Pre-exposure prophylaxis to reduce HIV infection in the UK

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Recent research has estimated that pre-exposure prophylaxis (PrEP) using the antiretroviral therapy Truvada (tenofovir disoproxil/emtricitabine) in men who have sex with men could prevent thousands of new HIV infections in the UK by the end of the decade. However, the treatment has not yet been made available on the NHS for this indication.

New research published in The Lancet HIV in January predicts that the use of pre-exposure prophylaxis (PrEP) could lead to a marked decline in HIV incidence in the UK among men who have sex with men (MSM).

The study used a mathematical model to evaluate the efficacy of various HIV prevention measures, including increased HIV testing, early treatment, PrEP and behavioural changes. It estimated that offering PrEP using the combination antiretroviral therapy (ART) Truvada (tenofovir disoproxil/emtricitabine) alongside annual HIV testing and early treatment to just a quarter of MSM at highest risk of contracting HIV could prevent around 7400 new HIV infections (44 per cent of the predicted incidence with no intervention) in the UK by 2020.

Lead author, Dr Narat Punyacharoensin, who conducted the research while at the London School of Hygiene and Tropical Medicine, London, says: “Current prevention efforts in the UK that focus on correct and consistent condom use and regular HIV testing have been falling short. HIV rates among men who have sex with men remain high with around 2800 men becoming infected in 2014, and the trend shows no sign of abating.”

An effective strategy

The Lancet HIV researchers estimated that PrEP alone was more effective than all other individual measures, preventing 59 per cent of new HIV infections when aimed at the entire UK MSM population (9955 in total). However, they predicted that the greatest number of infections would be prevented by a “practical combined prevention programme” that includes PrEP alongside yearly HIV testing for HIV-negative MSM and immediate ART for men who have tested positive.

The efficacy of Truvada for PrEP is currently being investigated in the PROUD trial, which has enrolled over 500 MSM in 13 sexual health clinics across England. The trial is expected to finish in April this year, but results from the pilot phase have shown PrEP using Truvada to be highly effective, reducing the incidence of HIV infection by 86 per cent.

One of the main concerns about PrEP is whether men who know they are protected by prophylaxis will compensate for this by increasing their sexual risk-taking, for example by increasing their levels of unprotected sex (known as risk compensation). However, in the PROUD study, risk-compensation analyses indicate that even a substantial increase in
unprotected anal intercourse and sexual partners is unlikely to completely counteract the strong HIV prevention benefit of PrEP.

**NHS availability**

Dr Michael Brady, Terrence Higgins Trust medical director and a consultant in HIV and Sexual Health at King’s College Hospital, London, says: “PrEP has been shown, both in clinical trials and in ‘real life’ settings, to be highly effective at preventing HIV transmissions. Despite the proven benefits of condom use and the impact of HIV therapy on reducing transmission, the number of gay men infected with HIV each year has remained relatively stable over the last decade.

“The [Lancet HIV] study is really important as it demonstrates that, in a relatively short space of time, PrEP could have a dramatic impact on reducing HIV transmissions. It also shows the importance of a combination approach to HIV prevention, ie utilising PrEP alongside other interventions such as increasing HIV testing rates and earlier treatment for those who are infected.

“The reality is that the UK is now lagging well behind other countries in its approach to HIV prevention and its investment in successful interventions such as PrEP. It is essential that PrEP is made available on the NHS as soon as possible for those most at risk. Every month we delay, there are more people being unnecessarily infected with HIV.”

He adds: “I believe in the NHS and I believe we have to use our resources wisely and we can’t pay for everything, but we should pay for things that work and have been demonstrated to work. PrEP is cost effective, it works, it could make HIV completely preventable and will then hopefully become cost saving.”

Dr Brady notes that in studies, the side-effects of Truvada appear to be “minimal” with some men having minor gastrointestinal symptoms in the first few days.

