

Improving blood safety worldwide

A three-article series on transfusion medicine appears in this week's issue of the journal. The articles provide an update on the use of red blood cell, platelet, and coagulation factor transfusions in clinical practice. Transfusion medicine is a fast-moving and exciting field of research. But worldwide access to its life-saving interventions is limited to relatively few. In many regions of the developing world access to these treatments is simply not available. And unlike the developed world, where much of the blood goes to the treatment of older patients, a substantial portion of blood in the developing world goes to treat younger patients: infants and children with anaemia due to malaria, for example; victims of trauma; and mothers with blood loss due to childbirth.

On World Blood Donor Day this past June 14, WHO focused on the role that safe blood supply plays in saving the lives of these young women. The theme was "Safe Blood for Safe Motherhood". According to WHO, more than half a million women die every year during pregnancy, 99% of them in the developing world. The most common cause of maternal mortality is haemorrhage during or shortly after delivery, contributing to 34% of maternal deaths in Africa, 31% in Asia, and 21% in Latin America and the Caribbean.

In many cases, blood is not available because effective systems for collection do not exist. To maintain an adequate blood supply, 1–3% of the population needs to be blood donors. But of 172 countries responding to a survey released on World Donor Day by WHO, 80 have failed to achieve that mark with less than 1% of the population donating. 79 of these are in the developing world. In sub-Saharan Africa, for example, home to more than 700 million people, fewer than 3 million units of blood are collected each year.

Where blood is available, it is often unsafe. WHO recommends that, at a minimum, blood be screened for HIV, hepatitis B, hepatitis C, and syphilis. Of 148 countries that provided WHO data for screening, 41 reported that they were not able to screen all donated blood for one or more of these infections. Of the 40 countries in sub-Saharan Africa, 28 have yet to implement national quality systems needed to assure effective screening of donated blood. WHO estimates that the lack of effective screening results in up to 16 million new infections with hepatitis B, 5 million

new infections with hepatitis C, and 160 000 cases of HIV infection every year. Overall, 5% to 10% of HIV infections worldwide are the result of transfusions of contaminated blood or blood products.

To increase access to blood transfusions and to promote blood safety, WHO has for many years worked to help nations adopt an integrated approach for blood safety that has four key elements: establishment of a nationally-coordinated blood transfusion service, collection of blood from exclusively voluntary donors from low-risk populations, testing of all blood for compatibility and transfusion-transmissible infections, and reduction of unnecessary transfusions.

In all these areas, progress is being made, albeit slowly. The safest blood comes from unpaid donors who donate for altruistic reasons. In this group, the prevalence of HIV, hepatitis infection, and other blood-borne pathogens is lowest. Infection rates are higher among donors who are family members or members of the community, who donate to replace blood used by a patient, a common practice in many regions, and infection rates among paid donors are higher still. According to the WHO survey, the number of countries that have achieved 100% unpaid voluntary donations rose from 39 in 2002, to 50 in 2004, including the Central African Republic, which increased its proportion of voluntary donations from 25%, Egypt from 15%, and Uruguay from 28%.

Progress is also being made in developing effective blood-testing services. Although 41 of 148 countries that supplied the WHO with data reported they were not yet able to meet the WHO's minimum standard of testing for hepatitis B and C, HIV, and syphilis, ten nations reported they had made that goal: Benin, Burundi, Chile, Democratic Republic of Congo, Ecuador, Guinea-Bissau, Honduras, Mauritania, Uzbekistan, and Democratic Republic of Korea.

The progress seen in the WHO survey shows that countries that work to develop well-organised national blood transfusion systems can make great strides. With political and financial support, such systems, either government-run or independent, can establish the policies, set the standards, and provide the technical assistance needed to bring these life-saving treatments even to resource-poor communities. The commitment is substantial, but so are the potential benefits. ■ *The Lancet*



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