CodeX™ HL7 FHIR Accelerator

Interoperability: A Problem to be Approached Together

Dr. Su Chen, CodeX Clinical Director

"People's lives are depending on what we do and what these data tell us."

Dr. Monica Bertagnolli
Director of the National Cancer Institute (NCI)

CodeX
Better Data.
Better Health.
The CodeX community is singularly focused on bringing standards to healthcare data so patients have the care and research journey they deserve and should expect.
https://codex.hl7.org/

CodeX™ Alignment with US Federal Rules Create Foundation for FHIR Health Data Exchange

The Office of the National Coordinator for Health Information Technology

Interoperability Rule – FHIR Conformance

Industry *must* share health data with patients
Shared using the HL7 FHIR R4 standard
FHIR API standards are *required* in certified EHRs

+

CMS CENTERS FOR MEDICARE & MEDICAID SERVICES

Interoperability Rule – FHIR Transmissions

Create patient access APIs (claims, encounter, & select clinical data)
Create provider directory APIs
Support payer to payer data exchange
Support transition-of-care related notifications

ONC API: Dec 2022

CMS Patient Access API: Jan 2021
CMS Payer-to-Payer Exchange: Jan 2022

HL7 FHIR

Patients can access and manage their health data to optimize health

Providers and payers can improve care coordination and care transitions

CodeX (mCODE ++):

- Align with and build on FHIR-based rule implementation
- Provide rich data to improve care, research, and outcomes

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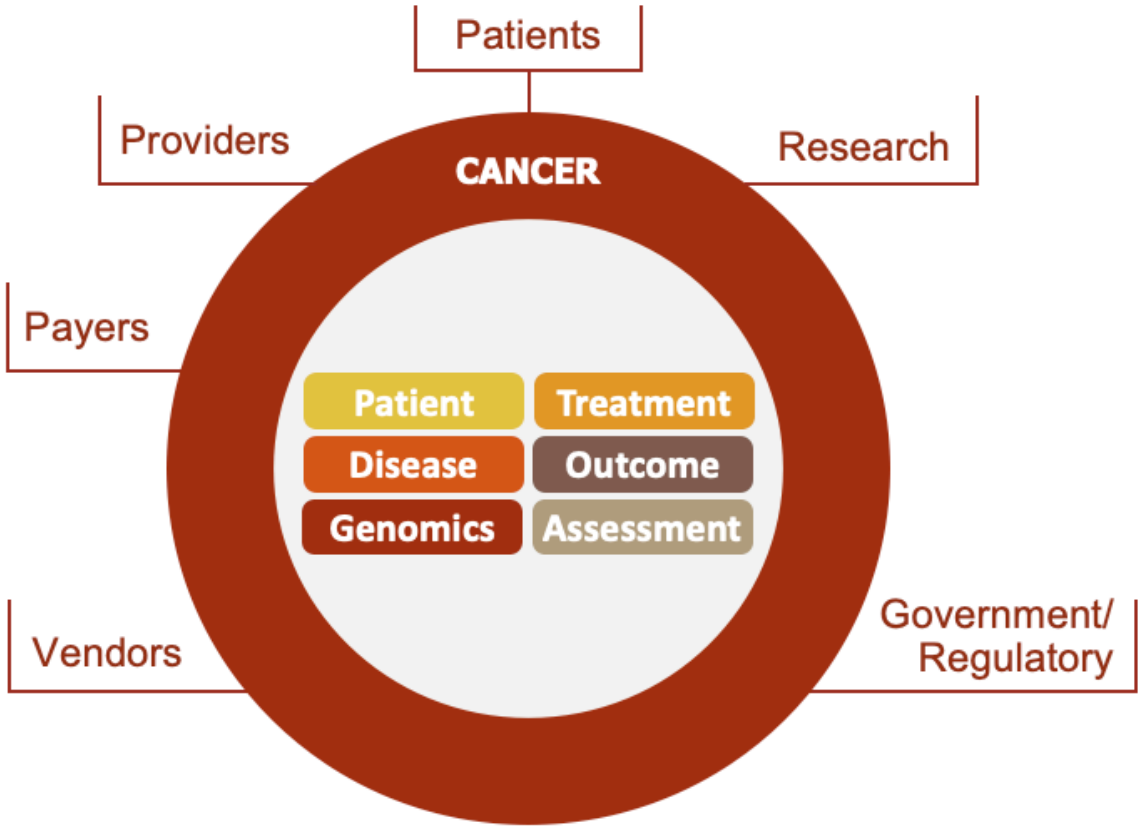
mCODE™

minimal Common Oncology Data Elements



mCODE STU2: http://hl7.org/fhir/us/mcode/

CodeX™

A growing, active community of oncology stakeholders prioritizing, building & executing use case pilots to demonstrate real world feasibility and value

Collect patient data once.

mCODE++

Reuse for multiple use cases.

