A global non-profit initiative against HIV drug resistance

PRESS RELEASE

New versatile version of HIV-TRePS launched
New models can be used in diverse settings with different virological response definitions and with various data available

London, UK; 02 April, 2019: A new, extra versatile version of the RDI's HIV Treatment Prediction System (HIV-TRePS) was launched today. The system uses different sets of mathematical models to predict how a patient will respond to any new combination of HIV drugs, according to the data available to the clinician at the time and the local definition of response.

"This new, versatile version of HIV-TRePS makes possible the individualisation of therapy for many more patients in many more low- and middle-income settings," commented Brendan Larder, Scientific Chair of the RDI.

The system can use previous models developed by the RDI that estimate the probability that the level of HIV in the plasma will fall below 50 copies HIV-RNA/ml in response to treatment, a stringent definition of virological response in widespread use in high-income countries. Many groups, particularly in low- and middle-income countries, use higher thresholds for response such as 200, 400 or, in the case of the World Health Organisation, 1,000 copies/ml. New models predict the absolute level of HIV over time and can therefore be used in any setting, regardless of their definition of response. These models were recently published online ahead of print in the *Journal of AIDS* (JAIDS).

Other new models enable HIV-TRePS to produce predictions with or without a baseline HIV genotype, with or without a baseline CD4 count and with or without the time on HIV therapy being known.

"These advances enable many more clinicians in a diverse range of situations to use the system, even when some of the baseline data are missing," commented Andrew Revell, Executive Director of the RDI. *"While it cannot yet handle every combination of missing data, we are continuing to work to make the system even more 'forgiving' in the future."*

Currently, in low- and middle-income countries changes to HIV treatment are not generally individualized but made according to set protocols. This can lead to sub-optimal treatments being

introduced that can enable the development of drug resistance. Resistance is on the increase in such settings, which poses a threat not only to the individual but to entire populations through the increased risk of onward transmission of drug-resistant virus. This more versatile version of HIV-TRePS increases the usability for clinicians in such settings, enabling them to optimise their patients' treatment on an individual basis.

HIV-TRePS, is freely available online at www.hivrdi.org/treps.

The RDI's participation in this project is through a subcontract with Leidos Biomedical Research, the prime contractor for the Frederick National Laboratory for Cancer Research, sponsored by the National Cancer Institute.

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 14 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 240,000 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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