Texas Oncology Overview

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Texas Oncology Overview

- **Texas Oncology's Vision** – To be the first choice for cancer care

- **Texas Oncology's Mission** – To provide excellent, evidence-based care for each patient we serve while advancing cancer care for tomorrow

- **Texas Oncology's Strategy** – Provide compassionate and individualized oncology care for our patients
  - Provide comprehensive and coordinated care close to our patients' homes.
  - Attract and nurture the best physicians.
  - Recognize and support the central role of clinical research in advancing cancer care
  - Leadership is efficient in care delivery and improves all aspects of cancer care.
  - Establish a financial structure to expand services to our patients

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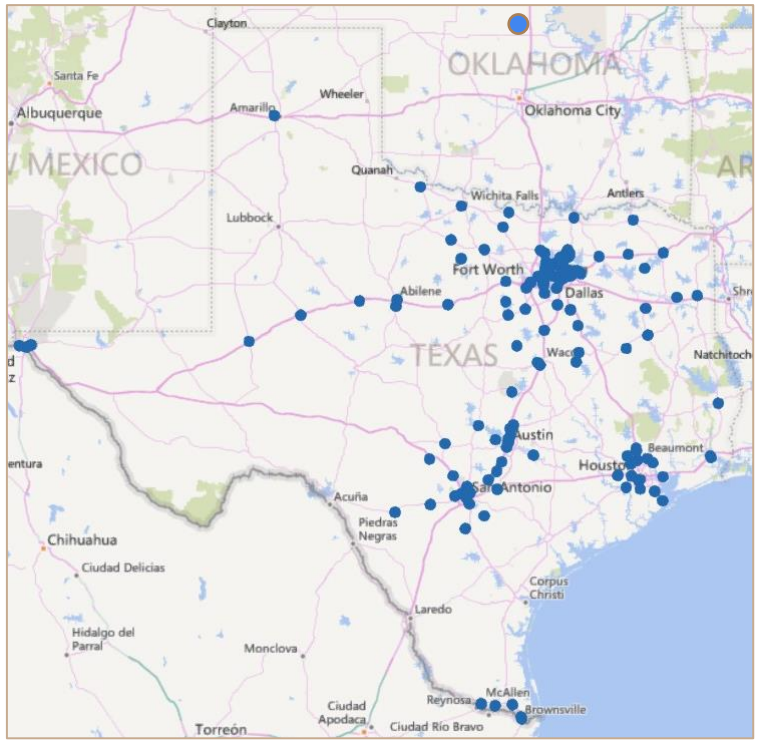
Overview of Texas Oncology

The largest independent physician practice in the Texas

- Texas' largest independent physician practice:
  - 500+ physicians
  - 3,000+ clinical employees
  - 75,000+ new cancer patients annually
  - 150+ sites of service
  - 50+ comprehensive cancer centers
  - 60+ linear accelerators
  - 1 Proton Center
  - 1,800+ patients accrued to research trials annually



Comprehensive & Integrated Oncology Platform

Physician Specialties	Med & Rad Oncology	Gynecologic Oncology	Surgical Oncology	Breast Surgery	Urology	Pediatric Oncology
Service Lines	Clinical Research	Laboratory Services	Pharmacy Services	Diagnostic Services	Patient Assistance	Blood & Marrow Transplant

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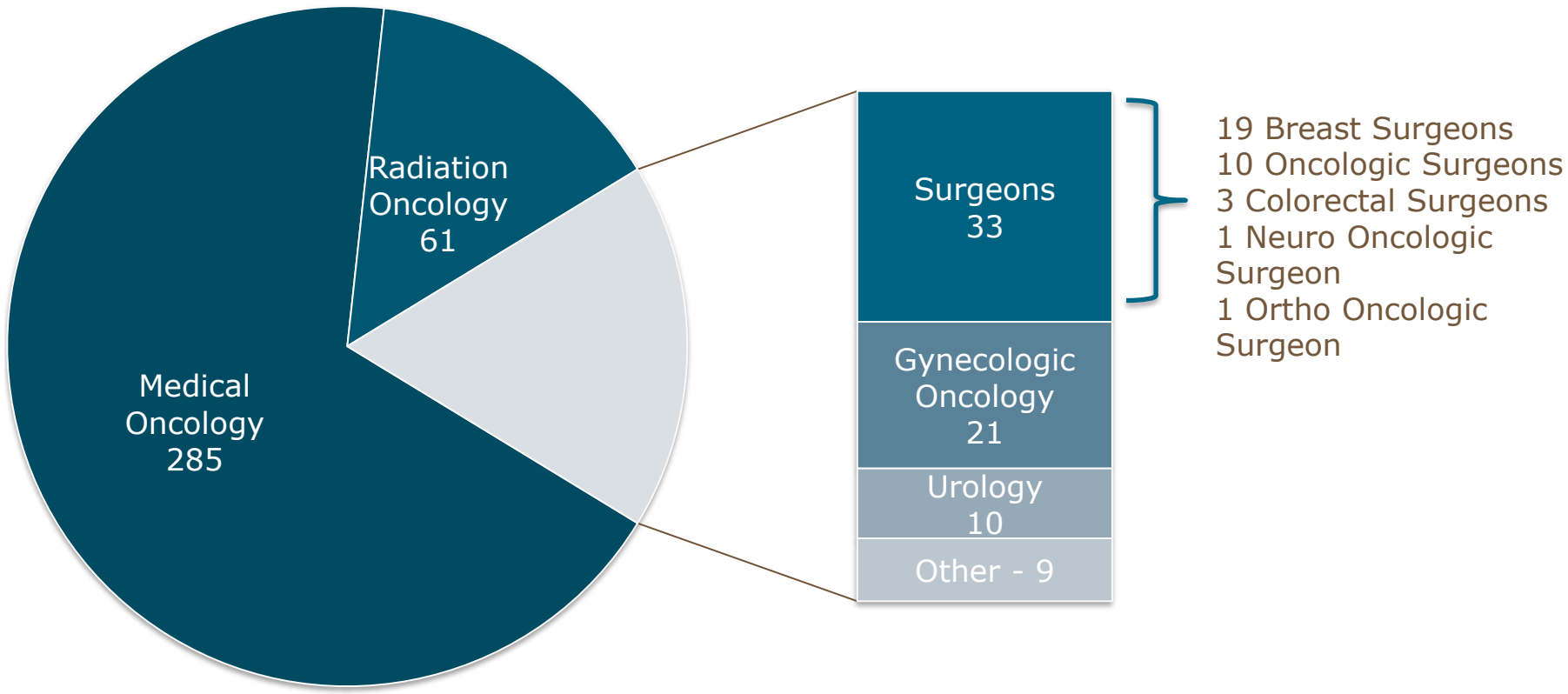
Texas Oncology Physician Headcount