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CodeX Community of Practice

https://confluence.hl7.org/display/COD/mCODE+Community+of+Practice

A growing group of health systems and other key stakeholders, learning together in a monthly public forum focused on real-world applications of mCODE and new areas of interest around information technology applications across oncology, cardiovascular, and genomics.

Latest developments on mCODE, CodeX, and cancer data exchange

Ask questions and learn from the experience of other community participants

Develop and share best practices for clinical workflows, data modeling, and exchange

55 Health Systems

7 Payers

10 Pharma

85 EHRs and other tech companies

12 Medical Societies and Consortia

14 Government Agencies

12 Research Organizations

7 Nonprofits/ Foundations

2 Patient Advocacy Organizations

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CodeX Members

(November 2022) CodeX Founders ★

PREMIER

AMERICAN ASSOCIATION of PHYSICISTS IN MEDICINE ★
ASTRO AMERICAN SOCIETY FOR RADIATION ONCOLOGY ★
HL7 International ★
Pfizer ★
ALLIANCE FOR CLINICAL TRIALS IN ONCOLOGY ★
MITRE ★
EVERNORTH℠
Syntropy ★
ontada
UnitedHealthcare® ★

PRINCIPAL

Cancer Action Network℠ American Cancer Society® ★
varian A Siemens Healthineers Company

BENEFACTOR

CIBMTR® CENTER FOR INTERNATIONAL BLOOD & MARROW TRANSPLANT RESEARCH ★
ASCO® AMERICAN SOCIETY OF CLINICAL ONCOLOGY KNOWLEDGE CONQUERS CANCER
TEMPUS
Trialjectory
Telligen®

GOVERNMENT AGENCY

CDC CENTERS FOR DISEASE CONTROL AND PREVENTION ★
FDA U.S. FOOD & DRUG ADMINISTRATION
University of Nebraska Medical Center BREAKTHROUGHS FOR LIFE.®
MCSP MICHIGAN CANCER SURVEILLANCE PROGRAM

SPONSORED MEMBER

AMGEN®
COMP Canadian Organization of Medical Physicists
OCPM Organisation canadienne des physiciens médicaux
cdisc
NRG ONCOLOGY Advancing Research. Improving Lives.™
SIIM

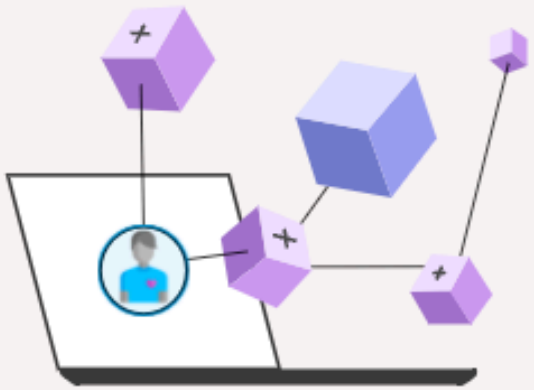
DEVELOPER/IMPLEMENTER

Cancer Insights by VIZLITICS
edifecs
elimu informatics
MASSIVEBIO
mcg PART OF THE HEARST HEALTH NETWORK
Mettle SOLUTIONS
Navigate Oncology
NeuralFrame
Oncora MEDICAL
patientlink Better Patient Connection · Better Data Collection
PHENOTIPS
PRINCIPIA HEALTH SCIENCES
QLHC Quantum Leap Healthcare Collaborative
storyhealth
Wemedoo Clinical Information Specialists

CodeX™

Health Data. Collect Once, Use Everywhere.

CodeX is a global community of healthcare stakeholders currently working on data standards in three domains. We build and implement in the field and on-site.



