

Preventing new HIV infections through vital medication guidelines

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Microscopic image of an HIV-infected T cell. Credit: NIAID

Nearly 40 million people worldwide live with HIV (human immunodeficiency virus), and this number increases every year as more individuals acquire the incurable infection. There is no vaccine to

prevent HIV infection and the virus, if left untreated, can lead to AIDS (acquired immunodeficiency syndrome).

Although great advances have been made in both the prevention and treatment of HIV, new infections are declining too slowly and, despite global efforts, we did not reach the Joint United Nations Program on HIV/AIDS (UNAIDS) target of fewer than 500 000 new infections per year by 2020. As a result, research into preventing HIV [infection](#) continues to be a global priority.

Work conducted by King's academics and led by Dr. Julie Fox has brought about transformation in [clinical practice](#) and national and international guidance on PrEP, with real positive impact on HIV transmission rates and the lives of those infected with or affected by HIV.

Ground-breaking investigations into the efficacy of PrEP

In 2008 early research was conducted into using Truvada—an antiretroviral medication—as preventative treatment against HIV infection. University College London, King's and other UK-based institutions formed the PROUD consortium to evaluate Truvada in a real-life setting.

The results of the study were extraordinarily promising. The efficacy of Truvada in preventing HIV transmission was revealed to be 88 percent—the highest efficacy found in any daily PrEP study globally to date.

Yet these results were met with trepidation. Truvada, though effective, was also expensive, and governments were reluctant to endorse its use

for HIV prevention when their resources were already stretched in providing treatment for those living with HIV.

At the request of the World Health Organization (WHO) King's took part in a formal review of efficacy data on a cheaper PrEP drug (tenofovir [TDF] monotherapy) and its pharmacokinetic response in gay men. At the same time Dr. Fox led an evaluation of the cost of HIV infection to people recently diagnosed with HIV producing data that could populate PrEP cost effectiveness models.

Overall, the PROUD study played an instrumental part in modifying international guidelines to reduce HIV transmission. Widely viewed as the most important real-life PrEP study globally, PROUD demonstrated that PrEP is an effective way to decrease the transmission of HIV on a population level.

These results went on to inform clinical guidance on HIV in the UK, The European AIDS Clinical Society (EACS) 2018 treatment guidelines and the World Health Organization (WHO) early release (2015) and subsequent consolidated guidelines (2016).

Real-life impact for people living in Britain

The results of the PROUD study made a significant contribution to the current provision of PrEP on the NHS. In 2016, citing PROUD as evidence, the UK Government allocated £10 million to the large-scale PrEP Implementation Trial (2016-2019) which made PrEP available to 10 000 gay men. Following reporting on the PrEP Implementation Trial, in March 2020 the Government announced provision of a further £16 million to make PrEP available on the NHS. This pledge supports the UK's commitment to achieving zero HIV transmission by 2030.

Public Health England reporting shows that the availability of PrEP,

alongside other interventions, has proven strikingly effective. New HIV diagnoses decreased from 5,280 new cases in 2016 to 4,363 in 2017 while, between October 2015 and September 2016, HIV diagnoses fell by 32% compared with the previous year among men who have sex with men (MSM) attending selected London sexual health clinics (from 880 to 595).

Speaking on King's important contribution to HIV research, Dr. Fox said: "Research on PrEP has had a major impact on the number of people getting HIV infection. Unfortunately it is not universally available and further work is needed to improve awareness, uptake and access."

Provided by King's College London

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