

### **Project Title**

Urinary Tract Infection Prevention Project in Kwong Wai Shiu Hospital

### **Project Lead and Members**

**Champions:** SN Jenilyn Deogracias, SN Gerald Villanueva, SSN Jiang Qing Ling, SN Angeline Pilar Sison Calaguas

**Supervisors:** NM Ho Wee Ling.

**Sponsor:** DON Jessy Chang

### **Organisation(s) Involved**

Kwong Wai Shiu Hospital

### **Healthcare Family Group(s) Involved in this Project**

Medical, Nursing

### **Applicable Specialty or Discipline**

Infectious Disease, Urology

### **Project Period**

Start date: Jul 2019

Completed date: Sep 2022

### **Aim(s)**

To reduce the rate of UTI in KWSH by 50% from an average of 12 cases per month to 6 cases per month by September 2022.

### **Background**

See poster appended/ below

### **Methods**

See poster appended/ below

## Results

See poster appended/ below

## Lessons Learnt

See poster appended/ below

## Conclusion

See poster appended/ below

## Additional Information

This project was featured at the Central Health Action & Learning Kampung (CHALK) Poster Showcase 2022.

## Project Category

Care & Process Redesign

Value Based Care, Safe Care, Adherence Rate, Quality Improvement, Clinical Practice Improvement, Risk Management, Adverse Outcome Reduction

Training & Education

Assessment, Workplace Based Assessment

## Keywords

Staff Awareness, Competency, Prevention, Guides, Staff Satisfaction

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# Urinary Tract Infection Prevention Project in Kwong Wai Shiu Hospital

## Team Members

SN Jenilyn Deogracias | SN Gerald Villanueva | SSN Jiang Qing Ling | SN Angeline Pilar Sison Calaguas

## Supervisor

NM Ho Wee Ling

## Sponsor

DON Jessy Chang



## Background

There were 20 cases of UTI in KWSH in July 2019, resulting in 5 hospitalisations.

Urinary tract infections (UTI) are one of the most common infections seen in elderly. It is an infection that affects the part of the urinary system that includes our kidneys, ureters, bladder and urethra. Most of the infections involve the lower urinary tract – the bladder and the urethra. Women are at greater risk of developing UTI than the men.

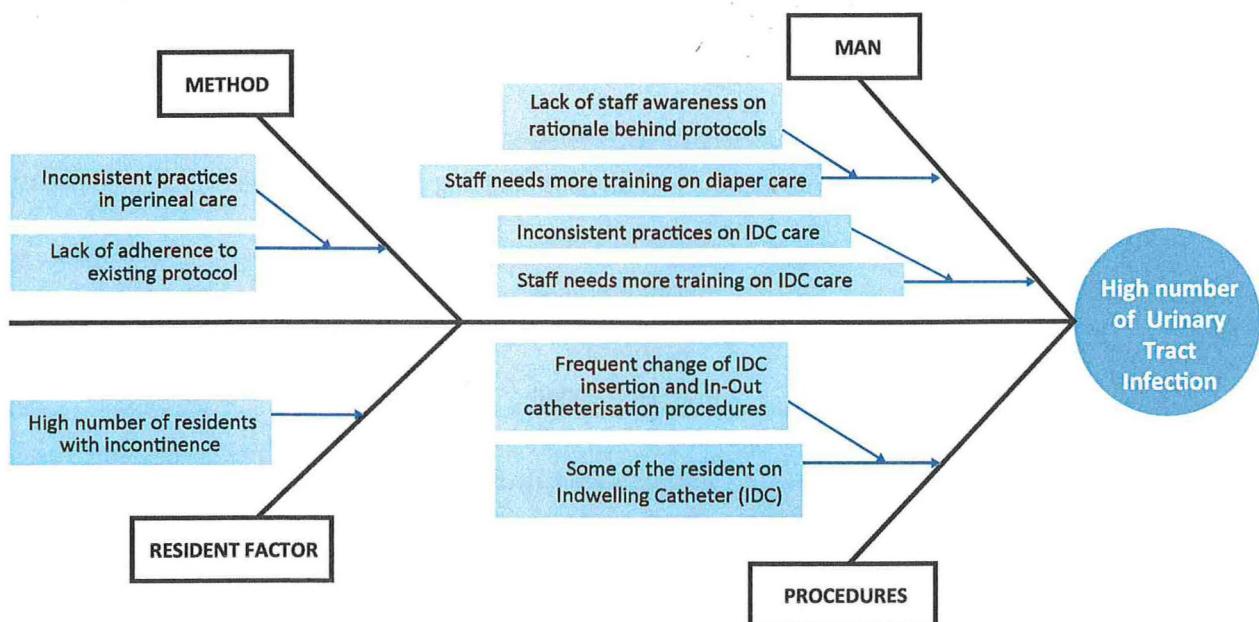
UTI Project Prevention was then started on July 2019 and Ward 5S was the chosen pilot ward due to high number of UTI cases compared to other 13 wards. Upon the successful pilot run of the project it was then later on spread to Ward 8 & 9 and at the last quarter of 2021 it was spread to Chronic Sick wards which consist of 95% of bed bound patient who are highly at risk of acquiring UTI. Upon the successful completion of the 1st and 2nd batch of staff training and competency in CSW, UTI Team Champion SN Jenilyn & SN Angelica managed to train 25 new members of UTI team.

