EuroSIDA

Adapting HIV cohorts to future challenges in HIV research

Prof Jens Lundgren

CHIP, dept of infectious diseases

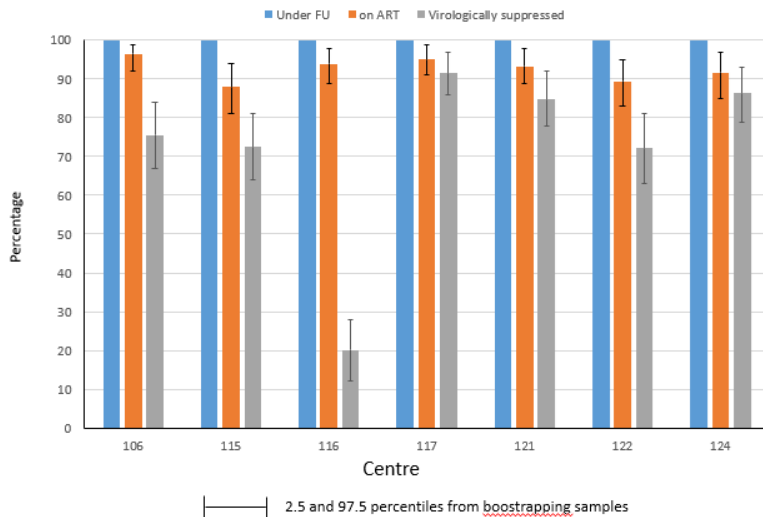**Rigshospitalet, University of Copenhagen**

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European AIDS Clinical Society Conference, Basel, 2019

Future challenges in HIV research

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- Quality-of-care for
  - HIV
  - Co-morbidities
  - Co-infections

- Emerging health challenges

- Public health

- Biological pathways to disease – precision medicine
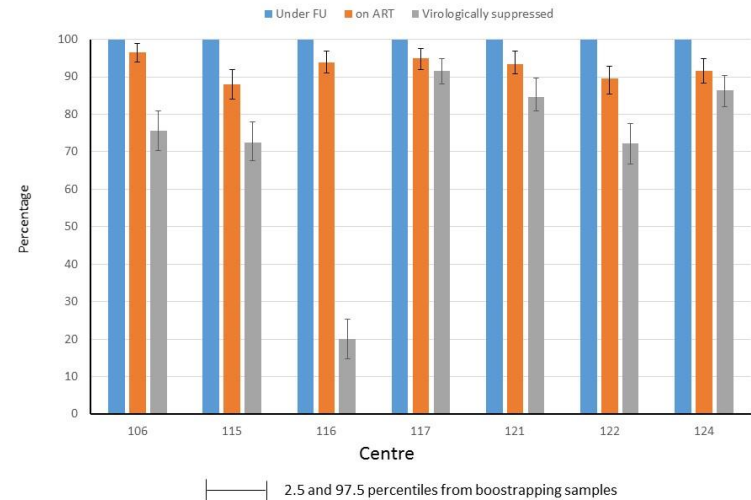
- Problem X

Quality-of-care

- Indicators of good care
  - Capture key features
    - e.g. ART initiation and HIV-RNA suppression rates
  - Objective and ascertainable
    - Allows for broad implementation
- Benchmark clinics
  - Optimal and suboptimal care
  - Focused training

- By definition, the more clinics in joined cohort, the better the utility of output
- ECDC, EACS, & BHIVA
  - developing an European Standards of HIV Care document

Data on 100 random patients required to establish @ the clinic level a *reliable* "right side" of the continuum of care*

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B: sample size 100; 1,000 repetitions

- Under FU
- on ART
- Virologically suppressed

2.5 and 97.5 percentiles from boostrapping samples

C: sample size 250; 1,000 repetitions

- Under FU
- on ART
- Virologically suppressed

2.5 and 97.5 percentiles from boostrapping samples

*Among those under follow-up
% on ART & % suppressed

RESPOND: Raben et al: EACS PS9/2
Friday, San Francisco Room, 10.45

Online tool tbd

# Emerging health challenges

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- Are we focused on the "right" health issues ?

