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## Catheter Associated Infections (CAUTIs): The Need for Action

### Background

- CAUTIs have been associated with increased morbidity, mortality and high hospital costs for patients and health systems.
- 26% of patients admitted to an Australian hospital receive an indwelling urinary catheter and 1% of these patients develop CAUTIs.<sup>1</sup>
- An estimated 380,000 bed days are lost each year due to healthcare-associated infections in Australia, a large proportion of which are CAUTIs.
- CAUTIs can increase the length of hospital stay by up to four days.<sup>2</sup>
- CAUTIs are associated with higher risk of antimicrobial resistance (AMR).<sup>3</sup>
- Prolonged and unnecessary catheterisation appear to be the main risk factor for development of CAUTI's.<sup>1, 4</sup>

### Summary

Addressing prolonged catheterisation as the major cause of CAUTIs, this study aims to evaluate the effectiveness of an electronic surveillance device to reduce urinary catheter use: the CATH TAG.

## Key Outcomes

## The Intervention: CATH TAG

### Objective 1: Determine efficacy of the CATH TAG

- Urinary catheter device utilisation ratio
- The number of cases of catheter associated asymptomatic bacteriuria per 100 catheter days
- The number of urinary catheters inserted per 100 patient admissions

### Objective 2: Impact of the CATH TAG on nurses' ability to deliver patient care

- Perceived ease of use of the CATH TAG
- Perceived effectiveness of the CATH TAG
- Perceived changes in ownership or interest by patients regarding catheter management
- Perceived barriers to the CATH TAG working successfully in various types of patients