Texas Oncology is one of the strongest and most diverse practices in The Network

Total TxO Physician Headcount – 419



As of June 30, 2017

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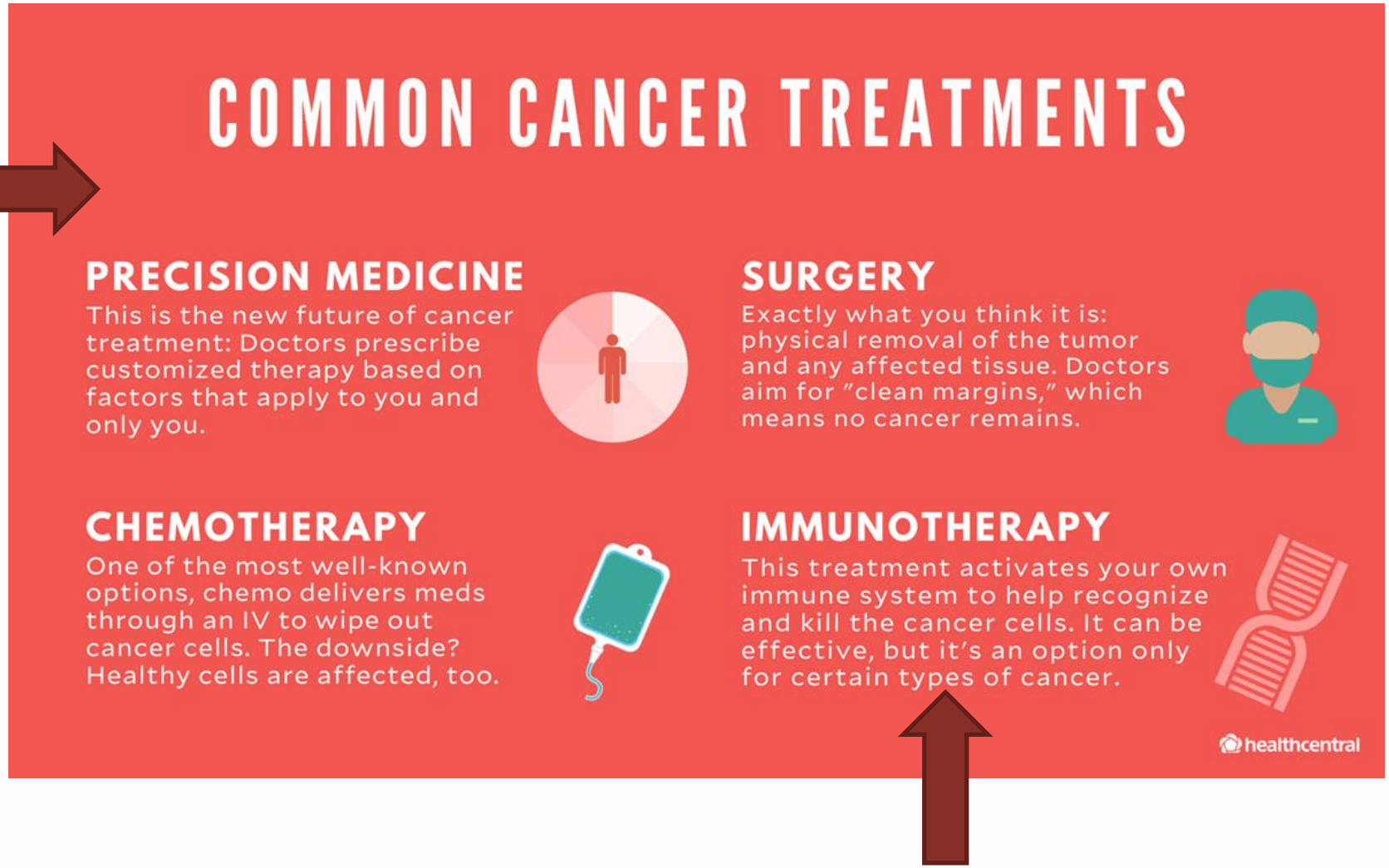
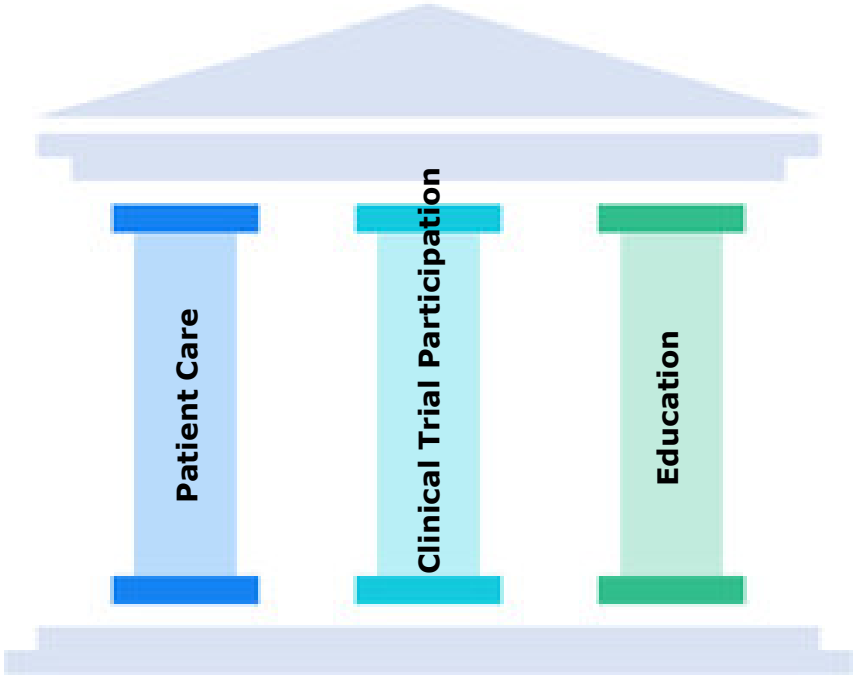
Texas Oncology Precision Medicine Program

How We Treat Cancer



Summary of TxO PM Program



- **Scalable, Equitable Model**
- **Consider the Patient's Journey**

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Common Barriers to PM Implementation

