

Instructions and the Patient Scenario

INSTRUCTIONS FOR THE LAB: ASCO has asked the vendors to demonstrate their software through the patient scenario below. Ask each vendor how they approach each of the various parts of the case. Throughout this entire process, be sure to think about the **usability** of the product and how it might integrate with your current workflow.

THE PATIENT CASE

POSSIBLE QUESTIONS
when viewing the EHR

Initial Visit and Diagnosis

Ms. Herrera comes to visit you for a routine mammography. Ms. Herrera is 51-years-old, with some family history of cancer; her mother developed breast cancer when she was 56-years-old but is alive and well. Her paternal cousin developed breast cancer when she was 39-years-old. Ms. Herrera's previous medical history is fairly unremarkable, save for mild hyperlipidemia. She has no prior surgeries. Currently the patient is taking atorvastatin, vitamin D, and calcium. She develops hives with penicillin.

Unfortunately, the mammography shows a spiculated mass on the right breast that was 2.1 cm in size. A core needle biopsy was performed which showed invasive ductal carcinoma, grade II/III. The tumor was estrogen and progesterone receptor positive and HER-2 positive (IHC 2+, FISH amplified 3.5).

Ms. Herrera undergoes sentinel node biopsy procedure removing 2 nodes, 1 of which was involved with breast cancer with a tumor aggregate of 0.7 cm. Staging CT and bone scan showed no evidence of metastatic disease.

Q1: How does the system store information about the patient's diagnosis and medical history?

Neoadjuvant Chemotherapy

The patient elects to participate in a clinical trial and is randomized to pre-operative vinorelbine 25 mg/m² IV push weekly and trastuzumab, with a loading dose of 4 mg/kg, followed by weekly doses of 2 mg/kg. She undergoes 12 weeks of this therapy.

Q2: How does the vendor enter in the chemotherapy regimen? Are there standard order sets?

Complications with Initial Chemotherapy

There are problems in weeks 10 and 11 with the chemotherapy regimen. Specifically Ms. Herrera presents a low absolute neutrophil count (ANC) on weeks 10 and 11:

- Week 10 – WBC 4000; 24% neutrophils; Hb 11.2 g; Hct 33.6%; platelets 120k
- Week 11 – WBC 3000; 10% neutrophils; Hb 11 g; Hct 32%; platelets 90k

This is a problem, as the patient's absolute neutrophil count (ANC) requires a chemotherapy dose modification in both weeks:

- ANC > 1250/mm³ = full dose of vinorelbine and trastuzumab
- ANC > 750/mm³, < 1250/mm³ = vinorelbine 15 mg/m², trastuzumab full dose
- ANC < 750/mm³ = vinorelbine HELD, trastuzumab full dose

Q3: Does the system allow you to enter in ANC values? Can the EHR calculate it you? Does it provide a reminder or some type automated clinical decision support when the neutrophil count is low?

Surgery

At the conclusion of her pre-operative chemotherapy she was no longer menstruating. Her chemotherapy is followed by lumpectomy and axillary node dissection. At surgery, her tumor was 0.4 cm in size with significant cell necrosis but was not a complete pathologic remission. Twelve axillary lymph nodes were removed, 3 of which were involved with metastatic cancer.

Q4: Can you enter details about her lumpectomy, axillary node dissection, and the removal of the adjacent nodes?

Adjuvant Chemotherapy

Subsequent to recovery from surgery, you place Ms. Herrera on 4 cycles of standard dose cyclophosphamide (600 mg/m²) and doxorubicin (60 mg/m²) to be given Q 3 weeks.

Q5: Same with question 1; see how the vendor inputs chemotherapy orders.

Radiation and Hormonal Therapy

At the conclusion of the study, a cardiac echo showed an LVEF of 58% (normal values \geq 50%). You have Ms. Herrera initiate every 3-week trastuzumab. She receives a loading dose of 8 mg/kg, then subsequent doses at 6 mg/kg per dose. In addition, you prescribe 20 mg of tamoxifen per day.

Q6: How does the system handle information related to radiation therapy?

At the same time, Ms. Herrera also undergoes loco-regional radiation utilizing the 3 field technique, including the supraclavicular and internal mammary nodes.

Q7: How does the system handle dose modifications? Is there clinical decision support with the lower LVEF value?

Trastuzumab was continued for 6 months at which time an echocardiogram showed a LVEF = 48% and trastuzumab is stopped. Six weeks later, a repeat echocardiogram demonstrated an LVEF = 58% and trastuzumab is reinstated and continued until 12 months from the initiation of her initial trastuzumab as preoperative therapy. Tamoxifen administration continues.

Surveillance and Survivorship

Six months after completion of trastuzumab, Ms. Herrera comes to you for a routine visit; she is feeling well. She is fully active without restrictions, with a performance status of 0. Her vital signs are normal and her physical exam is normal. Her first post-treatment mammogram shows no significant abnormalities. She continues her tamoxifen 20 mg per day. As she plans to spend four to five months with her daughter in New York, she has asked you to provide her with a treatment summary. You also order a mammogram for six months from now.

Q8: Is it easy for the system to schedule a mammogram 6 months from the visit date?

Throughout the year, you and the other physicians in your practice have been entering data into your EHR system and now you wish to participate in QOPI® to determine how well your practice has performed on multiple clinical and administrative areas.

Q9: What population health or quality reporting tools does the system have? How does it interact with ASCO's QOPI® program?