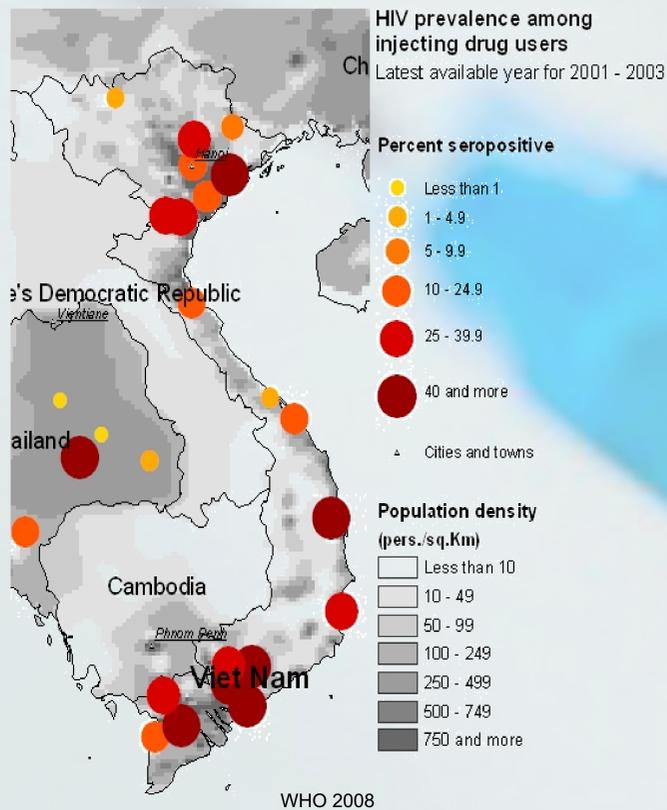


The Impact of HCV Therapy in a High HIV-HCV Prevalence Population: A Modeling Study on People Who Inject Drugs in Ho Chi Minh City, Vietnam

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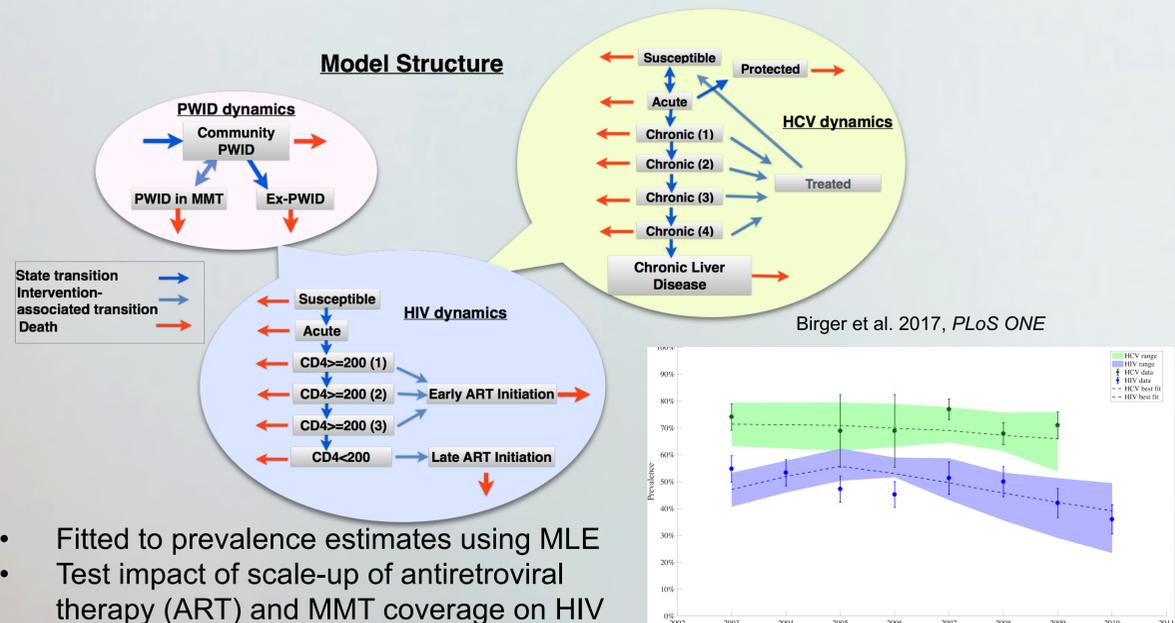
Background

