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.
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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