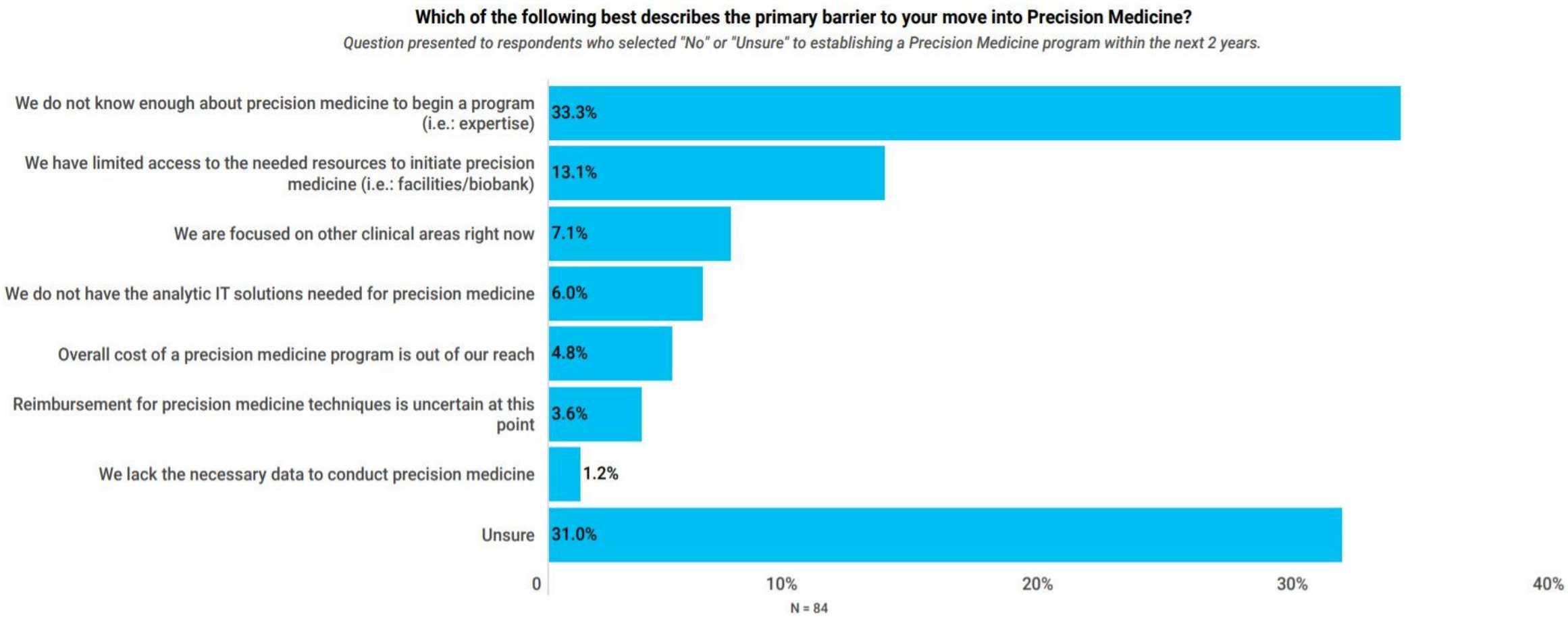


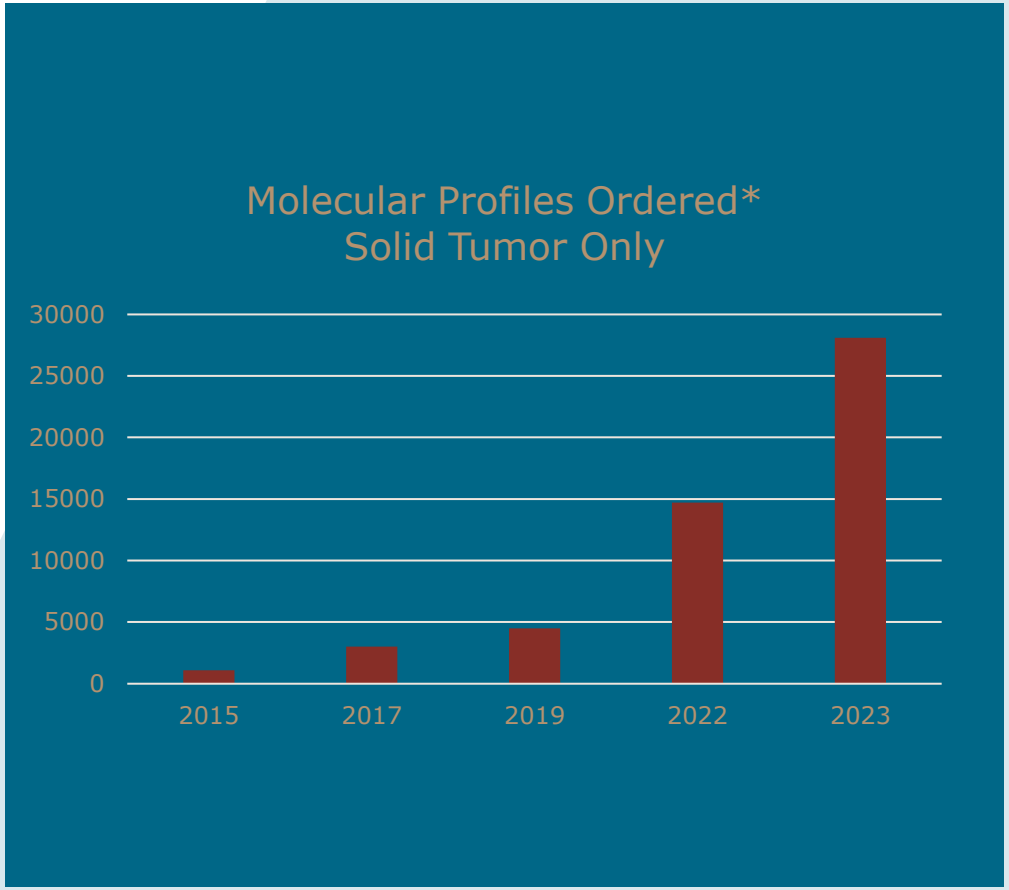
Fig 2: Definitive Healthcare Precision Medicine Study (2019), challenges

Tools Implemented to Support PM at TxO

- Clinical Decision Support Test Ordering Tool (Trapelo)
- Electronic Interfaces with Collaborating Reference Labs-bi-directional (ELLKAY)
- Dedicated, searchable* PM LIS (Orders/Results) (ELLKAY)
- Research-grade, searchable Molecular Data Warehouse (MDW)
- Molecular Virtual Tumor Board (mVTB) (Navify)

Maximize appropriate use of NGS testing

- Implement Clinical Decision Support Tool (Trapelo)
- Collaborate with our pharmacies to guide appropriate testing before administration of chemo
- Regional Dashboards



* Ordered directly w/Trapelo

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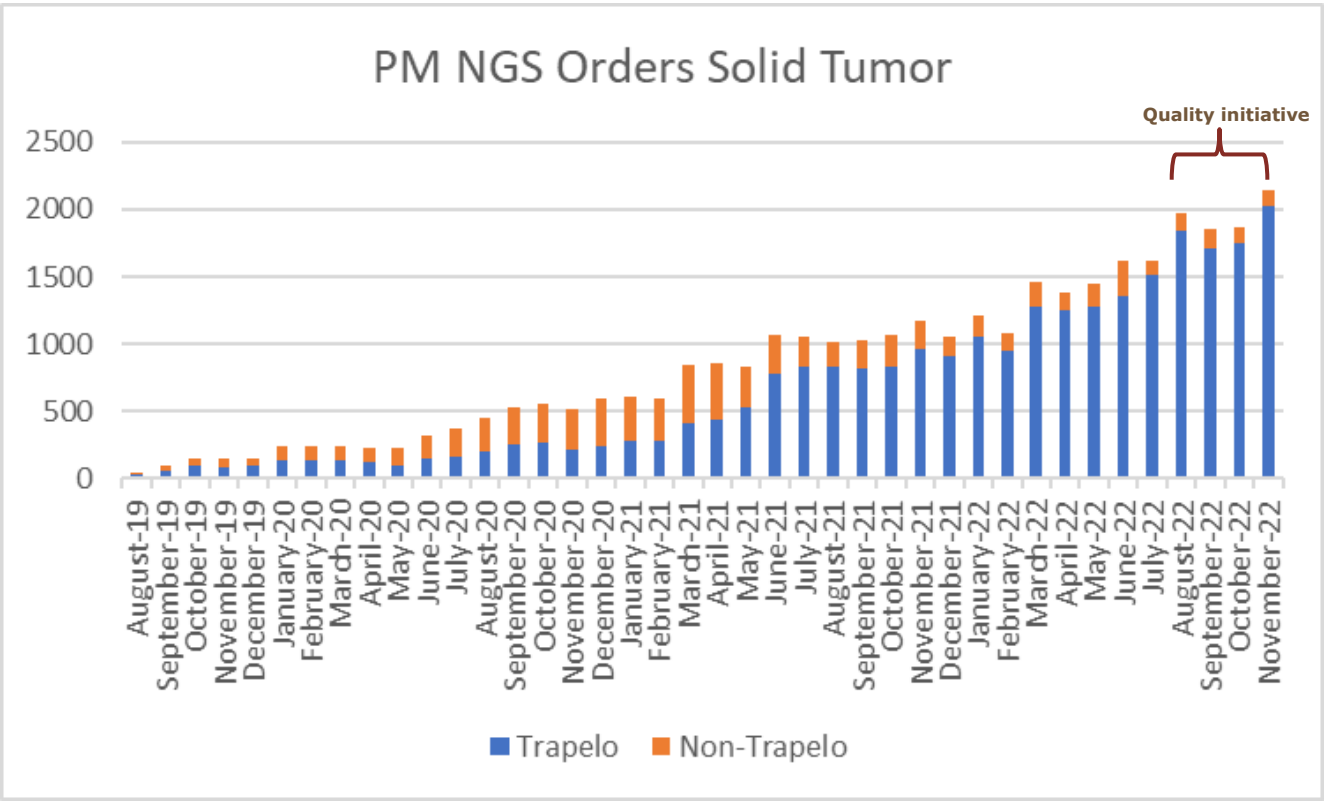
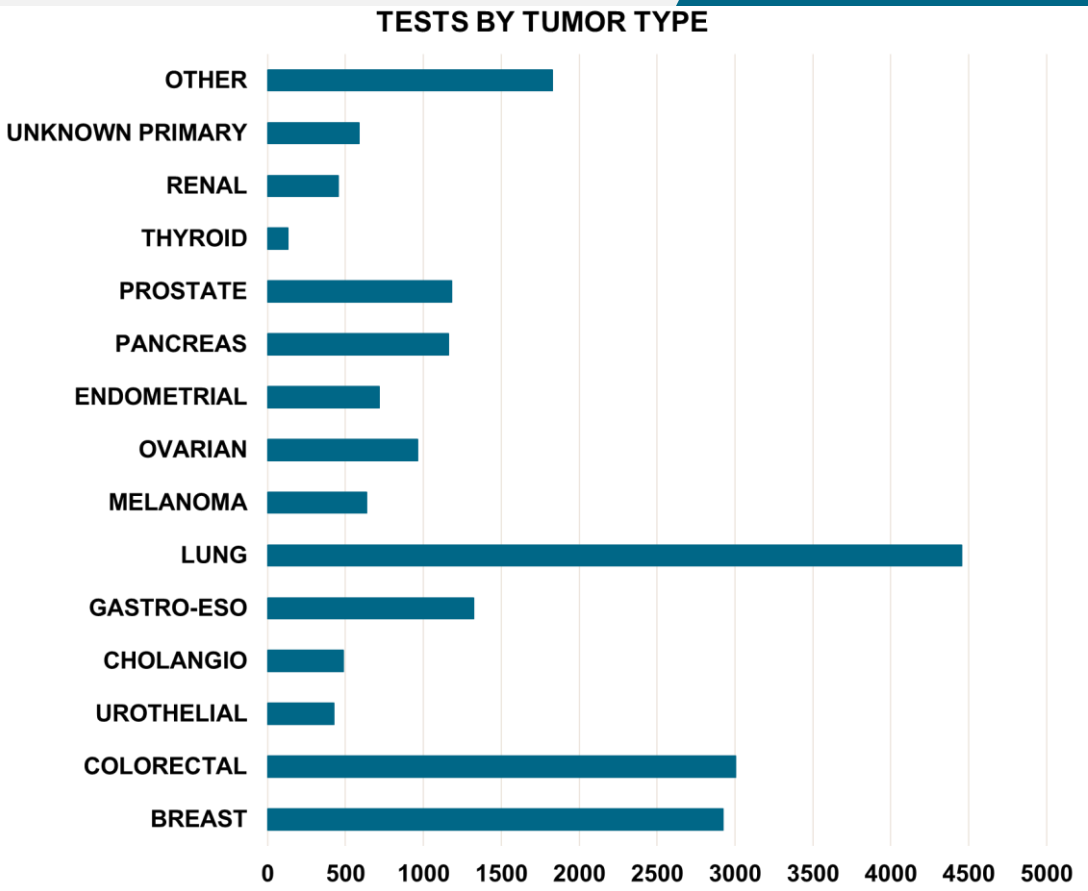
Quality Initiative: Pharmacy Collaboration

