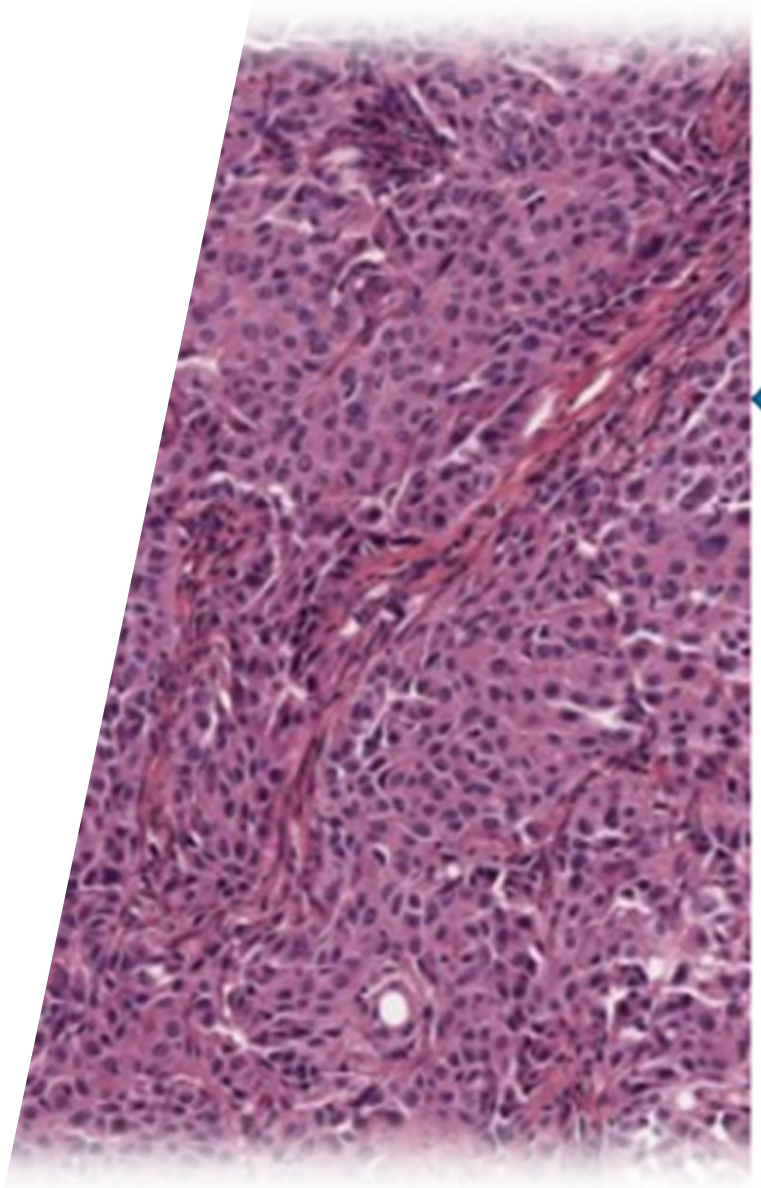
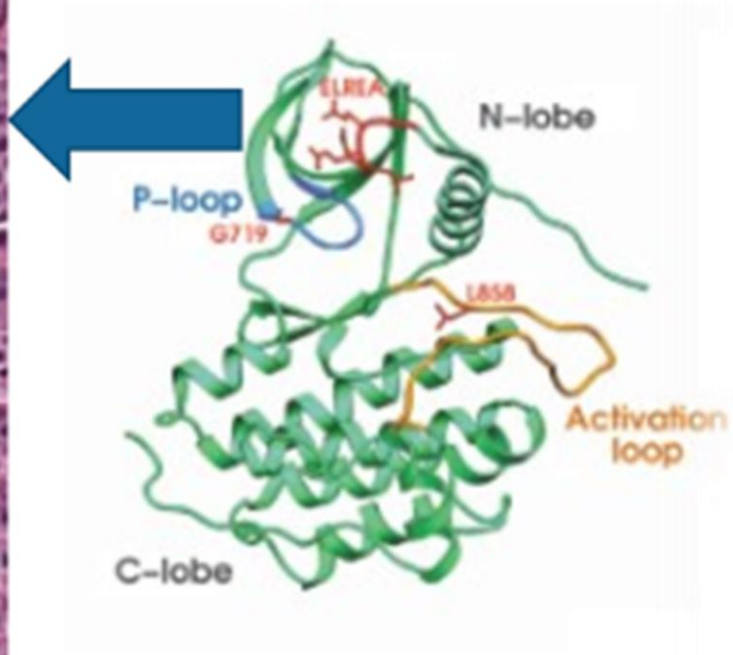
Welcome!

Before we begin…

Today's session will be recorded

Please add your name and organization in the chat





EGFR Mutation

Wednesday, March 27, 2024 • 4:00 – 5:00 PM EDT

Lung Cancer Biomarker Testing ECHO Year 3

Session 4: Improving Turnaround Time

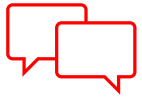
Welcome to Session 4 of the

Lung Cancer Biomarker Testing ECHO Year 3

Each ECHO session will be recorded and will be posted to a publicly-facing website

You will be muted with your video turned off when you join the call. Use the buttons in the *black* menu bar to unmute your line and to turn on your video. **If you do not wish to have your image recorded, please turn OFF the video option**.

Today's materials will be made available on our ACS ECHO website, https://echo.cancer.org.



Please type your full name, the full name of your organization, and e-mail in the chat box

This ECHO session takes place on the Zoom platform. To review Zoom's privacy policy, please visit zoom.us/privacy

Questions about Zoom? Type in the chat box @Mindi Odom

The Biomarker ECHO series is made possible with funding provided by:

Additional thanks to Foundation Medicine and founding sponsor, Amgen

Have a question? Don't wait to ask! Feel free to enter in the **Chat** at any time.

