

FALL 2005

Happy Thanksgiving,

Merry Christmas and

Happy New Year!



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President's Message-Karla Smith_{MT(ASCP)SBB}

Greetings to all!

On Saturday, September 24, 2005 the Kentucky Association of Blood Banks held its Fall Meeting at General Butler State Resort Park. The programs provided a wide array of technical, clinical and management topics. The day began with a presentation about Disaster Planning in the blood banking communities by Chip Ruble of Central Kentucky Blood Center. The next speaker, Pam Wilkerson of American Red Cross River Valley Region focused on the technical aspects of cold antibody identification. Our day continued with transfusion medicine case studies from Dr. Elpidio Pena of Central Kentucky Blood Center. As the afternoon started, Dr. Claire Meena-Leist from American Red Cross River Valley and IN-OH Regions discussed an array of current hot topics including topics from TRALI to Bioterrorism. John Klinge of Digi-Trax Corporation spoke about the implementation ISBT-128 and the affect it will have on the Blood Bank. Our meeting wrapped up with a discussion of Transfusion Medicine in Kentucky's Horse Industry. This session was presented by LeeAnn Wilfong from Rood & Riddle Equine Hospital. It gave us a look into the transfusion and care required to keep our Thoroughbreds racing. Our meeting attendees were able to enjoy wonderful presentations and beautiful Fall Kentucky weather at the State Park.

We must give our education committee thanks for their hard work in putting this meeting together. Without their efforts and dedication, we would not have been able to provide such a wonderful meeting.

The Spring 2006 Meeting will be held jointly with KSCLS in Lexington, KY. It will be Tuesday, March 7 and Wednesday, March 8, 2006 at the Crowne Plaza Hotel - Campbell House. Room Reservations may be made by calling 800-354-9235, the deadline for room reservations is Saturday, February 4, 2006. Mention you are with KABB to receive the Room Rate of \$89.00. We will once again offer online registration for this meeting. As our planning for the spring meeting

continues, additional information, including the meeting brochure may be found on our website at www.kabb.org

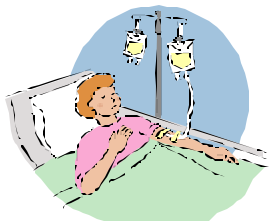
If you have any suggestions, ideas for future educational topics, comments, or would like to become more active in KABB, please contact me at karla@disneydog.com.

I'd also like to thank Danny Thacker and ARC River Valley Region. It is with their support; this issue of Channels and past issues have been published.

JOB OPPORTUNITIES

CKBC(Lexington, KY), a non-profit, community-based blood center seeks medical technologist to perform and interpret serological procedures on specimens submitted for compatibility testing or problem resolution. Will resolve typing problems, antibody problems, and crossmatch problems; and communicate with hospitals as needed. 2nd shift, 3-11:30 p.m., M-F, including on-call rotation. MT(ASCP) with minimum two years recent blood bank experience, MT(ASCP)SBB preferred. Strong written and oral communication skills, a do-what-it-takes work ethic, and a team player attitude required. Competitive salary, comprehensive benefits including health/dental/life, LTD, paid vacations/holidays, EAP, 403(b) retirement savings plan, and pension plan. Please send cover letter and resume to: CKBC, Attn: HR 330 Waller Avenue Lexington, KY 40504 jobs@ckbc.org CKBC is a drug-free and EOE. www.ckbc.org

If anyone would like to advertise a job opening in the state please e-mail the request to thackerd@usa.redcross.org. Before I put them in Channels I will call to verify the position is still available. Listings will depend on available space.