NGS Solid Tumor Orders via Trapelo





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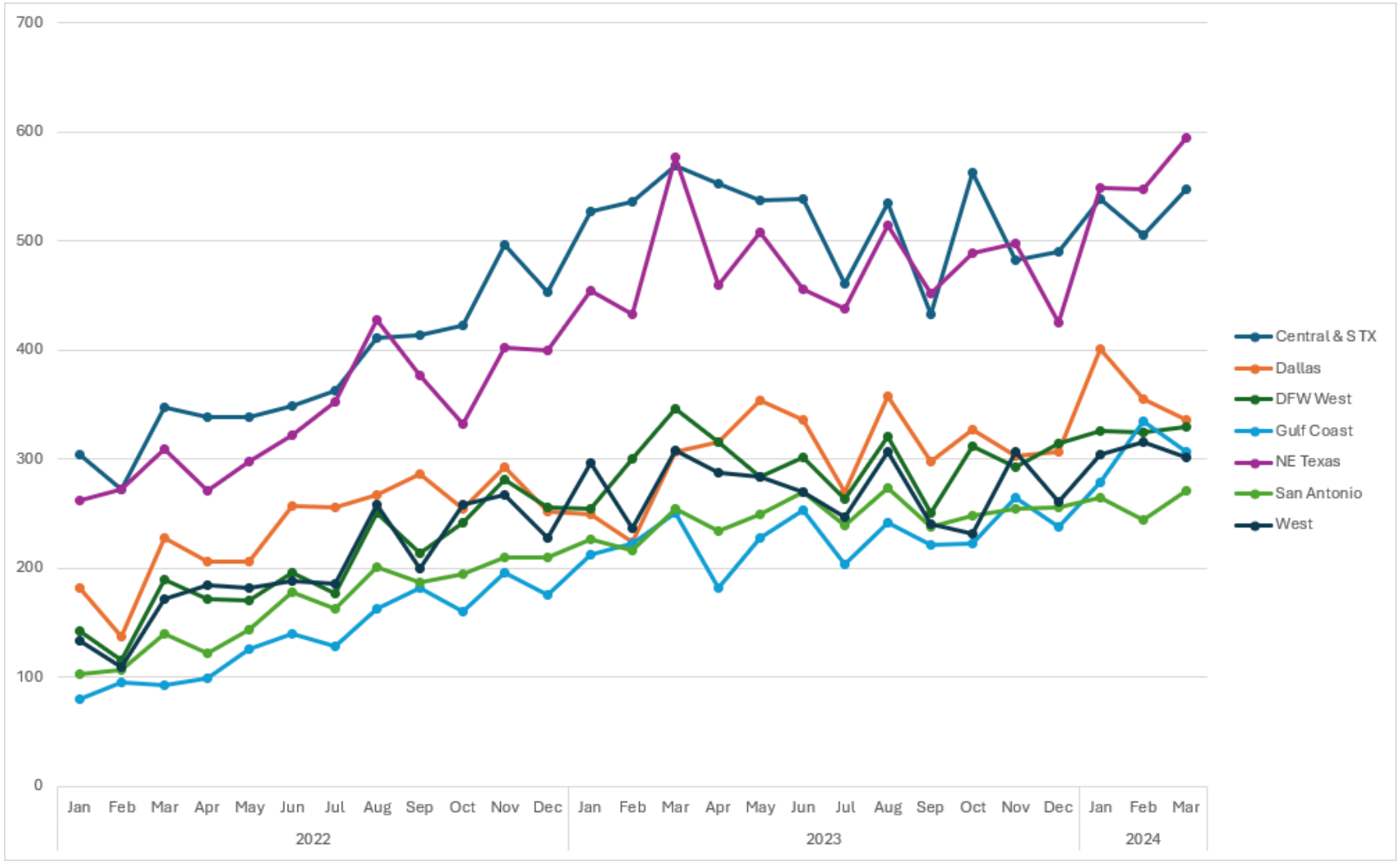
Regional Dashboards: Use of Trapelo



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Texas Oncology Database Sources

iKnowMed
Patient demographics, Treating physician, molecular results, stage, LOT, & Regimen

MDW
Discrete results for ALL biomarkers tested

ELLKAY LKOrbit*
Interface (HL7) feed of lab **reported** results

Clear Value Plus*
Clinician charted molecular results

Centricity
Patient next scheduled visit

Patient Journey Data Warehouse

Data Table Shells/Analytics

Reporting

Additional EHR Data Sources
Urochart, Athena, PACS, Race/Ethnicity DB, Navigating Cancer

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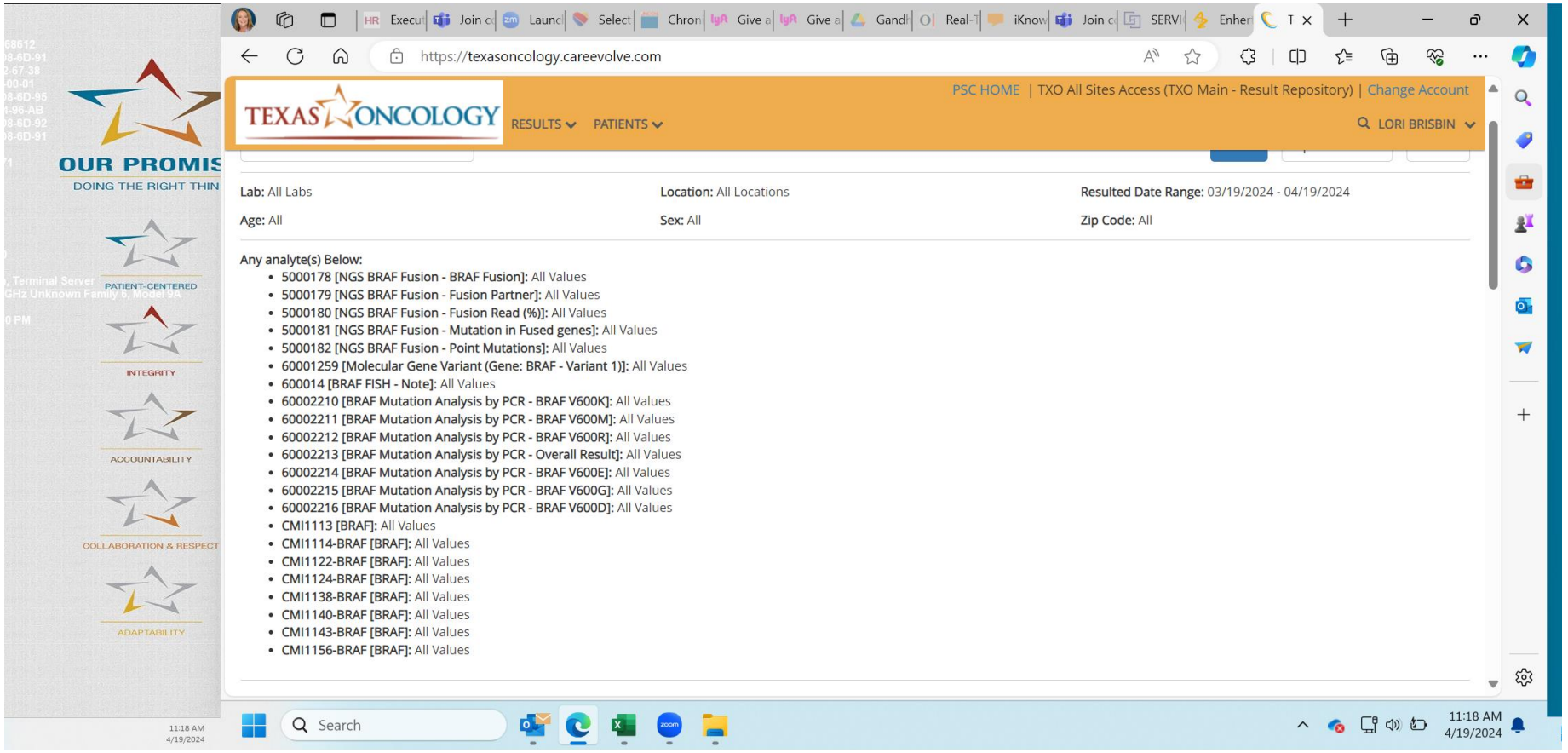
TxO Use of ELLKAY LKOrbit / CareEvolve



