Improving the Predictive Ability of a Resistance Test

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A new method for interpreting the results of the HIV diagnostic company Virco's predictive phenotype test better predicts actual responses to treatment than an older method, say the authors of a study published in the May 1 issue of the *Journal of Acquired Immune Deficiency Syndromes* (JAIDS). Though the analysis did not include some of the newest antiretroviral (ARV) drugs, the new clinical "cut offs" will likely be useful to HIV-positive people putting together a new treatment regimen based on the results of this particular drug-resistance assay.

ARV resistance is not like an on-and-off switch, but rather a sliding scale—with the sensitivity of a person's virus to an HIV treatment varying from high to low. Virco's vircoTYPE assay works by looking for drug-resistance mutations in a person's virus, followed by comparing the virus to several thousand HIV samples that have been genotyped—which reveals their drug-resistance mutations—and phenotyped—which determines how active an ARV is when placed in a test tube with a person's virus.

Phenotyping reveals how much drug, expressed as a "fold change," is needed to suppress drug-resistant HIV. However, with Virco's assay, it hasn't been clear what fold change means in terms of a person's virus being fully sensitive, less sensitive or not sensitive to a specific ARV. Virco now reports that it has developed "clinical cutoffs" (CCOs) to allow for much easier interpretation of fold changes as they related to the sensitivity of HIV to many of the available medications.

Virco's Bart Winters, MSc, and his colleagues report that the company has tested an algorithm for predicting lower and upper CCOs for many available ARVs. Drugs with a fold change below the lower CCO are fully active against the person's HIV; drugs with a fold change between the lower and upper CCO are less active against the person's HIV; and drugs with a fold change above the upper CCO are no longer active against the person's HIV.

Scientist's like Winters and his team will need data from a number of studies before they can develop a CCO for more recently approved drugs, but the improved predictive power with some of the older drugs will likely prove helpful for some living with HIV.

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