In a Different Vein

A NEWSLETTER OF THE
MICHIGAN ASSOCIATION OF BLOOD BANKS

Vol. XXV, No. 4
Winter 2005/06

President's Message

by Peggy Stoe, MT(ASCP)SBB

I cannot believe that my term is at an end. My sincere gratitude and respect goes to the executive board, committee chairs and each committee member. Your meeting attendance, input, work and commitment has made 2005 very successful in meeting the educational and business goals that were established at the start of 2005. Our accomplishments are many and measurable as you will see.

- Sue Bowers and the education committee have restructured our offerings and the MABB will host four RAP sessions on a variety of topics of interest. Suzanne Butch has volunteered to serve as the administrator for seeing P.A.C.E. credit for the RAP sessions and the annual meeting. The first RAP for February 2006 is already in the works. In November "I ROBOT" a RAP session supported generously by MCBC was held at Grand Valley State University, Grand Rapids, MI where 35 individuals attended.
- Bruce Newman, the annual meeting planning committee and site and exhibitor coordinators developed an outstanding and successful program at Schoolcraft College's VisTaTech Center, Livonia, MI. Each day hosted 100+ attendees to learn about new technologies, standard of care issues, "hot" topics, and more.
- Mary DePouw and the publications committee provided quarterly issues of In A Different Vein. Soliciting articles of interest, case studies, and pictures is never easy. A fine job by all involved. This is the last printed version that members will receive. The cost savings generated by the decision to publish the newsletter on the MABB website is greatly appreciated.
- Michelle Bensette and the membership committee is preparing a mini-questionnaire soliciting your input and seeking your membership commitment.
- Jim Fiedor and Janet Silvestri researched payment options for members. We have expanded options to include Visa, Master Card and Discover.

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President's Message '06 Welcome, Bruce Newman!

I would like to thank the nominating committee for the opportunity to serve you as president of the Michigan Association of Blood Banks (MABB) in 2006. While I will do my best, it is really the effort of the executive board, committee chairpersons, committee members, general and institutional members, executive administrator, and others that make us successful in meeting the needs of the MABB membership.

For those of you who don't know, being president is really a "three-year position". In the first year, one is president-elect, and the president-elect organizes the fall annual meeting. Fortunately, one can ask the past president-elect for advice, and there is an organizational book that helps. Planning the meeting is a year of initiatives and paying attention to many details. Based on the very positive feedback that we received, I can say that the membership enjoyed and appreciated the 2005 annual meeting at the Schoolcraft VisTaTech center.

I would like to thank the many people that made this meeting successful. The annual planning committee met in December 2004 and provided topics and potential speakers for the lectures. Peggy Stoe provided helpful advice, planned the faculty dinner, and was always willing to help. Janet Silvestri, Peggy Stoe, and James Fiedor were helpful in implementing use of credit cards this year; and Janet Silvestri, our administrator, helped with organizing the meeting. I want to commend Michele Tuson and Karen Gizzi, who helped in recruiting and organizing the exhibitors. The exhibitors are an important part of the meeting. I would also like to thank all of the exhibitors for coming; and a special thank you to those exhibitors who generously supported a breakfast, snack, or lecture. Finally, a special thanks to Sherwin Imlay, MD, who secured CME category 1 credit for the physician participants through his hospital, St. Joseph Mercy Hospital-Oakland.

In the second year, one is president. This year I will be building on the work of Peggy Stoe. Suzan Bowers has done a wonderful job as chairperson for the education committee but is moving on to be president-

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In a Different Vein is a quarterly publication of the Michigan Association of Blood Banks. Current and archived issues of this publication are available at the MABB web site: www.mabb.org.

Please feel free to submit any articles, announcements, advertisements, or case studies to ***In a Different Vein***. Items of a personal note regarding colleagues are also welcome.

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2006 MABB Officers

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Bruce Newman, MD

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Laura Cooling, MD
James Fiedor, MT(ASCP)
Sherwin Imlay, MD
LeeAnn Weitekamp, MD

MEET THE BOARD

Sherwin Imlay, MD

2005 marks Dr. Sherwin Imlay's first year on the MABB board. He has served as CME course director for the MABB since 2003.