Today's Agenda

1 **Housekeeping, Agenda Preview, and Introductions**
10 minutes

2 **Didactic Lecture: Choice of Panel, Interpretation of Resultsand Next Steps**
Jason Merker, MD, PhD
10 minutes

3 **Didactic Q/A**
10 minutes

4 **Case Presentation: Adam Fox, MD**
5 minutes

5 **Case Presentation Recommendations and Discussion**
15 minutes

6 **Post Session Poll & Wrap Up**
5 minutes

Your ECHO Support Team

Korey Hofmann, MPH
ECHO Lead
Program Manager, National Lung Cancer Roundtable

Mindi Odom
Director, Project ECHO
Your ECHO Co-Lead

Beth Graham, MPH, CHES
Program Manager, Project ECHO

Jennifer McBride, PhD
Senior Data & Evaluation Manager

Donoria Evans, PhD, MPH
Director, Data and Evaluation,
National Roundtables and Coalitions

Introductions

Meet Our Lung Cancer Biomarker Testing ECHO HUB Subject Matter Experts (SMEs)

Millie Das, MD
Chief, Oncology
VA Palo Alto Health Care System
Clinical Associate Professor
Stanford University

Aakash Desai, MBBS, MPH
Assistant Professor of Medicine
O'Neal Cancer Center
University of Alabama, Birmingham

Grace Dy, MD
Professor of Oncology
Roswell Park Comprehensive Cancer Center

DuyKhanh Pham "Mimi" Ceppa, MD, FACS
Associate Professor of Thoracic Surgery
Indiana University School of Medicine

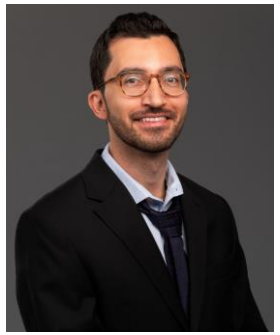
Matthew Facktor, MD
System Chief, Thoracic Surgery
Geisinger Health

Adam Fox, MD
Assistant Professor
Medical University of South Carolina

Jason Merker, MD, PhD
Associate Professor, Department of Pathology and Laboratory Medicine & Genetics
University of North Carolina Lineberger Comprehensive Cancer Center

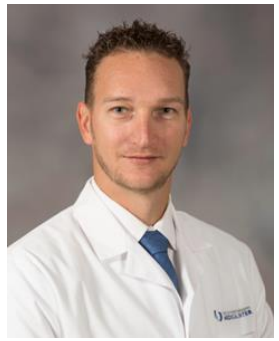
Introductions

Meet Our Lung Cancer Biomarker Testing ECHO HUB Subject Matter Experts (SMEs)



Koosha Paydary, MD, MPH, MSc
Assistant Professor, Department of Internal Medicine
Rush University

Catherine R. Sears, MD
Associate Professor of Medicine, Division of Pulmonary, Critical Care, Sleep and Occupational Medicine
Indiana University School of Medicine
Simon Comprehensive Cancer Center



Michal Senitko, MD
Assistant Professor
The University of Mississippi Medical Center

Gerard Silvestri, MD, MS
Hillenbrand Professor of Thoracic Oncology
Medical University of South Carolina

Heather Wakelee, MD (Ad Hoc)
Professor of Medicine and Chief of the Division of Oncology,
Stanford University School of Medicine
Deputy Director, **Stanford Cancer Institute**

Ignacio Wistuba, MD
Professor and Chair, Department of Translational Pathology
The University of Texas MD Anderson Cancer Center

Welcome to our Participant Learning Sites

ALABAMA

- Mobile Infirmary
- O'Neal Comprehensive Cancer Center at the University of Alabama at Birmingham
- University of South Alabama Health, Mitchell Cancer Institute

CALIFORNIA

- Comprehensive Cancer Center at Desert Regional Medical Center
- Fresno VA Medical Center
- Harbor UCLA
- Providence St. Joseph Health
- Sharp Healthcare

INDIANA

- Ascension St. Vincent Indianapolis
- Deaconess Hospital, Inc.
- Franciscan Alliance Burrell Cancer Center Crown Point
- Methodist Hospitals

NORTH CAROLINA

- Cone Health Medical Group/Cone Health Cancer Center
- Novant New Hanover Regional Medical Center
- UNC Caldwell McCreary

Bruce E. Johnson, MD, FASCO
Dana-Farber/Harvard Cancer Center
Lung Cancer Program
Senior Consultant, Dana-Farber Cancer Institute

Lung Cancer Biomarker Testing ECHO
FACILITATOR

Jason Merker, MD, PhD
Associate Professor, Department of Pathology and Laboratory Medicine & Genetics
University of North Carolina
Lineberger Comprehensive Cancer Center

Session 4 Didactic:
Improving Turnaround Time

UNC | LINEBERGER COMPREHENSIVE CANCER CENTER

UNC CANCER CARE

ACS/NLCRT ECHO Session 4: Improving Turnaround Time

Jason D. Merker, MD, PhD
Associate Professor, Pathology and Laboratory Medicine & Genetics
Director, Molecular Oncology
jason_merker@med.unc.edu