## Project Goals

To reduce the rate of UTI in KWSH by 50% from an average of 12 cases per month to 6 cases per month by September 2022.

## ANALYSIS

### Urinary Tract Infection Prevention



The project analyses the root causes by using Fishbone (Ishikawa Diagram) as the project tool.

#### Problem

Based on the Root Cause Analysis, the team identified the key root cause of UTI in KWSH is a lack of staff awareness.

1. High number of residents with incontinence issues.
2. Lack of staff awareness / knowledge on UTI.
3. Inconsistent practices with regards to Diaper Care and IDC Care.

#### Solutions and Implementation Plan

We developed a Diaper Care bundle and an IDC Care bundle to help guide staff in managing residents with incontinence as well as diaper and IDC Care.

## Diaper Care Bundle

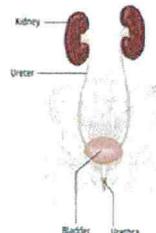
Diaper Care Bundle	
1 Indication for Diaper	8 Check bowel movement when change diaper Monitor for any abnormalities in bowel movement. • constipation, diarrhea.(refer to Bristol Stool Chart)
2 Is resident:	9 Assess skin condition: • Broken skin • Wound • Rashes
3 Intact Bladder Sensation	10 Perform perineal care: • Female- wipe perineum clean from front to back • Male- If uncircumcised, retract foreskin, clean around the penis glands, and reposition foreskin after cleaning
4 Perform hand hygiene, Don clean gloves	11 Monitor for signs and symptoms of Urinary Tract Infection: • Dysuria (pain on urination) • Haematuria (blood in urine) • Bladder distention • Urinary frequency • Nausea/vomiting • Increase/decrease in output
5 Draw out 4 or more pieces of wet wipes with clean gloves	12 Document and escalate if there are any presence of the above signs and symptoms of UTI and constipation
6 Check diaper 4 hourly, change as necessary	13 Possible to consider weaning off diapers and conduct potting
7 Observe Urine characteristics: • Colour, odour, amount	

S/N

### IDC Care Bundles

- 1 Has resident been on IDC for >2 weeks? If yes, review indication for long-term IDC:
  - Chronic urinary incontinence and retention
  - Neurogenic bladder
  - Chronic retention of urine from BPH/BOO
  - Failed TOC multiple times
  - Not a candidate for IMC
- 2 Flag out to doctor for permission to TOC if no indication for long-term IDC.
- 3 Ensure that the proper size and material of catheter and balloon is used
- 4 Adequate fluid intake of 1.5L/day if not contraindicated
- 5 Ensure there is urine output every shift. Escalate if diminished urine output is noted.
- 6 Properly secure IDC to prevent movement and urethral traction. Secure tubing on abdomen on alternate site (left, center, right).
- 7 Always keep the urine bag below the level of the bladder. Do not rest the bag on the floor
- 8 Check urine bag system and ensure no obstruction/ kinks.
- 9 Perform hand hygiene, before and after
  - Emptying urine bag
  - Changing urine bag
  - Collection of urine specimen
- 10 Use alcohol swab to clean connector before disconnecting tubing from catheter
- 11 Empty the collecting bag regularly using a separate, clean collecting container for each patient
- 12 Maintain closed drainage system
- 13 Change urine bag every 2 weekly
- 14 Change urine catheter according to manufacture guidelines e.g. 2 weeks, 4 weeks, 2 months
- 15 If a urine specimen is ordered, take a clean catch (midstream urine)
- 16 Monitor for the following signs / symptoms and escalate accordingly
  - Hematuria (blood in urine)
  - Significant increase / decrease in urine output
  - Cloudy/ sediments in the urine
- 17 Record amount, colour and type of urine on Fluid Balance Chart & inform doctor of any abnormalities.

