

Episode 55: Blood Donor Awareness

Josh Casey: Hi, welcome to *QuidelOrtho Science Bytes*, your trusted source for diagnostic insights and innovations. I'm Josh Casey.

Blood donation saves lives every day, but many people don't realize how much preparation and consistency matter. Today, we're discussing donor awareness and why regular donation is critical, as well as practical tips to make your donor experience healthy and effective.

Joining us is Michelle Mullens, Global Portfolio Marketing Manager for Transfusion Medicine at QuidelOrtho. With nearly 30 years of hands-on experience in transfusion medicine and a deep passion for patient care, Michelle brings invaluable insight to both the science and human impact of blood donation.

Before starting her career on the corporate side, Michelle was a Senior Medical Technologist at Baptist Health, serving in leadership roles for transfusion medicine and immunohematology. Prior to taking on her current role in the global business unit at QuidelOrtho, Michelle served as a technical specialist, business development consultant and clinical science liaison. With significant experience in the blood bank and as a trusted provider to the profession, Michelle brings a unique perspective to the conversation today.

We're fortunate to have her with us to share her expertise. Welcome, Michelle. Thank you for being here.

Michelle Mullens: It's great to be here. Thank you for having me.

Josh Casey: Okay, let's get to it then. In 2025, the U.S. logged over 400 mass casualty events with four or more victims, totaling roughly 1,900 injured people. How do these repeated small-scale mass casualties actually show up in the blood bank data and demand planning?

Michelle Mullens: Yeah, so these incidents rarely make national headlines, but they create high spikes in local demand for O-negative and O-positive red cells and platelets, especially when multiple victims arrive within minutes. And as we know, some can use even hundreds of products prior to discharge from the hospital. Even with a national redistribution network, that kind of clustered demand can rapidly deplete regional inventories if community donations are not steady week to week.

Josh Casey: Right, so we talk a lot about rare catastrophes, but there are about 2.4 million crash-related injuries annually, resulting in somewhere between 72,000 and 192,000 people in need of blood. How do you explain to non-clinicians that road traffic alone can keep a region on the edge of blood shortage?

Michelle Mullens: Right, so like you just pointed out, you know, 2.4 million still translates into tens of thousands of transfused patients plus repeat products for some of them. From an operations perspective, crashes create a constant non-optional demand floor that consumes red blood cells, plasma and platelets even on quiet news days. This is especially challenging for smaller blood banks that might be the closest emergency room, but limited in inventory. And they have the added pressure of rotating their O red cell units to larger sites so as to not have them expire unnecessarily.

Josh Casey: Okay. We also know that by mid-2025, more than 3,000 flash flood warnings had been issued across the U.S., along with major winter storms and hurricanes that shut

down donation centers for days. Where do you see the practical limits of resourcing blood from somewhere else as a resiliency strategy?

Michelle Mullens: Yeah, when multiple regions are simultaneously affected by flooding, winter storms or coastal systems, transport, staffing and testing capacity all become constrained, not just donor availability. Centralized redistribution works best when other regions are stable. Climate-driven multi-regional events expose the need for robust local donor bases and automated standardized testing that can flex quickly. And these events are not just impacting roads and bridges and power, but our actual staffing to perform the testing. A lot of times, your staff has a hard time getting into work. They might be homeless temporarily. So all of this really layers on the impact for your local hospitals.

Josh Casey: Sounds like it takes a lot of coordination and planning. So, pre-hospital whole blood programs are also expanding and early whole blood can significantly improve survival in hemorrhagic shock. How has this shift changed the demand profile for type O units?

Michelle Mullens: Well, so field low titer O positive whole blood, as we call it, these programs move transfusion upstream, which is fantastic for patients. It is definitely saving lives, but it front-loads the consumption of universal blood like O units before they ever reach a hospital transfusion service. That means immunohematology labs and manufacturers must support more precise O donor selection, extended phenotyping and inventory segmentation so every low-titer O whole blood unit maximizes clinical impact. Now, in practical terms, this can mean things like not always only giving O units to patients with antibodies, but screening type-specific units to get negative antigens. There's just not enough O donated inventory to do things the way we've always done them.

Josh Casey: QuidelOrtho and others in the space promote automation and standardization in pre-transfusion testing. In a world of volatile demand and frequent weather disruptions, how does automation and immunohematology function as a patient safety and continuity of operations tool, not just supporting productivity in the blood bank?

Michelle Mullens: Right, so high-throughput analyzers that automate over 99% of routine pre-transfusion work, this frees up your scarce technologists and specialists to focus on complex antibodies and urgent cases during surges. And keep in mind that uncross-matched blood is actually quite labor-intensive. Standardized reagents and workflows across networks make it easier to shift testing and product release between sites when one lab is down or overwhelmed. And also automated testing also allows blood banks to consider having more menu in-house rather than the expense and logistics of referral sites, even if it's within your own network. Software features like on-demand QC can make in-house testing very cost-effective, even for tests that are only requested a few times a month. A truly flexible analyzer can be a game changer and allow staff to focus on things besides pipetting and rote tasks. This is especially true during MTPs and times of crisis.