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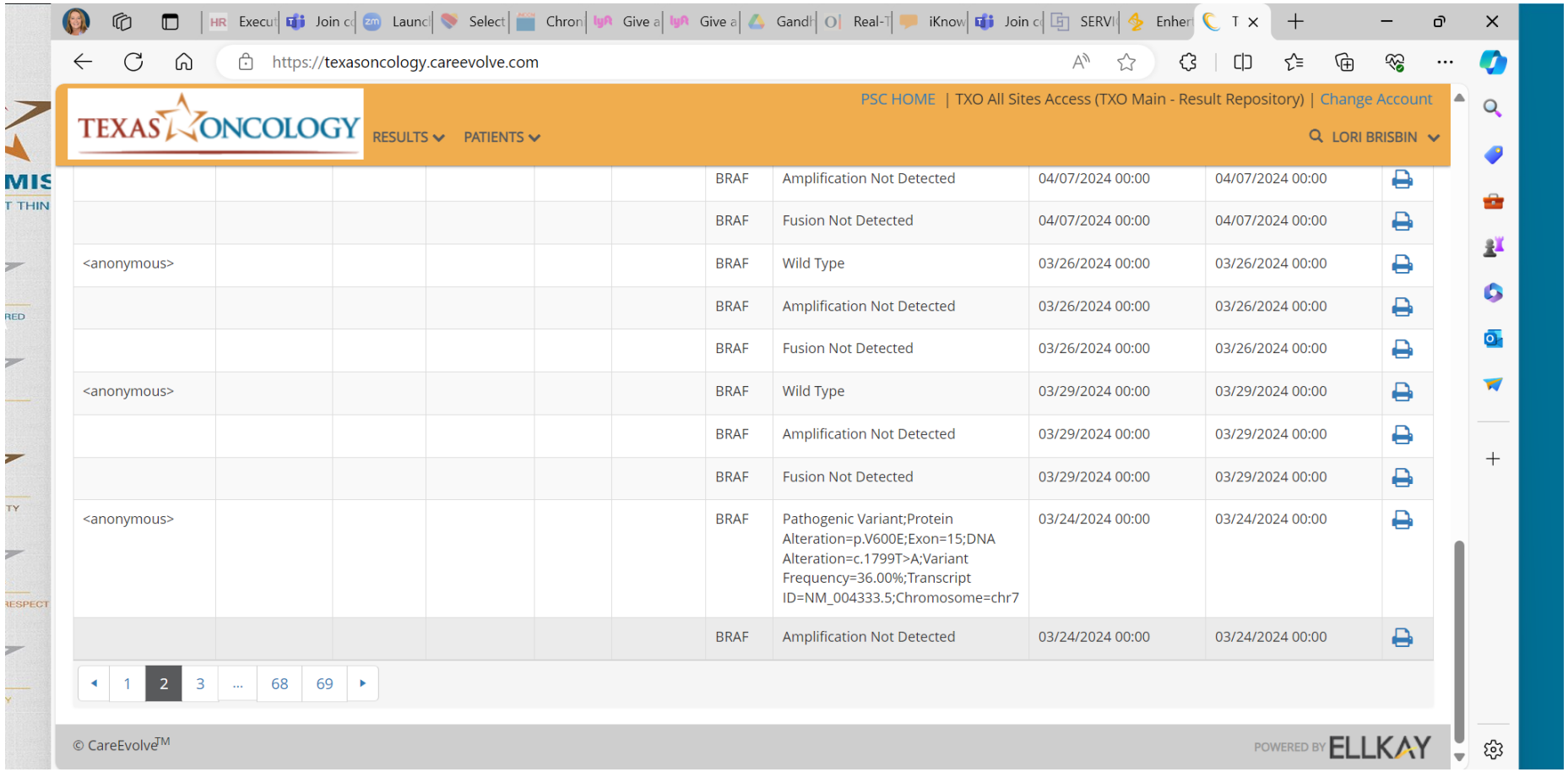