**Always Professional,  
Always Caring** KWSH



## Sample of STAFF TRAINING PROGRAM

### UTI Prevention Training Program for KWSH Chronic Sick Ward



	Date/ Time	Topic	Speaker	Status	Participants
1	4 January 2022	Introduction on UTI Project Urinary Tract Infection in Elderly • Overview • Risk factors and Pathophysiology	SN Reden	Completed	Total No of staff from CSW F6 & F7 :11
2	6 January 2022	Urinary Tract Infection: Signs and symptoms • Early detection and Escalation			Total No of staff from CSW F6 & F7 :11
3	11 January 2022	Fluid intake, urine output Bladder Diary			Total No of staff from CSW F6 & F7 :10
4	13 January 2022	Bowel habits and constipation Roughage/Fiber intake	SN Jenilyn	Completed	Total No of staff from CSW F6 & F7 :11
					SN EN PCA HCA
					2 1 8 0
					Total No of staff from CSW F6 & F7 :11
					SN EN PCA HCA
					2 2 6 1
					Total No of staff from CSW F6 & F7 :10
					SN EN PCA HCA
					2 1 7 0
					Total No of staff from CSW F6 & F7 :11
					SN EN PCA HCA
					2 0 8 1

## Sample of COMPETENCY CHECKLIST

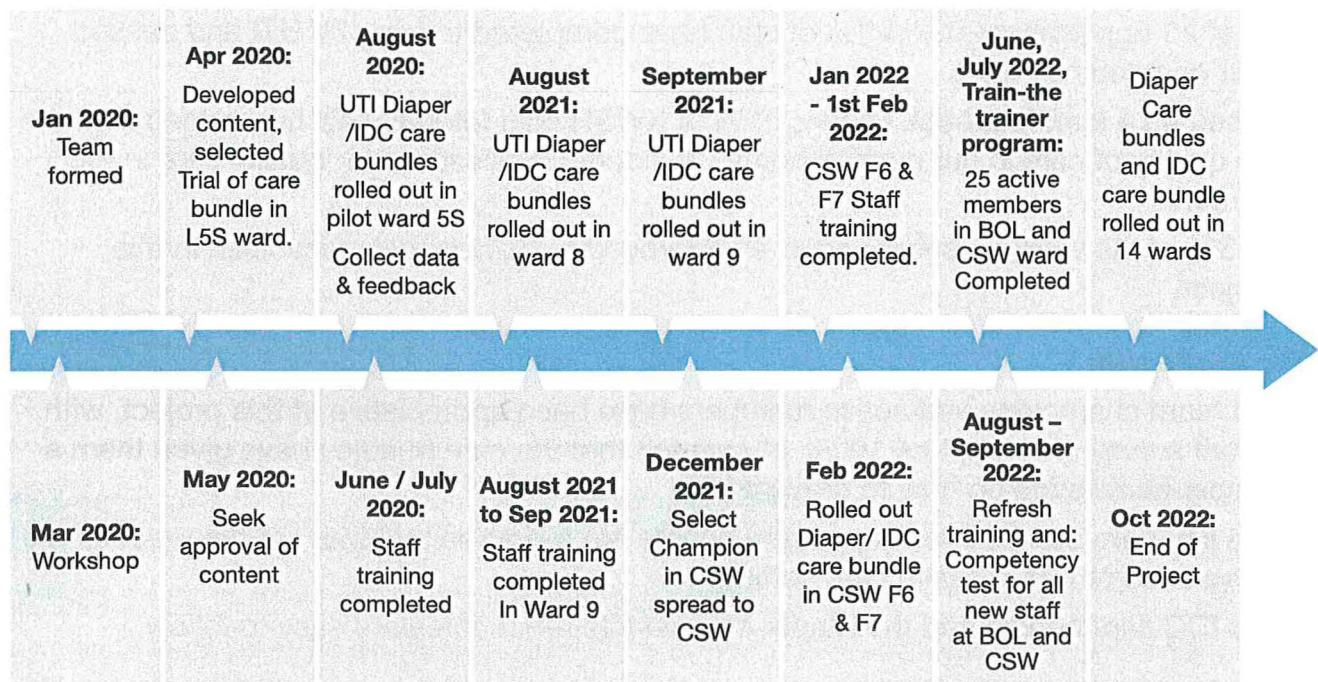
### Diaper Care Bundles Audit Tool

Diaper Care Bundles Care Audit Checklist									
Editor	Ward	Record 1				Record 2			
Name / Case Number		M	NM	NA	Remarks	M	NM	NA	Remarks
<b>SN ITIMS</b>									
1	Correct Resident identifiers used								
2	Indication for Diaper								
3	Assess resident Urinary, Bowel								
	•Physical immobility								
