



# e-Network Forum

## CALIFORNIA BLOOD BANK SOCIETY

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### ***Use of Type and Screen versus NO pre-operative blood orders for a patient who has a scheduled elective surgical procedure with a low likelihood of requiring blood transfusion***

**A blood bank physician** wants to know the practice regarding use of Type and Screen for a patient who has a scheduled elective surgical procedure with a low likelihood of requiring blood transfusion. For example, the inquiring blood banker reports that several anesthesiologists seem to feel that it is OK to NOT send a T&S for "**minor**" surgical procedures. The problem is that the inquiring blood banker can find no standard list of what constitutes a "minor" surgical procedure in this regard. In addition, the published surgical blood order schedules that the inquiring blood banker has seen state that procedures for which no blood is crossmatched should have at least a "T&S". However, the **UCLA Transfusion Medicine Manual** linked from the CBBS web site states in chapter 2: "TYPE AND SCREEN - A type and screen procedure should be ordered when there is a reasonable possibility a surgical patient will require blood, but the likelihood of transfusion is too low to justify setting aside crossmatched units. As a guideline, if a surgical procedure requires transfusion in fewer than 10% of cases, a type and screen request rather than type and cross match is appropriate." AND "SURGERY WITHOUT A BLOOD ORDER For many surgeries, the likelihood of requiring transfusion is so low as to make it unnecessary to order even a type and screen." The inquiring blood banker would like to know **exactly which surgeries have such a low likelihood of requiring transfusion as to make it unnecessary to order even a T&S**, and what is the likelihood that each of these surgical procedures will require a blood transfusion? For example, at the Web Master's institution, we do not recommend any pre-operative blood order for penile prosthesis implantation, since the risk of the patient requiring a transfusion is less than 1%.

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In response to the above questions, the following replies were submitted

1. **Editor's Note:** The following related discussions about Type and Screen might be of interest:

- [Type and screen for scheduled elective surgical cases](#)
- [Preoperative Antibody Screens - How to Ensure Timely Receipt...Consistently?](#)
- [The Need for A Physician's Order for "Keep Ahead" Crossmatched Units](#)

2. **A California physician blood banker** responded regarding what surgeries do and do not require transfusion, that when she teaches residents or does community talks, she says that **the standard was to determine what is done in your own facility**, i.e., you have to review the blood usage in your hospital and see what your own staff use blood for. (In the "old" days when MSBOS's were used, you were supposed to do that.) Usage can even vary among surgeons; if one surgeon happens to take on all the difficult cardiac surgery cases, for example, he or she may tend to use more blood than another.

3. **A Texas blood banker** reports that her hospital employs a procedure that they call "Band and Hold" where a specimen is drawn and sent to the blood bank, laboratory to be **held just in case it might be needed for pretransfusion testing**. This is done for cardiac catheterization patients and others who probably won't need blood when going through their procedures. However, if there is unexpected bleeding or the need for an emergency CABG, the OR or Cath Lab calls the blood bank and says "Mr/Ms so and so, Wristband #ABC1234 needs two units of RBCs. She reports that her blood bank can fill the stat blood order in less than 30 minutes. [**Web Master's NOTE:** The responding blood banker did not comment on the turnaround time for stat RBCs if the patient's antibody screen turned out to be positive]. However, she added that if there is no request for a stat transfusion, there is no charge to the patient for a needless type and screen. She also added that there is a lot of trust that the physicians will use the Type and Screen order when indicated and the Band and Hold order when the likelihood of blood use is very low. The "Band and Hold" order is also useful for the Oncology patients who generally have poor phlebotomy access. The specimen is drawn at the same time the CBC is drawn, then if the Hb and Hct or platelets are too low, a specimen is available to set up the crossmatches. According to the Texan, all cardiac catheterizations get a Band and Hold. All C-Sections get a Type and Screen, and all CABG patients

get a 2 unit Crossmatch with 4 FFP, 20 Plts and 10 Cryo available but not thawed or pooled. The responding blood banker did NOT have a list of other procedures for which Band and Hold is routinely ordered, as each such decision is made on a case by case basis.

**ADDENDA** May 14, 2002

- 4. A blood bank physician who was instrumental in the development of the original Type and Screen paradigm** wrote that the 'old' T&S literature recommended the use of a T&S any time surgical blood usage was anticipated to be less than an average of 0.5 units for a specific procedure. He wants the e-network to recall that this recommendation was originally made in the late 1970's, at a time where almost everyone was crossmatching at least 2 units for every surgical procedure. In the late 1980's to early 1990's, after 10 years experience with the T&S, some blood bankers and surgeons began verbally questioning whether to perform even a T&S on procedures very rarely requiring blood, such as appendectomy and oral surgery procedures. The responding blood banker agrees with the Web Master's comment that penile prosthesis implantation is also a surgical procedure for which a T&S is unnecessary, since the risk of the patient requiring a transfusion is less than 1%.