Josh Casey: In your role, you sit at the intersection of patient care and industry. How do you explain to donors that their blood can be used both at the bedside and as a critical raw material for immunohematology reagents and diagnostics?

Michelle Mullens: Yeah, people don't really see that through sometimes. Reagent red blood cells and antisera and many of your controls, they depend on carefully characterized donor material so hospitals can safely type, screen and cross-match every unit and patient sample. That upstream use multiplies impact. One donation can help enable thousands of safe transfusions by powering the testing infrastructure as well as direct patient transfusion.

Practically speaking, we need to understand that an antibody screen is really a hypothetical cross-match, and that testing helps predict a positive outcome for a patient who will receive red blood cells. Therefore, we want our testing cells to have the same scrutiny as the donated product. But these reagent red cells also have to encompass some of the most rare phenotypes. So, thinking about your panel anagrams, that are over half of them are O-negative and some of those desired phenotypes for rule-outs. So we need those in the donor pool also, not just for direct patient needs.

Josh Casey: Okay, from everything you've seen in the blood bank and in the industry, what are the three or four evidence-based behaviors you wish every donor would adopt in the 24 hours before and after donation to keep themselves healthy and maintain long-term eligibility?

Michelle Mullens: Yes, I had to support, you know, blood drives at my hospital where I work and I support blood drives here with QuidelOrtho on site. And I always hate it when someone's willing to donate or they have low iron that day, or they feel woozy after the donation. So we really want to emphasize hydration, you know, to have extra fluids before your donation, at least, you know, 16 ounces and maybe 32 ounces afterward. An iron- and protein-rich meal, good sleep, avoiding alcohol or heavy fatty foods around the appointment. In other words, eat breakfast that day. You want to encourage your donors to view iron as a long-term variable. So if they really are committed to being donors to discuss supplementation with them or spacing their donations appropriately, especially for our younger donors, they're not quite understanding how ever many weeks they have to wait to donate and to take care of themselves but we want to encourage to get those folks into that next gen that's going to be committed to blood donations. Many of our blood banks are also involved in the hospital blood drives held periodically. And your hospital staff is going to see the blood bank as a source of information and encouragement to getting the staff to donate. I always found it so frustrating when someone was willing to donate blood but unable to do so for different reasons. So that's some of the things we need to do to keep nurturing our next generation of blood donors.

Josh Casey: Those are solid tips, thank you. So many potential donors feel that if I'm not O negative, then I'm not that useful as a donor. How would you reframe that, given the different roles of universal donors and common blood types in maintaining a resilient supply?

Michelle Mullens: Yeah, so only 30 to 40% of the population is O, depending on what nationality where you live. But universal types are critical for trauma and unknown type emergencies. But routine oncology, obstetric, medical surgical patients, they all depend on the broad spectrum of ABO and Rh and extended phenotypes. Consistent donations of common types prevent overuse of our O units. And they also reduce alloimmunization risk by allowing better phenotype matching, which is where advanced immunohematology really pays off. And also to a blood banker, we kind of cringe at the notion of just give everyone O-neg. We know there are certain patients, particularly those with certain alloantibodies, that this is absolutely not an option. But that's sort of what we get into sometimes when we're out of a certain unit and the caregiver team, you know, is just give them O-neg. Also, O is not the universal type for plasma. So we need everyone to donate. Now more than ever, the distribution system is matching the needs of transfusions to the types actually needed. It is very robust with the computer systems now and logistics of getting the right blood types to the right places. And of course, the need for platelets is absolutely critical. Those donations



need to take place at a donor center, but we would love for more of our AB donors to convert to becoming platelet donors.

Josh Casey: Okay, what is the one key message you want clinicians, donors and policymakers to hear about why regular year-round donation is essential for the safety of modern transfusion medicine, not just after the headlines and tragic events?

Michelle Mullens: Right, so highlighting that modern trauma care, surgery, oncology and now pre-hospital whole blood all assume that there is a safe, well-typed blood unit somewhere that will be there on demand. But that assumption only holds if donation is habitual and not just episodic. Emphasize the system's view. Every unit supports a chain from the donor to diagnostics to bedside and every region is only a few bad weeks of weather or trauma away from a critical shortage.

Josh Casey: That's really, really insightful perspective. It's so important to understand why consistent blood donation is critical and how evolving practices in automation support patient safety and keep donors healthy. Thank you, Michelle, for sharing your expertise and raising awareness of the impact every donor can make.

Michelle Mullens: Thanks for having me back, Josh. Always a pleasure.

Josh Casey: Truly, it is. But that's all the time we have for today. Be sure to check the links in the podcast description for tips on healthy donating and ways to get involved.

If you're looking for more inspiration, revisit *Science Bytes* episode 36 in the archives on the surprising benefits of becoming a repeat donor. Beyond saving lives, donating can boost your health and wellbeing.

Thank you all for tuning in. If you haven't already, please subscribe to *QuidelOrtho Science Bytes*, our monthly podcast brought to you by QuidelOrtho Corporation, where we are transforming the power of diagnostics into a healthier future for all.

Until next time, take care, everyone.