	•Cognitive impairment								
3	Assess document s resident								
	•Communication								
	•Cognitive impairment								
	•Ambulant								
	•Non-ambulant								
3	Check on Intact of Bladder Sancion								
4	Perform hand hygiene, don clean gloves								
5	Draw out 4 or more pieces of wet Alpex with clean gloves								
6	Check diaper & hourly, change as necessary								
7	Discard urine in urine bag, toilet bag, *Color, odour, amount.								
8	Check bowel movement when change diaper								
9	Monitor for any abnormalities in bowel movement, constipation, diarrhea (refer to Bristol stool chart)								
10	Assess skin condition: *Broken skin *Wound *Lesions								
11	Wear non-porous pants								
	•Female: wipe perineum clean from front to back								
	Male: If catheterised, retract foreskin, clean around the penis glands, and reposition foreskin after cleaning								
12	Monitor for signs and symptoms of urinary tract infection:								
	•Dysuria (pain on urination)								
	•Incontinence (blood in urine)								
	•Bladder distension								
	•Urinary frequency								
	•Abdominal pain								
	•Hypotension/decrease in output								
13	Examine and evaluate if there are any symptoms of the above signs and symptoms of UTI and constipation								
14	Assess and recommend on the possibility to consider assessing off diapers, and conduct setting								
Given date on (date): _____									
Audited by: _____									

