

LETTER TO THE EDITOR

Enhancing Patient Safety: The Role of Care Bundles in Reducing Hospital-Acquired Infections

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Improved patient care is the very heart of modernization process and more robust arrangements for control of infection in hospitals are a fundamental part of the agenda. Not all hospital acquired infection is avoidable but a significant proportion is preventable. Better application of existing knowledge and adherence to good practice can make a major contribution to that end.

One of the cardinal principles of hospital care is that it should cause no harm to patients.

- Invasive procedures are increasing in numbers & aggressiveness.
- Patient with immuno-compromised status is increasing.
- Hospitalizations weaken patients’ resistance.
- Hospital environment act as source of infection.
- Micro-organisms endemic to hospitals are resistant to most antibiotics.

Major Hospital Acquired Infections (HAI)

- Ventilator- associated pneumonia (VAP)
- Catheter- associated urinary tract infection (CAUTI)
- Central- line related (associated) blood stream infection (CLABSI/CRBSI)

To prevent the patient from infection. Care bundle is a set of 3 to 5 evidence-based practices performed collectively and reliably to improve the quality of care.

A "care bundle" is a group of evidence-based care components for a given disease that, when executed together, may result in better outcomes than if implemented individually.

**Grouping of best practices** that have been individually proven to improve quality in an area of clinical practice. **Simple, basic, tested & proven to improve patient outcomes.**

**AIM- Care bundles** aim to ensure that patients receive recommended treatments on a consistent basis.

Type of Bundle of Care

- VAP Bundle
- CLABSI Bundle
- CAUTI Bundle
- SSI Bundle

**Ventilator-Associated Pneumonia (VAP):** VAP is defined as pneumonia that occurs more than 48 to 72 hours after endotracheal intubation.

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### The Key Components of a Ventilator Bundle

- Hand hygiene
- Elevation of the head of the bed
- Daily interruption of sedation and assessment of readiness to extubate
- Peptic Ulcer Disease Prophylaxis
- Deep Venous Thrombosis (DVT) Prophylaxis
- Daily Oral Care with Chlorhexidine

### Catheter-Associated Urinary Tract Infection (CAUTI)

#### CAUTI Bundles

##### **1. Avoidance strategy**

- External condom catheter for male patient
- Intermittent catheterization
- Assessing urinary retention

##### **2. Insert catheters using aseptic technique and sterile equipment (acute care setting)**

- Perform hand hygiene before and after insertion
- Use sterile gloves, drape, sponges, antiseptic or sterile solution for periurethral cleaning, single use packet of lubricant jelly
- Properly secure catheters

##### **3. Maintain catheter base recommended guideline**

- Following aseptic insertion, maintain a closed drainage system.
- If breaks in aseptic technique, disconnection, or leakage occur, replace catheter and collecting system using aseptic technique and sterile equipment.
- Avoid raising the collection bag above the level of the patient's bladder. If it becomes necessary to raise the bag above the level of the patient's bladder. If it becomes necessary to raise the bag above the level of the patient's bladder during transfer of the patient to a bed or stretcher, clamp the tubing.
- Before the patient stand up, drain all urine from the tubing into the bag. The urine drainage bag should be emptied aseptically, touching the tip of the emptying tube to the side of the collection bag or permitting the tip to touch the urine in the vessel should be avoided.

##### **4. Daily review for prompt removal**

- Duration of catheterization is the most important factor for development of infection

##### **5. Ensure patients are aware of their role in preventing urinary tract infection Perform routine daily meatal hygiene.**

##### **6. Regularly empty urinary drainage bags into a clean container.**

##### **7. Properly trained persons should insert and maintain catheters.**

##### **8. Ensure daily catheter care hygiene measures.**

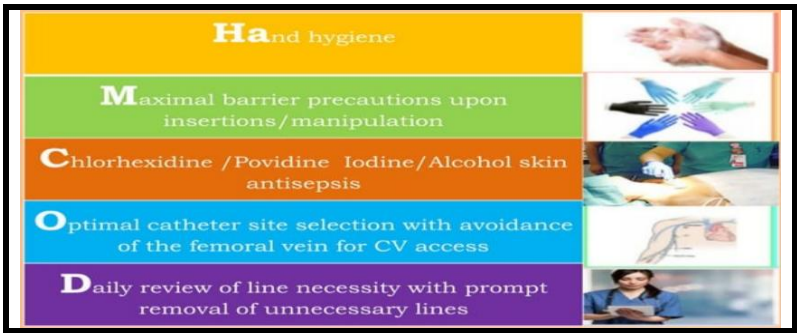
### Central Line-Associated Blood stream Infection (CLABSI)

A central line-associated bloodstream infection (CLABSI) is defined as a laboratory confirmed bloodstream infection not related to an infection at another site that develops within 48 hours of central line placement.

