



# OHIO ASSOCIATION OF BLOOD BANKS



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Gregg W. Witham,  
MT(ASCP), SBB

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## *From The OABB President*

It is my habit each New Year to look back and appreciate the past year's events (which is probably a sign of getting old), and this year is no exception. One of the positive events was working with such dedicated professionals in the Ohio Association of Blood Banks. I feel extremely fortunate to be part of this truly great organization.

But, the organization has challenges to overcome. One of the challenges in 2007 was the OABB Web site. You may be aware, there were problems with our Web Page provider, and that took away a BIG piece of how we communicate with each other. The OABB board has approved changing providers, even though we will probably have to change our current domain name, OABB.org. Until the new Web Page is up and running, please contact the organization through me at [greggw@fmchealth.org](mailto:greggw@fmchealth.org) or through our administrative secretary, Peggy, at the Ultimate Assistant: [admin@ultimateassist.com](mailto:admin@ultimateassist.com).

Another OABB challenge is getting members to volunteer in the organization's committees: Education, Newsletter, and Membership. All of my Newsletter messages this past year centered on volunteering, since it is the members on the committees and board who plan and provide Proficiency Samples, Newsletter articles, the Fall Workshop, and

the Annual Meeting. So, I am grateful for those who are participating as new committee members and those who have volunteered for numerous years.

Last, but not the least challenge, is ongoing vacant board positions. Those who currently serve on the board struggled with how to best resolve this situation. It was not an easy decision, but necessary. An amendment to the OABB Code of Regulations was drafted to allow board positions to be more easily filled. The amendment will be voted on during the 2008 Annual Meeting, May 1, during the membership Business Meeting. I hope all voting members will look at the amendment and send their comments to me before the vote.

I sincerely thank all who continue to support OABB during these ongoing challenges. I invite everyone to consider participating on a committee or the board. Please contact the Nominating Chair, Mary Schumacher ([schumachem@usa.redcross.org](mailto:schumachem@usa.redcross.org)), to volunteer, or nominate a peer, for a committee or board position. The organization is only as strong as its volunteer membership!

Sincerely,

Gregg Witham, MT(ASCP)SBB  
OABB President

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***Annual Meeting Returns to Columbus  
Sheraton Suites at the Crossroads  
Thursday, May 1, 2008***

This year's program will interest blood bank supervisors, medical directors, and staff who work full-time or rotate through the blood bank. The topic, speakers, and objectives are below.

**DRUGS in the Workplace**

Susan T. Johnson, MSTM MT(ASCP)SBB from the Blood Center of Wisconsin will

- List at least 3 drugs associated with drug-dependent and drug-independent antibodies.
- State the serologic findings for the current spectrum of drugs causing drug-induced hemolytic anemia.
- Describe type I, II, and III mechanisms of drug-induced hemolysis.

**Transfusing Patients with Warm Auto Antibodies**

Karen King, MD from Johns Hopkins Medical Institute will

- State diseases associated with secondary autoantibody formation.
- List criteria used to evaluate anemia severity.
- List considerations to transfuse prior to serological evaluation completion.

**Organizing to Prevent Medical Misadventures**

Rita L. Ratcliffe, MD, MBA, CQA of Principal of Medical Excellence will

- List safety successes in other high-risk industries.
- Name barriers to improved safety in health services delivery, including fear, facts, funds, & folks: providers, payors, patients, politics, & the public.
- Identify emerging healthcare industry leaders and approaches.

**Transfusion Safety**

Colleen McGuinness Slapak, MS, MT(ASCP)SBB from the Community Blood Center/Community Tissue Services™ will

- Identify recent updates to regulatory requirements for transfusion safety.
- Define 'Biovigilance' and the associated metrics to enhance transfusion safety.
- List some of the transfusion safety tools and options available to hospitals and blood centers.

**New Horizons**

New this year, is scheduled time for the vendors Charter Medical, Immucor, and Ortho to share with attendees what their companies are currently offering and what is in the future.