Cancer

The first domain that the CodeX community tackled is cancer. Using the minimal Common Oncology Data Elements (mCODE), an open data standard enabling high-quality data capture for cancer that can be widely adopted.

70+ oncology elements in use at Dana-Farber Cancer Institute, MD Anderson Center, Massachusetts General Hospital and 44 other institutions. Versions of the mCODE and associated modeling tools are currently operational in over 250 organizations.

See Our Work →

Genomics

NEW DOMAIN

This team is advancing the standardization, interoperability, and exchange of genomic data to improve care processes, clinical workflows, and patient outcomes from all areas of clinical care.

Cardiovascular Health

NEW DOMAIN

This team is engaging patients, as well as clinical and research stakeholders, to create standard representations of heart health to enable standards-based interoperability in cardiovascular health and healthcare.

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Use Cases

The CodeX framework spurs community-driven use case development and demonstration, piloted in-the-field by stakeholders expected to benefit in the future.

5 In Execution

- **mCODE++ Extraction**
- **EHR Endpoints for Cancer Clinical Trials (ICAREdata)**
- **Integrated Trial Matching for Cancer Patients and Providers**
- **Cancer Registry Reporting**
- **Radiation Treatment Therapy Data for Cancer**

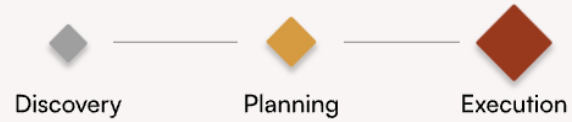
1 In Planning

- **Prior Authorization in Oncology**

5 In Discovery

- **CardX Hypertension Management** NEW DOMAIN
- **Genomics Data Exchange** NEW DOMAIN
- **Genomics Operations** NEW DOMAIN
- **Risk Evaluation and Mitigation Strategies**
- **Quality Measures for Cancer**

Each CodeX Use Case progresses through three stages of development.



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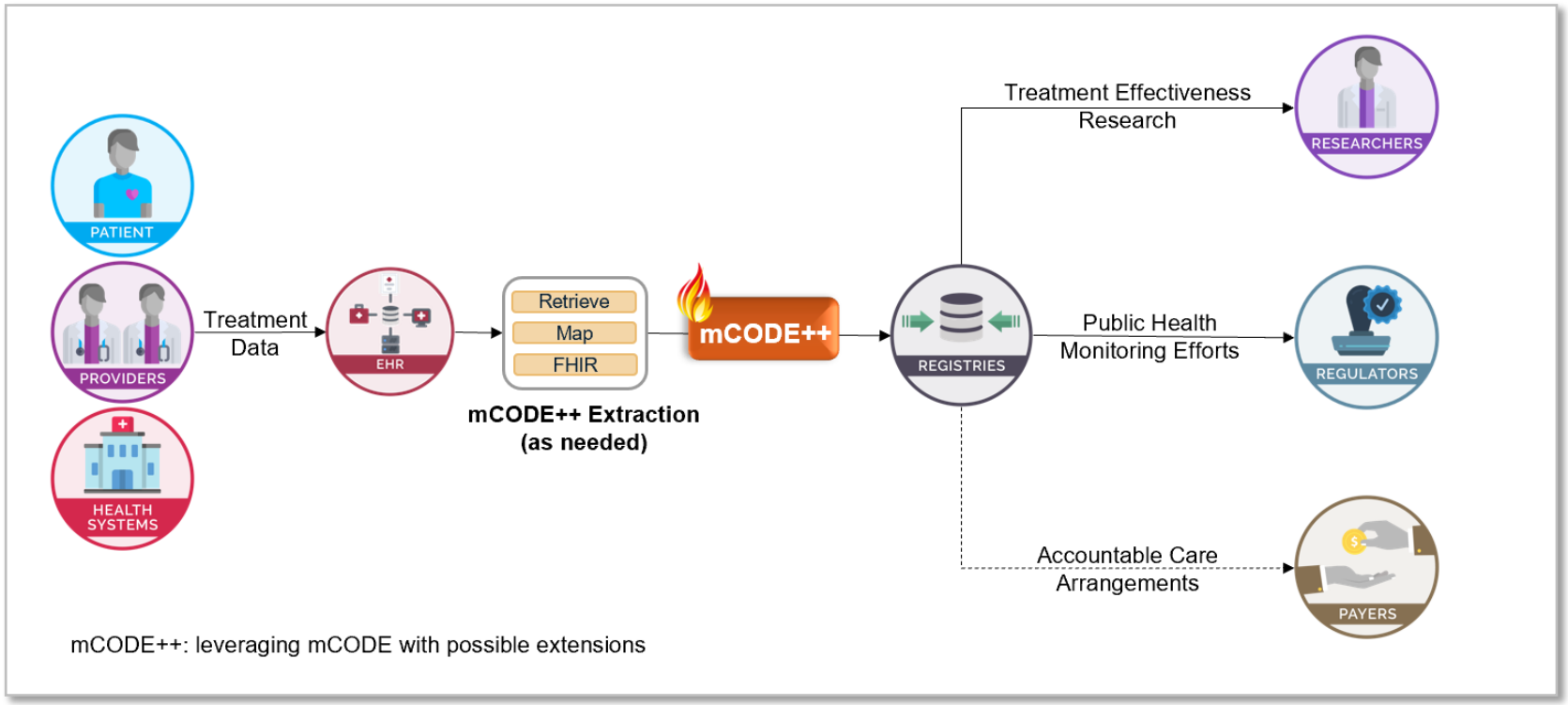
Cancer Registry Reporting

