Improving Care Delivery in Oncology Through Digital Transformation

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Oncology Practice early 2000s…

Traditional Clinical outcomes such as survival e.g. using blood tests or surgical outcomes
Ongoing Digitization of Oncology Practice
Outcomes in the current practice

Clinical Outcomes such as survival, relapse

Patient centered outcomes such as PROs, PREMs

Health Care Utilization such as readmissions, ER visits
Challenges to improve cancer care delivery in the data ecosystem

- Rapidly evolving cancer biology and pharmaceutical knowledge
- Unstructured and ‘Siloed’ data
- Security and Privacy

- Lack of engagement
- Need for streamlining workflow
- Avoid burnout

- Aligned incentives
- Reimbursement for novel delivery models

- Innovation
- Integration
Quantifying physical function in cancer patients undergoing chemotherapy using clinician-reported, patient-reported, and wearable device data sources

FDA OCE CERSI PROJECT
Data Aggregated using Hugo Platform

Patient Reported Outcome Measures (PROMs)
- Short, post-procedure, mobile-friendly questionnaire emailed twice weekly for 10 total times immediately post-procedure
- Longer, disease-specific, questionnaires emailed at baseline, 1, 4, and 8 weeks post-procedure
- Email reminder instituted during study

Pharmacy Data
- Prescription names
- Prescription source
- Formulations and dosages
- National Drug Code (NDC)
- Start and end date
- Number of refills available
- Prescriber

Electronic Health Record Data
- Encounters
- Encounter location
- Encounter diagnoses
- Labs and lab results
- Imaging tests
- Medications
- Procedures
- Problem List

Personal Digital Device Data
- Activity, including ambulation and sleep (Fitbit™)
- Weight (Withings Body Scale)
- Single Lead ECG (Kardia Mobile)
Objectives

- Capture FDA’s core PRO set and wearable device data on Hugo Platform

- Explore associations between various sources of physical function data

- Compare physical function change with likelihood of SAE or hospitalization / ED visit (also captured on Hugo)

- Conduct structured exit interview to assess burden and usability
Applying Big Data to Address the Social Determinants of Health in Oncology

PROCEEDINGS OF A WORKSHOP
NATIONAL CANCER POLICY FORUM, IN COLLABORATION WITH THE COMMITTEE ON APPLIED AND THEORETICAL STATISTICS
Exposome and sources of SDOH Data

Sources of SDOH data

- Area-level (e.g. Census, other national surveys)
- Individual-level
- EHR (e.g. race/ethnicity, insurance status, language, etc.)
- Publicly available (e.g. credit rating, criminal history, etc.)
- Patient-reported

Applying Big Data to Address the Social Determinants of Health in Oncology: Proceedings of a Workshop. Washington (DC): National Academies Press (US); 2020
The road ahead....

- Multiple ongoing initiatives in this space
- Continued collaboration to advance value based care
- Focus on affordability and accessibility
- Flexible and simplified regulatory requirements and adequate reimbursement
Questions??