March 27, 2024

Conflict of Interest

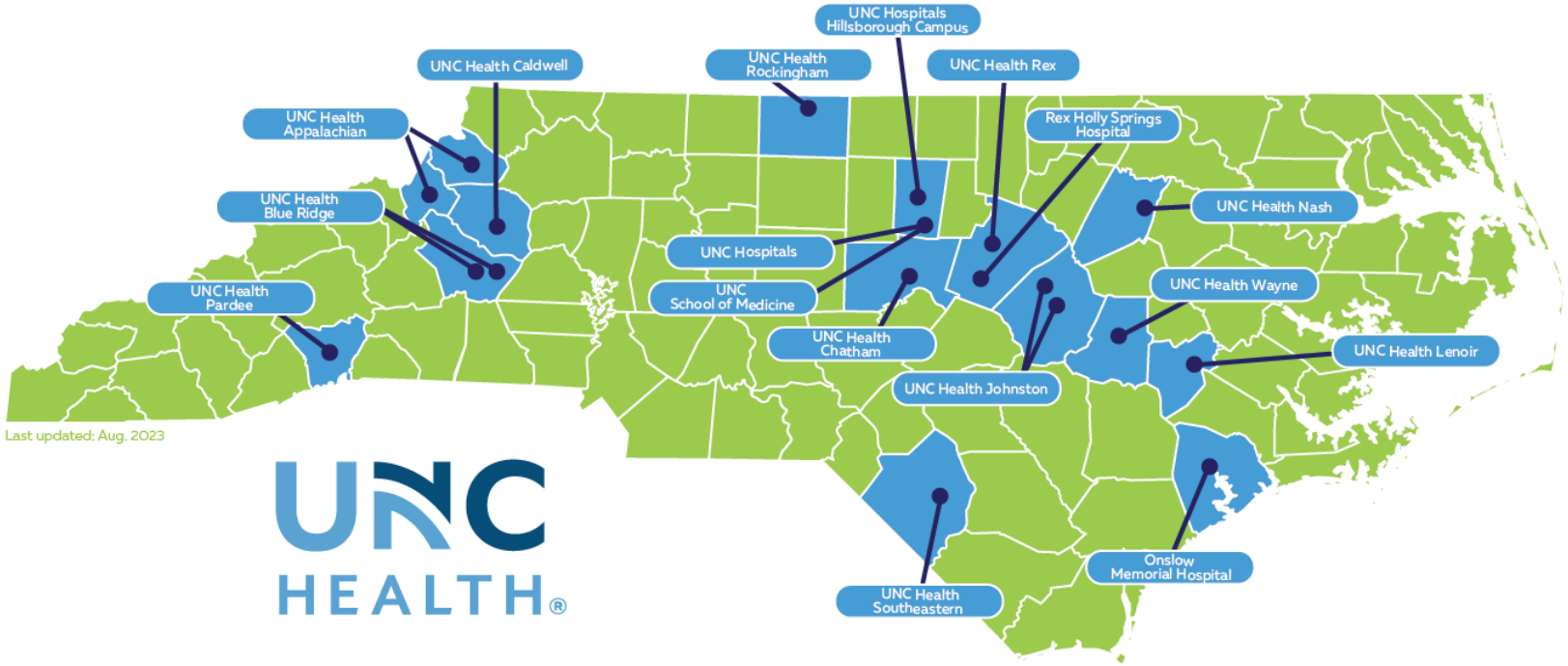
- **Research Grant:** Illumina, NCI/NIH, Alliance Foundation
- **Consultant:** PierianDx, Velsera
- **Advisor:** Bristol Myers Squibb, Illumina

Objectives

- Offer strategies to reduce turnaround time
- Present strategies to help ameliorate the patient's wait time for the results

Disclaimers

- There are multiple approaches that can improve turnaround time at different steps.
- What works well at one site may not work well at another.



Turnaround Time (TAT) laboratory definitions

Start Time	End Time	Percentage of Laboratories
Receipt of specimen in laboratory	Result reporting	41.1%
Test order	Result reporting	27.0%
Specimen collection	Result reporting	18.2%
Other combinations		13.7%

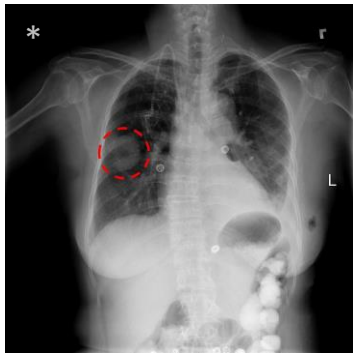
Also consider measure and units:

- Median vs. 90% completion
- Calendar days vs. business days

Steven J. Steindel SJ, Howanitz PJ. Arch Pathol Lab Med. 2001;125:863

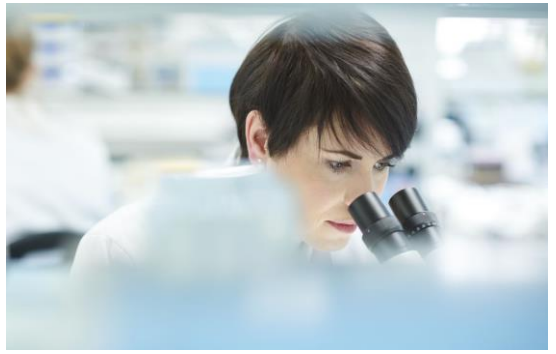
Example Workflow

Potential TAT start times

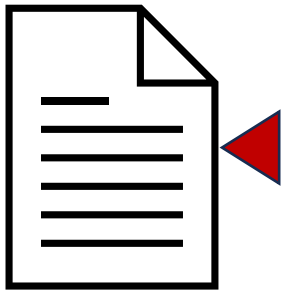


Lung mass or suspected lung cancer

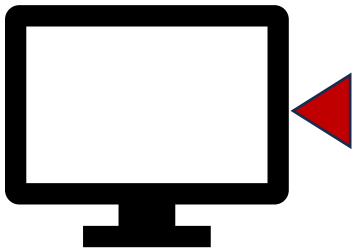
Specimen collection:
- Biopsy
- Cytology
- Blood



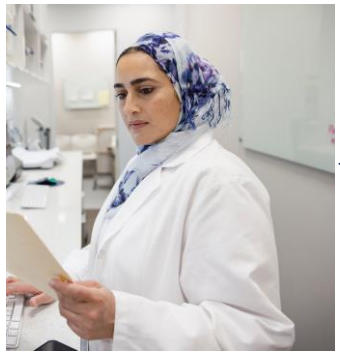
Tissue or other specimen processed by Surgical Pathology (H&E and IHC)