- HIV+ population is aging
  - How do aging process interact with HIV-associated immune dysfunction ?

- New ARV's
  - New drugs – new problems !

- Long-term impact from ARV's
 - Unknown – requires rigious endpoint ascertainment

B Frailty index ≥0-25

Figure 1 Frailty prevalence for men and women by age
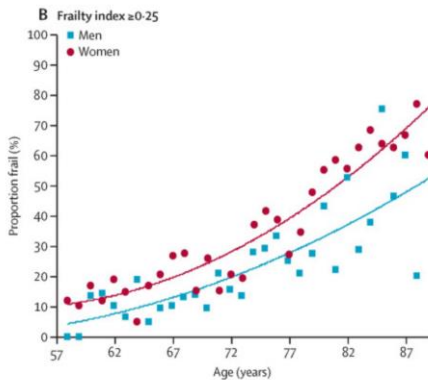
Failty by age
Hoogendijk et al, Lancet 2019

Public health

- Transmission patterns
- Transmission clusters
- Failure of preventive interventions
- Assumptions for transmission modelling

Cost eff: DTG vs EFV (+TDF/3TC)
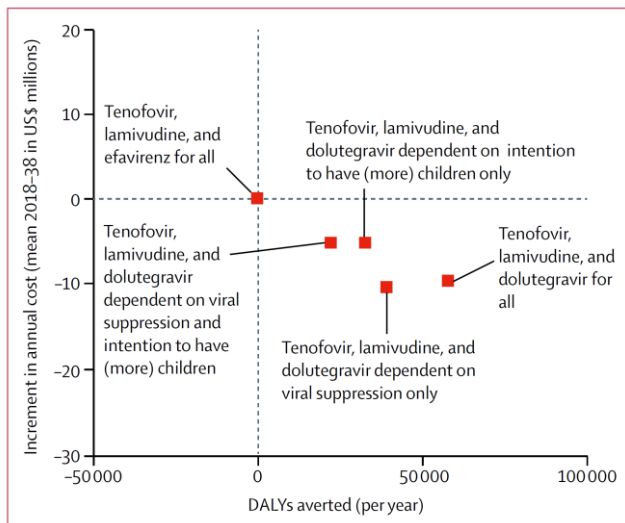
Domestic vs international transmission of HCV:

