Table 1. Percentage reporting pretest and post-test counseling by source; respondents receiving diagnostic tests in 1992–1993 (1993 NHIS AIDS Knowledge and Attitudes Supplement).

	All respondents			Increased risk group		
	%	95% CI	Obs.	%	95% CI	Obs.
Reporting pretest counseling						
Total	28.4	26.0–30.8	1759	37.7	29.3–46.0	233
Public source	42.2	38.1–46.4	659	58.0	47.4–68.6	113
Private source	20.8	18.1–23.5	1100	21.9	12.1–31.6	120
Reporting post-test counseling						
Total	14.1	12.6–15.7	1759	27.4	20.4–34.5	233
Public source	24.2	20.4–28.0	659	40.2	30.1–50.3	113
Private source	8.6	7.0–10.2	1100	17.5	8.9–16.0	120

Public sources: AIDS counseling and testing site, community health clinic, sexually transmitted disease clinic, family planning/prenatal clinic, public clinic, other clinic, drug treatment site, military site, immigration site, other location. Private sources: doctor/Health Maintenance Organization, hospital/emergency room, employer clinic, at home with nurse. Obs, observations.

their tests; persons who used public programs reported receiving HIV counseling at a higher rate. On the other hand, the data reveal that a fairly high percentage of persons at increased risk had not been tested for HIV infection, and additional effort is needed to identify this at-risk and untested sector of the population.

Almost two-thirds of recent HIV diagnostic tests were obtained from private doctors and hospitals. This fact, coupled with the lower rates of counseling for private providers, underscores the importance of private practitioners being able to deliver appropriate HIV prevention messages, referrals and other services to persons tested for HIV.

Finally, persons who are at increased risk for HIV infection and reside outside of the central cities of metropolitan areas had significantly lower levels of recent diagnostic testing. This may be an important target area for HIV prevention programs.

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References

1. Hinman AR: **Strategies to prevent HIV infection in the United States.** *Am J Public Health.* 1991, **81**:1557–1559.
2. Centers for Disease Control and Prevention: *HIV Counseling, Testing and Referral: Standards and Guidelines.* Atlanta: US Department of Health and Human Services; May 1994.
3. Schoenborn CA, Marsh SL, Hardy AM: *AIDS Knowledge and Attitudes for 1992: Data from the National Health Interview Survey* (Advance Data 243). Atlanta: US Department of Health and Human Services; 1994.
4. Centers for Disease Control and Prevention: *CTS Summary Record Database: US Total 1992 Annual Report.* Atlanta: Division of STD/HIV Prevention, US Department of Health and Human Services; 1994.

Presence of HIV-1 group O infection in West Africa

Two aberrant HIV-1 strains (HIV-1_{ANT-70} and HIV-$1_{MVP-5180}$) have been isolated from Cameroonian patients [1,2]. These isolates had only 50% homology in the envelope region with other HIV-1 isolates and they were classified as group O. Since then additional HIV-1 group O variants from Cameroonians living in France have been described and some of these group O sera have been shown to be unreactive in some commercial screening assays and can give indeterminate Western blot patterns [3]. Therefore studying the spread of these viruses is important in order to investigate whether strategies for blood screening and serodiagnosis need modification.

Little is known on the spread of HIV-1 group O viruses in Africa. Studies among HIV-infected individuals from different African countries using an enzyme-linked immunosorbent assay (ELISA) based on the V3 peptide from ANT-70 and confirmation by a specific ANT-70 Western blot indicate that HIV-1 group O infection is present in Cameroon, Gabon and Nigeria [4,5]. Sequence data on a limited number of samples have confirmed that this strategy can lead to the identification of HIV-1 viruses from group O [6].

In this report we show serological evidence that group O infection is also present in three different West African countries. We tested sera from Senegal, Niger and Togo. Senegal is situated at the tip of West Africa, Niger is a Sahelian country close to Cameroon but the main economic road is from Abidjan (Côte d'Ivoire) and the exchanges between Cameroon and Niger are very limited. Togo is a small country bordering the sea and close to two important economic countries, Nigeria and Côte d'Ivoire.