## Screening for IgA-Deficient Donors

The Western Lake Erie, Northern, and Central Ohio regions of the American Red Cross continue with a screening program to identify donors who lack Immunoglobulin A (IgA) in their plasma. IgA-deficient products are required for individuals who demonstrate severe allergic reactions to products containing IgA. These severe reactions occur in recipients who are IgA deficient and react to IgA as a foreign protein. The most severe reactions have all the hallmarks of life-threatening anaphylaxis: within minutes of transfusion the recipient demonstrates respiratory distress, hypotension and other signs of shock requiring immediate emergent response. While there are few reported IgA deficiency transfusion reaction deaths, this is likely due to the controlled clinical transfusion environment allowing prompt recognition and response. After such a reaction and the demonstration of IgA deficiency, transfusion can be accomplished safely using products from identified donors who lack IgA. While washed cellular products may also be used, IgA-deficient donors remain the preferred source for cellular products and the only source of plasma products. To date over 4,000 donors within the Ohio area have undergone screening for IgA deficiency resulting in the detection of 12 IgA negative donors. After further confirmatory testing, donors are offered enrollment with the American Rare Donor Program (ARDP) as a rare donor. The Ohio regions plan to continue screening several hundred donors each month.

Selective IgA deficiency is one of the most common immunodeficiency disorders with a rate of approximately 1 in 800 in the US population. These individuals completely lack immunoglobulin A, but have normal levels of other immunoglobulin (IgG, IgM, IgD and IgE). IgA is known as the secretory antibody and found at high levels in mucosal surfaces and secretions of the respiratory and GI tract, as well as in breast milk and tears. However, the majority of IgA-deficient individuals appear in good health. Epidemiologic studies of IgA-deficient individuals, identified by random screening, have demonstrated an increased rate of infection (such as sinusitis, bronchitis and pneumonia) and autoimmune disorders (such as rheumatoid arthritis, systemic lupus erythematosus and immune thrombocytopenia purpura). Deficient individuals do not appear to have decreased life expectancy. The underlying biologic cause of selective IgA deficiency remains unknown, but has been postulated to be a defect in antibody class switching rather than a direct mutation in IgA gene sequence.

The incidence of severe allergic reactions to IgA is estimated from case series to occur at a rate of 1 in 35,000 transfusions. Interestingly, there is an order of magnitude disparity between the frequency of IgA-deficient individuals and the rate of reactions to IgA transfusion. This suggests that not all IgA-deficient individuals are prone to allergic reactions. In the past, reactions have been correlated with the presence of IgG with anti-IgA activity in the serum of allergic individuals. Although the presence of IgG anti-IgA is often considered the key indicator for the need of washed or IgA-deficient products, some individuals lacking IgG anti-IgA may still have severe allergic reactions. It is nonetheless true that the presence of anti-IgA increases the probability of a reaction. It has been suggested that IgG anti-IgA is a marker for IgE anti-IgA, which might be the ultimate mediator of the severe allergic reaction, but its presence has never been demonstrated in allergic individuals. Further elucidation of the exact mechanisms underlying these reactions and better biologic markers remains a challenge given the rarity of these reactions. Until then, an IgA-deficient individual either producing anti-IgA and/or demonstrating previous severe reactions should be provided IgA-deficient or washed products.

### Suggested Reading:

Vassallo, R. R. (2004). "Review: IgA anaphylactic transfusion reactions. Part I. Laboratory diagnosis, incidence, and supply of IgA-deficient products." *Immunohematol* 20(4): 226-33.  
Sandler, S. G., R. Eckrich, et al. (1994). "Hemagglutination assays for the diagnosis and prevention of IgA anaphylactic transfusion reactions." *Blood* 84(6): 2031-5.

### Prepared by:

Jeffrey Bailey, MD, PhD  
American Red Cross, Northern Ohio Region

## OABB Continuing Education Activity

### Immunization to Red Cell Antigens

After reading this Continuing Education article, the participant shall be able to select the:

- Volume of red cells as an immunizing dose.
- Frequency of non-responders to red cell antigens.
- Relative immunogenicity of red cell antigens.
- Influencing factors for antibody formation.

### Antibody Response to the D Antigen

Most work with antibody response to red cell antigen immunization involves the D antigen from 1969-1981. Investigators observed anti-D formation within 6 months in 25% of recipients following an injection of 1.0 mL of red blood cells from D heterozygous donors. When a second injection was given, anti-D was found within a few weeks in up to 40% of the same recipients. This rapid appearance of an antibody correlates to a secondary response. It follows that a patient can be sensitized to an antigen and have undetectable antibody until another red cell injection is received. It was also noted that those individuals who develop anti-D earlier in the series of D-positive cell injection were more likely to have higher titers than those who develop anti-D only after multiple exposure.

