

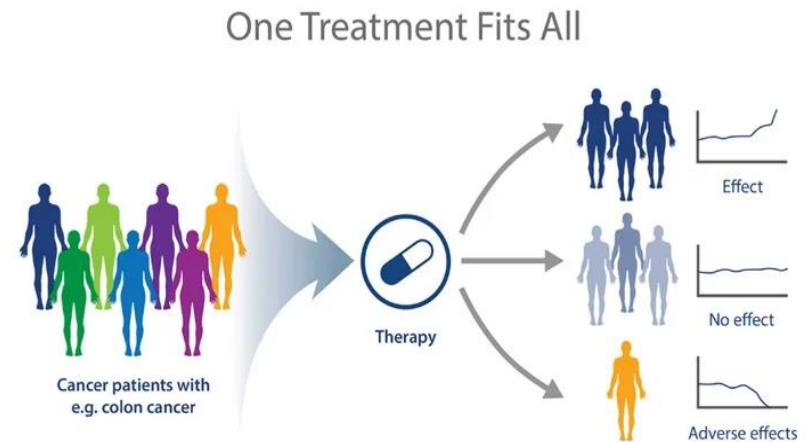
# **Improving Care Delivery in Oncology Through Digital Transformation**

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**Mayo Clinic AZ**



# Oncology Practice early 2000s...



**Traditional Clinical  
outcomes such as  
survival e.g using blood  
tests or surgical  
outcomes**

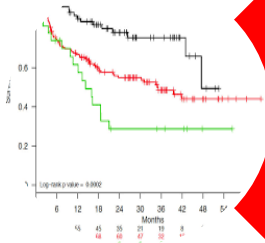
# Ongoing Digitization of Oncology Practice

