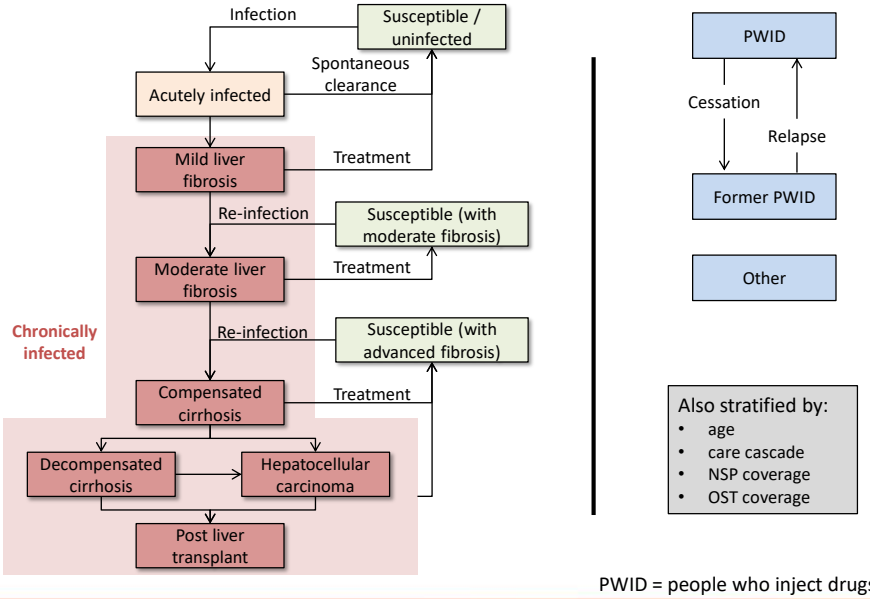
Hepatitis C modelling to inform policy

What can mathematical models tell us that is useful?

Nick Scott, August 2018

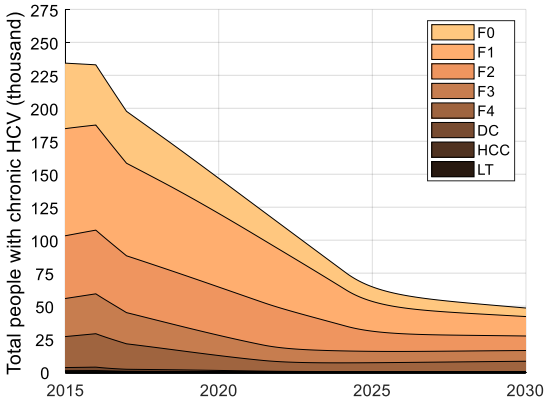
Model overview



PWID = people who inject drugs

What are the implications of declining treatment numbers?

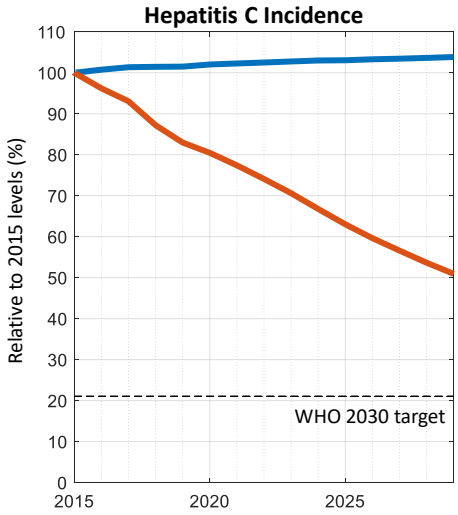
- HCV treatment uptake so far:
  - 2016: ~40k ✓
  - 2017: ~20k ✓
- If we project:
  - 2018: 10k ?
  - 2019: 10k ??
  - 2020-2030: 5k ???

