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 korey@hofmann@cancer.org and carbon copy your regional ACS lead. 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:** 10/14/2022
2. **Presenter Name(s):** Sam Makhoul, MD
3. **Presenter Title(s):** Director of the Research Department
4. **Organization/Health System:** CARTI
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?**
   What is the best timing to order the genomic testing for lung cancer patients? Will you recommend to order these tests to all your patients with lung cancer regardless of the stage? Which ones do you order, the EGFR and ALK or a panel of them or NGS of the entire cancer genome? What is the role of liquid biopsy?

Section 2: System-Level Case Presentation

1. **Describe your current system or workflow:** *If available, feel free to provide workflow charts separately.*
   In our institution, biopsies are performed by different providers depending on the procedure needed to get the tissue. If we elect to do it through bronchoscopy or thoracoscopy, the patients are referred to the collaborating hospital near our cancer center, the Baptist Hospital in Little Rock and the specimens are processed by the Baptist pathologists. If a transthoracic biopsy is chosen, our interventional radiologists perform the procedure in our cancer center and the biopsies are processed through the St. Vincent pathologists.

2. **What are the primary challenges/barriers:** *Include specifics on identified gaps and quality improvement methods used to clarify the root causes*.
   1. The first challenge is logistical: Too many parts and parties to bring together to get a streamlined process
   2. No electronic form to order the biopsy (still rely on written forms that get faxed – difficult to track down)
   3. We do not have a unified pathway for specimen processing
   4. We use multiple vendors to do the same test with different turn-around times and reliability
   5. Biopsy (B) to Treatment (T) time can be long

3. **Describe what you are trying to improve and any other relevant background information:**
   1. Adopting one pathology group to process our samples.
   2. We started collecting data on the number of patients going through any of the above routes, the wait time to get the procedure and the wait time to get the results.
   3. We are working on pathways to stream line the process of ordering the biopsies in the EMR
   4. Making sure that the tests are ordered for all patients with stage IIA and above NSCLC at the time of diagnosis.
   5. Create a centralized function to track down the results and assure timely turn around time.
   6. Use a preferred genomic provider

4. **Briefly describe your vision of what it will look like when it is working well:**
   Accurate and speedy turn-around time from Biopsy (B) to initiate the Treatment (T) as soon as possible: B--> T < 3 Weeks

5. **Describe any recent changes (less than 6 months) made to this system or workflow, including when they were made and their impact:**
   We have selected one pathology provider – 3 months ago – increase compliance with guidelines
   We have increased our interventional radiology capacity – 2 months ago – shorter interval between the Bx request and scheduling (goal 1-4 business days)
   We are in the process of selecting one preferred genomic provider – underway – too early to tell
   We are working on creating a stream lined workflow and educate the different parties involved in the process – underway – too early to tell

6. **If applicable, what data (quantitative, qualitative) do you have to augment your observations:**
   Too early for mature data

Section 4: Faculty Recommendations

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

Faculty Recommendations and Discussion

Michal Senitko, MD, University of Mississippi Medical Center

To answer question of timing, the best timing for order genomic tests at time of biopsy for non-resectable cases; for resectable cases, discuss at tumor board & then decide then or at time of resection. Re: which tests in which order? Start with EGFR and ALK, then move to NGS. We do not use liquid biopsy in our organization.

Farrah Kheradmand, MD, Baylor College of Medicine

Agree with previous comments, however, at the VA in Houston, we preserve liquid biopsy when tissue sample is not sufficient or able to be obtained. We proceed with NGS on almost all cases of stage III and IV.

Gretchen Galliano, MD, Ochsner-New Orleans

(We) test all and do NGS based on organizational decision to test early since logistics can be difficult for cancer patients. We can test on cytology specimens; reference lab validated reference NGS panel specific for lung tumors on cytology smears. We have moved to combining every single specimen harvested; even EBUS core biopsies treated as cytology case to maximize harvest of the cells; may use cell block for PDL1 and the smears for NGS.

Ray Osarogiagbon, MBBS, Baptist Health System

Kudos to Dr. Makhoul for presenting an institutional case instead of a patient case. This is exactly where the solution lies. This is not something that an oncologist, pulmonologist, single surgeon or pathologist is going to come up with a solution alone. It has to be an organized, high-level institutional solution involving all the key stakeholders to come to an agreement.

Additional Comments:

Philip Lammers, MD, Baptist Health System

What are the solutions and challenges in your experience at Baptist Health System that people could learn from? We are still going through the process of trying to develop a standardized approach to biomarker testing at Baptist. It's really important to work with vendors who are flexible and willing to work with you. Cost is a big issue and need to work with a partner that takes that into consideration patients and systems can have access. We have been able to integrate test results into EPIC EMR to avoid having to scan in results and not have results get lost; still have challenges here. We're trying to work with one vendor.

Zhonglin Hao, MD, Markey Cancer Center

Work with one vendor, after having some issues with different vendors. Moving on to address direct capture of data after NGS test could be challenging; EPIC can be challenging to get test results promptly to the providers; can increase time needed to make a clinical decision.