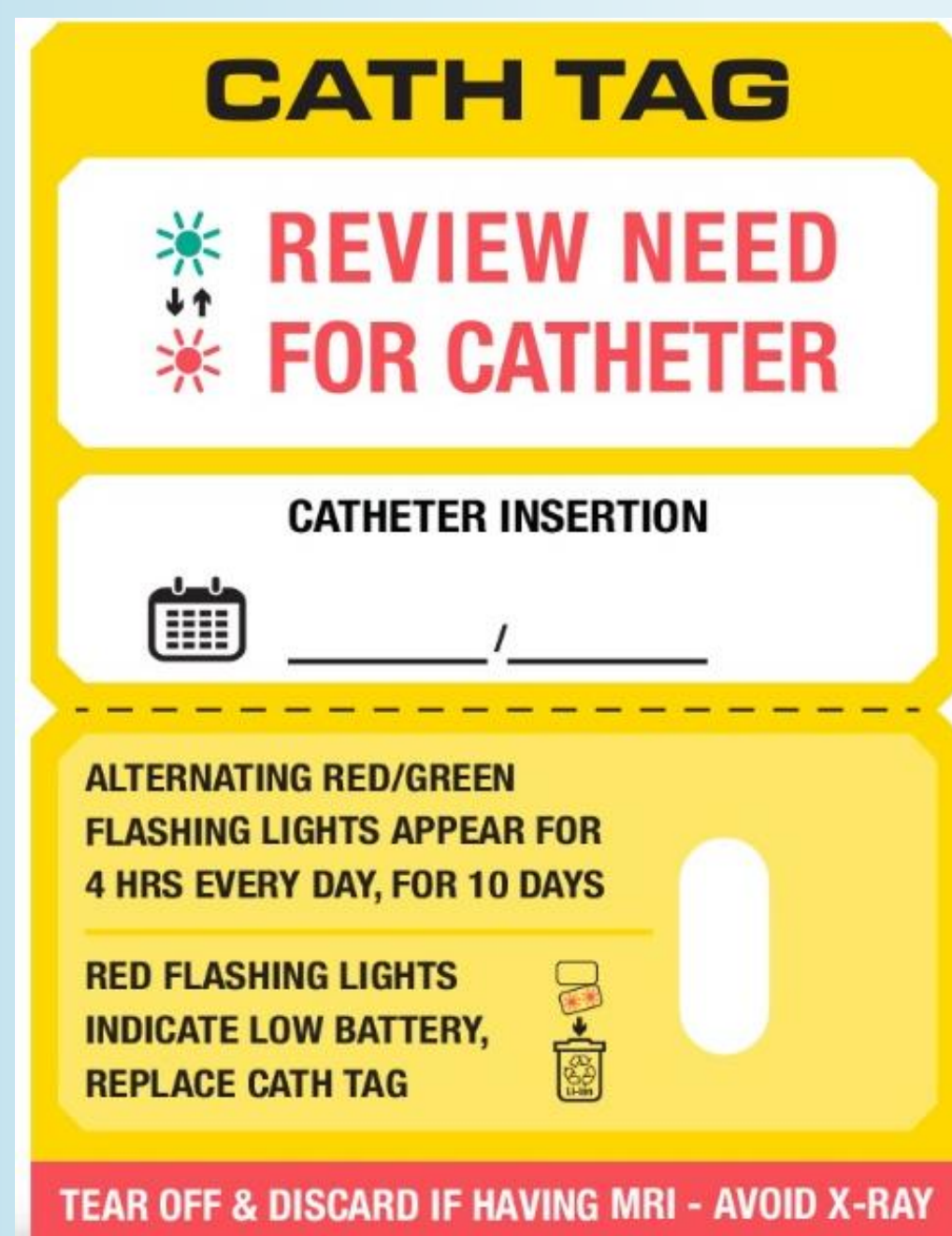


Figure 1 (left). CATH TAG device

Figure 2 (right). CATH TAG attached to catheter bag

### CATH TAG

- Electronic device, that attaches adhesively to catheter bag
- Indicates reassessment need for catheter through flashing

### Implementation

- A CATH TAG will be attached to every catheter bag (see figure 2) with catheter insertion
- Information and training sessions; distribution of flyers & promotional material in hospital prior to commencement to raise awareness of intervention

