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Reaching hepatitis C elimination targets among MSM in UK in the era of HIV pre-exposure prophylaxis

Louis MacGregor, Monica Desai, Natasha Martin, Jane Nichols, Ford Hickson, Peter Weatherburn, Matthew Hickman, Peter Vickerman

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30th June 2019

Aims of this research

- Can we reach HCV elimination:
  - WHO target of reducing HCV incidence by 90% by 2030? [1]
  - Or more ambitious NHS target of reaching this target by 2025?

- Are PrEP users at higher risk of HCV?
  - PrEP is highly effective at preventing HIV infection [2], but what about implications for HCV?
  - PrEP targeted to high-risk MSM, so have higher HCV prevalence
  - PrEP will reduce HIV infections within high-risk MSM
  - Emerging evidence suggests PrEP is likely to result in risk compensation

- Can we routine PrEP and HIV care appointments be used to eliminate HCV?
  - Low-cost HCV screening opportunity every 3-6 months.

[1] World Health Organisation (WHO). Combating hepatitis B and C to reach elimination by 2030. ***2016****.*

[2] Pre-exposure prophylaxis to prevent the acquisition of HIV-1 infection (PROUD): effectiveness results from the pilot phase of a pragmatic open-label randomised trial. Lancet **2016**

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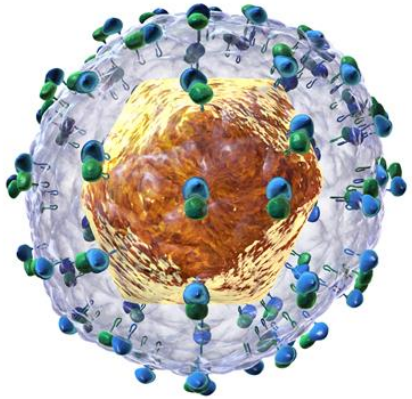
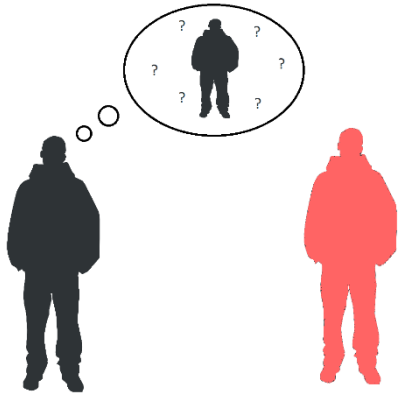
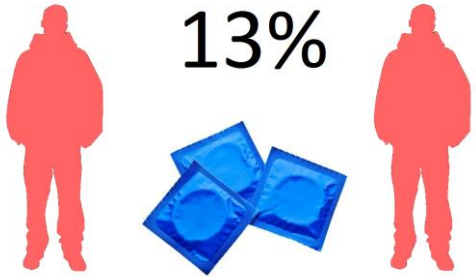
A brief overview of the model



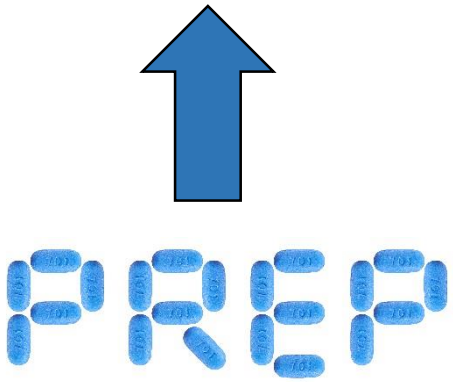
HIV-HCV co-infection.
(Lower spontaneous clearance,
higher HCV infectiousness).



Preferential mixing by HIV status.
Commonly HIV-HIV partnerships forming.



Reduced condom use in HIV-HIV partnerships.
13% versus 68% in other pairings.



Scaling PrEP coverage from 2018.
12.5% coverage by 2020.

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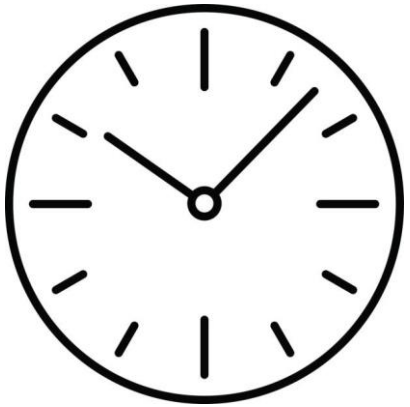
A brief overview of the model

New HCV Direct acting antivirals.
≥ 90% efficacy regardless of HIV.



