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# ABC NEWSLETTER

CURRENT EVENTS AND TRENDS IN BLOOD SERVICES

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**2017 #39** **November 3, 2017**

**INSIDE:**



## Observational Studies of Prehospital Transfusion: Military and Civilian

Two observational studies published in *The Journal of the American Medical Association* and *Transfusion Medicine* look at the combat experience with beginning transfusion in the field in Afghanistan and the United Kingdom experience with civilian trauma, respectively.

During the military experience examined over a three year period (2012-2015), patients rescued were designated as alive with traumatic limb amputation above the knee or elbow, and/or prespecified signs of shock. Medevac helicopters carried at least two red blood cell (RBC) units or one RBC and one plasma unit during the interval described. Prehospital transfusion recipients were matched to non-recipients for mechanism of injury, presence of hemorrhagic shock, severity of limb amputation, head injury, and torso hemorrhage.

An attempt was made to adjust for survival bias. Crude mortality rates were 5 percent among 55 patients transfused in the field, compared to 19 percent of 447 non-recipients at 24 hours. At 30 days these mortalities were 11 and 23 percent respectively. In the matched cohorts, respective adjusted hazard ratios for death (95 percent confidence intervals) were 0.26 (0.08-0.84) and 0.39 (0.16-0.92) at 24 hours and 30 days. An accompanying editorial comment discusses approaches for evaluating extension of this capability to civilian populations in the U.S.

Prehospital RBC transfusion became routinely available in the London air ambulance service in 2012 aimed at avoidance of the dilutional coagulopathy and metabolic acidosis associated with crystalloid resuscitation. This retrospective description of data from their trauma database is a before and after (137 and 128 patients respectively) comparison of the impact of prehospital transfusion on overall blood product consumption.

The early cohort was 6,086 patients between 2009 and 2012, and the later was 5,829 from 2012 to 2015 with prehospital deaths excluded. Demographic and clinical characteristics of the two groups, including the mechanism of injury, were similar. Three hundred-four prehospital RBCs were transfused for "clinical suspicion of major h[e]morrhage and signs of h[e]modynamic compromise indicated by systolic blood pressure <90 mm Hg" after implementation. There were statistically significant (logistic regression) reductions in total RBC transfusion and "early use" of platelets and plasma in the field-transfusion cohort, compared to the earlier patients.

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## OUR SPACE

### Introducing the ABC Public Policy Council

**Martin Grable; ABC, President & Community Blood Centers of the Carolinas, President & CEO**

The newly appointed ABC Board of Directors held its first day-long meeting in Chicago on October18th. As part of ABC's re-alignment, the Board has affirmed building a unified advocacy presence for the membership as the central focus of ABC. This will be supported by scientific, medical, technical, quality, and regulatory strength. In doing so, the Board approved several changes to our internal advocacy structure to help drive member engagement, discussion, and ultimately consensus.

Central to these changes is the sunsetting of the current Government Affairs Committee, whose members have our thanks, and the creation of an ABC Public Policy Council. The Council will focus on vetting and developing recommendations regarding current and future policy issues and directly liaise with the membership and Board. The chair and members of the Council will be representative of the entire membership and appointed by the ABC President. The new Public Policy Council will directly link the membership and the Board to better communicate and align our interests within our membership and better articulate them with others in the industry. I expect the Council to be in place this month, and the work to begin immediately in gaining additional member input on our advocacy priorities.

The creation of the Public Policy Council and narrowing focus of ABC seem timely. I welcome the October 19th "Crisis in the Sustainability of the U.S. Blood System" Sounding Board (Klein, H., *et. al*) article, but the 175 word limitation to responses at the *New England Journal of Medicine* is not conducive to meaningful discussion of the issues it raised. The ongoing deliberations of the Department of Health and Human Services (HHS) Advisory Committee on Blood and Tissue Safety and Availability that will result in recommendations to the HHS Assistant Secretary for Health represent a critical venue for our efforts. Major work remains to be done, driven by the membership and facilitated by the Public Policy Council, aiming to reach consensus about any changes needed to assure a safe and sustainable blood supply.

I look forward to active engagement from all ABC members to bring more information, better understanding, and a more aligned voice to these important issues.

More information will follow about other important changes and efforts underway within ABC to better serve our members.

mgrable@cbcc.us

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ABC is an association of not-for-profit, independent community blood centers that helps its members provide excellence in transfusion medicine and related health services. ABC provides leadership in donor advocacy, education, national policy, quality, and safety; and in finding efficiencies for the benefit of donors, patients, and healthcare facilities by encouraging collaboration among blood organizations and by acting as a forum for sharing information and best practices.