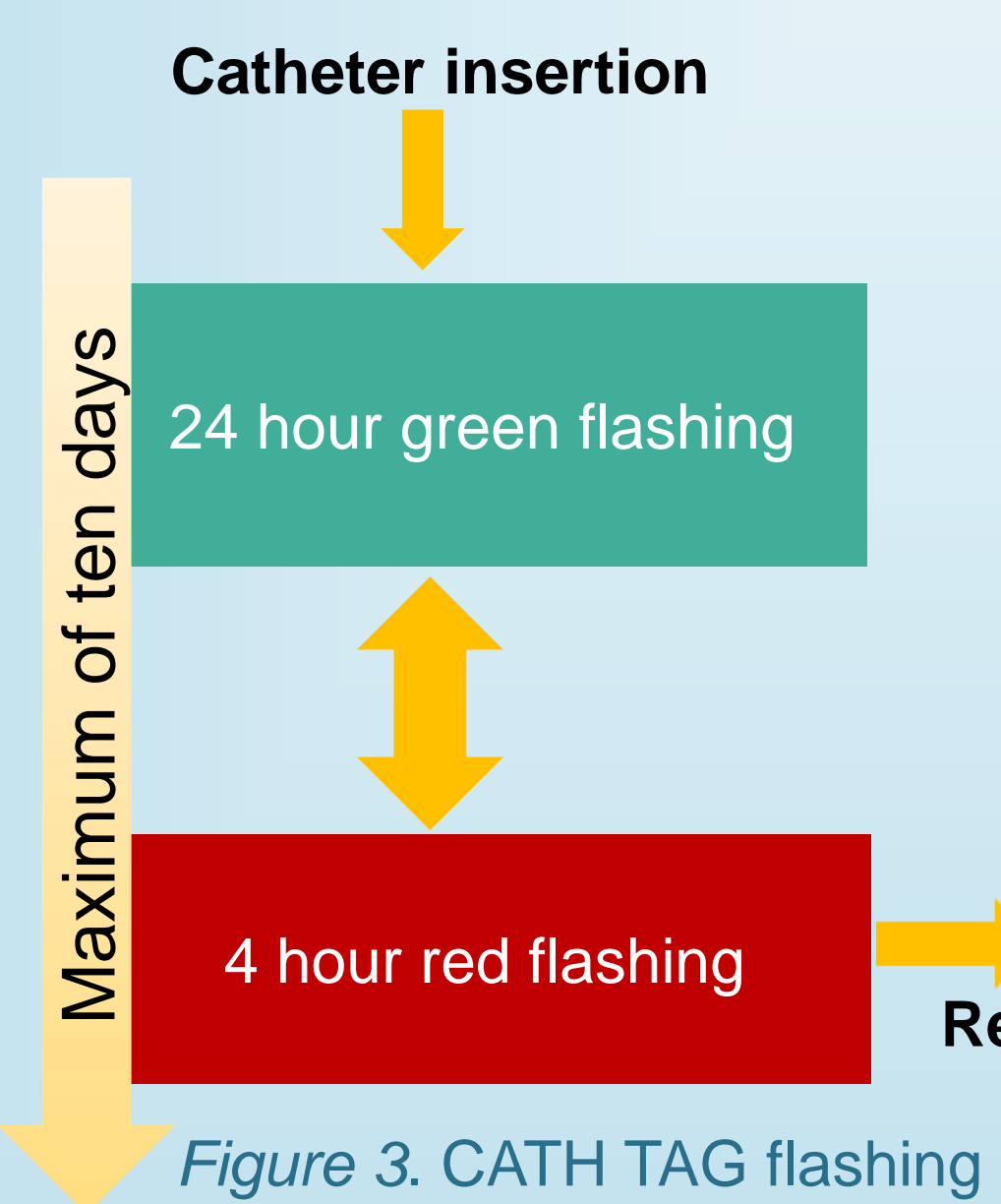
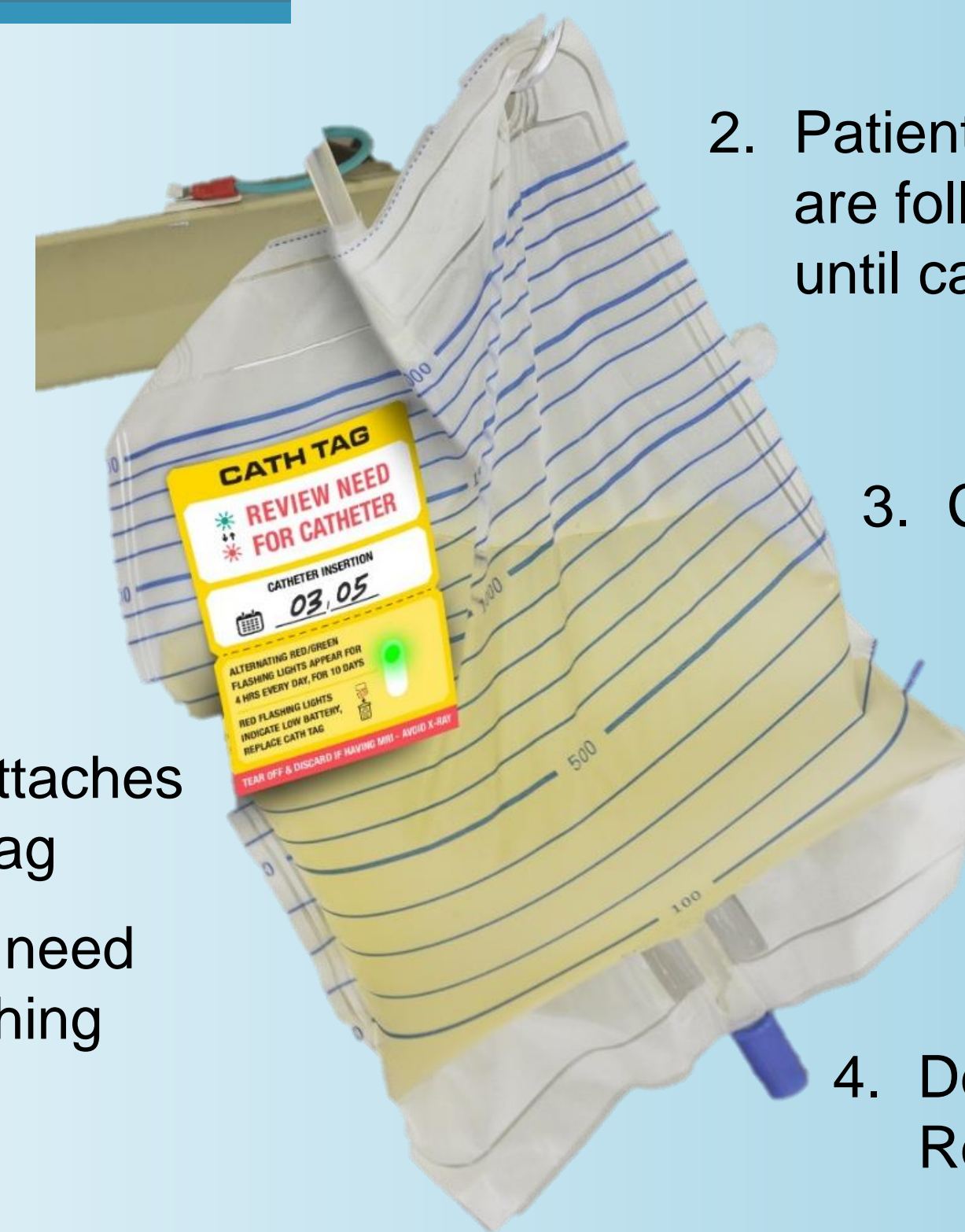