- HIV-Hepatitis C coinfection is a widespread global health problem, especially among People who inject drugs (PWID)
- Worse prognosis due to potentiating effects between HIV and HCV
- High HIV and HCV burden among PWID in Vietnam, exacerbated by poor linkage into health systems
- HCV treatment currently unaffordable in Vietnam, but new direct-acting drugs may be affordable in 10-15 years
- We model relative impacts of antiretroviral (ART) and methadone maintenance therapy (MMT) scale-up, and HCV treatment rollout on disease burden in Ho Chi Minh City, Vietnam
- What can be done now to prepare for a potential roll-out?



Model

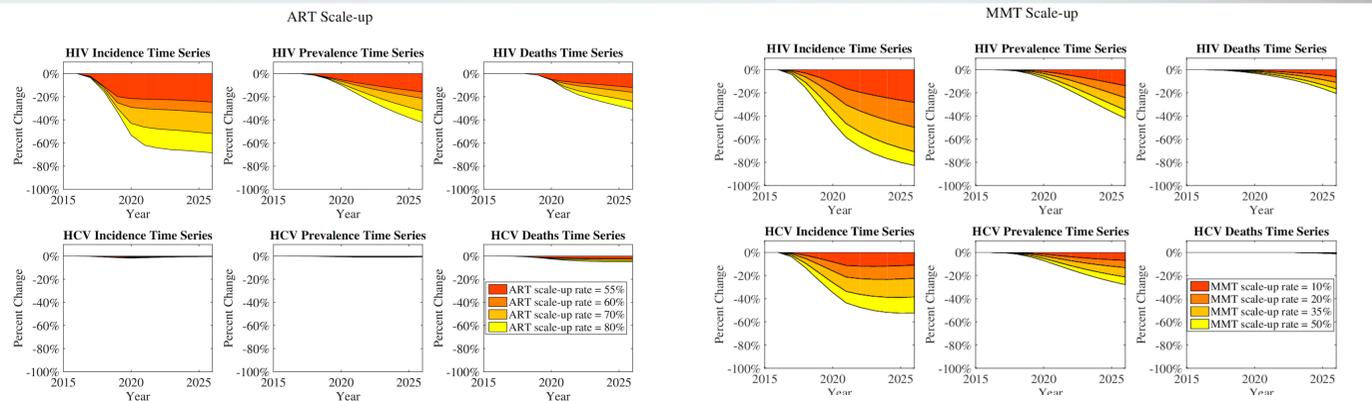
- 3-level compartmental deterministic model for PWID demographics, HIV, HCV



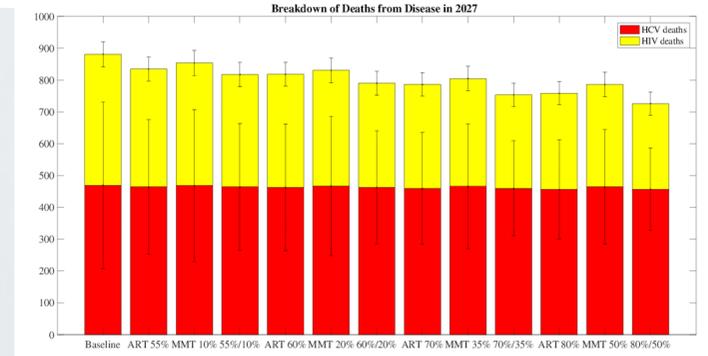
- Fitted to prevalence estimates using MLE
- Test impact of scale-up of antiretroviral therapy (ART) and MMT coverage on HIV and HCV incidence and deaths
- Test impact of HCV therapy after ART and MMT scale up