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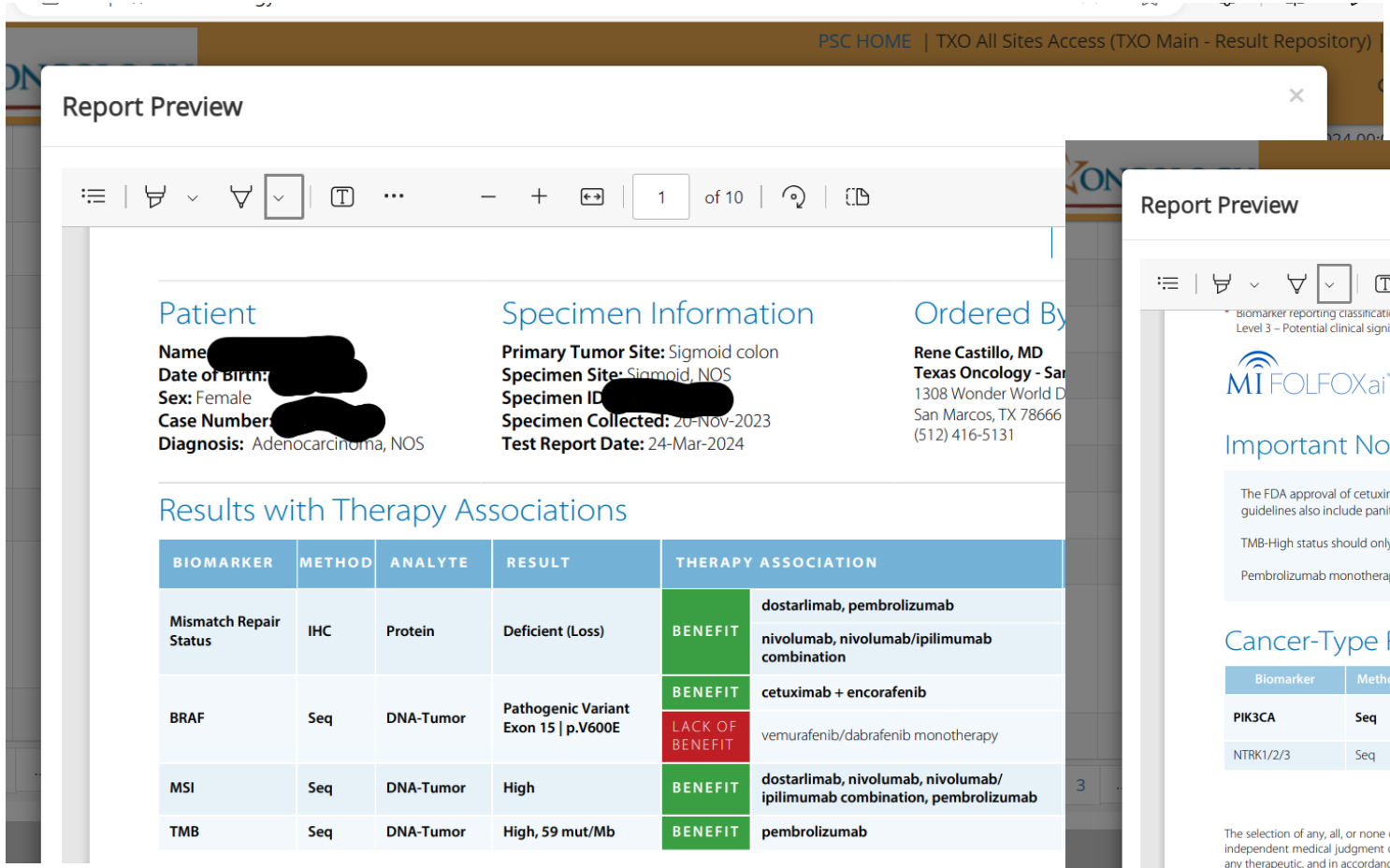
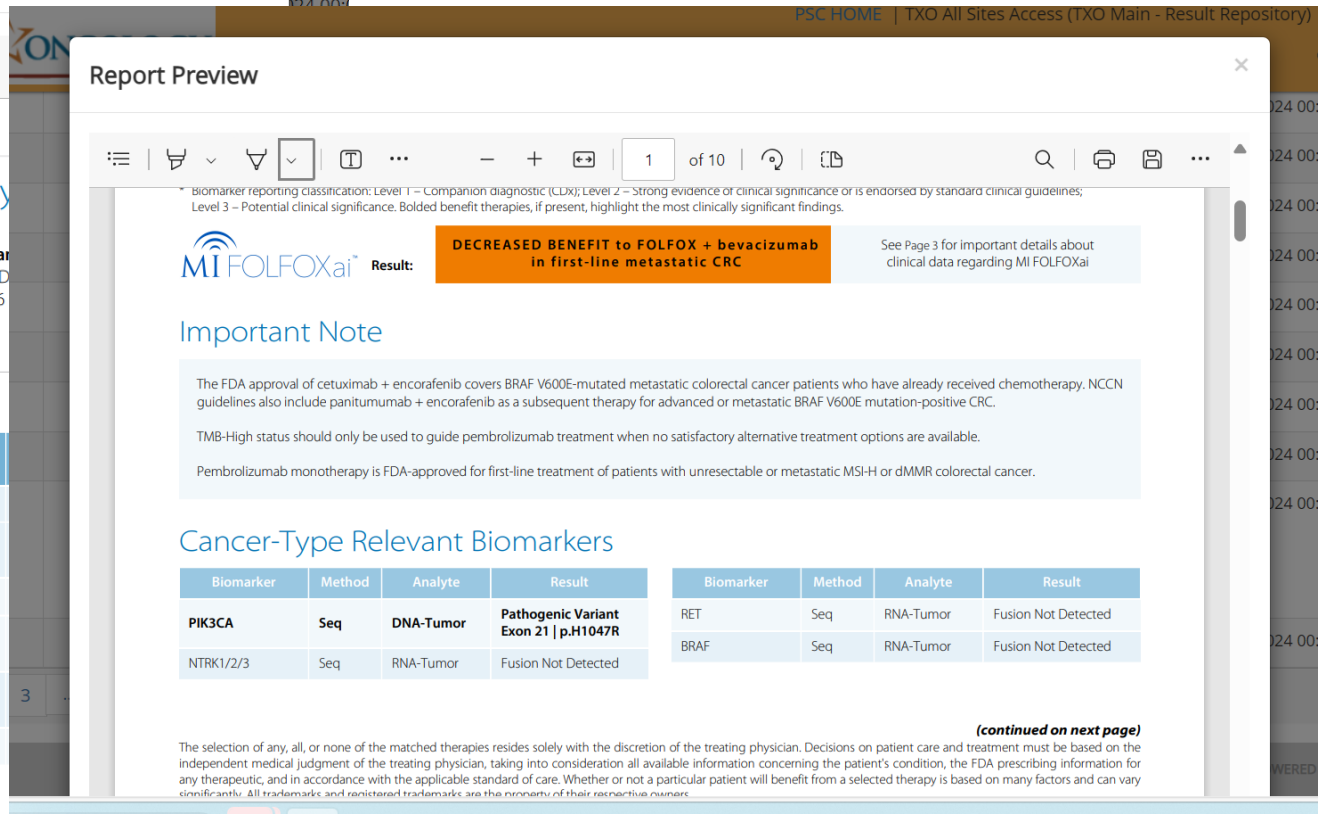
TxO Use of ELLKAY LKOrbit / LKCareEvolve





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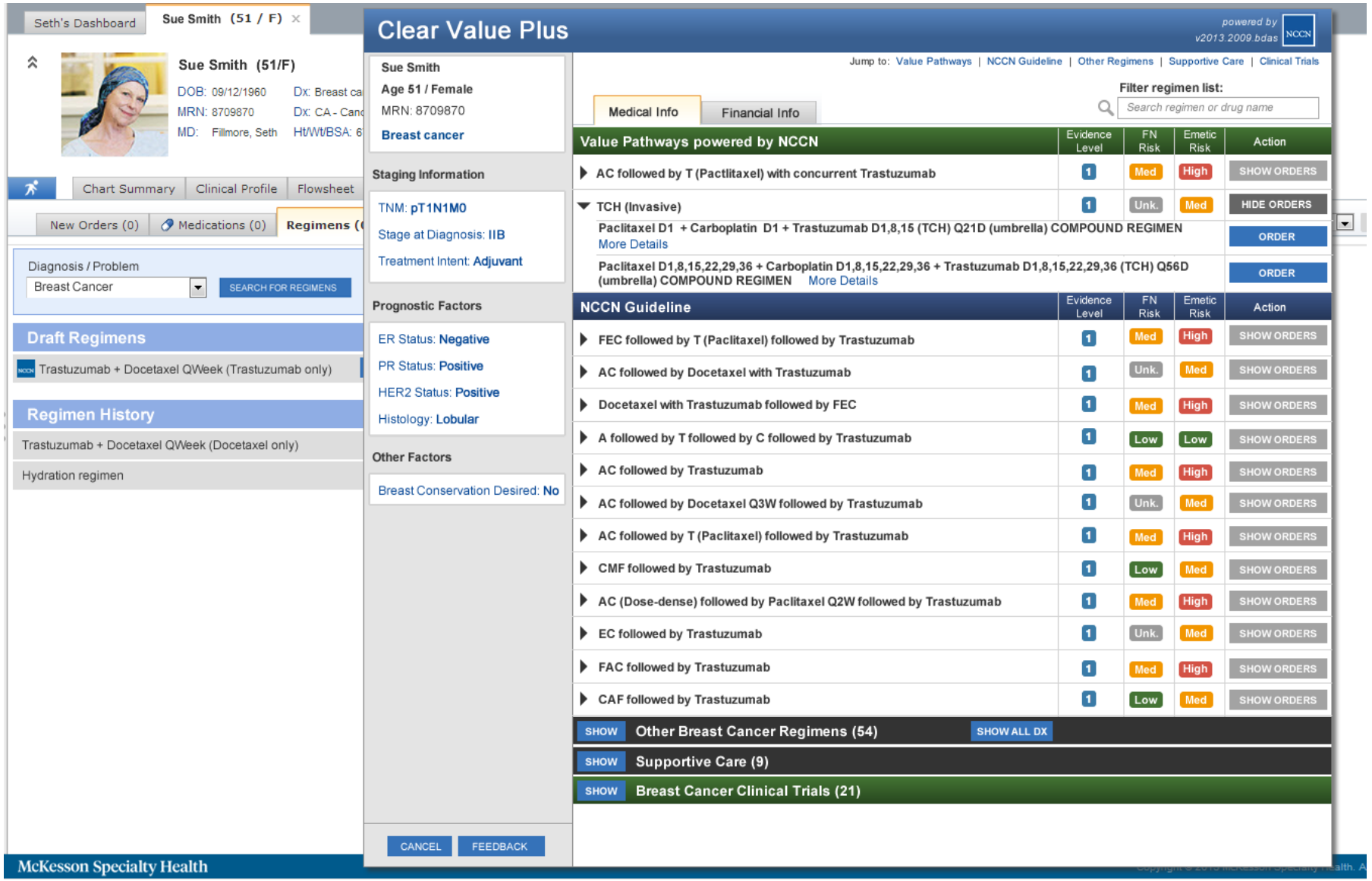
Clear Value Plus



Clear Value Plus presents Value Pathways powered by NCCN™ and NCCN Clinical Practice Guidelines in Oncology® (NCCN Guidelines®) seamlessly and intuitively at each appropriate point of the patient journey within the EHR.

