Impact of Treat All Guidelines on TB Incidence Among PLWH in Rio de Janeiro, Brazil

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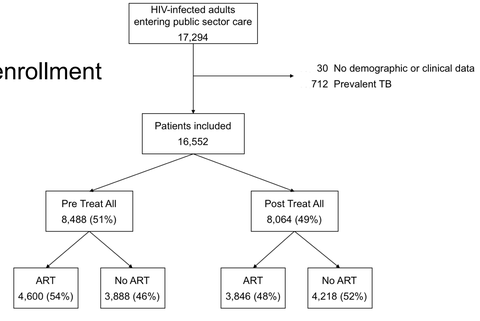
BACKGROUND

- Antiretroviral therapy (ART) reduces the risk of tuberculosis (TB) by up to 50% for people living with HIV
- Effective for patients with low and high CD4 counts
- Successful implementation of "treat all" guidelines could have a substantial impact on the global TB epidemic
- Brazilian national guidelines recommended ART for patients with CD4≤500 cells/μL from 2010-2013 and treatment for all starting in 2014
- **Study aim:** To evaluate the impact of "treat all" guidelines on TB incidence and mortality in Rio de Janeiro, Brazil

METHODS

- **Study design:** Retrospective cohort study
- **Inclusion criteria:** Age ≥18 years; entering public sector HIV care in Rio from 2010-2016 (follow-up through 2017)
- **Exclusion criteria:** prevalent TB (diagnosed within 90 days of entry into HIV care)
- **Data sources and linkage:**
  - Notifiable Diseases Information System (SINAN)
  - Pharmacy Information System (SICLOM)
  - Laboratory Examination Information System (SISCEL)
  - Mortality Information System (SIM)
  - Probabilistic linkage based on patient's name, mother's name, date of birth (OpenRecLink)
- **Follow-up:** Entry into HIV care until TB diagnosis, death, or administrative censoring at 2 years
- **Outcomes:** 1) incident TB and 2) incident TB or death
- **Statistical analyses:**
  - Incidence rates per 100 pys; 2-year cumulative hazard
  - Compared 1) pre (2010-2013) vs. post (2014-2017) treat all implementation; 2) year of entry into HIV care
  - Stratified by baseline CD4 count and ART status

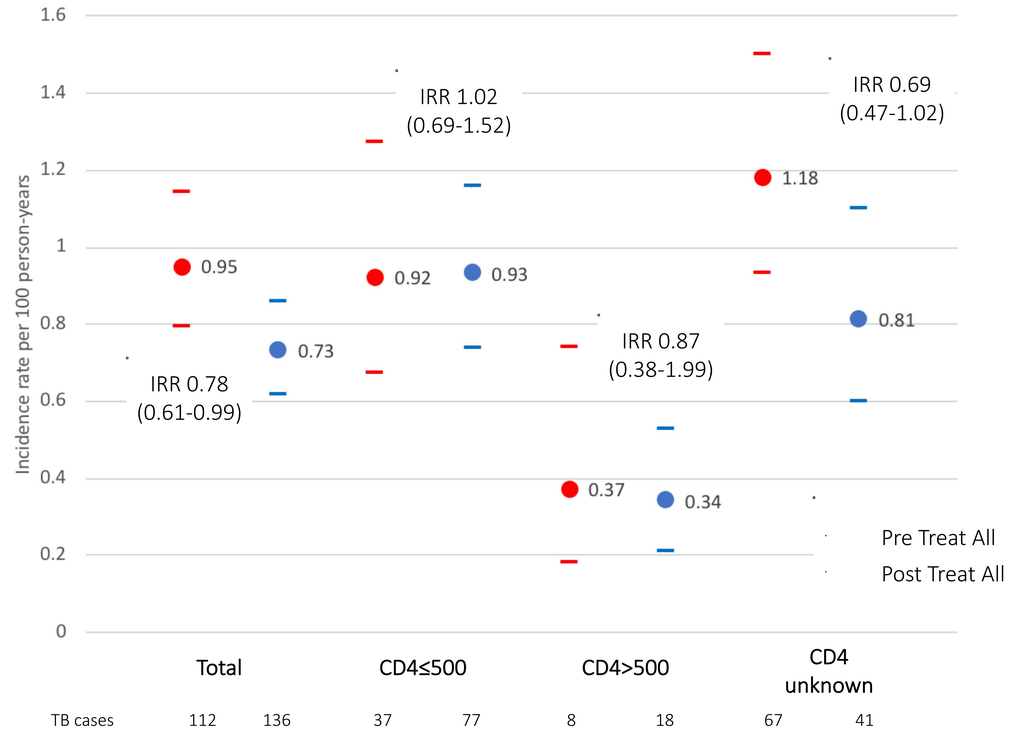
Figure 1. Study enrollment



RESULTS

- Of 16,552 patients newly entering HIV care, baseline CD4 count ≤500 for 42%, >500 for 24%, and unknown for 34%
- 34% female, median age 34 years (IQR 27-43)

Figure 2. TB incidence by treatment period: Risk of TB fell, but unclear if decline was related to treat all guidelines.



