Technology and trends in blood utilization: the time for change is here

By Jonathon Northover, JD

There is arguably no industry going through a more significant reboot today than healthcare. Federal mandates encourage healthcare providers to rein in costs; meanwhile, the practice of healthcare is expanding to increasingly diverse settings. This latter phenomenon is not just something we read about in industry journals or newspaper headlines: we see evidence of it as we walk the diagnostics aisles in Walgreens or visit the CVS wellness clinics. Telemedicine is close behind, supported in part by a massive increase in the availability (and decreasing costs) of home point-of-care testing.

As a result, many are predicting that in the future the four walls of the hospital will contain only the most critical patients; more basic care will shift to the community. Of course, certain procedures will always take place in the hospital setting. It will be the role of hospital leaders, including lab leaders, to figure out how to operate profitably in an environment of decreasing reimbursements and an increased focus on population health management or managed care.

Inevitably, the most critical patients will continue to demand one of the most critical services: transfusion medicine. Despite occasional attempts to outsource, blood management is highly regulated, and having available inventory and safety procedures in place will continue to be a key function of hospital blood banks throughout the United States.

So that will be an island of continuity in a sea of change; hospitals have been managing blood effectively for decades. What has been changing, and will continue to change, is how they do it. We are now at the point where the vast majority of blood is managed electronically, and that electronic management is very carefully monitored by the FDA.

And therein lies a challenge for blood management in the United States. Compared to some other nations, which have access to the same evidence-based practice and the same technology, U.S. blood banks seem to be troubled by inefficiencies:

- We are still transfusing too much. Between 2004 and 2011, the U.S. increased its use of blood through transfusions by 16%. During that same period of time, the UK decreased its use of blood through transfusions by 8%. Also during that period, blood utilization in the U.S. was 15% higher per capita than in Europe and an astonishing 44% higher than in Canada.
- There remains a wide variation in clinical practice with regard to ordering and managing transfusions from hospital to hospital, and often from physician to physician.
- These problems are due in part to cursory training of medical staff on effective evidence-based transfusion practice. It has primarily consisted for some time of a basic blood compatibility focus. Remarkably, the 10/30 rule (transfuse when a patient has a hemoglobin level less than or equal to 10 g per dL [100 g per L] and a hematocrit level less than or equal to 30 percent) endured for several decades after it was formulated in 1942. Also, it has taken time for us to access basic—but clean and accurate—data on blood utilization to tell us where we are going wrong; healthcare IT has struggled to attain the agility seen in smaller disparate startups that do not have to deal with the burden of complex interoperability or regulation.

However, that is now changing, and changing significantly, because professionals involved in blood management are realizing the crucial importance of having accessible and dependable blood utilization data. This increasing awareness has been driven by a number of factors. First, blood is expensive; it is often one of the top five costs that concern hospital CFOs. Second, this is not just a clinical problem, but a patient safety problem. There is a one-in-a-million chance that any one of us will be involved in an airplane catastrophe. There is a one-in-a-thousand chance of us suffering from transfusion-related acute lung injury (TRALI), and a one-in-a-hundred chance of getting transfusion-associated circulatory overload (TACO) upon receiving blood. There are reasons why blood has maintained its reputation as the most dangerous drug in a hospital.

Third, we now have better data. Evidence-based practice is developing fast alongside information technology that can support it, and this trend is applicable to blood management. Many vendors provide real-time, actionable data on who has ordered blood for which patient and how much, and at which clinically relevant transfusion triggers.

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As healthcare reboots, the hospital’s focus on blood management will also reboot due to several external pressures that are both economic and clinical in nature. With the right combination of available data and clinical feedback, the U.S. can become a leader in this area, not only through lab-assisted reduction in blood use but also a rational, standardized approach to transfusion medicine. It is perfect time for the blood bank to step in and help to improve both the hospital’s bottom line and patient safety.

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