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Precision Oncology:

Serving Urban, Suburban, and Rural Areas with Integrated Pathology, Imaging, and Precision Genomics Services

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Precision Oncology Workflow Design

Provider
Decision to have patient tested

Clinical Decision Support
Guideline-based, test ordering

Order Data Flow

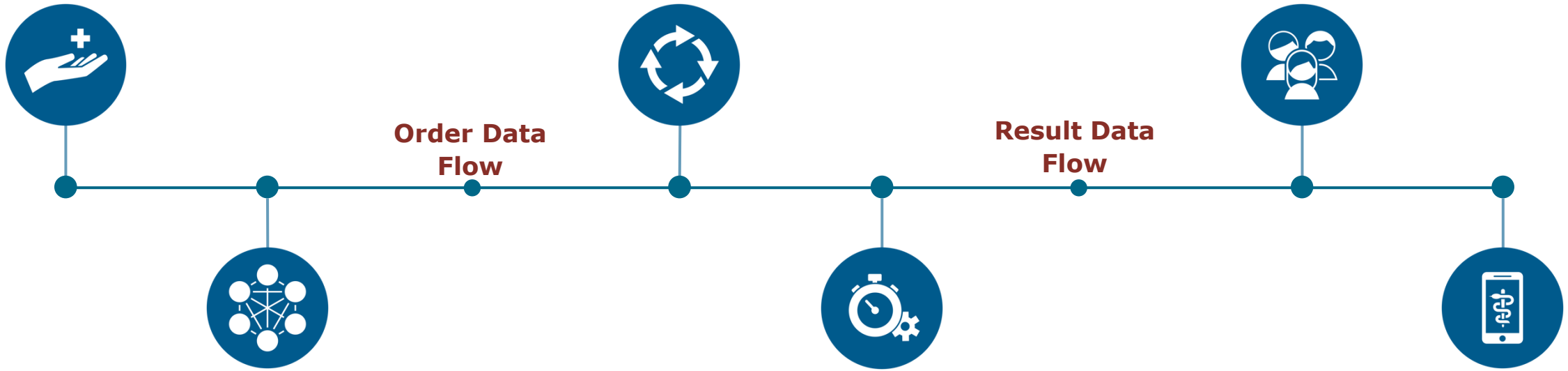
Precision Oncology Liaison Team
(Provider – Pathology – Reference Lab)

Biomarker Testing
Reference Lab Partnerships

Result Data Flow

Data Capture
Clinical trials, real-time alerts

Treatment Options
Decision to treat patient



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Clinical Decision Support – Test Ordering

What cancer type does your patient have?

- (●) NSCLC
- ( ) Colorectal Cancer
- ( ) Breast Cancer
- ( ) Ovarian (Fallopian Tube, Peritoneal) Cancer

What stage is your patient`s disease?

- ( ) Stage IA
- ( ) Stage IB - IIIA
- ( ) Stage IIIB or IIIC
- (●) Stage IV (Metastatic)

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Clinical Decision Support – Test Ordering

Routine markers

Indicate the primary specimen type for tumor marker testing

- (●) Tumor tissue
- ( ) Liquid biopsy

- [x] ALK rearrangement
- [x] BRAF mutation genotyping
- [x] EGFR mutation genotyping

Opt-In markers

- [ ] Tumor Mutational Burden (TMB)

ATTACHMENTS

Drag files here to upload or browse

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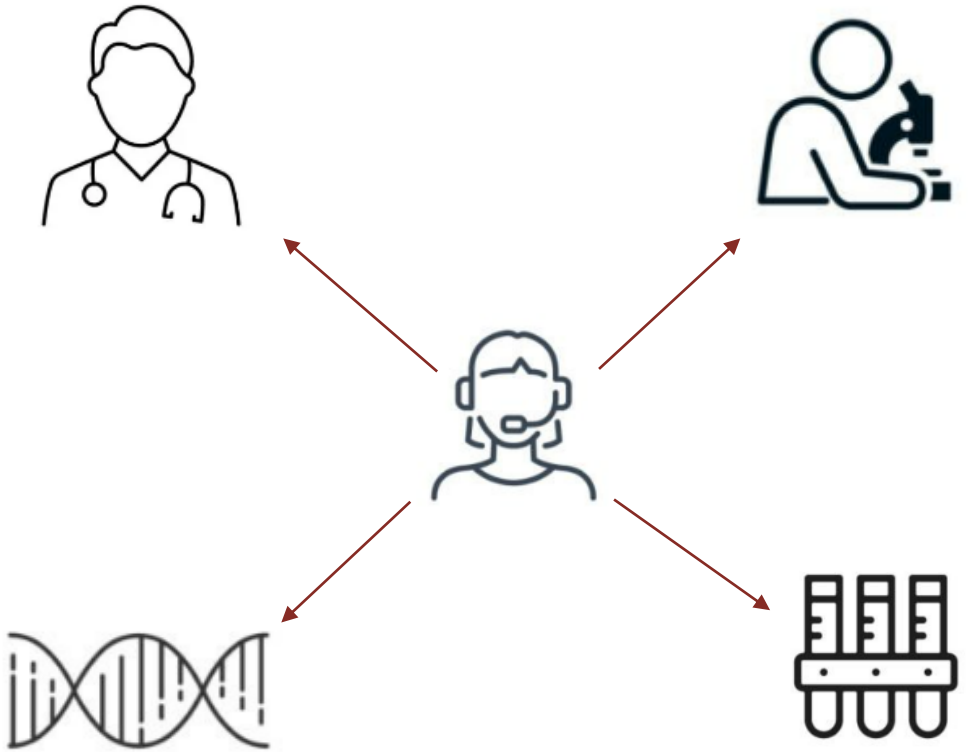
Role of Precision Oncology Liaison

- Liaison between ordering provider, pathology lab, and genomics testing lab
  - >500 Physicians
  - >280 locations
  - >100 pathology labs
  - >10 genomic testing labs
- Order/specimen tracking
- In-depth knowledge of partnering labs
  - In-network vs. Out-of-network
  - Test menu
  - Pathology relationships
- Delays in specimen procurement



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Reference Lab Partnerships

- Longitudinal Quality Metrics
  - Utilization
  - TAT
    - *Procurement*
    - *Testing*
  - QNS Rates
  - Patient Out-of-Pocket
- Testing Options
  - Tissue vs. liquid
  - Panel size
- Integration / Data Delivery

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Creating a Reference Lab Scorecard

Ref Lab	Data Exchange	Automated PDFs	Supporting Document Delivery	Structured Data via HL7	Unsolicited Results
Ref Lab 1	HL7v2	HL7	HL7	Yes	Yes
Ref Lab 2	HL7v3	HL7	HL7	Yes	Yes
Ref Lab 3	HL7v2	HL7	HL7	Yes	Yes
Ref Lab 4	HL7v2	HL7	HL7	Yes	Yes
Ref Lab 5	HL7v3	HL7	Portal	Yes	Yes
Ref Lab 6	JSON	HL7	sFTP	Yes	Yes
Ref Lab 7	sFTP	sFTP	sFTP	No	No
Ref Lab 8	sFTP	sFTP	sFTP	No	No

sFTP = secure file transfer protocol

JSON – JavaScript Object Notation

Constructing a Precision Oncology Database

- Data Capture
  - Real-time, structured, variant data
  - Clinically actionable vs VUS
- Storage
  - LIS, EMR, data warehouse
- Validation/Maintenance
  - Data scientists, engineers, clinical professionals
  - Structured data vs. PDF reports
- Combine Disparate Sources of Data
  - treatment, outcomes, patient demographics, etc.

Test	Result
KRAS	Pathogenic Variant;Protein Alteration=p.G12D;Exon=2;DNA Alteration=c.35G>A;Variant Frequency=15.00%;Transcript ID=NM_004985.4;Chromosome=chr12
KRAS	Amplification Not Detected
KRAS	Wild Type
KRAS	Amplified
KRAS	Pathogenic Variant;Protein Alteration=p.Q61R;Exon=3;DNA Alteration=c.182A>G;Variant Frequency=56.00%;Transcript ID=NM_004985.4;Chromosome=chr12
KRAS	Amplification Not Detected

Our Journey

Early Stages

- Unstructured Data
  - Manual Curation
- Biomarker Ordering
  - No standardization
- Database Design
  - Excel spreadsheets
- Lab Integration
  - Paper/Fax

Progress

- Unstructured Data
  - NLP
- Biomarker Ordering
  - Standardized via CDS
- Database Design
  - SQL Database
  - Molecular Data Warehouse
- Lab Integration
  - HL7, sFTP

Current State

- Unstructured Data
  - AI Tools
- Biomarker Ordering
  - Increased Offerings, Liaisons
- Database Design
  - >10 Disparate Sources
- Lab Integration
  - HL7, sFTP, JSON, FHIR, XML, etc.