“In some people there is an increased risk of renal dysfunction and kidney problems after long-term use, so the recommendation for anyone taking PrEP would be to monitor renal function. But the vast majority of patients will be fine.”

He recommends that PrEP should be prescribed by sexual health services where the skills and the structure already exist to “roll it out” with minimum cost.

“I don’t think it should be something that GPs should prescribe, it’s something that should be seen as part of the full range of HIV prevention intervention already offered. You would use it with condoms, with behaviour change interventions, with drug and alcohol use support, with regular testing, and alongside treatment for anyone who is HIV positive.

“It makes sense for PrEP to be prescribed and managed in sexual health clinics because sexual health and HIV experts have got the skills and experience in doing all those things. We are already doing three-month checks, we can absorb it into our regular work, and we know about PrEP so there is no additional educational training needed.”

However, the NHS is still considering whether, and how, to make PrEP available. A decision is not expected until later this year.

**A cost-effective option**

Yusef Azad, director of strategy at National Aids Trust, explains: “We are seeing nine gay men getting an HIV diagnosis every day, which is nine too many. Important prevention work goes on, and without it the HIV rates would be even higher. But the reality is, current prevention work is making little dent on these numbers.

“We can look at the example of San Francisco for what works; last year the city saw its lowest number of new HIV diagnoses on record. And since 2012, when PrEP was introduced, new diagnoses have dropped by 30 per cent. This is what we need to be doing.

“PrEP is an essential additional prevention option for people at high HIV risk, and it is a scandal they still can’t access it here in the UK. A significant percentage of those 6151 people diagnosed last year would be still be HIV negative if they had taken PrEP” he adds.

London GP and Royal College of General Practitioners sexual health spokesperson Dr Richard Ma tells Prescriber: “Pre-exposure prophylaxis using Truvada can be effective. The current cost of Truvada on the NHS is about £355 a month whereas the lifetime cost to treat one person for HIV can be up to £350,000; the cost of both might become cheaper as more generic drugs come on the market in a few years.

“The PROUD study suggests that 13 men would need to take PrEP for a year to avert a new HIV infection. Hence, through a simple calculation, the NHS would need to spend about £55,380 a year on PrEP to prevent one HIV infection.

“Clearly a full economic analysis will be much more robust but more complicated than this. It will need to calculate the cost in terms of the common currency QALY [quality-adjusted life years] used in economic evaluations and NICE recommendations.”

Dr Ma adds: “Truvada’s patent is expected to expire in 2017, so there might be generic versions available at a fraction of the cost in the near future, which might make the economic argument much stronger.”

Dr Ma says the effectiveness of PrEP is not 100 per cent (it was 44 per cent in the clinical trial The Lancet HIV article based its evaluations on), so this needs to be considered as part of a broader strategy to prevent HIV transmission.

“This includes: use of condoms to reduce the risks of HIV and STIs, regular check-ups for STIs/HIV, reducing the number of sexual partners, and ensuring those with HIV are diagnosed and treated quickly and effectively so that the HIV virus is sufficiently suppressed (or HIV viral load remains ‘undetectable’) to reduce the risk of HIV transmission even further,” he adds.

“Although not available on the NHS, 56 Dean Street, which is a sexual health clinic based in Soho, London, offers PrEP privately. When PrEP becomes widely available on the NHS, I would expect it to be available from GUM clinics. However, access might be restricted to MSM who are deemed to be at high risk.

“It is not impossible to have assessment and prescriptions for PrEP in general practice and dispensed in community pharmacies. However, the main barriers might be the attitudes, knowledge and willingness of primary care providers to do this, and if people at risk will see their GPs for PrEP!”
Why do we need PrEP?
PrEP is a treatment-as-prevention method that involves taking daily antiretroviral therapy (ART) to prevent HIV infection. Although condom use remains a core strategy in HIV prevention, it does not work for everybody, all of the time, for a variety of reasons. PrEP has the potential to prevent HIV acquisition among those who are most at risk.