Problem

- Clinical data is stored in disparate systems in multiple data formats
- Variability in data collection processes imposes a high burden on data reporters and negatively impacts understanding of patient care
- Heterogeneity of data collection makes it difficult to aggregate and share data for use in clinical research and standards of care

Solution

- A low-burden, standardized reporting of cancer data from cancer centers to registries that are aggregating data for different reasons



Desired Impact

- As a patient begins and continues cancer care, outcomes are tracked, and effectiveness of care is determined in real time and reported in a low burden and interoperable manner
- Reduce reporting burden and enhance insights into clinical practice

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Multi Phased Approach

Phase 0

Pilot Activity

- HL7 project proposal
- MedMorph/Central Cancer Reporting IG alignment
- California focused POC
- Architecture implemented at UCSF
- Synthetic data demonstration to private and state registry

We are here

Phase 1

Extended Elements and Testing

- Further utilize mCODE
- Data exploration for mCODE profiles by CIBMTR; metric collection
- Develop primary/secondary case reporting approach
- Explore rapid case ascertainment approach
- Increase participation – expand beyond California

Phase 2

Scaling

- Review lessons learned from phase 1
- Measure outcomes
- Build implementation processes
- Increase the number of health systems
- Increase the number of registries

CodeX™

Building data unity for patients, clinicians, and research.

Common data definitions drive high-quality computable data that are trusted, consistent, and usable.

1 **Caring for Every Patient**
Break down silos and manual processes for efficient care and research across all settings, building trust with your care team and accurate data.

2 **Learning with Every Patient**
Create easily accessible, accurate, and longitudinal patient stories that caregivers can use to personalize treatment and care.

3 **Transforming Care for All**
Revolutionize healthcare and research by leveraging standardized data of individual patients to contribute to the health of all future patients.

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CodeX: Build and Innovate on Our Work

We enable high-quality computable data using HL7 and FHIR standards to create a common language for clinical specialty domains in cancer, genomics, and cardiovascular health.

Get Engaged

CodeX hosts a monthly Community of Practice event to keep our community informed and engaged, and to make sure the public's opinions are heard. We also hold Public Calls to give updates on ongoing CodeX use cases.

- **Attend Upcoming Events: https://confluence.hl7.org/display/COD/CodeX+Calendar**

Expand Our Reach

There are currently over 250+ stakeholders involved in CodeX. We are looking to expand our membership and to partner with new health systems in our pilots. Spread the word!

- **Become a CodeX member: email CodeX@hl7.org**
- **Share our site: https://codex.hl7.org/**

CodeX™

CodeX™

HL7® FHIR® ACCELERATOR

A Member-driven **community** accelerating **interoperable** data modeling and **implementation** around the **FHIR** and **mCODE** HL7 standards, leading to **substantial improvements** in **health care** and **research** in cancer, cardiovascular, genomics and beyond.

https://www.hl7.org/codex/
https://confluence.hl7.org/display/COD/CodeX+Home
https://www.linkedin.com/company/codex-common-oncology-data-elements-extensions/