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PREHOSPITAL TRANSFUSIONS (continued from page 1)

The authors provide a short summary of the potential flaws in the study design and call for randomized trials of prehospital transfusion.

**Citations:** Shackleford, S.A., del Junco, D.J., Powell-Dunford, N. *et al.* Association of prehospital blood product transfusion during medical evacuation of combat casualties in Afghanistan with acute and 30-day survival. *JAMA.* 2017. 318:1581-91.

Elster, E.A. and Bailey, J. Prehospital blood transfusion for combat casualties. *JAMA.* 2017. 318:1548-9.

Rehn, M., Weaver, A.E., Eshelby, S. *et al.* Pre-hospital transfusion of red blood cells in civilian trauma patients. *Transfusion Medicine*. 2017. doi: 10.1111/tme.12483.

## Precision Gene Editing in *Nature* and *Science* Papers

Gene-editing is a transformative technique that continues to expand across every discipline in the natural sciences. A Google search for the term "CRISPR," which refers to Clustered Regularly Interspaced Short Palindromic Repeats that were described in relation to bacterial immune systems that protect microbes from bacteriophage, returns 3,340,000 hits. Two research pieces this past week, in *Science* and *Nature*, describe adaptation of CRISPR to even more precise functionality of the gene editing approach, potentially overcoming concerns about off target effects that could slow its development for clinical uses.

About half of human disease-associated mutations are point mutations, i.e. changes in a single base pair that alter protein functions. The most familiar examples relevant to transfusion medicine are sickle cell anemia and some of the thalassemia syndromes. These highly morbid diseases drive a worldwide need for chronic transfusion with the attendant problems of alloimmunization and difficulty finding compatible red cells, iron overload, other adverse transfusion reactions, and costs to healthcare systems. Nucleic acid editing that is precise enough to correct single point mutations holds promise to "cure" them. Early versions of CRISPR encountered problems with "off target" editing that might cause unintended consequences, and also have been relatively inefficient.

The *Nature* paper describes a precision single-base editing technique developed from CRISPR but without double strand DNA breaks and excision of DNA sequences that can be repaired incorrectly, producing off target effects. It also reported increased efficiency in which 28 percent of target cells were edited without evidence of off target effects. Such a technique could be used, for example, on autologous hematopoietic stem cells to correct the point mutation responsible for sickle cell disease followed by their return to the donor-patient to eliminate the clinical effects of the disease with low risk of unintended consequences.

In *Science,* the authors of the paper describe the precision editing of RNA, the nucleic acid that translates DNA into proteins according to the central dogma of molecular biology. Also built on a CRISPR infrastructure, the technique edits labile RNA, not stable DNA, so effects are transient, confined to the period of exposure to the process, and should be reversible. This would minimize the dangers of off target effects. Additionally, unlike DNA editing, it does not require replicating cells to be effective, since RNA is synthesized continuously in all cells.

**Citations:** Gaudelli, N.M., Komor, A.C., Rees, H.A. *et al.* Programmable base editing of A•T to G•C in genomic DNA without DNA cleavage. *Nature.* 2017. doi.org/10.1038/nature24644.

Cox, D.B.T., Gootenberg, J.S., Abudayyeh, O.O. *et al.* RNA editing with CRISPR-Cas13. *Science*. 2017. doi: 10.1126/science.aaq0180.

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# INSIDE ABC

*The programs and services described in the Inside ABC section are available to ABC member blood centers and their staff only, unless otherwise specified.*

