Modelling potential impact of expanding access to anti-retroviral therapy on the concentrated HIV epidemic in Viet Nam

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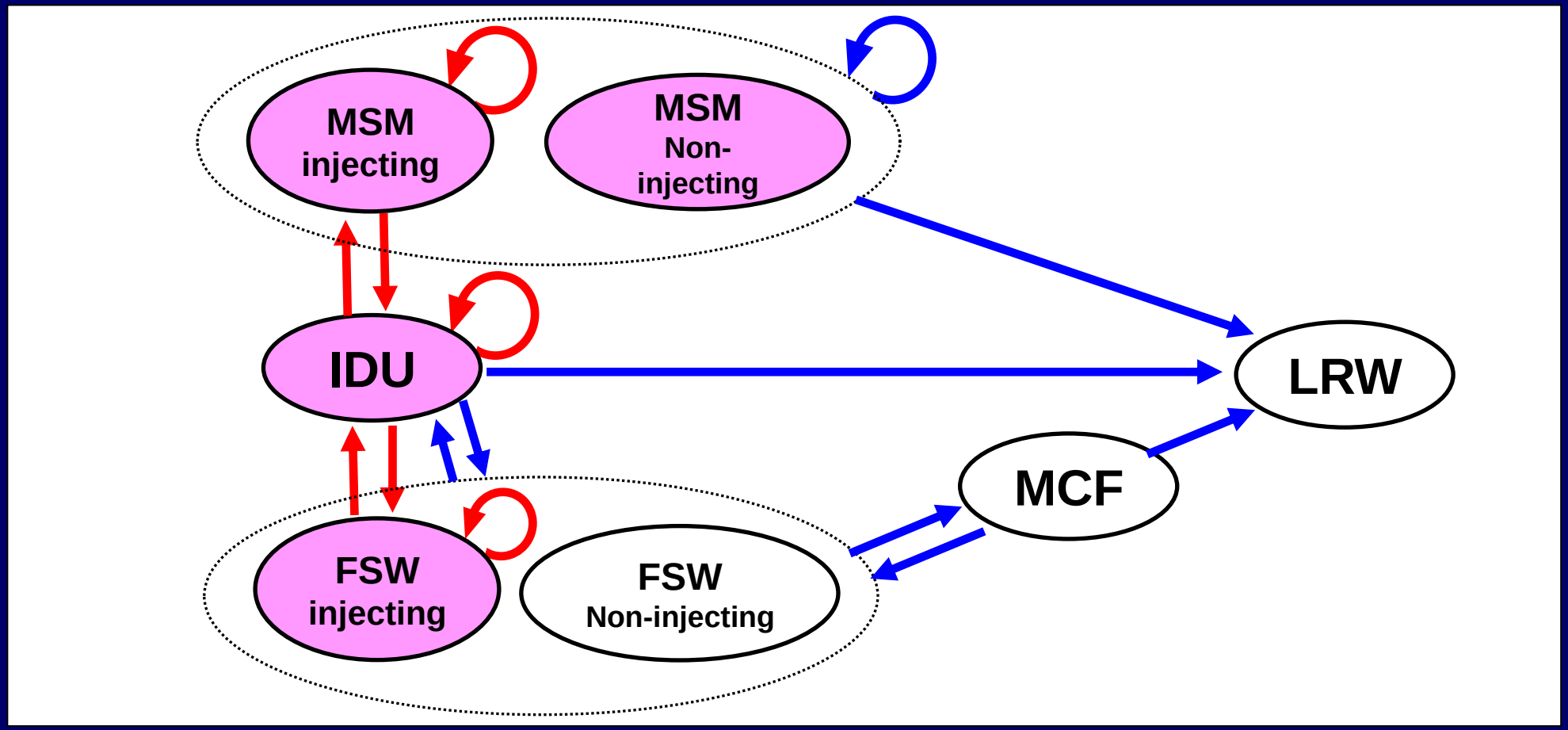
- Background
  - Antiretroviral therapy (ART) prevents HIV transmission
  - Concentrated epidemic with highest HIV prevalence in people who inject drugs (PWID)
  - 250,000 people with HIV; 61,000 people on ART;
  - Prevalence 0.45%; Injection drug users 13.4%
- Objective
  - To identify optimal strategies and targets for HIV control that include early ART in Viet Nam's epidemic
- Data sources
  - Available data from Can Tho province, Viet Nam
- Intervention scenarios
  - Regular HIV testing + immediate ART (irrespective of CD4)
  - Scale-up 2010-2015; maintenance by 2050
  - Other HIV prevention interventions

