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As medical teams in Haiti evaluated and treated the victims of the devastating earthquake, the American Red Cross coordinated shipments of blood products to Haiti at the request of the Pan American Health Organization (PAHO).

The American Red Cross, America's Blood Centers (ABC), Blood Centers of America (BCA) and the AABB’s National Blood Exchange (NBE) are working with the Armed Services Blood Program to coordinate the supply of blood products for US military medical facilities participating in the relief efforts, such as the USNS Comfort.

As of February 3, 2010, about 1,100 units of blood have been sent to Haiti to help treat earthquake victims - nearly 750 units from the Red Cross and 350 units by ABC, BCA and the NBE.

PAHO officials are working with the National Blood Transfusion Program at the Ministry of Health in Haiti to distribute blood to local hospitals according to the needs of the earthquake victims.

The American Red Cross and other blood suppliers continue to meet the current needs of this tragedy from existing blood supplies.
Study Looks at Parvovirus B19 and Blood Donation

Parvovirus B19 (B19V) infection can be a serious infection for hematology patients with underlying hemolysis or compromised erythropoiesis syndromes. Although case reports of B19V transmission by blood component transfusion (as contrasted to manufactured plasma derivatives) are rare, no studies have systematically determined a rate of transmission to recipients transfused with B19V DNA-positive components.

A National Heart, Lung, and Blood Institute Retrovirus Epidemiology Donor Study-II (NHLBI REDS-II) used a linked donor and recipient repository and a sensitive, quantitative B19V DNA polymerase chain assay to assess such transmission in B19V-susceptible immunoglobulin G [IgG] negative recipients.

The researchers assessed 112 B19V DNA-positive components from 105 donors (of 12,529 tested donations) transfused into a population of surgical patients with a pre-transfusion B19V IgG seroprevalence of 78%. They found no transmission to 24 susceptible recipients from transfusion of components with B19V DNA at concentrations less than $10^6$ IU/mL (upper 95% confidence interval, 11.7%). They found an anamnestic IgG response in one pretransfusion seropositive recipient transfused with a component containing greater than $10^{10}$ IU/mL B19V DNA. These findings show either that transmission from components with less than $10^6$ IU/mL does not occur, or, if it does, it is an uncommon event.

The study concluded that these data do not support the need to routinely screen blood donations with a sensitive B19V DNA nucleic acid assay.


PARVOVIRUS B19 AT A GLANCE

- Fifth disease is caused by infection with human parvovirus B19. This virus infects only humans.
- The medical name for fifth disease is erythema infectiosum (EI). It is seen primarily in school-aged children between 5 and 14 years of age during the spring and winter.
- Fifth disease causes a reddish rash on the child’s face so that it looks as if the child has been slapped on both cheeks. Occasionally, the rash may itch. An ill child may have a low-grade fever, malaise, or a “cold” a few days before the rash breaks out. The child is usually not very ill, and the rash resolves in 7 to 10 days.
- The virus is thought to spread via droplets in the air (respiratory secretions transmitted by coughs and sneezes) and blood from other infected people. Early during the illness, nasal secretions contain the viral DNA. Blood has been found to contain viral particles as well as DNA.
- At least 50% of adults have had the infection and are unlikely to be re-infected. About 10% or fewer of young children are immune.
- People with the illness are contagious before the onset of symptoms and are probably not contagious after they develop the rash. The incubation period from the time of acquiring the infection to the development of symptoms is usually between four and 14 days.
- The name fifth disease comes from a classification system used many decades ago. The five most common rashes (or exanthems) of childhood are traditionally recognized to be measles (rubeola), chickenpox (varicella), German measles (rubella), roseola, and the “fifth disease” (parvovirus B19 infection).
Chikungunya virus produces a fever-arthralgia syndrome resulting in considerable morbidity and some mortality, particularly among older age groups and/or those with pre-existing conditions.

In recent years, large chikungunya virus (CHIKV) outbreaks originating in Kenya have spread to islands of the Indian Ocean and parts of India, Southeast Asia, and Europe. Concern of transfusion transmission has been heightened for this mosquito-borne arbovirus because of high population infection incidence during outbreaks and the high-titer viremia lasting approximately 6 days.

American Red Cross and United States Centers for Disease Control and Prevention (CDC) researchers concluded that although the virus has not circulated in the Americas, the abundant presence of competent mosquito vectors suggests large outbreaks are possible should the virus be introduced and autochthonous transmission occur.