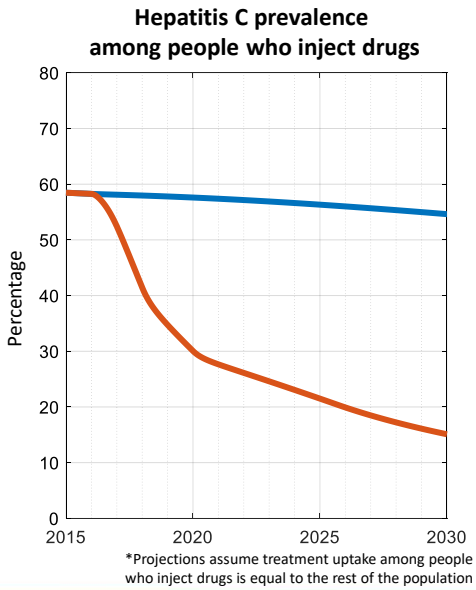


- Could reduce the estimated people with HCV in Australia from ~230,000 in 2015 to ~125,000 by 2030
- Maintaining treatment numbers at 20k per year could reduce this to ~50,000 by 2030
  - **BUT, by ~2025 we run out of diagnosed people to treat**

Burnet Institute

What could this mean for hepatitis C incidence and prevalence?



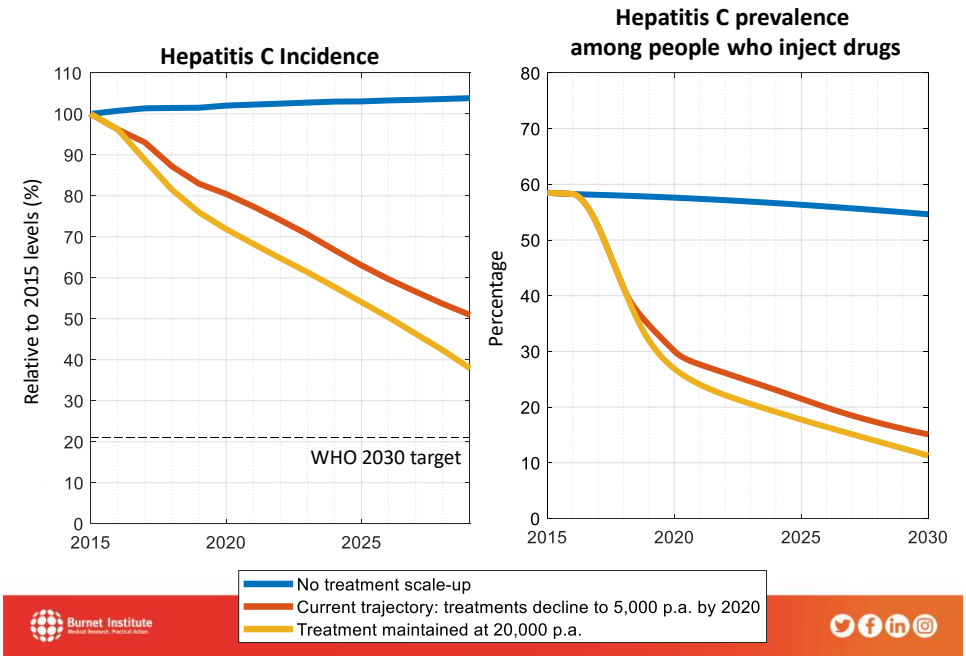


*Projections assume treatment uptake among people who inject drugs is equal to the rest of the population