Abbreviation: IRR, incidence rate ratio

Figure 3. 2-year cumulative hazard of a) TB and b) TB or death by year of entry into care

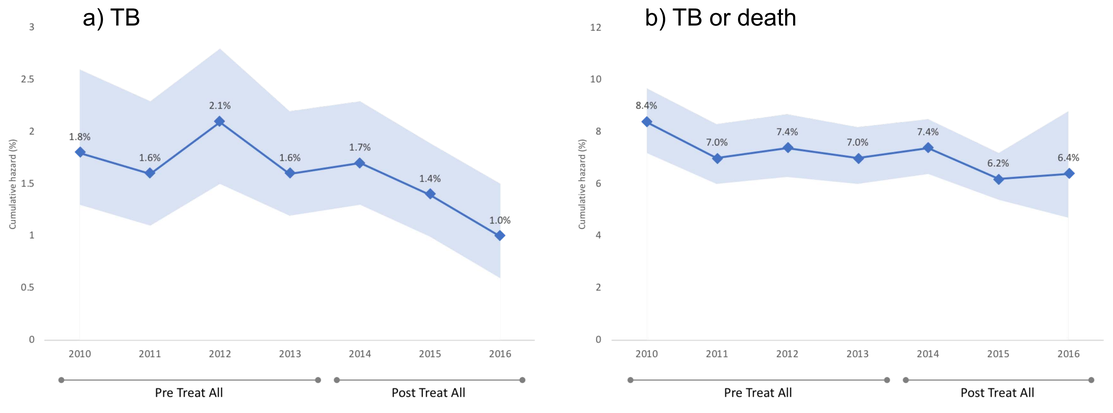


Figure 4a. 2-year cumulative hazard of TB by ART

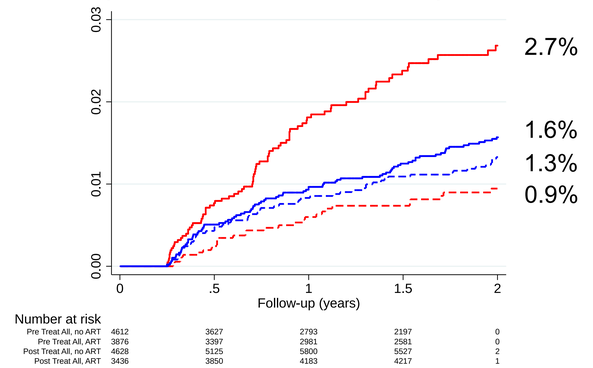
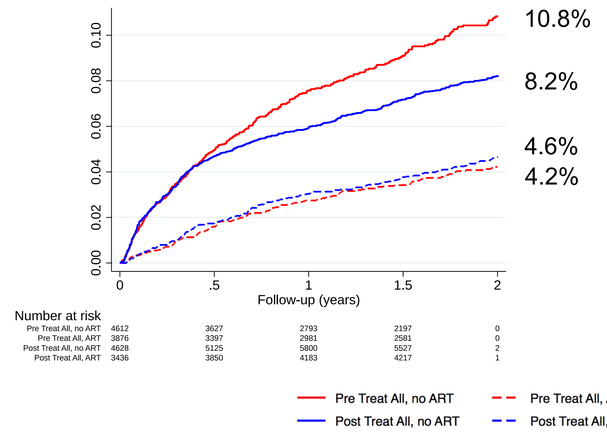


Figure 4b. 2-year cumulative hazard of TB or death by ART



CONCLUSIONS

- **Risk of TB and death fell in Rio, but unclear if decline was related to treat all guidelines**
- **ART substantially reduced the risk of TB and death, however overall risk was high even for those on ART**
- **ART scale-up is insufficient to control TB**
- **Additional interventions, including TB preventive therapy, should be scaled-up to reduce TB morbidity and mortality**

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