



## Australia needs more testing to achieve hepatitis C elimination

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Dr Nick Scott, [nick.scott@burnet.edu.au](mailto:nick.scott@burnet.edu.au)

Equity Through Better Health  
[burnet.edu.au](http://burnet.edu.au)



### Aims and purpose

Unrestricted government-subsidized direct-acting antiviral (DAA) treatment for hepatitis C means Australia is well placed to achieve the WHO hepatitis C elimination targets.

We aimed to

1. Assess national and sub-national progress towards these targets.
2. Use modelling to project the impact of continued current trends in testing and treatment.

## Data

### Treatment data: Pharmaceutical Benefits Scheme (PBS)

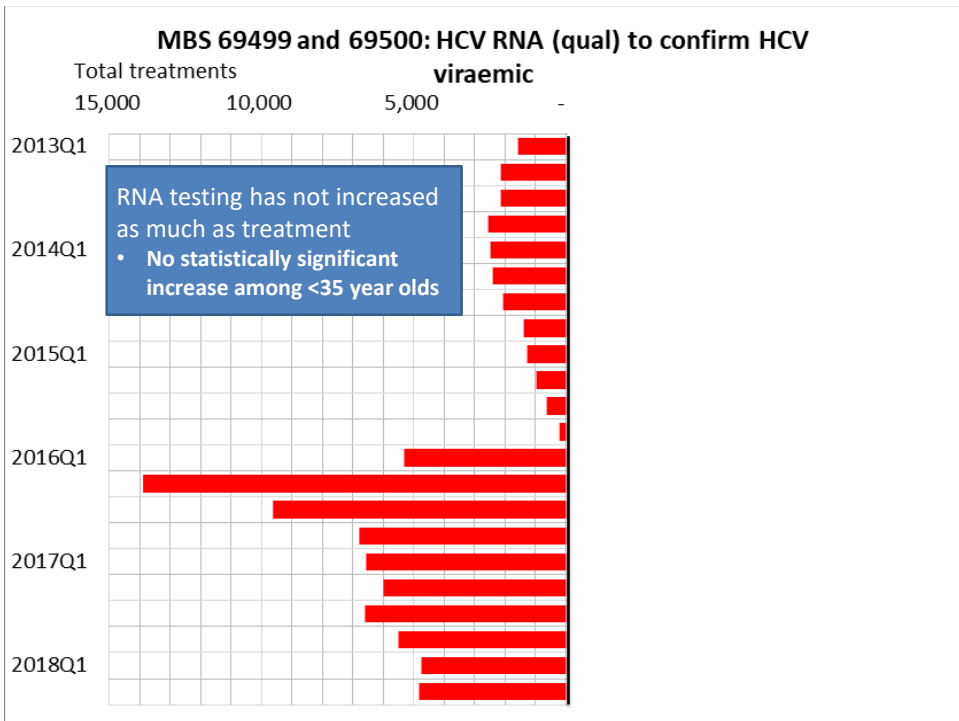
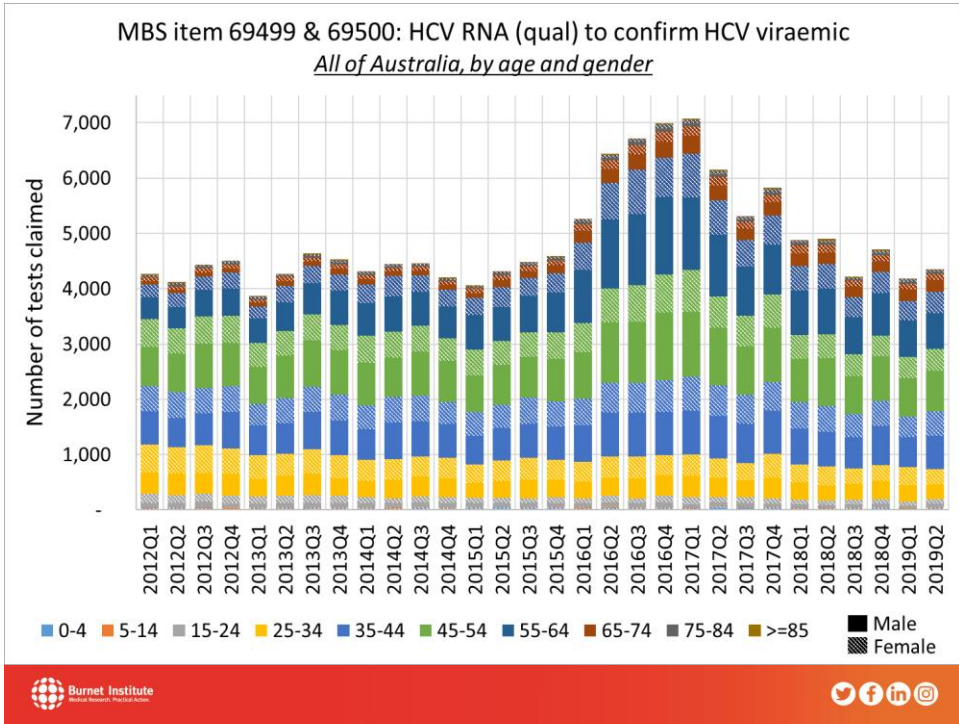
- Hepatitis C prescription data, January 2013 - June 2018

