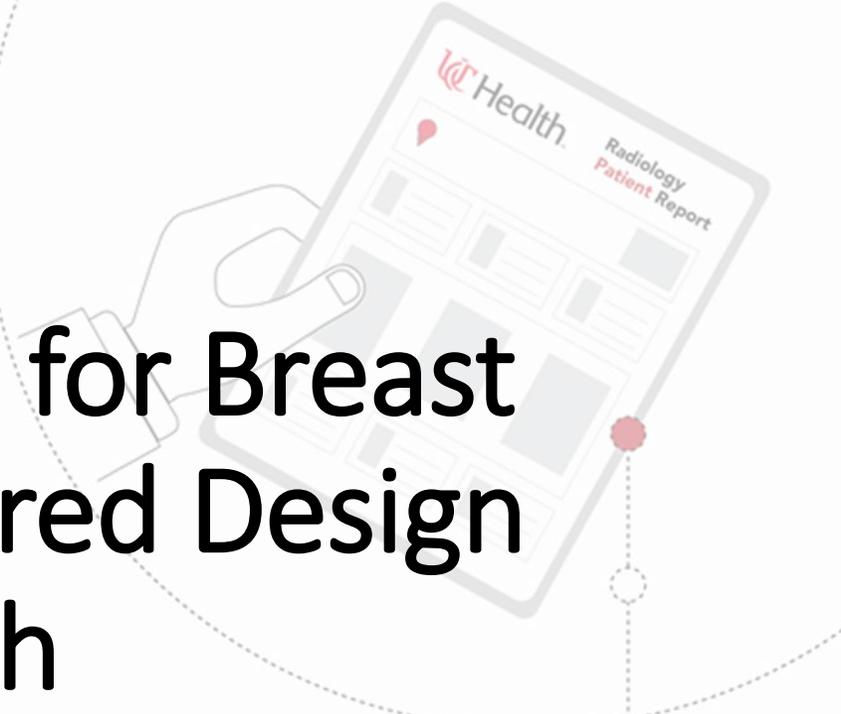


Interactive Patient Reports for Breast Screening: A Human-centered Design Thinking Approach



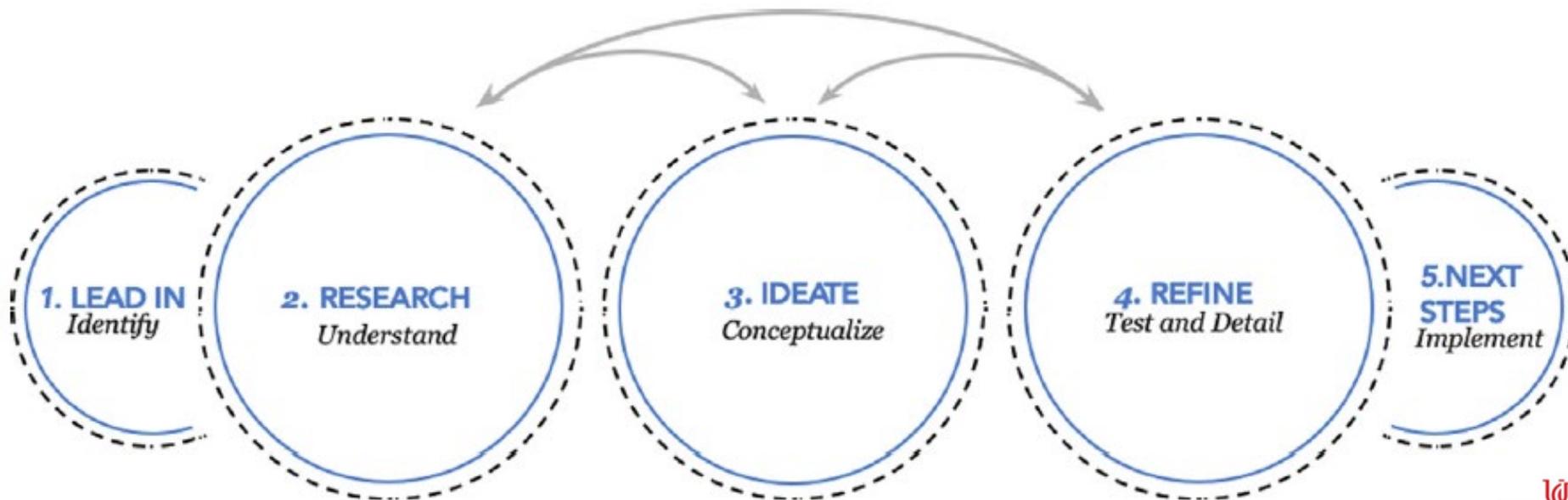
S Chadalavada, MD,MS¹; A Brown, MD¹; J Tobler, MD¹; S Wahab, MD¹; S Kapur, MD¹; R Wahab, DO¹; S Lecky, RT¹; E Washburn, RT¹; A Turner-Shepherd, RT¹; B Allen, RT¹; J Roebker, MD¹; C Vogel, FIDSA²; M Mahoney, MD¹; A Vagal, MD, MS¹