*** Sources: General Statistic Office (population), VAAC/MOH**

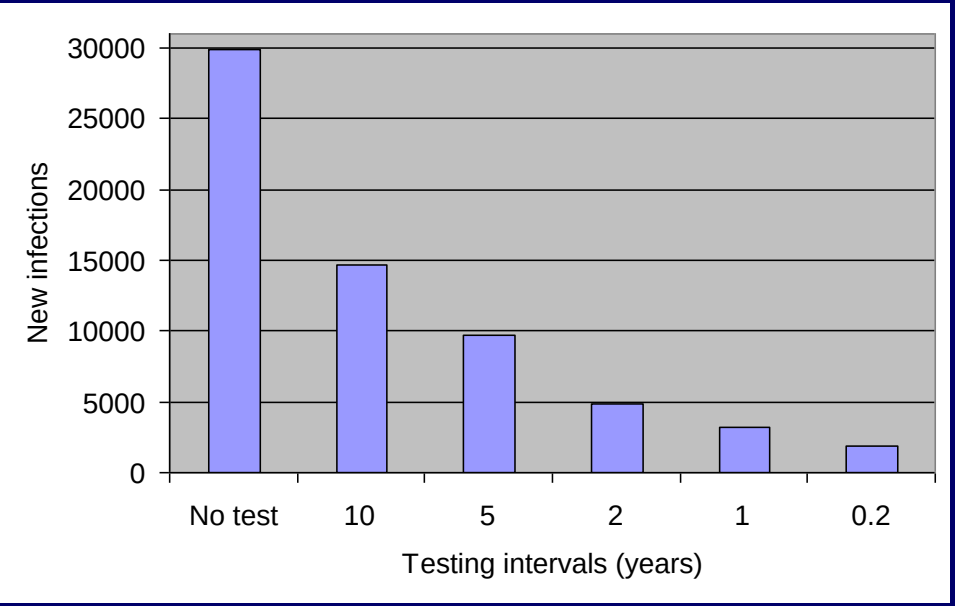
Model is based on 7 sub-populations



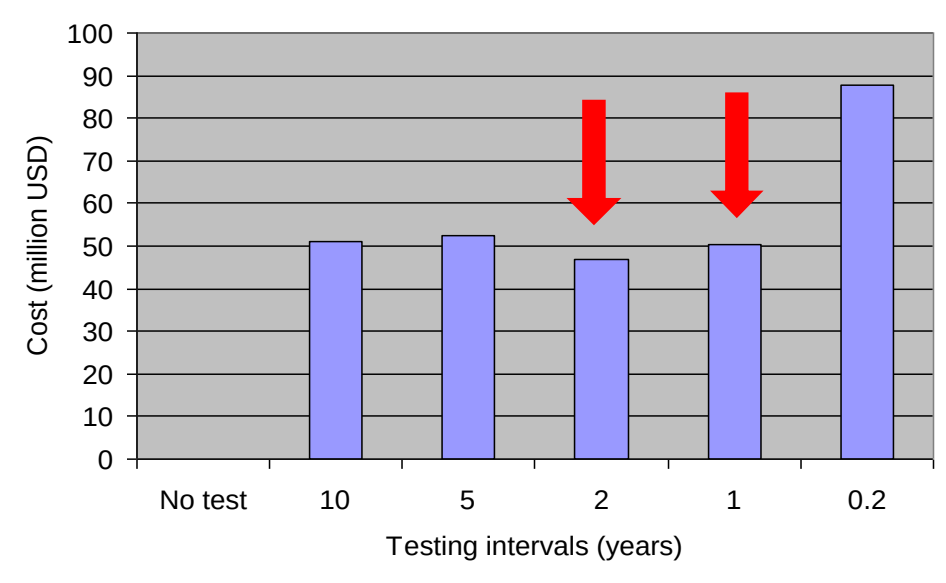
IDU: Injection drug users
MSM: Men having sex with men
FSW: Female sex workers
MCF: Male clients of FSW
LRW: Low risk women

Red arrow: Transmission via needle sharing
Blue arrow: Sexual transmission
Pink circle: Transmission within group

