Addressing Lung Cancer Biomarker Testing Through Project ECHO in Mississippi: Orientation Session 0

5.25.2021

Welcome to the Orientation Session of the Addressing Lung Cancer Biomarker Testing Through Project ECHO in Mississippi

Each ECHO session will be recorded and *may* 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

Please type your name and organization in the chat box

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

Remember: Do NOT share any personal information about any patient

Questions about Zoom? Type them in the chat box @dionnechristopher

American Cancer Society®

Project ECHO®

This project is funded partially though Amgen Oncology and Foundation Medicine

Please type your *name* and *organization* in the chat box

Have a question? Don’t wait to ask! Feel free to enter in the “Chat” at *anytime*.

Today's Agenda

01	**Welcome and Housekeeping** (5 minutes)
02	**ECHO Hub and Spoke Introductions** (10 minutes)
03	**Project Goals & Introduction to the ECHO Model** (8 minutes)
04	**The Burden of Lung Cancer in Mississippi** (5 minutes)
05	**Introduction to Lung Cancer Biomarker Testing** (15 minutes)
06	**Why it Matters: A Lung Cancer Survivor's Perspective** (5 minutes)
07	**Open Discussion/Q&A** (7 minutes)
08	**Wrap Up** (5 minutes)

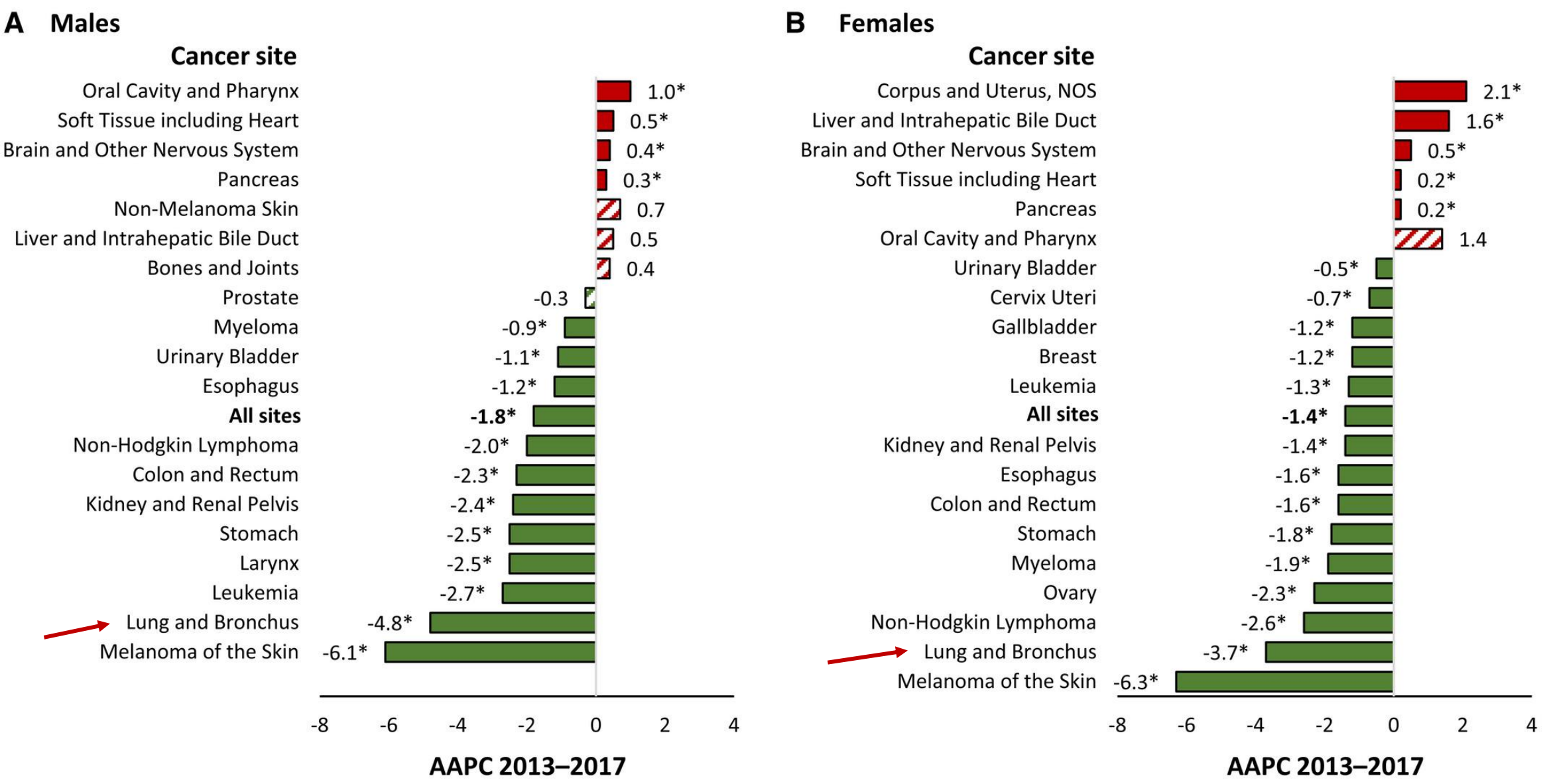
ECHO Hub & Spoke Introductions

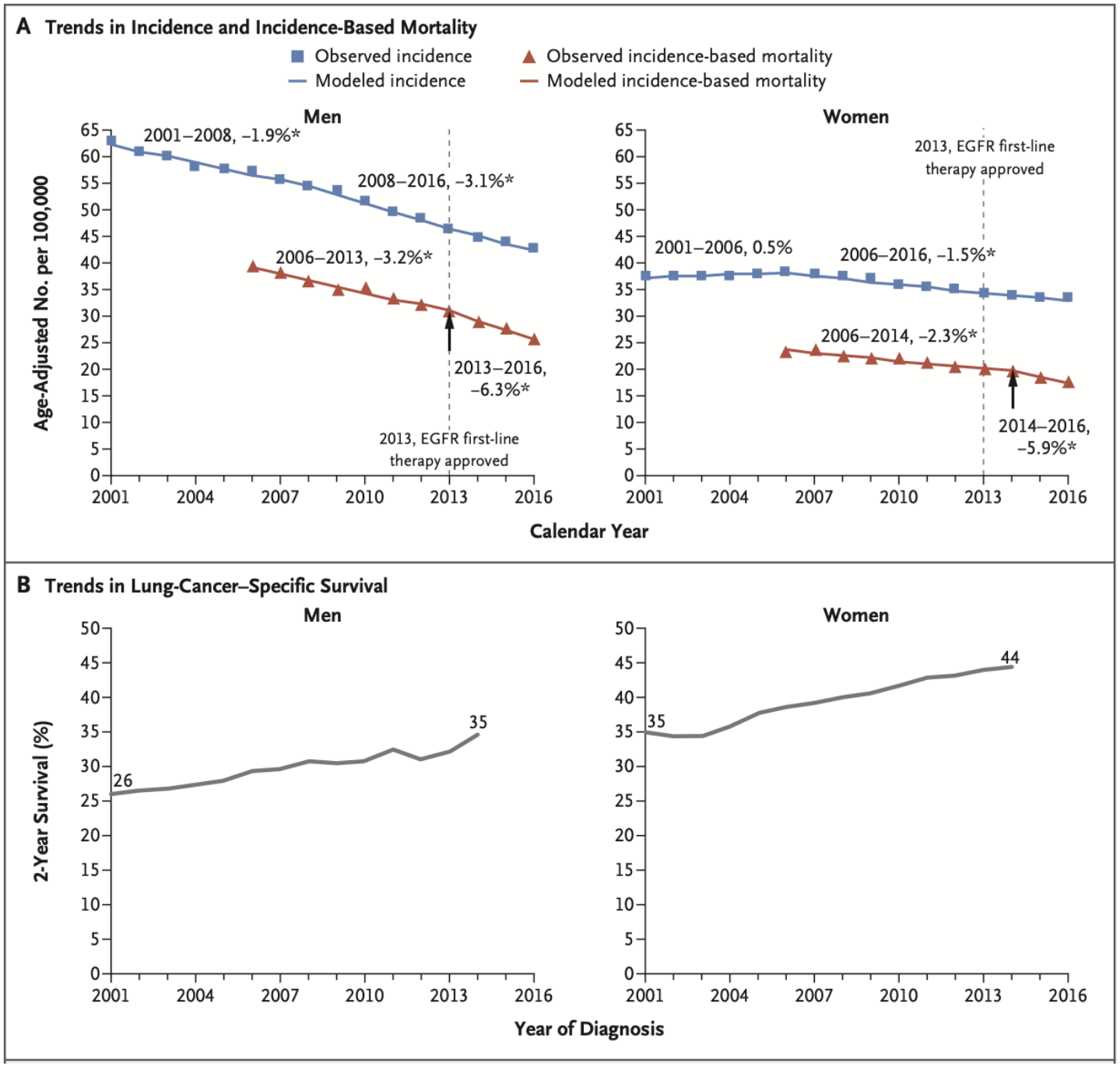
Pierre De Delva, MD

Division Chief of General Thoracic Surgery
Program Lead, Thoracic Oncology

UMMC Cancer Center and Research Institute

The University of Mississippi Medical Center


A Males
Cancer site
Oral Cavity and Pharynx 1.0*
Soft Tissue including Heart 0.5*
Brain and Other Nervous System 0.4*
Pancreas 0.3*
Non-Melanoma Skin 0.7
Liver and Intrahepatic Bile Duct 0.5
Bones and Joints 0.4
Prostate -0.3
Myeloma -0.9*
Urinary Bladder -1.1*
Esophagus -1.2*
All sites -1.8*
Non-Hodgkin Lymphoma -2.0*
Colon and Rectum -2.3*
Kidney and Renal Pelvis -2.4*
Stomach -2.5*
Larynx -2.5*
Leukemia -2.7*
Lung and Bronchus -4.8*
Melanoma of the Skin -6.1*
-8 -6 -4 -2 0 2 4
AAPC 2013–2017
B Females
Cancer site
Corpus and Uterus, NOS 2.1*
Liver and Intrahepatic Bile Duct 1.6*
Brain and Other Nervous System 0.5*
Soft Tissue including Heart 0.2*
Pancreas 0.2*
Oral Cavity and Pharynx 1.4
Urinary Bladder -0.5*
Cervix Uteri -0.7*
Gallbladder -1.2*
Breast -1.2*
Leukemia -1.3*
All sites -1.4*
Kidney and Renal Pelvis -1.4*
Esophagus -1.6*
Colon and Rectum -1.6*
Stomach -1.8*
Myeloma -1.9*
Ovary -2.3*
Non-Hodgkin Lymphoma -2.6*
Lung and Bronchus -3.7*
Melanoma of the Skin -6.3*
-8 -6 -4 -2 0 2 4
AAPC 2013–2017



