Device-Related Infection Prevention Practices – DRIPP

Improvement Collaborative

Spreading best practice, reducing infections, improving outcomes for patients with urinary catheters and intravascular devices

High Impact Interventions for Vascular Access Devices

Introduction

These high impact interventions (HII) have been developed using evidence-based guidelines and a care bundle approach as a patient safety strategy to reduce the risk of infection associated with peripheral intravenous catheters (PIVC) and central venous access devices (CVAD). Each bundle comprises of a small number of essential elements within the clinical process. The risk of infection reduces when all elements within the clinical process are performed every time and for every patient. The risk of infection increases when one of more actions of a care process are excluded or not performed.

Background

Vascular access devices (VAD) are required for many patients to deliver essential intravenous medicines and fluids as part of their treatment plan but these devices are not without risk of infection[1]. Blood stream infections associated with the insertion and ongoing management of VADs are potentially among the most dangerous complications in healthcare[2].

The use of an aseptic technique is fundamental in minimising the risk of both during VAD insertion and ongoing management[3]. Aseptic technique is a term applied to a set of specific practices, including hand decontamination, use of personal protective equipment, and prevention of contamination of susceptible sites and sterile parts of devices[1,2]. Aseptic non touch technique (ANTT) is a specific and comprehensively defined type of aseptic technique with a unique theory-practice framework based on a concept of key-part and key-site Protection[1]. The ANTT framework comprises of standard ANTT and surgical ANTT[1].

Standard-ANTT uses an approach of protecting key-parts and key-sites with a non-touch technique and used for clinical procedures where achieving asepsis is straightforward and short in duration, such as VAD flushing and locking, administration set preparation and change, intravenous medication administration and insertion of PIVC[1]. Surgical-ANTT is used for more complex procedures such as CVAD insertion where the main aseptic field needs to be managed in a more critical manner with sterilise drapes, a critical aseptic field, sterile gloves with full barrier precautions[1].

Healthcare staff performing any of the elements in the VAD bundles must be trained, skilled and competency assessed to decrease the risk of VAD related infections[2]. In addition, information and education should be provided for patients and carers[1,2,3].

These care bundles are not intended to replace local procedural guidelines and policies but are a collection of essential elements selected from a systematic review of the effectiveness of insertion and maintenance bundles[4]. From the 13 studies in the systematic review the essential elements were selected by the frequency of use, improved outcomes and expert consensus from a working group of infection prevention and vascular access experts.

Further understanding of how to apply care bundles can be found on the Institute of Healthcare improvement http://www.ihi.org

Elements of the care process

There are two sets of actions for both PIVCs and CVADs to be implemented for best practice in the:

a) insertion phase
b) ongoing care phase

PIVC Insertion Bundle

	PIVC insertion bundle elements
1.	Assessment [1,2,3,5] Assess need for device incorporating type and duration of therapy, site selection, potential risk and vessel health and preservation
2.	Aseptic technique [1,2,3,5] Hands must be decontaminated by washing with soap and water or with an alcohol hand rub before insertion of the PIVC using an aseptic technique/ANTT
3.	Skin antisepsis [1,2,3,5] Disinfect the skin with 2% CHG[7] in 70% alcohol using gentle repeated back-and-forth strokes and allow to dry
4.	Dressing and Documentation [1,2,3,5] Apply sterile transparent semi-permeable occlusive dressing. Document date and time of insertion, gauge, and site as a minimum

NB: patients with CHG sensitivity, alternatives such as povidone iodine should be used[1,2]

PIVC Ongoing care

	PIVC ongoing care bundle elements
1.	Assessment and documentation[1-5] Inspect insertion site for signs of infection/complications and flush to assess patency at every access and at least each shift. Document findings and action taken, re-site when clinically indicated and remove when no longer needed
2.	Aseptic technique [1,2,3,5] Hands must be decontaminated by washing with soap and water or with an alcohol hand rub and an aseptic technique/ANTT Aseptic technique/ANTT must be used when accessing PIVC
3.	Scrub the hub[1-5] Decontaminate hub (needle-free device) with 2% CHG in 70% alcohol for a minimum of 15 seconds and allow to dry

NB: patients with CHG sensitivity, alternatives such as povidone iodine should be used[1,2]

CVAD Insertion Bundle

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	CVAD insertion bundle elements
1.	**Assessment** [1,2,3,6] Assess need for device incorporating type and duration of therapy, site selection, potential risk and vessel health and preservation
2.	**Aseptic technique**[1,2,3,6] Aseptic technique/Surgical ANTT with maximal sterile barrier precautions (sterile gown, gloves, full body drapes, non-sterile cap, eye protection and face mask) must be used during CVAD insertion
3.	**Skin antisepsis** [1,2,3,6] Disinfect the skin with 2% CHG[7] in 70% alcohol using gentle repeated back-and-forth strokes and allow to dry
4.	**Dressing and Documentation** [1,2,3,6] Apply sterile transparent semi-permeable occlusive dressing impregnated with CHG and securement device. Document date and time of insertion, gauge, and site as a minimum[8]

NB: patients with CHG sensitivity, alternatives such as povidone iodine should be used[1,2]

CVAD Ongoing care

	CVAD ongoing care bundle elements
1.	**Assessment and documentation**[1-3,5,6] Inspect insertion site for signs of infection/complications, flush to assess patency and assess dressing/securement device/skin integrity at every access and at least each shift. Document findings and action taken, re-site when clinically indicated and remove when no longer needed
2.	**Aseptic technique** [1,2,3,6] Hands must be decontaminated by washing with soap and water or with an alcohol hand rub and an aseptic technique/ANTT Aseptic technique/ANTT must be used when accessing the CVAD
3.	**Scrub the hub** [1,2,3,5,6] Disinfect the hub (needle-free device) with 2% CHG in 70% alcohol for a minimum of 15 seconds and allow to dry

NB: patients with CHG sensitivity, alternatives such as povidone iodine should be used[1,2]

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