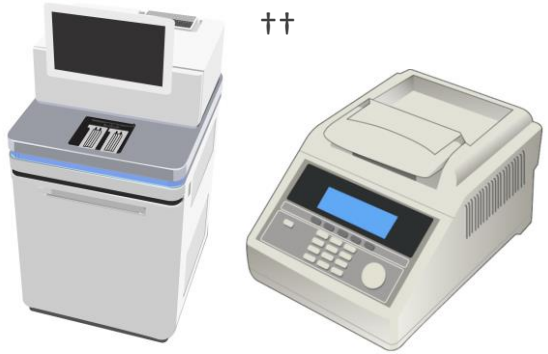
Pathologic diagnosis



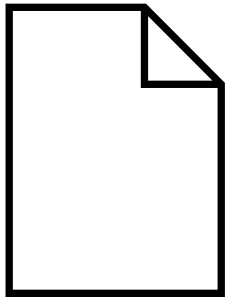
Order placed for molecular testing



Specimens received by Molecular Pathology Laboratory



Molecular testing



Molecular result reporting

Image Credits:

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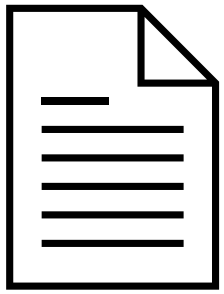
†Dr. Yale Rosen Atlas of Pulmonary Pathology, CC BY-NC 2.0 DEED, https://www.flickr.com/photos/pulmonary_pathology/

†† DataBase Center for Life Science (DBCLS), CC BY 4.0 DEED, https://togotv.dbcls.jp/togopic.2019.33.html

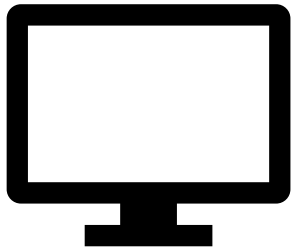
General considerations for optimizing TAT

- Most variability in molecular testing TAT occurs in preanalytical steps prior to receipt of specimens in laboratory.
- Establishing a workflow and tracking system for these preanalytical steps can improve TAT consistency.
- These processes and systems take time and resources to implement; therefore, consider limiting number of vendors.
- Thoracic specimens generally have an appreciable failure rate so having a backup plan, generally involving plasma-based testing, is important.
- Learn from cases with extended TAT.

TAT – Pathologic diagnosis > Molecular test order



Pathologic diagnosis

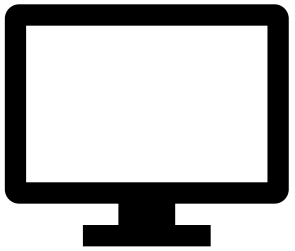


Order placed for molecular testing

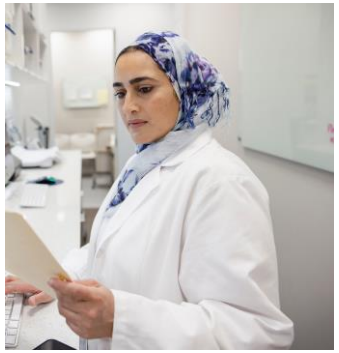
<u>Potential strategies to reduce TAT:</u>

- Reflex testing
- Establish who will order (e.g., interventional provider, pathologist, oncologist).
- Consider any required counseling, consent, or financial assistance processes in establishing this workflow.

TAT – Molecular test order > Specimens in lab



Order placed for molecular testing

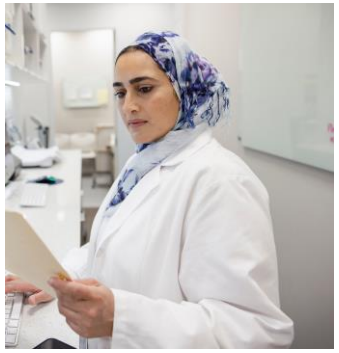


Specimens received by Molecular Pathology Laboratory

Potential strategies to reduce TAT:

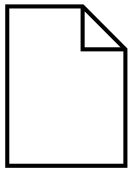
- Determine workflow for sending specimens and other required information (e.g., pathology report and clinic notes).
- Many molecular laboratories will take responsibility for acquiring specimens.
- Are there workflow solutions to reduce time for pathology laboratory to send specimens (e.g., note best block for molecular testing, sending blocks in place of slides, prioritizing urgent cases).
- Rapid on-site evaluation (ROSE) or intraoperative diagnosis.

