

Cost-effectiveness of routine use of pooled nucleic acid amplification testing

September 28 2010

Detection of acute HIV infection (the stage of disease immediately after HIV acquisition but before HIV antibodies are detectable) with pooled nucleic acid amplification testing (that detects the presence of HIV genetic material in the blood before antibodies are detectable) is feasible but not cost-effective in all settings.

Rather, pooled nucleic acid amplification testing after testing for antibodies with third-generation enzyme immunoassays (which can detect the first antibody to appear after infection) or rapid testing is only cost-effective when targeted to settings with very high HIV incidence, such as clinics that serve men who have sex with men (MSM). These are the findings of a study by Angela Hutchinson from the Centers for Disease Control and Prevention, Atlanta, Georgia, USA, and colleagues published in this week's [PLoS Medicine](#).

The authors combined effectiveness data from a clinical trial of pooled nucleic acid amplification testing in three settings in the USA (sexually transmitted disease clinics, a community clinic serving MSM and HIV counseling/testing sites) with a "micro-costing" study of pooled nucleic acid amplification testing and a mathematical model of [HIV transmission](#). They then calculated the costs per quality-adjusted life year (QALY) gained (the cost-effectiveness ratio) by identifying and notifying people with acute HIV infection through screening using pooled nucleic acid amplification testing compared with repeat antibody testing at different intervals, including annual testing (the recommended testing interval for high-risk individuals).

The authors estimated that each QALY gained from pooled nucleic acid amplification testing following annual antibody testing would cost US\$372,300 and US\$484,400 for the counseling/testing sites and sexually transmitted disease clinics, respectively, a result which is generally considered to be not cost effective. However, this method was cost-saving for the clinic that served MSM. The cost-effectiveness ratio increased for the counseling/testing sites and sexually transmitted disease clinics when the antibody testing interval was decreased to 6 months but remained cost-saving for the clinic that served MSM. However, with an antibody testing interval of 5 years, pooled nucleic acid amplification testing was cost-saving in all three settings. Yet the authors noted that most of the benefits that made it cost-effective during the 5-year interval between retesting occurred long after the acute phase, when antibody testing could have been repeated.

The authors conclude, "Pooled screening [nucleic acid amplification testing] for [acute HIV infection] following negative third-generation antibody or rapid tests is not cost-effective at recommended antibody testing intervals for high-risk persons except [for those] in very high-incidence settings."

More information: Hutchinson AB, Patel P, Sansom SL, Farnham PG, Sullivan TJ, et al. (2010) Cost-Effectiveness of Pooled Nucleic Acid Amplification Testing for Acute HIV Infection after Third-Generation HIV Antibody Screening and Rapid Testing in the United States: A Comparison of Three Public Health Settings. *PLoS Med* 7(9): e1000342. [doi:10.1371/journal.pmed.1000342](https://doi.org/10.1371/journal.pmed.1000342)

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Citation: Cost-effectiveness of routine use of pooled nucleic acid amplification testing (2010,

September 28) retrieved 19 April 2024 from <https://medicalxpress.com/news/2010-09-cost-effectiveness-routine-pooled-nucleic-acid.html>

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