Model fits with data: MLE used to estimate force of infection parameters, initial HIV prevalence and impact of the existing needle and syringe program

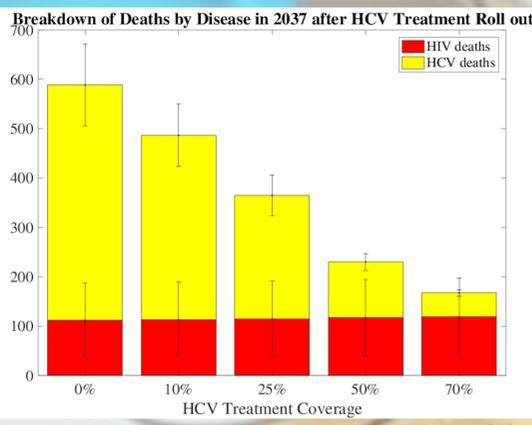
Results



- HIV incidence and deaths are impacted by both ART scale-up and MMT scale-up
- For HCV, MMT scale-up has a much more pronounced effect on incidence than ART scale up
- MMT has greater impact even than ART on reducing HIV incidence, though ART has a more direct effect on reducing HIV deaths
- MMT has impact on overall PWID deaths through reduction of overdose, but only impacts deaths from infection by preventing future infections
- Neither ART nor MMT scale-up has a measurable impact on deaths due to HCV over a 10-year period; the reduction in deaths from disease is only in HIV deaths



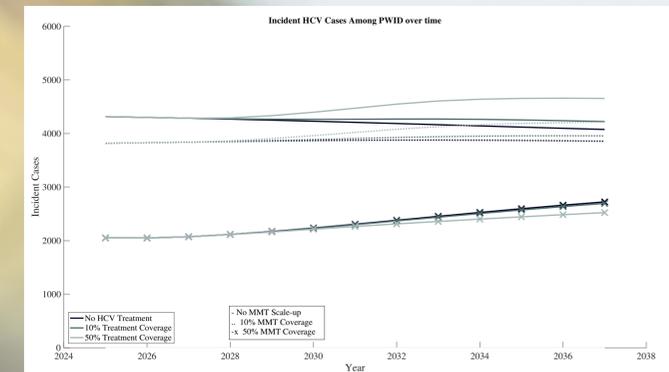
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- However, prior scale-up of MMT coverage lays the foundation for HCV treatment roll-out in a lower incidence and prevalence population
- Without prior MMT scale-up, HCV treatment roll-out can actually increase HCV incidence by topping up the susceptible population

- Projecting 10 years forward, it can be shown that implementing HCV treatment rollout in conjunction with ART and MMT scale-up can provide substantial reductions in deaths in this population
- Including HCV treatment coverage on top of MMT/ART scale-up can double or triple gains in reductions in deaths, even at low to intermediate scale-up levels.
- There is good marginal efficacy of HCV treatment scale-up even after significant scale-up of ART and MMT



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Conclusions

- Scale-up of ART coverage can have an impact on HIV burden, though very little impact on HCV burden among PWID in Ho Chi Minh City, VN
- Methadone Maintenance Therapy scale-up can have an impact on both HIV and HCV incidence levels even at below-optimal coverage
- HCV treatment roll-out has good marginal efficacy on top of MMT and ART scale-up
- Without MMT scale-up, rolling out HCV treatment can still reduce deaths among HCV-infected PWID, but incident cases may increase due to reinfection of newly susceptible, treated PWID
- A cost analysis (not shown) indicates that HCV treatment yields a reduction in cost per life-year saved if treated individuals have a probability of being protected from reinfection
- Methadone Maintenance scale-up is becoming a reality in Vietnam, but no plan currently exists for HCV treatment roll out
- Vietnam's transition to middle-income country status means funding for HIV care from many foreign sources funding will decrease, so finding maximally efficient interventions that target both HIV and HCV is crucial

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