Pierre De Delva, MD, UMMC

One thing that's really helped us aside from vendors, is having a patient navigation process. Having a navigator for communication with patients about testing and also to coordinate between teams. It's an investment but pays dividends in both patient satisfaction and in efficiency of the team working with multiple people running in multiple areas, having one central person to go between the patient, pathology and tumor boards can alleviate a lot of stresses with navigating patients through the biomarker testing.

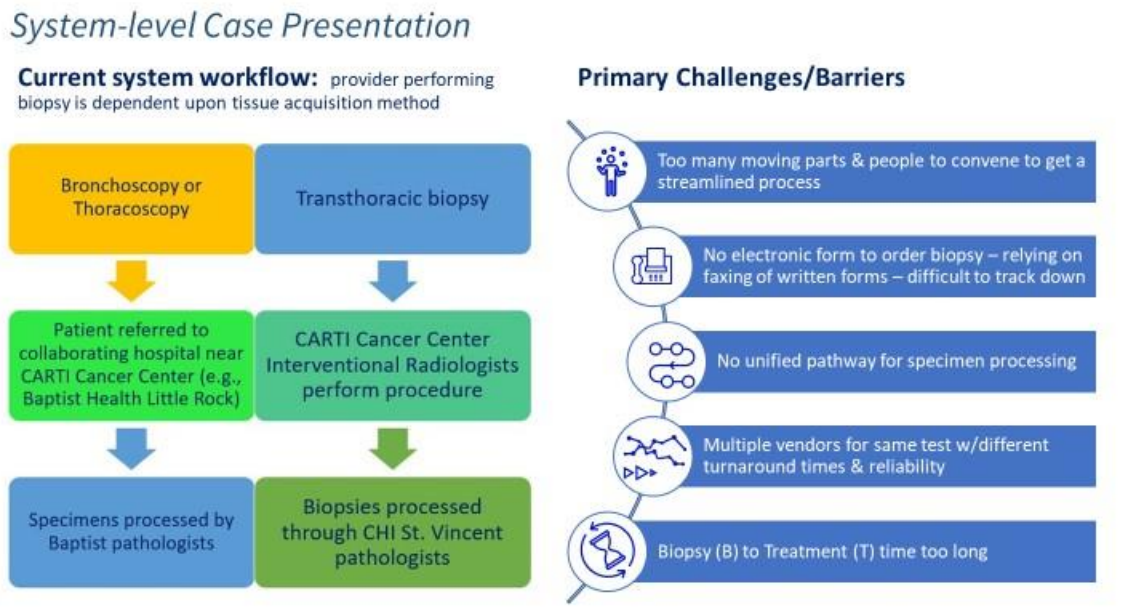
Zhonglin Hao, MD, Markey Cancer Center

Have hired an in-patient navigator for stage 4 patients. And second, we have a dedicated NGS coordinator for tumor board which saves a lot of time.

Sam Makhoul, MD, CARTI Cancer Center

Approached problem in terms of a quality improvement project. In terms of a QI project, have to start by defining the problem, identifying all of the stakeholders and bringing everyone around the same table. It's not about one individual person deciding to do something, it's about the culture of the organization and the workflow and trying to streamline medical records. When you know how to use EMR to your advantage can make everything possible and easy. Second,

we wanted to define what success would look like. The goal was not only to send biopsies routinely and systematically for 2A and above, but also tracking down the results so treatment could start for patients who need it. We decided the time would from biopsy to treatment would be less than 3 weeks.



Case Presentation Sam Makhoul, MD

Ideal State Description: Accurate & speedy turnaround time from Biopsy (B) to initiation of Treatment (T) as soon as possible ~ **B to T < 3 weeks**

What are we trying to improve?

- Adopting 1 pathology group to process samples
- Data Collection 1. # patients navigating each pathway 2. Wait time per procedure 3. Results wait time
- Developing pathways to streamline biopsy ordering via EMR
- Ensuring tests ordered for all NSCLC patients stage IIA & above at time of diagnosis
- Creating centralized function to track results & ensure acceptable turnaround time
- Moving to a preferred genomic provider

Recent changes (<6 months) to system workflow

Change	When Made	Impact
Selected 1 pathology provider	2 mos. ago	Increased guideline compliance
Increased interventional radiology capacity	2 mos. ago	Shorter interval btw. Bx request & scheduling (goal = 1-4 bus. Days)
In process of selecting 1 preferred genomic provider	Underway	Too early to tell
Creating streamlined workflow, educating different parties involved in process	Underway	Too early to tell

Case Presentation Discussion

Specific Question(s) to the Faculty	
Q1	What is the best timing to order the genomic testing for lung cancer patients?
Q2	Will you recommend to order these tests to all your patients with lung cancer regardless of the stage?
Q3	Which ones do you order, the EGFR and ALK or a panel of them or NGS of the entire cancer genome?
Q4	What is the role of liquid biopsy?

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