Interactive Patient Reports for Breast Screening: A Human-centered Design Thinking Approach

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Introduction-Purpose

- Using human-centered design, our purpose was to develop an **interactive imaging** report for breast screening patients that provides simple access to scan information and reduces confusion by providing easier to understand terminology.
- Integrates user emotions and empathy to actively engage patients, providers, and multiple other stakeholders to create solutions and to redesign systems.
- Our team included all stakeholders: 13 breast imaging patients, 6 design students, 2 design faculty advisors, hospital patient experience officers, members of patient and family advisory council, radiology managers, breast imaging technologists, and 5 radiologists including subspecialized breast imagers.
Project Objectives

Understanding Patient Needs
- Data
- Needs
- Ecosystem

Research Study Protocol
- Design or identify a research study protocol
- Process for tracking/validating improvements

Development of Interactive Imaging Report
- Understand the current "imaging reporting" ecosystem
  - Mammography screening
  - Reporting pain points
  - Benchmarking

Determine Report Dissemination
- Disseminate strategy
- MyChart/EPIC
- Hyperlink?
Research Phase

1. The waiting time for abnormal results for patients is the main trigger for their anxiety.
2. The most significant information patients want to know is how bad their situation is and what steps are:
   - How does the report create a better awareness so the tests are better understood?
   - Breast vs other cancer patient journeys are by no means alike.

3. The letter could use more humanized language.
4. There is the possibility to add interactive functions into the MyChart patient report.
5. Dense breast patients experience elongated journey, and lack of dense breast awareness.

Our research phase revealed several important opportunities:
- Empowering patients
- Creating awareness for better understanding the breast screening test and results
- Personalizing and humanizing patient information
- Reducing anxiety
**Ideation Phase**

**Key Questions:**
- How can the ideation concepts fit into existing software used by the hospital?
- How can we personalize the information patients receive to fit their specific needs?

**Deliverables:**
- 13 breast cancer patient support tool concepts
- Survey/activity data and insights
- Early prototyping

- Existing service in UC Health

- Includes:
  - Interactive images
  - Results history
  - Next steps
  - Risk level

**• Ideation helped us focus on the existing personal consultation with physician and create an interactive patient report that included interactive images, results history, next steps, and their risk level of breast cancer.**

**• We also prototyped a process tracker, an important component of patient understanding of the next steps with an associated timeline.**
Refinement Phase

- Performed internal and external benchmarking and co-created a functional prototype of an interactive patient report.

- Refined adding important features of chart integration.

- Prototyped a process tracker, an important component of patient understanding of the next steps with an associated timeline.
Patient Centered Letters

**Updates:**

- Changed words and phrasing to make the letters patient friendly.
- Deleted information that was not necessary based on content and purpose of letter.
- Made sure all information was consistent across all letters.
- Reformatted information to allow for visual hierarchy of information.

**Categories of Letters:**

1. **Appointment Reminders and Follow-ups**
   - Includes:
     - Annual Screening
     - Additional Testing
     - Re-imaging
     - Missed Appointments

2. **Results Regarding Mammogram Screening**
   - Includes:
     - Results of Mammogram
     - Information on why you need a mammogram
     - Breast Density Information
     - UC Health's Capabilities

3. **Results Regarding MRI and Biopsies**
   - Includes:
     - Results of MRI
     - Why MRI's are needed
     - Possible recommendations for next steps in care
Dear Mrs. @FirstName@ @LastName@,

Please call The Barret Center at 513-584-1500 (option 2) or West Chester Hospital at 513-585-8378 as soon as possible to schedule your exam.

If you would like to schedule an appointment with us, please call either of the numbers listed below as soon as possible to schedule your exam.

UCMC Mammography Center 513-584-1500
West Chester Hospital Mammography 513-298-8948

Annual screening mammography is recommended for women of average risk, age 40 and over, by the majority of medical groups in the United States, including the American College of Radiology, Society of Breast Imaging, and the American Cancer Society. In addition, yearly breast examinations by your healthcare provider and monthly self-breast exams should also be considered as part of breast cancer screening.

One of the best ways to detect breast cancer early, before any symptoms show up, is to get a screening mammogram. However, mammography does not detect all breast cancer. Remember that you should never ignore a breast lump or any other change in your breasts, even if your mammogram is normal. If you feel a lump or notice a change in breast shape or nipple discharge, talk to your doctor or other healthcare provider about it as soon as possible.
Our prototype also included a comprehensive electronic patient portal including letter with interactive patient report, a to-do tracker, an education suite for further inquiry into their care and condition.
Conclusion

• Through the lens of design thinking, we developed a human-centered, interactive patient report and letter for breast screening patients.

• Our next steps are to implement this interactive report and letter to all our outpatient breast imaging centers.