## ABC *Awards of Excellence* Call for Nominations

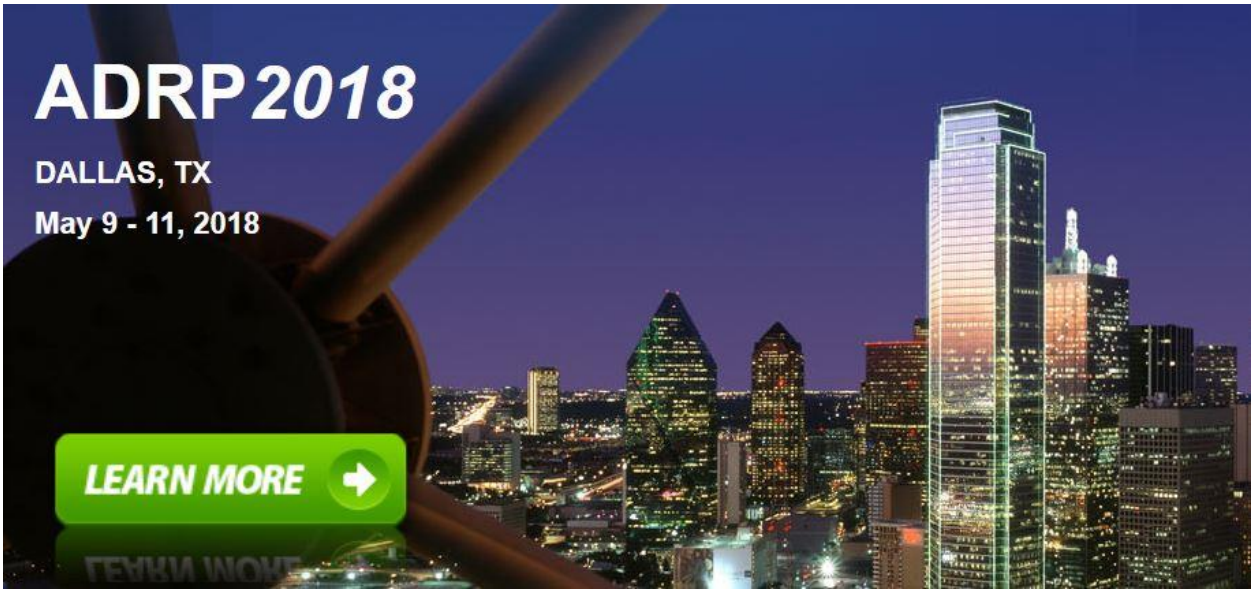
ABC members are encouraged to nominate blood donation sponsors, corporations, and advocates for the 21st Annual *Awards of Excellence*. This year's ceremony will be in Scottsdale, Ariz. during ABC's 56th Annual Meeting on Monday, March 19th. Nominations are currently open until Monday, November 20th. Additional details are available in MCN 17-073. The online submission form is available here. Please direct any questions about nominations or the awards ceremony to Leslie Maundy.

**SAVE THE DATE**

**ABC SMT Iron Mitigation Webinar**

**December 7, 2017 at 3 PM ET**

*Additional details coming soon!*




## 2017 Blood Center Compensation & Benefits Survey Deadline Extended

All ABC member blood centers are eligible and invited to participate in the 2017 Blood Center Compensation & Benefits Survey prior to the November 17th submission deadline. The survey features 32 director and management-level exempt positions, and 35 staff-level positions commonly found in blood centers and focuses on the data needed to provide a strategic overview of the market and where organizations need to position themselves to compete in the future. It also includes a detailed benefits section that will provide insight into the specific benefit practices of blood centers. Contact Leslie Maundy for additional details and sign-up information.

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INSIDE ABC (continued from page 4)

## ADRP Registration & Call for Speaker Abstracts Open

Early bird registration for the ADRP, an international division of ABC, 2018 Conference and Expo is open. Register by December 31st to take advantage of the discounted rate ($525). ADRP also invites you to submit abstracts to speak at the conference in Dallas, Texas. All marketing and communications innovators, recruitment visionaries, and collections experts are invited to submit abstracts on topics including donor collections staffing, the impact of technology on donor flow, internal communications strategies for regulatory changes, reinventing your brand, fixed site recruitment, lead generation for new sponsor groups, first time donor retention programs, and emerging medical issues. Speakers that are chosen will receive a 30 percent discount off conference registration and a complimentary one-year subscription to ADRP. Interested individuals may submit abstracts here.

## ADRP Award Nominations Open

Recognize a peer or outstanding donor group by nominating them for an ADRP Award. Submissions are being accepted until November 15th via the online nomination form. This year's categories include: Donor Recruiter of the Year, Donor Collections Team Member of the Year, Leader of the Year (Recruitment & Collections), Franzmeier Lifetime Achievement Award, Gilcher MD/CEO Award, Media Partner Award, Blood Drive Award (Creative & Most Productive), School Blood Drive Award, and the Humanitarian Service Award.