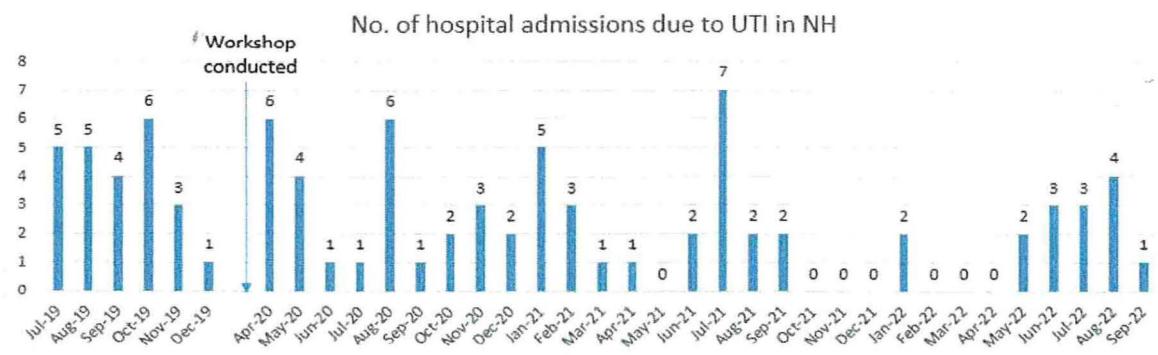
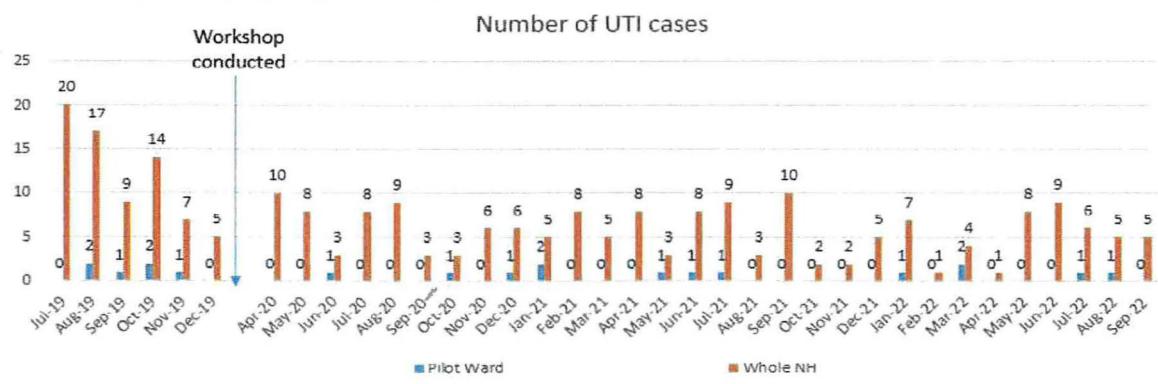
### IDC Care Bundle Check List

IDC Care Bundle		Room																					
Name	Ward	Date of IDC		Date of Changing of IDC		Type of IDC		Date & Time															
SN		Core Intervention Measures						Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No		
1		Has resident been on IDC for >2 weeks? If yes, review indication for same from IDC																					
		• Chronic urinary incontinence and retention																					
		• Nonrespiratory status																					
		• Decrease in weight of at least 5% from pre-IDC																					
		• Reduce TOC if eligible																					
		• Not a candidate for IDC																					
2		Flag out to doctor his permission to TOC if no indication for long-term IDC																					
		• Ensure the preparation and insertion of catheter and balloon is used																					
4		Advocate fluid intake of 1.5 L/day if not contraindicated																					
5		Ensure there is urine output every shift. Escalate if <100 ml/hour																					
6		• Encourage fluid intake																					
		• Monitor for urine output every shift																					
7		Always keep the urine bag below the level of the bladder. Do not rest the bag on the floor																					
8		Check urine bag system and ensure no obstruction/bags																					
9		Perform hand hygiene, before and after																					
		• Cleaning urine bag																					
		• Changing urine bag																					
		• Collection of urine specimen																					

We developed a structured staff training programme that covers topics such as diaper care bundle, care of urinary catheter. We also created competency tests to ensure that the staff are able to demonstrate what was covered during the training.



## Benefits / Results



### **Positive Result / Outcome**

- The project was started in ward 5S which was selected as the pilot ward. It was successful in reducing the number of UTI cases from an average of 12 (Jul 2019 – Dec 2019) to average of 5 cases (Apr 2022 – Sep 2022), which exceeds our project goal.
- As of 23 September 2022, 90% of staff have completed training on UTI and passed their competency tests.
- Based on a staff feedback survey, 91% of KWSH staff felt that CQI has helped improve the quality of care in our nursing home. Residents received better quality care in the wards.
- 51.3% of the ward nurses reported an improved happiness being involved in this project.

### **Survey Result:**

- UTI team champions and active members have been appreciative of this project, with a staff survey showing that 100% of staff felt that the care bundles have given them a deeper knowledge on how to prevent UTI.
- The IDC care bundle and Diaper care bundle are a precise tool that will help reduce the prevalence of UTI in health care setting.
- The IDC care bundle and the Diaper care bundle procedures are easy to follow.

### **Next Steps**

#### **Future Plan:**

- UTI committee will continue to meet on a regular basis and continue to review current UTI prevention initiatives and analyse trends in UTI.
- Work with IPC committee on infection prevention and control initiatives that also support UTI prevention e.g. hand hygiene training and audits.
- Plan to review current IDC protocols.
- Plan to spread to PTPNH.