Estimated transfusion risks range as high as 150 per 10,000 donations during outbreaks.

Possible measures to prevent potential CHIKV transfusion transmission include deferral of symptomatic donors, discontinuing blood collections in affected areas, and CHIKV nucleic acid screening of donations. Even a relatively small outbreak in Italy resulted in considerable adverse impact on blood collections and economic consequence. Assays suitable for testing donations for CHIKV RNA are not yet available, and given the highly geographically and temporally sporadic nature of CHIKV outbreaks, there may be considerable reluctance to develop and implement them.


Is Chikungunya Virus a Threat to the Blood Supply?

Chikungunya virus is a viral disease spread by mosquitoes.

The disease causes fever and severe joint pain. Other symptoms include muscle pain, headache, nausea, fatigue and rash.

Chikungunya was first described during an outbreak in southern Tanzania in 1952, although epidemics resembling Chikungunya fever were recorded as early as 1824 in India and elsewhere.

The name ‘chikungunya’ derives from a root verb in the Kimakonde language, meaning ‘to become contorted’ and describes the stooped appearance of sufferers with joint pain.

Chikungunya is an alphavirus of the family Togaviridae.

The disease shares some clinical signs with dengue, and can be misdiagnosed in areas where dengue is common.

The disease occurs in Africa, Asia and the Indian subcontinent. In 2007, disease transmission was reported for the first time in Europe, in a localized outbreak in north-eastern Italy.

There is no cure for the disease. Treatment focuses on relieving the symptoms.

--World Health Organization (WHO), Centers for Disease Control & Prevention (CDC).

Study Looks at Pediatric Patients Receiving Transfusions in Intensive Care

Since the optimal transfusion threshold after surgery in children is unknown, Canadian researchers analyzed the general surgery subgroup of the TRIPICU (Transfusion Requirements in Pediatric Intensive Care Units) study to determine the impact of a restrictive versus a liberal transfusion strategy on new or progressive multiple organ dysfunction syndrome (MODS).

The TRIPICU study, a prospective randomized controlled trial conducted in 17 centers, enrolled a total of 648 critically ill children with a hemoglobin equal to or below 9.5 g/dL within 7 days of pediatric intensive care unit (PICU) admission to receive prestorage leukocyte-reduced red-cell transfusion if their hemoglobin dropped below either 7.0 g/dL (restrictive) or 9.5 g/dL (liberal).

A subgroup of 124 postoperative patients (60 randomized to restrictive and 64 to the liberal group) were analyzed. Participants in the restrictive and liberal groups were similar at randomization in age (restrictive vs. liberal: 53.5 +/- 51.8 vs. 73.7 +/- 61.8 months), severity of illness (pediatric risk of mortality [PRISM] score: 3.5 +/- 4.0 vs. 4.4 +/- 4.0), MODS (35% vs. 29%), need for mechanical ventilation (77% vs. 74%), and hemoglobin level (7.7 +/- 1.1 vs. 7.9 +/- 1.0 g/dL). The mean hemoglobin level remained 2.3 g/dL lower in the restrictive group after randomization. No significant differences were found for new or progressive MODS (8% vs. 9%; P = 0.83) or for 28-day mortality (2% vs. 2%; P = 0.96) in the restrictive versus liberal group. However, there was a statistically significant difference between groups for PICU length of stay (7.7 +/- 6.6 days for the restrictive group vs. 11.6 +/- 10.2 days for the liberal group; P = 0.03).

The researchers found no conclusive evidence that a restrictive red-cell transfusion strategy, as compared with a liberal one, increased the rate of new or progressive MODS or mortality in this subgroup analysis of pediatric general surgery patients.


Researchers Find Partial D Phenotypes DIIIa and DIII Type 5 Encoded by Same Allele

The partial D phenotype DIIIa was originally reported to be associated with 455A>C in Exon 3, 602C>G in Exon 4, and 667T>G in Exon 5. Other alleles with these changes were subsequently identified and designated DIII Types 5, 6, and 7, as they had additional alterations. The observation that DNA samples associated with the DIIIa phenotype had more changes than those originally reported motivated us to reanalyze the DIIIa probands (BP and DJ) from the original study. We also studied additional DIIIa samples to clarify the RHD background and establish the associated RHCE.

