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MD Anderson Cancer Center
Making Cancer History®

Sharing Clinical Trial Data: Challenges and a Way Forward

Use Case: Population Data

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Issues of Interoperability & Platform Usability in Cancer Prevention Trials

- Insufficient data standardization and collection
  - Standardized questionnaires not used
  - Behavioral data often not collected
  - mHealth data – how to incorporate?
  - No systematic collection of exposures, concomitant medications
- External validity of trial sample
  - Under-representation of women & minorities
  - Genetics
  - SES, insurance status & other demographics
- Safety assessments & pooling across trials to strengthen signals
  - Affected by governance structures of trials

Insufficient data standardization and collection

Example: Tobacco use

- Tobacco
  - 1st modifiable behavioral risk factor identified, 1964[1]
  - Remains significant risk factor today
    - ~20% of cancer cases, 29% of cancer deaths[2]
  - Negatively affects cancer outcomes[3]
    - ↑ SPTs, treatment toxicity, & morbidity
    - ↓ survival time, treatment efficacy, & QoL

Assessment in Clinical Trials (2012)[4]

- 29% of Cooperative Group trials assessed any form of tobacco use at enrollment
  - 4.5% assessed during F/U
  - 2.5% assessed SHS at enrollment & 0.6% at F/U
  - None assessed pt. interest in quitting at any point
- When captured, not standardized

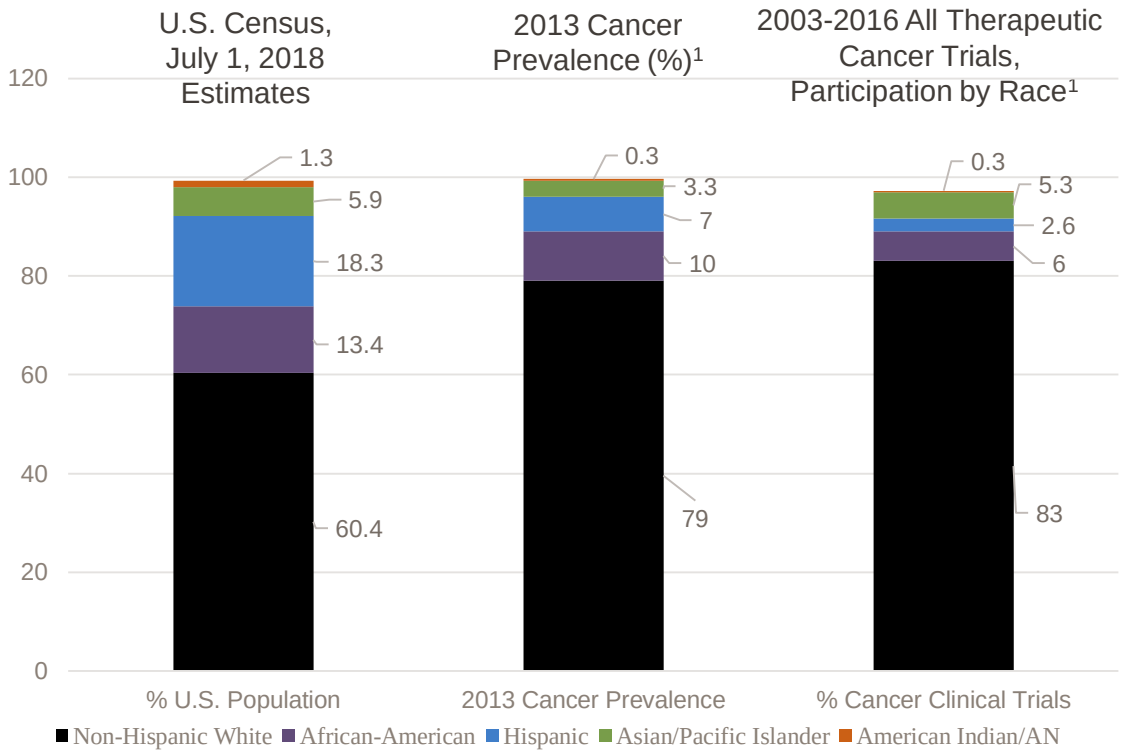
Cancer Patient Tobacco Use Questionnaire (C-TUQ) published by NCI-AACR Task Force (2016)[5]

- Allows for harmonization across trials

[1] U.S. Surgeon General's Report on Smoking and Health, 1964; Atlanta, GA. [2] Islami, et al., CA Cancer J Clin, 2018; 68:31-54.
[3] Gritz, et al., CEBP, 2005; 14(10). [4] Peters, et al., J Clin Oncol, 2012; 30:2869-75. [5] Land, et al., Clin Cancer Res, 2016; 22(8).