N ENGL J MED 383;7 NEJM.ORG AUGUST 13, 2020

The New England Journal of Medicine

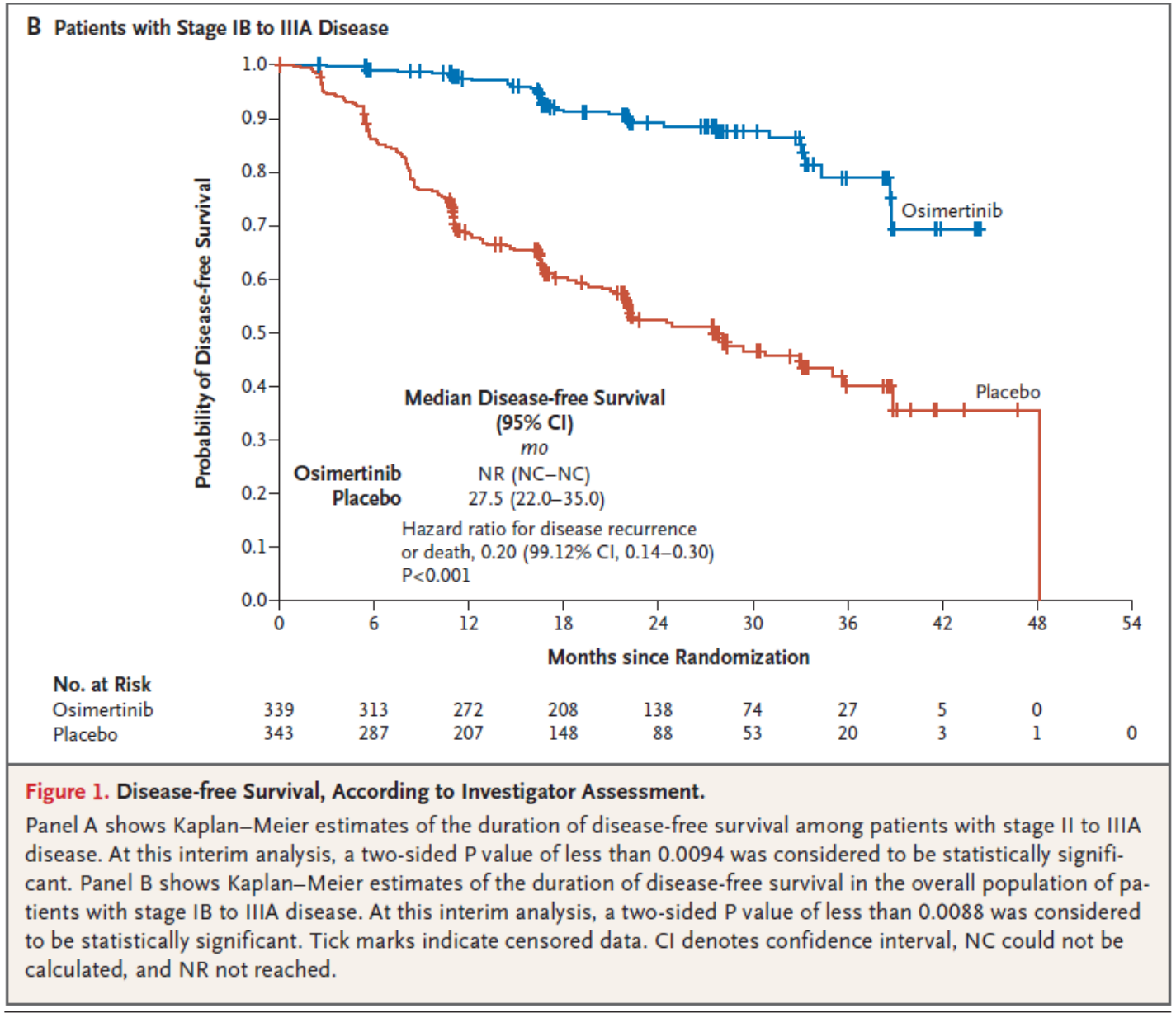
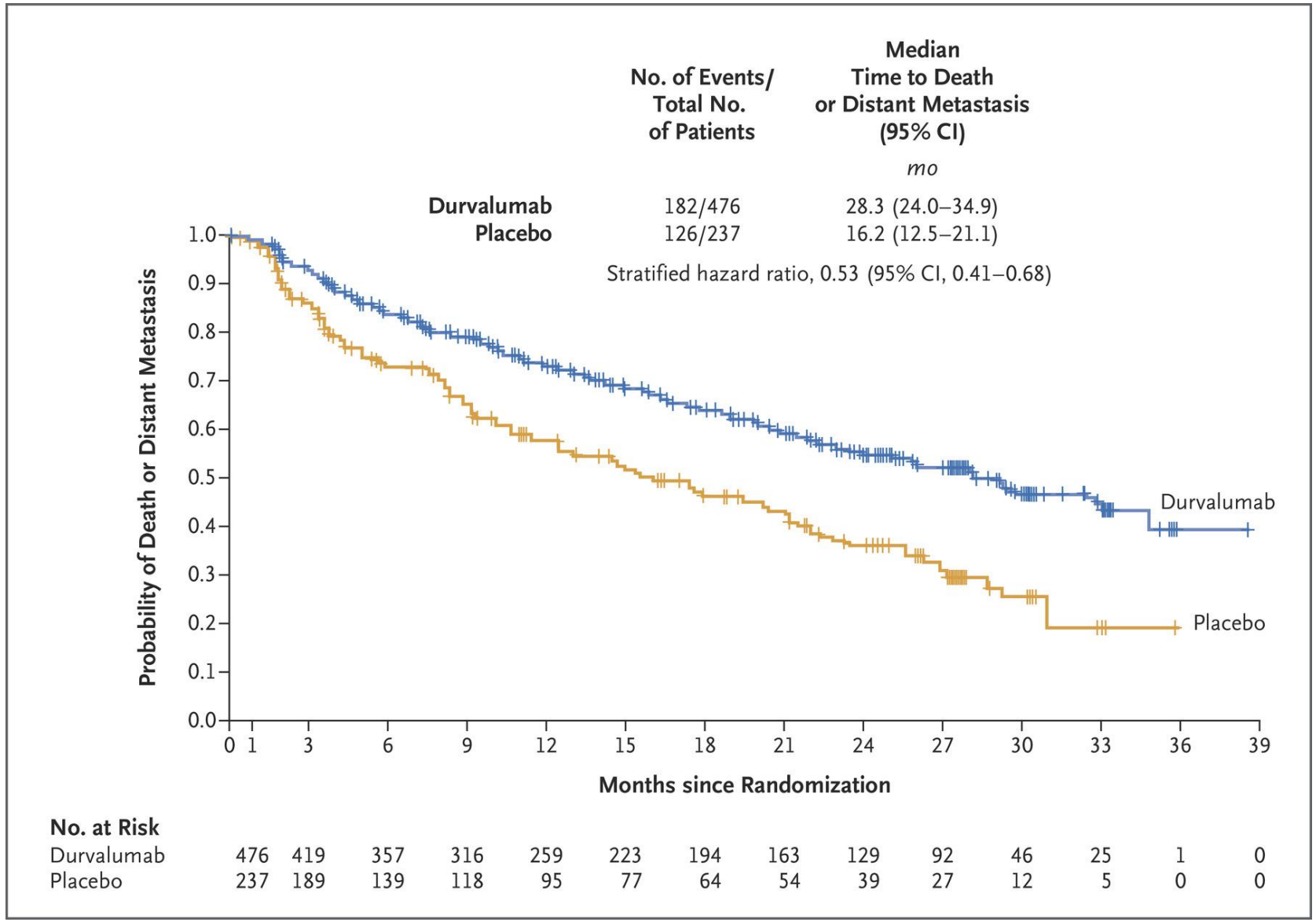
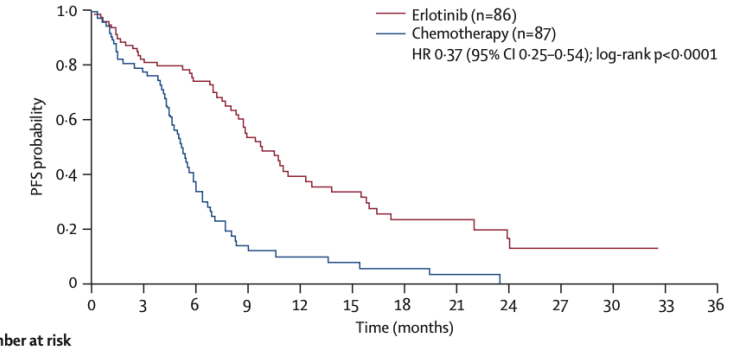


Figure 1. Disease-free Survival, According to Investigator Assessment.

Panel A shows Kaplan–Meier estimates of the duration of disease-free survival among patients with stage II to IIIA disease. At this interim analysis, a two-sided P value of less than 0.0094 was considered to be statistically significant. Panel B shows Kaplan–Meier estimates of the duration of disease-free survival in the overall population of patients with stage IB to IIIA disease. At this interim analysis, a two-sided P value of less than 0.0088 was considered to be statistically significant. Tick marks indicate censored data. CI denotes confidence interval, NC could not be calculated, and NR not reached.


No. of Events/ Total No. of Patients
Median Time to Death or Distant Metastasis (95% CI)
mo
Durvalumab 182/476 28.3 (24.0–34.9)
Placebo 126/237 16.2 (12.5–21.1)
Stratified hazard ratio, 0.53 (95% CI, 0.41–0.68)
Probability of Death or Distant Metastasis
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
Durvalumab
Placebo
0 1 3 6 9 12 15 18 21 24 27 30 33 36 39
Months since Randomization
No. at Risk
Durvalumab 476 419 357 316 259 223 194 163 129 92 46 25 1 0
Placebo 237 189 139 118 95 77 64 54 39 27 12 5 0 0

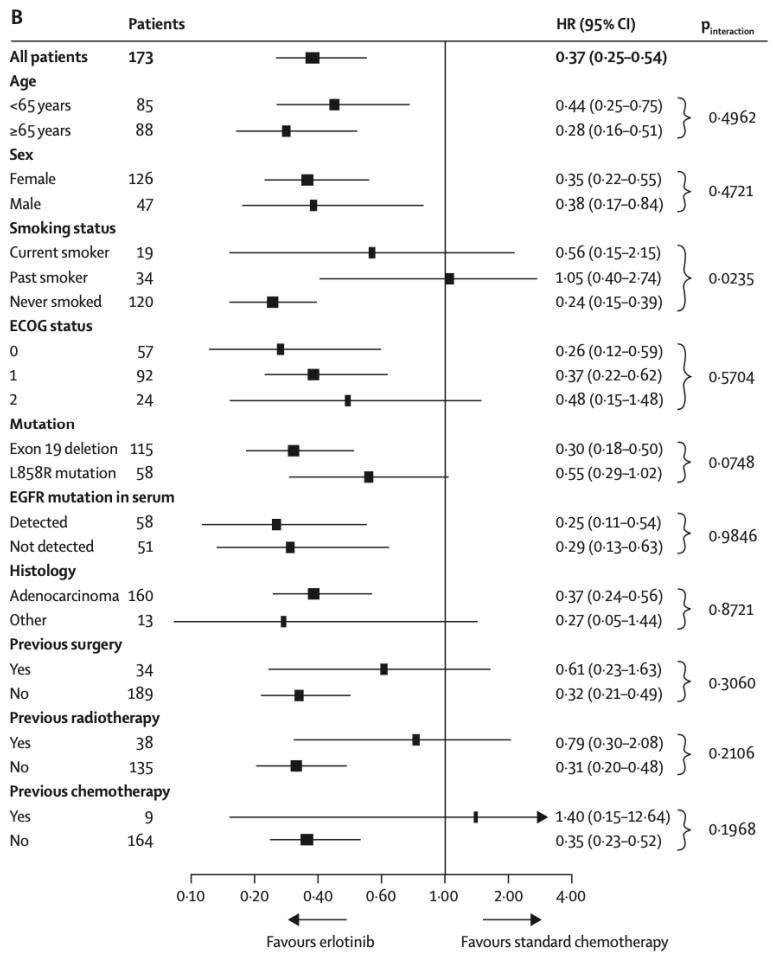
A



Number at risk

Erlotinib	86	63	54	32	21	17	9	7	4	2	2	0	0
Chemotherapy	87	49	20	8	5	4	3	1	0	0	0	0	0