**ADDENDA** May 15, 2002

- 5. blood banker in Minnesota** reports that relative to the issue of Type and Screen indications, his transfusion service used to permit the practice of ordering blood to be "held.... just in case" without doing the type and screen in the hope that one would not have to charge patients if blood was not actually transfused. This practice had to be abandoned because, at any given time, so much of their inventory was being "held " for certain specific patients that it interfered with their access to those units for patients who had a far greater likelihood of actually receiving them. Currently, the Minnesotan favors either a Type and Screen if there is about 1% or higher likelihood of transfusion (local data from which to calculate such likelihood can be obtained by reviewing the last cohort of same type of case by same surgeon) or no blood order if likelihood is thought to be about 1% or lower.
- 6. Stephen Apfelroth, M.D., Ph.D., Director of the Blood Bank at Jacobi Medical Center, Albert Einstein College of Medicine, Bronx, NY** (name used with permission), is curious to know the following (verbatim) "The blood banker instrumental in the development of the Type & Screen paradigm (above - reply #4) agrees that a T&S may not be necessary for surgeries such as penile implant, but **I wonder if he also agrees that a 1% chance of requiring blood is the appropriate cutoff for establishing that no T&S is necessary.** I know of no standard or study in the literature that supports such a number. One percent has been suggested by an individual blood banker as a possibly appropriate standard. As long as we are in the realm of conjecture, I would like to suggest that if a numerical standard is going to be bandied about, that **perhaps 0.2% (1 in 500) is a more appropriate threshold.** When combined with a rough estimate that 1 in 500 emergency uncrossmatched transfusions to new unscreened patients may result in harmful effects (whether overt or covert) that could have been avoided, a 1 in 250,000 chance of harmful effects is obtained. This would be smaller than the risks of general anesthesia, and may be acceptable in this context. I think there should be further discussion and study of this topic, so that a specific number could perhaps be validated.

**ADDENDA** May 17, 2002

- 7. A Florida blood banker** reports that at his 500-bed general medical center there is a busy level-1 trauma department, and an open heart surgery program. Each year they administer approximately 7,000 RBC transfusions. For the past 17 years they have been on a **total 100% type and screen program**, meaning that they do not crossmatch blood for ANY patient **unless** the patient has a clinically significant alloantibody or a transfusion is going to take place. If they are asked to have blood "on hold", they simply say that if there is a current type and screen, blood is already "on hold". Their crossmatch transfusion to ratio is 1.21 and their rate of RBC outdate is less than 1%. The Floridian adds that by having a 100% type and screen program, it allows them to efficiently manage their inventory and lower their overall outdated of RBC's. To make the type and screen program work, they must use an immediate spin crossmatch policy, that allows for release of compatible blood in 5 minutes or less; they consistently meet that time limit.

**ADDENDA** May 20, 2002

- 8. Leonard I. Boral, MD, MBA; Director of Clinical Pathology, Cook County Hospital, Chicago, IL** (name used with permission) expressed the following opinion. "The physician potentially ordering blood should reflect on the needs of each individual patient. He must take into account the patient's age, the degree of atherosclerosis in the coronary and cerebral arteries, the degree of cardiac and/or pulmonary disease, the presence of existing anemia and its causes and rapidity of onset, the presence of a bleeding diathesis, any history of red cell antibodies, the patient's vital signs, and the types of current medications. Taking all this into consideration, **a young, healthy individual**, with a normal Hct, who is going for a surgical procedure requiring blood in less than 1 in 100 cases, probably does not need a T&S in my opinion. Even if the person unexpectedly lost 3 units of blood,

his Hct would most likely be about 30 %, after fluid replacement with crystalloids or colloids. This is well above the NIH "transfusion trigger" of 21 %. On the other hand, **a person in their mid-70's** with significant atherosclerosis and angina, who has an initial Hct of 33%, in my opinion, should have a T&S ordered even if a surgical procedure very rarely requires blood transfusion. As you know, some individuals in this category can develop resting angina with hematocrits as high as 30%. This person therefore has very little physiologic reserve. If 3 units of blood were unexpectedly lost, the patient would need red cells in addition to crystalloids or colloids. Furthermore, what if significant **antibodies** were present making it difficult to find compatible blood? I do not know of any studies which recommend **not** using a T&S. Maybe our guidelines for transfusion therapy and MSBOS protocols will change with the introduction of oxygen-carrying substitutes for red cells."

Please submit comments to the [e-Network Forum](#).



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**Addenda:** May 14, 15, 17 & 20, 2002

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