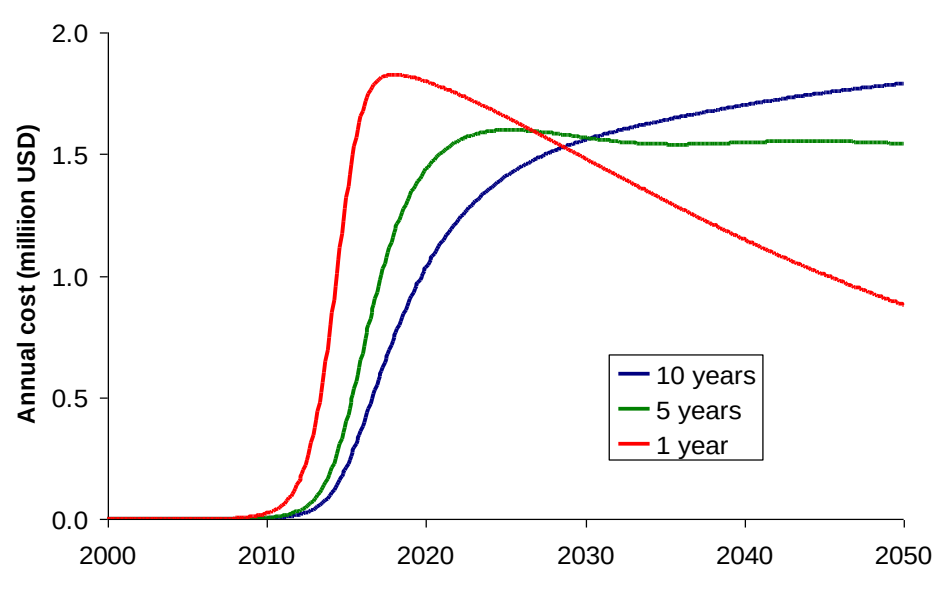
Cumulative new infections 2010-50



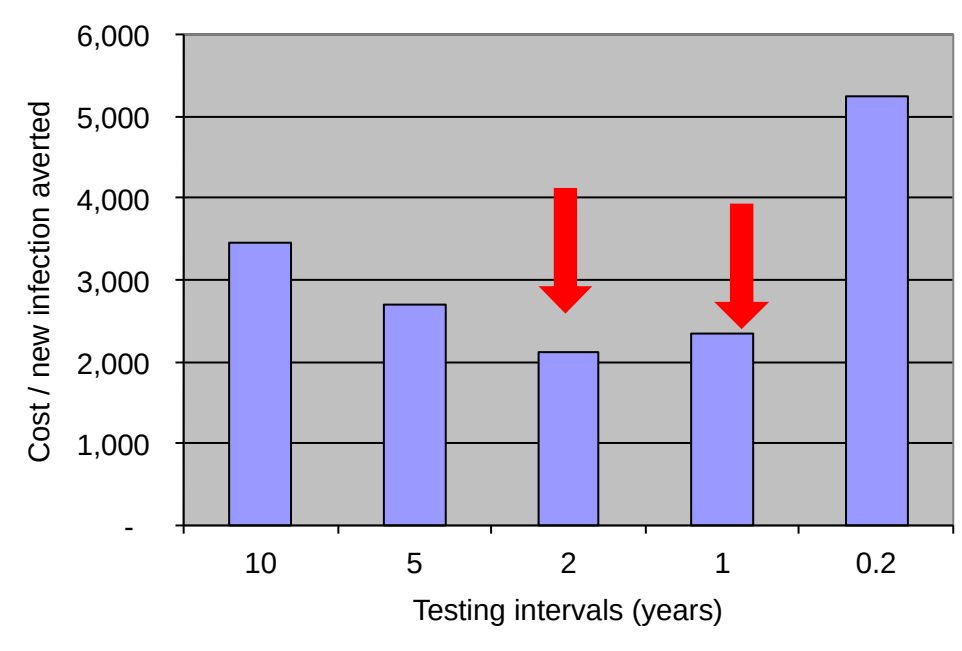
Cumulative cost 2010-2050



Annual cost 2010-2050



Cost / New infection averted 2010-2050