B

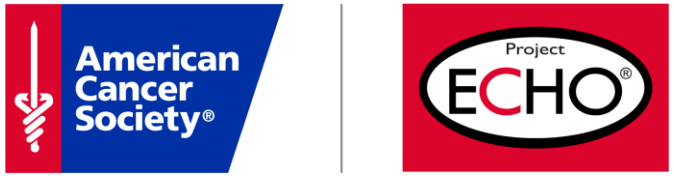


Lancet Oncol 2012; 13: 239–46

Published Online
January 26, 2012
DOI:10.1016/S1470-2045(11)70393-X

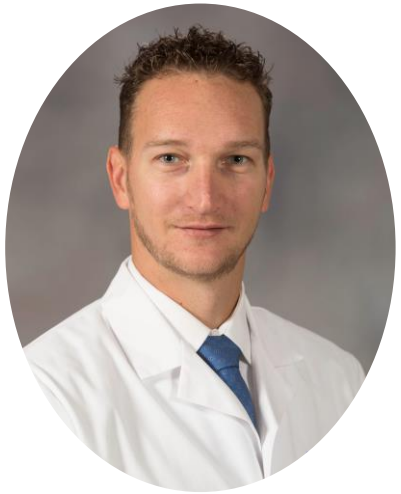
See Comment page 216

We are here to Increase our Collective “IQ” About Biomarker-Driven Care of Lung Cancer and to Save Lives!



Introductions: Meet our Mississippi ECHO Hub

Pierre De Delva, MD
University Of Mississippi Medical Center
Cancer Center And Research Institute
Facilitator & Faculty Member



Michal Senitko, MD
University Of Mississippi Medical Center
Cancer Center And Research Institute
Faculty Member

Ray U. Osarogiagbon, MBBS FACP
Baptist Cancer Center
Faculty Member

Beth Dickson-Gavney, MA
American Cancer Society
ECHO Coordinator

Amy Ellis
American Cancer Society
ECHO Coordinator

Dionne Christopher
American Cancer Society
ECHO Tech Coordinator

Introductions: Meet our Mississippi Spoke Sites

BAPTIST CANCER CENTER

Singing River Health System

FORREST GENERAL HOSPITAL
Forrest Health

Southwest Mississippi Regional Medical Center

Jackson Oncology ASSOCIATES
A Professional Limited Liability Company

St. Dominic's

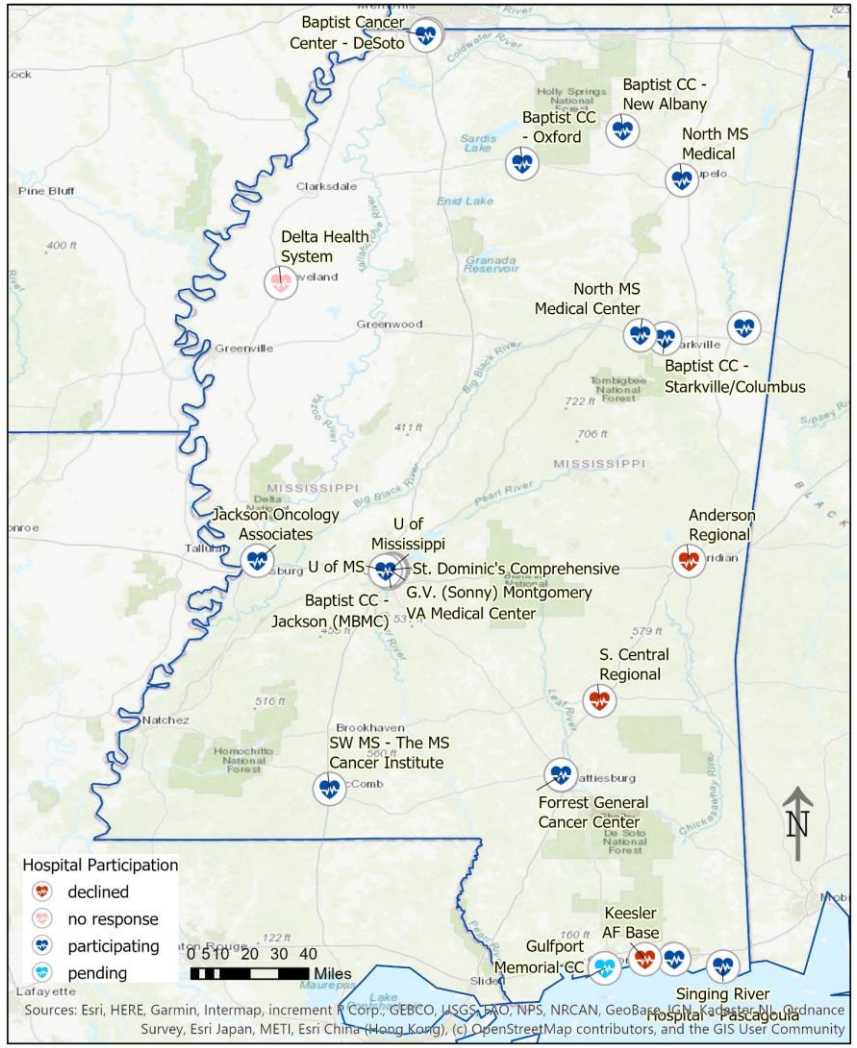
NORTH MISSISSIPPI HEALTH SERVICES

THE UNIVERSITY OF MISSISSIPPI MEDICAL CENTER™

G.V. (Sonny) Montgomery VA Medical Center

One *Lead Person from Each Spoke Site to* ***Briefly*** *Say* ***Hello***

Hospital Pilot Participation Mississippi



Map was created by the GIS team, GRACE GIS. www.gracegis.com (May 2021)

Project Goals & Introduction to the ECHO Model

Beth Dickson-Gavney, MA

Senior Director, Cancer Control Strategic Partnerships

American Cancer Society

ECHO SERIES PROJECT GOALS

SPOKES/LEARNERS WILL GAIN KNOWLEDGE AND CONFIDENCE

- to address the common barriers that may exist within their institutions in the lung cancer biomarker space
- to help implement biomarker testing in NSCLC successfully at their institutions

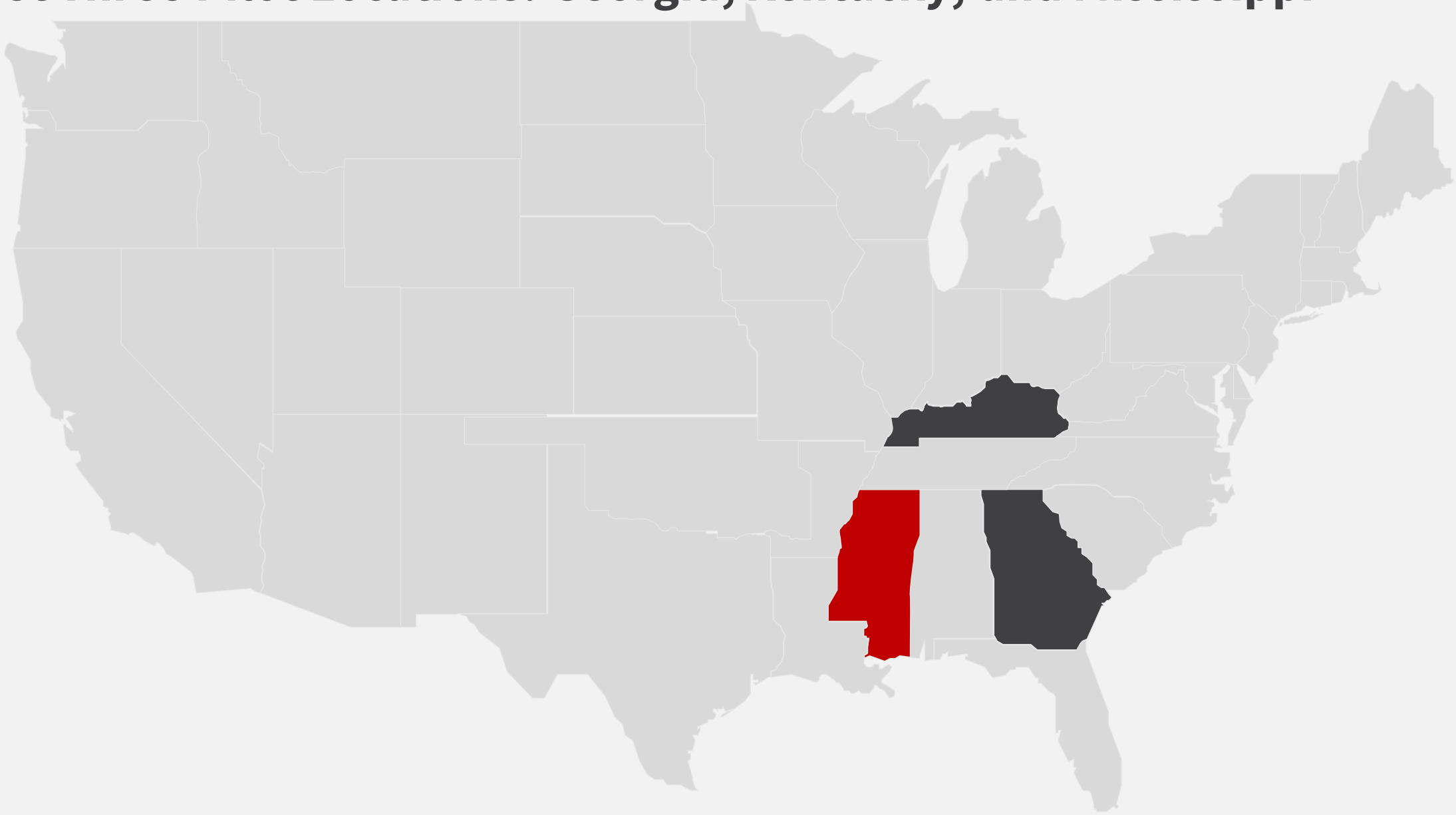
THE STATE-BASED ECHO APPROACH WILL FOSTER COLLABORATION

- to address the more common barriers related to biomarker testing within Mississippi reflective of its unique cultural, geographic, and payer landscape

PROVIDE VALUABLE INSIGHTS FOR PILOT REPLICATION

- Evaluate and apply learned lessons to improve the model that will enable successful replication in other pilot states in 2022

First Three Pilot Locations: Georgia, Kentucky, and Mississippi



ECHO Participation Poll

Today's Session will NOT serve as a typical ECHO session but instead will function more like a traditional interactive webinar

