Progress Toward Strengthening National Blood Transfusion Services—14 Countries, 2008-2010

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2 tables omitted

IN SUB-SAHARAN AFRICA, TRANSFUSION-transmitted human immunodeficiency virus (HIV) infection persists, particularly among women and children, who receive most blood transfusions. Providing technical and financial assistance to national blood transfusion services to increase the adequacy of blood collections and to prevent transfusion-transmitted HIV infection continues to be a priority under the U.S. President’s Emergency Plan for AIDS Relief (PEPFAR). Since 2004, PEPFAR has provided support (including policy guidance, strengthening laboratory capacity, and enhancing recruitment and retention of safe blood donors) to national blood transfusion services in 14 countries* heavily impacted by HIV. CDC previously has described progress made by these countries during 2003-2007. This report summarizes the results of updated analyses of data collected by national blood transfusion services during 2008-2010 and reported to CDC, which indicated that, since 2007 (1) legislative frameworks supporting a national blood policy were established in two countries, are under development in two communities, and are being updated in one country; (2) the number of whole blood units collected had increased in 11 countries; (3) the percentage of collections from voluntary non-remunerated donors† had increased in five countries; and (4) the proportion of collected units reactive for HIV had decreased in 12 countries. Countries supported by PEPFAR continue to make progress toward improving safe and adequate supplies of blood. Continued gov-
ernment commitment is critical for ensuring quality, safety, and adequacy of the blood supply and sustaining the national blood transfusion service after eventual transition from PEPFAR support.

In 2008, the most recent year for which global data are available, approximately 92 million blood units were donated worldwide.3 An estimated 4 million (4.3%) of those units were donated in sub-Saharan Africa,3 which has approximately 12% of the global population§ and is where blood collections historically have been inadequate to meet clinical demand and inappropriate clinical use of blood further contributes to supply inadequacy. Historically, laboratory screening for HIV infection in sub-Saharan Africa also was inconsistent and not performed in a standardized, quality-assured format.5 Collections were primarily from hospital-based services that relied on family members or paid donors, who typically are at greater risk for HIV infection than voluntary nonremunerated donors and, because of external pressures to donate, might not reveal behavioral risks for HIV during donor selection.

To overcome these challenges, the World Health Organization (WHO) has emphasized the need to maintain an adequate supply of safe blood. WHO estimates that resource-limited countries will begin to meet clinical demand if at least 10 whole blood units per 1,000 population are collected annually.8 Furthermore, to improve adequacy of supply and reduce the risk for transfusion-transmitted HIV infection, WHO has recommended that resource-limited countries adopt comprehensive national policies for national blood transfusion services.3 In 2010, WHO revised these recommendations to include a quality systems approach as a fifth key element in addition to the existing four.4† PEPFAR-supported blood safety initiatives are based on these WHO recommendations and have been demonstrated to reduce the risk for transfusion-transmitted HIV while increasing the supply of safe blood.2,5

Since 2007, CDC has collected and maintained data to support routine monitoring and evaluation of PEPFAR-funded blood safety projects. The resulting blood safety database contains 80 variables related to safety, supply adequacy, and clinical utilization. Data are derived from routine operations at individual centers throughout a country where collection, processing, testing, and distribution occur, and which collectively constitute the national blood transfusion service. Periodically, data are transferred to the national blood transfusion service headquarters in each country. Data are then aggregated annually and shared with CDC, where they are analyzed for ongoing programmatic evaluation.

