

The Pulse: Whole Blood Resuscitation*Continued from page 24*

population. Physicians have long known the potential of whole blood, which was in use for 100 years and largely used during WWI and WWII, with component therapy only becoming a more common practice around the Vietnam War, when blood banks had the technical capability to partition blood to give patients specifically the portion of blood they needed. Dr. Richards explained: “In the early 2000s with the conflict in the Middle East, we found that we were going in the wrong direction with certain component therapy resuscitation,” he said. “The disadvantages became more apparent, and a specific focus on giving a 1:1:1 resuscitation ratio that was a closer blood product to whole blood – what’s in our vessels already – emerged.” Whole blood resuscitation became feasible in the military with good anecdotal outcomes, and as the treatment was used more since patients who received

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the treatment responded better. With this knowledge, the pendulum has swung back to using whole blood.

Benefits of whole blood

The justification of whole blood resuscitation is quite simple: giving back what we’re bleeding. Component therapy consists of three separate units: red blood cells, plasma, and platelets, all of which serve specific functions in the body, including carrying oxygen, helping to form blood clots, and

providing proteins that help heal blood vessels and can be administered for specific reasons. But when providing these elements separately through component therapy, patients are also receiving preservatives that don’t carry oxygen and dilute the blood product, proteins that differ from natural proteins in whole blood, and an overall higher volume than compared to a single unit of whole blood. Patients may also receive three separate components from three different donors, exposing the patient to added risk.

With whole blood, patients are receiving blood more similar to that running through their vessels every day, at a lower volume, from one donor. In addition, whole blood has a better clotting profile, is easier to use, and is just as safe as component therapy. So why isn’t it being more commonly used? Dr. Richards explained that there have been no prospective, randomized, high-quality studies to identify which patients may most benefit or what clinical scenarios are best for whole blood resuscitation. “Like most things with medicine, we need to figure out the right treatment for the right patient at the right time. But at Shock Trauma, our use of whole blood for acutely bleeding

trauma patients has been successful, and other hospitals have used whole blood for postpartum hemorrhage, pediatric trauma, bleeding from cardiac surgery, and gastrointestinal bleeding with success.”

The anesthesiologist’s role

As the use of whole blood resuscitation continues to evolve, one thing is certain: anesthesiologists will continue their valuable role as clinical experts in the administration of blood products. “Anesthesiologists are responsible for recognizing which patients are acutely bleeding, those who are at risk for acute blood loss, and those at risk for needing massive resuscitation requiring multiple units of blood within an hour,” Dr. Richards noted. “We are critical to determining which patients will benefit from whole blood resuscitation, and we are the providers who administer blood products. We are the experts who are responsible for continuing resuscitation in the OR, recognizing coagulopathy, and determining what patients need when they lose intravascular blood, and what other organs may be dysfunctional. By the nature of our training and clinical practice, anesthesiologists are experts in the clinical area of blood resuscitation.” ■

Resident Research Award Deadline: April 5, 2023

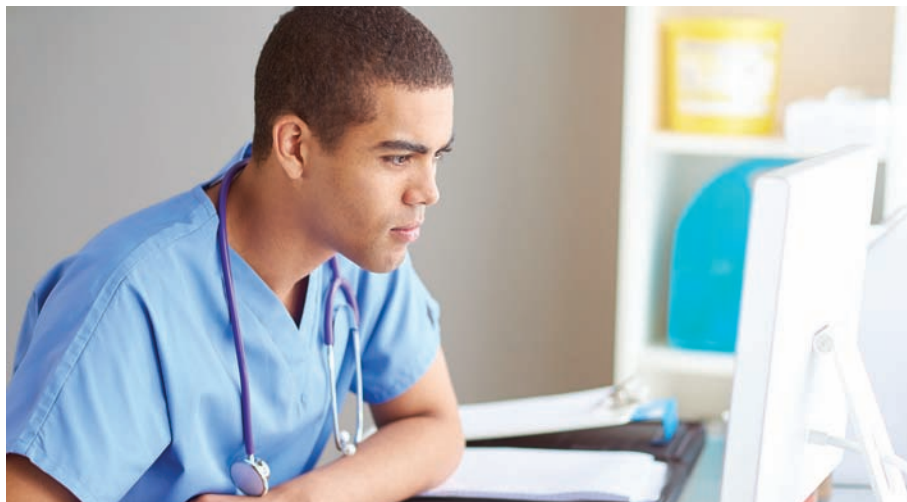
The purpose of the ASA Resident Research Award is to encourage resident and fellow engagement in research and to recognize and reward excellence in original basic, clinical, or population research, as reported in an original, unpublished manuscript.

Eligibility

1. The entrant must be an ASA member at the time of submission. Entries submitted by a principal author who is not an ASA member will not be reviewed. Any co-entrant(s) is not required to be an ASA member.
2. The work reported should have been completed during residency or research fellowship training. Research performed as a student may be considered.
3. Papers should be submitted during or within one year following completion of the training.
4. A previous entry or award does not preclude eligibility.

Submission of entry

1. The entry should be a manuscript describing original basic, clinical, or population research. Case reports, case series, literature reviews, or chapters will not be accepted.
2. The original entry should follow the format (title page, abstract, text, ref-



erences) of the journal *Anesthesiology* (anesthesiology.pubs.asahq.org/public/InstructionsforAuthors.aspx). Collaborators and coauthors should be listed on the title page. Entries that do not follow this format will be returned.

3. A limit of 25 double-spaced pages (excluding letters of verification but including all figures, tables, and references) will be enforced; manuscripts that exceed the page limit will not be reviewed.
4. Concurrent online submission of an abstract of the work for presentation as a regular scientific paper at the ANESTHESIOLOGY® annual meet-

ing is required (asahq.org/annualmeeting/education/submissions). Your submission should be prepared in accordance with the rules and deadlines for submission of regular abstracts and submitted independently via the submission link on the ASA website.

5. The work should not have been presented, published, or submitted at any other national meeting, national residents’ research or essay contest, or journal prior to this submission. The essay can be presented to local/regional residents’ research or essay contests (i.e., Midwest or Western Anesthesia Residents’ Conference).

6. The manuscript must be accompanied by a letter, signed by the entrant, stating that the research and writing were predominantly performed by the entrant during residency or research fellowship training and that the work has not been presented, published, or submitted to any other national meeting, national residents’ research or essay contest, or journal prior to this submission.
7. The manuscript must be accompanied by a letter from the residency program director confirming the eligibility of the entrant and stating that the work was predominantly performed by the entrant during residency or research fellowship training.
8. Only one submission will be accepted per entrant.
9. Manuscripts and the two letters should be sent electronically as a single, collated, searchable PDF or Word document file to the chair of the Committee on Research, Y.S. Prakash, MD, PhD, at prakash.ys@mayo.edu by April 5, 2023, at 11 a.m. CT.
10. Winners will receive their awards at the Celebration of Research session at the ANESTHESIOLOGY® 2023 meeting in San Francisco, California. Questions can be directed to Margaret Bussan, ASA Education Department, at m.bussan@asahq.org. ■