

clean needles. In addition, they argued that an effective hepatitis B vaccine exists, and it should be offered to participants.

The study was designed to divide 600 intravenous drug users into two groups, one that would be allowed to exchange used needles for free, sterile needles, and a second that could not. The researchers said that the study design provided for informing all of the subjects where they could legally buy clean, inexpensive needles, and that no

attempt had been made to withhold access. In response to the concerns about hepatitis B, researchers said that local programs providing free hepatitis B vaccinations had traditionally had a low participation rate, and that it was difficult to persuade drug users to comply with the regimen, which involves three injections over a 6-month period.

Needle exchange programs have been hotly debated in the United States (see *Nature Medicine* 2, 261; 1996). The Clinton administration has declined to

endorse the method despite extreme pressure from AIDS activists, and the US Congress has banned federal funding for needle exchanges since 1988. Alaska researchers had been planning to circumvent that ban by obtaining federal funding for the study, but purchasing the needles from different funds.

Varmus has established a special panel to review the study and hopes the matter can be settled quickly.

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Cambodian blood supply tainted by demand

Everything is for sale in Phnom Penh, Cambodia: Black market gasoline at road sides in emptied plastic water bottles, marijuana as "seasoning" in the marketplace, and an imaginative array of carnal vices. But trade in another commodity has health-care workers in the city particularly worried: the sale of blood.

According to Red Cross officials in Phnom Penh, Cambodians are traditionally loathe to donate blood, either because of Buddhist beliefs or a lack of education. Seizing on this antipathy, some in Phnom Penh have taken to hiring out their veins to people in need of a transfusion, defying the law and jeopardizing the blood supply in the process.

"It's illegal under Cambodian law for people to sell their blood," said Monique Gue Guen, a French physician who runs the National Transfusion Center in Cambodia, a facility that gets 90 percent of its funding from the International Committee of the Red Cross. "But," she added, "the less there are spontaneous donors the more we have to rely on professional donors."

As opposed to donors, there is no lack of those willing to sell their blood. At the equivalent of between US\$50 and \$200, one unit of black market blood is worth several times most peoples' average monthly salary, according to Samiddh Sim, director of public relations for the Cambodian Red Cross. A small payoff to blood center workers takes care of the illegality issue, said Sim, and everybody walks away happy.

Everybody, that is, except those trying to keep the system clean. Because many



The National Transfusion Center in Phnom Penh, Cambodia, is struggling with a lack of uninfected donors.

people who sell blood are prostitutes or intravenous drug users, the risk of collecting blood tainted with HIV, the virus that causes AIDS, is extremely high. In fact, says Gue Guen, blood sellers are ten times more likely to carry HIV, syphilis and other sexually transmitted diseases than spontaneous donors. "In all poor countries people think that [selling their blood] is an easy way to get some money," says Gue Guen, who worked in Congo before coming to Cambodia. "But it's very unsafe."

According to Arnaud Leclerc, a laboratory technician at the Center, about 6.5 percent of blood donations tested positive for HIV last year — the highest publically reported rate in Asia. Since January, that figure has dropped to 5 percent, but still outstrips other countries in the region by orders of magnitude. Thailand, for example, which has excellent screening procedures, reports a rate of 0.3 percent, says Leclerc.

Although there is no record of transfu-

sion recipients contracting HIV from the blood supply, Gue Guen warns that the high possibility of such infection is undeniable. "With any system there is a residual risk, and the risk is proportional to the prevalence. When you start with a prevalence of several percent, you can imagine that one bag in several hundred is infected." The risk could be even greater, given the lack of automated collection facilities and poor quality control, says Gue Guen.

The center collects about 450 units of blood each month for distribution throughout

the city. Officials there estimate that 30 percent of its supply comes from people who sell their blood, and the rest from patients' families and outreach efforts. But traditional sources of blood, such as police stations and army barracks, have proved dodgy because of high rates of HIV infection and other sexually transmitted diseases. The result, says Gue Guen, is a shift in focus to other, safer donors: most notably Buddhist monks, whose mandate for promoting the public weal apparently overwhelms any native aversion to the practice.

But Sim believes that won't overcome the need for paid donors. What will, he says, is a public weaned from destructive mythology about giving blood and a health-care system without the venality brought on by excessive poverty. And that, he admits, will take time. "This country has been at war for 30 years," he says. "Everything is at the start."

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