This report presents a descriptive analysis of data reported by the 14 countries for the period January 2008–December 2010. The four variables selected for analysis and included in this report represent key elements that address blood supply adequacy and transfusion safety outlined by WHO. The variables are (1) the status of a national blood policy and legislative authority for a national blood transfusion service; (2) the percentage of total national blood service whole blood collections from voluntary nonremunerated donors; (3) the total number of national blood service whole blood unit collections and the number of whole blood unit collections per 1,000 population based on the 2010 revision of the United Nations Population Division census estimates for 2000-2010‡; and (4) the percentage of collected whole blood units reactive for HIV. Also included are the Joint United Nations Programme on HIV/AIDS population prevalence estimates among persons aged 15-49 years, who account for the majority of donations in these countries3 for 2001, 2007, and 2009. In all 14 countries, algorithms for screening donor blood for HIV dictate that units with a reactive HIV test result be discarded and donors be permanently deferred from future donation. Additional testing to confirm HIV infection status for HIV-reactive units is not performed routinely in all countries, although donors are referred for further testing elsewhere.

**What is already known on this topic?**

In sub-Saharan Africa and other resource-limited settings, transfusion-transmitted human immunodeficiency virus (HIV) infection persists, particularly among women and children. Increasing adequacy of blood collections and prevention of transfusion-transmitted HIV infection continues to be a priority under the U.S. President’s Emergency Plan for AIDS Relief (PEPFAR).

**What is added by this report?**

This report describes the progress toward strengthening blood transfusion services in 14 countries receiving PEPFAR support. These countries continue to make progress in (1) enacting a legislative framework supporting national blood policy; (2) increasing the number of whole blood unit collections and the proportion of collections from voluntary nonremunerated donors; and (3) decreasing the proportion of collected blood units reactive for HIV.

**What are the implications for public health practice?**

Continued government commitment is critical for reaching goals for quality, safety, and adequacy of the blood supply and for sustaining the national blood transfusion service after eventual transition from PEPFAR support. To enhance sustainability, blood services must emphasize retention of safe blood donors and enhancement of data management and quality systems from blood collection through transfusion.

By 2007, in addition to six countries with existing national blood policies, such policies were established in six additional countries and were in development in one country. In 2010, 12 countries continued to report the presence of a national blood policy, including one country that was revising its existing policy. Since the most recent reporting in 2007, a legislative framework supporting the national blood policy had been enacted in two additional countries.# By 2010, 11 countries had increased total whole blood unit collections.
relative to 2007, and national blood services in all countries reported increased collections relative to 2003.** South Africa had already achieved 17.4 whole blood units collected per 1,000 population per year in 2003, and Botswana reached 11 units per 1,000 population in 2005. In both countries, whole blood collections continued to be >10 units per 1,000 population per year through 2010. In 2009, collections by the national blood service in Guyana (10.2 units per 1,000 population) had crossed this threshold, with Namibia (9.7 units per 1,000 population) close to this threshold. Six other countries had increased collection rates per 1,000 population since 2007. In 2010, 11 of the 14 PEPFAR-supported countries continued to have either 100% of collections by national blood services from voluntary non-renumerated donors or an increase in the percentage of collections from these persons in comparison with 2007, including Haiti, despite structural losses from the 2010 earthquake. Since 2007, the national blood services in 12 countries have reported an overall decrease in the percentage of collected blood units reactive for HIV, despite persistently high HIV population prevalence as estimated by the United Nations.

CDC Editorial Note: During the first phase of PEPFAR (2004-2007), the 14 PEPFAR-supported countries made rapid progress in blood safety and adequacy. During 2008-2010, incremental progress continued as the second phase of PEPFAR emphasized sustainability and transition to country ownership. Government commitment is critical to reaching the WHO recommendations for quality, safety, and adequacy of the blood supply and sustaining the national blood service after eventual transition from PEPFAR support. Blood services have been encouraged to supplement external donor support by blending public financing and cost-recovery mechanisms to form a template for long-term sustainability.

Under the second phase of PEPFAR, in addition to previously established activities, additional emphasis for enhancing sustainability includes retention of safe blood donors, enhancement of data management, and building quality systems.

