Prevalence of Chlamydial and Gonococcal Infections Among Young Adults

To the Editor: The article by Dr Miller and colleagues[1] complements findings from our own previous studies of national samples, which indicate more than 23 000 women have chlamydia[2,3] and approximately 6000 men have both chlamydia and gonorrhea.[4,5] Our volunteers were primarily aged 17 to 25 years and represented young adults from all US states and territories who joined the US Army.

Our female participants consisted of approximately 80% of women entering the US Army at Fort Jackson, SC, during 1996-1999.[2] The women screened by Miller et al in 2001-2002 consisted of 14 322 participants, 66.3% of the original Wave I of The National Longitudinal Survey of Adolescent Health (Add Health) participants, of whom 12 548 (87.6%) had chlamydia tests. The women in our studies had a mean age of 21 years compared with 22 years in their article and were 50% white and 35% black. The authors studied a similar proportion of white participants but a smaller percentage of black participants (21.3%). During our 4-year study, 47% to 49% of those participants screened were from the South compared with only 38.5% in the article by Miller et al.

We found that 9.51% of women tested positive for chlamydia by ligase chain reaction,[2] which was more than the prevalence (4.74%) reported by the authors using the same assay. Our prevalence in the South was 12.3% compared with 5.39% in their study. Additionally, our prevalence of chlamydial infection among black women (16.0%) exceeded the 13.95% identified by Miller et al. We observed that the prevalence of chlamydia in women increased over time, independent of other risk factors.[2] In smaller studies of men entering the US Army, we found higher prevalences for chlamydia than those reported by Miller et al (5.3% and 4.7%[4,5] vs 3.67%) but similar prevalences for gonorrhea (0.6% and 0.4%[4,5] vs 0.44%).

Many factors may account for the differences between our findings and those of Miller et al, including biases related to volunteering for military service, geographic and demographic features of the population, and the years studied. They evaluated adolescents who remained in the Add Health study from 1994 to 2002 and may have preselected adolescents less likely to practice high-risk behavior. We are encouraged that the authors found lower prevalences for chlamydia in women and men. However, it is premature to attribute these differences to true declines in chlamydial infections. Sexually transmitted infections (STIs), especially chlamydia, remain epidemic in the United States and demand social and political remedy. Comprehensive programs for screening, treating, and informing young adults about STIs are urgently needed in schools, the military, correctional institutions, and other appropriate venues.

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1. Miller WC, Ford CA, Morris M, et al. Prevalence of chlamydial and gonococcal infections among young adults in the United States. *JAMA.* 2004;291:2229-2236.
2. Gaydos CA, Howell MR, Quinn JC, et al. Sustained high prevalence of *Chlamydia trachomatis* infections in female army recruits. *Sex Transm Dis.* 2003;30:539-544.
3. Gaydos CA, Howell MR, Pare B, et al. *Chlamydia trachomatis* infections in female military recruits. *N Engl J Med.* 1998;339:739-744.
4. Cecil JA, Howell MR, Tawes JJ, et al. Features of *Chlamydia trachomatis* and *Neisseria gonorrhoeae* infection in male army recruits. *J Infect Dis.* 2001;184:1216-1219.
5. Arcari CM, Gaydos JC, Howell MR, et al. Feasibility and short-term impact of linked education and urine screening interventions for chlamydia and gonorrhea in male army recruits. *Sex Transm Dis.* 2004;31:443-447.

In Reply: We appreciate the comments of Dr Gaydos and colleagues highlighting their important work in military populations. Although we observed an overall prevalence of chlamydia infection of 4.19%, the prevalence in military recruits was higher. This difference is not surprising given the differences in the study populations. However, we believe that the direct comparison of their prevalence estimates and our recent estimates from Add Health is not appropriate.

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They report prevalences for a specialized population. In these and similar studies, an implicit assumption is that the study sample is a simple random sample of a larger target population. For their studies, the most reasonable target population is military recruits. The military population is self-selected and is unlikely to represent a general US young adult target population.

