“Enhancing Patient Care Through Research”
Tuesday 24th May 2016
“The role of care bundle in the prevention of Catheter-associated urinary tract infections”
A review of literature
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Content

» What are Care Bundles?

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» Care bundle components & Prevention of CAUTI
Standards of care are generally defined by evidence based guidelines, e.g. infection control guidelines:

- SARI guidelines (Ireland)
- CDC guidelines (USA)
- EPIC/NICE guidelines (UK)
Incidence Of HCAI

At least 35-50% of HCAI’s are associated with only 5 patient care practices:

- Use and care of urinary catheters
- Use and care of vascular access lines
- Therapy and support of pulmonary functions
- Surveillance of surgical procedures
- Hand hygiene and standard precautions
“Care Bundle”

What are they & why use them?
What are Care Bundles?

- A Care Bundle is a collection of interventions (usually 3-5) that are evidenced based.

- A Care Bundle is a means to ensure that the application of all the interventions is consistent for all patients at all times thereby improving outcomes.
Background to Care Bundles
CAUTI

Many thousands of UTIs are linked to the insertion of an indwelling catheter (Saint 2000)

- UTI is the most common Health Care acquired infection
- 80% related to urinary catheters in Acute Hospitals Ireland
- 40% of hospitalized patients In Ireland are catheterized at some stage during admission (SARI 2009)
Portal entry of Infection

Extraluminal
- Early, at insertion
- Late, by capillary action

Intraluminal
- Break in closed drainage
- Contamination of collection bag urine
AIM OF CAUTI MAINTENANCE BUNDLE

To optimize the care of patients who require urinary catheterization during acute care.
To ensure that urinary catheters are removed as soon as clinically indicated.
12 standards
1. Governance
2. Implementation of infection prevention and control
3. Infrastructure
4. HR
5. Communication
6. Hand hygiene
7. Prevention of cross infection
8. Invasive medical devices
9. Microbiology laboratories
10. Outbreak management
11. Surveillance
12. Antimicrobial resistance
Literature Review

Use of care bundle-Study 1

A CAUTI rate analysis in 4 general medical units in a 120 bedded hospital in New Haven

↓

pre and post interventional cohort

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32 CAUTI in 2002-pre interventional

↓

10 CAUTI -post interventional approach

↓

2 -CAUTI in the 3rd post interventional phase in 2004.  
(Topal et al 2005).
A bundle of evidenced based interventions implemented

Used in 28-bed unit Acute Care Medicine Unit, (US)

significant reduction in CAUTI.

0-CAUTI in 2012

( Carter et al. 2014)
Interventional nurse directed catheter removal In a 300 bed community teaching hospital in Connecticut

50% hospital wide reduction in catheter use

70% reduction in CAUTI over a 36 month period

This study focused on reduction in catheter associated urinary tract interventions

(Parry et al 2013)
A multidisciplinary team
↓
Implemented urinary catheter bundle
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Focus - continual assessment and prompt catheter removal.
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Results included an overall reduction of 71% in catheter device days and a 56% reduction in catheter use (Andreessen et al 2012).
By meta-analysis (11 studies) reviewed

The rate of CAUTI (episodes per 1000 catheter-days) was reduced by 53% by use of evidenced based interventions

Using a reminder or stop order, with five studies also including interventions to decrease initial UC placement. (Meddings et al 2014)
Literature Review – Study 6

NHS Greater Glasgow - A district general hospital

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Quality improvement (QI) initiative
‘Plan, do, study, act’ cycle repeated at increasing levels of scale

- Cycle 1: Bundle tested on 1 patient
- Cycle 2: Bundle modified and tested on 1 patient
- Cycle 3: Modified bundle tested on 5 patients
- Cycle 4: Modified bundle tested on all patients
- Cycle 5: Modified bundle implemented with all patients with a urinary catheter
Results

- Despite the variation, CAUTI rates were relatively low.

- QI approach to catheter use and catheter care can reduce catheter usage and ensure the patient receives optimal research-based care. (Mavin et al 2015)
Urinary Catheter Care Bundle Components

**Insertion**

- Insert only for specific reasons
  - Monitoring Urinary output in critical ill
  - Bladder outlet obstruction or neurogenic bladder dysfunction
  - Prevent contamination of sacral wounds
  - Terminal care
- Competent HCW to insert
- Aseptic technique
- Closed system with bag below bladder
Management

- Review need for catheter daily
- Empty when ¾ full and use clean container for each patient
- Secure catheter to leg/abdomen
- Urine samples from sampling port only
- Hand hygiene & PPE before and after any catheter care
Urinary Catheter Care Bundle

- Care Bundle is published with the guidelines (HPSC-HSE) 2011
Bundle component

1) Check the clinical indication why the urinary catheter is in situ – is it still required?

2) Check the catheter has been continuously connected to the drainage system.
3) The patient is aware of his/her role in minimizing the risk of developing a urinary tract infection or ensure routine daily meatal hygiene is performed.

4) Regularly empty urinary drainage bags as separate procedures, each into a clean Container.
5) Perform hand hygiene and wear gloves and apron prior to each catheter care procedure; on procedure completion, remove gloves and apron and perform hand hygiene again.
Prevention of complications-devices

As many as 65%–70% of cases of CAUTI may be preventable with current evidence-based strategies. CAUTI is the most preventable HAI (Umsheid et al 2011)
Findings suggest that 100% prevention of HAIs may not be attainable with current evidence-based prevention strategies; however, comprehensive implementation of such strategies could prevent hundreds of thousands of HAIs and save tens of thousands of lives and billions of dollars. (Umsheid CA, et al 2011)

A Care bundle is a simple tool used to improve reliability in care delivery.

In relation to Urinary Catheter: Points to Remember
• Don’t put them in-unless clinically indicated
• Look after them properly
• Get them out ASAP
Thank You!!!
References

References Continued.

References