## RESEARCH IN BRIEF

**Currently, cure of sickle cell disease (SCD) requires allogeneic hematopoietic stem cell transplantation (HSCT), and nonmyeloablative techniques can do so without graft-vs.-host disease.** Gene-edited, autologous approaches have entered clinical trials. Investigators at the National Institutes of Health (NIH) have published evidence estimating the level of donor mixed chimerism (DMC) that will reverse the clinical phenotype of SCD after transplantation of allogeneic HSCT and modeled an explanation for that level. They evaluated 67 patients transplanted at the NIH clinical center from 2003-2015. All patients had excellent initial engraftment and reversal of clinical disease, but three patients relapsed in the face of declining chimerism, and had return of SCD signs and symptoms at DMC levels below 20 percent. Their modeling approach suggests that this level is determined entirely by the much shorter life span of recipient compared to donor red blood cells.

**Citation:** Fitzhugh, C.D., Cordes, S., Taylor, T. *et al.* At least 20% donor myeloid chimerism is necessary to reverse the sickle phenotype after allogeneic HSCT. *Blood*. 2017. 130:1946-8.

### SAVE THE DATE

**ABC SMT Journal Club Webinar**

**November 28, 2017 at 1 PM ET**

*Articles to be covered:*

- *Crisis in the Sustainability of the U.S. Blood System*
- *Safety of the use of group A plasma in trauma: the STAT study*
- *Oral antiplatelet therapy: impact for transfusion medicine*

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RESEARCH IN BRIEF (continued from page 5)

**The Recipient Epidemiology and Donor Evaluation Study-III (REDS-III) reports on the demographic characteristics of transfusion recipients over two years, 2013 and 2014, in 12 hospitals from four U.S. geographic regions.** The database will eventually expand to four years and be available in a public-use data set. Of 641,751 inpatient encounters, 10.9 percent included red blood cell transfusion, 3.2 percent platelets, and 2.9 percent plasma, with 87.5 percent having no transfusion. Outpatient encounters are also provided with less detail. Demographic domains captured include age, gender, race/ethnicity, primary diagnosis, and number of units per encounter. Laboratory triggers and adverse event reports are provided, as well as mortality by component transfused, cross tabulated by the demographic domains. The authors note in conclusion that, "(T)his database will contain recipient data through the end of 2016 and will be linked to donor and component databases over the same time period, greatly expanding the utility of this data set."

**Citation:** Karafin, M.S., Bruhn, R., Westlake, M. *et al.* Demographic and epidemiologic characterization of transfusion recipients from four US regions: evidence from the REDS-III recipient database. *Transfusion.* 2017. doi:10.1111/trf.14370.

## BRIEFLY NOTED

**Investigators at ABC member Stanford Blood Center and Stanford University have developed a statistical model that predicts platelet transfusion needs over the ensuing three days by leveraging patient data within their hospital's electronic medical record (EMR).** Critical EMR data includes day of week, number of patients with a variety of abnormal lab results, and patient census, among others. From this hospital big data, they used 29 months of data to train and validate the model that can optimize collections to dramatically reduce platelet expirations from 10.5 to 3.2 percent, while always maintaining a robust inventory available for immediate requests. If extrapolated to national platelet transfusion estimates, they approximate nationwide savings of $80 million from platelet wastage. Additionally, the development of a software application is underway that will operationalize the system over the next several months; the software will be available as an open source package to other facilities. Senior author Tho Pham, MD, Clinical Assistant Professor in the Stanford University Department of Pathology and medical director of Stanford Blood Center, expressed optimism in being able to apply the model broadly to other blood systems in the U.S., such as regional blood center systems that serve multiple hospitals.

**Citation:** Guan, L., Tian, X., Gombar, S., Zemek, A.J., Krishnan, G., Scott, R., Narasimhan, B., Tibshirani, R.J., Pham, T.D. Big data modeling to predict platelet usage and minimize wastage in a tertiary care system. *Proc. Nat. Acad. Sci.* 114:11368-73.

## REGULATORY NEWS

**AABB's November 2013 Circular of Information has been updated to reflect recent Food and Drug Administration (FDA) approved language for a newly licensed Zika virus nucleic acid test (NAT) to be included on blood products that have been subjected to testing for Zika virus with an FDA-licensed test.** The Circular of Information Task Force created and recommended the accepted language according to an announcement from AABB. The language states, "A licensed nucleic acid test (NAT) for Zika Virus RNA has been performed and found to be nonreactive." Blood products that have been tested for Zika under the Investigational New Drug application "is not required" to utilize the statement.