Dr. Imlay obtained a BS in biochemistry from the University of Missouri Columbia in 1989. After working as a house orderly for a year he entered medical school at the University of Missouri Columbia and finished his MD in 1994. From there he moved his family to Iowa City to complete a 5 year residency in anatomic and clinical pathology at the University of Iowa Hospital and Clinics. Since finishing residency in 1999 he has been practicing as a general community pathologist at St Joseph Mercy Oakland in Pontiac Michigan where besides the usual surgical, cytology and hematopathology duties he serves as the medical director of the transfusion service.

Dr. Imlay enjoys exercising, reading, listening to music, and spending time with the family. He has been married 18 years and has twin girls, 14 years old, and a boy, 11 years old.

RAP Session
Winter I ❖ 2006

March 15, 2006

ISBT 128 Implementation

Join your colleagues as we prepare for the future!

The Global Standard

Southfield Holiday Inn
26555 Telegraph Rd.
Southfield, Michigan 48034

Visit www.mabb.org for registration information

President's Message

Peggy Stoe (continued)

- Laura Cooling, member-at-large, has drafted a document that specifies the financial aspects of the MABB; this document is in keeping with the current business views for nonprofit organizations and their business structure.

- Linda Cardine and the by-laws/policy committee reviewed and recommended changes to the By-laws. These amendments were unanimously passed at the Annual Business Meeting. The policy changes submitted received a vote of approval from the executive board at the December meeting.

- The MABB website www.mabb.org will continue to be the "information hub" for the organization. Janet Silvestri sends email to members about events, membership dues renewals, applications, and special events announcements etc. Keep your email address current with the office to ensure your receipt of MABB information.

Finally, thank you to all for the privilege and opportunity to serve as MABB president during 2005. I look forward to continuing involvement with MABB during my last year on the executive board.

Put the Glass Down

A lecturer was speaking to his student on stress management. He raised a glass of water and asked the audience, "How heavy to you think this glass of water is?"

The students' answers ranged from 20 gm to 500 gm.

"It does not matter on the absolute weight. It depends on how long you hold it. If I hold it for a minute, it is OK. If I hold it for an hour, I will have an ache in my right arm. If I hold it for a day, you will have to call an ambulance. It is the exact same weight, but the longer I hold it, the heaver it becomes."

"If we carry out burdens all the time, sooner or later, we will not be able to carry on, the burden becoming increasingly heavier. What you have to do is put the glass down, and rest for a while before holding it up again."

--- Author Unknown

Bruce Newman, MD (continued)

elect. Terry Downs will be the new chairperson in 2006. We plan to have more RAP sessions this year than in the past. RAP sessions can be held at night and are usually combined with an optional dinner. A RAP session on ISBT 128 will be held in Southfield on February 15. PACE credit is a new feature for our educational programs. Suzanne Butch is our administrator for acquiring PACE credit. Our membership committee, led by Michelle Bensette and David Rohrkemper, circulated a survey recently. We will use the results to better focus on the needs of the membership. Mary DePouw will continue as the chairperson of our publication *In a Different Vein*. It is not an easy job, and I encourage you to send her an article, a picture of your staff, a transfusion-medicine-related puzzle, or anything else that you think would be of interest to the general membership. If you are interested in being a section chief for the newsletter, please contact Mary DePouw at "mdepouw@ crittenton.com". This year, *In a Different Vein* will be sent to you via e-mail or you can obtain it at our website, "www.mabb.org". It should be convenient, and there will be some savings in both labor and printing costs for MABB. Suzan Bowers and the annual planning committee met in early December to brainstorm on topics and potential speakers for the 2006 annual meeting, which is scheduled for September 21 and 22, 2006. Save the dates. If you have any topics or speakers that you would like to recommend, please contact Sue Bowers at "bowerssl@usa.redcross.org". If you have any ideas or suggestions related to MABB, please contact me at "newmanb@usa.redcross.org" or at 313-833-2651.

