

# BSUH General Theatres

## Central Venous Catheter tip sheet

### PRE-PROCEDURE

- Ensure **monitoring** (AAGBI standard), **equipment** (CVC pack, sterile gown, USS & sterile probe cover), and adequate **training** for procedure
- Assessment and treatment of coagulopathy should be considered on a case-by-case basis<sup>1</sup>, with potential precautions including insertion at a compressible vessel
- **Device/length selection**
  - will depend on factors incl. insertion point, patient height, fixation
  - proximal placement of tip increases extravasation and thrombosis risk
  - 'Standard' lengths are considered at least<sup>1</sup>:
    - 15cm (right internal jugular vein (IJV))
    - 20 cm (left IJV & right subclavian)
  - VasCath devices are typically longer- see ICU protocol
  - Cardiac theatres CVC lines are typically shorter (eg 11cm)

### PERFORMING PROCEDURE

- **Full ultrasound guidance** recommended for IJV sites<sup>1,2</sup> (including USS to identify anatomy, real-time venepuncture & location of guidewire in vein)
- **Fixation** at skin entry point:
  - 3-point fixation (transverse groove and both holes) if advanced to the hilt
  - 4-point fixation (including fixation device) if not fully advanced

### INTRA-OPERATIVE USE

- **Transduce proximal lumen** to identify catheter migration early
- Run **vasopressors** on **distal lumen** to minimise extravasation in event of catheter partial migration

### POST-OPERATIVE CHECKING<sup>3</sup>

- **Chest X-ray** to confirm position of upper body CVCs
  - Tip of catheter should ideally be:
    - In lower SVC, or upper Right Atrium
    - Parallel to vessel wall
  - Devices positioned elsewhere may still be used only if safe to do so<sup>3</sup>
  - May require repositioning or further imaging

### MISPLACED CATHETERS<sup>3</sup>

- **Suspect** if
  - difficult aspiration of blood
  - loss of/abnormal pressure waveform
  - pain on injection
  - visible extravasation, or swelling around CVC site
- **Only remove** if known **not** to be dwelling within vulnerable structures<sup>3</sup>
  - Seek advice or further imaging if required- see ICU misplaced catheter protocol
  - Discuss with vascular surgeon in event of arterial cannulation
  - "If in doubt, **don't** take it out"

### REFERENCES

1. AAGBI Safe Vascular access 2016
2. Lamperti M, Bodenham AR, Pittiruti M, et al. International evidence-based recommendations on ultrasound-guided vascular access. *Intensive Care Medicine* 2012; 38: 1105-17
3. Gibson F, Bodenham A. Misplaced central venous catheters: applied anatomy and practical management. *British Journal of Anaesthesia* 2013; 110: 333-46