### Testing data: Medicare Benefits Schedule (MBS)

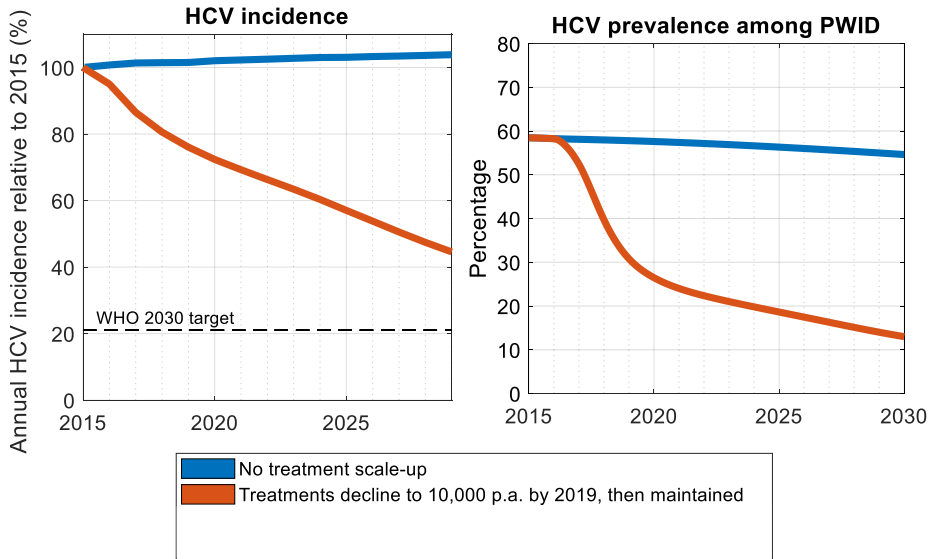
- Hepatitis C antibody tests cannot be identified
  - The MBS item number for hepatitis C antibody tests is shared with a number of other common blood tests
- RNA testing data were obtained by age and quarter from the internet, January 2013 - June 2019
- The MBS has three categories for hepatitis C RNA testing:
  - *qualitative to confirm active hepatitis C infection;*
  - *quantitative in preparation for treatment; or*
  - *qualitative to confirm treatment success.*

