Faculty Disclosure

Catherine Davidson, BSN, RN, Sara Froyen Gernbacher, RN, BSN, CPON and Erin Scanlon, RN, BSN, CPON have disclosed no actual or potential conflicts of interest in relation to this educational activity.

During this presentation, the speakers will not be discussing the use of any commercial or investigational product not approved for any purpose by the FDA.

Evidence-Based Practice: Hematology/Oncology Topics

Wednesday, October 14, 2009 & Wednesday, November 11, 2009

Catherine Davidson, BSN, RN
“Cohorting RSV and Immunocompromised Patients”

Sara Froyen Gernbacher, RN, BSN, CPON
“Sterile versus Aseptic Technique for Port-A-Cath Access”

Erin Scanlon, RN, BSN, CPON
“Waste Not Want Not: The Push-Pull Technique versus the Discard Method of Blood Sampling”

Evidence-Based Practice Scholars: Hematology/Oncology Topics

At the end of this presentation, the learner will be able to:
1. Discuss the process used for exploring evidence-based practice.
2. Articulate key findings of this exploratory work.
3. Describe several proposed clinical changes based on evidence.

Accreditation

Children’s Hospitals and Clinics of Minnesota is accredited as a provider of continuing nursing education by the American Nurses Credentialing Commission on Accreditation.

Children’s Hospitals and Clinics of Minnesota designates this educational activity for 0.5 continuing education hour.

Inspiration

- Interest in learning why we do what we do
- Working on the hematology/oncology floor
- Talking with 8th floor nurses and clinical educators
**PICO Question**

Do immunocompromised pediatric patients have an increased risk of respiratory infections when cared for on a unit with RSV patients?

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**The Search Begins…**

- 10 year search, expanded to 20 years
- Cohort, immunosuppressed, immunocompromised, oncology, neutropenic, nosocomial infection, RSV

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**What I Found**

- No studies answered my question.
- Studies that do exist are limited by small sample sizes and not all are specific to pediatrics.
- Major gaps in the evidence in regards to what nursing interventions are helpful in preventing and/or controlling nosocomial infections in neutropenic patients.

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**The Evidence That’s Out There**

- RSV facts in relation to pediatrics
- RSV and immunocompromised patients
- Isolation and prevention recommendations

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**RSV Facts**

- Risk Factors
  - On pediatric wards, RSV has been the most frequent cause of nosocomial infection (Breese Hall, 2000).
- Shedding time
  - The shedding of RSV in respiratory secretions of young children tends to be for long periods and high titer (Breese Hall, 2000).
- Transmission
  - RSV is primarily transmitted by close person-to-person contact or by touching contaminated surfaces (Breese Hall, 2000).

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**RSV and Immunocompromised Patients**

- Risk Factors
  - Neutropenia
    - Patients with severe neutropenia were associated with the highest incident of nosocomial infections (Urrea 2004).
  - Prolonged hospital stays
    - In bone marrow transplant recipients, infection with RSV is associated with prolonged hospitalization and mortality rates that may be as high as 60-80%, despite interventions with antiviral therapy (Meissner, 2003).
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**RSV and Immunocompromised Patients (cont.)**

– Shedding Time
  - Both the amount and length of shedding appear to correlate with the degree of immunosuppression (Breese Hall, 2000).
  - One study found that children with a greater degree of immunosuppression shed a larger quantity of the virus and shedding was documented for up to 47 days (Breese Hall, 2000).
– Under or undiagnosed
  - RSV infections in immunocompromised patients may be unsuspected when illness begins with mild upper respiratory tract symptoms (Meissner, 2003).

**Isolation and Prevention**

**Handwashing**

– Hand washing has been proven by multiple, well-designed studies to be one of the most effective ways to prevent the transmission of infection (2006).

– Research done by Issacs et al. (1990) found a reduction of at least 60% in the number of hospital acquired RSV infections during two winters after emphasizing the importance of handwashing and simple cohorting of babies.

**Isolation and Prevention (cont.)**

**Gloves and Gowns**

– CDC recommends the use of contact and standard precautions for RSV infections.

– Research evidence is conflicting
  - A longitudinal intervention study concluded that glove and gown precautions can substantially reduce the nosocomial transmission of RSV, especially with patients that are shedding the virus (Leclair et al. 1987).
  - In several studies of pediatric populations, gowns or other protective clothing have not been shown to reduce the risk of infections (Oncology Forum 2004).

**In Summary…**

**Recommendations**

– When possible keep RSV and immunocompromised patients on different units.

– Do not assign the same nurse to care for both an RSV and oncology patient.

– Adhere to precautions and practice good handwashing at all times.

– Educate RNs on early detection of possible RSV infections in immunocompromised patients.

**References**

Breese Hall, Caroline (2000). Nosocomial respiratory syncytial virus infections: The "cold war" has not ended. Clinical Infectious Diseases, 37, 590-596.