¹Department of Radiology, University of Cincinnati | UC Health

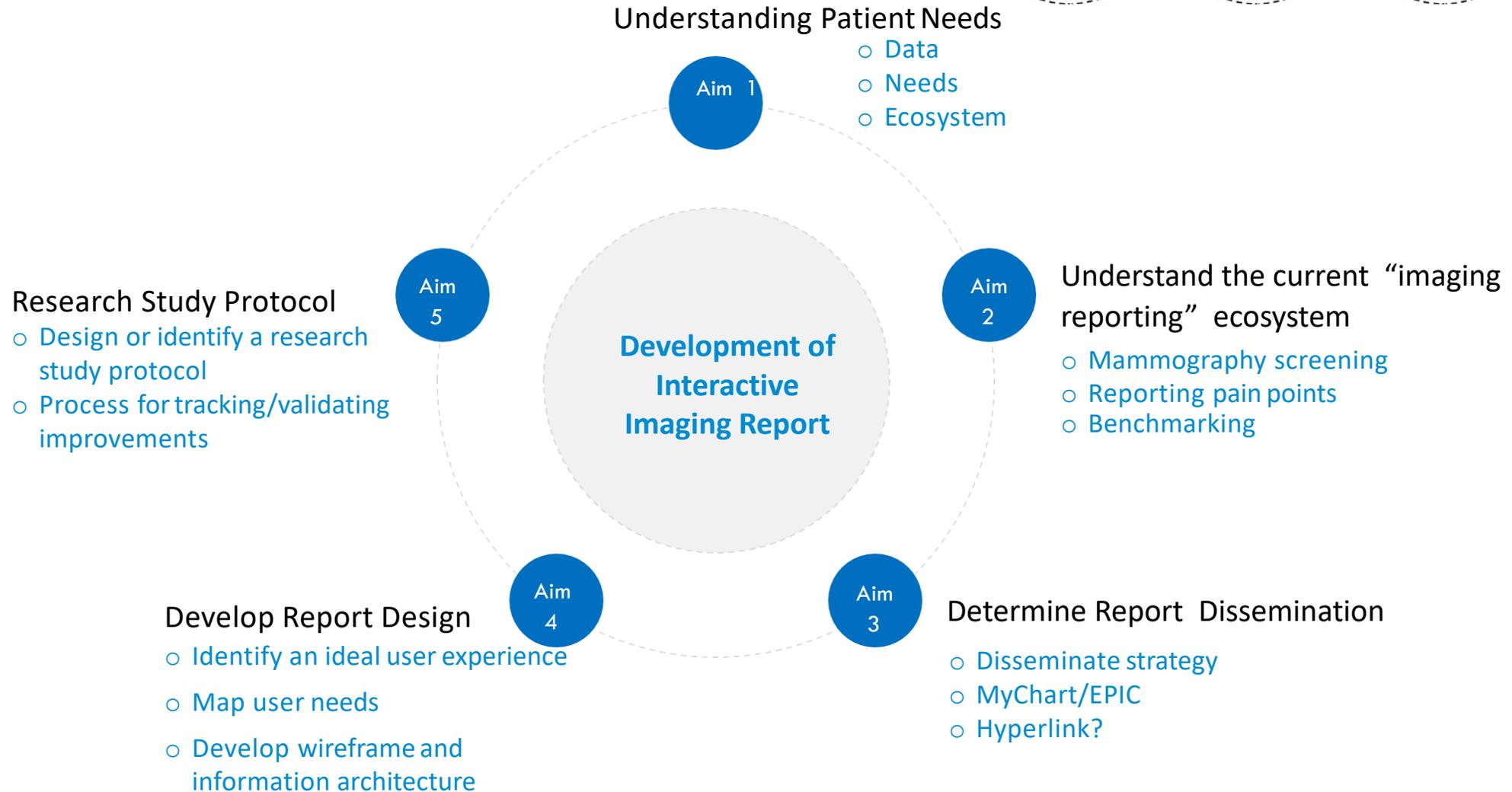
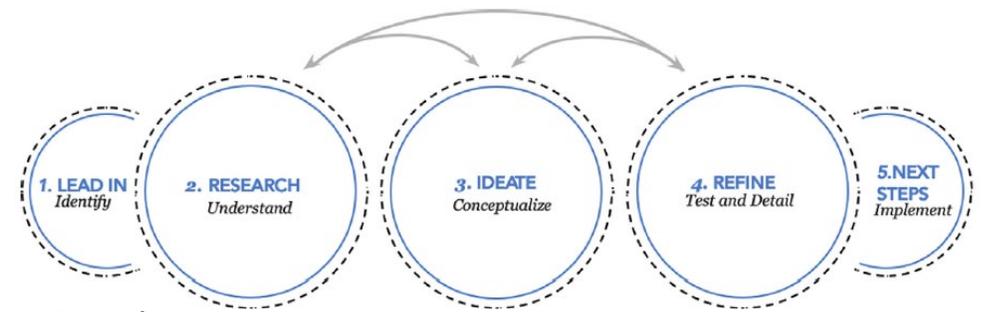
²College of Design, Architecture, Art, and Planning (DAAP), University of Cincinnati