How effective is PrEP?
Research suggests that PrEP is as effective as condoms in preventing HIV transmission, as long as it is taken as prescribed, without missing doses.

Will PrEP encourage increased risk-taking behaviour?
There is no evidence to suggest that being on PrEP changes sexual risk behaviours. In fact, the PROUD study found no difference in the number of STIs across the groups participating in the study (the immediate group who were taking PrEP and the deferred group who were not) suggesting that this should not be a big concern.

Box 1. What is pre-exposure prophylaxis (PrEP)? (Provided by National AIDS Trust)

Like Dr Brady, Dr Ma believes clinicians will need to manage and monitor PrEP treatment carefully. He notes: “I would imagine there to be a full assessment before prescription, including blood tests, health promotion and health protection measures such as STI checks and immunisation for hepatitis B for MSM.

“Patients might be given one month’s supply or more depending on their concordance and the frequency of any monitoring tests. The tests that are used for monitoring such as kidney and liver function blood tests, urine tests, STI checks and HIV tests are available to primary care practitioners, so it might be possible for this to be done in general practice.”

Sharing knowledge
Jason Warriner, chair of RCN Public Health Forum and clinical services director at the Sussex Beacon – a specialist HIV care centre in Brighton, agrees that PrEP is a “big step forward” in HIV prevention. He is in no doubt that Truvada should be available on the NHS for PrEP and prescribed in sexual health clinics

He says: “It’s not just about giving a tablet; it needs to be supported by experienced nurses and doctors who have a range of sexual health knowledge and have the time to discuss all the options.

“From my perspective, if you can stop someone being infected with HIV you have immediately got a cost benefit and savings as that person can continue to work and they don’t need to access health care services, HIV treatment and medicines. This drug should be available [for PrEP] from April when the [PROUD] trial finishes – we know it stops the transmission of HIV, the evidence is there – it’s available in France and the USA so let’s get it available in the UK.

“We know it’s available on the internet, but we would not recommend that men get Truvada in this way. They need the correct follow-up and monitoring while taking the drug and to be sure they are getting the correct drug.”

He adds that men need to be educated about PrEP but not just by “putting posters up and handing out leaflets”. He notes: “This worked in the past, but education now needs to be more dynamic and match the ages of the people it is trying to reach. We need to use social media – Facebook, Twitter, YouTube – to get our messages out there and give men, especially young men, all the information they need to make decisions about possible HIV prevention.

“Nurses, especially those working in a sexual health setting, need to make sure that they are knowledgeable about PrEP and have the skills to start having conversations with men about it.”

Taking responsibility
London town planner, Harry Dodd, aged 25, is one of the men taking part in the PROUD study. He says that being on the trial has changed his life by giving him an HIV prevention measure he can be totally confident in.

He explains: “For the first time we can have confidence in self-prevention measures. I have grown up with the fear that gay men get HIV and, for the first time in my life, the guilt has gone about having sex with another man.

“I’ve got a sense of reassurance and security I’ve never had before and I feel I can foster the thought of a romantic relationship. It’s insulting to suggest that this ‘pill’ will encourage promiscuity and hedonism. That argument was used with women when the contraceptive pill was introduced and that didn’t happen.

“PrEP will encourage men to take responsibility for their own health and attend clinics and health checks for a whole range of sexually transmitted disease and ultimately this has to be a good thing.

“I have been very well taking it and have not had any side-effects. Studies all over the world have shown that this drug is a ‘game changer’. This drug conclusively stops the transmission and spread of HIV – it’s a disgrace it’s not available on the NHS immediately.”

An NHS England spokesperson adds: “We want to see reductions in new transmissions of HIV infection and are already investing in programmes to achieve this. NHS England is working with local authorities and others across the NHS to consider the clinical and cost effectiveness of providing PrEP to at-risk groups.”

References

Declaration of interests
None declared.

Kate Stewart is a freelance health journalist