In the third year, one is past-president. The past-president attends board meetings, mentors, and helps where needed. It is a transition year to less MABB responsibilities. Finally, it is our involvement as contributors and participants that makes MABB successful. So be a contributor, be a participant, or even better, be both!

Detroit Receiving Hospital Blood Bank Team

Nancy Hope, Veronica Vincent, Pauline Bailey, Sue Adams (Mgr), James Fiedor, Sherry Young, Kathy Kangas

MABB 51ST ANNUAL MEETING

Dr. Laura Cooling, Dr. Brad Eisenbrey and Dr. Tim Mervak

Linda Cardine accepting the 2005 Founders Award from MABB President Peggy Stoe

2005 Speakers Laurence Corash and John Moulds

Terry Downs presented the Spring Workshop Report at the MABB Business Meeting

Sue Bowers was presented with an Outstanding Service Award for her many years of service to the MABB.

Kathy Warnes and Ann Steiner

Peggy Stoe accepting the President's Award from President-Elect Dr. Bruce Newman

Dr. Mark Kolins and Michelle Tuson

John Moulds accepting the Kay Beattie Award from John Judd

Sharron Zimmerman, Michelle Tuson, Ann Steiner and LouAnn Dake

Dr. Joseph Uberti, Sue Adams and Sue Bowers

Joseph Roig of Gambro, Serena Wodgenske of Garden City Hospital, and Angie Volk of Gambro

(Note: as of 1/1/06, Joseph Roig is moving to the BCT Therapeutics Division. Shannon Smith will be the new area rep. ~ shannon.smith@gambrobct.com)

2005 Exhibitors

Sandy Lenneman • American Red Cross
lennemas@usa.redcross.org

Ted Beatty (Med Alliance Group) • beatty84@aol.com
Christie Loe (Charter Medical)• cloe@lydall.com,

George Kelly • Baxter Healthcare Corp.
(800) 777-5513 x 7665 • George_Kelly@Baxter.com

Kathy Shortridge, Irene DeMezzo • Immucor Gamma, Inc.
VM 800/829-2553 ext 106 • KSHORTRIDGE@IMMUCOR.COM

Mike Kirkpatrick, Aaron Stout • Helmer
mkirkpatrick@helmerinc.com, astout@helmerinc.com

Craig Flegel and Ed DeRose of Ortho Clinical Diagnostics Sys.
with Vendor Liaison Michelle Tuson
248/474-4114 • EDerose@ocdus.jnj.com

2005 Exhibitors

Rich Myers • Jewett
msamkt@comcast.net

Jeff Weathers • Pall Medical Corp.
jeff_weathers@pall.com

Galen Unold • CottonImages.com
305/251-2560 • Galen@cottonimages.com

Mike Kordasiewicz • Terumo Medical Corp.
262/574-5950 • mike.kordasiewicz@terumomedical.com

Nick Pavicevic • CareFusion Inc.
262/821-3550 • nickp@carefusion.com

2005 Exhibitors not pictured:

American Red Cross/National Testing Labs • Tim Neldrett
• neldrettt@usa.redcross.org

Michigan Community Blood Centers • Linda Barar
• LBarar@miblood.org

Rees Scientific • Jeff Higgins
• jhiggins@reesscientific.com

ZLB Behring • Dale Weinberg
• dale.weinberg@zlbbehring.com

New Horizons in Platelet Biology and Storage: Can we improve platelet concentrates?

Laura Cooling MD, MS
University of Michigan, Ann Arbor, MI

The last several years have seen exciting new developments in platelet biology, storage and testing. The implementation of bacterial testing (standard 5.1.5.1) in March 2003 has renewed discussion of 7-day platelet storage, with at least one system, Gambro BCT, receiving FDA approval.[1] However, bacterial contamination is not the only problem facing platelet quality and safety with increasing storage time. In this article, I will briefly discuss new techniques for investigating the platelet storage defect, the use of platelet additive solutions and cold (4°C) storage.