Currently, the majority of blood donations in many of the countries are from first-time rather than repeat donors (S. Basavaraju and C. Reed; Division of Global HIV/AIDS, Center for Global Health, CDC; personal communication; 2011). The high rates of HIV in these countries continue to present a substantial challenge for blood services in recruiting and retaining safe blood donors. Substantial burdens of anemia, malnutrition, and viral hepatitis further reduce the potential donor pool and increase the costs of continually identifying additional eligible donors. Additionally, data suggest that repeat, voluntary, non-renumerated donors have lower rates of HIV infection than first-time donors, resulting in fewer discard of collected units. Blood services are investigating, modifying, or installing upgrades to their existing data management systems to facilitate identification and contact of previous blood donors to encourage repeat donation. These data management systems also will enhance internal monitoring and evaluation capacity to inform evidence-based operational decisions using local data. The development of quality systems to establish procedures, guidelines, and oversight for the entire transfusion process is a sustainability priority. To support quality systems, initiatives include preparing blood services for regional and international accreditation, improvement of national HIV screening algorithms, and coordinated procurement systems.

The findings in this report are subject to at least two limitations. First, the total whole-blood unit collections described in this report do not reflect collections from facilities such as government, private, faith-based, or military hospitals that currently are not incorporated into the national blood service. Consequently, the total and per 1,000 population whole blood unit collections might have been underestimated. Exclusion of collections outside of the national blood service also might have resulted in an overestimate of the proportion of voluntary non-renumerated donors in a country because these facilities might rely on family and replacement donors. Second, national blood services might differ in their level of quality systems implementation, affecting testing proficiency and blood screening algorithms. The sensitivity and specificity of different HIV testing methodologies might have resulted in higher or lower percentages of HIV reactivity among collected units. However, the impact of test characteristics on the results described in this report likely is minimal.

In 2010, PEPFAR blood safety support was reconfigured to include 16 additional countries †† In addition to sustainability and quality systems indicators, future reports will focus on progress by these countries.

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REFERENCES

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Announcements: Clinical Vaccinology Course
March 9-11, 2012

CDC and seven other National Organizations are collaborating with the National Foundation for Infectious Diseases (NFID), Emory University School of Medicine, and the Emory Vaccine Center to sponsor a Clinical Vaccinology Course to be held March 9-11, 2012, at the Hyatt Regency Chicago in Chicago, Illinois. Through lectures and interactive case presentations, the course will focus on new developments and concerns related to the use of vaccines in pediatric, adolescent, and adult populations. Leading infectious disease experts, including pediatricians, internists, and family physicians will present the latest information on newly available vaccines and vaccines in the pipeline, as well as established vaccines whose continued administration is essential to improving disease prevention efforts.

This course is designed specifically for physicians, nurses, nurse practitioners, physician assistants, pharmacists, vaccine program administrators, and other health professionals involved with or interested in the clinical use of vaccines. It also will be of interest to health-care professionals involved in the prevention and control of infectious diseases, such as federal, state, and local public health officials. Course participants should have a knowledge of or interest in vaccines and vaccine-preventable diseases.

Continuing education credits will be offered. Information regarding the program, registration, and hotel accommodations is available at http://www.nfid.org, or by e-mail (idcourse@nfid.org), fax (301-907-0878), telephone (301-656-0003, ext. 19), or mail (NFID, 4733 Bethesda Avenue, Suite 750, Bethesda, MD 20814-5228).

QuickStats FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Patient Visits* to Physician Offices and Outpatient Departments, by Payment Source — United States, 2009

In 2009, an estimated 1,038 million visits were made to physician offices and 96 million visits to hospital outpatient departments. Clinics for ambulatory care. Visits by patients to a doctor in a physician’s office were more likely (54%) to be covered by private insurance than by Medicare (25%) or Medicaid (12%). Visits to outpatient departments showed a different payment source pattern: 57% of patients were covered by private insurance, 19% by Medicare, and 24% by Medicaid.

Source: CDC’s National Ambulatory Medical Care Survey and the National Hospital Ambulatory Medical Care Survey.

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