TRANSFUSING RED BLOOD CELLS by Dr. David Stapp:

Pathologist of Floyd Memorial Hospital in New Albany, IN

Red blood cells are obviously an integral part of any transfusion service. They are generally available nowadays with either a 35 day (CPDA-1) or 42 day (additive solutions) expiration date. Specific QC requirements include a hematocrit of less than or equal to 80% in all units produced and, if to be designated as "leukoreduced", must have less than 5×10^6 white blood cells in 95% of units tested while retaining at least 85% of the original red cells. The final volume of a unit of red cells is approximately 250 ml for a CPDA-1 unit and about 350 ml for an additive solution unit. The contents of a unit of red cells include about 200 ml of red cells, 50 ml plasma, 10^8 white blood cells, platelets, anticoagulant, additive solution (if present), and 200 mg iron. The expected effect of a single transfused unit in adults is to raise the hemoglobin by 1 g/dL and the hematocrit by 3%. The main indication for transfusion is to increase the oxygen-carrying capacity of the blood. Clinical factors to consider include not only the hemoglobin level of the patient but also the cardiac functioning and oxygen demand. Acute or chronic hemorrhage (more than 30% total volume loss acutely), hemolysis, and marrow failure are clinical situations that may lead to the need for a red cell transfusion. Certain contraindications for a red cell transfusion include acute hemorrhage of less than 20-30% of total blood volume, nutritional anemias, and patients with hemoglobin greater than 10 g/dL.

When selecting a unit for transfusion it is important to choose one that is type compatible. Of course, if they are the same type (type specific) then there is no concern over ABO incompatibility although due to availability, this may not always be possible. Type compatible units are a completely acceptable alternative to type specific and their use has been advocated for many years. When using a non-identical type compatible unit always remember to "protect the transfused cells". Everyone has heard the standard categorization of type O as the universal donor and, less well advertised, type AB as the universal recipient. Both statements, while intuitively obvious, also provide the backbone for the decision making process that goes into the consideration when selecting units for transfusion. Type O blood has no AB antigens on the RBCs so they can be given to a patient of any blood type, regardless of which AB antibodies they may have. A patient of type AB blood can be given any blood type since they have no AB antibodies in their plasma and therefore would not have an antigen-antibody reaction with any blood type. A type O recipient must, therefore, be given only O cells since the ABO antigens present on any other blood type would cause a reaction with the naturally occurring ABO antibodies possessed by a person of O type blood. A type A recipient may receive A or O and a type B recipient, either B or O.

But what about the antibodies present in the transfused unit? Since only about 50 ml of plasma is present in each unit, this really does not become an issue unless you are dealing with a massive transfusion or when transfusing a baby or small child. In these situations one should consult the medical director unless there is a previously instituted protocol for dealing with such situations.

What about Rh type? Should one be concerned over giving "type specific" or "type compatible" Rh (D)? Aside from any previous sensitization the answer is, only if the recipient is Rh negative. Since Rh antibodies are not naturally occurring, as ABO is, then someone who is Rh negative will not automatically have anti-D. If they are exposed, however, there is a high likelihood that they will develop anti-D. As you all know, this is the basis for given Rh Ig (RhoGam). An Rh positive recipient will not be able to develop an anti-D so there is no issue here, they may receive Rh positive or negative. The only way Rh comes into play is if the recipient has an anti-D, which should be detected on the antibody screen. At this point the antibody identified would be treated just like any other antibody and corresponding antigen negative red cells should be used.

The bottom line is to protect the transfused cells and most importantly, treat the patient in a timely manner. No transfusion should take place until a type and screen is performed, followed by a crossmatch. And remember, if type specific cells are not readily available then use type compatible.

BASIC ABO COMPATIBILITY CHART

By Danny Thacker

PATIENT TYPE:	DONOR CAN BE:
Group O	Group O only
Group A	Group A or O
Group B	Group B or O
Group AB	Group AB, A, B, or O

SUBGROUPS of A

by Dr. Elpidio Pena: Medical Director for Central Kentucky Blood Center. For questions or comments pertaining to this article, please email Dr. Pena at: epena2@email.uky.edu



One of the causes of ABO forward and reverse typing discrepancies is the existence of subgroups in the A and B groups. In this brief article, we will discuss the “A” subgroups.