In contrast, Add Health provides the first nationally representative estimates of chlamydial and gonococcal infections in both men and women. From a sampling frame of all US high schools, schools were randomly selected for Add Health.[1] In 1995, respondents were selected randomly from the rosters of these schools to obtain a probability sample of adolescents who have since been followed up into young adulthood. Each participant is assigned a sampling weight to represent a certain number of persons in the target general US population.[1] With this design, we believe that our study provides the best estimate to date of prevalence in the general population.

A retention rate of less than 100% is concerning but we attempted to ensure that the sample was representative and to assess any potential bias in our prevalence estimates. Sampling weights for the current wave of Add Health (Wave III) were recalculated using poststratification techniques to account for differential attrition and ensure appropriate national representation. We also provided a sensitivity analysis for chlamydial infection accounting for potential systematic differences between persons who did and did not provide a urine specimen. Finally, recent work by the Add Health team suggests that the potential bias due to loss to follow-up is small.[2]

Despite differences in our estimates, we agree that the prevalence of chlamydial infection in both military recruits and the general population of older adolescents and young adults living in the United States is unacceptably high. More emphasis on screening to identify asymptomatic infections is needed and men must be included in future screening efforts.

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1. Chantala K, Tabor J. Strategies to perform a design-based analysis using the Add Health data. Available at: http://www.cpc.unc.edu/projects/addhealth/files/weight1.pdf. Accessed June 28, 2004.
2. Chantala K, Kalsbeek WD, Andraca E. Non-response in Wave III of the Add Health study. Available at: http://www.cpc.unc.edu/projects/addhealth/files/W3nonres.pdf. Accessed June 28, 2004.

Marijuana Arrests and Increase in Marijuana Use Disorders

To The Editor: Compton and colleagues[1] report an increase in marijuana use disorders in the last decade, with combined estimates of abuse or dependence increasing from 1.2% to 1.5%, a statistically significant change. Subgroup analyses revealed that the increases were statistically significant for ethnic minorities but not whites.

The authors attribute these increases in the disorders to heightened potency in available marijuana, an explanation that remains puzzling, particularly in light of the ethnic differences. No other data address the idea that stronger cannabis leads to more abuse or dependence. Smokers tend to take smaller puffs with more air when using high-potency marijuana.[2] Research has not addressed ethnic differences in the metabolism of tetrahydrocannabinol. It seems unlikely that minorities would have greater access to marijuana of higher potency, particularly given the probable expense of this drug. The idea that increased potency would lead to more dependence and abuse in general, and particularly among minorities, has less intuitive appeal than explanations involving increased marijuana arrests.

Recurrent marijuana-related legal problems qualify users for the abuse diagnosis. Marijuana arrests increased dramatically in the decade studied (1991-2001). Crime statistics from the Federal Bureau of Investigation suggest that arrests for crimes related to marijuana more than doubled in this period,[3,4] which could account for the observed increases in the disorders. Minorities are often overrepresented in arrests for marijuana,[5] which may explain the observed ethnic differences.

If the authors have the data to look at the relationship between rates of legal problems and the abuse diagnosis, I would be interested to see if this may provide an alternative explanation for the observed increase.

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1. Compton WM, Grant BF, Colliver JD, Glantz MD, Stinson FS. Prevalence of marijuana use disorders in the United States: 1991-1992 and 2001-2002. *JAMA.* 2004;291:2114-2121.
2. Herning RI, Hooker WD, Jones RT. Tetrahydrocannabinol content and differences in marijuana smoking behavior. *Psychopharmacology.* 1986;90:160-162.
3. Federal Bureau of Investigation. *Crime in the United States, 1991: FBI Uniform Crime Report.* Washington, DC: US Government Printing Office; 1991.
4. Federal Bureau of Investigation. *Crime in the United States, 2001: FBI Uniform Crime Report.* Washington, DC: US Government Printing Office; 2001.
5. Mandel J. Is marijuana law enforcement racist? *J Psychoactive Drugs.* 1988; 20:83-91.

In Reply: We appreciate the chance to revisit our analyses of the trends in marijuana abuse and dependence from 1991-1992 to 2001-2002. Dr Earleywine suggests differential increases in marijuana-related legal problems as an explanation for the marked increases in marijuana abuse and dependence rates for younger black men and women and younger His-