TAT – Specimens in molecular lab > Result reporting



Specimens received by Molecular Pathology Laboratory

Molecular testing



Molecular result reporting

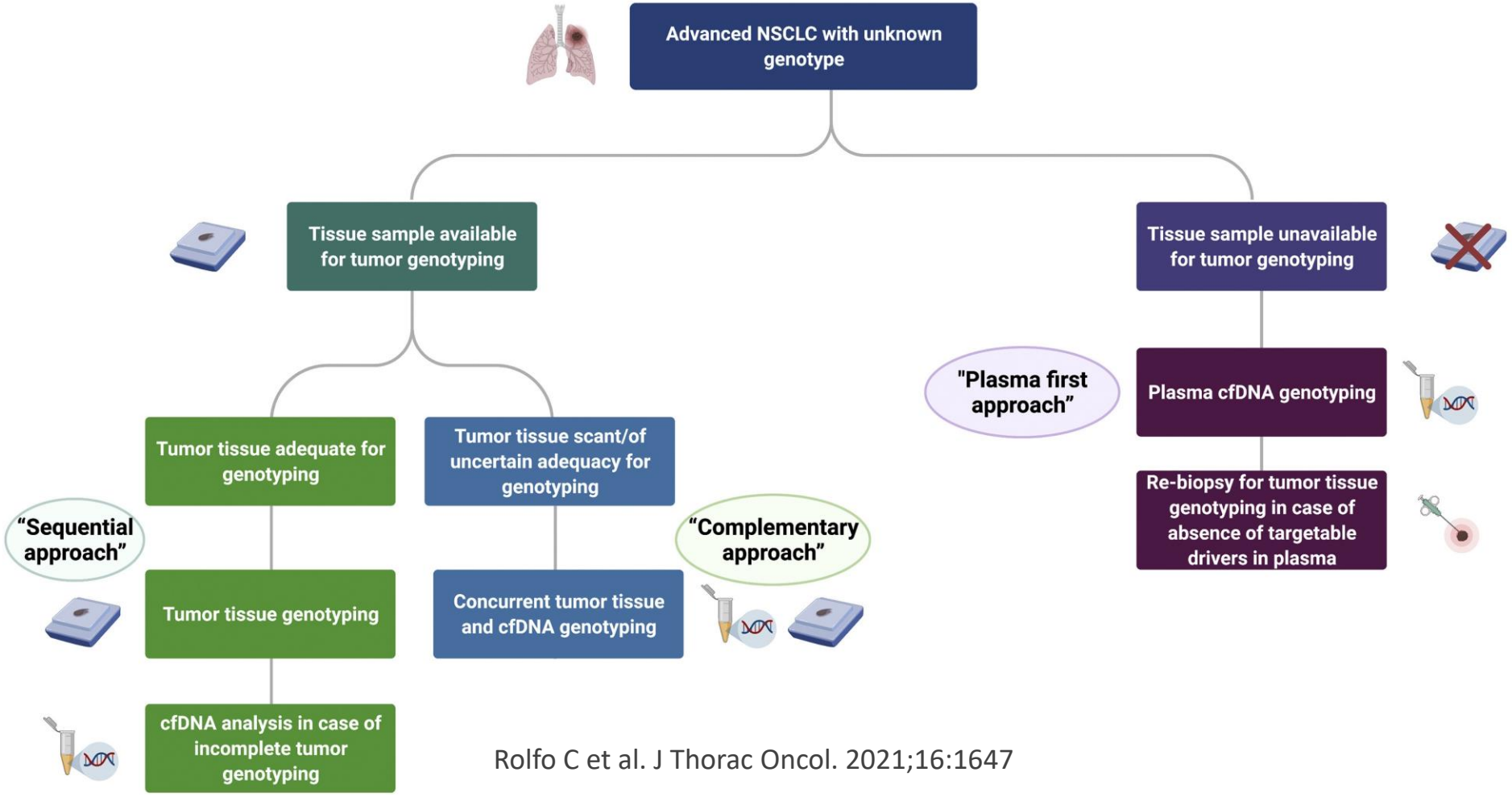
Potential strategies to reduce TAT:

- For groups using external laboratories, evaluate TAT data for past 6-12 months during vendor evaluation.
- ctDNA assays generally have shorter overall TAT than tissue-based assays due to preanalytical and analytical considerations – concurrent or sequential testing.
- PCR-based panels can have shorter overall TAT than NGS-based panels. This is primarily useful when less comprehensive testing is acceptable (e.g., neoadjuvant setting).

TAT – Specimens in molecular lab > Result reporting

If using sequential approach, have low threshold for starting ctDNA when you encounter initial problems:

- Challenging specimens (e.g., bone)
- Older pathology cases
- Any initial specimen issues in molecular laboratory



Rolfo C et al. J Thorac Oncol. 2021;16:1647

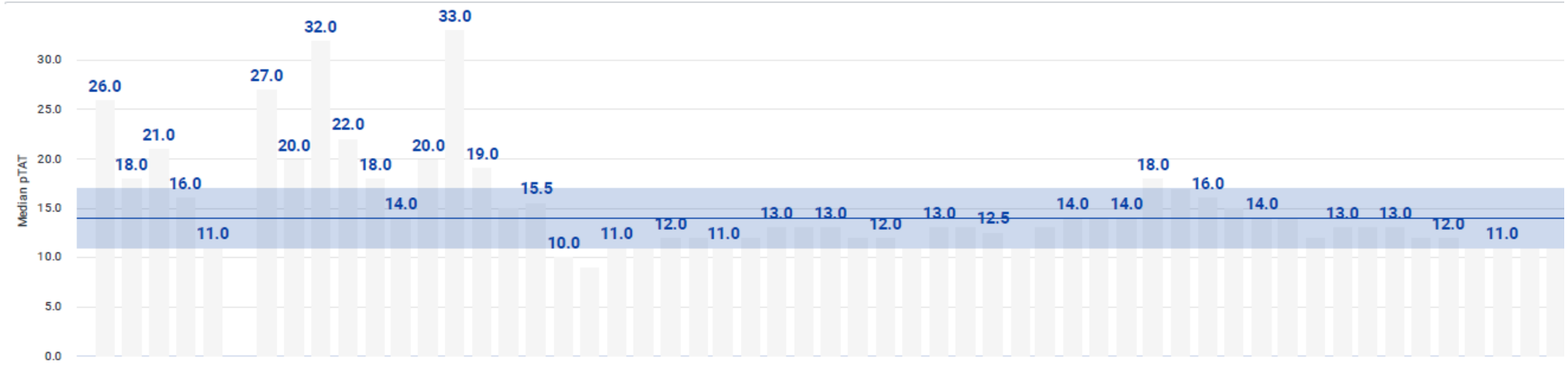
Establishing a workflow and tracking system

Implementation of manual workflow

QI and EHR/LIMS tracking

pTAT for expanded panel (from order to result reporting)

- Median
- Calendar days



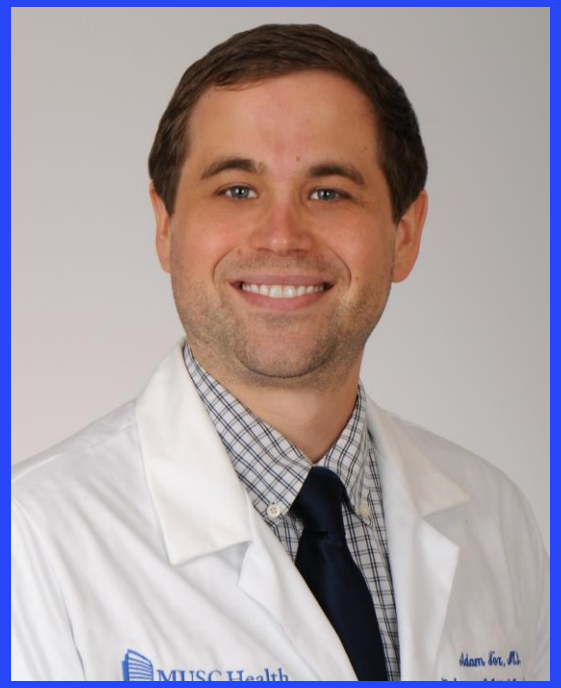
Cases with pTAT >14 days	Observed TAT (calendar days)
Patient 1	18
Patient 2	16
Patient 3	17
Patient 4	32
Patient 5	15

Conclusions

- Definition of TAT varies.
- Most variability in molecular testing TAT occurs in preanalytical steps; therefore, establishing a workflow and tracking system for these steps can improve TAT.
- Thoracic specimens can have an appreciable failure rate for expanded NGS-based testing, so having a plan for such cases can reduce delays.

