**Analytic Program Directory**

**Publication:** Rein SM et al. Integrase strand-transfer inhibitor use and cardiovascular events in adults with HIV: an emulation of target trials in the HIV-CAUSAL Collaboration and the Antiretroviral Therapy Cohort Collaboration. Lancet HIV. Volume 10, Issue 11, E723-E732.

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| **Table/Figure #** | **Program Name** |
| **Figure 1**: Selection of individuals for the emulation of a target trial, 2013–23 | N/A |
| **Table 1**: Baseline characteristics and standardized mean differences | prog1.R |
| **Table 2**: Estimated risk of cardiovascular events over 4-year follow-up in ART-naive and ART-experienced individuals - in ART-naïve individuals: unadjusted model - in ART-naïve individuals: adjusted for age, sex and cohort - in ART-naïve individuals: adjusted for all baseline covariates - in ART-experienced individuals: unadjusted model - in ART-experienced individuals: adjusted for age, sex and cohort - in ART-experienced individuals: adjusted for all baseline covariates | prog2.sas  prog3.sas  prog4.sas  prog5.sas  prog6.sas  prog7.sas |
| **Figure 2:** Estimated cumulative incidence of cardiovascular events | prog8.R |
| **Results in Text: “**In the per-protocol analysis, [in ART-naïve individuals] [..] 4-year risks were 0·60% (0·40 to 0·81) in INSTI initiators and 0·88% (0·48 to 1·35) in non-initiators of INSTI; risk ratio 0·69 (0·36 to 1·30) and risk difference  –0·28% (–0·81 to 0·15).” | prog9.sas |
| **Results in Text: “**In the per-protocol analysis, [in ART-experienced individuals] [..] 4-year risks were 1·21% (0·80 to 1·77) in INSTI initiators and 1·34% (1·12 to 1·60) in non-initiators of INSTI; risk ratio 0·90 (0·58 to 1·33) and risk difference –0·13% (–0·60 to 0·42).” | prog10.sas |
| **Appendix II.** Participating cohorts and number of persons contributing to sequential trials from each cohort in the analyses | included in: prog1.R |
| **Appendix VI.** Five most frequently used INSTI-based and non-INSTI-based ART regimens at trial baseline (in descending order) | prog11.sas |
| **Appendix VII.** Results of sensitivity analyses in ART-naïve and ART-experienced individuals  In ART-naïve individuals: - Relaxed definition of eligibility  - Restricting initiators to top three most used INSTI regimens  - Restricting ART-naïve Initiators to dolutegravir- or bictegravir-based regimens  - Only including cohorts with information on all types of CVD events - Excluding SHCS from analysis  - Excluding Athena, Icona and SHCS from analysis - Additionally adjusting for current use of TAF - Additionally adjusting for CD4 count nadir  - Restrict follow-up to years from 2016 onwards  - Restrict the analysis to men    In ART-experienced individuals: - Relaxed definition of eligibility  - Restricting initiators to top three most used INSTI regimens - Only including cohorts with information on all types of CVD events - Excluding Athena, Icona and SHCS from analysis - Additionally adjusting for cumulative months on PIs and NRTI that have been associated with CVD in previous studies  - Additionally adjusting for current use of TAF - Additionally adjusting for CD4 count nadir  - Restrict follow-up to years from 2016 onwards  - Restrict the analysis to men | prog12.sas  prog13.sas  prog14.sas  prog15.sas  prog16.sas  prog17.sas  prog18.sas  prog19.sas  prog20.sas  prog21.sas  prog22.sas  prog23.sas  prog24.sas  prog25.sas  prog26.sas  prog27.sas  prog28.sas  prog29.sas  prog30.sas |
| **Appendix VIII.** Cardiovascular event hazard ratios for covariates from multivariable pooled logistic regression models in both ART-naïve and ART-experienced populations | included in output from: prog4.sas and prog7.sas |

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| Person(s) who wrote the programs | *Sophia Rein* | Date*8 Dec 2023* |
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| Person who reviewed the programs | *Daniela van Santen* | Date*15 Dec 2023* |