Researchers from the American Red Cross National Molecular Blood Group and Platelet Testing Laboratory and other scientists performed hemagglutination testing by standard methods. RHD and RHCE were analyzed by combinations of polymerase chain reaction-restriction fragment length polymorphism, exon-specific sequencing, cloning, or direct sequencing of Rh-cDNAs.

The RHD alleles from BP, DJ, and 58 additional DIIIa samples had the three reported nucleotide changes as well as 186G>T, 410C>T, and 819G>A. The DIIIa allele was associated with several altered RHCE*ce-alleles, the prominent one being ceS (48C, 733G, 1006T).

The researchers found that the DIIIa phenotype is associated with six RHD changes, five of which encode amino acid changes, and partial DIIIa and DIII Type 5 are encoded by the same RHD allele. In all samples, RHD*DIIIa was inherited with altered RHCE*ce. Patients with partial DIIIs are at risk for production of alloanti-D, but they are also at risk for alloanti-e, -c, or antibodies to high-prevalence Rh antigens if there is no conventional RHCE*ce in trans. Among 39 patients studied, 16 had alloanti-D and 27 had alloanti-e or anti-hrB.

Westhoff CM, Vege S, Halter-Hipsky C, Whorley T, Hue-Roye K, Lomas-Francis C, Reid ME. DIIIa and DIII Type 5 are encoded by the same allele and are associated with altered RHCE*ce alleles: clinical implications. Transfusion. 2010 Jan 15. [Ahead of print].
Trauma patients requiring massive transfusion (MT) represent a population at high risk for potentially preventable death. Recent advances in the early recognition and treatment of the coagulopathy of trauma hope to define optimal resuscitation strategies.

Damage control resuscitation involves the rapid correction of hypothermia and acidosis, direct treatment of coagulopathy, and early transfusion in trauma patients. Recent evidence demonstrates lower mortality and overall blood product usage with higher ratios of plasma and platelets to red blood cells transfused. Adjuncts to damage control resuscitation such as factor VIIa may also be beneficial. Thrombelastography and advances in point-of-care testing may provide timely measurements to help guide massive transfusion in patients based on their individual needs.

A number of recent advances in the area of MT have emerged, including the use of “hypotensive” or “delayed” resuscitation for victims of penetrating trauma before hemorrhage is controlled and “hemostatic resuscitation” with increased use of plasma and platelet transfusions in an attempt to maintain coagulation. These advances include the earlier use of hemostatic blood products (plasma, platelets, and cryoprecipitate), recombinant factor VIIa as an adjunct to the treatment of dilutional and consumptive coagulopathy, and a reduction in the use of isotonic crystalloid resuscitation. MT protocols have been developed to simplify and standardize transfusion practices.

As optimal resuscitation strategies continue to evolve, recent efforts have focused on early and aggressive treatment of coagulopathy, with higher ratios of plasma and platelets to red blood cells transfused. Early evidence suggests that such strategies have a beneficial outcome in regards to trauma-related mortality.

The authors of recent studies have advocated a 1:1:1 ratio of packed RBCs to fresh frozen plasma to platelet transfusions in patients requiring MT to avoid dilutional and consumptive coagulopathy and thrombocytopenia, and this has been associated with decreased mortality in recent combat and civilian trauma reports. Earlier assessment of the exact nature of abnormalities in hemostasis has also been advocated to direct specific component and pharmacologic therapy to restore hemostasis, particularly in the determination of ongoing fibrinolysis.


Since massive transfusion protocol (MTP) utilization and makeup is unknown, Yale University School of Medicine researchers conducted a Web-based survey. The survey was sent to members of the Eastern Association for the Surgery of Trauma and published in the American Association for the Surgery of Trauma newsletter. Comparisons were made with chi-square and logistic regression.

A total of 186 surgeons and 59 center directors responded. The survey found that 60 percent annually admit more than 1500 patients. Sixty-seven percent had in-house attending coverage and 85% had a MTP. Presence of a MTP was not predicted by institution size, level, residency status, or admissions. Sixty-five percent of MTPs had been in place less than 5 years with 18% less than 1 year.

**Designs varied:**
- 23% had one batch of components;
- 25% had two or three;
- 41% had more than three;
- 11% did not use batches.

