The unexplored story of HIV and ageing

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As people in developing and industrialized countries increasingly live longer, healthier lives, why do the scant data that exist suggest a surprisingly high prevalence and incidence of HIV among individuals 50 years of age and over ("older individuals")?

Older individuals are rarely included in Demographic Health Surveys (DHS). In the last 5 years, only 13 of 30 surveys included older males and none included older females. The National Health and Nutrition Examination Survey in the United States of America (USA) does not collect data from people older than 49. There is a dearth of prevalence data; what about incidence?

Incidence could be determined via case reporting, serologic incidence assays or modelling. Developing countries have limited case-reporting systems, but industrialized countries do better. In the USA, case reporting from 2003 to 2006 shows the proportion of older HIV-positive individuals has climbed from 20% to 25% and numbers of cases have risen in all 5-year age bands from 45 years to 65 years and older;[1] using serology, 11% of 2006 incident cases are in older individuals.[2] In WHO's European Region, 8% of reported cases in 2005 are older.[3] Similar data from the developing world are unavailable, and modelled incidence data are not publicly available.

We have calculated prevalence by age, using UNAIDS' estimated numbers of cases of HIV and United Nations population estimates, by country. One finds a consistent pattern that prevalence in older individuals is one-quarter to one-third that of the 15–49-year age group. We have debated with our colleagues whether these findings are surprising. Most of us think "yes".

This is particularly so because prevalences for this age group are deceptively low. There is little appreciation that the older the individual, the faster the progression from HIV infection to AIDS.[1,4,5] The effect is considerable, linear and remains after adjusting for all-cause mortality.[4,5] For example, there is a life expectancy of more than 13 years in people infected at age 5–14. This declines to 4 years in those infected at age 65 or older.[5] Waning immunity with age may be the reason. Since incidence is indirectly related to duration of disease, prevalence in those aged 50 and above should be approximately doubled to be compared with those in the 15-24 year age group. While long-available antiretroviral therapy (ART) could increase prevalence among older individuals in industrialized countries, this is not true of the developing world, where ART was introduced later.

Is the epidemiology of HIV in older individuals of purely academic interest? No, because understanding risk factors leads to interventions. Intriguingly, the Alpha Network in Africa has shown that in many sites, secondary peaks of HIV incidence appear at older ages.[6] Why might older individuals be becoming infected? We can only conjecture. In a systematic literature search, we found only one, limited, epidemiological study exploring HIV acquisition in older individuals, from urban USA.

Sexual activity of older individuals in the developing world is barely researched. Many older individuals everywhere are sexually active, although interest in sex and frequency of vaginal intercourse decline with age.[7] Since 1998, erectile-dysfunction drugs have been extending the sex life of many older individuals and, at the same time, may be extending the HIV epidemic into older age groups. Many studies show that older individuals are less likely than their younger counterparts to practise safer sex. While erectile dysfunction is common and erectile-dysfunction drugs are widely distributed in developing countries,[8] no study has been done of their possible impact on the HIV epidemic, although their use in industrialized countries has been associated with risky sexual practices.[9] Whether HIV-positive men should be prescribed these drugs has been debated.[10]

If sex is the main cause of HIV infection in older individuals and many older individuals are not having penetrative intercourse, then the risk of acquiring HIV per sexual act in these individuals must be high. We can only speculate what the reasons may be. The thinning of vaginal mucosa with age may play a role; for both sexes, the prevalence of antibodies against herpes simplex virus 2 increases with age,[11] indicating continual risky sexual behaviour and enhanced risk of HIV transmission.

While sexual activity is the most likely mode of transmission, research is required to establish the relative contribution of different risk factors and modes of transmission.

One consistent finding is the failure to consider HIV as a cause of illness in older individuals. These individuals have a shorter time from diagnosis to onset of AIDS,[1] reflecting both age-related faster progression to AIDS and doctors' failure to consider HIV as a diagnosis. Screening is less common for older adults, who are assumed not to be at risk.

HIV prevalence and incidence in the over-50-year-olds seem surprisingly high and the risk factors are totally unexplored. Understanding the epidemiology of HIV infection in older individuals can lead to interventions to make these years safer and more enjoyable. ■

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Available at: http://www.who.int/bulletin/volumes/87/3/09-064030/en/index.html

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