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** and actively engages 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



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:

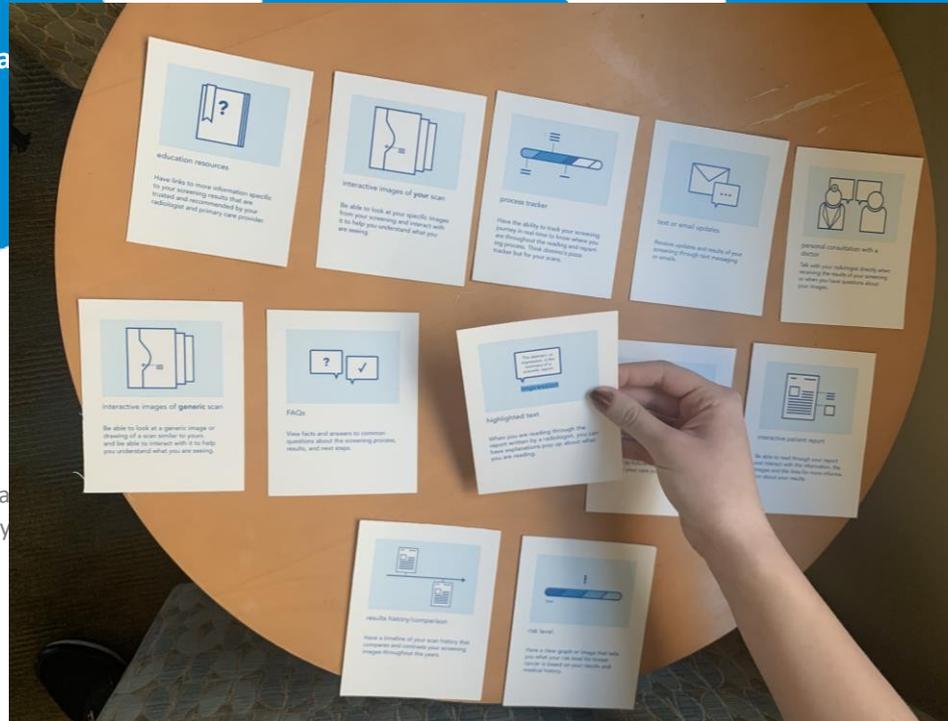
- 13 breast cancer patient support tool concepts
- Survey/activity data and insights
- Early prototyping