Faster completion of HCV treatment.
From ~2.2 years from diagnosis to 6 months.

Increased frequency of HCV testing.
In HIV diagnosed, PrEP users and others.

Behavioural change (risk compensation)?
Lower condom use in PrEP users 68% → 34%.

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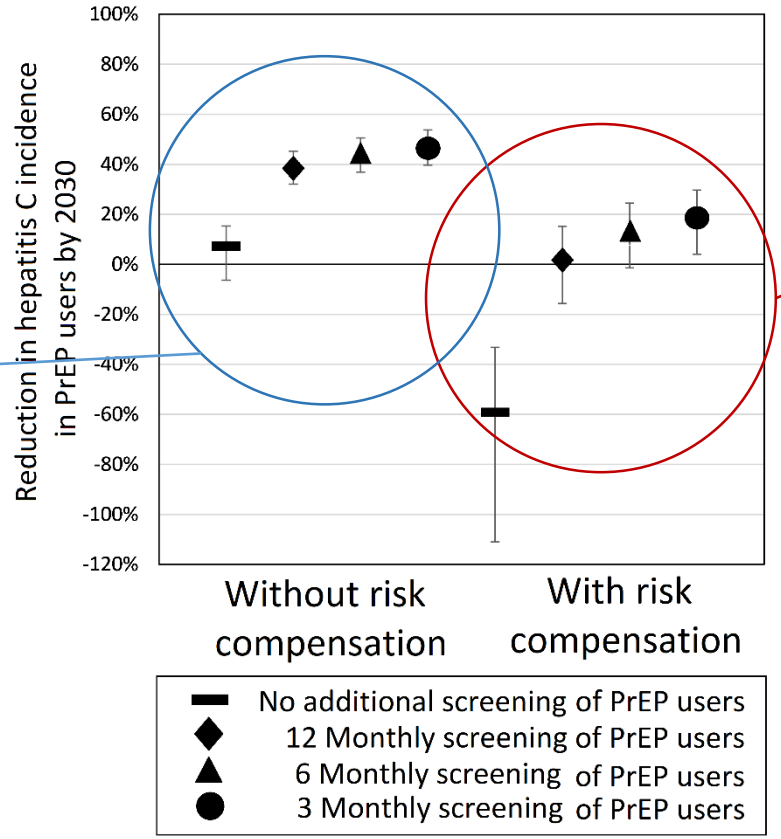
Impact of HCV Screening in PrEP users

Results **without** risk compensation

PrEP alone on average reduces HCV incidence by 10%

With yearly screening in PrEP users this increases to 41%



Results **with** risk compensation

HCV incidence increases 60% with PrEP

Extra screening in PrEP users counters this increase in HCV incidence

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Can screening high risk MSM hit the WHO target?

HCV incidence reduction by 2030

Annual HCV screening of HIV diagnosed MSM
49% Reduction

Annual HCV screening of all MSM using PrEP
41% Reduction

Annual HCV screening of both high risk groups
74% Reduction

Quarterly HCV screening of both high risk groups
84% Reduction

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Screening required in HIV negative non-PrEP users

WHO Target (2030)		NHS Target (2025)	
Yearly in high risk subgroups	→ 4 years	Yearly in high risk subgroups	→ 2 years
Biannually in high risk subgroups	→ 5 years	Biannually in high risk subgroups	→ 3 years
Quarterly in high risk subgroups	→ 6 years	Quarterly in high risk subgroups	→ 3 years
Yearly in high risk subgroups and with risk compensation	→ 3 years	Biannual in high risk subgroups and with risk compensation	→ 2 years

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Modelling conclusions

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- 2030 and 2025 HCV elimination targets can be reached through enhanced screening
  - 2030 target → **yearly** screening of HIV diagnosed and PrEP MSM, and of other MSM every **4 years**.
  - 2025 target → **biannual** screening of HIV diagnosed and PrEP MSM, and of other MSM every **2 years**.
- The introduction of widespread PrEP may actually lower the incidence of HCV (provided PrEP is accompanied by minimal changes to sexual behaviours)
- Risk compensation increases HCV incidence and required HCV testing for HCV elimination
  - But elimination remains possible
- Routine care appointments are adequate for increasing HCV testing to eliminate HCV
  - This can be done alongside HIV testing to minimise extra resources needed
  - However, completion of HCV treatment needs to be within 6 months of diagnosis

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