Can We Squeeze More Value Out of Electronic Health Records?

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Background

- Over the last 10+ years, we have seen consistent evolution in the EHR to better support research processes
  - Cohort identification
  - Recruitment
  - Delivery of interventions
  - Monitoring of outcomes
- Capabilities vary across vendors and within a vendor's customer base, but even so – PROGRESS!
- Despite this, challenges do remain in many areas:
  - Modifying the EHR so it is fit-for-purpose for every / any trial
  - Data collection at scale for new elements, such as social determinants of health
  - Aggregating data across sites or EHR platforms

Key Questions

- Given the various activities that an EHR can support within a trial (identifying/recruiting patients, delivering interventions, assessing outcomes, etc.) – is the EHR more “fit-for-purpose” for some tasks than others?
- What are strategies for getting health systems to collect new data elements?
- Given how much the EHR has evolved over the past 10 years, what is on your wish list for the next 10?

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Suicide Prevention Outreach Trial (SPOT)

Patient-randomized pragmatic trial comparing two outreach interventions vs. continued usual care for prevention of self-harm or suicide attempt among outpatients reporting frequent suicidal ideation.

Four integrated health systems, all using Epic EHR.

Health system EHRs used for:

- Weekly identification of patients reporting frequent suicidal ideation on routinely administered depression questionnaires
- Outreach and ongoing support via EHR portal secure messaging
- Identifying subsequent self-harm events from encounter diagnoses

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Lumbar Imaging with Reporting of Epidemiology (LIRE)

Stepped-wedge, cluster (clinic-level) randomized pragmatic trial comparing spine-related healthcare utilization (RVUs) in clinics receiving lumbar spine imaging reports containing benchmark prevalence data (intervention clinics) with clinics receiving usual reports (control clinics).

Four integrated health systems, all (eventually) using Epic EHR.

Health system EHRs and other information systems used for:

- Identification of primary care clinicians and their clinics
- Insertion of intervention text into radiology reports
- Tailoring of intervention text by modality (x-ray/CT/MR) and patient age
- Verification of intervention implementation
- Assessment of outcomes (primary=spine-related RVUs; secondary=opioid prescriptions, cross-sectional imaging, spinal injections, spine surgeries)

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Non-pharmacological Options in postoperative Hospital-based And Rehabilitation pain Management (NOHARM)

- Timely participant identification and enrollment
  - Order placement for qualifying surgeries
- Intervention group assignment
  - Based on site, date, & surgical procedure
- Bundled intervention delivery
  - Components delivered to participants via portal
  - Prompting & guiding clinicians to adapt peri-operative care
  - Intervention tailoring based on site, surgery, and participant characteristics
    - Opioid refill requests
    - Discharge to institutional post acute care
- Monitoring intervention fidelity across clusters
- Collection of patient reported outcome measures
  - Adapting collection per portal access and response

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ICD-Pieces

- Cluster-randomized pragmatic clinical trial (practice-level) comparing a model care that combines IT to identify patients and practice facilitators helping primary providers to deliver evidence-based interventions to improve care for chronic kidney disease, diabetes and hypertension vs. standard care.
- Four health systems with various levels of integration and using various EHRs (EPIC, All Scripts and CPRS)
- Health system EHRs used for:
  - Identification of patients
  - Providing assistance to deliver interventions
  - Capture some of the outcomes

Using the EHR to identify / recruit patients

- What worked well (enough)?
- Were there any unpleasant surprises?
- Other lessons learned?

Delivering interventions to clinicians and/or patients

- What worked well (enough)?
- Were there any unpleasant surprises?
- Other lessons learned?

Monitoring intervention delivery

- What worked well (enough)?
- Were there any unpleasant surprises?
- Other lessons learned?

Assessing outcomes

- What worked well (enough)?
- Were there any unpleasant surprises?
- Other lessons learned?

Strategies for working with health systems to collect new data elements

- Examples
  - Social determinants of health
  - Sexual orientation / gender identity

- Lessons learned from past experiences?

What is on your wish list for the EHR for the next 10 years?

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