In 1990, 1184 prostitutes from Niger were tested for HIV-1 and HIV-2 infection. The overall prevalence was 11.2% [84% (n = 113) were HIV-1-positive, 14% (n = 18) were HIV-2-positive and 2% (n = 3) were posi-

tive for both HIV-1 and HIV-2]. All HIV-positive sera were ELISA-positive and confirmed by Western blot with antibodies to at least two envelope proteins. The HIV-positive sera from this survey were screened for antibodies to group O. A total of 2235 sera of Senegalese origin were tested for HIV-1 group O antibodies (808 HIV-1, 248 HIV-2, 31 HIV-1 and HIV-2, 40 indeterminate and 1108 HIV-negative). The sera were collected from prostitutes, pregnant women, sexually transmitted disease patients and AIDS patients from different regions in Senegal. Among the negative sera, 164 were collected between 1989 and 1994 from patients with clinical symptoms of AIDS. The indeterminate sera were selected on the basis of a positive reaction in Genelavia mixt ELISA (Diagnostics Pasteur, Marnes-la-Coquette France), negative in the Clonatec (Paris, France) ELISA and indeterminate Western blot patterns (i.e., absence of antibodies to the envelope proteins). From Togo, a total of 878 sera (650 HIV-positive and 228 HIV-negative) collected between 1993 and 1995 in Lome, the capital city, were screened.

All these sera were tested for group O antibodies with an improved ELISA using a combination of V3 peptides from ANT-70 and MVP-5180 (research product; Innogenetics NV, Antwerp, Belgium). Sera reactive by ELISA were retested in a line immunoassay (LIA), in which different biotinylated V3 peptides — consensus, Mal, ANT-70, VI 686 (a Gabonese HIV-1 group O isolate [6] and MVP-5180 — were applied as a streptavidin complex in parallel lines on nylon strips (research product; Innogenetics NV). Samples reactive in ELISA and LIA were also retested by Western blot for the presence of antibodies to gp120 of HIV-1_{ANT-70}, as previously described [4].

In Niger, two HIV-1-positive sera were reactive in V3 ELISA and reacted in LIA strongly and exclusively with the group O V3 peptides. The sera also reacted with gp120 of ANT-70 by Western blot which clearly confirms the presence of antibodies to HIV-1 group O. The two prostitutes were both Nigerians. In Senegal, for one serum a similar reaction pattern was observed. The serum was from an asymptomatic Senegalese women aged 19 years with antibodies to HIV-1. In the samples from Togo, one HIV-positive serum had antibodies exclusively reactive with HIV-1 group O V3 peptides in LIA and also reacted with the gp120 of ANT-70 by Western blot.

Our data show preliminary serological evidence that HIV-1 group O infection is not restricted to Cameroon or neighbouring countries, such as Gabon and Nigeria, but can also be found in West Africa, even in the most extreme west African country, Senegal. Compared to Cameroon, where a prevalence of 2% has been reported [7], our results suggest that the prevalence of HIV-1 group O infection is very low in West Africa. The spread of these viruses should be further examined to investigate whether their prevalence increases and to find out whether strategies for blood screening and serodiagnosis need modification.

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References

1. Vanden Haesevelde M, Decourt J, De Leys R, *et al.*: **Genomic cloning and complete sequence analysis of a highly divergent African human immunodeficiency virus isolate.** *J Virol* 1994, **68**:1586–1596.
2. Gurtler L, Hauser P, Eberle J, *et al.*: **A new subtype of human immunodeficiency virus type 1 (MVP-5180) from Cameroon.** *J Virol* 1994, **68**:1581–1585.
3. Loussert-Ajaka I, Ly T-D, Chaix ML, *et al.*: **HIV-1/HIV-2 seronegativity in HIV subtype O infected patients.** *Lancet* 1994, **343**:1393–1394.
4. Peeters M, Nkengasong J, Willems B, *et al.*: **Antibodies to V3 loop peptides derived from chimpanzee lentiviruses and the divergent HIV-1_{ANT-70} isolate in human sera from different geographic regions.** *AIDS* 1994, **8**:1657–1661.
5. Mulanga Kabeya C, Esu-Williams E, Enu E, Peeters M, Delaporte E: **Evidence for HIV-1 group O infection in Nigeria [letter].** *Lancet* 1995, **346**:308.
6. Janssens W, Nkengasong JN, Heyndrickx L, *et al.*: **Further evidence of the presence of genetically aberrant HIV-1 strains in Cameroon and Gabon [letter].** *AIDS* 1994, **8**:1012–1013.
7. Zekeng L, Gurtler L, Afane Ze E, *et al.*: **Prevalence of HIV-1 subtype O infection in Cameroon: preliminary results [letter].** *AIDS* 1994, **8**:1626–1628.

Lower prevalence and incidence of HIV-1 syncytium-inducing phenotype among injecting drug users relative to homosexual men

The interesting study by Spijkerman *et al.* [1] identified a higher incidence of syncytium-inducing (SI) phenotype in homosexual men compared with injecting drug users (IDU) and confirmed the faster rate of CD4 decline after a switch in HIV-1 phenotype. If homosexual men have a higher incidence of SI phenotype then it might be expected that progression to AIDS and rate of CD4 decline are more rapid in homosexual men than in IDU.

Evidence from other studies for faster rates of progression to AIDS among homosexual men than among IDU,

Volume 10
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