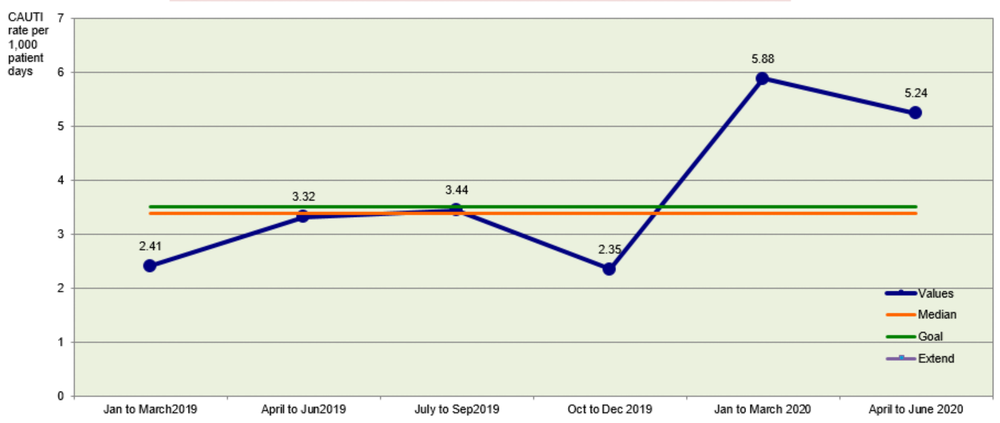
*Include all JCH inpatients with Indwelling urethral catheters (IDC)

Establish Measures

Current performance (Outcome measure)

Figure 1 shows the JCH CAUTI rate from 2019 to 2020.

