The Cost of the Blood Draw: How to Best Manage the BMT Patient?
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OBJECTIVES
THE COST OF THE BLOOD DRAW: HOW TO BEST MANAGE THE BMT PATIENT?

- Discuss guidelines and standards of care that impact vascular device maintenance and blood sampling.
- Review the impact of blood sampling and its effect on the BMT patient.

WHAT REQUIRES A BLOOD DISCARD OR BLOOD DRAW?
- Daily labs
- Point of care
- Drug levels
- Research labs
- Pharmacokinetics
- Blood cultures
- Checking blood return

PRACTICES TO AVOID: USE OF CVCs FOR BLOOD SAMPLING.

This practice increases the number of catheter manipulations at the catheter hub, thereby increasing the risk for contamination. It also increases the risk of catheter occlusion if not adequately flushed immediately after the sample has been withdrawn.

RISK VERSUS BENEFIT

<table>
<thead>
<tr>
<th>Risk</th>
<th>Benefits</th>
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<tbody>
<tr>
<td>Occlusion</td>
<td>Avoidance of anxiety, discomfort and dissatisfaction with venipuncture</td>
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<tr>
<td>Catheter related blood stream infection</td>
<td>Results of the lab sample</td>
</tr>
<tr>
<td>Potential for inaccurate lab results</td>
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<tr>
<td>Anemia</td>
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87% TRANSFUSE RBCS FOR A SPECIFIC NUMERICAL VALUE

Q9. As a standard, does your institution transfuse RBCs for a specific numerical value?

- Yes
- No
METHODS OF BLOOD DRAW

- Discard
- Push-pull (mixing)
- Reinfusion
  - Closed system blood draw

Q6. Does your institution use a closed needle free in line blood sampling system which allows for blood discard to be reinfused for laboratory samples?

- Yes
- No

27% answered yes to using a closed needle free In line blood sampling system

Q7. If Yes is this for ICU BMT patients?

- Yes
- No

18% answered yes this is for ICU BMT patients

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How Much and How to Discard, What is the Evidence?

<table>
<thead>
<tr>
<th>Study</th>
<th>Methodology</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cosca, PA, et al (1998)</td>
<td>To determine if clots are present in the initial 10 ml of blood routinely discarded from venous access devices (VADs) prior to blood sampling, and to determine if clots form in the discard blood specimen during the five minutes required to complete blood specimen sampling.</td>
<td>Clots were found in both specimens.</td>
</tr>
<tr>
<td>Barton, SJ et al. (2004)</td>
<td>Test the agreement in blood values obtained from a discard method and a push-pull method in samples from CVC in pediatric patients.</td>
<td>Push-pull method of obtaining blood specimens from pediatric CVC should be considered.</td>
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Reinfusion of discard blood from venous access devices.

How Much and How to Discard, What is the Evidence?

Q8. How much blood do you waste when drawing routine chemistries?

- 3 mL
- 5 mL
- 5-10 mL
- 10 mL
- Not sure of the 2-3x the catheter

Q11. When drawing blood cultures, do you waste?

- Yes
- No

47% WASTE BEFORE BLOOD CULTURES

53% DO NOT WASTE BEFORE BLOOD CULTURES
ORDER OF THE DRAW

When multiple samples are drawn, attention should be given to the order in which tubes are filled.
- Blood culture tube
- Coagulation tube (blue top)
- Serum tube with or without clot activator, with or without gel (red top)
- Heparin tube with or without gel plasma separator (green top)
- EDTA (lavender top)
- Glycolytic inhibitor (gray top)
- ACD (Light yellow)

Q10. Do you understand what order of the draw means?
- Yes
- No

85% answered Yes I understand what order of the draw means.

BEST PRACTICE: BLOOD SAMPLING VIA A VASCULAR ACCESS DEVICE (INS STANDARDS)
- Considered based on evaluation of benefits versus risk
- Knowledge regarding technical factors involved in blood specimen collection
  - changing the needleless connector
  - need for patient fasting prior to collection
  - use of appropriate blood collection tubes in the correct sequence
  - timeliness of dispatch to the laboratory
- Correct technique

INS STANDARD 57
Efforts to conserve blood should be considered:
- Low volume tubes
- Recording volume of blood obtained for laboratory testing
- Avoidance of routine testing
- Use of point of care testing
- Consolidation of all daily tests with 1 draw
- Consideration of the use of the mixing method for blood sampling from CVADs

JOINT COMMISSION NATIONAL PATIENT SAFETY GOAL 7-07.04.01
- Central Line-associated bloodstream infections (CLABSI)
- NPSG.07.04.01: Implement evidence-based practices to prevent central line-associated bloodstream infections.

