

# The effects of OAT and HAART on the cause-specific risk of mortality among HIV positive people who inject drugs

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# Background

- Both Opioid Agonist Treatment (OAT) and highly-active antiretroviral treatment (HAART) are known to be protective against all-cause mortality
- The longitudinal pattern and immediacy with which these treatment regimens impact the respective disease courses of HIV and opioid use disorder differ substantially
  - OAT: short-term reduction in risk of overdose death
  - HAART: longer-term reduction in risk through viral suppression
- While OAT substantially improve access and adherence to HAART, the physiological effect of opioids on HIV disease progression is not well understood.



# Objective

- **Objective:** To determine the independent and joint effects of OAT and HAART on mortality, by cause, within a population of HIV-positive PWID following HAART initiation



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# Methods

- **Data Sources:** linked population-level administrative database including:
  - HIV test results; drug dispensations; vital statistics; inpatient, outpatient care; HIV diagnostics
- Two critical features affecting our inference on the OAT, HAART -> cause-specific mortality relationships:
  - (i) the potentially competing risks of drug-related, HIV-related and 'other' deaths; and
  - (ii) time-varying treatments, time-varying confounding.
- Proceeded with multiple forms of analysis:
  - Competing risks Cox models with time-varying covariates
  - Marginal structural modeling



# Results

- Among HIV-positive PWID:
  - HAART alone: Decreases risk of death by **54%**
  - OAT alone: Decreases risk of death by **66%**
  - OAT and HAART: Decreases risk of death by **84%**
- HAART had a stronger independent association with drug-related death
- OAT better protected against causes of death other than HIV and drugs.



# Implications

- Novel finding OAT-> HIV-related death:
  - Reviews by Kapadia et al[2005] and Celentano and Lucas[2007]: unstable patterns of opioid use and withdrawal may speed HIV progression
  - stable opioid administration (ie. OAT) may slow HIV disease progression
  - OAT is a critical facilitator of HIV care, and may protect against HIV-related mortality
- Non-significant association of OAT-> drug-related death:
  - Artefact of sample selection (HIV+ PWID accessing HAART)
  - OAT dose dynamics – unable to adjust in episodic, monthly counting processes
  - High mortality risk during titration
  - Misclassification on cause of death



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