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**Lab Dept:** Transfusion Services

**Test Name:** AUTOLOGOUS TRANSFUSION

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***General Information***

**Lab Order Codes:** TYAS

**Synonyms:** Autotransfusion; Transfusion Autologous

**CPT Codes:** P9021 – Autologous packed cells  
P9038 – Autologous packed cells, Irradiated

**Test Includes:** Removal of blood components from a donor for subsequent autologous transfusion. Blood collected from a patient is reserved for that person for elective surgery. There is no risk of transmission of hepatitis, AIDS, or other donor infectious disease, nor of reaction to serum protein or red cell antigens. Alloimmunization cannot occur, but risks do exist, namely those of identification mix-up, bacterial contamination, volume overload, plus the possibility of donation reactions and excessive anemia.

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***Logistics***

**Test Indications:** Usually for elective surgery.

**Lab Testing Sections:** Transfusion Service

**Referred to:** Memorial Blood Center (MBC) – Minneapolis

**Phone Numbers:** 651-332-7321

**Test Availability:** Collection: Monday – Friday. Contact blood center for appointment.

**Turnaround Time:** Blood available 2-3 days after collection.

**Special Instructions:** By appointment with the blood center. Physician should complete an Autologous Donation Form available from the blood center giving the date of the intended surgery, how many units are to be drawn, and indicating that the patient has been given a prescription for oral iron.

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***Specimen***

**Specimen Type:** See Crossmatch for pretransfusion testing.

**Container:** Blood bag, which must be labeled “for autologous use only.”

**Collection:** Collect blood as for regular blood donation.

- Special Processing:** Keep blood unit(s) in a monitored Blood Bank refrigerator for up to 42 days, when collected in the AS-1 or AS-3 system. For longer storage, blood may be frozen within 5 days of collection if such facilities are available.
- Patient Preparation:** Patient should be in generally good health.
- Sample Rejection:** Criteria vary. Those whom elective orthopedic procedures are planned, with intact cardiorespiratory and other systems, are ideal candidates for autologous donation.
- In all cases, the primary provider and the blood center share responsibility for accepting a patient and doing the procedure.
- Widely accepted criteria for disqualification of a proposed autologous donor include:
- Anemia (hematocrit <33%)
  - Possibility of bacteremia. Patients should be off antibiotics for 48-72 hours or more. Dental work in the prior 72 hours is a contraindication for fear of low-grade bacteremia and contamination of the unit.
  - Unstable angina
  - Aortic or subaortic stenosis
  - Congestive heart failure
  - Recent infarct of myocardium
  - Significant ventricular arrhythmia
  - Atrioventricular block
  - Uncontrolled epilepsy
- Other possible criteria for rejection of a proposed autologous donor include:
- Pregnancy: autologous or any other transfusion is seldom indicated in uncomplicated pregnancy. Thus, lacking some specific problem, autologous blood donation is usually unnecessary. Nevertheless, it is a reasonably safe procedure, even in pregnancy. Some legal questions exist.
  - Uncontrolled hypertension

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## ***Interpretive***

- Limitations:** Prephlebotomy hemoglobin concentration should be 11.0 g/dL or the hematocrit 33%.
- Technical problems may prevent return of the donated autologous blood (e.g., accidental puncture of the bag, clot formation, or discoloration leading to concern about bacterial growth). Surgery may require use of additional, homologous units. Hypovolemic and vasovagal reactions may occur. Preoperative donations diminish presurgical hemoglobin. Identification procedures are important throughout.
- There is a charge for each unit of blood collected, even though it may not be transfused. Blood not used by the autologous donor usually

cannot be used for anyone else for the following reasons.

**a.** The donor, by the nature of his/her illness, may not qualify as a regular donor, and the donor history for an autologous donor may not meet the requirements for conventional (allogeneic) donation. Donor history questions do not cover FDA-mandated AIDS questions.

**b.** Some of the units collected may not meet the requirements for donor blood (e.g., hematocrit).

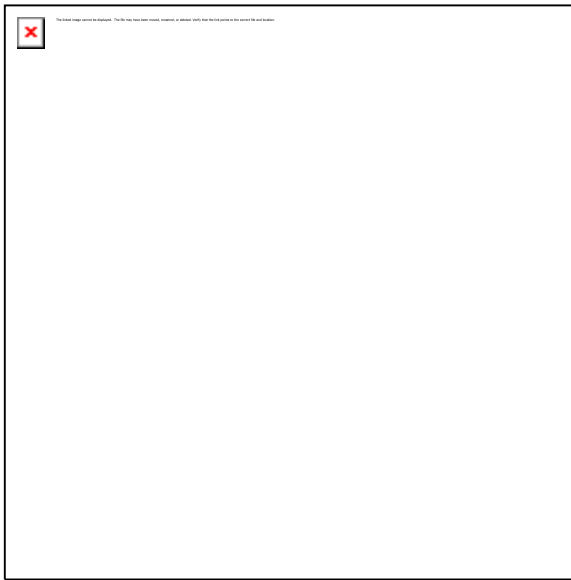
**Methodology:**

Similar to conventional blood donation.

