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## NATIONAL HIV PREVALENCE AND BED HIV INCIDENCE ESTIMATES: SOUTH AFRICA 2005

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**BACKGROUND:** The complexities and limitations of epidemiological approaches to measure HIV incidence argue strongly for a laboratory-based method that can distinguish recent from established long-term HIV infections. The 2005 South African national household survey on HIV, behavior, and communication included HIV incidence testing, which for the first time allowed a joint analysis of HIV prevalence, HIV incidence, and HIV-associated risk factors.

**METHODS:** Of 23,275 individuals, aged 2 years and older, who participated in the survey, 15,851 agreed to be tested for HIV. Linked anonymous testing, i.e. the HIV test result can be linked to demographic and behavioral data without revealing the identity of the tested individual, was performed using dried blood spot (DBS) specimens. The detection of recent infections in confirmed HIV<sup>+</sup> samples was performed with the BED capture enzyme immunoassay. An HIV<sup>+</sup> specimen with a normalized optical density value of  $\leq 0.8$  was considered to be a specimen of recent HIV infection, otherwise, the specimen was classified as long-term infection. Annualized BED HIV incidence calculation applied a window period of 180 days for HIV subtype C specimens and took into account the complex survey design.

**RESULTS:** The national HIV prevalence in the population of people 2 years and older is estimated to be 10.8%, with a higher prevalence in women (13.3%) than in men (8.2%). HIV prevalence increases among young females from 9.4% in the 15 to 19 age group to 33.3% in the 25 to 29 age group. In males, the increase in HIV prevalence is more protracted, and peaks at a lower level than for females, 23.3% in age groups 30 to 34 and 35 to 39. Especially alarming is the incidence rate among young females. Females aged 15 to 24 years have an 8 times higher HIV incidence than males, 6.5% compared to 0.8%, and account for 87% of the recent HIV infections in this age group. Our incidence analysis also suggests an increased risk of HIV acquisition during pregnancy. Among

African women aged 15 to 49 years, and who were pregnant in the last 24 months, an HIV incidence of 7.9% was found, the highest incidence rate of all analyzed sub-populations in our survey.

**CONCLUSIONS:** The addition of HIV incidence testing to the survey protocol enables a more precise and timely analysis of the current HIV-transmission dynamics and a more relevant assessment of the effect of prevention programs in South Africa.

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