(Source: AABB Announcement, 11/2/17)

(continued on page 7)

REGULATORY NEWS (continued from page 6)

**The Food and Drug Administration (FDA) announced this week that it will permit "European drug regulatory authorities as capable of conducting inspections of manufacturing facilities that meet FDA requirements."** According to the news release, "regulatory authorities" from Austria, Croatia, France, Italy, Malta, Spain, Sweden, and the United Kingdom can be used for inspections beginning November 1st. "At a time in which medical product manufacturing is truly a global enterprise, there is much to be gained by partnering with regulatory counterparts to reduce duplicative efforts and maximize global resources while realizing the greatest bang for our collective inspectional buck," said FDA Commissioner Scott Gottlieb, MD in the news release. "By partnering with these countries we can create greater efficiencies and better fulfill our public health goals, relying on the expertise of our colleagues and refocusing our resources on inspections in higher risk countries."

(Source: Food and Drug Administration News Release, 10/31/17)

## ABC Calendar of Events

ABC offers a variety of meetings, workshops and virtual opportunities for education and networking as well as participation in ABC business. The calendar of events includes annual and summer meetings, board meetings, workshops, and webinars, and details will be updated as confirmed. We look forward to your support and participation!

## WORD IN WASHINGTON

**The Centers for Medicare and Medicaid Services (CMS) has published the hospital outpatient prospective payment system (OPPS) final rule for calendar year 2018.** ABC submitted comments on the proposed rule, as did 15 ABC members blood centers through ABC's advocacy center. While the rule recognizes and thanks stakeholders for their comments, it contains no changes in methodology in calculating the rates from the proposed rule. In response to ABC concerns regarding reduced payment for certain blood codes, CMS indicated that, "We used claims data from CY 2016 and the same blood-specific CCR methodology we used in previous years to calculate these proposed payment rates and believe the changes in costs for the services mentioned by these commenters are a result of normal variations in the claims data."

When responding to requests from commenters including ABC that CMS reflect in real-time the cost of newly implemented Food and Drug Administration blood safety measures for blood components, CMS stated that "the OPPS covers hospital payments for the costs of blood and blood products, as well as for the costs of collecting, processing, and storing blood and blood products. The cost of blood and blood products is determined using claims data and blood-specific CCRs from hospitals. To the extent that compliance with blood safety measures is included in hospital reporting of the cost of CMS-1678-FC 78 collecting, processing and storing blood and blood products, these costs would be reflected in the hospital rates. It is not possible to estimate the potential costs of new safety measures outside of claims data."

CMS confirmed that it would convert temporary code Q9988 for pathogen reduced apheresis platelets into a permanent P-code (P9073) effective January 1, 2018. In addition, as stakeholders including ABC had suggested, CMS will continue to crosswalk P9073 to P9037 (leukoreduced, irradiated apheresis platelets) for payment rate setting for 2018. Finally, in response to the request that CMS convene all stakeholders to "review and revise the HCPCS P-codes for blood products," CMS stated that, "We appreciate the commenters' detailed responses. The safety of the nation's blood supply continues to be among the highest

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WORD IN WASHINGTON (continued from page 7)

priorities, and we will work with the commenters and other stakeholders to ensure that any future updates to the HCPCS P-codes will support our goal of maintaining the safety of the blood supply." The rule will be implemented in January 2018.

Source: (CMS Hospital Outpatient Prospective Payment System Final Rule, 10/24/17)

**The House Ways & Means Committee revealed its much-anticipated tax reform package this week.** The Committee plans to hold a multiple-day "markup" of the Tax Cuts and Jobs Act starting Monday, November 6th. With the backing of the Administration, congressional leaders have announced they would like to pass legislation prior to adjourning for the year. ABC is reviewing the language for any potential impact to tax-exempt organizations.

**Earlier this week, the Senate Health, Education, Labor, & Pensions Committee conducted a hearing regarding the implementation of the 21st Century Cures Act**. Officials from the U.S. Department of Health and Human Services (HHS) fielded questions during their testimony on the progress being made in implementing the Act to improve patient access and fulfilling the promise of healthcare information technology. The Cures Act seeks to foster innovation through promoting the development and speeding the approval of new drugs and medical devices modernizing the U.S. healthcare system while incorporating the patient perspective, and modernizing clinical trials to deliver faster cures. Opponents in the medical community believe faster approvals could compromise the safety and efficacy of drugs and medical devices. The Act has been supported by the pharmaceutical, biotechnology, and device industries. The full hearing is available here.