- Existing service in UC Health

Interactive patient report

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

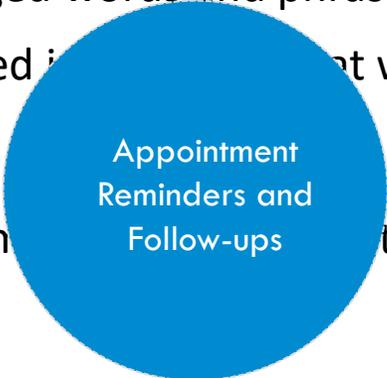


- Performed internal and external benchmarking and co-created a functional prototype of an interactive patient report.
- Refined adding important features of chart integration.
- Prototyped a process tracker, an important component of patient understanding of the next steps with an associated timeline.

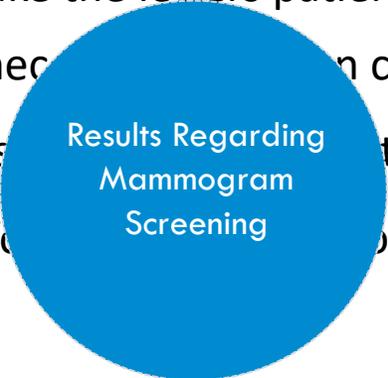
Patient Centered Letters

Categories of Letters: Updates:

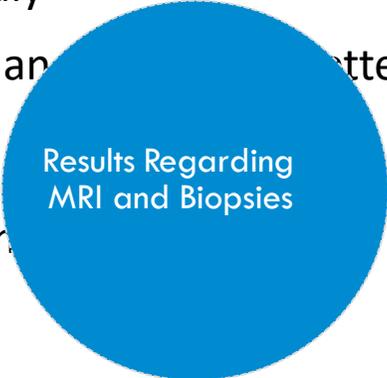
- Changed words and phrasing to make the letters patient friendly
- Deleted information that was not necessary for patient content and length of letter
- Made letters more concise and easier to read
- Reformatted letters to allow for better flow of information



- Includes:
- Annual Screening
 - Additional Testing
 - Re-imaging
 - Missed Appointments



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



- Includes:
- Results of MRI
 - Why MRI's are needed
 - Possible recommendations for next steps in care

Patient Centered Letters

Patient Centered Letter Additions

Survey & Biopsy

Original

Appointed 8: Follow

Original

- Existing patient letters were revamped to update words and phrases that make it patient friendly.
- Unnecessary information was removed, while making sure the content was consistent and reformatted to allow for visual hierarchy of information.

Please call The Barrett Center at West Chester Hospital at to schedule your exam.

Annual screening mammography for women at average risk, age 40 and older. The American College of Radiology, Society of Breast Imaging, and American Cancer Society. In addition, your healthcare provider also be considered as p

UC Health

@RISFRMTLINK(1055230800,1)@
@RISFRMTLINK(52330,1)@
www.UCHealth.com

@DATE@
Dear Mrs. @FIRSTNAME@
@ADDRESS@

Re: @RISFRMTLINK(52305,1)@ performed @IMGEXAMDATE@
MRN: @MRN@

Thank you for choosing a UC Health facility for your recent breast MRI. We are pleased to inform you that your MRI showed no evidence of cancer. We have notified your physician of your MRI results. If you had a mammogram on the same day as your MRI, the results of the mammogram will be reported separately.

The American Cancer Society recommends MRI screening in addition to mammograms for women who are at high risk for developing breast cancer. If you believe you are a high risk patient, please consider annual screening MRI in addition to annual mammography and discuss this with your primary health care provider.

MRI does not replace the need for annual mammographic screening for women age 40 and older. In fact, the current American Cancer Society guidelines recommend that screening mammography and breast examination by your doctor be performed every year beginning at age 40. Moreover, all women are encouraged to practice monthly breast self-examination as not all cancers are visible by mammography. Therefore, early detection of breast cancer requires a three part effort: annual screening mammography, monthly breast self-exam, and physical exam by your doctor.

ROUTINE INTERVAL FOLLOW-UP MAMMOGRAPHY WITH ADDITIONAL MRI CONSIDERED IF YOU ARE A HIGH RISK PATIENT.