1. Hand hygiene compliance while handling CVC.
2. Maintain 100% sterility before and throughout CVC handling.
3. Assessment of CVC insertion site in each shift for its intactness, suturing and signs of infections like redness, swelling, leakage, indurations and exudates. Document the findings.

4. **Change transparent tegaderm dressing and label at least every 7 days or sooner if:**
- Dressing is not intact
  - Any Signs of inflammation
  - Excessive accumulation of blood or moisture under dressing
5. Prefer gauze dressing over transparent dressing, if patient diaphoretic, site is bleeding and oozing.
6. Change gauze dressing over CVC ports every 24 hours or whenever loose, moist or soiled.
7. Do not use any antibiotic cream or organic solvents (e.g. Acetone or Ether) on insertion site.
8. Check for patency, backflow and flushing of CVC ports with normal saline once in every shift if patient is not on continuous IV therapy and document it.
9. Unused CVC ports must be clamped to prevent air embolism and backflow of blood.
10. Fluid administration sets (burettes, infusion lines, multi-flow adapters, extension lines) attached to CVC should be changed in every 24 hours and remove unnecessary lines.
11. Change blood product set with each solution.
12. TPN and lipid emulsion administration sets has to be changed with each infusion.
13. Prime the IV sets, three way adapter and infusion line prior to attaching the CVC. Use the below mentioned technique to trap air bubble in CVC.
14. While administering any medication via three way of CVC , hold the syringe in 90 degree angle with CVC port that helps to trap air bubble at the piston part of the syringe.

**CLABSI Bundle – HaMCOD**



**Surgical Site Infection (SSI) Bundle**

Surgical site infections (SSIs) are infections that occur at the site of a surgical incision or in the tissues surrounding the surgical site. SSIs are one of the most common types of healthcare-associated infections, and they can occur after any surgical procedure, from minor outpatient surgeries to complex surgeries performed in hospitals. These infections can lead to increased morbidity, prolonged hospital stays, increased healthcare costs, and sometimes even mortality. Surgical Site Infection Bundle-

1. **Preoperative Measures:**
- **Patient Preparation:** Ensure proper patient hygiene, including preoperative bathing or showering with an antimicrobial agent.
  - **Antibiotic Prophylaxis:** Administer appropriate prophylactic antibiotics within the recommended time frame before surgical incision. Use antibiotics that are effective against the likely pathogens associated with the surgical procedure
2. **Intraoperative Measures:**
- **Aseptic Technique:** Adhere to strict sterile practices during surgery, including proper hand hygiene, sterile attire, and surgical draping.

- **Skin Preparation:** Prepare the surgical site using an appropriate antiseptic solution. Follow the recommended technique and allow sufficient drying time.
  - **Normothermia:** Maintain normal body temperature throughout the surgical procedure to reduce the risk of infection.
- 3. Postoperative Measures:**
- **Wound Care:** Implement proper wound care techniques, including sterile dressings, to promote healing and prevent contamination.
  - **Surveillance and Monitoring:** Establish a system for monitoring and surveillance of surgical site infections. Regularly assess the wound and promptly identify any signs of infection.
  - **Early Mobilization:** Encourage early mobilization of the patient to promote blood circulation, oxygenation, and wound healing.

**Strategies for Promoting Bundle Care:** Forming a committee to-

1. Review bundle care recommendations
2. Compare them to current unit practices
3. Generating a timeline for implementation
4. Providing education and communication to unit staff
5. Conducting audits to assess compliance with bundle
6. Regularly reporting the results back to unit staff.

**References**

1. Centers for Disease Control and Prevention (CDC) - Healthcare-associated infections (HAIs).
2. World Health Organization (WHO) - Guidelines on Infection Prevention and Control.
3. Institute for Healthcare Improvement (IHI) - Care bundles and Quality Improvement Strategies.

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