Only 62% of first batches contained fresh-frozen plasma (FFP). In the second batch 98% had FFP. All third boxes had FFP. A ratio of FFP: red blood cells (RBCs) of less than 1 in the first batch predicted a ratio less than 1 in the second batch (p = 0.013). Twenty-seven percent had blood stored in the emergency department and 14% in the operating room. Twenty-four percent of MTPs autoactivate and 80% are trauma surgeon activated, 66% by the anesthesia staff, 32% by other surgeons, and 17% by the blood bank. The survey also found that trauma surgeons activate the MTP most.

The researchers concluded that while most centers have a MTP, protocols are variable and new, and half have a 1:1 FFP:RBC ratio. Protocols with fewer initial units of FFP compared to RBCs maintain this.

Transfusion in Trauma and Critical Care Reviewed

Recommendations for red blood cell (RBC) transfusion in adult trauma and critical care are reviewed in a recent issue of Critical Care Medicine. Although various professional societies have issued guidelines regarding RBC transfusion, none of these specifically address the issue of RBC transfusion in critically ill and injured adult patients with anemia and hemodynamic stability. The present guidelines review the evidence in this setting, but do not address RBC transfusion in neonates and children or in adults with uncontrolled hemorrhage.

Researchers from the American College of Critical Care Medicine (ACCM) Society of Critical Care Medicine (SCCM) and the Eastern Association for the Surgery of Trauma (EAST) Practice Management Workgroup developed evidence-based recommendations for red blood cell transfusion in adult trauma and critical care.

They found that blood transfusion is clearly indicated for the treatment of hemorrhagic shock, particularly in patients who have reached critical oxygen delivery. Independent of the mechanism of injury, hemorrhagic shock consistently represents the second leading cause of early deaths among the injured, with only central nervous system injury consistently more lethal.

The study found that based on current evidence, patients with evidence of hemorrhagic shock require RBC transfusion. Patients with evidence of acute hemorrhage and hemodynamic instability or inadequate oxygen delivery may require RBC transfusion. For critically ill patients with hemodynamically stable anemia, except possibly for those with acute myocardial ischemia, a "restrictive" strategy of RBC transfusion (hemoglobin [Hb] level < 7 g/dL) is equally as effective as a "liberal" transfusion strategy (Hb level < 10 g/dL).

The researchers concluded that the use of only Hb level as a "trigger" for transfusion should be avoided. Instead, the decision to transfuse should be based on intravascular volume status, evidence of shock, duration and extent of anemia, and cardiopulmonary physiologic parameters. RBC transfusion should be given as single units except for patients with acute hemorrhage. In critically ill patients requiring mechanical ventilation, transfusion should be considered for Hb levels of less than 7 g/dL. A "liberal" transfusion strategy (Hb level < 10 g/dL) provides no added benefit to these patients.

In resuscitated, critically ill trauma patients, transfusion should be considered if Hb level is less than 7 g/dL but there is no benefit of a "liberal" transfusion strategy (Hb level < 10 g/dL; level II).

In critically ill patients with stable cardiac disease, transfusion should be considered if Hb level is less than 7 g/dL, with no benefit of a "liberal" transfusion strategy.

Researchers also found that RBC transfusion should not be considered as an absolute method to improve tissue oxygen consumption in critically ill patients, and that patients with acute coronary syndromes who are anemic (Hb level < 8 g/dL) on hospital admission may benefit from RBC transfusion.

Cytomegalovirus (CMV) transfusion-transmitted disease (TTD) remains a clinical concern. Universal leukoreduction has become one of the main strategies for the prevention of CMV-TTD. Through prospective clinical follow-up and testing of transfusion recipients (TRs), American Red Cross and Yale University School of Medicine researchers studied the risk for CMV-TTD.

Transfused units were all leukoreduced and not prospectively screened for CMV. For TRs with negative baseline CMV testing results (CMV total antibody and DNA), all follow-up TR samples were tested for CMV total antibody and DNA, and retained linked donor serum samples were tested for CMV total antibody. In cases when CMV-TTD was suspected, donor sera were also tested for CMV DNA and selected TR samples were tested for CMV immunoglobulin M antibody. Evaluable transfusion was defined as a transfusion with TR sample(s) collected 14 to 180 days posttransfusion.

The researchers found 46 TRs were negative for CMV at baseline. There were 1316 evaluable cellular blood transfusions to these TRs. Of 1316 evaluable cellular products, 460 (35%) were positive for CMV total antibody tested using linked donor samples. Three cases of probable CMV-TTD were found, but there was no definitive proof from donor follow-up that they were transfusion associated.

