INTRAVENOUS KEY OPINION LEADERS (IV KOL) FORUM
28th July 2011, Melbourne – Report by Catharine O'Hara

Catharine is employed as a Clinical Nurse Specialist for intravenous therapy at MidCentral Health DHB in Palmerston North. She is the President of IVNNZ Inc.

The IV KOL Forum, proudly sponsored by Smith and Nephew, involved a number of invited IV clinicians from each state in Australia and New Zealand (ANZ) to participate in discussion on a number of key areas of IV management. With no formal IV group in Australia this group of clinicians aim to develop ongoing discussion and networking to improve clinical intravenous practice. The objective of the IV KOL Forum ANZ was to discuss a selection of topics nominated by the group as being of interest and important in vascular access. Each topic was facilitated by two to three attendees, and generated interactive and lively debate. The topics discussed included the following:

1. **Dressing management to include dressing choice, frequency of dressing change, biopatch/antimicrobial dressing/acticoat site use and statlock changes.**

   Objective: Identify a definitive outcome as to what should be recommended in Australia. Discuss what is being done in different states – work towards one goal and confirm everyone is prepared to move towards this. How do we do this?

   Discussion: Reviewed the strength of the body of evidence from the CDC guidelines in relation to types of central venous catheters, population groups, practice settings, skin preparation, dressing types and antimicrobial dressing technologies, securement or stabilization devices and dressing technique. The CDC guidelines (2011) and Infusion Nurses Standards of Practice (INS, 2011) both provide valid evidence to assist healthcare organisations to develop procedures for clinical practice to improve patient outcomes.

   References:

   1. Center of Disease Control and Prevention http://www.cdc.govt.com
   2. Infusion Nurses Society (2011). Infusion Nursing Standards of Practice. *Journal of Infusion Nursing. 34*, (1S).

2. **Flushing Techniques, including positive displacement valves.**

   Objective: Understand what systems the group use and which has the lowest infection rate. Do we upgrade those using a lesser device? Do we recommend that we bring all clinicians up to using the evidence-based practices?

   Discussion: To consider the systems, such as needleless connectors design – split septum and mechanical valves and their functions. The CDC guidelines 2011 provide recommendations for management of the intravascular devices to prevent infections. Jarvis (2010) provides recommendations when selecting the best needleless connector design – septum surface smooth, septum seal, fluid pathway is simple and direct, dead space little or nil, internal mechanism has no moving parts, use one type of clamping sequence, visibility, blood reflux and sodium chloride flushing. The turbulent flushing technique, push/pause method is not supported by research, and enhances biofilm (Macklin, 2010).

References:
1. Jarvis, W R. (2010). Choosing the best design for intravenous needleless connectors to prevent bloodstream infections. *Infection Control Today.* www.infectioncontroltoday.com Accessed July 2011.
2. Macklin, D (2010). The impact of IV connectors on clinical practice and patient outcomes. *JAVA, 15,* (3), 126 -139.

3. PICC insertion under ultrasound. Portable versus fixed systems.

Objective: Agree on what techniques should be used for both types of systems.

Discussion: Ultrasound imaging in vascular access increases the success rates and avoids complications by providing visualisation of the desired vein instead of guessing the anatomy. The use of ultrasound is recommended by CDC 2011, AVA 2011, and NICE 2002. Scientific evidence was presented on why ultrasound is recommended. The advantages of a fixed system are direct visualisation of the guidewire, no need for x-ray post insertion and easier manipulation of catheter into position. The disadvantages of a fixed system are expensive, requires radiographer, and not as readily available. Ultrasound guided PICC insertion can result in improved health outcomes, cost savings, and revenue generation.

References:
1. Kelly, L. J. (2010). Ultrasound guidance for vascular access. IVjournal.com. October
2. Johnson, M.A. et al (2009). Portable ultrasound: a cost-effective process improvement tool for PICC placement. *Nursing Management. January*, pages 47 -50.

4. Development of guidelines around interpretation of chest x-rays.

Objective: There will be a lot of different opinions. Still some people who put in lines and then take to the doctor to check. Discuss who does what in each state. Determine minimum requirements that a clinician verifying a catheter tip needs to look for.

Discussion: The discussion considered the necessity of a Chest X-ray to verify placement and the accepted placement of a distal device tip. Nurses would require support/approval from the nursing regulatory body to consider this as expanded practice such as a Nurse Practitioner role. There was debate on the legal issues and consideration for a funding activity based nursing practice. For nurses to work in an expanded role and if there are no guidelines for the registered nurse then the responsibility is with the employer to provide education and training along with policies and procedures. Both the Infusion Nurses Society (INS) and the Association of Vascular Access (AVA) 2008 released position statements for the registered nurse.

It is important to obtain complete anatomical information about the exact catheter tip location. “The catheter is in a good position” or “the catheter is ok to use” is not sufficient. Acceptable description “the catheter tip appears to be in the lower SVC” or the catheter tip is located 4cm below the lower tracheo-bronchial angle”. Reporting of the image must be finalized by a radiologist. The carina is considered a reliable simple anatomical landmark for correct placement of CVCs.

Discussed catheter tip migration with arm movements, evidence indicated that adduction and flexion are capable of advancing the PICC inserted through the antecubital veins as much as 9.5cm.

References:

1. British Journal of Anaesthesiology (2009):102(6):820-823

5. ECG monitoring for line placement. How do you find the catheter tip using ECG monitoring?

Objective: To look at different technology available on the market and where this would be beneficial to use in vascular access.

Discussion: ECG-guided CVC placement is considered useful and a safe method to ensure catheter tip position. The ECG method relies on the P wave evaluation. However, is unreliable for correct catheter positioning when using the left-sided approach. In fact, limitations were also associated for patients with pacemakers, atrial fibrillation, sensitive skin, skin disorders, and burns, obese and confused or combative patients. A normal sinus rhythm is required to benefit from the ECG systems. The use of multiple guidance indicators (vectors) improves successful placement of PICCs.

References:

1. Schummer, W et al. (2003). Intra-atrial ECG is not a reliable method for positioning left internal jugular vein catheters. *British Journal of Anaesthesia, 91 (4): 481-6* .
2. Gebhard, R. E. (2007). The accuracy of electrocardiogram-controlled central line placement. *Anaesthesiology* 104: 65 -70.

The day concluded with discussion on development of an Australian Vascular Access Society (AVAS), with the intention of becoming affiliated to the Association for Vascular Access (AVA).

Thank you to Smith & Nephew for sponsoring this IV forum, to enable review of the market products and research. The discussions of infusion therapy encouraged the use of an evidence-based approach to standardise clinical practice and improve patient outcomes.

A complete list of references from the IV KOL Forum is available from Catharine O'Hara, email: president@ivnnz.co.nz