The so-called platelet storage defect is multifactorial, mirroring many of the same processes responsible for clearing old, senescent platelets from the circulation in vivo. On average, platelets live 8-10 days with 60% present in the circulation and 30-40% sequestered in the spleen. In normal patients, approximately 10-12% of platelets are lost each day to senescence (80%) and to help maintain endothelial integrity (20%). In thrombocytopenic patients, platelets are cleared faster as a higher overall percentage of circulating platelets per day are needed for endothelial "housekeeping". The recognition and clearance of older platelets is a complex process that involves several overlapping mechanisms including platelet activation, apoptosis and phagocytosis.

The platelet storage lesion recapitulates many of the same processes implicated in vivo. Studies have shown progressive activation of platelets during in vitro storage, with expression of activation-dependent neoantigens and decreased post-transfusion recovery. Platelet activation also leads to alterations in the platelet cytoskeleton with blebbing, microparticle formation and phosphatidylserine (PS) exposure—changes also characteristic of apoptosis or programmed cell death. Finally, proteolytic enzymes and glycosidases present in plasma can degrade the platelet membrane with loss of important adhesion molecules and exposure of senescent autoantigens. The latter can bind autoantibodies present in plasma or bind endogenous lectins on hepatic histiocytes, analogous to the clearance of senescent RBCs.

Current methods to assess platelet function and quality primarily reflect markers of platelet activation or metabolism. Common measures include the expression of activation-dependent antigens (ex: CD62), platelet degranulation, shape change, response to agonists and pH. One emerging technology that holds great promise in improving our understanding of the platelet storage defect is proteomics. Proteomics is essentially 2D protein gel electrophoresis linked to mass spectrometry, allowing a sensitive, detailed analysis of all the proteins expressed by a cell. Garcia et al have applied this technique to fresh platelets and have identified over 2300 proteins, including several new proteins whose function is unknown.[2] Interestingly, <15% of the platelet proteome is devoted to membrane glycoprotein receptors, vesicles and secreted extracellular proteins which we currently follow as indicators of platelet activation/quality. The majority of the platelet proteome is devoted to cell signaling (24%), followed by proteins of the cytoskeleton (15%) and protein processing. The predominance of cell signaling molecules is critical to platelet function and potential sites for therapeutic intervention. Using a modified proteomic array, investigators have identified at least 67 platelet proteins that are phosphorylated de novo upon thrombin activation alone.[3] Extending these techniques to platelet storage may yield new insights, methods and reagents to follow and prevent platelet activation, and other processes, during platelet storage.

Several investigators are also studying the role of apoptosis, or programmed cell death, during platelet aging and storage. Although apoptosis has classically been attributed to nucleated cells, recent studies have shown that these same pathways are present and active in platelets.[4-7] On western blotting, platelets were shown to possess several death receptor proteins, caspases and Bcl-2 family proteins that coordinately transduce, execute and regulate apoptotic signals, respectively. Caspase 3, a major effector of apoptosis, was shown to rise during platelet storage with cleavage of gelsolin, a cytoskeletal regulatory protein and caspase 3 substrate. Storage was also associated with increased PS exposure and losses in mitochondria membrane potential (>day 5).[6,7] These changes are independent of platelet activation by thrombin and other agonists.[7] More importantly, these processes are influenced by temperature: 37°C storage accelerates and promotes

proapoptotic processes, with rapid declines in platelet viability relative to room temperature storage.[4]

The finding that platelets also undergo apoptosis has potential applications for following and improving platelet viability. A collapse in mitochondrial membrane potential (DM), both a consequence and effector of apoptosis, has enormous implications for platelet viability. Unlike RBCs, 80% of all ATP in platelets is generated by mitochondria. Several dyes are available to assess and follow mitochondrial membrane potential by flow cytometry and may be an additional tool to assess platelet quality.[6,7] In addition, reagents are available that can inhibit caspase activation although the effectiveness of these agents in improving platelet viability are unclear. Finally, evidence that higher temperatures promote ATP consumption, platelet aging, and apoptosis suggests that lower storage temperatures may improve platelet viability during in vitro storage.[4,8]