## Analysis methods

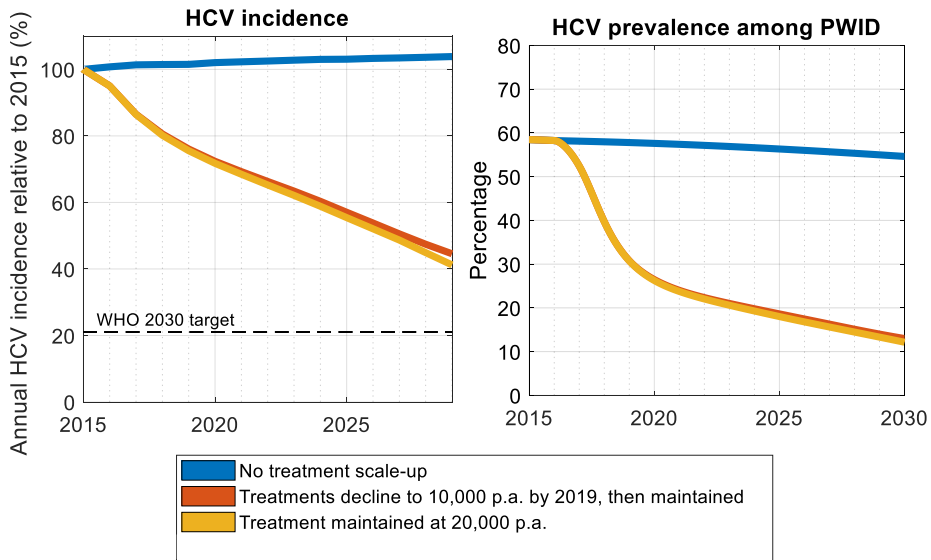
- An *autoregressive integrated moving average (ARIMA)* model was used to measure changes in testing and treatment associated with DAA availability.
- Common in econometrics for forecasting
- Can statistically identify:
  - Impact and longevity of shocks
  - Background time trends
  - Variability
- The potential epidemiological impact of continued testing and treatment trends was estimated using a mathematical model.



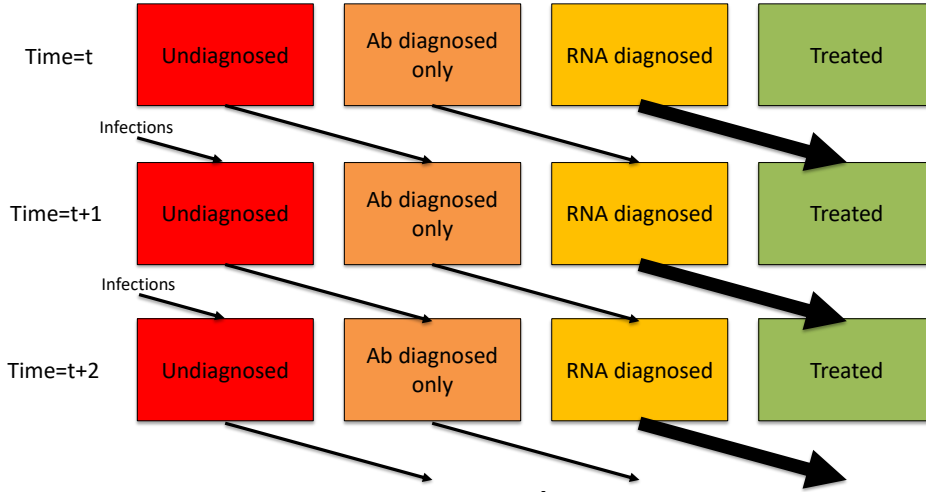
## What if these testing/treatment trends continued?



