



## PRESS RELEASE

### Online tool to reduce cost and improve outcomes of HIV treatment

**Data presented today at HIV-11 conference from study in India demonstrate potential utility for resource-limited settings**

**Glasgow, Scotland; Tuesday 13th November 2012.** Late-breaking data presented today at the 11<sup>th</sup> International Congress on HIV Drug Therapy indicate that use of a free on-line tool could reduce the chances of HIV drug therapy failing while at the same time saving costs. The study showed that the system, which goes live today, was able to identify alternative combinations of available drugs with a higher probability of success in 88% of cases where the drugs actually used in the clinic in rural India failed. The average cost saving was US\$638 per patient per year.

If this system were used for just half the 50,000 or so people failing therapy in India it could potentially save around \$20M per year, enough for between 20,000-40,000 additional patients to be treated, while avoiding many cases of virological failure.\*

“These results are very exciting in that they indicate that HIV-TRePS may be able to deliver useful predictions not only of effectiveness but also cost – the two crucial elements of optimising HIV treatment where resources are scarce,” commented Dr Gerardo Alvarez-Uria, Clinical Head of the study based in Anantapur in India.

This new version of the HIV Treatment Response Prediction System (HIV-TRePS) was developed to help guide treatment decisions in resource-limited settings by predicting how a patient will respond to any combination of HIV drugs. It does so without the need for the expensive genetic tests of HIV drug resistance that are in common use in ‘rich’ countries but not affordable elsewhere. The system harnesses the power of computer models developed using data from tens of thousands of patients for its predictions. The latest version tested in this study enables doctors to enter the costs of the locally available HIV drugs and obtain the total costs of combinations that the system predicts will be effective.



“Currently, most HIV patients in resource-limited settings are treated according to WHO public health guidelines that offer very limited treatment options”, explained Dr Alvarez-Uria. “The new HIV-TRePS system, could enable doctors to tailor the HIV treatment based on the cost and predicted effectiveness of the treatment while taking into account other important factors such as the number of tablets, the side effects of the drugs and interactions with other medication taken by that particular patient.”

The system requires a test of the amount of virus in the patient’s bloodstream (the viral load) for its predictions, which is not widely used in resource-limited settings. However, the potential cost savings offered by the system are likely to cover the costs of viral load testing many times over.

“These are very encouraging findings”, commented Dr. Julio Montaner, Past President of the International AIDS Society and Director of the BC Centre for Excellence in HIV & AIDS, based in Vancouver, Canada. “The current roll-out of antiretroviral therapy to resource-limited settings involves standardised treatment and monitoring protocols. These results suggest that this system could enable individualised treatment, improving outcomes and still saving costs overall.”

The system, developed by the HIV Resistance Response Database Initiative (RDI), uses a set of computational models called random forests to make predictions of response using 40 different pieces of patient data. During training with data collected from around 15,000 patients, the models performed with an accuracy of approximately 77%. Results presented today showed the models to be 64% accurate when tested with 206 TCEs from an HIV cohort study in the district of Anantapur, India. The models identified alternative regimens that were predicted to produce virological response and with a lower annual cost than the regimen selected in the clinic for all cases. The average annual cost of the alternative regimens identified by the system as being most likely to be effective and least expensive was \$515 compared to \$1,021 for the regimens used in the clinic.

The RDI is an independent, not-for-profit international research collaboration set-up in 2002 with the mission to improve the clinical management of HIV infection through the application of bioinformatics to HIV drug resistance and treatment outcome data. Over the 10 years since its inception, the RDI has worked with many of the leading clinicians and scientists in the world to develop the world’s largest database of HIV drug resistance and treatment outcome data, containing information from approximately 100,000 patients in more than 30 countries.



HIV-TRePS is an experimental system intended for research use only. The predictions of the system are not intended to replace professional medical care and attention by a qualified medical practitioner and consequently the RDI does not accept any responsibility for the selection of drugs, the patient's response to treatment or differences between the predictions and patients' responses.

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\* Figures extrapolated from:

Department of AIDS Control Annual Report 2011-12. National AIDS Control Organisation, Ministry of Health & Family Welfare, Government of India

[www.nacoonline.org](http://www.nacoonline.org)

**Reference:** Revell AD, Wang D, Alvarez-Uria G *et al.* Computational models that predict response to HIV therapy can reduce virological failure and therapy costs in resource-limited settings. 11<sup>th</sup> international Congress on HIV Drug Therapy, Glasgow, Scotland, 11-15 November 2012; Abstract O234.

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