The possibility of lowering storage temperature for platelets has gained increasing attention over the last two years. Cold storage has several potential advantages over room temperature storage. By decreasing platelet metabolism and aging, cold storage may permit longer storage times with more flexibility in maintaining platelet inventories. In addition, cold storage would retard/inhibit bacterial growth, possibly eliminating the need for bacterial testing. Unfortunately, cold storage has significant problems as well. Specifically, platelets stored at 4°C are rapidly and effectively cleared following transfusion. The "cold" storage lesion is effectively irreversible after 24 hours at 4°C and is the underlying reason that platelets are currently stored at room temperature.[9]

The mechanism underlying cold storage and platelet clearance reflects the effects of cold on the platelet membrane and involves both membrane lipids and glycoproteins. Tablin et al have shown that platelet membranes undergo phase transition with falling temperatures, going from a liquid fluid phase to a phase separated gel phase.[10,11] An analogy is animal grease, which is liquid during cooking but separates into liquid and solid phases after cooling. In platelets, this phase transition starts at 22°C, with rapid reorganization of the platelet membrane as temperatures fall to 15°C. One consequence is the formation and coalescence of large lipid rafts or microdomains[12]—cholesterol and glycolipid rich domains that facilitate cell signaling and adhesion. In addition, the aggregation of lipids that occurs during gel phase alters membrane integrity and permeability.[13]

The reorganization and coalescence of glycolipid microdomains likely underlies a major breakthrough in platelet cold storage. GP1b, the receptor for von Willebrand Factor, and the major sialomucin on platelets, resides in glycolipid-rich domains in the platelet membrane. These lipid rafts play a role in GP1b-IX-V mediated adhesion and aggregation.[14] Interestingly, cold storage causes a clustering of GP1b on platelet membranes, consistent with coalescence of lipid rafts.[15] Because GP1b is a highly glycosylated molecule (60% weight carbohydrate), the reorganization and clustering of GP1b results in pockets of dense, multivalent carbohydrate–an appetizing target for endogenous lectins on reticuloendothelial cells. This has subsequently been demonstrated by Karin Hoffmeister and colleagues in a series of groundbreaking studies.[15,16]

Using a mouse model, Hoffmeister and colleagues showed that chilled platelets were rapidly and preferentially cleared by tissue macrophages (Kupffer cells) in the liver.[15] Furthermore, the clearance of cold platelets could be inhibited by removing GP1b from platelet membranes. Subsequent experiments with knock-out mice lacking complement receptor 3 (CR3, CD11/CD18, aMb2 integrin), a receptor on Kupffer cells, confirmed that chilled platelets were cleared by CR3 on hepatic macrophages. Because CR3 is also a lectin, it was hypothesized that CR3 may recognize a carbohydrate epitope on GP1b. This was supported by flow cytometry, which showed that chilled platelets bind the lectin WGA, which recognizes N-acetylglucosamine (GlcNAc). Loss of GlcNAc epitopes via galactosylation (GlcNAc + UDP-galactose + b-galactosyltransferase = Galb1-4GlcNAc), which masks terminal GlcNAc by covalently adding a terminal galactose residue, prevented clearance of chilled platelets. Based on these findings, the authors concluded that chilling platelets causes a clustering of GP1b, leading to patches of high-density GlcNAc residues on platelets that are recognized by CR3 on hepatic macrophages.

These findings have been extended to human platelets.[16] Like mouse platelets, chilling of human platelets results in clustering of GP1b with enhanced GlcNAc expression. These GlcNAc residues can also be masked by galactosylation, with normal platelet function/aggregation, even after 12 days of storage. These results have enormous implications for future

Platelet Biology and Storage (continued)

platelet storage. By simply adding a galactose donor (UDP-Gal) to platelets during storage, it may be feasible to store platelets at 4°C for prolonged periods with normal post-transfusion recovery.

Finally, there is increasing progress and experience with the use of platelet additive solutions. Platelet additive solutions have several theoretical advantages to platelet storage in citrated plasma. The removal of plasma will minimize the risk of hemolytic transfusion reactions due to high-titer isohemagglutinins. It may also decrease the incidence of allergic, febrile and TRALI reactions by removing inflammatory mediators (ex: RANTES) and donor antibodies (IgE, anti-HLA) associated with these reactions. Because they can be sterilized, additive solutions may also decrease the risk of bacterial contamination and may enhance the efficacy of pathogen inactivation agents. Finally, the removal of plasma could potentially preserve platelets by removing agonists associated with activation, as well as proteases and glycosidases that can degrade the platelet glycocalyx.