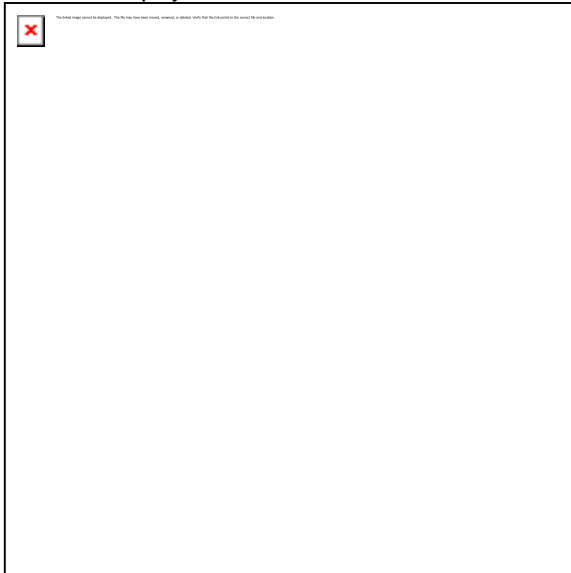
**Contraindications:**

Blood should not be donated within 3 days of surgical procedure.

Additional Information: Some general considerations of an autologous blood program follow.

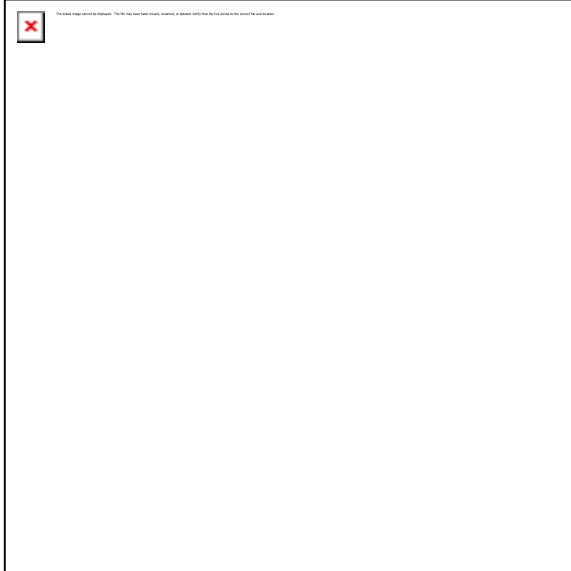


-- Donors/patients should meet the general requirements of a regular blood donor. The patient's age may be younger than 17 years at the discretion of the Blood Center physician.

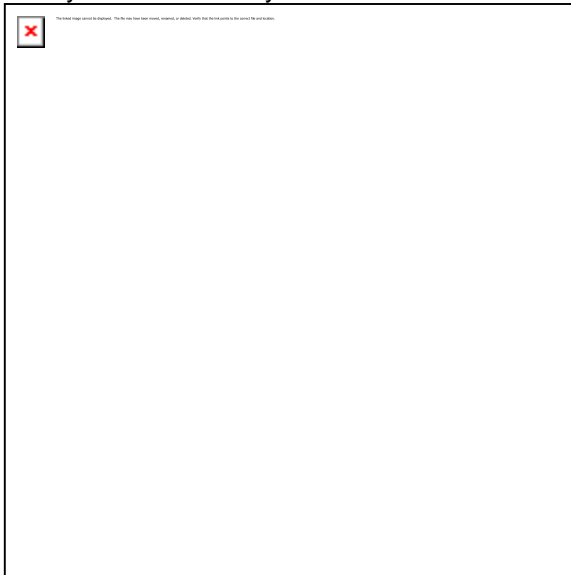


-- The patient should be taking iron for at least 1 week before the first donation. This is

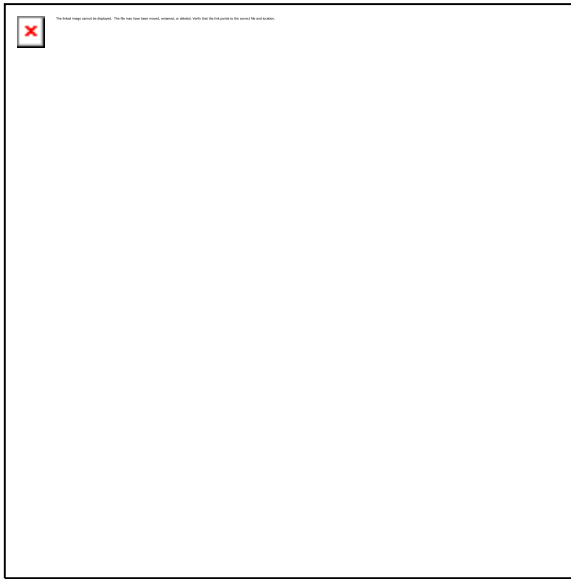
especially important if a series of 3 or 4 units is to be drawn.