Figure 2:JCH inpatient wards CAUTI rate from January 2019 to June 2020

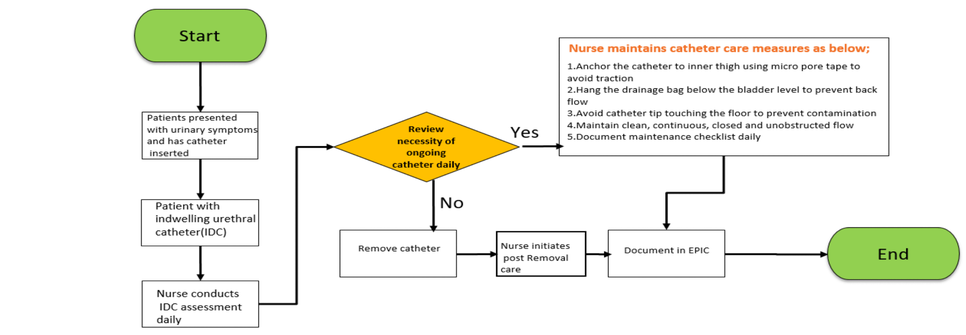


*CAUTI RATE measured and submitted to MOH as quarterly basis

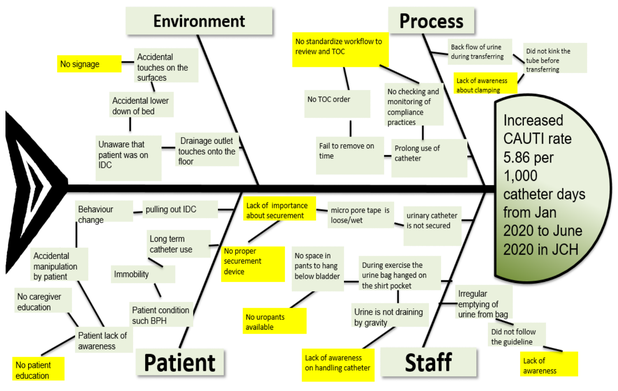
Analyse Problem

Current Process Mapping

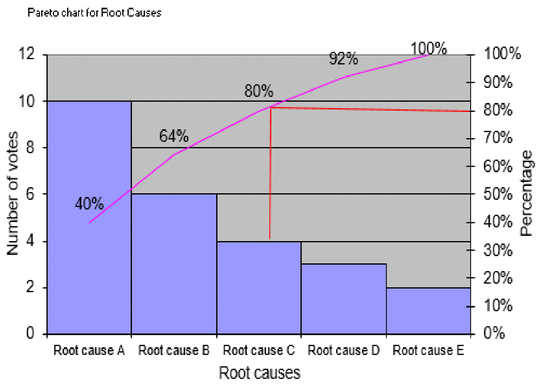
Current Process Mapping



Root cause Analysis



Pareto chart for root causes



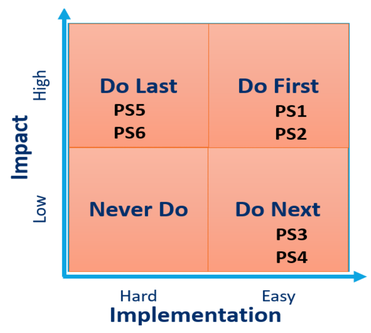
References:
1.Mitchell BG, Fasugba O, Gardner A, et al. Reducing catheter-associated urinary tract infections in hospitals: study protocol for a multi-site randomised controlled study. BMJ Open 2017;7:e018871. doi:10.1136/ bmjopen-2017-018871
2. Letica-Kriegel AS, Salmasian H, Vawdrey DK, et al. Identifying the risk factors for catheter-associated urinary tract infections: a large cross-sectional study of six hospitals. BMJ Open 2019;9:e022137. doi:10.1136/ bmjopen-2018-022137

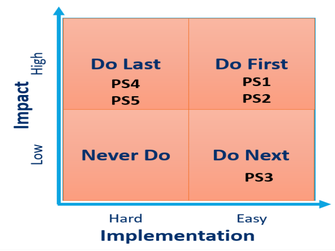
Select Changes

Possible solutions

Root Cause		Potential Solutions
Root Cause A Lack of awareness about importance of securing urethral catheter and drainage system	PS1	Conduct sessions to nursing staffs to increase awareness
	PS2	Use stat lock securement device
	PS3	Conduct session to multidiscipline team to increase awareness (Doctors, Physiotherapists, occupational therapists and porters)
	PS4	During ward meeting communicate to staffs to increase awareness
	PS5	Put up relevant poster to increase awareness
	PS6	Include as ward induction to provide insight to preceptees on JCH context practices

Root Cause		Potential Solutions
Root Cause B Lack of knowledge on handling urinary catheter while transferring or turning in bed	PS1	Conduct sessions to increase staff knowledge
	PS2	Use uro pants for patients with urinary catheter
	PS3	Place clamp at bedside to clamp the catheter during transferring
	PS4	Put up relevant poster to provide visual guide on DO'S and DON'TS
	PS5	Include as ward induction to provide insight to preceptees on JCH context practices



