Development of a Molecular Service for Precision Oncologic Treatment for Underserved Cancer Patients in Rural Eastern North Carolina

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ECU Health Quality Improvement Symposium
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Background/Introduction – Challenges of Precision Oncology

- Cancer patients in rural eastern NC face obstacles in accessing necessary molecular tests and targeted therapies
- Barriers: evolving test options, challenge of specimen/test selection, clinician interpretation, high cost
- Before Sept 2020, ECU Health had no molecular pathologist and no standardized molecular workflow
- **Aim:** Enhance the clinical utility of precision oncology testing for cancer patients by developing a molecular pathology service to cover pre- and post-testing
  - Review all send-out cases and ensure appropriate molecular tests
  - Provide clinicians with summary addenda for returned cases
  - Offer consultative support and coordinate complex patient cases
Methods – EPIDEM Model of Quality Improvement

- **Explore** molecular send-out process (affects all cancer patients in ENC whose tumor specimens were examined at ECU Health MC)
- **Promote** changes to stakeholders (ordering providers/pathology dept)
- **Implement** changes gradually (workflow, addenda, database, etc.)
- **Document** in a molecular send-out database, electronic health records, written correspondence, published scholarship
- **Evaluate** the service's impact on specimen adequacy (rescued cases), clinical and financial outcomes, and provider satisfaction
- **Modifications** include offering an orderable molecular consultation

Results - Impact

Jan 2021-Oct 2023

2700 molecular orders reviewed and reported to clinicians with overwhelmingly positive feedback

Monthly Client (Vidant) Bill and Total Number of Send-Out Caris Tests Performed from Jan 2020 to Dec 2021

- 2 resident rotations
- 5 published abstracts
- 1 state-wide abstract
- 1 peer-reviewed publication
- $250K extramural funding
Results – Formal Molecular Consultation Orders

Dec 2020
Molecular Review Service

In-depth Molecular Reviews (Molecular Consult orderable in Epic after May 2023)

- **Dr. James Loynes** (Carteret - Morehead City)
  “Thank you so much for doing this consult. It ended up being quite helpful for me. As you know these things can be complicated.”

- **Dr. Nagesh Jayaram** (SMOC Jacksonville)
  “Really good insight and very helpful exactly as you presented it. I like your personal recommendation and would go with that”
  “I’ve already “beta tested” this and it has been amazingly helpful.”

- **Dr. Nayan Mainkar, fellow** (ECUH MC)
  “Wow thank you so much! This will really change the landscape! Much appreciated”

- **Nicole DaVia NP** (ECUH Beaufort)
  “Detailed and understandable! You are more of an expert on these tests and what they specifically tell us and that helps with this patient.”
Results – Formal Molecular Consultation Orders

<table>
<thead>
<tr>
<th>Dec 2020</th>
<th>May 22, 2023</th>
<th>Aug 2023</th>
<th>Oct 21, 2023</th>
<th>Jan 2024</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Molecular Review</strong></td>
<td><strong>Molecular Consultation</strong></td>
<td><strong>New team members</strong></td>
<td><strong>IMAGINE conference</strong></td>
<td><strong>QI Symposium</strong></td>
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<tr>
<td>Service</td>
<td>June 5, 2023</td>
<td>Sept 2023</td>
<td>Nov 2023</td>
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<td></td>
<td>Insha Pun started</td>
<td><em>Journal of Molecular Diagnostics</em> guest editorial</td>
<td>AMP Meeting USCAP accepted</td>
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- **In-depth Molecular Reviews (Molecular Consult orderable in Epic after May 2023)**
Regional and outside oncologists were more likely to initiate consultations and document patient benefit from the service.

Streamlining the process, especially for regional and community oncologists, may further enhance patient benefits.

**EPIDEM (Modifications)**

- Partnering with Clinical Informatics and Cancer Registry
- Automated data entry for molecular results
- Molecular “smart phrase” in tumor board notes
- Standardizing workflows for high-yield tumors

We demonstrate the effectiveness of a molecular consultation service, even without the resources for in-house testing.

Our scalable solution could be a model for underserved populations.