

Adult inpatient transfusion order revised

To facilitate process improvements for physician transfusion orders and blood administration at University of Minnesota Medical Center, Fairview, a new adult inpatient transfusion order form for physicians was piloted on University campus patient care units 4C, 4D and 7D in the fall of 2006. After reviewing and incorporating feedback, we modified the adult form and will roll it out to adult patient care areas on the University campus January 9, 2007. Rollout of the transfusion order form to the pediatric units and the Riverside campus will follow. (See reverse for responsibilities associated with the form.)

To help make the form more user-friendly, human factors experts met with physicians (residents, fellows and attendings) including those in anesthesiology, bone marrow transplant, hematology, hematology-oncology, internal medicine, obstetrics/gynecology, pediatrics and pediatric hematology-oncology from both the University and Riverside campuses. We expect that by standardizing the process, the form will make ordering blood components more straightforward. The form contains irradiation guidelines, which also will make it useful as a teaching aid. Among other safety assurances, the form

includes a process to double-check whether the patient needs irradiated blood components.

FCIS and human factors experts are redesigning the FCIS computer-user interface for blood component orders to bring FCIS into parallel design with the paper version of the physician transfusion order form. These changes will roll out in February, 2007.

In addition to the transfusion order form, a committee of nursing, human factors consultants and laboratory staff is revising the blood administration policy and transfusion record to incorporate the new physician

transfusion order and the VeriSafe system. Committee members include Marcia Thibodo, 7D nurse manager; Darla Roggow, 7C/D clinical nurse specialist; Mary Fran Tracy, 4C/D/9A clinical nurse specialist; Sandy Hagstrom, 5C clinical nurse specialist; Kathleen Harder, human factors consultant; John Bloomfield, human factors consultant; Katie Becker, organizational learning; Cindy Nelson, IS; Gloria Liao, IS; Julie Eubanks, blood bank; Nancy Ward, quality; Priscilla Bormann, lab manager and Chris Senn, lab manager.

Blood component irradiation clarified

To prevent transfusion-associated graft-versus-host disease (TA-GVHD) in patients with profound immunodeficiency or suppression, laboratory staff irradiates cellular blood components containing viable lymphocytes. Leukoreduction is not sufficient to prevent TA-GVHD. Transfused viable lymphocytes of donor origin can proliferate and cause harmful immune reactions to the tissues of immunodeficient recipients. Acellular components such as plasma, cryo, albumin, immune globulin and coagulation factor concentrates do not need irradiation. To prevent TA-GVHD, physicians need

to order irradiated cellular blood components for severely immunosuppressed patients. **Regardless of whether**

a component requires irradiation, the physician must indicate the patient's irradiation need on the

transfusion order to ensure that the patient's history is accurate in the medical record and laboratory computer system.

GUIDELINES FOR IRRADIATED CELLULAR BLOOD COMPONENTS – ADULTS AND CHILDREN

Irradiation indicated

- Past, current or imminent stem cell transplant (bone marrow, cord, or peripheral blood)
- Hodgkin's disease
- Treatment with purine analog drugs (e.g. fludarabine, cladribine, pentostatin) or alemtuzumab (CamPath®) in past 12 months
- Congenital immunodeficiency syndrome
- Intrauterine transfusion
- All pediatric oncology patients (includes solid tumors)
- Newborn up to 4 months of age

Irradiation NOT indicated

- Acute or chronic leukemia
- Non-Hodgkin's lymphoma
- Aplastic anemia
- HIV infection/AIDS
- Severe leukopenia, lymphopenia, pancytopenia
- Patients on high dose steroids
- Use of immune suppressants such as azathioprine, cyclosporine, MMF
- To prevent HLA alloimmunization

Blood components irradiated (cellular)

- Red blood cells
- Platelets (always irradiated at UMMC)
- Granulocytes

Blood components NOT irradiated (acellular)

- Frozen plasma
- Cryoprecipitate
- Albumin
- Immune globulin
- Coagulation factor concentrates

How to use adult inpatient transfusion order forms

University of Minnesota Medical Center, Fairview, University campus

Physician responsibilities

- All orders for blood components must be placed using a transfusion order form.
- The following must be complete:
 - Irradiation required box (Yes/No).
 - Selection of component and conditions for transfusion.
 - Physician signature, name, pager, date, and time.
- More than one component and more than one selection for each component can be ordered on the same transfusion order form.
- Order HLA match, platelet drip, or frozen plasma drip in "Special requirements/components" section.
- For a "x 1" order, blood component is given one time only if the condition is met. Then the order is discontinued.
- For an "unlimited" order, blood is administered as many times as the condition is met (e.g., hemoglobin less than 8 gm/dL).
- Place orders for rechecks (e.g., platelet, hemoglobin, etc.) on the physician order form.
- **Complete a new order form for any change to the original order.**

Transcriber (HUC/NST/RN) responsibilities

- All orders for blood components must be placed using a transfusion order form.
- "Verify patient identification" (addressograph) is stamped on the form.
- Check order for completeness. The following must be complete:
 - Irradiation required box (Yes/No).
 - Selection of component and conditions for transfusion.
 - Physician signature, name, pager, date, and time.
- If order form is incomplete, inform RN so RN can clarify order with physician.
- Enter order into FCIS.
 - If reason for transfusion is given on the form, then enter it into FCIS.
 - If reason for transfusion is not given, then select "Other, describe" as the indication in FCIS and enter "no reason given." This is a change in FCIS. A reason should not be entered unless the physician writes it.
 - Only order "stat" if physician specifies on the form.
 - For a "x 1" order, blood component is given one time only if the condition is met. Then the order is discontinued.
 - For an "unlimited" order, blood is administered as many times as the condition is met (e.g., hemoglobin less than 8 gm/dL).
- Send pink copy to blood bank.
- Place white copy of form in physician's order section of the medical record. If pink copy is misplaced, copy the original order and send to blood bank.
- **Physician must complete a new order form if there are any changes to the original order.**

RN responsibilities

- All orders for blood components must be placed using a transfusion order form.
- Check order for completeness. The following must be complete:
 - Irradiation required box (Yes/No).
 - Selection of component and conditions for transfusion.
 - Physician signature, name, pager, date, and time.
- If order form is incomplete, contradictory (e.g., "Give patient IRRADIATED cellular components" is checked YES but "Red blood cells, NON-IRRADIATED" also is checked), or illegible, clarify order with physician.
- Physician must rewrite order on a new transfusion order form if order is incomplete, contradictory or illegible.
- In physician's absence when order is incomplete, obtain a telephone order from physician. Record on a new transfusion order form and read back to the physician following TORB (telephone order read back) process.
- Give form to transcriber (HUC/NST/RN) for entry into FCIS.

Please Note:

- For a "x 1" order, blood component is given one time only if the condition is met. Then the order is discontinued.
- For an "unlimited" order, blood is administered as many times as the condition is met (e.g., hemoglobin less than 8 gm/dL).
- **Physician must complete a new order form if there are any changes to the original order.**

Blood bank staff responsibilities

- After receiving the pink transfusion order form, blood bank staff will compare irradiation orders to patient's irradiation history and document in Misys, the Laboratory computer system.
- After receiving the FCIS order, blood bank staff will compare history, review for appropriateness, and place order in Misys.