Source: (Senate Committee on Health, Education, Labor, & Pensions Hearing, 10/31/17)

## MEMBER NEWS

**Bloodworks Northwest** recently hosted scholars from around the world for an intensive two-week Laboratory Quality Management Systems course. The participants consisted of laboratory managers and quality leaders in organizations from the Ivory Coast, Burkina Faso, Mali, Niger, Uganda, and the Turks & Caicos Islands. The course was conducted in French and English and tailored to the requests of the most pressing needs, as indicated by the participants for their blood banking systems. The course included lectures, tours, and other activities as attendees had the opportunity to learn about the newest practices in blood banking, while receiving inspiration for ways to adapt Bloodworks' best practices in their own countries. Participants also took part in a panel discussion to provide Bloodworks' staff with a learning opportunity as well sharing information about the blood banking realities in their home nations. Bloodworks plans to offer this course annually and to continue welcoming global scholars moving forward.

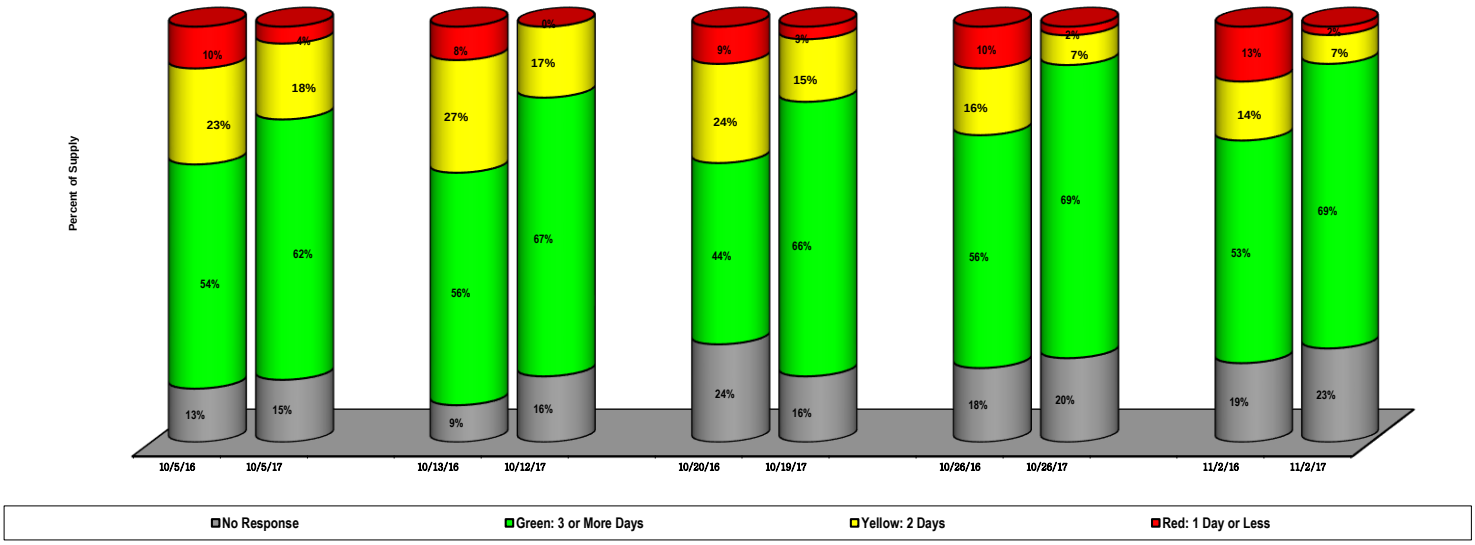
Source: (Bloodworks Northwest Announcement, 10/31/17)


## COMPANY NEWS

Centro de Transfusión de la Comunidad de Madrid (CTCM), the transfusion service in Madrid, Spain and Cerus Corp. announced that CTCM will utilize Cerus' INTERCEPT system for pathogen inactivated platelets. "We are pleased to work with CTCM in providing INTERCEPT Platelets to enhance the safety of blood components," said Gualtiero Garlasco, general manager of Cerus Europe B.V in a news release. "As one of the largest blood banks in Spain, CTCM is an important organization within the Spanish blood banking community." Cerus Corp. also reached an agreement this week with Kedrion Biopharma that makes the latter the exclusive distributor for platelets and plasma in Italy using INTERCEPT. "Cerus' INTERCEPT Blood Systems' platform complements our current product portfolio and we believe the market opportunity for pathogen inactivation of transfused blood components in Italy is significant, said Danilo Medica, Italy Country Manager of Kedrion Biopharma in the news release. "We look forward to working with Cerus to help make INTERCEPT the standard of care in Italy for improving the safety of transfusion medicine and are excited to be collaborating on the potential introduction of the INTERCEPT red cell system."