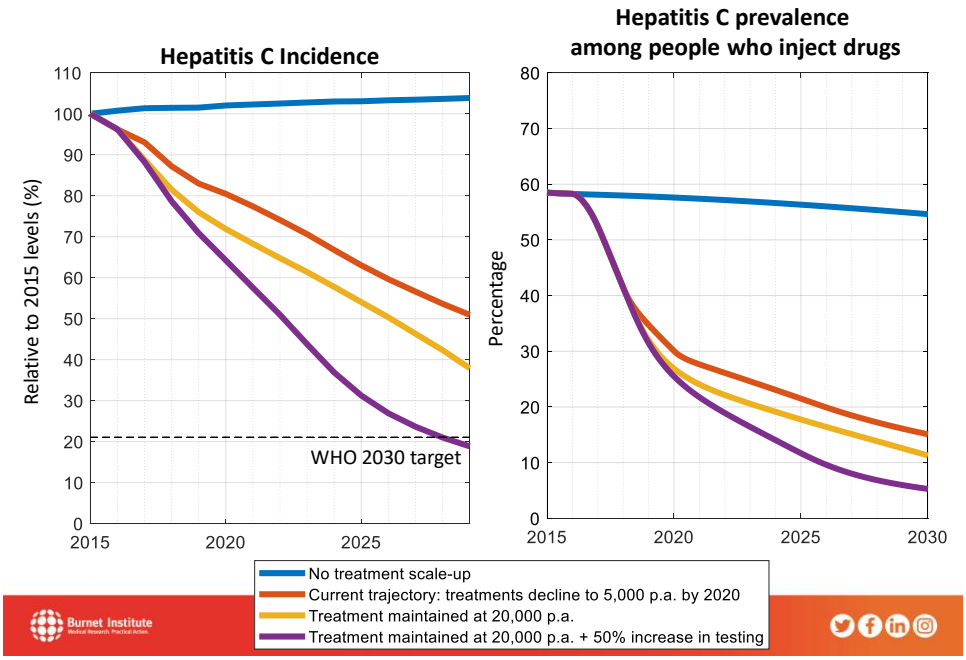
No treatment scale-up
Current trajectory: treatments decline to 5,000 p.a. by 2020

Burnet Institute

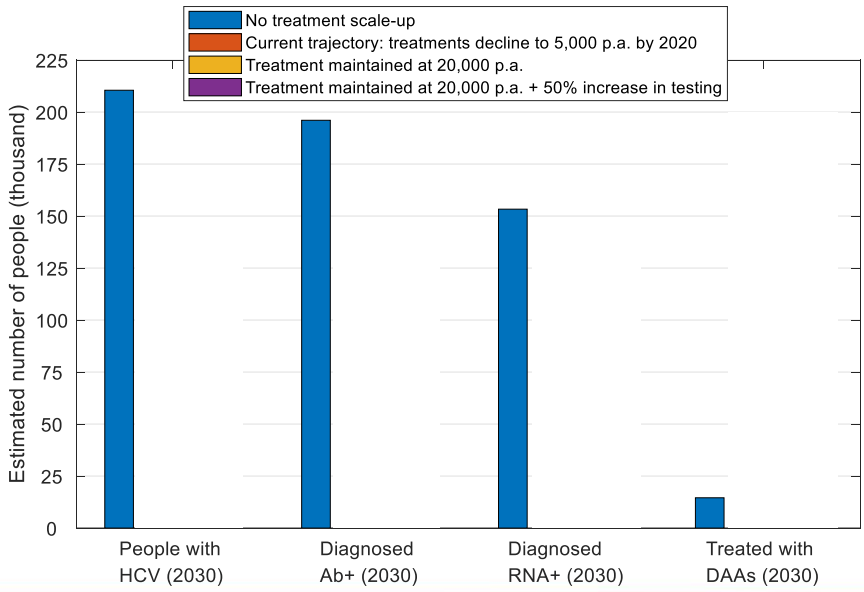
What could this mean for hepatitis C incidence and prevalence?



What could this mean for hepatitis C incidence and prevalence?



Model projections for the care cascade in 2030



Conclusions

Models can estimate:

- what will happen if we continue "business as usual" (useful for identifying gaps)
- What will happen if we intervene in different ways (useful to compare possible strategies)

For example, in Australia:

- We are on track to make a substantial impact on the HCV epidemic
- BUT we can do even better:
  - Treatments are declining
  - There is a need to increase testing
  - Models of care will need to be tailored to different regions and population groups

Burnet Institute