**References (cont.)**


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**Sara Froyen Gernbacher, RN, BSN, CPON**

- Nurse Case Manager in Hematology/Oncology Clinic
- Children’s employee for 22 years

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**Sterile versus Aseptic Technique for Port-A-Cath Access**

Sara Froyen Gernbacher, RN, BSN, CPON

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**Time Flies!**

Camp Courage 1987
Children’s 2009

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**Evidence Based Practice Scholars Program**

I applied to participate in the Evidence Based Practice Scholar’s program because I have always been inspired by the intellectual curiosity, spirit of collaboration and support for education that exists in our serviceline.

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**PICO Question**

For pediatric oncology patients with an implanted vascular access device (IVAD), does use of sterile versus aseptic technique for access impact patient outcome?
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Background
- Became interested in this question through an experience with a patient’s family
- Realized how little I knew about the evidence and rationale for our clinical standard
- Curious!

Search Terms
- Implanted Vascular Access Device (IVAD)
- Catheter Related Blood Stream Infections (CR-BSI)
- Venous port system
- Central venous catheter
- Aseptic Non-Touch Technique (ANTT)

Databases
- The Cochrane Library
- PubMed
- CINAHL

Searching for Evidence
- Several systematic reviews available
- Objective/Aim: present the best available evidence for the effective management of central venous catheters to prevent/reduce catheter-related infections

Findings
- Highlighted lack of evidence to support either technique for port access
- “No studies were identified that examined the degree of barrier precaution or aseptic technique needed for catheter care to prevent catheter-related infection in the pediatric population”
  
  (Lee, 2005)

Guidelines for the Prevention of Intravascular Catheter-Related Infections
- (O’Grady, et al.)
- Morbidity and Mortality Weekly Report
- Centers for Disease Control
- Infection Control & Hospital Epidemiology
- No statement regarding barrier use for port access
- Evidence supports experienced staff and use of chlorhexidine gluconate for skin antisepsis as important measures
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**epic2: National Evidence-Based Guidelines for Preventing Healthcare-Associated Infections in NHS Hospitals in England**
(Pratt, et al. 2007)

- Hand antisepsis and proper aseptic non-touch technique (ANTT) are required for changing catheter dressings and for accessing the system
- Appropriate ANTT does not require sterile gloves

**Aseptic Non-Touch Technique (ANTT)**

- A method used to prevent contamination of susceptible sites by microorganisms that could cause infection
- Achieved by ensuring that only sterile equipment and fluids are used and the parts of the components that should remain sterile are not touched or allowed to come into contact with non-sterile surfaces

**Aseptic Non-Touch Technique**
http://www.antt.co.uk

**Journal of Infusion Nursing**

- “Sterile gloves, mask, and sterile technique should be used when accessing an implanted port or pump” (January, 2006)
- Reference list (4 citations) includes O’Grady, et al. article

**Implications for clinical practice**

- Environment
- Standardize process for cleaning supply trays and stands
- Partner with Materials Management staff

**Recommendation**

Revise our clinical standard to utilize the term “Aseptic non-touch technique”
Potential Future Study

- Our infection rates are extremely low with current ANNT so comparing them would not be effective (i.e. can’t decrease a rate of 0)
- Design a study to compare the density of skin flora/degree of skin antisepsis achieved using each method:
- Access ports using each technique, obtain a skin culture from the access field, compare these results

Evaluation of EBP Process

- Interesting!
- More!
- Intriguing questions along the way:
  - Saline versus heparin for flush solution
  - Frequency of flushing
  - Length of time between port needle change

Waste Not Want Not
The push-pull technique versus the discard method of blood sampling

Erin Scanlon, RN, BSN, CPON

Introduction

- I have worked on the 8th floor for 4 yrs
- I became interested in this topic because most of our patients have central lines and frequent labs.
- I decided to participate in the scholar’s program because as a bedside nurses we have all seen things and said “there has to be a better way to do this”

PICO Question

Is the Push-Pull method of lab sampling as accurate as using the discard method in children with central venous catheters?

Searching High and Low

- Databases used:
  - PubMed, CINAHL
- Search Terms:
  - push-pull method, lab sampling, central venous catheter, pediatric
- Finding the evidence:
  - Found this topic while researching another that was not yielding results.
**Discard Method**
- Standard accepted method for blood collection (Holmes, 1998).
- On average 4-6mls of blood is wasted prior to obtaining the lab sample (Adlard, 2008).
- When using this method the waste is necessary in order to obtain a sample that is not diluted with IV solutions or heparin.
- This is our current practice.

**Push-Pull Technique**
- 6mls of blood are pulled into a syringe and then without removing it from the catheter it is pushed back into the patient. This is done a total of 3 times (Holmes, 1998).
- By pushing and pulling the blood it is mixed up enough to provide an accurate sample.

**Evaluation**
- There does not appear to be a clinical significance between lab values obtained using the push-pull technique.
- Due to the benefits to the patient the push-pull method is preferred.
- Limitations to this method would be the lack of evidence supporting its use when drawing drug levels or coagulation studies.

**Spreading the Word**
- Taking information to the Unit Councils
- Presenting to relevant committees to see if the Push-Pull technique can become our new lab drawing method.
This is not the end, it is only the beginning

References