Other studies involved large volume transfusion. In those reports, 85% of D-negative individuals receiving 200 mL of blood form anti-D after 6 months. Recipients who did not have anti-D in their plasma were given additional D-positive red cells. When red cell survival studies were performed, the second injection of cells demonstrated decreased cell survival without anti-D detection. (Although, today's PEG-IgG or Gel test procedures would not have been used for these antibody detection studies) The conclusion was there is a 90% sensitization rate.

### Antibody Response to Antigens other than D

The relative immunogenicity of the other blood group antigens was determined by mathematical calculations. The calculation was based on the observed antibody specificity appearance in recipients and the chance of antigen-positive blood being given to antigen-negative individuals. The second most antigenic antigen after the D antigen is K. The K antigen is three times more antigenic than c and E, 25 times more than Fy<sup>a</sup> and 50 times more than Jk<sup>a</sup>.

The antibody response seems to be genetically influenced, and 15% of the population are non-responders, not only to D, but other red cell antigens.

### Influences on Antibody Formation

When a patient has several antibodies in their plasma, the question is whether the patient is a really good responder or is there another influencing factor. There is some evidence that making antibodies to less antigenic antigens is influenced by the patient responding to a more immunogenic antigen. A comparison was made of patients receiving D-compatible units with those receiving D-incompatible units. Those recipients who made anti-D were more likely to produce anti-K, anti-Fy<sup>a</sup>, anti-Jk<sup>a</sup>, or anti-s than the number of recipients who were not exposed to D-incompatible units. This finding supports efforts in sickle cell patients to receive units matched in the Rh system and for K to reduce the risk of alloimmunization to other antigens.

**References:** Mollison's Blood Transfusion in Clinical Medicine, Eighth and Eleventh editions.

Answers will appear in the next issue of OABB Newsletter.

Questions:

1. Early investigations suggest the minimal red cell does for a recipient to form anti-D is:
  - a. 0.1 mL
  - b. 1.0 mL
  - c. 10 mL
  - d. 200 mL
2. The percentage of recipients who are non-responders for developing red cell antibodies is:
  - a. 15%
  - b. 25%
  - c. 40%
  - d. 85%
3. Which correctly reflects the immunogenicity of red antigens?
  - a.  $K > Fy^a > c > Jk^a$
  - b.  $E > K > Jk^a > Fy^a$
  - c.  $K > c > Fy^a > Jk^a$
  - d.  $E > c > K > Fy^a$
4. Selection of matched units in the Rh system and for K in the sickle cell population is based on:
  - a. Reducing transfusion reactions
  - b. Reducing antibody formation
  - c. Prevalence of antibody responders to red cell antigens
  - d. Prevalence of antibody non-responders to red cell antigens

**Ohio Association of Blood Banks  
Proficiency Sample Testing Program  
Summary of Results – October 2007**

# Mailed 54  
# Responses 45  
% Participation 83%

**Results:**

ABO/Rh:	B, Rh Positive
Antibody Screen:	Positive
Antibody (ies) Identified:	Alloanti-E
Antigen typing (if applicable):	E-
Other (specify):	N/A

**Answer to Questions**

- What is the patient's blood type? B, Rh Positive
- What type would you select for transfusion? B or O, Rh-Positive or Rh-Negative blood that is E- and crossmatch compatible.
- What antibody(ies) is (are) present? Alloanti-E
- What are some possible explanations for the serological findings on the sample? Red cell stimulation from previous pregnancies is most likely. Previous transfusion could also have provided stimulation, although no transfusion history was provided.
- What additional information might be helpful to determine the cause of the problem? Previous transfusion history or history of identified atypical alloantibodies

## Save The Date

The OABB Fall Workshop returns  
Tuesday, September 23, 2008 at the  
Fawcett Center in Columbus, Ohio

## Answers to CE Activity Reagents Useful to Resolve Serologically- Difficult Samples

**Questions:**

1. The enhancement media that requires equal volumes of plasma to media to function as intended is: **B) LISS**
2. An effective reagent for removing IgG from DAT-positive cells is: **B) EGA**
3. Which of the following are denatured by enzymes? **C) M, Ch, Yt<sup>a</sup>**
4. Which antigen is NOT affected by 0.2M DTT? **A) Ch**
5. Which antigens are denatured by CDP? **A) HLA**



### WELCOME NEW MEMBERS!

Shirley Floyd  
Dublin Methodist Hospital

Shawn Griggs, MT(ASCP)  
Blanchard Valley Hospital

David M. Smith, M.D.  
Community Blood Center

James Alexander, M.D.  
Community Blood Center/Community Tissue Serv.