CONCLUSION
- When obtaining blood samples from CVADs, care should be taken to ensure that blood loss is minimal, the potential for infection is minimized and an accurate sample is obtained.
FUTURE DIRECTIONS

- The next core measure, quality measure, or performance improvement project
- Blood discard for BMT
- Checklists for blood draw
- Disinfecting alcohol port protectors:
  - Joint Commission: EP 16 requires use of a "standardized protocol to disinfect catheter hubs and injection ports before accessing the ports".

REFERENCES


BLOOD & MARROW TRANSPLANT (BMT) NURSING COMPETENCIES

- Holie Devine MSN, ANP-BC, AOCNP®

REFERENCES


ORIENTATION

- Process of educating newly hired staff in health care organizations to organization wide, departmental and job specific competencies before providing patient care, treatment, and services.
- Usually a one time process.

Joint Commission
TRAINING

- Development and implementation of programs that foster staff development and continued learning, address skill and deficiencies and thereby help ensure staff retention
- Allows opportunities for staff to develop job responsibilities
- Continuous process

Oncology Nursing

- Multifaceted field
- Complex decisions
- Diverse situations
- Experience varies
- Professional plan for nurses

Novice to Expert: Excellence and Power in Clinical Nursing Practice

Stage I
- Novice
- Role: Shadowing
- Setting: Inpatient
- Specialty: Oncology

Stage II
- Advanced Beginner
- Role: Inpatient nurse
- Setting: ICU
- Specialty: Oncology

Stage III
- Competent
- Role: Staff nurse
- Setting: Community
- Specialty: Oncology

Stage IV
- Proficient
- Role: Staff nurse
- Setting: Referring office
- Specialty: Oncology

Stage V
- Expert
- Role: Nurse or Advanced Practice Nurse

Complexity of Care in BMT

- Experience
- Setting
- Role
- Specialty

How do we onboard and whose role is it?

Competency Assessment

<table>
<thead>
<tr>
<th>Learning Domain</th>
<th>Activities</th>
<th>Delivery Considerations</th>
<th>Assessment</th>
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</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>Need-based interventions for all patients</td>
<td>Web-enhanced multimedia promoting higher-order thinking skills</td>
<td>Self-assessment using online tool</td>
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<tr>
<td>Affective</td>
<td>Goal-setting and self-reflection</td>
<td>Structuring audio-visual resources and interactive video, web casts, conferences, case studies</td>
<td>Self-assessment using online tool</td>
</tr>
<tr>
<td>Psychomotor</td>
<td>Analysis of patient's behavior in an activity in order to provide feedback</td>
<td>Interactive simulations, case studies, and self-assessment</td>
<td>Self-assessment using online tool</td>
</tr>
<tr>
<td>Interpretive</td>
<td>Structural team processes with feedback and analysis video</td>
<td>Audio-visual feedback on patient performance</td>
<td>Self-assessment using online tool</td>
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BMT Orientation Content for Transplant Nurses

- Knowledge of disease & immune system
- History & development of transplantation
- Review of immunology
- Pathophysiology of immune system
- Common immunosuppressive medications
- Transplant team and responsibilities
- Role of multidisciplinary team
- Hematopoietic stem cell harvesting
- Administration of blood products
- Management of blood product complications
- Central venous catheter care
- Blood product transfusions
- Bone marrow mobilization and collection
- Central venous catheter care
- Mobilization regimens
- Common side effects of collection by apheresis
- Marrow Harvesting process
- Care needs and recovery following collection
- Transplant supportive care
- Administration of high dose chemotherapy, growth factors, and immune suppressive medications
- Use of immunosuppressive medications
- Infection prevention & control in immunocompromised patients
- Blood product transfusions
- Management of immunosuppressive medications
- Infection prevention & control in immunocompromised patients
- Blood product transfusions
- Management of immunosuppressive medications

Clifford, Acheson, Hall, 2013
<table>
<thead>
<tr>
<th>Core Clinical Practice Competencies for Bone Marrow Transplantation (BMT) Nurse Practitioners</th>
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<tr>
<td>(2011)</td>
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<td>(2014)</td>
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**CONTINUING EDUCATION**

- ONS Blood & Marrow Transplant SIG
  - Fundamentals of Blood & Marrow Transplant Web course (2011)
  - Bone Marrow Transplant Certified Nurse (BMTCN) (2014)
- Tandem Meetings
- Maintaining skills
Exemplar

THE NURSE PRACTITIONER

DISCUSSION QUESTIONS

- Who charged with facilitating orientation and training?
- How long is this process?
- Do budgets take this into account?
- What principles guide orientation & training?
- Who maintains the competencies?
- How does your center approach competencies?
- If a checklist approach is used, how are the learning domains accounted for?