-- Units of blood are normally drawn at weekly intervals.



-- Autologous donation stimulates erythropoietin production.

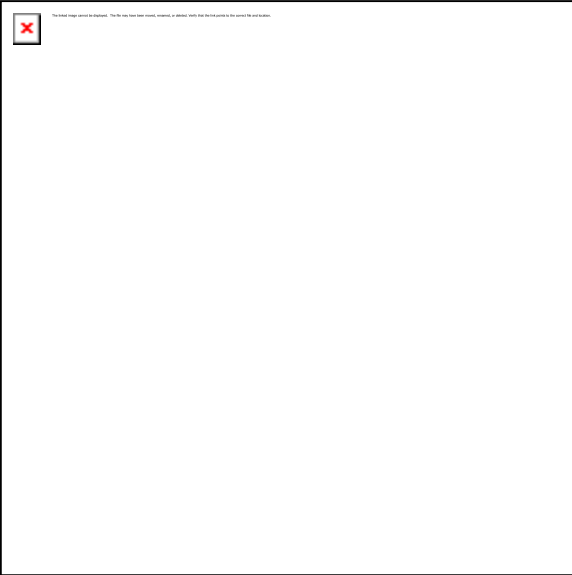


-- The use of recombinant human erythropoietin may make autologous donation easier for patients with marginal hemoglobin levels.

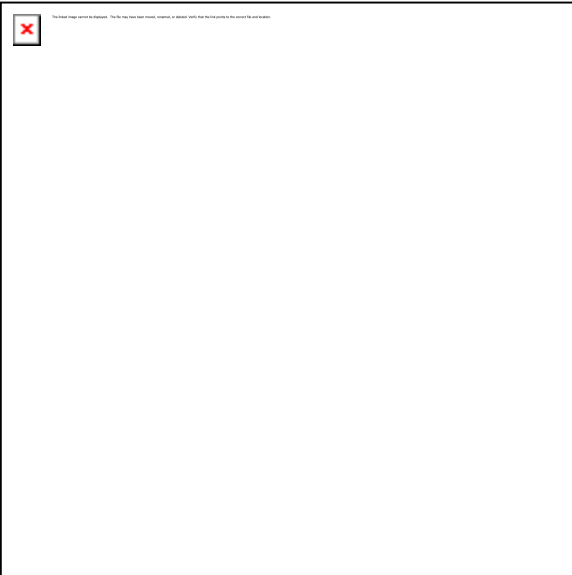


-- Autologous donations in preteen and adolescent patient/donors can be safe and effective. If donor weighs less than 100 pounds, the amount of anticoagulant should be adjusted.  
-- Except under special circumstances, donations should be no more frequent than every 3 days and not within 72 hours of major surgery.

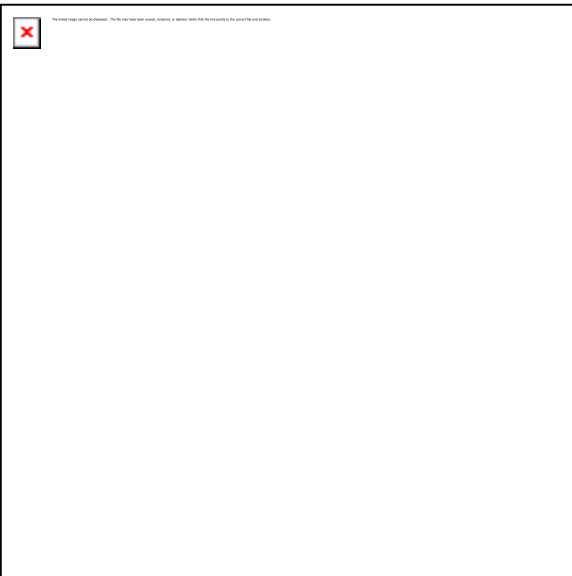
The following risks exist:



-- identification mix-up



-- bacterial  
contamination



-- volume overload

- donation reactions
- anemia

Autologous blood should be transfused on the same strict clinical indications as allogeneic donor blood. It is important that there be a clinical reason for any transfusion and that reason must be documented in the patient's record.

See [Guidelines for the Transfusion of Blood Products](#) for greater detail

- In addition to elective autologous transfusion, intraoperative blood salvage procedures are now commonly used.

**References:**

Cohen JA and Brecher ME (1995) Preoperative Autologous Blood Donation: Benefit or Detriment? A Mathematical Analysis. *Transfusion* 35(8):640-4

Dzik WH and Sherburne B (1990) Intraoperative Blood Salvage: Medical Controversies. *Transfus Med Rev* 4(3):208-35

**Update:**

2/4/2016: Blood supplier change