About Project ECHO

- ECHO **effectively** and **efficiently** disseminates evidence-based strategies to improve cancer outcomes
- ECHO serves as a hub-and-spoke knowledge led by expert teams (faculty) who utilize videoconferencing (Zoom) to conduct virtual clinics with participants (learners and spokes)
- ECHO is a proven **one-to-many** intervention

The American Cancer Society serves as a Project ECHO (Extension for Community Healthcare Outcomes) Hub

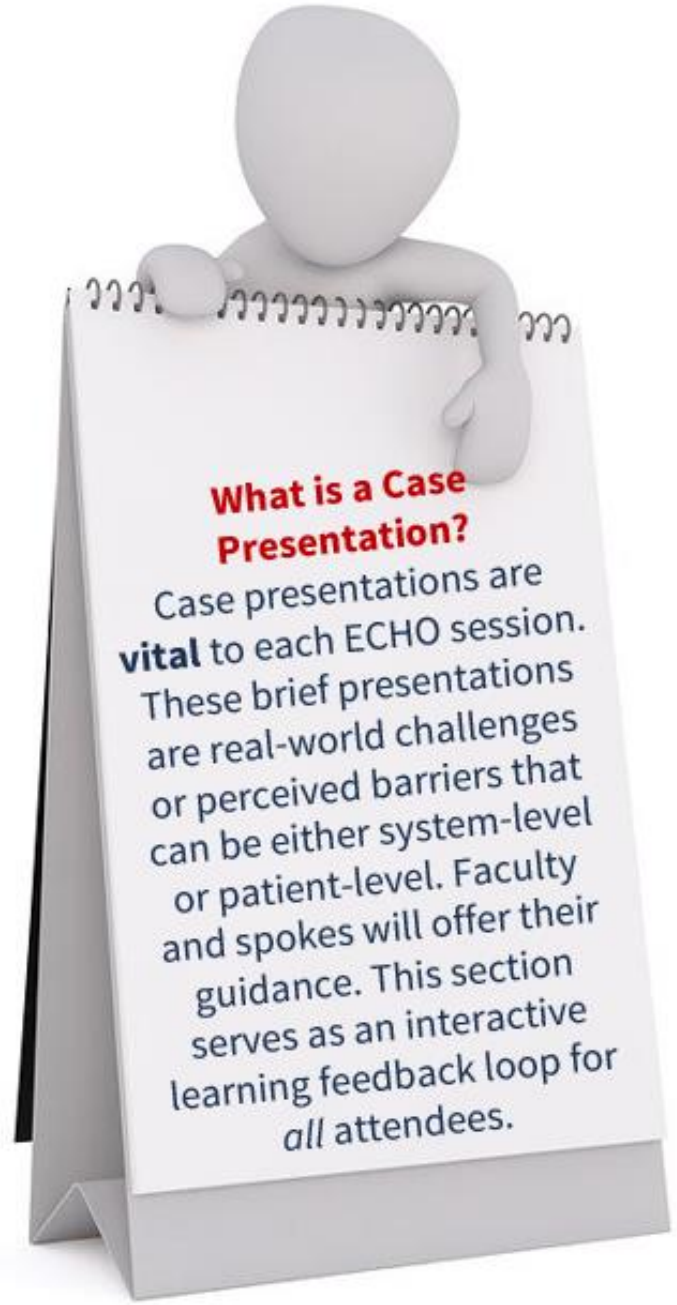
Expectations of Participating Spoke Sites

- Build a small multidisciplinary ECHO team from your system or center
- Have at least **one** team member join each monthly one-hour ECHO session
- Deliver (as a team) **one** case presentation over the course of the ECHO Series
- Complete the post-session poll questions
- Complete the **three** survey/assessments

Reminder: If you have not already, please COMPLETE the Pre-ECHO Assessment. The email was sent from the *ACS ECHO Office* on 5.21.21.

What to Expect: The Anatomy of an ECHO Session

- **Housekeeping and Introductions** (10 min)
- **Didactic Presentation** (15 min)
- **Didactic Q/A** (5 min)
- **Case Presentation(s)** (3-5 min)
- **Case Presentation(s) Discussion/Guidance** (20 min)
- **Wrap Up & Post-Session Survey Poll** (5 min)



TIP! **For more about the ECHO Model or Project ECHO, please visit www.echo.unm.edu**

Addressing Lung Cancer Biomarker Testing Through Project ECHO

Case Presentation Form

Instructions

This case presentation form is intended to be completed and submitted electronically. Please email completed forms along with any optional supplemental information to Kelly.durden@cancer.org and carbon copy your regional ACS staff partner. We request that you submit your case presentation form **at least three business days** prior to your scheduled case presentation. Please do NOT submit a scan of a printed version of this form.

This form includes four sections: **Section 1: Presenter Information & Case Presentation Summary**, **Section 2: System-Level Case Presentation**, **Section 3: Patient-Level Case Presentation** and **Section 4: Faculty Recommendations**. You need to complete Section 1 and then, choose **either** Section 2 or Section 3. We recommend that each case presentation will range from **three minutes to five minutes**. Please do not include patient identifiers on this form or use any identifiers during the presentation. Please note, for patient-level case presentations, the faculty will provide guidance that should NOT be interpreted as direct medical advice.

Project ECHO Data Usage Statement

Project ECHO® collects registration, participation, questions/answers, chat comments, and poll responses for some teleECHO® programs. Your individual data will be kept confidential. These data may be used for reports, maps, communications, surveys, quality assurance, evaluation, research, and to inform new initiatives.

Section 1: Presenter Information and Case Presentation Summary

1. **Presentation Date:** Click or tap to enter a date.
2. **Presenter Name(s):** Click or tap here to enter text.
3. **Presenter Title(s):** Click or tap here to enter text.
4. **Organization/Health System:** Click or tap here to enter text.
5. **Please summarize the case you are presenting to the group:** Click or tap here to enter text.
6. **Which specific questions are you asking the faculty and the other participating spoke sites?**
   Click or tap here to enter text.

Section 2: System-Level Case Presentation

1. **Describe your current system or workflow:** *If available, feel free to provide workflow charts separately.*
   Click or tap here to enter text.
2. **What are the primary challenges/barriers:** *Include specifics on identified gaps and quality improvement methods used to clarify the root causes.*
   Click or tap here to enter text.
3. **Describe what you are trying to improve and any other relevant background information:**
   Click or tap here to enter text.
4. **Briefly describe your vision of what it will look like when it is working well:**
   Click or tap here to enter text.
5. **Describe any recent changes (less than 6 months) made to this system or workflow, including when they were made and their impact:**
   Click or tap here to enter text.
6. **If applicable, what data (quantitative, qualitative) do you have to augment your observations:**
   Click or tap here to enter text.

Note: The Case Presentation Form is "Living" Document

Section 3: Patient-Level Case Presentation

DEMOGRAPHIC INFORMATION		
1. Age Click or tap here to enter text.	2. Gender (*Choose One*) Female☐ Male☐ Non-Binary/Third gender☐ Transgender female☐ Transgender male ☐	3. Race/Ethnicity (*Choose All that Apply*) American Indian/Alaska Native ☐ Asian ☐ Black/African American ☐ Hispanic/Latino ☐ White ☐ More than One Race ☐ Other ☐
NON-SMALL CELL LUNG CANCER (NSCLC) HISTOLOGY & STAGE		
4. Diagnosis Initial Diagnosis ☐ Recurred and or Progressed ☐	5. Histology Adenocarcinoma ☐ Squamous Cell ☐ Large Cell ☐	6. Stage Click or tap here to enter text.
BIOMARKER TESTING		
7. Has biomarker testing been ordered for this patient (or will it be ordered)?		8. If biomarker testing was not ordered, please elaborate on the factors that precluded it:
Yes ☐ No ☐ Will be ordered ☐		Click or tap here to enter text.
The next section is ONLY for those patients who HAVE received or WILL receive biomarker testing		
9. Which technique was used (or will be used) to obtain specimen for pathologic diagnosis? (*Choose One*)		
Bronchoscopic biopsy ☐ Endobronchial ultrasound-guided transbronchial lymph node aspiration (EBUS-TBNA) ☐ Image-guided percutaneous biopsy ☐ Liquid biopsy ☐	Mediastinoscopy ☐ Surgical specimen ☐ Thoracentesis/pericardiocentesis ☐ Unsure ☐	
10. Which platform was/will be used for lung biomarker testing? (*Choose One*)	11. If single-gene test or short-cluster panel, please identify which genes were tested:	
Single-Gene Test ☐ Short-Cluster Panel ☐ Multi-Gene Panel (next generation sequencing (NGS) ☐	ALK ☐ BRAF ☐ EGFR ☐	HER2 ☐ KRAS ☐ NTRK ☐ MET ☐ PD-L1 ☐ ROS1 ☐ RET ☐
ADDITIONAL INFORMATION		
12. Please include any other information you would like to share with the group: Click or tap here to enter text.		

Section 4: Faculty Recommendations

This section will be completed by the ACS ECHO Coordinator. Recommendations from our faculty will be documented below.

Click or tap here to enter text.

Assigned Case Presentation Number: Will be assigned by ACS

The Case Presentation Process

Spokes will submit their case presentation forms at **least three business days** prior to the ECHO session. The Case presentation form serves as the sole requirement. Additional Slides are optional.

Faculty will receive the case presentation at **least 48 hours in advance** and can provide advance written feedback and or verbal feedback during the ECHO session

The case presentation does **NOT** have to be thematic to the didactic presentation (while it may improve the session flow)

The ACS ECHO Coordinator will type the key takeaways and recommendations, which will be sent out to in the post-session recap.

Case presentations are the heart of the ECHO model, ensuring that "everyone teaches, everyone learns"

Ready to Schedule your Case Presentation?

Two Convenient Ways

1. Email Beth Dickson-Gavney and Kelly Durden with your preferred case presentation date (choose between the Mississippi specific or the combined sessions)

Or

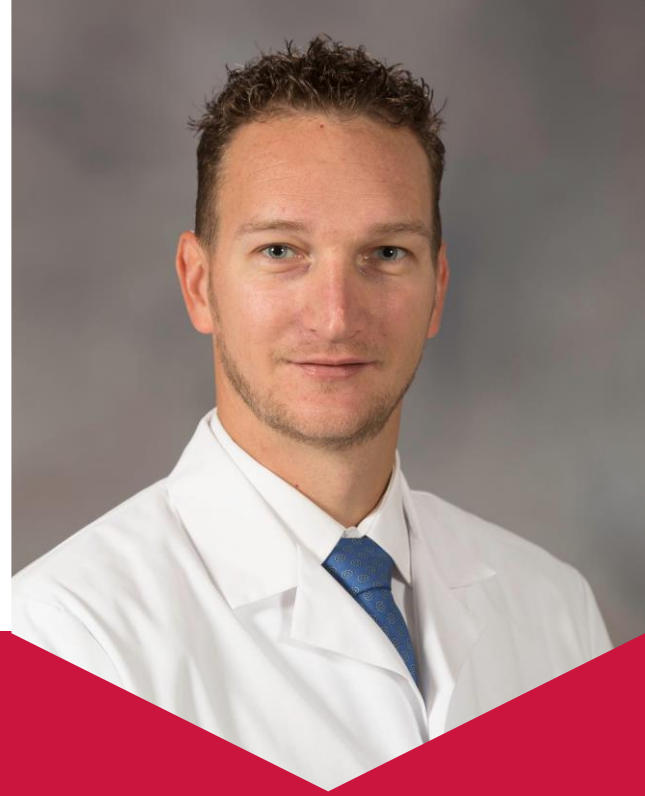
2. Complete our simple Case Presentation Interest Survey

A member of the ACS Hub team will confirm your case presentation date and work with you to ensure your experience is easy AND valuable.