## What if treatments (in the model) were maintained?



## What is happening in the model?



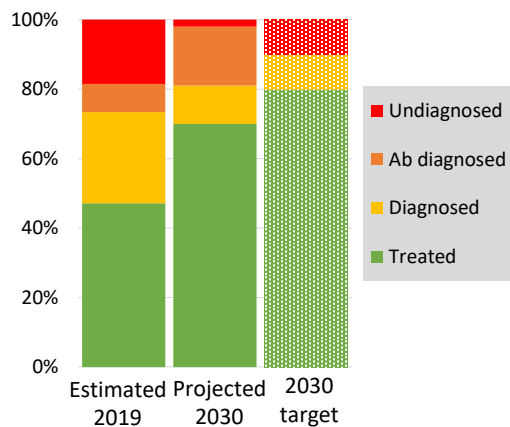
**If we keep treating more than we test / engage in care, by ~2025 we will run out of diagnosed/engaged people**

## What about the care cascade?

If current trends in testing and treatment continue, the model projected by 2030:

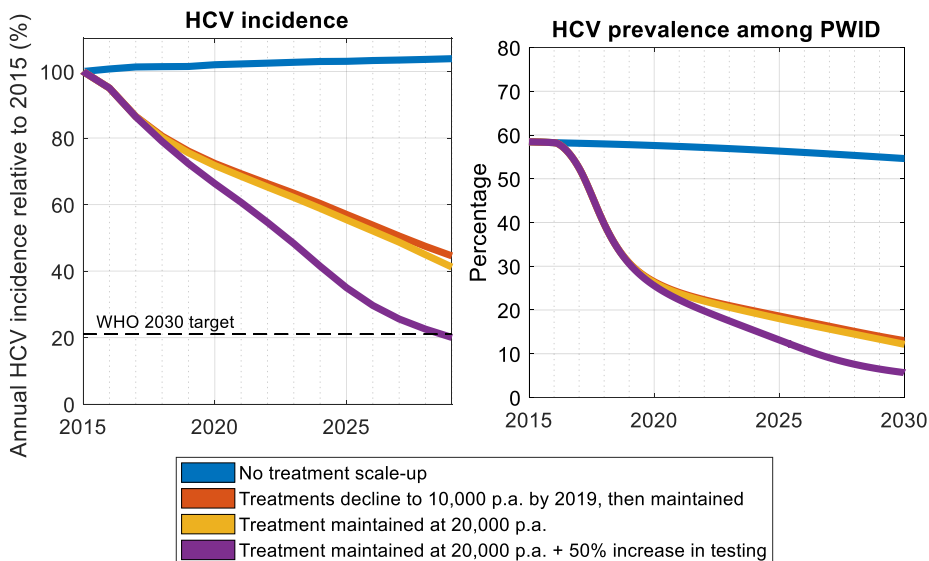
Indicator	Projected 2030	2030 WHO target
Diagnosis*	81%	90%
Treatment*	70%	80%
Incidence reduction	56%	80%
People with hepatitis C	63,000	N/A

National hepatitis C care cascade



\*Of people with hepatitis C in 2015

## What can we do about it?



## Limitations

- We were unable to assess antibody testing
  - Antibody testing may have increased but simply not been successful in finding individuals who had been exposed to hepatitis C.
- RNA testing numbers do not reflect the test results
  - The pool of antibody-positive and RNA-negative individuals is increasing.
  - This makes increased testing even more important than estimated.
- There are known inconsistencies in how MBS codes are used
- Prisoners are not eligible to MBS rebates
  - We estimate that approximately an additional 5,300 tests (+10%) may have occurred during this period, which would still leave testing numbers well below what is required.\*
- Differences by **geography** and population group

\*Based on approximately 29,000 sentenced prisoners in 2018, a median sentence length of 1.9 years, a hepatitis C antibody prevalence of 31% in prisons and an estimated 50% of prisoners being hepatitis C antibody tested

## Take home message

- Australia's hepatitis C elimination programs need to focus on testing to maintain treatment demand.
- A 50% increase in the identification and testing of exposed patients is required by 2025 for Australia to reach the WHO hepatitis C elimination targets.

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**Nick Scott**

Burnet institute

[nick.scott@burnet.edu.au](mailto:nick.scott@burnet.edu.au)

+61 3 8506 2410



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**burnet.edu.au**  
85 Commercial Road Melbourne, Victoria, 3004