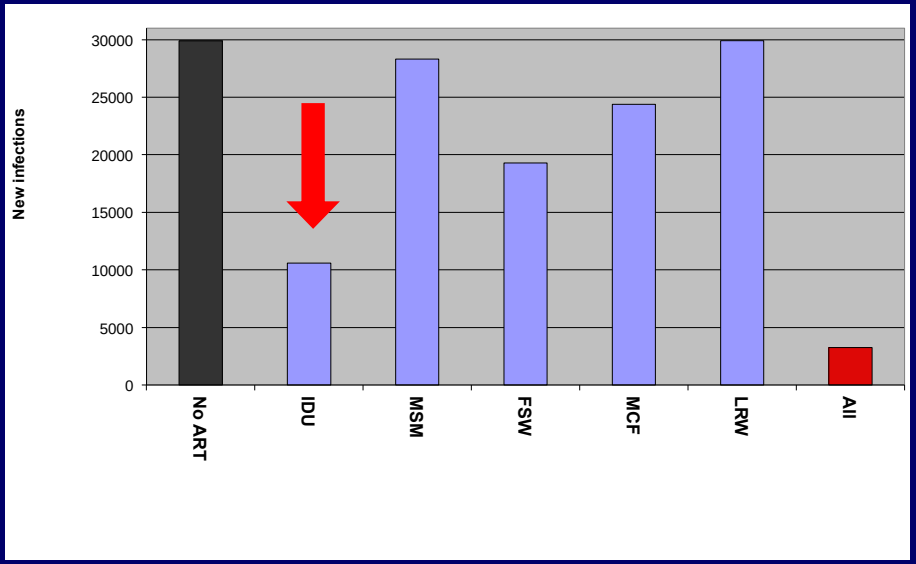


Routine testing + early ART significantly reduces new infection

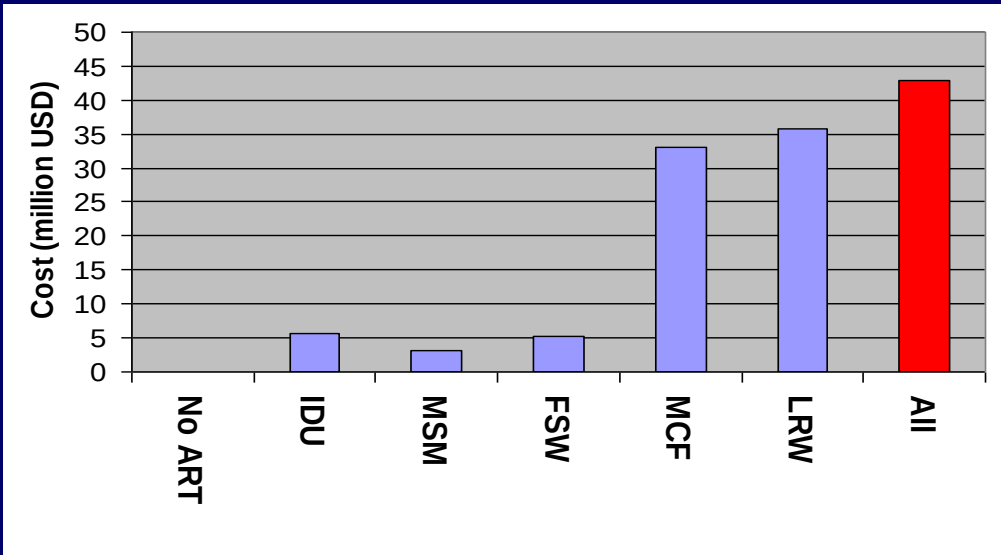
Testing once 1-2 years most cost-effective

