**Pre-Exposure Prophylaxis:**

**Cost-effective for HIV in the UK**

Revill P1, Dwyer E2

1. Centre for Health Economics, University of York

2. Berkshire Healthcare NHS Foundation Trust

At the July 2017 International AIDS Society (IAS) conference in Paris exciting new data were presented on a large reduction in HIV diagnoses in the UK’s largest sexual clinic. 56 Dean Street in Soho saw a 42% annual drop in new diagnoses between 2015 and 2016.1,2 Similar promising findings were reported in studies of clinics in France and Australia. This is likely due to increased testing, earlier diagnosis and immediate initiation onto HIV treatment at diagnosis,3 as well as the wider availability of pre-exposure prophylaxis (PrEP) for HIV.

In the Lancet Infectious Diseases, Valentina Cambiano and colleagues8 directly address a key issue as to the “cost-effectiveness” of including PrEP as part of the package of routine HIV care throughout the whole of the UK. The question is:

Given its budget impact, are the benefits of providing PrEP for men who have sex with men (MSM) likely to be greater or less than the benefits associated with other health care interventions, which will consequentially be foregone as a result of resources being committed to PrEP?

HIV incidence has been stubbornly high for years, particularly amongst MSM; who, despite being a relatively small percentage of the UK’s population account for more than half of new infections.4 The PROUD5 and Ipergay6 trials have shown the high levels of effectiveness of PrEP in reducing HIV infections amongst MSM; providing compelling evidence for its effectiveness.

In contrast to the optimism surrounding the clinical effectiveness of PrEP, the current mood around the funding and provision of sexual health services in the UK is bleak. NHS England (which funds HIV treatment) had initially refused to pay for PrEP, arguing responsibility for HIV prevention services lay with local authorities. Following a judicial review, and rejection, of that decision, NHS England announced it would provide PrEP to 10,000 patients, but only through a large implementation study in selected clinics from September 2017.7 Presented as a means to identify optimal ways of delivery, this has been seen by many as simply a strategy to postpone access across the country.

Cambiano and colleagues8 deliver the most comprehensive PrEP modeling study ever undertaken for the UK. The model is impressively calibrated to a wide range of data, reflecting what is currently known about patterns of HIV transmission and disease progression. PrEP is modeled as being introduced according to the eligibility criteria in the PROUD study and with similar levels of effectiveness: ~86% reduction in HIV transmission.

The study’s central finding is that PrEP introduction for MSM and other groups at high risk of HIV is expected to be not only cost-effective for the UK, but *cost-saving* - offering notable health improvement in terms of reduced HIV-related morbidity and mortality through infections prevented. It saves the NHS money through lower future need for HIV treatment and care; savings which, over time, exceed the costs of PrEP itself. This core finding holds through combinations of the most reasonable assumptions and parameter changes, and so is robust.

Notably, however, costs will be incurred immediately, whereas the health benefits and cost savings will only be realized far into the future (over the duration of the 80 years modeled). This is typical of many preventative healthcare interventions. The study recognizes that costs of PrEP are likely to fall, as generic formulations become more widely used, and applies conservative assumptions on future price. The lower the costs of PrEP, the less time it will take for the benefits to outweigh the costs incurred.

This therefore calls for NHS policymakers to negotiate with manufacturers to get favorable deals on prices and to be far sighted – invest now, and reap long-terms gains. This is currently challenging when unmet needs across all areas of healthcare are so great and NHS resources are stretched so thinly. But this study provides the definitive evidence to support such a decision.

There is now the prospect of bending the curve of new HIV infections downwards in a way that seemed infeasible just a few short years ago - with a combination of frequent HIV testing, immediate treatment and PrEP availability. Whether this will occur or progress will be hampered by continued NHS re-disorganization and funding quarrels between Government departments, only time will tell.

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