Over eight different platelet additive and modified platelet additive solutions have been investigated.[17,18] Unique issues for platelet additive solutions are the need to balance pH, electrolytes and nutritional content to support oxidative metabolism and transmembrane potentials. Breakthroughs in the last decade include the addition of KCl, $MgCl_2$ and sodium acetate to additive solutions.[19,20] KCl and $MgCl_2$ significantly decrease the rate of platelet activation over 7 day storage (%CD62 >50% to 35%).[19] Both KCl and $MgCl_2$ help maintain the K+ gradient across the platelet membrane, thereby decreasing ATP usage by K+ pumps. $MgCl_2$ also influences calcium influx. Sodium acetate, on the other hand, acts as both a buffer and nutrient.[20] Platelets stored in these additive solutions appear to have comparable platelet recovery after transfusion and a decreased incidence of platelet transfusion reactions.[17,18]

In summary, there are several emerging areas and technologies that may improve platelet storage and quality. Studies in proteomics and apoptosis may identify and map key pathways involved in the platelet storage lesion. They may identify critical control points that are amendable to therapeutic interventions. Combined with work in cold storage, we may be looking at new additive solutions that help suppress metabolism, activation and apoptosis while improving viability, transfusion safety and storage times. The next 5-10 years may, indeed, see an extreme makeover for platelet storage and quality.

References:

1. Gambro BCT's single donor platelet technology cleared by US Food and Drug Administration to allow use of the platelet product for up to seven days. Http://www.gambro.com/Artcle.asp?id=5693.
2. Garcia A, Prabhakar S, Brock CJ et al. Extensive analysis of the human platelet proteome by two-dimensional gel electrophoresis and mass spectrometry. Proteomics 2004;4:656-668.
3. Macquire PB, Wynne KJ, Harney DF et al. Identification of the phosphotyrosine proteome from thrombin activated platelets. Proteomics 2002;2:642-648.
4. Bertino AM, Qi XQ, Li J, Sia Y, Kuter DJ. Apoptotic markers are increased in platelets stored at 37°C. Transfusion 2003;43:857-866.
5. Perrotta PL, Perrotta CL, Snyder EL. Apoptotic activity in stored human platelets. Transfusion 2003;43:56-525.
6. Verhoeven AJ, Verhaar R, Gouwerok EGW, de Korte D. The mitochondrial membrane potential in human platelets: a sensitive parameter for platelet quality.
7. Li J, Xia Y, Bertino AM, Coburn JP, Kuter DJ. The mechanism of apoptosis in human platelets during storage. Transfusion 2000;40:1320-1329.
8. Holme S, Heaton A. In vitro platelet ageing at 22°C is reduced compared to in vivo ageing at 37°C. Br J Haematol 1995;91:212-218.
9. Becker GA, Tuccelli M, Kunicki T, Chalos MK, Aster RH. Studies of platelet concentrates stored at 22°C and 4°C. Transfusion 1973;13:61-68.
10. Tablin F, Wolkers WF, Walker NJ et al. Membrane reorganization during chilling: implications for long-term stabilization of platelets. Cryobiology 2001;43:114-123.
11. Crowe JH, Tablin F, Tsvetkova N et al. Are lipid phase transitions responsible for chilling damage in human platelets. Cryobiology 1999;38:180-191.
12. Tsvetkova NM, Walker NJ, Crowe JH et al. Lipid phase separation correlates with activation in platelets during chilling. Mol Membrane Biol 2000; 17:209-218.
13. Reid TJ, Esteban G, Clear M, Gorogias M. Platelet membrane integrity during storage and activation. Transfusion 1999;39:616-624.
14. Shrimpton CN, Borthakur G, Larrucea S et al. Localization of the adhesion receptor glycoprotein Ib-IX-V complex to lipid rafts is required for platelet adhesion and aggregation. J Exp Med 2002; 196:1057-1066.
15. Hoffmeister KM, Felbinger TW, Falet H et al. The clearance mechanism of chilled blood platelets. Cell 2003; 112:87-97.
16. Hoffmeister KM, Josefsson EC, Isaac NA, Clausen H, Hartwig JH, Stossel TP. Glycosylation restores survival of chilled blood platelets. Science 2003;301:1531-1534.
17. Gulliksson H. Defining the optimal storage conditions for the long-term storage of platelets. Transfusion Med Rev 2003;17:209-215.
18. de Wildt-Eggen J, Gulliksson H. In vivo and in vitro comparison of platelets stored in either synthetic media or plasma. Vox Sang 2003;84:256-264.
19. de Wildt-Eggen J, Schrijver JG, Bins M, Gulliksson H. Storage of platelets in additive solutions: effects of magnesium and/or potassium. Transfusion 2002;42:76-80.
20. Shimizu T, Murphy S. Roles of acetate and phosphate in the successful storage of platelet concentrates prepared with an acetate-containing additive solution. Transfusion 1993;33:304-310.