The allele of the A blood group is not homogeneous. It has subtle variances and although it always codes for the A transferase, there are differences in the efficiency of the transferase to convert the H substance to the A blood group. These variances are the biological/biochemical basis for the subgroups. The same changes also occur in the AB blood group.

Of all the A subgroups the most important are the most common: A₁ and A₂. Eighty percent of the “A” individuals are A₁ and 19 to 20% are A₂. Less than one percent has another subgroup.

Red cells from A₁ individuals will react with both anti-A and anti-A₁ (a lectin derived from *Dolichos Biflorus*); red cells from A₂ individuals will react with anti-A, but not with anti-A₁. One to eight percent of A₂ and 18-35% of A₂B individuals will produce anti-A₁, creating discrepancy in the reverse typing given that the reagent cells used are A₁. The anti-A₁ is a naturally occurring IgM cold antibody with no clinical significance and usually ignored for transfusion purposes. The differences between A₁ and A₂ (and others A subgroups for that matter) are quantitative and qualitative. The main one is the number of antigenic sites in the red blood cell membrane: the A₁ cells have about a million of “A” antigenic sites, A₂ cells have less “A” antigenic sites (240,000 to 290,000). Other “A” subgroups express even less antigenic sites and that is one of the features used to determine their serological specificity. Other quantitative differences among “A” subgroups are the amount of transferase enzyme and the amount of branching in the molecule (A₁ red blood cells contain more branched molecules). The qualitative differences are subtle changes in the structure of the antigens themselves and the enzymes that code them.

For transfusion purposes it is not necessary to identify the subgroups of “A” (other than the A₂ subgroups in case of forward-reverse discrepancies) because they are rare and they are not clinically significant. In cases where there are discrepancies due to these subgroups, the study should be done in a reference laboratory where the following techniques will be used:

- Forward grouping of A and H with anti-A, anti-A,B and anti-H.
- Reverse grouping of ABO isoagglutinins and anti-A₁
- Adsorption-elution with anti-A
- Detection of A and H substances in saliva

In the following table we summarize the name, frequency and serological characteristics of the different A subgroups.

	A1	A2	A3	Ax	Am	Aend	Ael
Frequency	80%	~19%	1:1000- 1:150,000	1:40,000	Rare	1:75,0000	Rare
Anti-A common	+++	+++	+	wk(mf)	NEG	wk(mf)	NEG
Anti-A ₁	+++	NEG	NEG	NEG	NEG	NEG	NEG
Anti-A,B	++++	+++	++(mf)	++	NEG	wk(mf)	NEG
Anti-H	+	+++	+++	++++	++++	++++	++++
Saliva	A&H	A&H	A&H	H	A&H	H	H
A-transferase	+	+	+	+	+	NEG	NEG

(mf): Mixed field

References:

- Brecher, Mark E (editor): Technical Manual, 15th edition. AABB Press. Bethesda, 2005
- Harmening, Denise: Modern Blood Banking and Transfusion Practices, 5th edition, F. A. Davies Company, Philadelphia, 2005



A STORY OF CHANGE CAUSED BY KATRINA

BY Jason Temple, MT (ASCP)

We called New Orleans home. I worked in the Reference Lab of The Blood Center, an independent blood provider. There is no place in the world like New Orleans; whether you come as a tourist for Mardi Gras, or a music lover for Jazz Fest. We left on Sunday, August 28th before Katrina struck when the Mayor called for mandatory evacuations. We packed for only three days, thinking we would be back quickly. As traffic was horrific, we stayed off the interstate. We watched the horror of Katrina unfold while huge winds whistled outside. We knew that going home was out of the question. The 17th Street Canal levee had been breached and water had poured into our neighborhood. My wife's parents live in Kentucky and as we didn't have anywhere else to go we decided to come here. We had no contact with our friends, family, or jobs. Everyone we knew had lost everything they had. The Coast belonged to Katrina. The news showed the worst parts of New Orleans, the looting and anarchy. How would Kentucky receive us? We contacted the local Red Cross center for assistance. Everywhere we went, we were made to feel welcome. Everyone has been so unbelievably wonderful and we can't be thankful enough. We returned to our home in New Orleans. All we could salvage was a few dishes. Everything was destroyed. The folks at the Red Cross suggested that I contact this chapter's biomedical service division for job openings. Needless to say, here I am in the Reference Lab of the River Valley Region of the Red Cross. My coworkers have really gone out of their way to make me feel welcome. Our whole lives have changed. Thanks to the hospitality and generosity of the people of Kentucky, we plan to stay in Louisville and rebuild our lives here. Above is a picture of my home and truck from New Orleans.