Phillips et al, Lancet HIV 2019

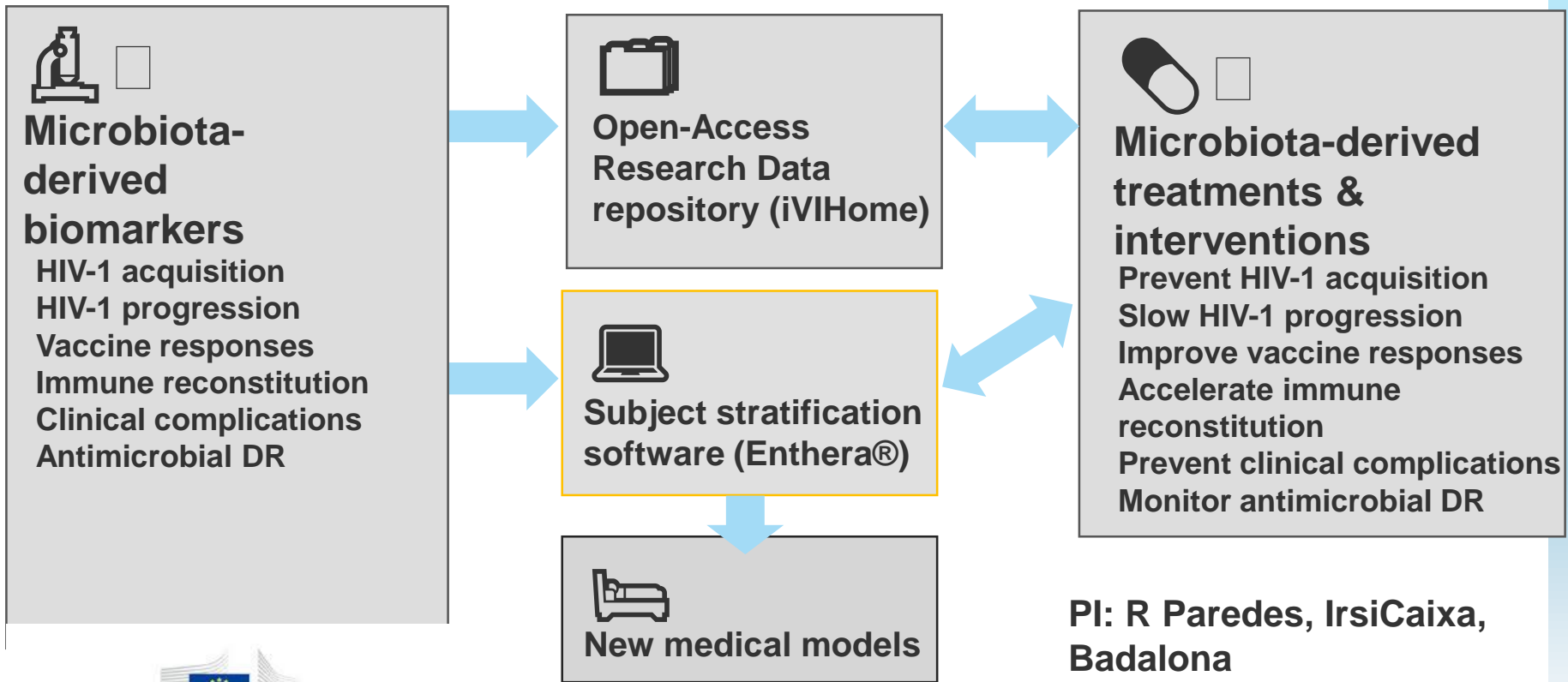Salazar-Vizcaya *et al*, JID 2019
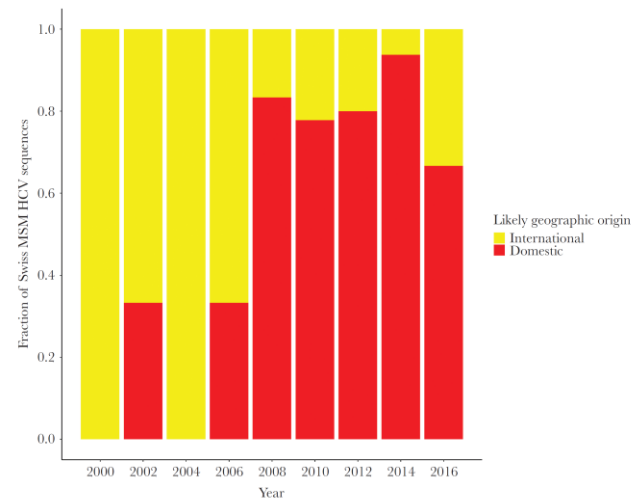
PrEPaRE study: PrEP use in people newly diagnosed with HIV

- **Aim:** To assess prevalence of HIV drug resistance before ART initiation in people newly diagnosed with HIV and exposed to PrEP

- **Type of study:** observational cross-sectional study (data collected prospectively)

- **Eligibility criteria for participants:** people newly diagnosed with HIV (first visit within 3 months from the date of diagnosis) who report previous PrEP use

- **Process:** Participants will be invited to self-complete a questionnaire at the first visit if possible, and at the same time, the health care provider will fill in a CRF

- **Stage of the study:**
- CHIP sponsor; project approved by RESPOND steering committee
- 70+ clinics globally to participate; ethical processes ongoing

Valerie Cambiano, Tina Bruun et al

Biological pathways to disease – precision medicine

- New technologies (..omics) allows us to understand the underlying biological processes leading to poorer health outcomes
  - Come to Telenti plenary talks tomorrow morning
- Aim: to refine ability to identify persons at risk of adverse outcomes
- Requires:
  - unselected HIV cohorts,
  - comprehensive banking of relevant biological material
  - ethical permission to analyse material
  - Carefully ascertained outcomes