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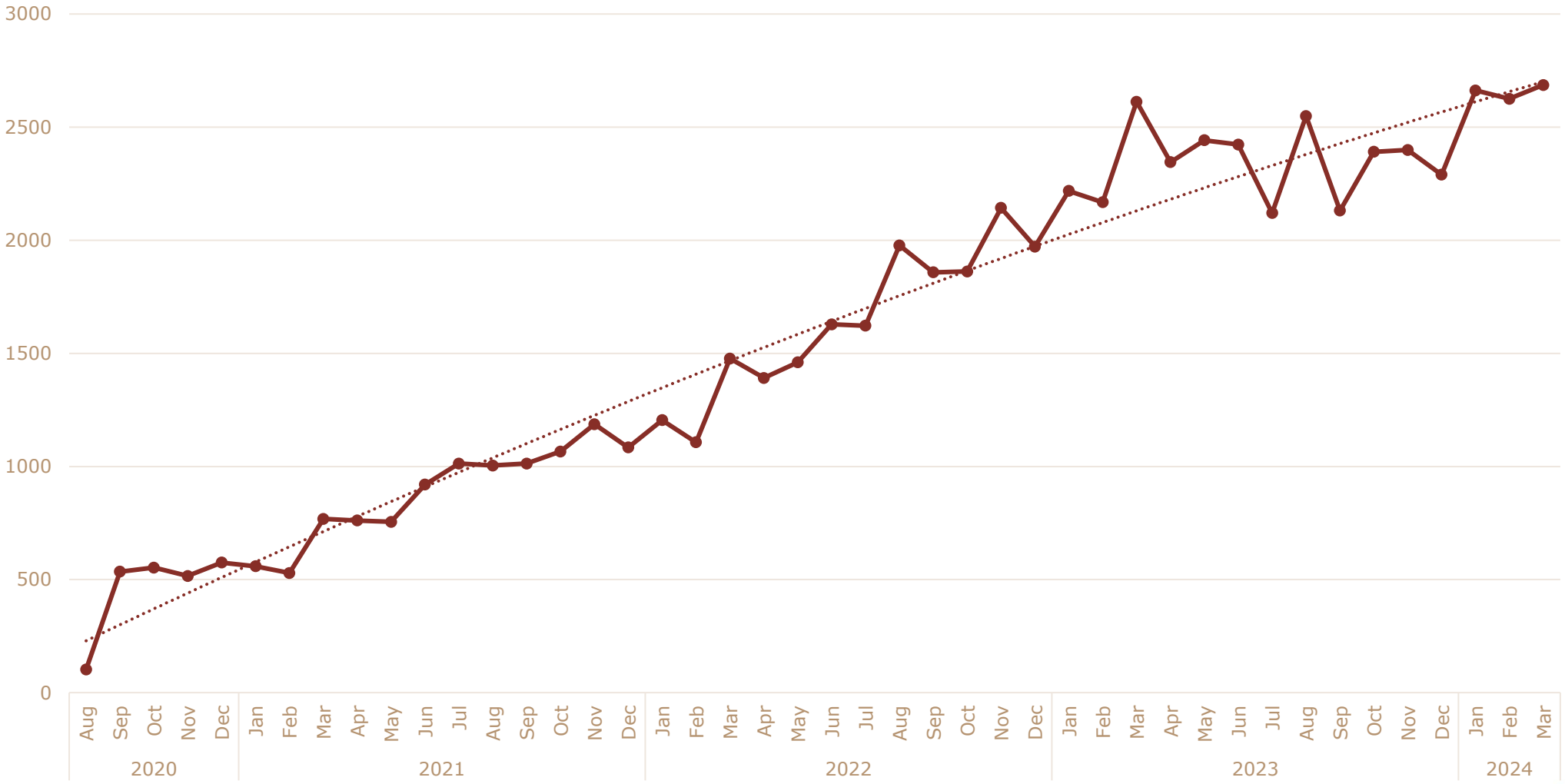
Orders Submitted via Precision Oncology Workflow



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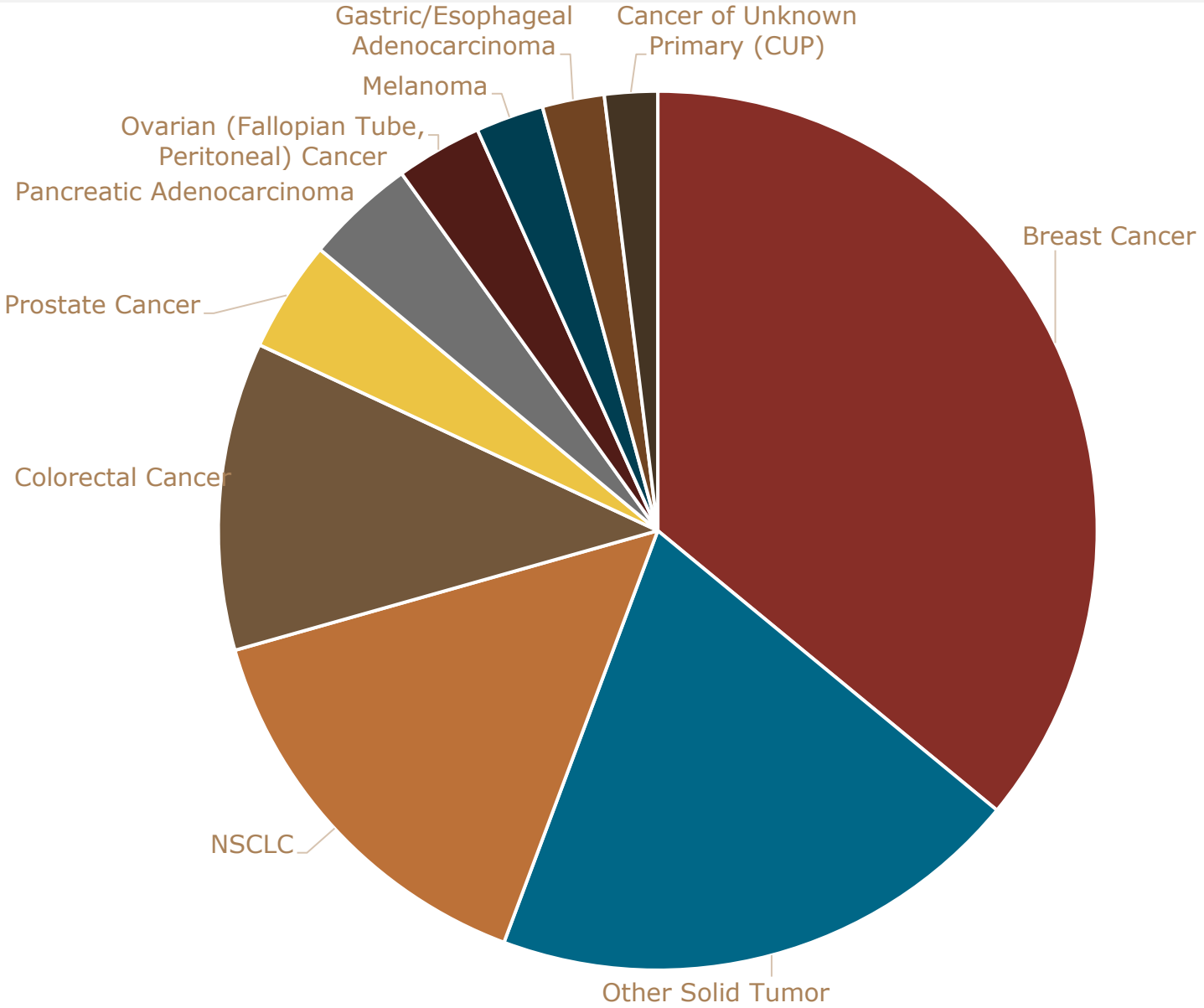
Solid Tumor Cancer Types



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Goals for the Future

- Improve CDS tools
  - Germline/Heme
  - Testing for all types of patients/diseases
  - Therapy Decisions

- Enhance Clinical Trial Database
  - Standardized genomic data via HL7
  - Diagnosis data
  - Query/Reporting Capabilities
  - User Friendly

- Increase Data integration/interoperability
  - Order Status Updates
  - Internal & External

- AI

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THANK YOU

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