External validity of trial samples

Example: Minority recruitment to clinical trials



Barriers to Recruitment[1]

- Less trust in health care system
- SES factors – lack of insurance
- Language
- Lack of awareness / access

U.S. Cancer Center Strategies to Increase Recruitment[2]

- Organizational commitment to diversity
- Partnerships btw faculty & community docs
- Institutional presence in community
  - Community advisory boards
  - Lay community "ambassadors"
  - Transparency in sharing research findings
- Provider recommendation (most influential)
- Engage patient in trial participation decision-making
- Earn trust of patient
- Ensure availability of culturally appropriate, ethnicity-specific materials

[1] Duma, et al., J Oncol Prac, 14(1); 2018. [2] Regnante, et al., J Oncol Prac, 15(4):e289-e299; 2019.

Safety assessments & pooling across trials to strengthen signals

Example: Celecoxib & the Cross-Trial Safety Analysis

- APC Trial (2005)[1]
  - Celecoxib 200 mg BID, 400 mg BID, or placebo for colorectal adenoma prevention (2005)
  - Safety signal detected: ↑ CVD events 2-3x
- Celecoxib stopped in APC & 5 other trials
  - PreSAP, ADAPT, MA27, CDME, & Celecoxib/Selenium Trial
- Individually, too few events in each trial to determine relationship between coxib dose or pretreatment CVD status & drug-associated CVD risk

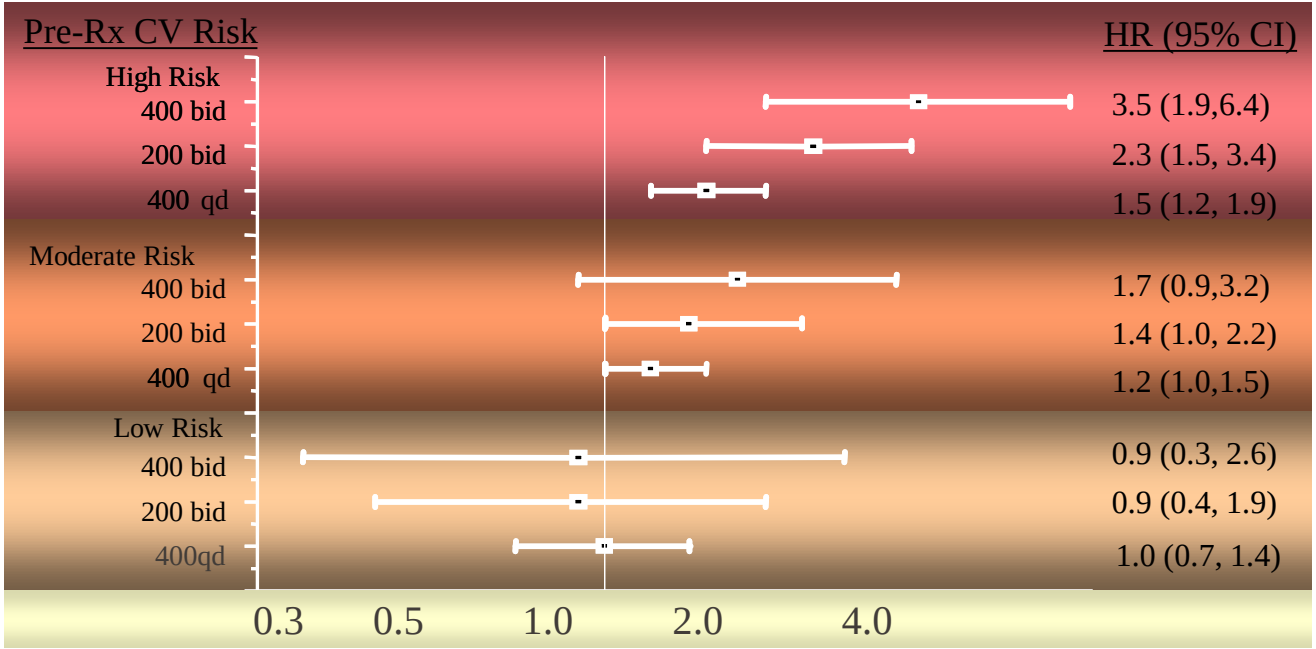
Cross-Trial Safety Analysis (2008)[2]

- Patient-level pooled analysis of adjudicated data from 6 RCTs (7,950 patients)
- Challenges
  - Different baseline data collected in each trial
- Clearly determined risks associated with celecoxib use in relation to baseline CVD risk
- Answered questions that couldn't be answered from single trial

[1] Solomon, et al., NEJM, 2005; 352:1071-1080. [2] Solomon, et al., Circulation, 2008; 117(16): 2104-2113.

Hazard of Serious CV Events Considering Celecoxib Regimen & Baseline CV Risks in Six Trials

The Cross-Trials Safety Analysis



Baseline Risk – Dose Regimen
Interaction p = 0.034

Solomon et al., Circulation 2008

Thank you