Better together, moving ahead

Randi Kudner
Assistant Director of Quality Improvement
Timeline of engagement

Siloed projects
- National RO Registry
- Publication of TG – 263
- Formation of AAPM’s Big Data Subcommittee
- Publication of ASTRO’s Minimum Data Elements

Alignment
- ASTRO joins mCODE Executive Committee
- ASTRO & AAPM join CodeX

Outcome
- Successful pilots & vendor adoption
Minimum Data Elements for Radiation Oncology: An American Society for Radiation Oncology Consensus Paper

James A. Hayman, MD, Andre Dekker, PhD, Mary Feng, MD, Sameer R. Keole, MD, Todd R. McNutt, PhD, Mitchell Machtay, MD, Neil E. Martin, MD, MPH, Charles S. Mayo, PhD, Todd Pawlicki, PhD, Benjamin D. Smith, MD, Randi Kudner, MA, Samantha Dawes, CMD, James B. Yu, MD, MHS

In 2018 ASTRO convened a group to identify a minimum set of data elements that should be required for all radiation oncology use cases.

10 data concepts were recommended including a list of techniques and modalities.

<table>
<thead>
<tr>
<th>Data Element</th>
<th>Definition</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Treatment Course Data Elements</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnosis</td>
<td>Identify disease(s) relevant to treatment</td>
<td>ICD-10</td>
</tr>
<tr>
<td>Modality</td>
<td>Radiation type - Records the list of all modalities used during treatment course (Check all that apply)</td>
<td>Reference Table 2 for detail</td>
</tr>
<tr>
<td>Technique</td>
<td>Treatment delivery method - Records the list of all techniques used during treatment course (Check all that apply)</td>
<td>Reference Table 2 for detail</td>
</tr>
<tr>
<td>Number of fractions planned</td>
<td>Records the total number of treatments prescribed in a treatment</td>
<td>MMDDYYYY</td>
</tr>
<tr>
<td>Number of fractions delivered</td>
<td>Records the total number of treatments delivered in a treatment course</td>
<td>MMDDYYYY</td>
</tr>
<tr>
<td>Start date of treatment</td>
<td>Indicates the date on which the patient commences course of delivered radiation treatment</td>
<td></td>
</tr>
<tr>
<td>End date of treatment</td>
<td>Indicates the date on which the patient ends/completes a course of delivered radiation treatment</td>
<td></td>
</tr>
<tr>
<td><strong>Prescribed Dose Level Data Elements</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Note: Multiple dose levels are possible for a given treatment. The following elements are completed for each dose level)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anatomic site of each prescribed dose level</td>
<td>Indicates the primary anatomic site(s) targets for each dose level</td>
<td>Reference the Standards for Oncology Registry Entry (Supplemental material)</td>
</tr>
<tr>
<td>Total dose planned for each prescribed dose level</td>
<td>Dose prescribed to each dose level</td>
<td>cGy</td>
</tr>
<tr>
<td>Total dose delivered for each prescribed dose level</td>
<td>Dose delivered to each dose level</td>
<td>cGy</td>
</tr>
</tbody>
</table>
ASTRO joins mCODE Executive Committee

mCODE™ Initiative Collaborators
Many Stakeholders Collaborate to Develop mCODE

mCODE is governed by the mCODE Executive Committee, a small, agile group of four to seven public and private entities who have voluntarily come together to further mCODE adoption.

The mCODE Executive Committee members include:

- The Alliance for Clinical Trials in Oncology Foundation
- The American Society of Clinical Oncology (ASCO) and its nonprofit subsidiary, CancerLinQ LLC
- The MITRE Corporation
- The American Society for Radiation Oncology (ASTRO)
- The Society of Surgical Oncology

Every Patient's Journey Can Improve All Future Care
CodeX Oncology Use-Cases

- mCODE++ Extraction
- EHR Endpoints for Cancer Clinical Trials (including, future extensions of the ICAREdata study)
- Integrated Trial Matching for Cancer Patients and Providers
- Cancer Registry Reporting
- Radiation Therapy Treatment Data for Cancer
- Prior Authorization in Oncology
- Risk Evaluation and Mitigation Strategies (REMS)
- Quality Measures for Cancer
- Structuring inclusion and exclusion trial matching criteria
- Regulatory grade RWE
- Oncology nurse case manager

---------- Stages ----------
- Discovery
- Planning
- Execution
- Pre-Discovery
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------ Stages ------
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Radiation Therapy Treatment Data for Cancer

Problem
• Treatment details – critical for care coordination – are not readily available in systems other than radiation oncology EHR modules: data is generally manually entered into summary documents, creating clinical burden and potential patient safety issues

Solution
• To develop, test and deploy open data standards that enable interoperable, multi-purpose exchange of radiation treatment summary data for care coordination and data reuse.
Left Breast: 4256 cGy in 16 sessions
Left Left Axillary Nodes, SC and IMN: 4256 cGy in 16 sessions
Left Breast Surgical Bed: 5256 cGy in 20 sessions
Right Breast: 4256 cGy in 16 sessions
All treated in 20 sessions over 26 days