Among all 46 baseline seronegative recipients and 1316 evaluable transfusions, the calculated overall CMV-TTD risk was up to 6.5% (95% confidence interval [CI], 1.0%-18.0%) in terms of TRs and up to 0.23% (95% CI, 0.06%-0.62%) in terms of non-CMV-screened leukoreduced cellular products.

The researchers concluded that after universal leukoreduction, CMV-TTD, while uncommon, may still occur.

Study Finds HLA Alloimmunization Is Associated with RBC Antibodies in Multiply Transfused Patients with Sickle Cell Disease

Alloimmunization to minor red blood cell (RBC) antigens occurs commonly in sickle cell disease (SCD). Patients with alloimmunization demonstrate increased risk for new alloantibody formation with subsequent transfusion. Alloimmunization to human leukocyte antigens (HLA) can occur with RBC transfusion and may result in graft rejection during stem cell or organ transplantation. The prevalence and risk factors for HLA alloimmunization in multiply transfused pediatric SCD patients are unknown. A cross-sectional study of HLA alloimmunization in SCD patients aged 3-21 years with a history of >or=3 RBC transfusions was performed to test the hypothesis that HLA alloimmunization is associated with RBC alloimmunization. Antibodies to class I and class II HLA were measured by Flow Panel Reactive Antibody (FlowPRA).

Seventy-three SCD patients (30 with RBC antibodies) were tested. HLA antibodies were detected in 25/73 (34%) patients; class I HLA antibodies occurred in 24/73 (33%) and class II HLA antibodies occurred in 3 (4%). Among patients with RBC antibodies, 16/30 (53%) had HLA antibodies, while 9/43 (21%) patients without RBC antibodies had HLA antibodies (OR 4.32 [1.6-12.1]). In a multivariate analysis, antibodies to RBC antigens were an independent predictor of HLA alloimmunization (P = 0.041). The association of RBC and HLA immunization was strongest among patients with no history of chronic transfusion therapy.

This analysis is the first description of HLA alloimmunization in pediatric SCD patients who received primarily leukoreduced RBC transfusions and demonstrates that HLA alloimmunization tendency is associated with antibodies to RBC antigens.


SICKLE CELL DISEASE AT A GLANCE

Sickle cell disease is most common in West and Central Africa where as many as 25% of the people have sickle cell trait and 1-2% of all babies are born with a form of the disease. In the United States with an estimated population of over 270 million, about 1,000 babies are born with sickle cell disease each year. In contrast, in Nigeria, with an estimated 1997 population of 90 million, 45,000-90,000 babies with sickle cell disease are born each year.

• SCD affects an estimated 70,000 to 100,000 Americans.
• The disease occurs in about 1 out of every 500 African American births.
• The disease occurs in about 1 out of every 36,000 Hispanic American births.
• Sickle cell trait occurs in about 1 in 12 African Americans.

• Sickle cell-related death among African-American children less than 4 years of age fell by 42% during 1999 to 2002. This coincides with the introduction of a vaccine that protected against invasive pneumococcal disease in 2000.

• Relative to the rate for 1983-1986, the SCD mortality rate for 1999-2002 decreased by:
  * 68% at age 0 to 3 years
  * 39% at age 4 to 9 years
  * 24% at age 10 to 14 years

• During 2005, medical expenditures for children with sickle cell disease averaged $11,702 for children with Medicaid coverage and $14,772 for children with employer-sponsored insurance. 40% of both groups had at least one hospital stay.

• Sickle cell disease is a major public health concern. From 1989 through 1993, there was an average of 75,000 hospitalizations due to sickle cell disease in the United States, costing approximately $475 million.
Scientists Explore Relationship Between Platelets and Viruses

Thrombocytopenia is a frequent complication of viral infections providing evidence that interaction of platelets with viruses is an important pathophysiological phenomenon. Multiple mechanisms are involved depending on the nature of the viruses involved. These include immunological platelet destruction, inappropriate platelet activation and consumption, and impaired megakaryopoiesis.