Figure 3. CATH TAG flashing cycle

## Data Collection

- Participant receives catheter
- Hospital staff review wards
- Medical Notes Review and Microbiology results
- Data Collected by hospital staff
- Data de-identified
- Data provided to researchers

1. Hospital personnel collect data five days a week during both control and intervention periods.

2. Patients who receive a urinary catheter are followed up during the trial period until catheter removal / discharge

3. Collect the following data:

- Patient demographics
- Catheter date and time of insertion & removal / discharge
- Laboratory results (if urinary sample has been taken)

4. De-identified data submitted to Research Team weekly, then monthly

### Anonymous Online Survey for nurses

Administered via an online survey tool  
Duration 10 – 15 minutes

### Focus group for nurses

Group discussion to receive in-depth feedback on CATH TAG  
Conducted member of the research team  
Duration 1 – 1.5 hrs

## Study Design

## Study Progression

- ✓ Max. feasibility
- ✓ Max. statistical power
- ✓ Min. risk for participants

Stepped wedge randomised controlled trial over 24 week period → Objective 1

Mixed methods approach → Objective 2

- All wards, included in the trial, will receive the intervention and act as their own control
- Random assignment of wards to intervention, allocation concealed to researchers, no blinding of wards
- Initial control phase for all wards: usual practice regarding catheter removal
- All wards complete the trial at the same time in May 2018

- Anonymous online survey upon completion of trial period
- Qualitative: Focus group two months post trial completion to investigate nurses' perceptions of the CATH TAG

Ward	1 month	2 month	3 month	4 month	5 month	6 months	Post Study -2Mths
A+B	White	Red	Red	Red	Red	Red	Survey Focus Group
C+D	White	Red	Red	Red	Red	Red	
E+F	White	Red	Red	Red	Red	Red	
G+H	White	Red	Red	Red	Red	Red	
I+J	White	Red	Red	Red	Red	Red	

Figure 4. Study Design Overview. White= control; Red = intervention

### Participants trial phase

- All hospitalised patients receiving a urinary catheter >2yrs of age, excluding theatre patients

### Participants survey & focus group

- Nurses, who have been working with the CATH TAG

- ✓ An Australian Hospital with at least 30,000 admissions and 10 wards will be recruited for the trial
- ✓ ANZCTR registered
- ✓ Ethics approval has been granted (Avondale College of Higher Education)
- ✓ Prospective trial commencement date: 1<sup>st</sup> Nov 2017
  - Trial period: 24 weeks
  - Prospective finish date: 1<sup>st</sup> May 2017

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