Prioritizing specific groups

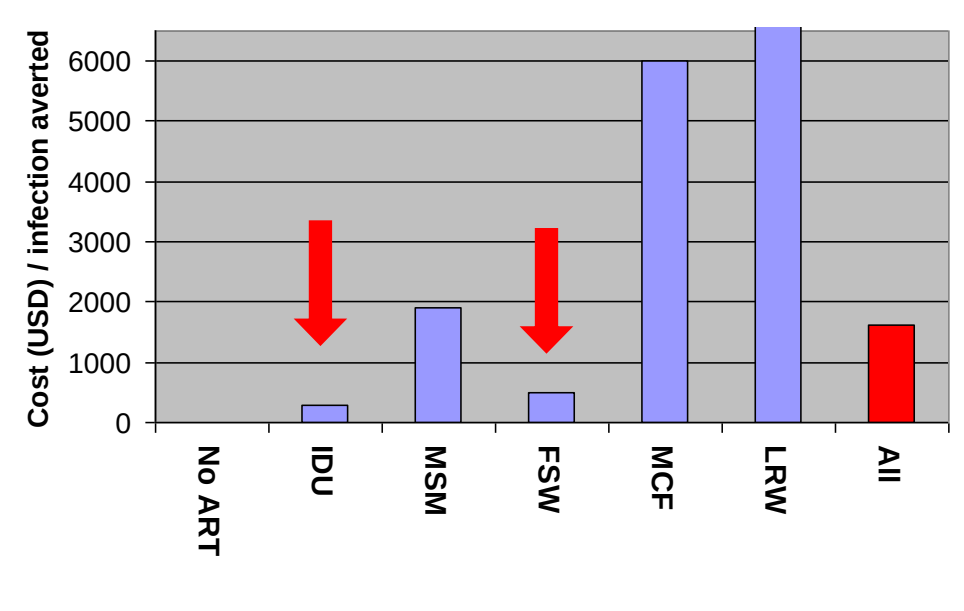
Cumulative new infections 2010-50



Cumulative cost 2010-50



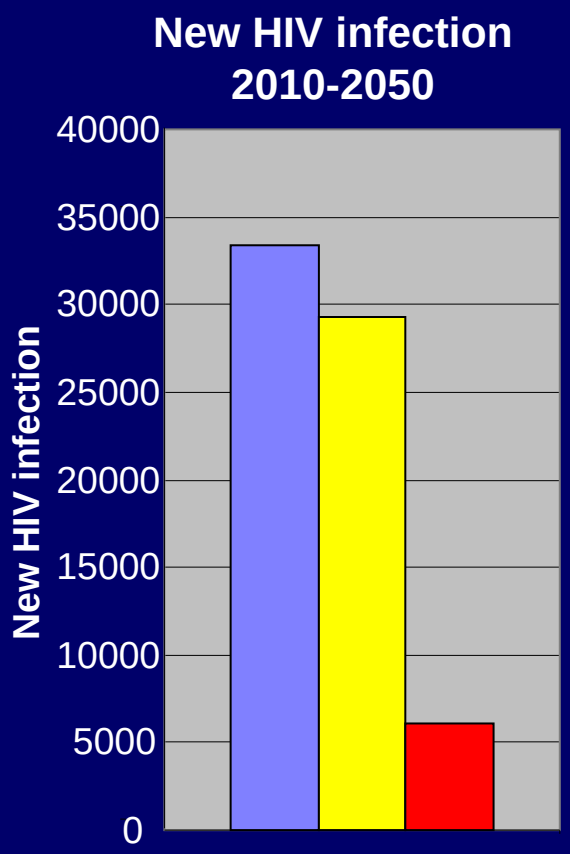
Cost per infection averted 2010-50

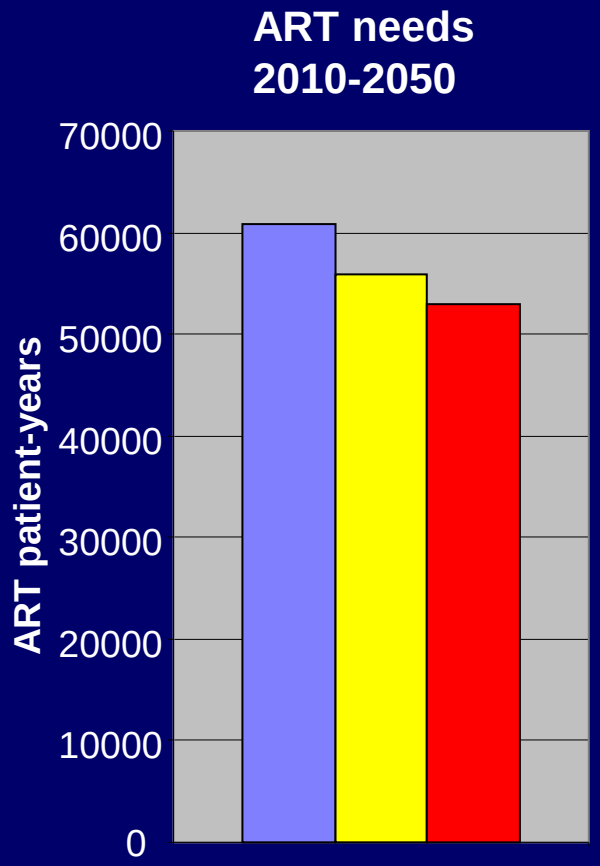


Prioritizing injection drug users, followed by female sex workers, is the most effective and cost-effective

Combination prevention scenarios

- Scenario 1: Baseline
  - Condom, methadone maintenance, ART imitated at CD4 350: Maintain current level
- Scenario 2: Current government targets
  - Condom, methadone maintenance scale-up (50 and 80%)
  - ART imitated at CD4 350: scale-up to 80% in 2020
- Scenario 3: Current government targets + TasP
  - Scenario 2 plus
  - Routine testing + immediate ART (regardless of CD4) for key populations (IDU, FSW, MSM)





Baseline
Current government targets
Current government targets + TasP

Routine testing and TasP impact of early ART prioritizing key populations combined with other prevention scale-up quite effective in reducing new infection while it does not require extra ART patient years

Limitations / Conclusion

- Limitations
  - Modelled data from a single province
  - Validity of assumptions
- Frequent HIV testing and earlier ART could have a substantial impact on Viet Nam's concentrated epidemic
- Combined approaches potentiate the impact
  - OST, NSP and condom also likely to have high a impact on new infections
- Prioritizing key-affected populations, especially people who inject drugs, likely enhance effectiveness/cost-effectiveness

Thank you

World Health Organization