Edahn Isaak, M.D.  
Community Blood Center/Community Tissue Serv.

## CODE OF REGULATIONS AMENDMENT

Dear OABB Members,

During the Annual Meeting May 1, 2008, the membership will vote on the proposed change below. The change reflects the current trend in membership commitment to serving on the board. In order to continue the organization, volunteers are required, and the new wording allows filling vacancies.

**"current" version of Code**

### ARTICLE IV

#### TRUSTEES

**TRUSTEES:** There shall be 13 members of the Board of Trustees. The Board shall consist of the President, the President-Elect, the Secretary, the Treasurer, the Immediate Past President, and one doctoral level person, and one non-doctoral level person from each of the four Ohio regions as defined in the Policies of the Association. Four of these regional representative members shall be elected each year, and all eight (8) members shall be elected for terms of two years or until their respective successors are elected and qualified. An individual may serve only three consecutive terms as Trustee representing a region of the State.

**"proposed" change of wording**

### ARTICLE IV

#### TRUSTEES

**TRUSTEES:** There shall be 13 members of the Board of Trustees. The Board shall consist of the President, the President-Elect, the Secretary, the Treasurer, the Immediate Past President, **one non-physician person from each of the four Ohio regions (as defined in the Policies of the Association), and four physicians representing different cities within the state.** Four of these regional representative members shall be elected each year, and all eight (8) members shall be elected for terms of two years or until their respective successors are elected and qualified. An individual may serve only three consecutive terms as Trustee representing a region of the State.

## MS Program

University based regional blood center and transfusion service through the College of Allied Health Services, University of Cincinnati is accepting applications for Fall quarter 2008 for a 15-month Master's program in Transfusion and Transplantation Sciences. Applicants apply for one of two tracks.

- The **Blood Transfusion Medicine** track emphasizes all aspects of transfusion medicine, including immunohematology, blood center and transfusion service operations, quality assurance, component therapy, cellular therapies, transplantation immunology and independent research. Students simultaneously fulfill the requirements for the Specialist in Blood Bank Technology (SBB) certification.
- The **Cellular Therapies** track emphasizes the biology and therapeutic use of hematopoietic stem cells and other somatic cell therapies. The program includes significant hands-on laboratory experience in selection and genetic manipulation of stem cells and in the development of novel cell therapy treatment protocols.

**Application deadline: March 1, 2008**

**Contact:** Pam English, MT(ASCP),SBB, Hoxworth Blood Center, University of Cincinnati Medical Center, 3130 Highland Avenue, P O box 670055, Cincinnati, OH 45267-0055, (513) 558-1275, email: [pamela.english@us.edu](mailto:pamela.english@us.edu)



### OABB Newsletter Submissions

Letters, articles, and announcements of upcoming events may be submitted at any time.

Classified advertisements will be accepted from any member institution and printed at no charge.

**Teleconferences Sponsored By  
American Red Cross Central Ohio Region  
995 East Broad Street  
Columbus, Ohio  
Call (614) 253-2740, ext. 2215 to Attend**

Date	Teleconference Title
Feb 27 2:00 – 3:30 PM	Mechanisms of Drug-Induced Hemolytic Anemia
Mar19 2:00 – 3:30 PM	Serological to Molecular Testing: Points to Consider for Successful Conversion
May 16 2:00 – 3:30 PM	(ASCP) Eliminating ABO Incompatible Transfusions—No More Excuses!
Jun 4 2:00 – 3:30 PM	(ASCP) The US Biovigilance System: Surveillance, Safety, and Savings
Jun 26 2:00 – 3:30 PM	(ASCP) Transfusion-Transmitted Cytomegalovirus (CMV) Infection
Jul 30 2:00 – 3:30 PM	Coagulation Case Studies for Blood Bankers
Sep 10 2:00 – 3:30 PM	Managing Massive Transfusion: Clinical and Blood Bank Perspectives
Oct 22 2:00 – 3:30 PM	Intravenous Immunoglobulin (IVIG): Intended Use and Administration
Nov 19 2:00 – 3:30 PM	Platelet Refractoriness: Causes and Treatments
Dec 10 2:00 – 3:30 PM	Differential Diagnosis of Suspected Pulmonary Transfusion Reactions