ORTHO-W.I.R.E. PROGRAM



Blood Group Serology

This section offers registered participants educational materials on blood group serology with varied difficulty levels, using multi-media and interactive learning experiences. For visitors interested in professional development without continuing education units (CEU), browse the "Learning Library." For accredited materials, visit "CEU Opportunities." Make sure to visit www.ortho-wire.com The focus of this issue of Channels is ABO. The Ortho Wire website has a good article and multiple case studies that will supplement this issue of Channels. Below is a list of the articles and case studies available.

ABO Blood Group System: Unique Features of the ABO Blood Group System , ABO Basic Case Studies, ABO Intermediate Case Study, Worldwide Distribution of ABO Blood Types Map

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KABB BOARD MEMBERS NEEDED

Are you interested in becoming more involved with KABB? Or do you know someone else who is? KABB is looking for individuals for the following board positions: **Treasurer (3 year), President-elect (1 year), Education Coordinator (1 year), Assistant Education Coordinator (1 year), At-Large Representative (2 year).**

If you would like to discuss any of these positions, please contact Karla Smith at karla@disneydog.com or call 859-276-2534 ext. 2258. Also visit www.kabb.org , print the board member application form and mail to the address on the bottom of the form. Please consider these positions and get involved in this growing organization.



Kentucky Association of Blood Banks

KENTUCKY ASSOCIATION OF BLOOD BANKS

www.kabb.org

2006 Renewal Notice

Name: _____

(Please print legibly)

Affiliation: _____

Address of correspondence: _____

Telephone: () _____

Fax: () _____

E- mail: _____

Would you prefer to receive mailings & publications via your e-mail address? _____

List any address/name change:

(Please indicate change)

Change of address _____

Change of name _____

2006 Dues: \$15.00 if submitted on or before January 1, 2006

 \$17.00 if submitted after January 1, 2006

Make checks payable to: **Kentucky Association of Blood Banks**

Remit payment to: Danny Thacker
 c/o KABB Membership
 5151 Bell Avenue
 Shelbyville, KY 40065

Please indicate if you are willing to assist with additional KABB activities, such as:

- Committee Participation
- Hold an Office
- Be a Speaker
- Submit small article for CHANNELS newsletter
- Help edit newsletter

Do you have suggestions for future topics for future meetings and/or Channels? _____

TRANSFUSION MEDICINE WORD SEARCH

BY SHARON NOBLE

A V K R N A N T I G E N S
G L T M V T Z Z N S B U M
G M L S N L Y A R N S P B
L L P E P Y X E - P Y Y -
U K M H L E V Y E I Y X I
T T Y P E E C N L A T C T
I F K D R N S I B Q C N N
N T N Y K I O M F P F D A
A H B D O P O T B I N R V
T D C N P B Q H Y P C A F
I N E B V Z K X R P D W X
O X L G N O I T C A E R V
N V L A N T I B O D Y O V
N R S G E N O T Y P E F T

FIND THE WORDS BELOW:

AGGLUTINATION
ALLELES
ANTI-A
ANTI-B
ANTIBODY
ANTIGEN
BOMBAY
CELLS
FDA
FORWARD
GENOTYPE
PHENOTYPE
REACTION
REVERSE
SPECIFIC
SUSPENSION

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