Addressing Barriers to Identifying HER2-Low Metastatic Breast Cancer Patients in a Large Community Oncology Practice
Lauren Carpenter, 1 Kelli Corona, 1 Bob Phelan, 1 Shenitha Edwards 1
1 Cancer Specialists of North Florida, 2015 AC Skinner Pkwy, Ste. 2, Jacksonville, FL, United States

BACKGROUND
- HER2, an important BC biomarker, is routinely determined by IHC and/or ISH.
- Approximately 50% of US patients with mBC exhibit HER2-low expression, defined as IHC 1+ or IHC 2+ without gene amplification (ISH 1-3+).
- T-DXd, a HER2-directed antibody and topoisomerase inhibitor conjugate, was the first FDA-approved treatment for unresectable or metastatic HER2 low BC.
- The ASCO CAP Guidelines for HER2 testing in BC recommend that all newly diagnosed BC patients have HER2 testing performed and all patients who subsequently develop mBC have an additional HER2 test performed.
- The 2023 ASCO-CAP Guideline Update affirmed previous testing guidelines that categorize HER2 low BC as HER2 negative disease.15 However, the 2023 CAP BC biomarker testing reporting template noted that a HER2 IHC 1+ score or an IHC 2+ score and ISH result may be reported as HER2 low disease.
- Lack of integration between laboratory information systems and EHRs may create barriers to identifying patients with HER2 low disease.
- Given the evolving treatment landscape for HER2-low BC, we used retrospective data from a large community oncology practice to detect challenges in identifying patients with HER2 low mBC as a quality improvement initiative.

RESULTS

- 54 patients had indeterminate HER2 status; 72% had FISH testing only and 28% had IHC testing only.
  - Among those with FISH results only, 95% were tested prior to approval of T-DXd for HER2 low mBC in August 2022, which underscores the need to reassess HER2 status at progression using IHC.
  - Approximately 3% of patients did not have HER2 testing performed at metastatic diagnosis, although 5% had a documented rationale (eg, bone-marrow disease, tissue quantity insufficient for testing).
  - Six patients had conflicting IHC scores; among these, 3 had an increase in IHC score over time (eg, from IHC 0 to 2+[1+1, 1+2 to 2+]).
  - Although the report may be flagged as being from pathology, it could be assumed under "External MD notes", "misc", or "Lab Reports".

- Barriers identified in determining HER2-low status included:
  - Discrepancies in reporting HER2 status: There was a lack of concordance across the Oncodx summary page, clinical notes, and pathology reports.
  - Multiple laboratories were used for HER2 IHC (n=21) and FISH (n=6) testing.
    - About 90% of pathology reports called "HER2-low disease" HER2-negative.
    - Pathology report layout varied, with some laboratories including HER2 results on a front summary page and others placing them deep within the report.
    - In ~42% of cases, HER2 scores were not reported on the first page.
    - Prior classification and lack of identification of HER2-low disease in Oncodx.

- Difficulty identifying and accessing pathology reports: Results were not consistently categorized under the "pathology" tab within Oncodx. A tumor site may be flagged as being from pathology. It could be appended under "External MD notes", "misc", or "Lab Reports".

- Challenges exist for community oncology practitioners when determining a patient’s HER2 status.
  - Community practices typically receive pathology reports from numerous different laboratories, which have different report formats and may not consistently display the HER2 IHC score.
  - Pathology reports may not be easily located or queried within the EHR.
  - Although Oncodx has a clinical summary page that contains information on the pathology report, the previous classification scheme identified patients with an IHC score of 1 as HER2 negative. Clinicians may not cross-reference the original pathology report while reviewing clinical notes or patient referrals.

  - About 90% of patients with HER2-low disease were classified as HER2 negative after the pathology report, summary page, or clinical notes.

- Overall, 10% of patients with mBC received HER2 testing by FISH only. While this was more common pathology reports at the time of diagnosis, patients who were previously tested for HER2 by FISH alone should undergo IHC testing.

- Potential actions to improve identification of HER2-low patients in community practices may include reducing the number of laboratories used to allow for consistency in laboratory result reporting and/or considering preferred testing partners that integrate reporting within the EHR.