Thank You

Open Discussion: Questions & Answers



Adam Fox, MD, MSCR
Assistant Professor
Medical University of South Carolina

Session 4
Case Presentation

1/2019
Abdominal pain, jaundice, and mass in pancreas

1/2019
Whipple, stage IB adenocarcinoma of the pancreas s/p adjuvant FOLFIRINOX 3/2019-8/2019

1/2019-12/2019
No evidence of disease; CA-19-9: 130 to 10.

2020-2022
“Normal” scans with scattered sub-cm lung nodules and normal CA-19-9.

7/2022
Several mm growth of several sub-cm lung nodules

1-7/2023
stable findings on imaging.

11/2023
Increase of many nodules, biggest 3.6cm, PET avid; hospitalized

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12/2023

Bronchoscopy with FNA: Adenocarcinoma, molecular ordered 24 hrs after all samples resulted from bronchoscopy

1/2024

Whipple sample reviewed. (Had to be identified and brought from the off-site pathology warehouse)

Patient proceeded with treatment directed towards pancreatic cancer

Thoracic tumor board

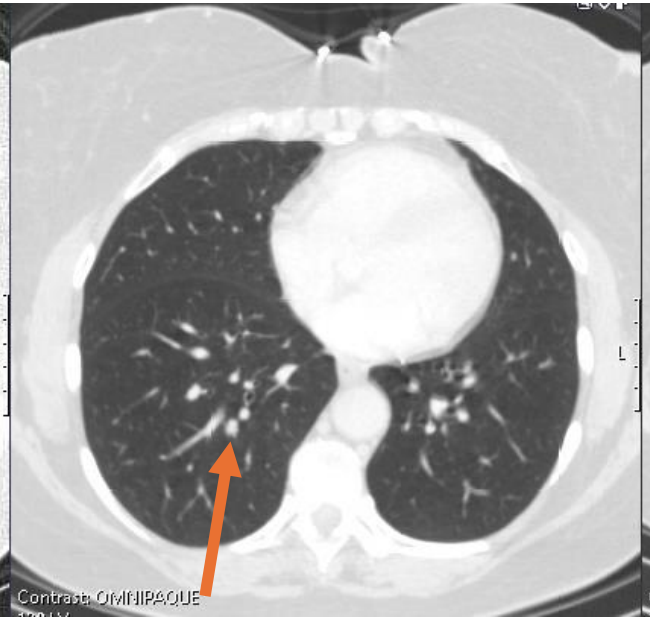
Most consistent with metastasis to lung. CEA also elevated. Primary oncologist desires biopsy prior to treatment planning

1/2024

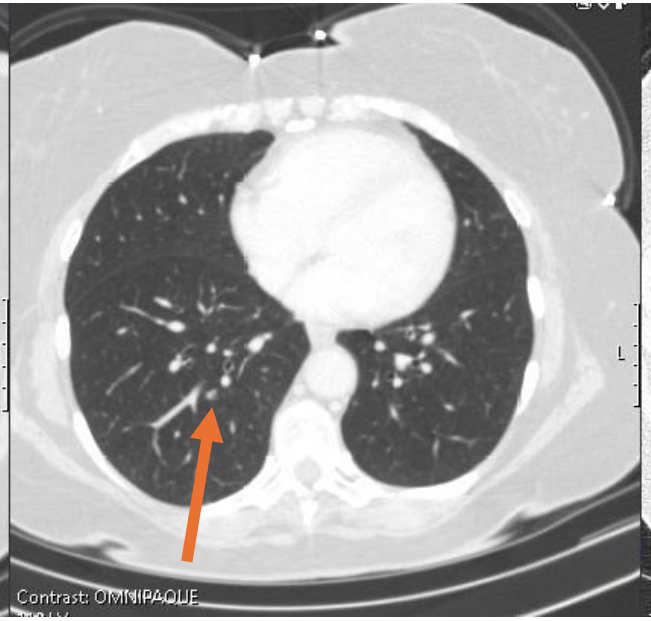
Both samples: KRASG12D and 8q (MYC) amplification along several other copy number changes in common, suggesting a common origin