All meeting materials, including the case presentation notes, will be disseminated and uploaded within one week of the session

Addressing Comprehensive Lung Cancer Biomarker Testing Through Project ECHO Pilot Series: Mississippi Monthly ECHO Session Didactics		
ECHO Schedule and Topics		
Session 0 **5/25/2021** 7 AM to 8 AM CT	**Orientation to the Comprehensive Lung Cancer Biomarker Testing ECHO Series** **Not a traditional ECHO, will operate more like an interactive webinar**	State-Based *Mississippi ONLY*
Session 1 **6/28/2021** 1 PM to 2 PM CT	**Understanding the Barriers to Biomarker Testing** *M. Patricia Rivera, MD, ATSF, FCCP* University of North Carolina at Chapel Hill	Combined *1 ECHO for All 3 Pilot States*
Session 2 **7/27/2021** 7 AM to 8 AM CT	**Pathways to Biomarker Testing** *Raymond Osarogiagbon, MBBS, FACP* Baptist Cancer Center	State-Based *Mississippi ONLY*
Session 3 **8/26/2021** 12 PM to 1 PM CT	**Adequate Tissue for Sampling** *Gerard A. Silvestri, MD, MS, FCCP* Medical University of South Carolina	Combined
Session 4 **9/23/2021** 12 PM to 1 PM CT	**Choice of Panel, Interpretation of Results, and Next Steps** *Ignacio I. Wistuba, MD* The University of Texas MD Anderson Cancer Center	Combined
Session 5 **10/19/2021** 12 PM to 1 PM CT	**Improving Turnaround Time** *Lynette M. Sholl, MD, FCAP* Dana-Farber/Harvard Cancer Center	Combined
Session 6 **11/2/2021** 7 AM to 8 AM CT	**What's Covered: Reimbursement and Coverage Policies from the Private and Public Payer Landscape** *TBD*	State-Based *Mississippi ONLY*
Session 7 **December TBD**	*Placeholder for TBD Final Session*	State-Based *Mississippi ONLY*

The Burden of Lung Cancer in Mississippi



Michal Senitko, MD, DAABIP

Section Chief, Interventional Pulmonology
Assistant Professor of Medicine and Surgery
University of Mississippi Medical Center

Co-Director Lung Cancer Screening Program
UMMC Cancer Center and Research Institute

THE UNIVERSITY OF MISSISSIPPI MEDICAL CENTER

Disclosures

Consultant (paid):

- American Cancer Society
- Medtronic, Inc.
- Optellum, Inc.

Lung Cancer Burden At a Glance

Nearly

1 in 4[1]

of all Cancer Deaths are From Lung Cancer

Only

16%[2]

of Lung Cancer Cases are Diagnosed in an Early Stage

*

[1] **American Cancer Society.** Cancer Facts and Figures. *Cancer.org.* [Online] 2019. https://www.cancer.org/latest-news/facts-and-figures-2019.html

[2] **US National Institute of Health, National Cancer Institute.** *SEER Cancer Statistics Review, 1975-2015.*

Lung Cancer Burden At a Glance in Mississippi

Estimated New Cases in 2021

Estimated Deaths in 2021

Incidence rates, 2013-2017*

*Average annual rate per 100,000, age adjusted to the 2000 US standard population

Data sources: North American Association of Central Cancer Registries (NAACCR), 2020

Death rates, 2014-2018**

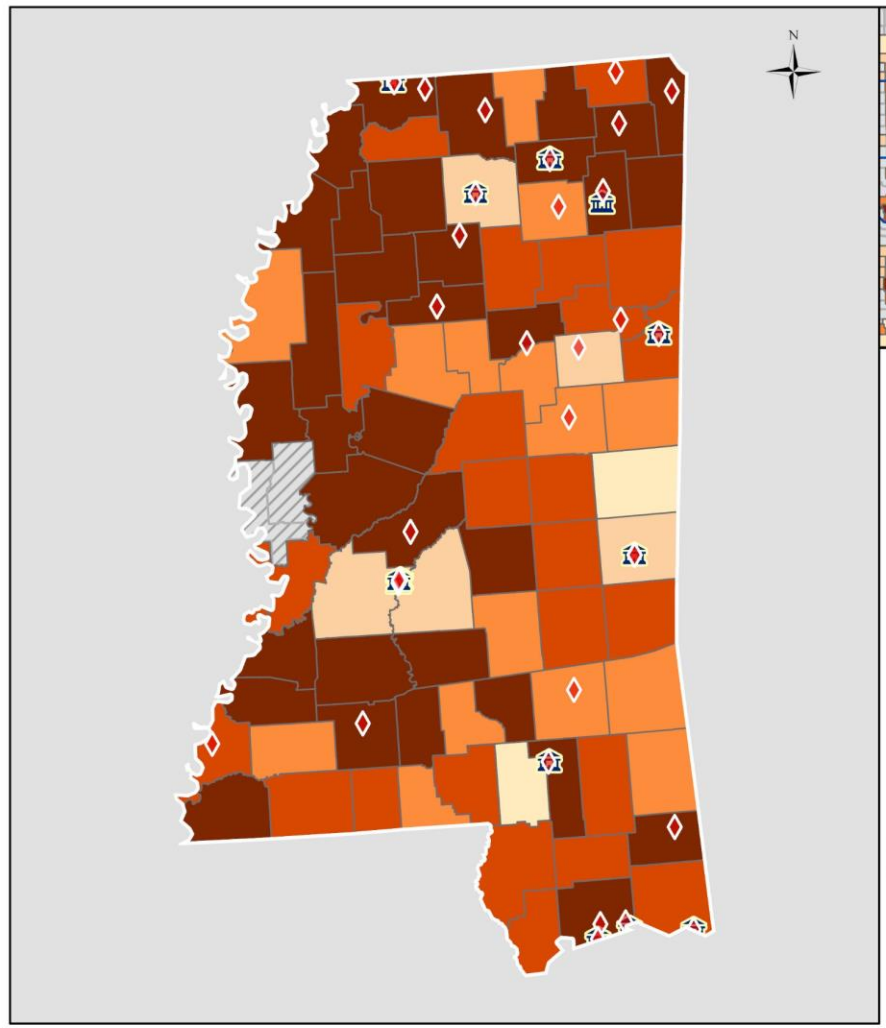
**Average annual rate per 100,000, age adjusted to the 2000 US standard population. Rates for PR are for 2012-2016

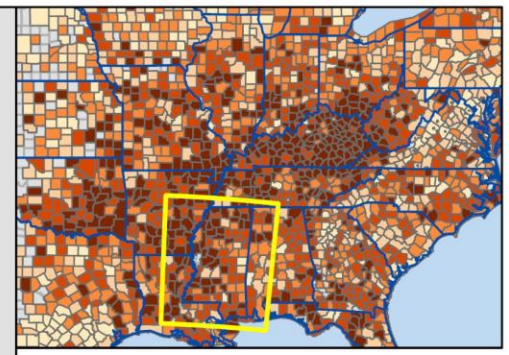
Data sources: National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention, 2020

Source: American Cancer Society, Cancer Statistic Center

Lung Cancer Mortality Rates 2014-18

Mississippi





ACR (2020)

CoC Hospitals Sep 2020

Counties MR

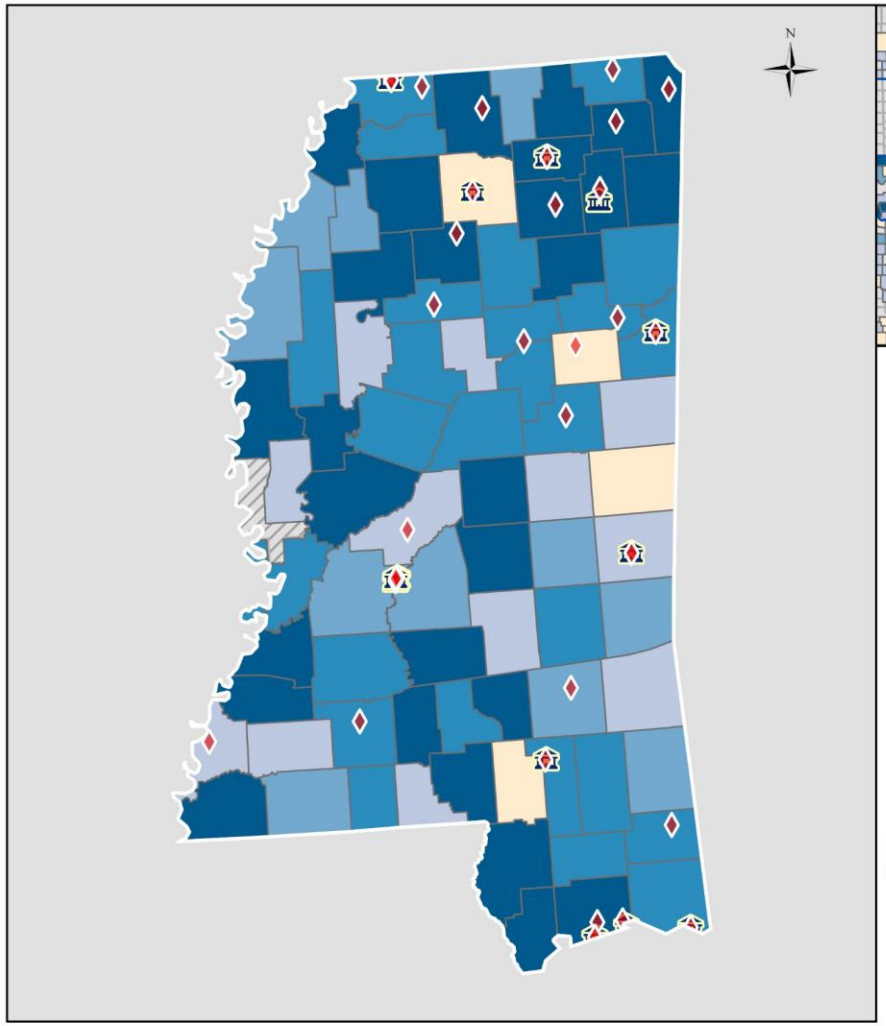
MR_2014_18

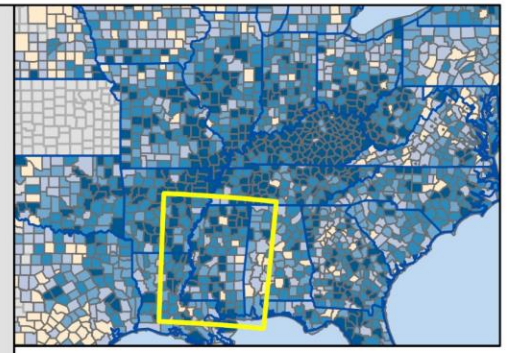
- ≤35.9
- ≤43.1
- ≤48.9
- ≤56.1
- ≤147.9
- Counties - Suppressed

Rates (quantiles) thresholds were calculated nationwide and not for each state. County level lung cancer mortality and incidence rates were retrieved in April 2021 from the State Cancer Profiles website (https://statecancerprofiles.cancer.gov/), Late Stage is defined as cases determined to be regional or distant.