**NIH** NATIONAL CANCER INSTITUTE

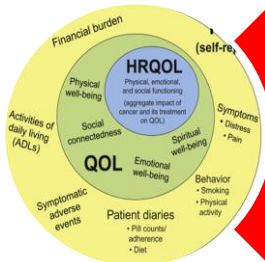
<http://odc.cancer.gov>



# Outcomes in the current practice



Clinical Outcomes such as survival, relapse

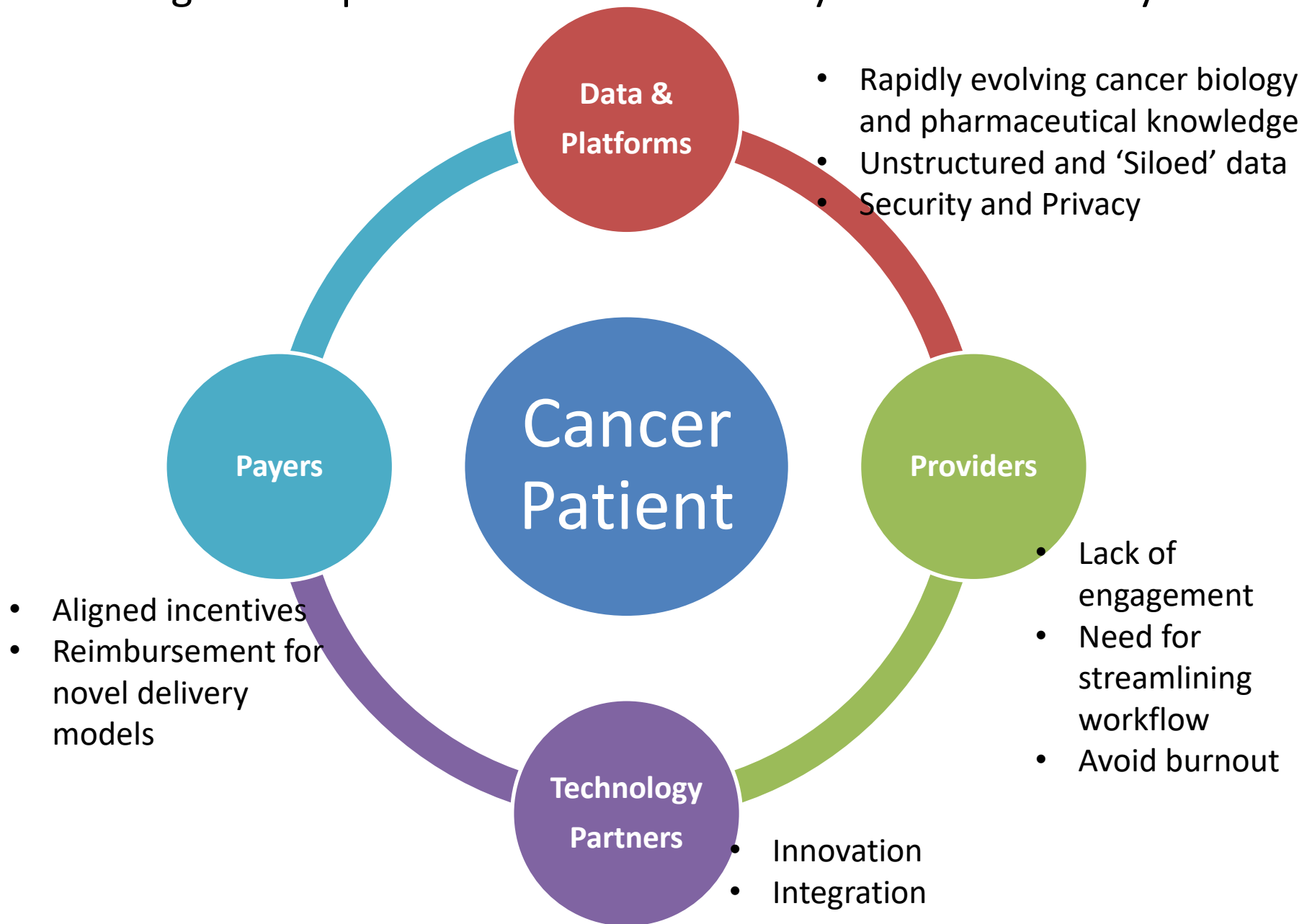


Patient centered outcomes such as PROs, PREMs



Health Care Utilization such as readmissions, ER visits

# Challenges to improve cancer care delivery in the data ecosystem



# EXAMPLES

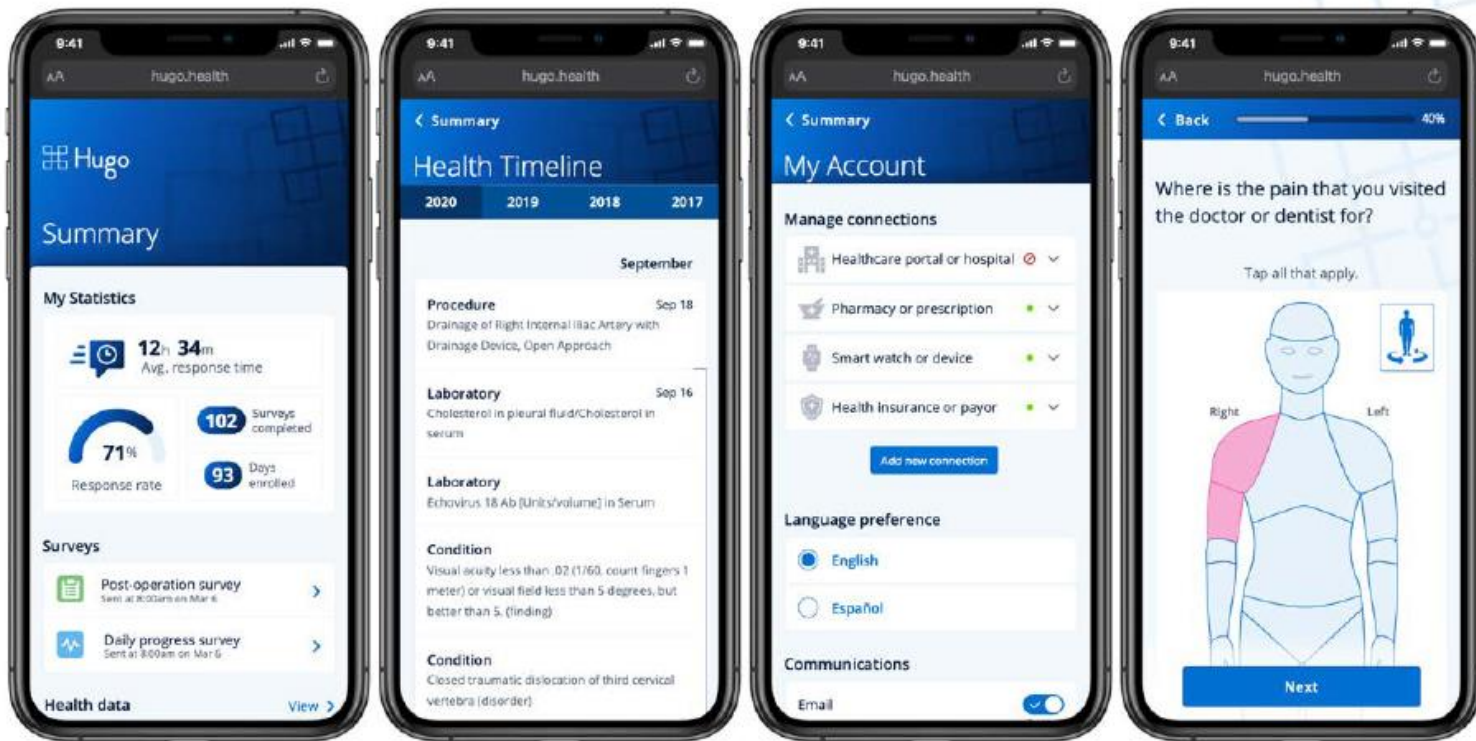


**Quantifying physical function in cancer patients undergoing chemotherapy using clinician-reported, patient-reported, and wearable device data sources**