Phase Summary

Phase Name: Left Breast Tangents
Target Volumes
- Left Breast: 4256 cGy
- Left Breast Surgical Bed: 4256 cGy
- Left Axillary Nodes, SC and IMN: 4256 cGy
Treated in 16 phase fractions
Using Photons 3D

Phase Name: Left Breast Boost
Target Volumes
- Left Breast Surgical Bed: 1000 cGy
Treated in 4 phase fractions
Using Electrons 3D

Phase Name: Right Breast Tangents
Target Volumes
- Right Breast: 4256 cGy
Treated in 16 phase fractions
Using Photons 3D

Delivered Treatment Plan

<table>
<thead>
<tr>
<th>Concept</th>
<th>Name</th>
<th>Numbering</th>
<th></th>
<th></th>
<th></th>
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<tbody>
<tr>
<td>Course</td>
<td>Bilateral Breast w Boost</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td></td>
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<tr>
<td>Phase</td>
<td>Left Breast Tangents</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Breast_L_Tang</td>
<td>(3 delivered of 16 planned)</td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Breast_L_Tang:1</td>
<td>(13 fractions delivered of 13 planned)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Breast_L_Boost</td>
<td>(4 fractions delivered of 4 planned)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Breast_R_Tang</td>
<td>(16 fractions delivered of 16 planned)</td>
<td></td>
<td></td>
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<tr>
<td>Treatment Plan</td>
<td>Breast_L_Tang</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Breast_L_Tang:1</td>
<td>(Adaptation)</td>
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</tr>
<tr>
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<td>Breast_L_Boost</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Breast_R_Tang</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
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</tbody>
</table>
May 2022 – IHE-RO Connect-a-thon

[Varian; RaySearch]

[Epic’s Repository – unable to share screenshots due to copyright restrictions]

[Epic’s Radiation Therapy Summary Module – unable to share screenshots due to copyright restrictions]

[Varian; RaySearch]

[Epic; FHIR Server]

[Epic; RaySearch; RTTD Tool]
Multi-Professional Society Engagement

AAPM Big Data Subcommittee (BDSC)

HL7 mCODE, CodeX

Operational Ontology for Radiation Oncology (OORO)
HEART was developed to measure health equity issues within radiation oncology and proposed by ASTRO for inclusion in the RO Model.

AAPM added Social Determinants of Health (SDOH) into OORO.

Collaboration on promoting addition of additional SDOH measures (e.g., disability) and identifying common standard value sets.

Exploring overlaps with mCODE and the HL7 Gravity accelerator.
United States Core Data for Interoperability (USCDI)

The United States Core Data for Interoperability (USCDI) is a standardized set of health data classes and constituent data elements for nationwide, interoperable health information exchange. Review the USCDI Fact Sheet to learn more.

The Draft USCDI v3 contains data classes and elements from USCDI v2 and new data classes and elements submitted through the ONC system. Please reference the Draft USCDI Version 3 document to the left for applicable vocabulary standards versions associated with Draft USCDI v3 and to the ONC Standards Bulletin 22-1 for more information about the development of Draft USCDI v3 and how you can provide feedback on it.

### Allergies and Intolerances
- Represents harmful or undesirable physiological response associated with exposure to a substance.
- Substance (Medication)
- Substance (Drug Class)
- Reaction

### Goals
- An expressed desired health state to be achieved by a subject of care (or family/group).
- Patient Goals
- SDOH Goals

### Problems
- Information about a condition, diagnosis, or other event, situation, issue, or clinical concept that is documented.
- Problems
- SDOH Problems/Health Concerns
- Date of Diagnosis
- Date of Resolution

### Health Insurance Information
- Data related to an individual's insurance coverage for health care.

### Assessment and Plan of Treatment
- Represents a health plan, assessment, and care plan.
**CodeX Prior Authorization in Oncology**

**Problem**
- Prior authorization imposes a burden on patients, providers, and payers
- Prior authorization documentation requirements vary by payer plan
- Current manual processes are costly and may delay treatment

**Solution**
- Reduce clinical burden when requesting oncology treatment regimens by building on Da Vinci CRD/DTR/PAS specifications to supplement prior authorization request with mCODE data elements.

**Desired Impact**
- Develop automated prior authorization capability in which 80% of approvals do not require manual inspection

**Da Vinci Exchange**
- Implementing this use case in oncology produces the standardized exchange for use in any specialty or other PA services or procedure.
Quality Measure for Cancer

Problem
• Complexity of siloed data sources, slow development process, unstandardized data

Solution
• Create a solution that demonstrates the ability to develop FHIR digital measures using mCODE for value-based programs and clinical quality improvement in oncology.
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