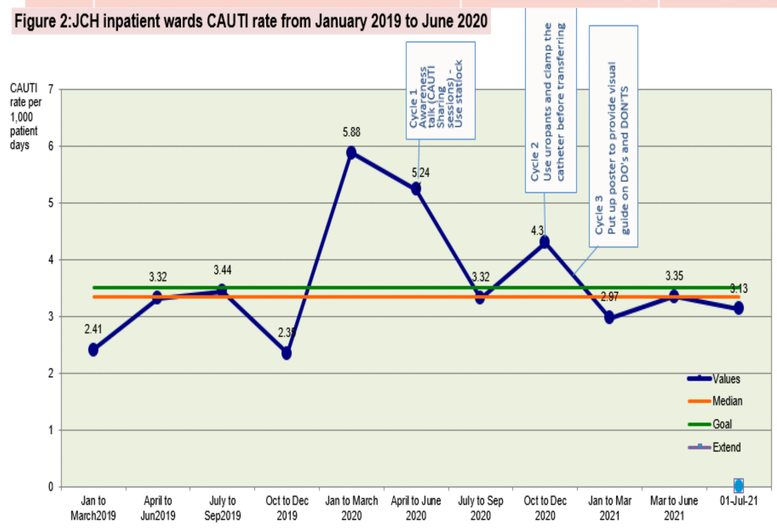


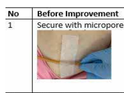
Test & Implement Changes

Solution Implementation

Cycle	Plan	Do	Study	Act
1	Aim: To increase staff awareness on importance of securing the catheter. What: Awareness sessions Who: will be conducted by team members Whom: to all JCH staffs (Nurses, HCAs, Doctors, Physiotherapists, Occupational Therapists and Porters) Where: at JCH When: in June 2020	Awareness session conducted in June 2020. Feedback received about use of stat lock securing system.	➢ Nursing care audit on IDC care results ranged from 95% to 100% that determined staff awareness been increased. ➢ Stat lock device provided good securement of IDC and good feedback received about stat lock use	Adopt Delay in getting stat lock due to purchase order. Sponsor been informed and assisted to make it available as MMD supply Continue care of urethral catheter and drainage system nursing audit
2	Aim: To increase knowledge on handling IDC during transferring What: Roll call sharing Who: will be conducted by team members Whom: to all JCH staffs ((Nurses, HCAs, Doctors, Physiotherapists, Occupational Therapists and Porters) Where: at JCH When: in July 2020	Roll call sharing done in July 2020. Feedback received about using uropants and clamp catheter before transferring	➢ Nursing care audit on IDC care results ranged 95% to 100% that determined staff knowledge been increased ➢ JCH Cauti rate reduced to 2.5 per 1,000 catheter days in July 2020 ➢ Uropants helped to prevent traction of catheter and facilitated the hanging of urine bag below the bladder level	Adopt Lack of uropants stock at ward level. Sponsor been informed and assisted to increase the par level Continue care of urethral catheter and drainage system nursing audit
3	Aim: To maintain the momentum of CAUTI reduction awareness What: Poster (visual reminder on DO'S and DON'T on patient with IDC) Who: will be distributed by the team members Whom: to all JCH wards, inpatient gym and porters in August 2020	Poster distributed to all wards in August 2020. *Posters were distributed to porters and inpatient rehab (Physiotherapists and occupational therapists)	➢ Nursing care audit on IDC care results ranged from 95% to 100% that determined staff awareness been increased. ➢ JCH CAUTI rate reduced to 3.2 in August 2020 ➢ Team analyzed further why CAUTI rate increased from 2.5 to 3.2 Observed Increase catheter days increased CAUTI rate. ➢ Team will work with relevant stakeholders to reduce further.	Adopt Poster provided visual reminder on DO'S and DON'T on patient with IDC Results will be shared to relevant stakeholders Continue care of urethral catheter and drainage system nursing audit

Figure 2:JCH inpatient wards CAUTI rate from January 2019 to June 2020



No	Before Improvement	After Improvement
1	Secure with micropore 	Secure with stat lock 
2	Urine bag hanged on the shirt pocket (above bladder level risk of backflow of urine) 	Urine bag hanged on uropants pocket (below bladder level prevents back flow of urine) 
3	Transfer Patient without clamping the tube (risk of back flow of urine)	Use clamp during transferring (Catheter clamp kept at bedside) 
4	No reminders	Poster – Visual reminder hang at foot end of the bed for patient with IDC 
5	Random check on ward practices and reinforce nurses on right practices.	To monitor compliance practices, **Care of indwelling catheter and drainage system audit** has been included as core audit (Nursing care audit) under Quality Assurance plan. The audit will be done every 2 monthly 

Spread Changes, Learning Points

1) Key Learnings

- *Proper anchorage of IDC to prevent unnecessary catheter movement has a role in the prevention of CAUTI. The use of stat lock has been useful.*
- *Besides nurses, it is important to train all healthcare staff including Allied Health staff, porters as they also transfer patients to ensure that there is no reflux of urine in the bag back into the urinary tract system leading to CAUTI.*
- *Nurses have an important role to play in timely reminder of the doctors to review and remove catheter asap when the purpose have resolved.*

2) Spread Change

- *The project will be shared in communication platform such as infection control committee meeting (ICC) and nurse leaders meeting to extend the improvement initiative beyond JCH is to reduce CAUTI and improve quality of care.*
- *Results shared to JCH team (Nursing, doctors, physiotherapists, occupational therapists for continual engagement. The aim of continual engagement is to maintain the momentum of awareness about prevention of CAUTI.*

3)Sustainability

- *Train the trainers (TTT) approach adopted to do refresher training to allied health and porters annually by nursing trainers.*
- *JCH preceptees will be briefed about CAUTI prevention during induction period and female catheterization competency will be done as annually.*

Acknowledgement: *Thank you to JCH teams for the support and JCH Clinical quality team in providing clinical data and Infection control team.*

Ng Teng Fong General Hospital

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