MISTRAL: new cohort

Microbiome-based stratification of individuals at risk of HIV-1 acquisition, chronic clinical complications, antimicrobial drug resistance, and unresponsiveness to therapeutic HIV-1 vaccination

Microbiota-derived biomarkers
HIV-1 acquisition
HIV-1 progression
Vaccine responses
Immune reconstitution
Clinical complications
Antimicrobial DR

Open-Access Research Data repository (iVIHome)

Subject stratification software (Enthera®)

New medical models

Microbiota-derived treatments & interventions
Prevent HIV-1 acquisition
Slow HIV-1 progression
Improve vaccine responses
Accelerate immune reconstitution
Prevent clinical complications
Monitor antimicrobial DR

PI: R Paredes, IrsiCaixa, Badalona
MISTRAL-HIV.eu

Problem X

- We have been surprised many times
- High likelihood this will continue
- By definition, nature of problem is presently unknown
- Ongoing cohort infrastructure allows
  - Identify emerging problem (e.g. classify causes of death)
  - Quantify problem and risk factors hereof
  - Assess impact from interventions aimed at reducing problem

RESPOND

Neesgaard, Peters, Ryom, Günthard, Mocroft, et al
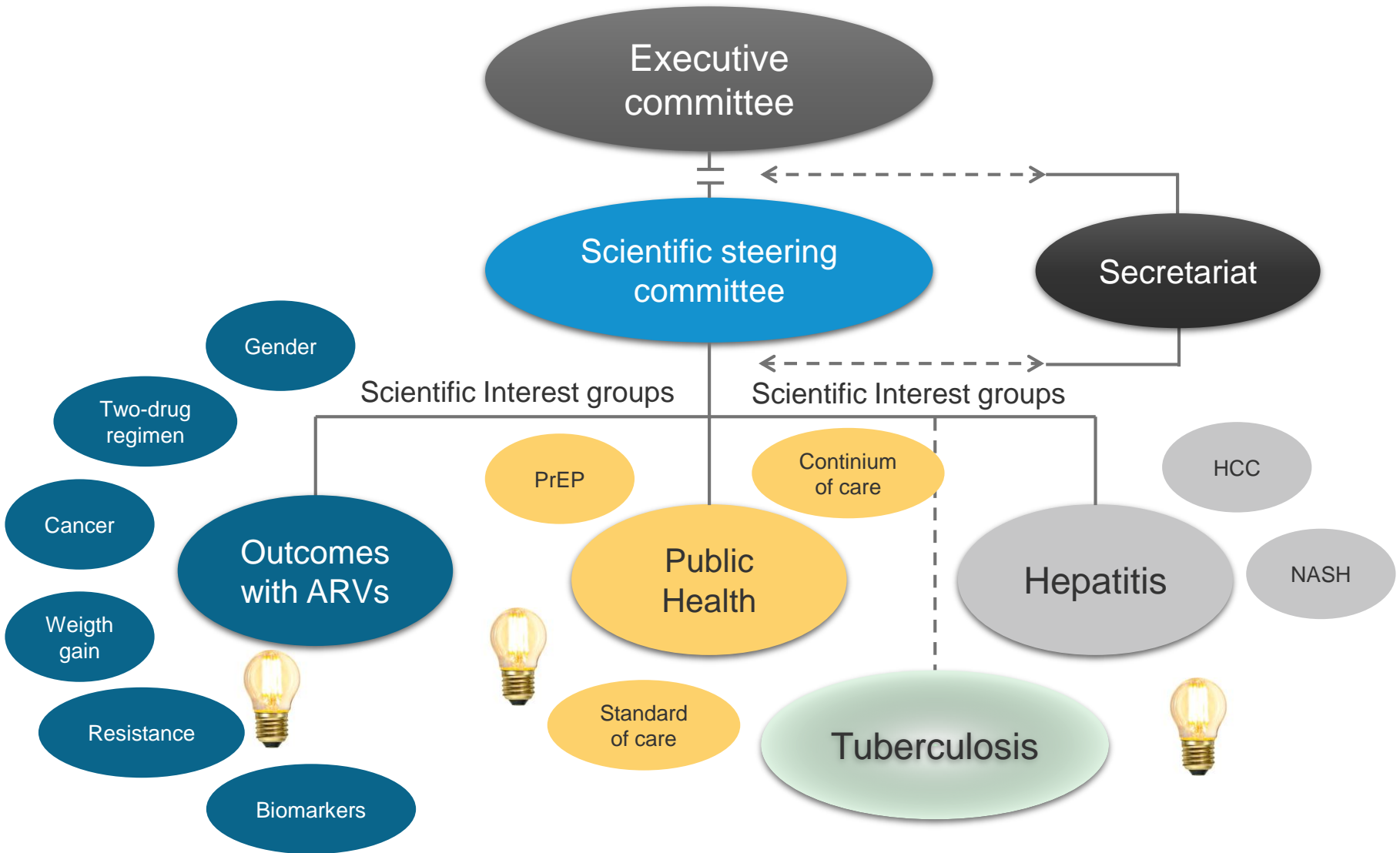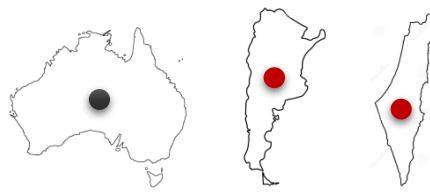
RESPOND