Sincerely,
@IMGOLASTSIGNRAD@
Interpreting Radiologist

UC Health

Reviewing Your Next Steps

- Additional imaging is needed in 6 weeks
- Call (513) 584-7465 to schedule your next appointment

Dense Breast Density

Breast tissue is composed of milk glands, milk ducts and supportive tissue (dense breast tissue) and fatty tissue (nondense breast tissue). Radiologists use mammogram images to grade breast tissue based on the proportion of dense to nondense tissue.

Dense breast tissue refers to the appearance of breast tissue on a mammogram. It's a white area that makes it difficult to see through.

On a mammogram, nondense breast tissue appears dark and transparent. Dense breast tissue appears as a solid white area on a mammogram, which makes it difficult to see through.

Nondense breast Dense breast

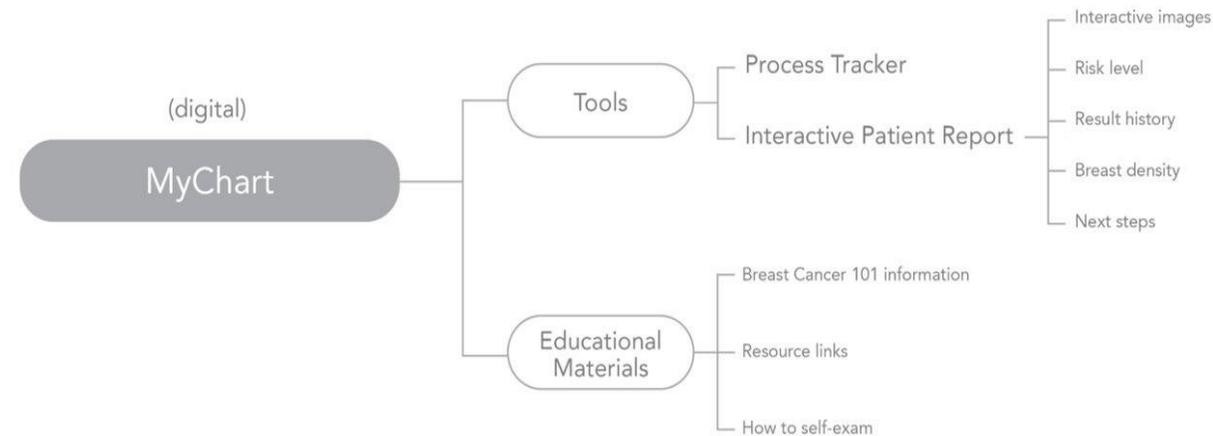
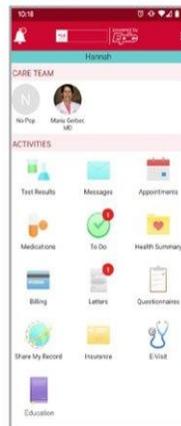
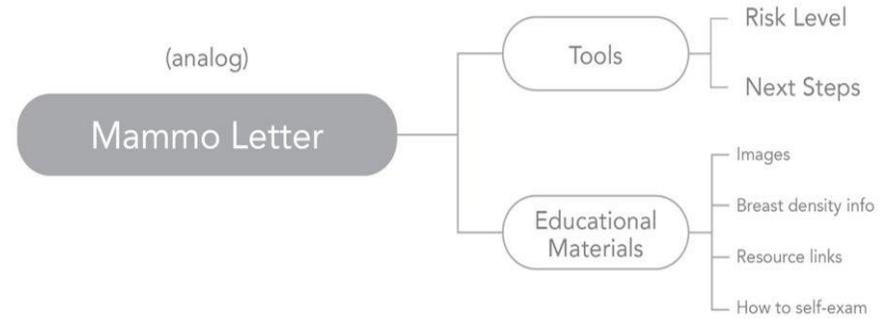
Helpful Resources Related To Your Mammogram

Susan G. Koman Foundation Know Your Lemons Foundation CDC: Dense Breasts

Features:

- Clear review of next steps
- Simple explanation of breast density with reference images
- QR codes linked to helpful additional resources

Prototypes: Information Hierarchy



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.