11/21/2023

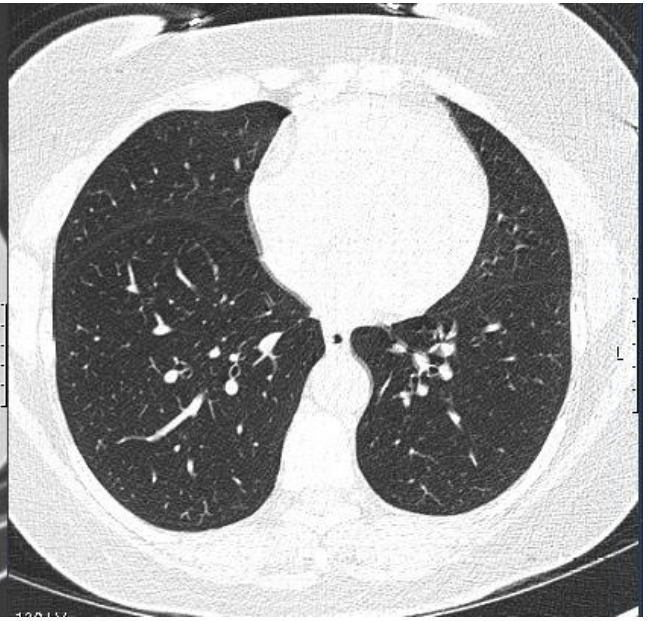
7/20/2022



8/11/2021



1/11/19



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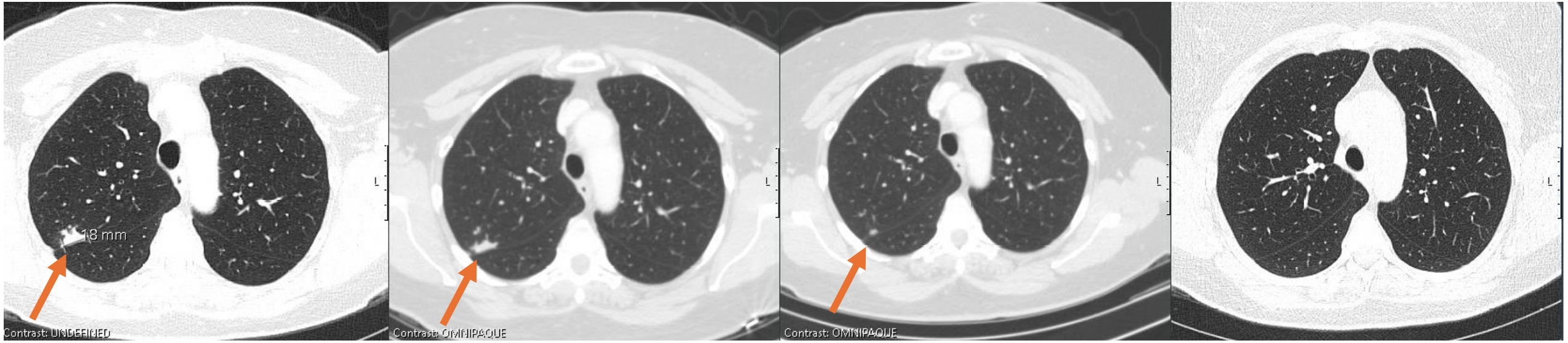
An NCI-Designated Cancer Center

11/21/2023

7/20/2022

8/11/2021

1/11/19

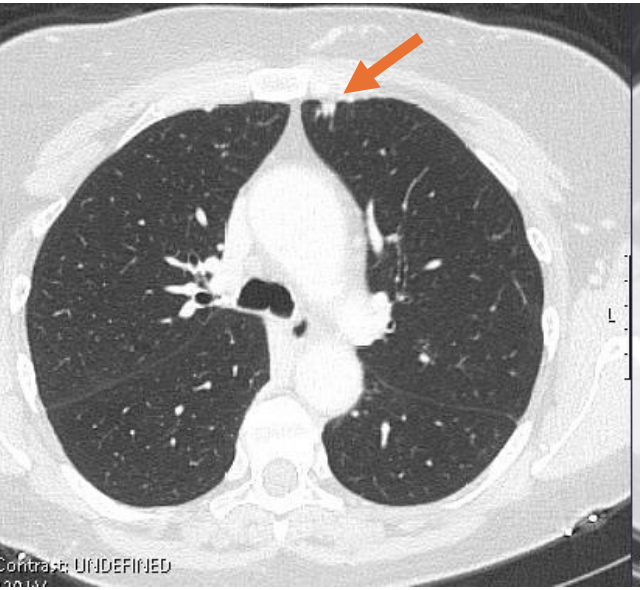


MUSC Medical University of South Carolina

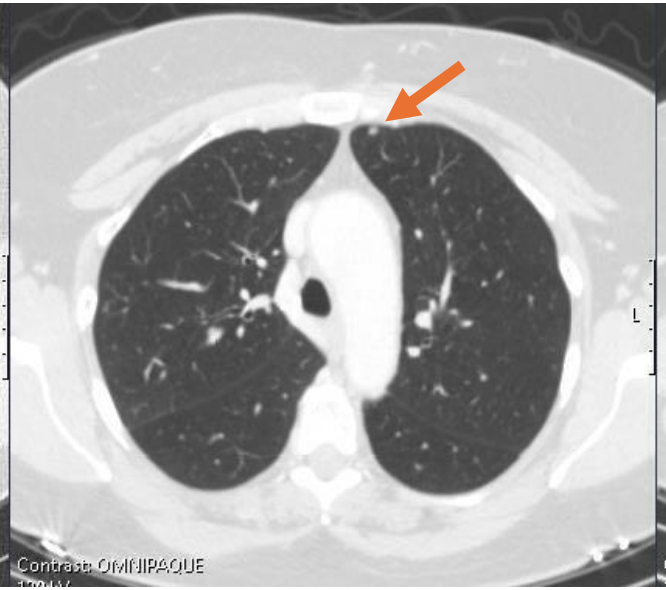
Hollings Cancer Center

An NCI-Designated Cancer Center

11/21/2023



7/20/2022



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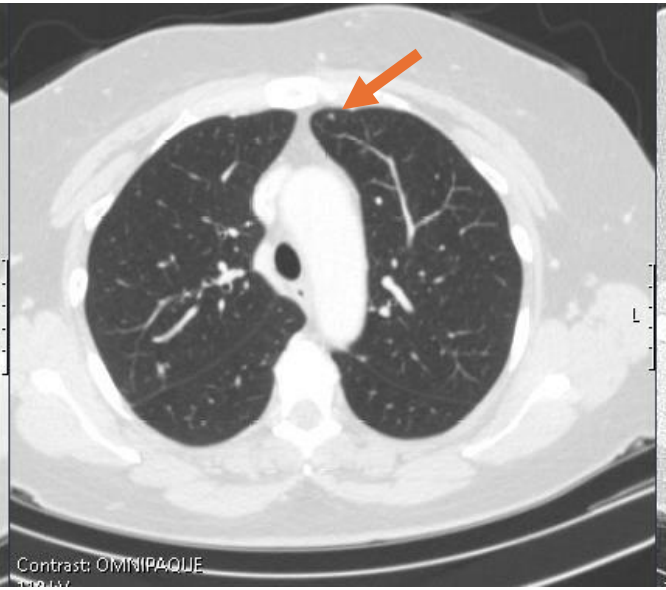