Viruses bind platelets through specific receptors and identified ligands, which lead to mutual alterations of both the platelet host and the viral aggressor. Scientists have shown that HIV-1 viruses are internalized specifically in platelets and megakaryocytes, where they can be either sheltered, unaltered (with potential transfer of the viruses into target organs), or come in contact with platelet secretory products leading to virus destruction and facilitated platelet clearance. In this study, French researchers reviewed the various pathways that platelets use in order to interact with viruses, HIV and others. They concluded that more work is still needed to precisely identify platelet roles in viral infections, and to ensure viral safety in platelet transfusion.


Study Examines Those Who Have Received Blood Transfusions from Multiple Donors

There have been few recent systematic studies of blood recipients for direct evidence of blood safety, especially for emerging pathogens that may pose a threat to the blood supply.

To conduct this American Red Cross Biomedical Services study, recipients who would likely require transfusion from multiple donors were recruited and a blood specimen was collected before their first study transfusion and at intervals after their study transfusion(s). Blood samples associated with the units that were transfused to enrolled recipients were also collected. Part of each recipient specimen and selected donor specimens were tested for the targeted blood-borne agents, parvovirus B19 (B19) and Chlamydia pneumoniae (Cp), that were piloted in this study, and the remaining material was kept in a repository.

Between April 2004 and December 2006, a total of 120 recipients were recruited with 4,047 subsequent donor exposures. On average, each recipient was followed up seven times.

Of recipients who were adequately followed up and were initially immunoglobulin G antibody negative, one in 31 and one to two in 49 seroconverted to B19 and Cp after a total of 922 and 1413 evaluable transfusions, respectively. The detection of seroconversion was complicated by passively acquired donor antibodies for these two seroprevalent agents. Negative results for nucleic acids of the agents limited our ability to further clarify the relationship of these seroconversions to transfusion-transmitted infection.

The risk of transfusion-associated B19 infection appears to be low, but no conclusion of transfusion transmission can be made for Cp. The researchers noted that the approach piloted through this study offers added value beyond the current hemovigilance strategy in the United States.

Robert Fredrick Fechner 1942-2010

Robert Fredrick Fechner, the Chief Executive Officer of the American Red Cross Carolinas Blood Services Region, died on January 13, 2010. He was 67 years-old.

Fechner was born in Memphis, Tennessee. He served in the ROTC at Kansas State University, and was commissioned as a Second Lieutenant in the U.S. Army Medical Service Corps upon graduation in June 1964. He earned a Masters Degree in Health Care Administration from Baylor University in Texas.

His life was one of service to his country and community. During his 30-year Army career, he became a Green Beret and Master Parachutist; served in the Vietnam War; taught classes at Fort Sam Houston, Texas; commanded the 86th Combat Support

Colonel Fechner retired from the Army in 1994. He accepted a position with the American Red Cross, Carolinas Blood Services Region, and continued his mission of leading and motivating his staff and colleagues to set new records for blood collection services in the largest Red Cross blood region in the United States. In 2001, he became Chief Executive Officer. The Region led Biomedical Services in whole blood collections from July 1995 and set a new record for a Red Cross blood region in 2007, collecting 404,854 units of whole blood. The Red Cross family became his own during his 15-year career.

Bob Fechner is survived by Julie, his beloved wife of 42 years; his two daughters, Debbi Lechner and Kristen Gil, his mother Margaret, his 2 sisters, Marlie Galer and Dottie Boeving, and by his 2 brothers, Doug and Ken.

Harold T. Meryman, M.D.
1921-2010

Harold T. Meryman, M.D., an outstanding biomedical researcher who wrote a paper describing a protocol for the cryopreservation of full units of red blood cells, a method still used around the world, died on January 10, 2010.

Meryman began his career with the American Red Cross in 1968, joining the Red Cross Blood Research Laboratory in Bethesda, where he served as associate director. His paper on cryopreservation of red blood cells was published in 1972.

An inventor, poet, and a founder in the field of cryobiology, Meryman was a graduate of Groton School and Harvard College, class of 1943. With the start of World War II, he attended the Long Island School of Medicine (now part of the New York System) as a Navy midshipman. He was assigned in 1946 to the Naval Hospital, Bethesda, Maryland, for a rotating internship, then to the Naval Medical Research Institute (NMRI), also in Bethesda.

At NMRI, he was a member of both the Chemistry and Biophysics Departments, and in charge of the new fields of electron microscopy and ultracentrifugation. His design of a method for imaging frozen biological specimens in the high vacuum of the electron microscope led to research on the effects of cold and freezing on living cells and tissues. This, in turn, led to the publication of a paper describing the freezing of human blood and its subsequent successful transfusion.