Lung Cancer Incidence Rates 2013-17

Mississippi





ACR (2020)

CoC Hospitals Sep 2020

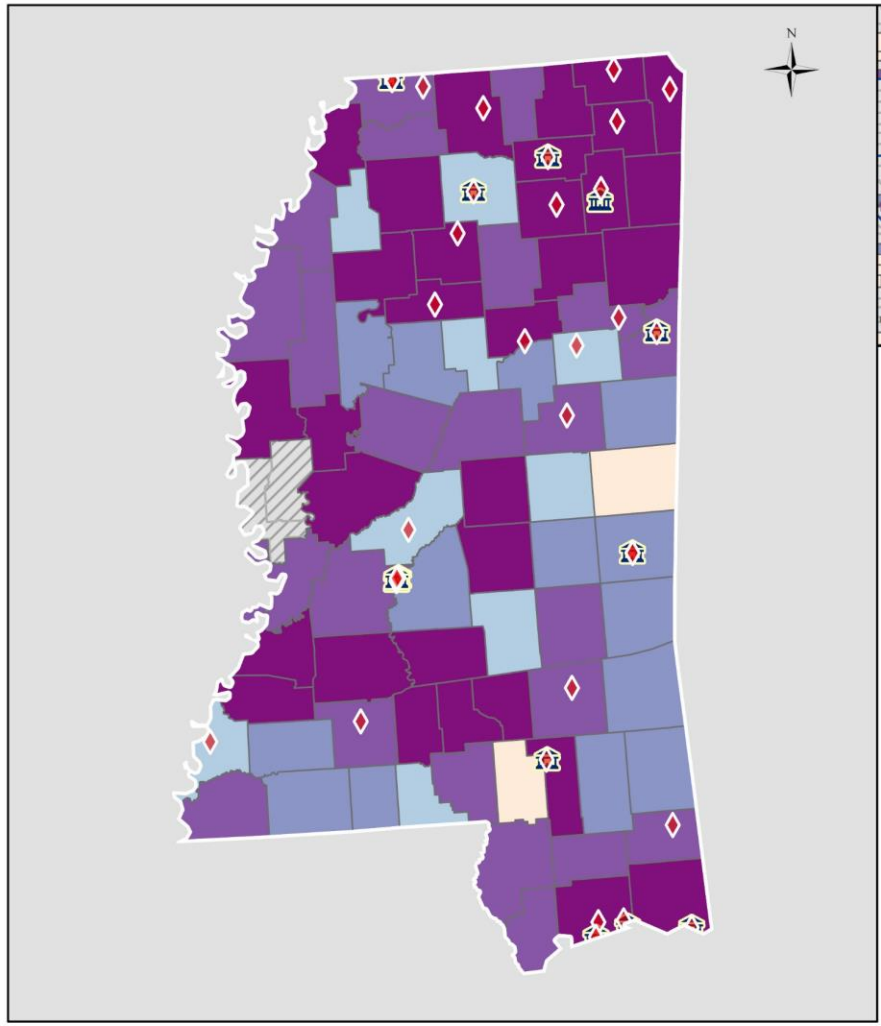
Counties IR

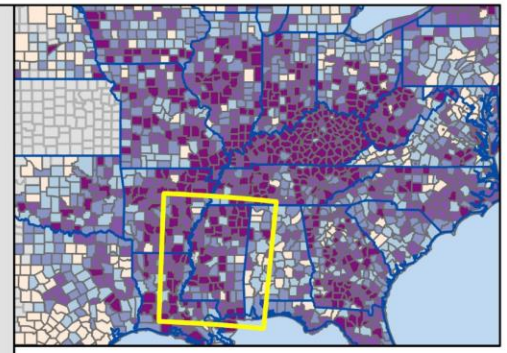
- ≤52.7
- ≤62.9
- ≤70.8
- ≤80.3
- ≤196.3
- Counties - Suppressed

Rates (quantiles) thresholds were calculated nationwide and not for each state. County level lung cancer mortality and incidence rates were retrieved in April 2021 from the State Cancer Profiles website (https://statecancerprofiles.cancer.gov/), Late Stage is defined as cases determined to be regional or distant.

Lung Cancer Late stage Incidence Rates 2013-17

Mississippi





ACR (2020)

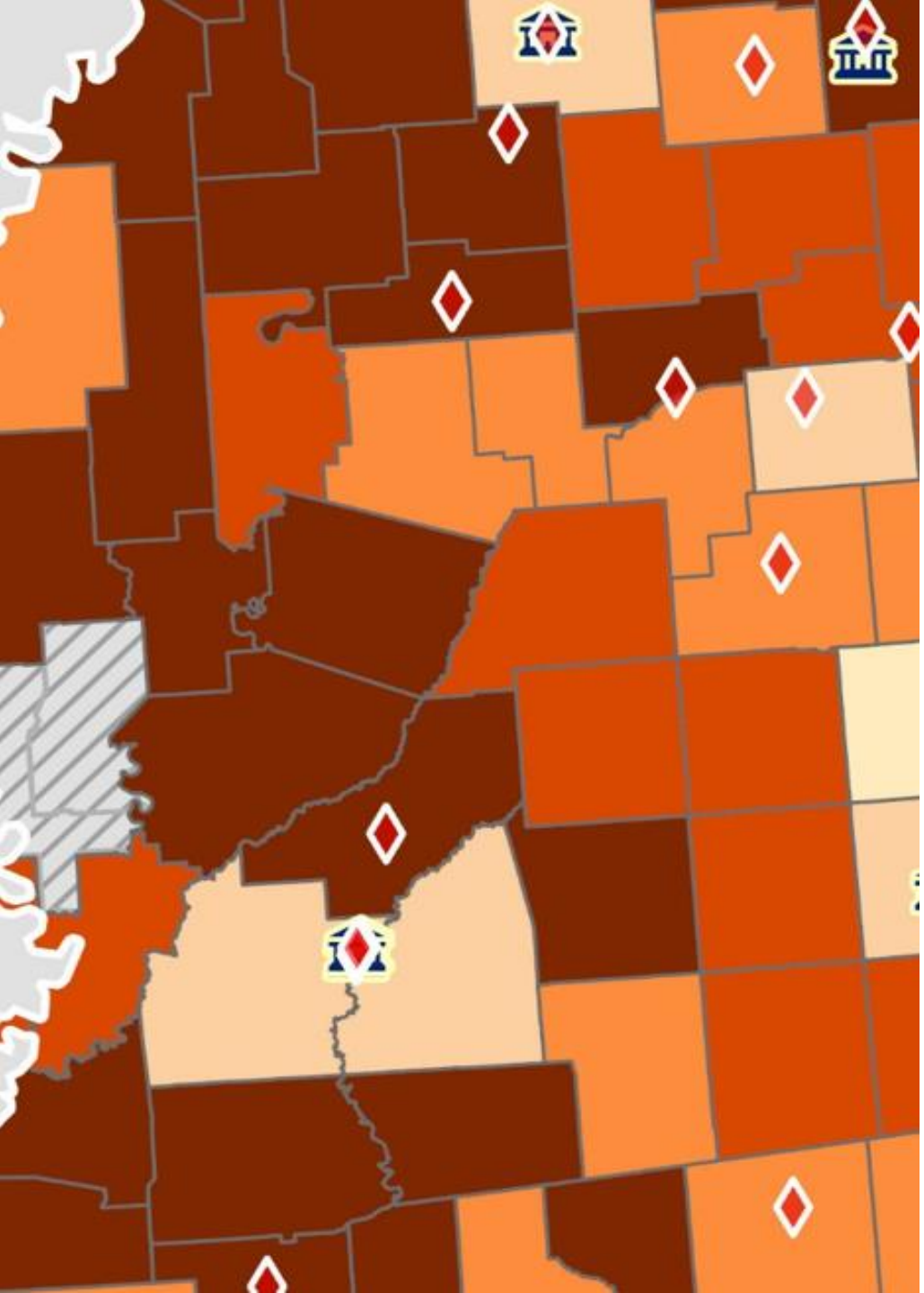
CoC Hospitals Sep 2020

Counties Late IR

Late_IR_2013_17

- ≤37.0
- ≤44.7
- ≤51.0
- ≤58.5
- ≤144.3
- Counties - Suppressed

Rates (quantiles) thresholds were calculated nationwide and not for each state. County level lung cancer mortality and incidence rates were retrieved in April 2021 from the State Cancer Profiles website (https://statecancerprofiles.cancer.gov/), Late Stage is defined as cases determined to be regional or distant.



Data Set Sources & Definitions

- Mortality Rates: 2014-2018
- Incidence Rates: 2013-2017
- Late-stage Incidence Rates: 2013-2017
- NCI, CoC hospitals and ACR screening locations: Geocoded in 2020
- Surveillance data accessed in April 2021 from the cancer state profile
- Rates (cases per 100,000 population per year) are age-adjusted to the 2000 US standard population
- Rates are for invasive cancer only
- Rates calculated using SEER*Stat. Population counts for denominators are based on Census populations as modified by NCI
- The 1969-2017 US Population Data File : Used for SEER and NPCR incidence rates
- Late Stage: Defined as cases determined to be regional or distant
- Coding: Based on Surveillance, Epidemiology, and End Results (SEER) summary stage

Introduction to Lung Cancer Biomarker Testing

BAPTIST
CANCER CENTER

Ray U. Osarogiagbon, MBBS, FACP

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Disclosures

- **Advisory Boards:**
  - Druckenmiller Center for Lung Cancer Research, MSKCC
  - Hope Foundation for Cancer Research (SWOG)
  - GO2 Foundation's Community Centers of Excellence Program
  - LUNGevity Patient FoRCe

- **Consultant (paid):**
  - American Cancer Society
  - Association of Community Cancer Centers
  - Astra Zeneca
  - Biodesix
  - Eli Lilly
  - National Cancer Institute
  - Triptych Healthcare Partners
- Founder: Oncobox Devices, Inc
- Patents for surgical specimen collection kit
- **Stocks:**
  - Eli Lilly
  - Gilead Sciences
  - Pfizer

There has been unprecedented progress of new treatment options for non-small cell lung cancer (NSCLC) that targets specific biomarkers

Prescribing the right treatment option for a patient *requires* comprehensive biomarker testing

Personalized Treatment of advanced Non-Small Cell Lung Cancer (NSCLC) *is guided by* molecular biomarker assessment

Biomarker-Driven Treatment for Lung Cancer At-A-Glance

7

FDA-Approved Genomic Biomarkers for directing targeted therapies for Non-Squamous NSCLC