Source: (Cerus Corp. News Release, 10/30/17 & News Release, 10/31/17)

## STOPLIGHT®: Status of America's Blood Centers' Blood Supply




The order of the bars is (from top to bottom), red, yellow, green, and no response

**Daily updates are available at:**
**www.AmericasBlood.org**

## CALENDAR

***Note to subscribers:*** *Submissions for a free listing in this calendar (published in the last issue of each month) are welcome. Send information to Leslie Maundy by e-mail (lmaundy@americasblood.org) or by fax to (202) 393-1282. (For a more detailed announcement in the weekly "Meetings" section of the newsletter, please include program information.)*

**2017**

Nov. 8-10. **10th World Federation of Hemophilia Global Forum, Montreal, Canada.** For more information and to register, click here.

Dec. 9-12. **American Society of Hematology Annual Meeting & Expo., Atlanta, Ga**. Register here.

**2018**

Feb. 5-7. **14th Annual FDA and the Charging Paradigm for HCT/P Regulation., Alexandria, Va.** Register here.

Mar. 17-19. **ABC Annual Meeting, America's Blood Centers, Scottsdale, Ariz.** More details available here.

May 8-10. **ABC Human Resources and Training/Development Workshop, Dallas, Texas.** More details here.

May 9-11. **ADRP Conference & Expo., Dallas, Texas.** More details here.

## CLASSIFIED ADVERTISING

Classified advertisements, including notices of positions available and wanted, are published free of charge for a maximum of three weeks per position per calendar year for ABC institutional members. There are charges for non-members: $139 per placement for *ABC Newsletter* subscribers and $279 for non-subscribers. A six (6) percent processing fee will be applied to all credit card payments. Notices ordinarily are limited to 150 words. To place an ad, contact Leslie Maundy at the ABC office. Phone: (202) 654-2917; fax: (202) 393-1282; e-mail: lmaundy@americasblood.org.

## POSITIONS

**Vice President, Clinical Services Administration.** Blood Systems, headquartered in Scottsdale Arizona, is one of the nation's largest comprehensive transfusion medicine organizations. Our blood centers provide blood, blood components and special services to patients in over 1,000 hospitals across the country. We are seeking a Vice President, Clinical Services Administration for the Corporate Division. This position is responsible for fostering enterprise-wide collaboration among Blood Systems' immunohematology reference and centralized transfusion clinical services, promoting cost-saving standardization and enacting approved changes to provide impeccable laboratory and transfusion services for the patients served by our hospital partners. The ideal candidate will have extensive supervisory experience in immunohematology. Experience: Eight years of related experience required, to include five years' supervisory experience. Knowledge/Education: Bachelor's degree required. Master's degree preferred. Knowledge of large system operations management including fiscal policies, human resource management, and strategic planning required. Knowledge of federal, state, and local regulations that affect business operations required. Licenses/Certifications: SBB or equivalent preferred. To view the job description and apply for this position, please click here.

**Hospital Services Supervisor.** Blood Bank of Hawaii, a medium-size blood center (50,000 RBC distributions annually), has an exciting opportunity for a Hospital Services Supervisor. This leadership position is responsible for performing, documenting and reviewing all tasks associated with inventorying and distribution of blood components. Will also supervise and coordinate operations, staffing and management of the Hospital Services department to include hospital satisfaction in meeting blood product needs, assuring quality customer service to all customers, and management and coordination of blood and blood component inventories. The ideal candidate should have one year experience working in healthcare, account management, distribution or healthcare, as well as one year experience supervisory experience. Please apply via our website: www.BBH.org.

**Technical Support Specialist.** Blood Bank Computer Systems (BBCS) is seeking qualified candidates for a Technical Support Specialist in Auburn, WA. The primary responsibility of this position is the support of clients through a centralized support services model. The role's essential job duties include: providing high quality support for BBCS software, define client needs and document issue including prioritizing/escalating support issues, confer with other departments on client issues, ensure appropriate resolution in a timely manner and reporting/evaluation technical support metrics. The individual must demonstrate a high level of understanding of technical aspects of BBCS products, services, training materials and documentation. Required skills include: strong customer service orientation, oral and written communication skills, analytical and problem solving, ability to handle multiple projects concurrently, function in a fast-paced environment, and ability to understand new technologies quickly. Desired skills include: working knowledge of software documentation from a user and developer perspective, ability to multi-task and prioritize tasks related to project timelines, and experience working in a software development environment, regulatory, medical device or experience with QA testing. A BA/BS or equivalent healthcare industry experience is required. Qualified applicants outside of Washington who prefer a remote position will be considered. Click here to apply.