The PrEPARE study; *coming to a town near you*

Legend:
- ● Outcomes study
- ● EuroSIDA study
- ● CARE Consortium
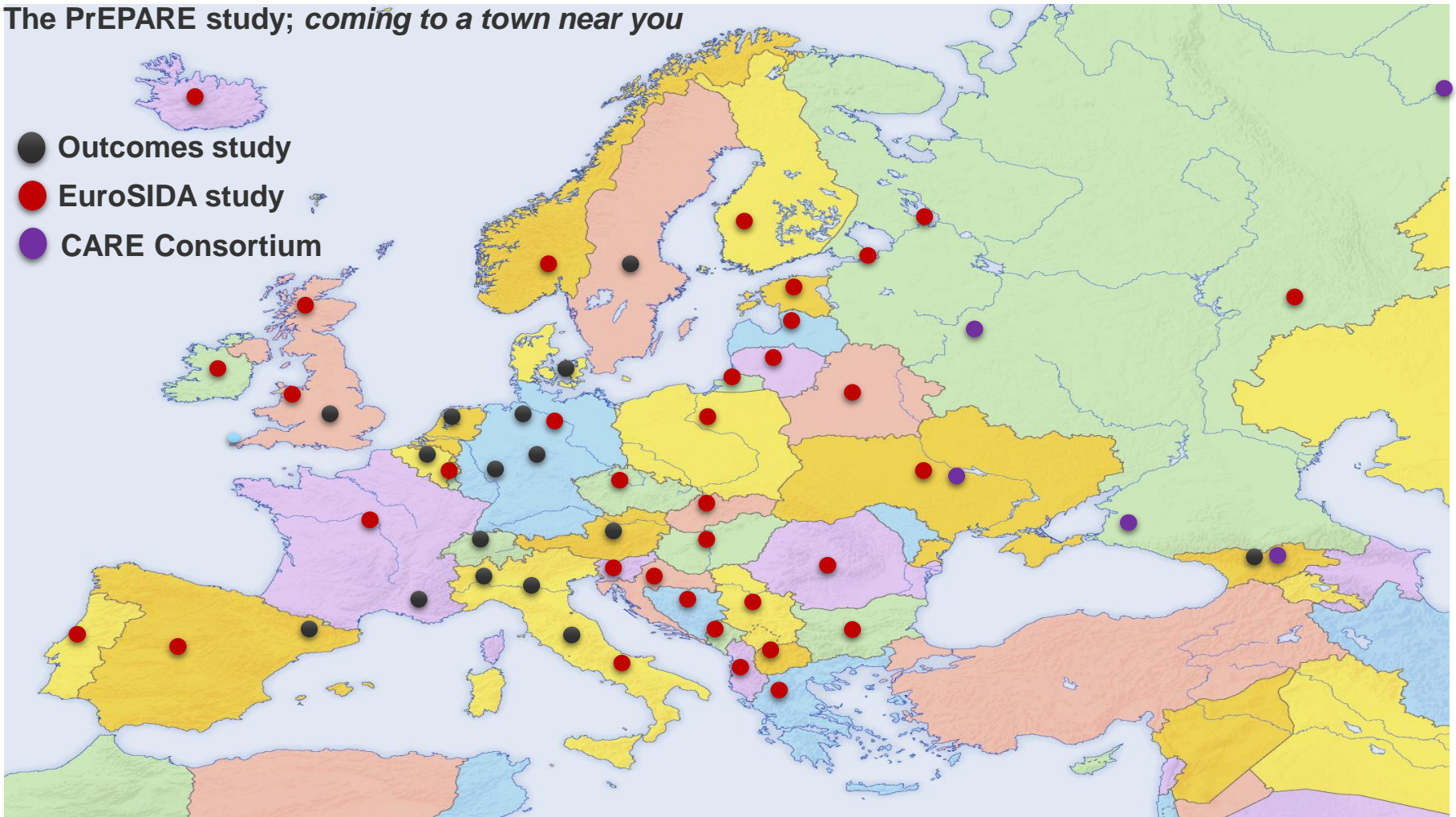
Neesgaard, Peters, Ryom, Mocroft, et al