MABB Executive Committee Meeting

September 13, 2005

Members Present: M. Stoe, M Drew, M.D., S. Bowers, L. Cooling, M.D., B. Newman, M.D., K. Watkins, J. Fiedor, T. Downs, A. Henstock.
Member excused: M. Depouw, M. Bensette

I. Call to order. The meeting was called to order at 3:00 p.m.

II. Review of minutes. Approved

III. Financial Report. K. Watkins

IV. Committee reports.

A. Membership. P Stoe – a survey is to be conducted to determine members' suggestion to increase membership.
B. Nominations for new members to the executive committee. M Drew
Pres.: B. Newman, M.D.
Pres. Elect: S. Bowers
Secretary: A. Henstock
Member at Large: S. Imlay, M.D.
Member at Large: L. Weitekamp, M.D.
C. Education – S. Bowers. Sue presented a summary of 2005 events and proposed events for 2006. Sue is stepping down as chairperson at the end of this year.
D. Spring Workshop. T. Downs. The Spring Workshop was cancelled indefinitely due to lack of participation.
E. Publications. B. Newman for M. Depouw.
F. By-Laws. M. Stoe. Changes to the bylaws will be presented at he December Board of Directors meeting.
G. September 21-22, 2005 Annual Meeting. B. Newman.

V. Old Business.
- Education Committee Recommendations Spring meeting cancelled indefinitely. The Spring Workshop Committee members will be joining the Education Committee. If a "wet" RAP session is presented, it will be will be conducted by a subcommittee of the Education Committee. RAP sessions to increase and to include the west side of the state. The workshop event will be deferred to the RAP sessions that allow greater participation.

VI. New Business
- Motion to seek P.A.C.E. credits for all events including RAP sessions and the annual meeting, beginning in 2006. Suzanne Butch will administer the accreditation. Motion proposed by L.Cooling, M.D. Seconded by S. Bowers
Approval unanimous
- MABB Policies Revisions. Presentation in December, 2005
- Orientation suggested for new Board Members. The orientation will be the responsibility of the Past President.
- A recommendation was made to have an annual contract drafted for a business agreement with Silvestri Associates. This draft will be presented to the board at the December meeting.

VI. Meeting adjourned at 5:05 p.m.

Respectfully submitted,
Allyson Henstock

Planning for the Future . . .

Incoming MABB president-elect Suzan Bowers met with her program planning committee in December to plan the 52nd MABB Annual Meeting, which will be held in September, 2006. Stay tuned to the future issues of "In a Different Vein" and the MABB website at www.mabb.org for further details on this year's meeting.

MABB President Bruce Newman and planning committee member Sharon Lowry listen to ideas from the committee for the 52nd MABB Annual Meeting

New Executive Board Member, Dr. Sherwin Imlay, and Treasurer, Kathryn Watkins

MICHIGAN ASSOCIATION OF BLOOD BANKS
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Dr. Tim Mervak, Dr. Bruce Newman, Linda Cardine, and Dr. MaryJo Drew