2

PD-L1 TPS >50% Directs 2 Immunotherapy-Only first line treatment options

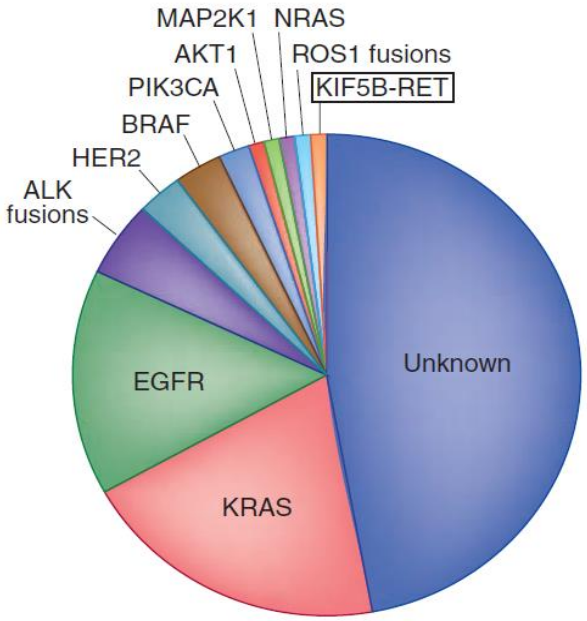
Clinical Trials

Numerous biomarker-driven drugs are presently in clinical trials for NSCLC and small cell lung cancer (SCLC)

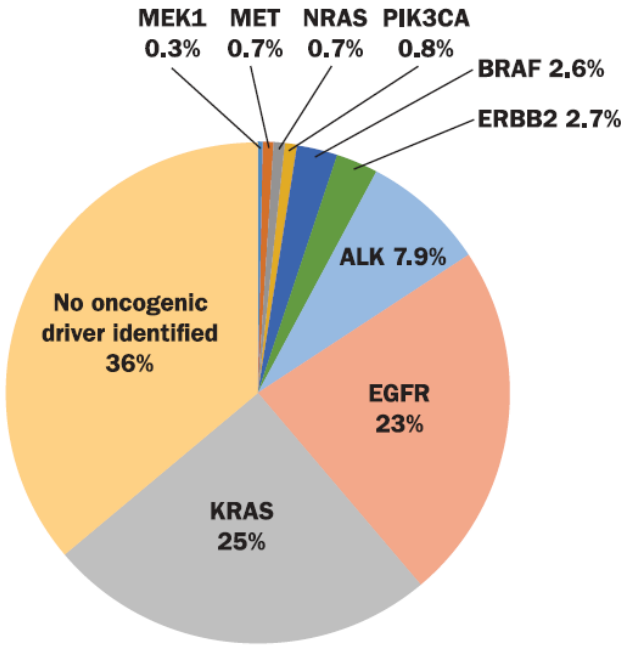
5

5 Organizations with guidelines for testing for comprehensive biomarker testing for NSCLC

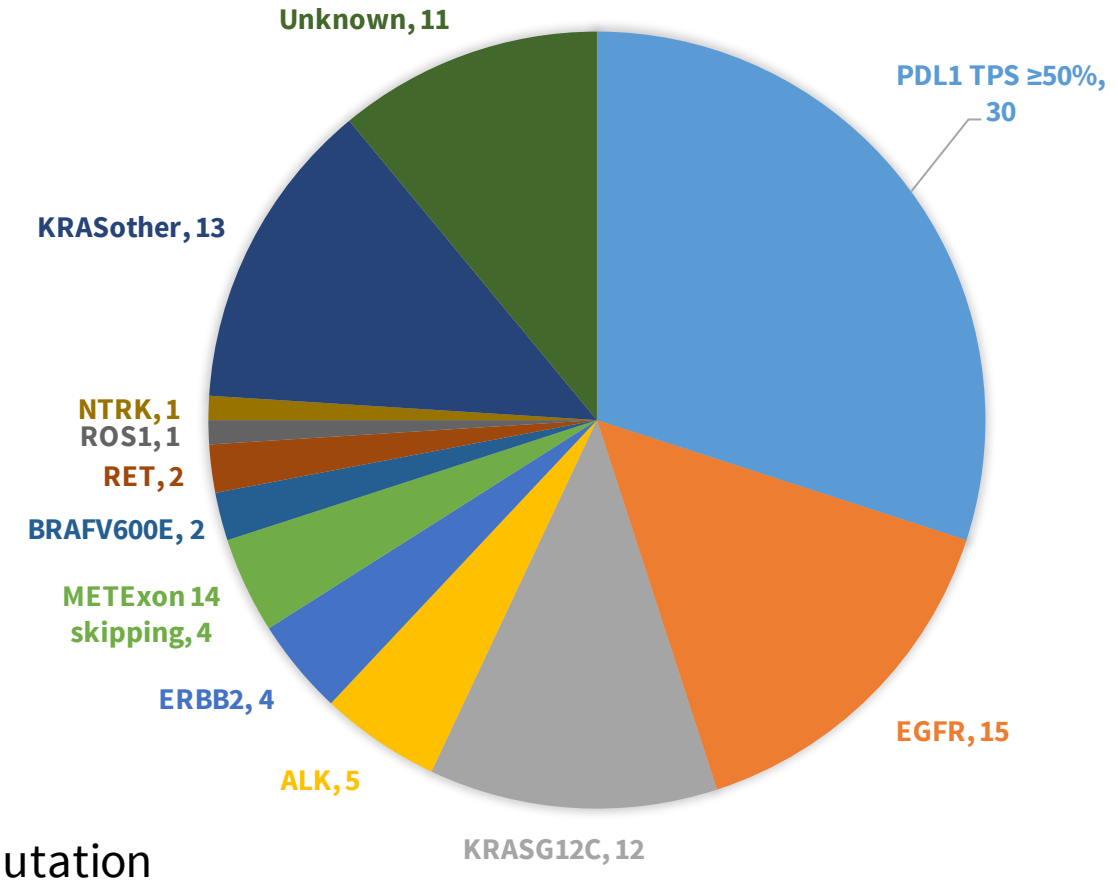
‘The times they are a-changin’…. Robert Allen Zimmerman



Pao and Hutchinson ‘Chipping away at the lung cancer genome’ Nature Medicine. **March 2012**



Scholl et al. Lung Cancer Mutation Consortium
J Thorac Oncol. **May 2015**



2020: biomarkers with drug targets

Current NSCLC Lung Cancer Biomarker Guidelines

NCCN

The National Comprehensive Cancer Network® NCCN has released updated evidence-based guidelines on comprehensive biomarkers in lung cancer

CAP, IASLC, & AMP

Evidence-based consensus guidelines on biomarker testing in NSCLC from **the College of American Pathologists (CAP)**, **International Association for the Study of Lung Cancer (IASLC)**, and the **Association for Molecular Pathologists (AMP)** recommend that all late-stage NSCLC patients with advanced stage lung adenocarcinoma should receive biomarker testing for three mutations (EGFR, ALK, and ROS1)[1] in 2018

ASCO

The American Society of Clinical Oncology (ASCO) released an update in February 2021 to their 2017 guideline on systemic therapy for patients with stage IV NSCLC with driver alterations

[1]Lindeman NI, Cagle PT, Aisner DL, et al. Updated Molecular Testing Guideline for the Selection of Lung Cancer Patients for Treatment With Targeted Tyrosine Kinase Inhibitors: Guideline From the College of American Pathologists, the International Association for the Study of Lung Cancer, and the Association for Molecular Pathology. *J Mol Diagn*. 2018;20(2):129-159. doi:10.1016/j.jmoldx.2017.11.004

Synopsis of Common Recommendations for Lung Cancer Biomarker Testing

Type of Lung Cancer	Stage of Lung Cancer	Common Recommendations
NSCLC Lung Adenocarcinoma	**Stages IIA and Above**	Testing for mutations in the **EGFR** gene should be conducted *Clinical trial options may exist for other mutations*
NSCLC Lung Adenocarcinoma	**Stage IV lung adenocarcinoma** or lung adenocarcinoma that has **recurred or progressed** after an initial diagnosis of stage I, II, or III lung cancer in patients who were **NOT** previously tested	Comprehensive Biomarker Testing, e.g., **Next-Generation Sequencing (NGS)** is recommended **PD-L1 immunohistochemistry** is recommended to determine whether a patient will benefit from immunotherapy **alone** in the first line setting
NSCLC Squamous Cell Lung Cancer	**Stages I, II, and III**	Currently, biomarker testing is performed **ONLY** for clinical trials
NSCLC Squamous Cell Lung Cancer	**Stage IV**	**PD-L1 immunohistochemistry** is recommended to determine whether a patient will benefit from immunotherapy **alone** in the first line setting **Consider testing** for **ALK**, **BRAF V600E**, **EGFR**, **KRAS**, **MET exon 14 skipping**, **NTRK**, **RET**, and **ROS1** at the time of diagnosis, contingent on a patient's histology or pathology. *Testing for other biomarkers may be helpful in deciding eligibility for clinical trials*
Small Cell Lung Cancer (SCLC)	**All Stages**	Currently, biomarker testing is performed **ONLY** for clinical trials

Credit: Table adapted from LUNGevity

Resources:

Non-Small Cell Lung Cancer (NSCLC)—NCCN Clinical Practices Guidelines in Oncology. Version 4.2021. Accessed May 2021.

Updated Molecular Testing Guideline for the Selection of Lung Cancer Patients for Treatment with Targeted Tyrosine Kinase Inhibitors. Accessed May 2021.

Small Cell Lung Cancer (SCLC)—NCCN Clinical Practice Guidelines to Oncology. Version 3.2021. Accessed May 2021.

Blurred Lines: Anatomy-based Prognostication is ***insufficient***

- Stage IV EGFR+ adenocarcinoma with 5-year survival rate >20% vs 5% for stage IV adenocarcinoma without identifiable predictive biomarker….

  Lin JJ, et al. J Thorac Oncol. 2016 PMCID: PMC4979601.
  Hirsch FR, et al. Cancer. 2018 PMID: 29579334.

- ALEX: 5-year survival Alectinib v Crizotinib- 62.5 (95% CI 54.3- 70.8) v 45.5% (95% CI 33.6-57.4)

