We identified and characterized HIV+ individuals into three mutually exclusive groups that could represent varying risk profiles: 1) diagnosed with at least one STI before HIV (prior STI), 2) diagnosed only with HIV and/or a concomitant STI at HIV diagnosis (STI+HIV only), or 3) diagnosed with HIV first then later diagnosed with at least one more STI (post STI). Categorical variables were compared using Fisher’s exact test.

Of the 100,005 randomly selected active duty members, with an average follow-up of 4.9 years, 116 were diagnosed with HIV. Compared to HIV-negative individuals, people diagnosed with HIV had a longer average follow-up time (7.7 years) (p<0.01). Among these people, 62% (95% CI: .53 to .71) were diagnosed with HIV or HIV and a concomitant STI. Caucasians (27% vs. 19%) and females (36.8% vs. 21.3%) were more likely to be diagnosed with HIV or HIV and a concomitant STI. Age at entry, age at HIV, education, marital status, and region did not appear to be different between groups.

Among the 19 personnel with at least one STI diagnosis before HIV infection, gonorrhea and chancroid were the most common STIs and infections (Table 2). Within this group, 8 (42%) had an STI prior to HIV but had at least one STI post HIV diagnosis. Thus, focusing HIV prevention efforts only towards those with an STI would miss many individuals at risk for HIV infection. Larger prospective studies incorporating behavioral risk assessment are required to understand how these risk profiles differ in order to target specific interventions to these varying risk groups.

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In this representative military sample, 84% of US military personnel were never diagnosed with an STI prior to being infected with HIV; however, among women this drops to 50%. This may reflect differences in screening, risk, and/or the timing of STI acquisition among this population.

There are several limitations to our study. One is that it is known that some individuals are treated for STIs outside of the military due to the stigma associated with such a diagnosis, however, to what extent this happens is unclear. Only STIs treated at healthcare facilities outside of the military is not captured within this data. This would result in an underevaluation of the actual STI burden in our analyses, as this prior STI was not a strong indicator of HIV risk, it is likely that risk behaviors and STIs are still occurring.

In addition, our representative sample was oversampled for women in order to assess gender using these data. It is known that the HIV burden among men is much higher than women in the military population, therefore, the HIV prevalence data is likely an underestimation of the true burden of STI data compared to what we would expect from a truly random sample.

Conclusions
• Relying on STI infection prior to HIV diagnosis to identify those at risk for future HIV infection only identified 14% of people in this study.
• Further investigation into specific STIs and other markers of HIV risk is needed. Our data would suggest that gonorrhea and syphilis should serve as starting points for this work.

Discussion
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