Data collection tools

Two principal option for data transfer:

Database-to-database

- RESPOND electronic submission tool (**REST**)

Manual data entry

- Research Electronic Data Capture(**REDCap**)
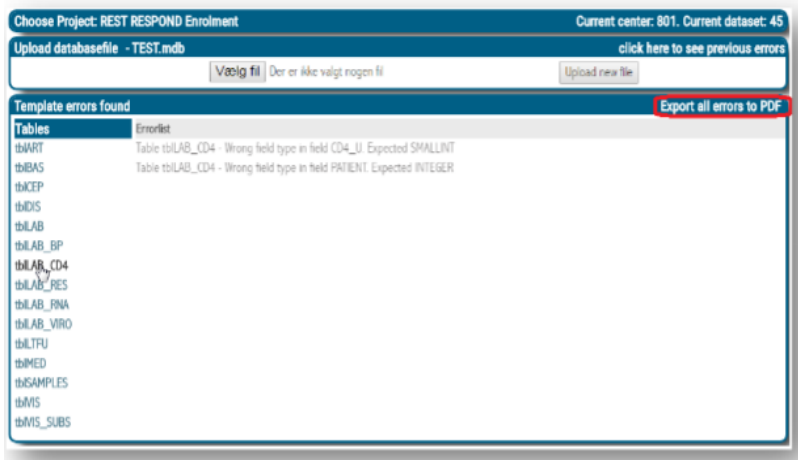
Neesgaard, Peters, Ryom, Larsen, et al

Clinical events and drug exposure

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Antiretroviral drug exposure

Clinical events

Person-years of follow-up on antiretroviral drug (y-axis: 0 to 140000)

