Notes from the Field

Tetanus Cases After Voluntary Medical Male Circumcision for HIV Prevention — Eastern and Southern Africa, 2012–2015

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Voluntary medical male circumcision (VMMC) decreases the risk for female-to-male HIV transmission by approximately 60% (*1*), and the President's Emergency Plan for AIDS Relief (PEPFAR) is supporting the scale-up of VMMC for adolescent and adult males in countries with high prevalence of human immunodeficiency virus (HIV) and low coverage of male circumcision (*2*). As of September 2015, PEPFAR has supported approximately 8.9 million VMMCs (*3*).

During April 2012–November 2015, PEPFAR's VMMC program reported 12 tetanus cases in five sub-Saharan African countries. Three cases occurred in 2012–2013 (one in Uganda and two in Zambia), six in 2014 (one each in Kenya, Rwanda, and Tanzania and three in Uganda), and three in 2015 (one in Rwanda and two in Uganda). Eight patients received conventional VMMC surgery, and four received PrePex, a nonsurgical male circumcision device. No other VMMC-related tetanus cases had been previously reported. Intensified adverse event and death monitoring and reporting were instituted in July 2014 in all 14 PEPFAR-supported countries providing VMMC for HIV prevention.*

Detailed information was available for eight of the nine cases reported during 2014 and 2015. Based on a case definition established by the World Health Organization (WHO) (*4*), five of the eight cases were determined by clinical investigation to be causally associated with VMMC. The remaining three were classified as indeterminate because of inconsistent or insufficient data. The age range of patients was 11–47 years. Each patient was deemed eligible for VMMC through preoperative screening and physical examination, and received counseling on postoperative wound care. Among the six causally associated cases in 2014 and 2015, at least three patients (in Kenya, Tanzania, and Uganda) reportedly had applied traditional remedies to aid healing; these remedies might have contained substances contaminated with spores of *Clostridium tetani*, the causative agent of tetanus.

Six of the nine total cases from 2014 and 2015 were fatal within 12–35 days of circumcision (case fatality ratio = 66.7%). A previous study of tetanus among 154 adolescents and adults at a rural Ugandan hospital reported an in-hospital case fatality ratio of 42.1% among persons aged 14–45 years (*5*), although this is likely an underestimate because it does not account for deaths following hospital discharge. Several factors, including delays in seeking medical attention, access to tetanus immune globulin, and quality of supportive care, can affect survival.

WHO recommends a 3-dose infant primary series of tetanus vaccination administered as diphtheria-tetanus-pertussis vaccine and, because tetanus immunity wanes over time, 3 booster doses through adolescence and young adulthood (*6*). However, in most African countries, tetanus vaccination coverage among infants is suboptimal (*7*), and booster doses required for long-term immunity are predominantly provided for young women as part of maternal and neonatal tetanus elimination programs. As a result, a low proportion of males in the age groups seeking circumcision would be expected to be immune to tetanus.

PEPFAR is working with implementing partners and ministries of health to strengthen national surveillance systems for VMMC-related adverse events, bolster the rapid investigation of reported adverse events, and support the implementation of tetanus mitigation strategies in accordance with WHO tetanus prevention recommendations for VMMC programs, including clean wound care for VMMC clients (*4*). Despite these 12 reported events, VMMC is safe; <2% of VMMC clients experience moderate or severe adverse events (*2*). As VMMC scale-up continues, sensitive surveillance systems are needed to monitor all adverse events, including rare events.

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References

1. Siegfried N, Muller M, Deeks JJ, Volmink J. Male circumcision for prevention of heterosexual acquisition of HIV in men. Cochrane Database Syst Rev 2009;2:CD003362. http://dx.doi.org/10.1002/14651858.CD003362.
2. CDC. Voluntary medical male circumcision—southern and eastern Africa, 2010–2012. MMWR Morb Mortal Wkly Rep 2013;62:953–7.
3. US President's Emergency Plan for AIDS Relief. PEPFAR 2015 Latest Results [fact sheet]. Washington, DC: US President's Emergency Plan for AIDS Relief; 2015. http://www.pepfar.gov/documents/organization/250381.pdf.
4. World Health Organization. Male circumcision for HIV prevention. Meeting report of the WHO Informal consultation on tetanus and voluntary medical male circumcision, March 9–10, 2015, Geneva, Switzerland. Geneva, Switzerland: World Health Organization; 2015. http://apps.who.int/iris/bitstream/10665/181812/1/9789241509237_eng.pdf.
5. Zziwa GB. Review of tetanus admissions to a rural Ugandan Hospital. UMU Press 2009;7:199–202.
6. World Health Organization. Tetanus vaccine.[position paper]. Wkly Epidemiol Rec 2006;81:198–208.
7. World Health Organization; United Nations International Children's Emergency Fund. WHO and UNICEF estimates of DTP3 coverage, 2015. Geneva, Switzerland: World Health Organization; 2015. http://apps.who.int/immunization_monitoring/globalsummary/timeseries/tswucoveragedtp3.html.