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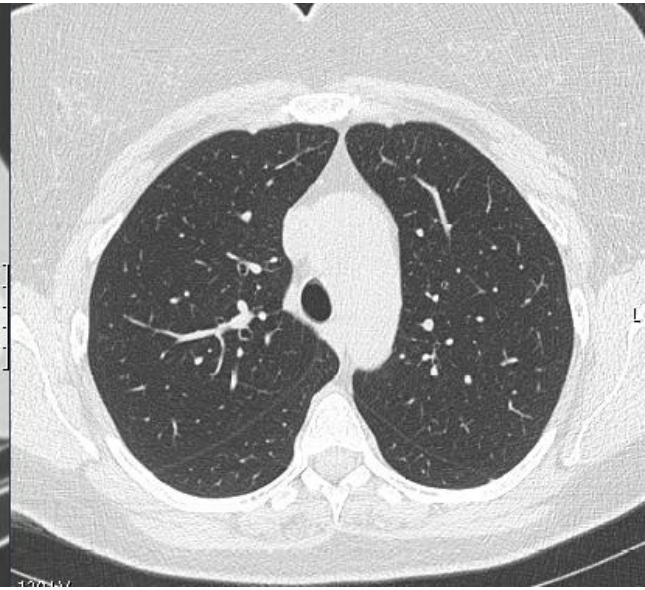

There are other small scattered nodules throughout the lungs

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Summary

- Patient initially with history local pancreatic cancer presents several years later with chronic growing and then more rapidly growing lung nodules that are suspicious for malignancy
- Worrisome for delayed metastases from pancreatic primary or new metastatic lung; time alone favored lung somewhat but not to the entire multi-disciplinary team
- Molecular profiles were suggestive of common tumor origin and along with time course was convincing to all and informed appropriate treatment

Case Learning Points

- Timely molecular testing is critical for those with possible lung cancer as it directs the most appropriate treatment, even when no actionable mutations are found
- Patients with unique scenarios are often further delayed in molecular testing
  - Examples
    - Identifying primary origin; suspected multiple primary malignancies
    - Stored samples in warehouses must be found and couriered before starting the regular molecular process

Session 4 Case Study
Provided by: Adam Fox, MD

Questions

1. What other scenarios cause patients to have extra delays in molecular/treatment?

2. What communication tools and processes do people use to create efficiency in TAT?

This case is in memoriam for a loving mother, wife, nurse, teacher, and friend to many at MUSC.

Open Discussion: Questions & Answers

Session Reminders

Session 4 Slides, Recordings, & Resources will be made available within one week. All resources will be available on the **ACS ECHO Website**.

Register Today for Session 5

April 24, 2024

2:00 – 3:00 PM EDT

Topic: Navigating Insurance Complexities
Didactic Presenters: Hilary Gee Goeckner, MSW & Cori Chandler, MPA
American Cancer Society Cancer Action Network

Case Presenter: Andrew Liman, MD, Fresno VA Medical Center

Session #	Month	Date	Time (ET)	Didactic Topic	Didactic Presenter	Facilitator
~~0~~	~~December~~	~~Weds. 12/13~~	~~4:00 -5:00pm~~	~~Series Kick-Off: Introduction to ECHO and Biomarker Testing Guideline Overview:~~	~~Mimi Ceppa, MD, Aakash Desai, MBBS, MPH, Hilary Goeckner~~	~~Bruce E. Johnson, MD, FASCO~~
~~1~~	~~January~~	~~Weds. 1/17~~	~~4:00 -5:00pm~~	~~Understanding the Barriers and Pathways to Lung Cancer Biomarker Testing~~	~~Millie Das, MD~~	~~Timothy Mullett, MD, MBA, FACS~~
~~2~~	~~February~~	~~Fri. 2/9~~	~~4:00 -5:00pm~~	~~Adequate Tissue for Sampling~~	~~Nichole Tanner, MD, MSCR~~	~~Bruce E. Johnson, MD, FASCO~~
~~3~~	~~March~~	~~Weds. 3/6~~	~~4:00 -5:00pm~~	~~Choice of Panel, Interpretation of Results and Next Steps~~	~~Ignacio Wistuba, MD~~	~~Timothy Mullett, MD, MBA, FACS~~
~~4~~	~~March~~	~~Weds. 3/27~~	~~4:00 -5:00pm~~	~~Improving Turnaround Time~~	~~Jason Merker, MD, PhD~~	~~Bruce E. Johnson, MD, FASCO~~
5	April	Weds. 4/24	2:00 - 3:00pm	Navigating Insurance Complexities	Hilary Goeckner & Cori Chandler	Bruce E. Johnson, MD, FASCO
6	May	Fri. 5/24	12:00 - 1:00pm	Series Wrap Up and Next Steps	Patient speaker	Timothy Mullett, MD, MBA, FACS

A Few Reminders

Next ECHO Session: April 24, 2024, 2:00-3:00 PM ET Topic: Navigating Insurance Complexities

Please *register now* for **Session 5** by using the QR code or the link in the chat.

Slides, Recordings, & Resources will be made available within one week. All resources will be available on the **ACS ECHO Website.**

Case Presentations: Ready to schedule your presentation?
Contact Korey.Hofmann@cancer.org

Please send us a high-definition logo for your system.

Contact Korey if you haven't received calendar invitations for **Sessions 5 & 6**.

Questions? Korey Hofmann | korey.hofmann@cancer.org or Mindi Odom | mindi.odom@cancer.org

Questions?

American Cancer Society | NATIONAL LUNG CANCER ROUNDTABLE | Project ECHO

Thank You

Session 5