Meryman participated in a cold injury research team in Korea and Japan in the early 1950s. In 1954, he joined the Biophysics Department at Yale University as a research fellow sponsored by the American Cancer Society. He introduced the Department to the electron microscopy of biological materials.

In 1994, Meryman rejoined NMRI as Program Director of the Transfusion and Cryopreservation Research Program. For a number of years, Meryman served as chairman of the Board of the Biomedical Research Institute (BRI) and as director of its Cryobiology Laboratory.

From 2003 to 2007, he served as the first president of CryoBioPhysica, an immunological-research company in Rockville, Maryland.
CDC to Monitor Reactions and Errors Associated with Blood Transfusions

The Centers for Disease Control and Prevention has launched the first national surveillance system to monitor adverse events in patients who receive blood transfusions. CDC is encouraging healthcare facilities across the country to enroll in this new surveillance system, which was designed to improve patient safety.

By having a coordinated national network, CDC can summarize national data to understand better how to prevent adverse transfusion events such as reactions to blood products, medical errors, and process problems. The system, called the Hemovigilance Module, is part of CDC’s National Healthcare Safety Network (NHSN). NHSN is an Internet-based surveillance system that allows healthcare-associated infection data to be tracked and analyzed to allow CDC and healthcare facilities to maximize prevention efforts. The Hemovigilance Module was developed by CDC in collaboration with AABB, an international association representing organizations involved in transfusion and cellular therapies.

"This is an important advance in monitoring the safety of transfusions for patients nationwide," said Matthew J. Kuehnert, M.D., director of the CDC’s Office of Blood, Organ, and Other Tissue Safety. "This system will enable healthcare facilities to better recognize blood transfusion-related adverse events so that they can improve the care of patients who have transfusions."

Hospitals will submit data confidentially to CDC through the Hemovigilance Module. CDC will review the national data in collaboration with AABB and other partners to help identify ways to improve the safety of blood transfusion. Previously, transfusion-related events were monitored by facilities on their own. Now, hospitals that join the Hemovigilance Module will have access to standardized data analysis tools, as well as an opportunity to see how their data compare to other hospitals throughout the United States.

"Healthcare facilities that join the Hemovigilance Module will now have a yardstick by which to measure their current safety initiatives and their future efforts," said Dan Pollock, MD, chief of the branch that leads CDC’s NHSN. "Through this system, healthcare facilities can also see how their performance stacks up to similar facilities nationwide, with a goal of designing the best processes to protect patients’ health and reduce healthcare costs."

CDC provides the module at no cost to hospitals and healthcare facilities. The agency also provides participating facilities with training and ongoing user support at no cost to the facilities.

Red Cross Loses Two Longtime Friends, continued

In 2000, as his interests shifted into the field of transplantation and graft rejection, he accepted a part-time position as Research Professor in the Department of Medicine, George Washington University.

He performed the first experimental human tissue transplant, using leukocyte-depleted platelet transfusions to forestall rejection, and was co-developer of a vaccine for the treatment of prostate cancer.

Dr. Meryman held numerous patents over the course of his career, most in the areas of cryopreservation, electron microscopy, and the processing and storage of red blood cells. Seven of his patents in the field of cell and tissue freezing are still active.

He authored or edited five books and 98 articles in peer-reviewed journals, and received multiple awards from the American Association of Blood Banks, the Cryobiology Society, and the American Association of Tissue Banks. He received the American Red Cross Tiffany Award, the Kamerlingh-Onnes Gold Medal (Netherlands) and the Claes Högman Lecture (Sweden). He was a founding member of the Cryobiology Society and its president from 1981 to 1983. He was also a founding member of the American Association of Tissue Banks and its president from 1981 to 1984.

Resources

What If I Need Blood?, a brochure which answers commonly asked questions and explains the transfusion options for patients, is available through your American Red Cross representative.

Arm to Arm is a comprehensive guide which answers commonly asked questions about blood and blood banking.

CDC to Monitor Reactions and Errors Associated with Blood Transfusions

Remember These Websites

Immunohematology Journal
redcross.org/immunohematology

Reimbursement
redcrossblood.org/reimbursement

PLUS
Spring 2010, Volume Four, Issue Two

American Red Cross