n=2087, n=2651, n=5483 — EVG, RAL, DTG — INSTI
n=6298, n=5313 — DRV, ATV — PI/b
n=10037, n=3284 — RPV, EFV — NNRTI
n=3608, n=10406, n=16970, n=18022, n=16996 — TAF, ABC, FTC, TDF, 3TC — NRTI
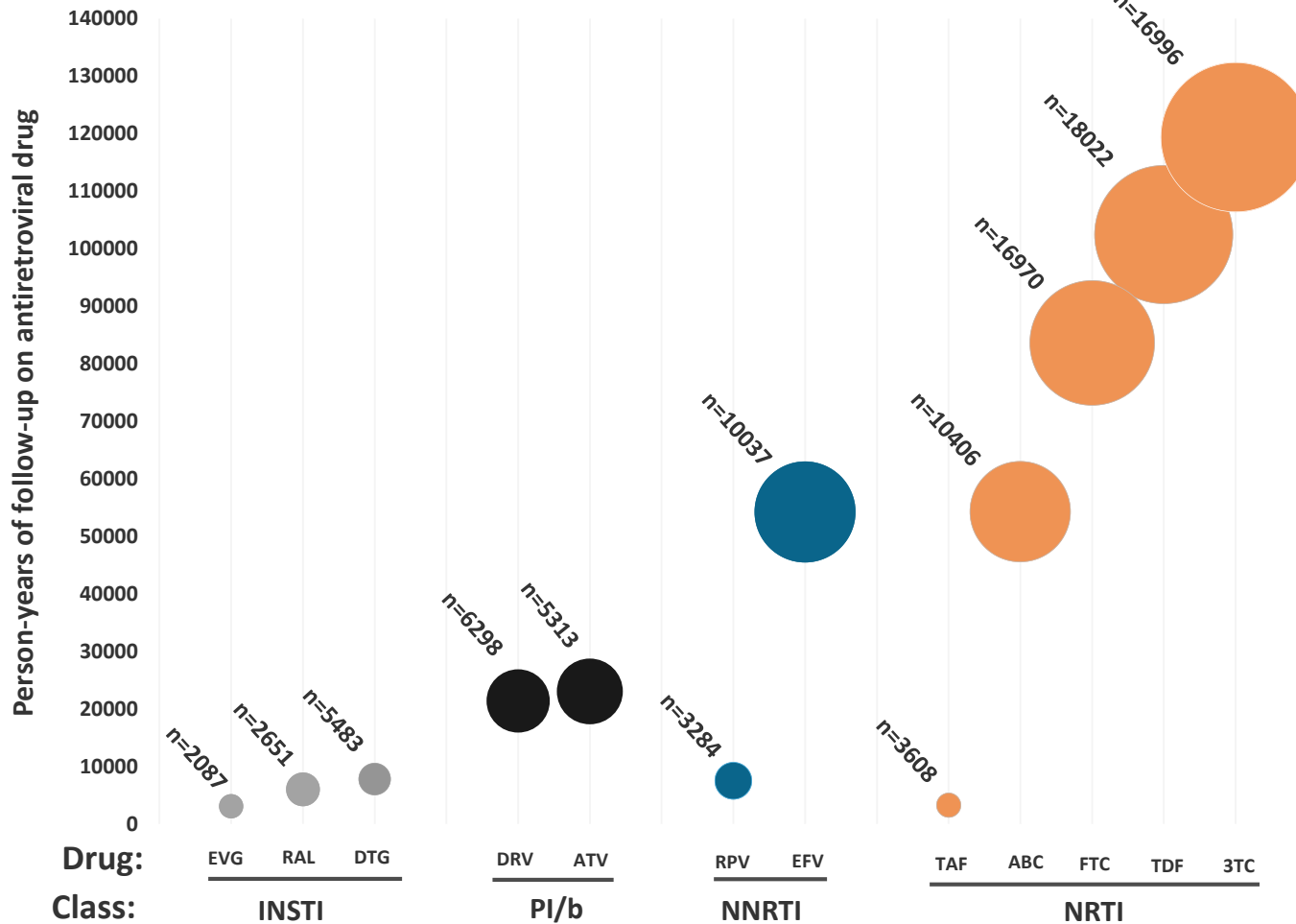
Malignancies 361 (50%)

Cardiovascular disease 168 (24%)

ESLD 45 (6%)

Fractures 131 (18%)

ESRD 11 (2%)

Bubble size reflects the PYFU exposed to the specific antiretroviral drug, calculated from last clinical visit, with number above each bubble indicating the number of individuals exposed.

Neesgaard et al, EACS 2019, PE2/33

ACKNOWLEDGEMENTS