REFERENCES

http://pixel.fhda.edu/id/learning_domain.html

A DIAGNOSES OF CANCER

“In whatever kind of ‘race’ life might be, I have very abruptly become a finalist.” (when the New York Journalist, Christopher Hitchens discovers he has esophageal cancer, Mortality, 2012)

- The threat of mortality is pushed to the forefront of life

THE THREAT OF MORTALITY

- Fear of death, (existential) isolation, freedom (perceived responsibility), and meaninglessness (loss of purpose)
  (Yalom, 1980)

Meaninglessness

- Risk factor for hopelessness (Rodin, et al., 2008)
  - Compared to depression has a greater relative influence on patients’ wish to hasten their death
  (Jones, et al., 2003)
**Sources of Tension in Nurses’ Work**
- Given the unprecedented levels of care we can achieve with technology, patients “are exposed to a degree of suffering that previous generations might not have been able to afford,” let alone experience.
- May be left without a wish to die with dignity but a desire to have died:
  - Fearing complications of disease or treatment
  - Burden of suffering for family
  - Medical resources felt to be pointlessly expended

(Mortality, New York journalist, Christopher Hitchens, 2012)

**Conflicting Tensions**
- Within the culture of cure, as on bone marrow transplant units, the stressful nature of cancer nurses’ work is complicated by unspeakable conflicting concerns
  - Intents to fight cancer, while preparing patients for the possibility of letting go
  - Letting go the curative norms


**The Patients’ Bubble of Hope**
Nurses want patients to be fully informed, yet acknowledge that individuals need to regulate the flow of information as it relates to their awareness of the threat of mortality:
- Watched over patients’ bubble of hope
- Recognized patterns of dying
- Reluctance to burst the bubble of hope

You want to be honest, but at the same time you don’t want to burst their bubble because a lot of them have that much hope; they have that little ounce of hope.

(Carrie- auto unit)

[Leung, Esplen et al. 2012]

**Maintaining the Integrity of the “Bubble of Hope”**
“Hope has a very special quality that is especially important in managing uncertainty over time: it allows us to hold conflicting expectations simultaneously.” (Folkman, 2010; p. 905)


**The Bubble of Hope: How Families May Cope**
In two studies (Leung, Esplen et al. 2012 & Leung, et al, unpublished), the former in 2 bone marrow transplant units and the latter in a critical care unit*, nurses experience a responsibility to maintain the integrity of a bubble of hope for families:
- Depends on nurses’ emotional attunement to how families are coping

Things that I can remember is if the family is not coping. The family is...lots of times families become angry because they’re not coping and that makes it difficult.

(Tess, allo unit)

*with patients maintained on mechanical ventilation for more than 2 weeks and have a 50% in-hospital mortality

[Leung, Esplen et al. 2012]

**Communication as a Tool to Mitigate Conflicting Tensions**
- While biomedical knowledge continually provides further technological tests and aggressive treatment, situated knowledge (including emotional attunement) of the patient’s dying compels nurses to talk about alternatives to continuing treatment options

We have a pretty clear idea from the lab values and everything else and the way the disease is going in discussion with the doctors, where it’s actually going, that we need to start preparing them [patients]. That we are no longer here in the continuum, but maybe here and we need to start doing the [end-of-life care] work.

(Kandy, auto and allo units)
GOAL OF MITIGATING TENSIONS: TO REMAIN HOPEFUL

- Best evidence suggests clinicians engage in gradual disclosure with subtle calibration of information about alternative of continuing treatment.
- Exploring meanings of “what is hoped for” in some measure of “meaningful recovery” alongside clarifying information about treatment.

“The person who holds conflicting expectations is not thought to be confused or delusional; the person is labeled hopeful.”
(Folkman, 2010, p. 905)

FAMILY INVOLVEMENT IS KEY

- Most, but not all, identified substitute decision makers wish to share in decisions of care.
- Clarifying preferences for family involvement.
  - Ranges from passive to active involvement and is dependent on the type of decision.
  - Important to ask family members:
    - What does the patient want?
    - What role and other key family members want to play?
    - What role does the medical team to play?

THE NURSE’S OWN INNER CONFLICT

- Confrontation with own mortality and finiteness of life.
- Triggers moral tensions of loss and suffering that nurses share with patients.

THE NURSE’S SEARCH FOR MEANING

- Cancer nurses’ experiences on two bone marrow transplant units was constituted by a search for meaning of their involvement with patients' loss and suffering (existential and physical) and sometimes dying.

“So when either the family or the patient themselves have decided that they don’t want to suffer anymore, us or me being able to give them that hope that they will be as comfortable, and not suffer anymore gives great meaning to what I do, right?”
(Participant 4)

ENHANCING NURSES’ SELF-CARE

- Nurses struggle with whether and how to respond to distress and dying due to:
  - Lack of felt knowledge and skill
  - Fear of causing patients or families distress
  - Conflict between patient, family, and healthcare team
  - All of the above

- Nurses working in bone marrow transplant units can experience high personal growth and personal accomplishment in their work, yet also report moderate emotional exhaustion.

True or false?

2/22/13
THANK YOU
Full references available upon request.