**FDA OCE CERSI PROJECT**



# HUGO PLATFORM

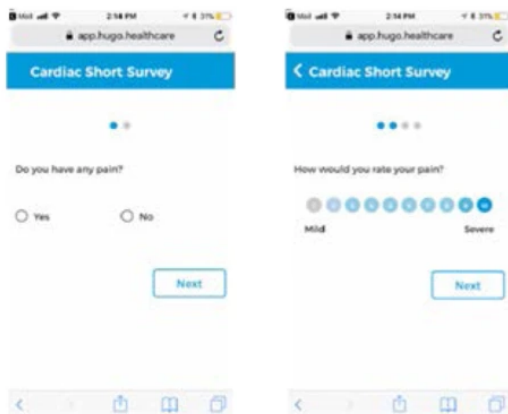




# Data Aggregated using Hugo Platform

## 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



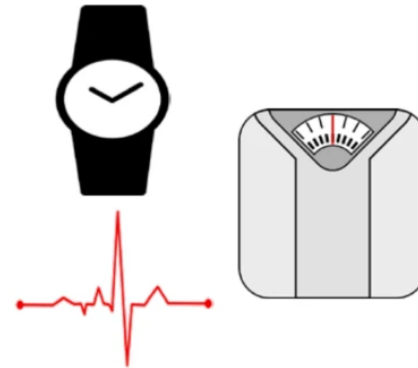
## Electronic Health Record Data

- Encounters
- Encounter location
- Encounter diagnoses
- Labs and lab results
- Imaging tests
- Medications
- Procedures
- Problem List

Rx

## Pharmacy Data

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



## 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**

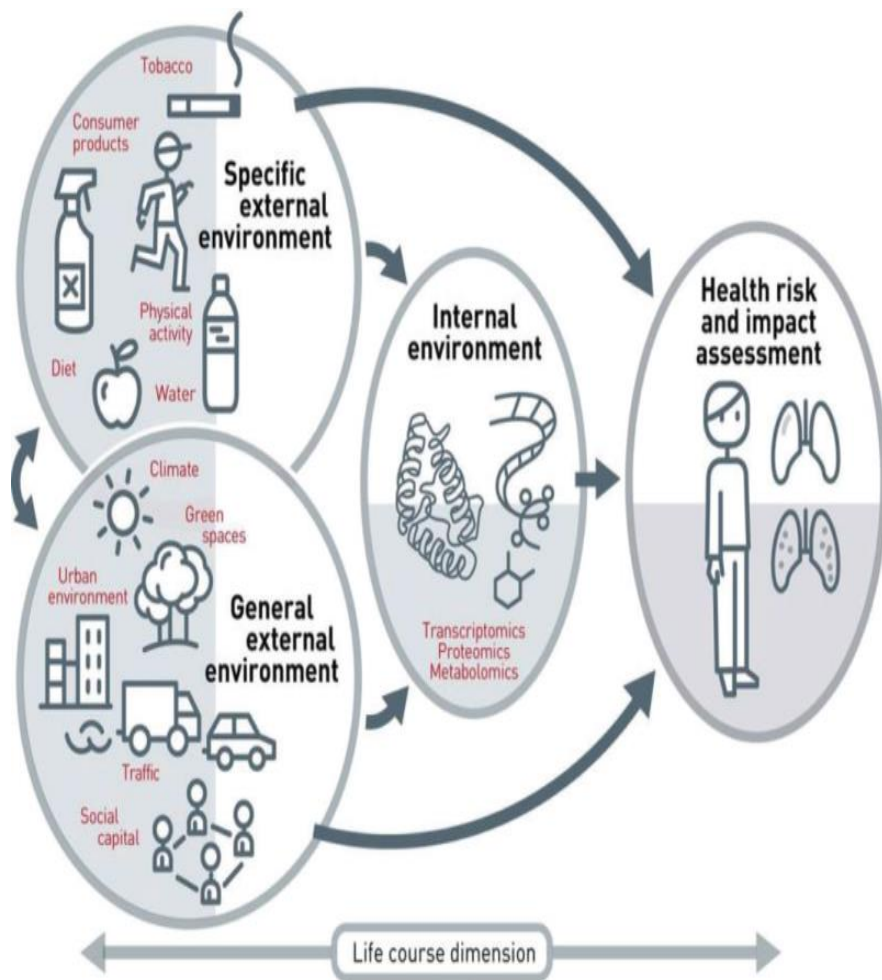


- **Explore associations between various sources of physical function data**
- **Compare physical function change with likelihood of SAE or hospitalization / ED visit (also captured on Hugo)**
- **Conduct structured exit interview to assess burden and usability**

# **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

## 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??**