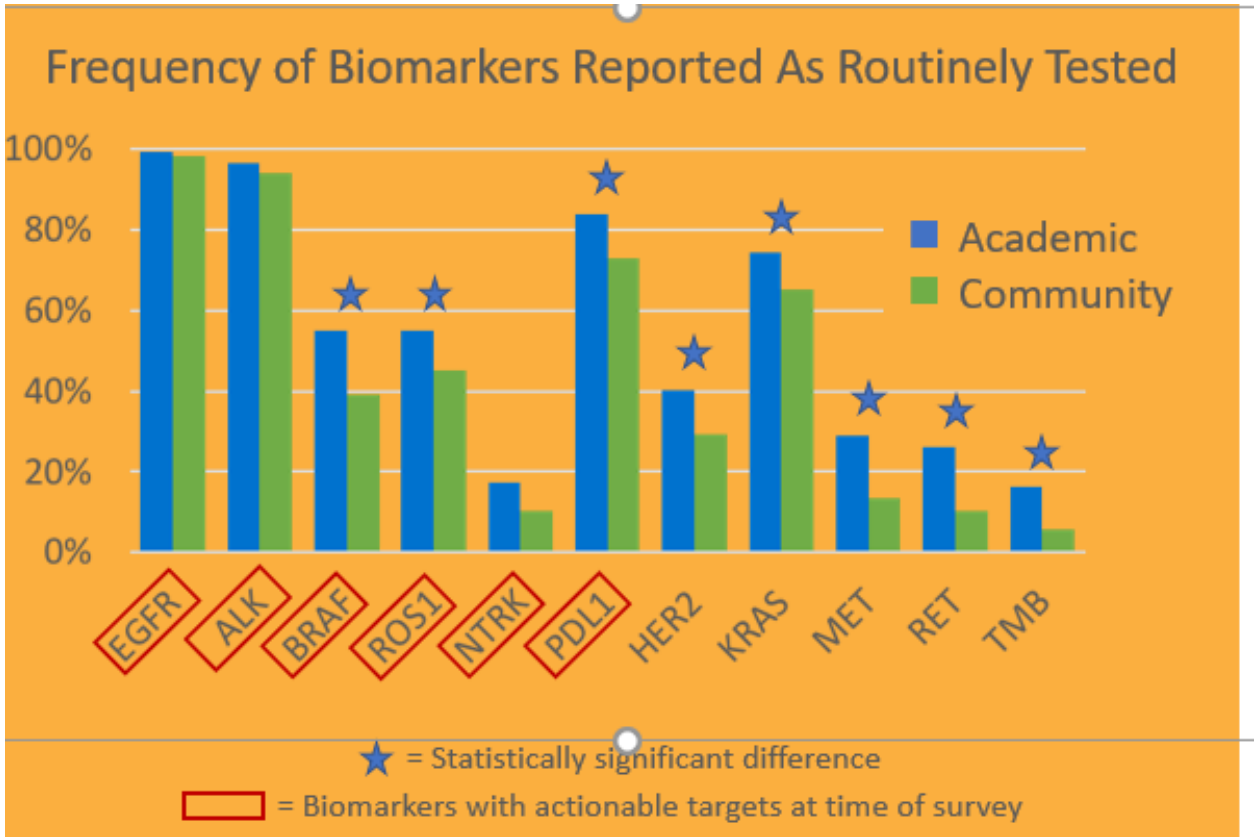
  Mok T, et al. Ann Oncol. 2020 PMID: 32418886.

  ….are they even the same disease?

Despite this unprecedented progress, current data shows suboptimal rates in biomarker testing

Biomarker Testing Rate

- Current data have inherent limitations due to selection bias, response bias, limited assessment by insurance type, etc. ***However…..,***
- Testing rates **vary across regions** and academic and community practices
- Use of **single assay tests are more common** than use of multi-gene panels using NGS or multiplex PCR (White paper, Friends of Cancer Research, 2018)
- *EGFR and ALK* testing represent the most common testing. However, patients who are older, male, have a history of smoking, and are not covered by commercial insurance have lower testing rates
- Among 4,335 NSCLC patients in a 2018 commercial database from 280 clinics, **only 71% received *ROS1* testing**. *Clinical Lung Cancer* 2020



Survey of CHEST Pulmonologists in 2019, unpublished data, in review.

Wong W, Wu N, Gupta R, Mansfield AS. Utilization Trends and Factors Associated With ROS1 Testing Among Patients With Advanced Non-small-cell Lung Cancer in US Community Practices. Clin Lung Cancer, 06/29/2020

Many patients face challenges receiving comprehensive biomarker testing

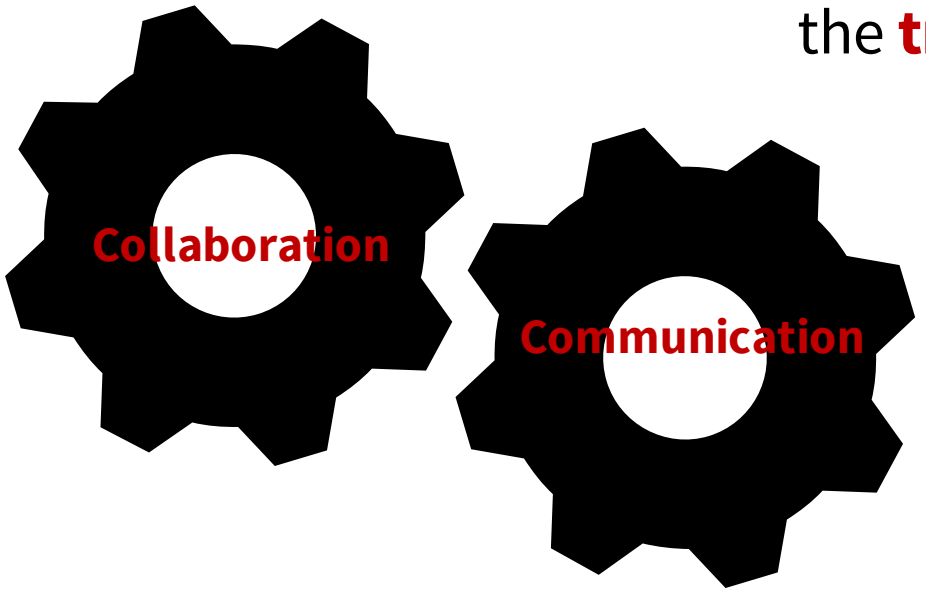
Optimizing Lung Cancer Biomarkers in Practice,

requires **collaborative effort** and **frequent communication**,

between the **proceduralist**, the **pathologist**,

the **treating oncologist**, the **nurse navigator**,

and others on the **multi-disciplinary care team**



THE IDEAL STATE

"Access to High Quality Biomarker Testing for All Eligible Patients with Non-Small Cell Lung Cancer: No Patient Will Be Left Behind"

Brief Preview of the IASLC Molecular Database Project

EDITORIAL

The International Association for the Study of Lung Cancer Molecular Database Project: Objectives, Challenges, and Opportunities

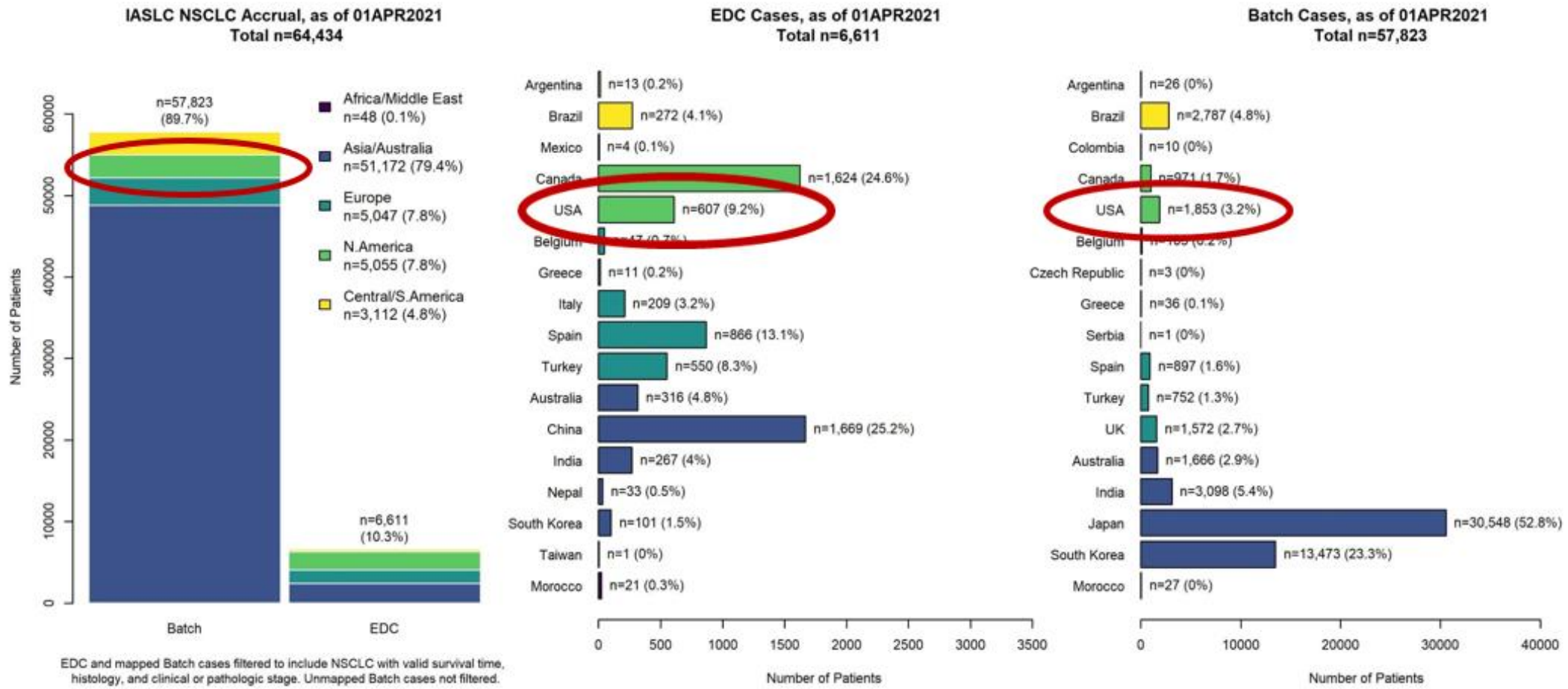
Raymond U. Osarogiagbon, M.B.B.S.,[a,*] Ramon Rami-Porta, MD,[b,c] Ming Sound Tsao, MD,[d] Luis M. Montuenga, PhD,[e,f,g] Katherine K. Nishimura, PhD, MPH,[h] Dorothy J. Giroux, MS,[h] William Travis, MD,[i] Hisao Asamura, MD,[j] Valerie Rusch, MD,[k] David P. Carbone, MD, PhD,[l] Fred R. Hirsch, MD, PhD,[m]; Members of the International Association for the Study of Lung Cancer Molecular Subcommittee

IASLC Molecular Database Project: Objectives

- Global platform for deeper, broader understanding
- Evaluate novel prognostic markers
- Create evidence from well-curated datasets for the role of biomarkers across the stage spectrum
- Support global advocacy for routine genomic testing as appropriate
- Define important research questions
- Stimulate global collaboration for additional discovery

Osarogiagbon RU, et al. J Thorac Oncol. 2021 Mar PMID: 33771657.

Data Contributors: Country-level as of April 1, 2021



Lung cancer will go the way of tuberculosis… becoming routinely curable with relatively simple, more palatable treatments.

A ***rigidly*** anatomy-based staging system is a barrier to that destination.

We need global datasets to accelerate understanding and intervention in the global challenge that is lung cancer.

Interested in more information about the IASLC Molecular Database Project, please contact: Raymond.Osarogiagbon@bmg.md

Why it Matters: A Lung Cancer Survivor's Perspective

Nancy Smith

Lung Cancer Survivor
ACS Area Board Member

Instructor
Southwest MS Community College

Open Discussion: Questions & Answers

Wrap Up

Post-Session Poll Questions

A Few Reminders

Next ECHO Session: 6/28/2021 @ 2:00 PM ET/1:00 PM CT

Next Didactic Presenter: *M. Patricia Rivera, MD, ATSF, FCCP*
Topic: *Understanding the Barriers to Biomarker Testing*

Materials and Resources will be made available within one week.
All resources will be available on the ACS ECHO Website

Case Presentations
Spokes: Interested in scheduling your Case Presentation? Let us know.
Faculty: All future case presentations will be shared with you at 24-hours in advance

Additional Feedback on Today's Session? Tell us in the Post Session Feedback Forum
(URL in chat box)

Pre-ECHO Survey: If you have not yet completed, please take our Pre-ECHO assessment.
The survey came from the ACS ECHO Office.

Questions: Contact amy.ellis@cancer.org

SEE YOU ON 6/28/2021!