**Medical Director, Clinical Services (Stanford Blood Center).** The Department of Pathology seeks full-time physician clinician educator to serve as Medical Director, Clinical Services at Stanford Blood Center (SBC). Position is in the Clinician Educator line, rank based on years of relevant experience. You will: Provide medical oversight for SBC policies and procedures, maintaining compliance with regulations and standards, share responsibilities for medical consultations at SBC and for training in blood banking and transfusion medicine, provide medical cross coverage for Transfusion Service at Stanford Health Care, and participate in clinical research projects in blood banking and transfusion medicine. SBC collects 50,000 red cells and 14,000 plateletpheresis components annually, performs infectious disease testing, and provides support for clinical, translational research activities. It is primary supplier for hospitals including Stanford Health Care and the Lucile Packard Children's Hospital. Requirements: MD or DO with California Medical License, board certified in Clinical Pathology, Internal Medicine or Pediatrics, board eligible/certified in Transfusion Medicine, minimum one year experience

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POSITIONS (continued from page 11)

in Transfusion Medicine. Stanford is an equal employment opportunity and affirmative action employer. Please send cover letter, CV and names of three to five references (**in one pdf document**) to: Thomas Montine, MD, PhD, Chair, Department of Pathology, c/o Cynthia Llanes at cllanes@stanford.edu.

**Operations Coordinator-Collections.** This position is responsible for arranging collection activities to achieve operational goals and standards including production, compliance, cost, hiring/terminations, employee development, team spirit and customer service. Must be able to identify and resolve production concerns in order to ensure continued daily operations. This individual will consult with the manager, oversee the daily operations and assumes managerial responsibilities in the absence of the manager. This position requires regular full-time attendance with regular office hours and on-call duties. Required: High school diploma or equivalent, two years of supervisory/management experience - Prefer background in highly regulated field. Carter BloodCare (CBC) is an EEO/Affirmative Action employer. CBC provides equal employment opportunities (EEO) to all employees and applicants and will not discriminate due to an employee's or applicant's race, color, religion, sex, sexual orientation, gender identity, age, national origin, genetic, and veteran or disability status. In addition to federal law requirements, Carter BloodCare complies with applicable state and local laws governing nondiscrimination in employment in every location in which the company has facilities. CBC is a Pro Disabled and Veteran Employer. We maintain a drug-free workplace and perform pre-employment substance abuse testing. Please click here to apply.

**Manager, Immunohematology Reference Laboratory.** Memorial Blood Centers in St. Paul, Minnesota, is looking for a Manager for our Immunohematology Reference Laboratory. This exempt, and full-time role oversees clinical laboratory testing procedures, management of rare blood inventory, and supervision of laboratory staff. Benefits include: Medical, Dental, Vision, PTO/EST, 401K and more! To apply, click here.

**Assistant Director of Marketing, Communications, and Community Development.** Central California Blood Center (CCBC) seeks qualified candidates for the Asst. Director of Marketing, Communications, and Community Development with near-term potential to grow into the Director position. Opportunity to champion the CCBC strategic plan; develop and execute marketing plans to achieve annual blood collection goals at fixed and automated locations and in mobile-field drives; promote a renewed brand to firmly establish the value of a plentiful our blood supply are included in this position. An effective and adaptive leadership style is vital in managing daily operations of a 12-person department with the support of the two supervisors as direct reports. A working knowledge/experience in and a grasp of: media and crisis management; marketing best practices including those of creative and production; community development and event management; CRM; staff development; verbal/written and interpersonal communication including public speaking/on camera appearances, computer technology; and the social media environment and engagement are required. Additional expectations will include the ability to assist the Director as needed to oversee the implementation of a branding campaign working with media and other stakeholders to accomplish our mission to serve our community and beyond. Bachelor's degree (BA/BS) in communications, marketing, public relations, business administration, healthcare administration, or relative degrees preferred. Progressive management experience in blood banking or health-related field a plus. Competitive salary and benefit package. To apply click here. EOE/M/F/Vet/Disability.