

# Mammography Screening Decision Aid



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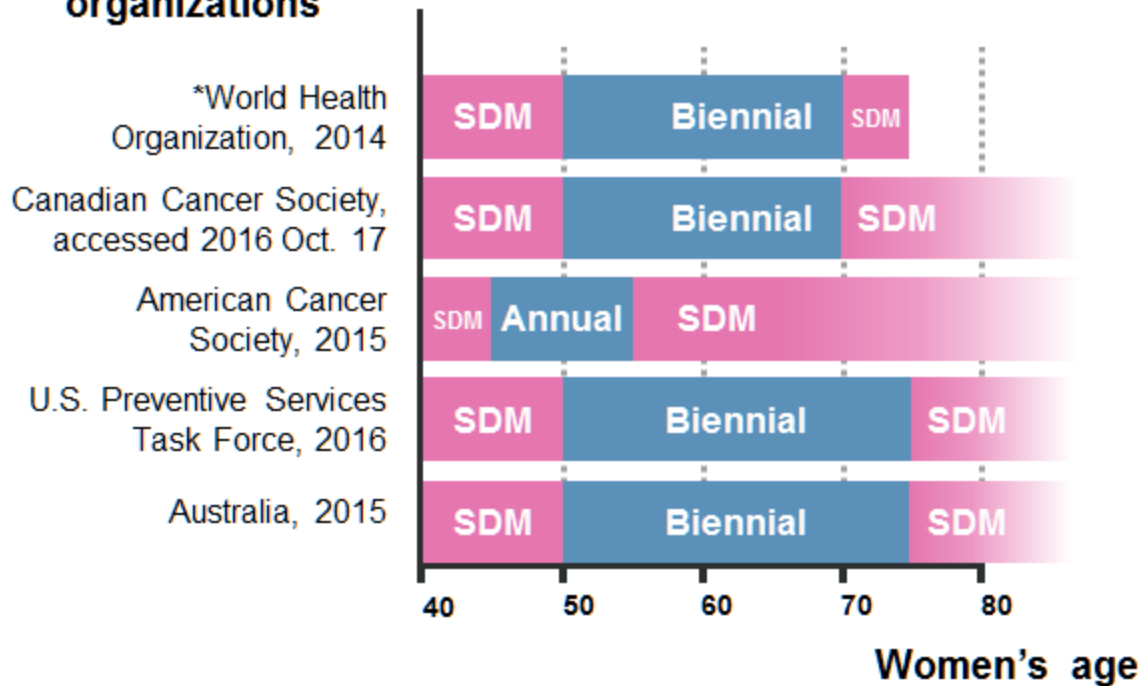
James Case, MBI, Mongoose Projects, Inc

Mark Remiker, MA, OHSU



# Current Screening Guidelines


## Recommending organizations



From Ivlev, et al. Submitted



# Patient Decision Aids

- Patient decision aids are tools that help people become involved in decision making by providing information about the options and outcomes and by clarifying personal values. They are designed to complement, rather than replace, counseling from a health practitioner.
- 


# International Patient Decision Aids Standards

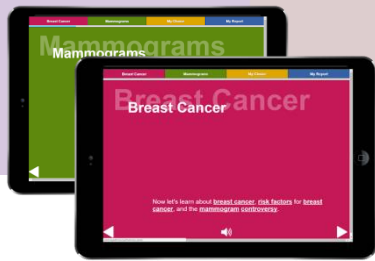
- The goal of the IPDAS Collaboration is to establish an internationally approved set of criteria to determine the quality of patient decision aids.
- This tool was developed using IPDAS.
- <http://decisionaid.ohri.ca/>





# Components of a Decision Aid

- Risk tool to identify above average and average risk women.
  - Educational component
  - Priority setting activity
  - Customized report
- 



# Mammopad

Each woman was assessed for risk

## Personal History

Have you had breast or [ovarian cancer](#)?

Yes

No

## Personal History

Have you or a family member had a blood test that shows you have a [gene marker](#) for breast or [ovarian cancer](#) ([BRCA1](#) or [BRCA2](#))?

Yes

No

## Personal History

Has anyone in your family, people related to you by blood, had [ovarian cancer](#)?

Yes

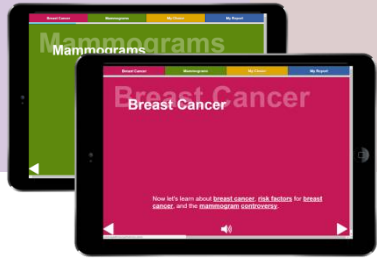
No

## Personal History

Has anyone in your family, people related to you by blood, had [breast cancer](#)?

Yes

No



# Mammopad

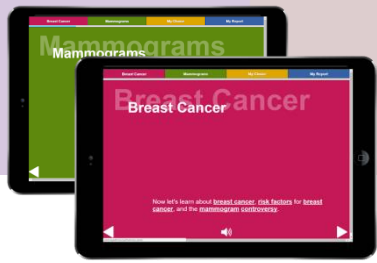
The aid encourages a shared approach

First Questions Breast Cancer Mammograms My Choice Last Questions

## It's Your Choice

Starting regular mammograms before you turn 50 is a **choice** that you can make after discussing your options with a doctor or nurse

40 50



# Mammopad

The aid provides information on risk and types of cancer.

First Questions Breast Cancer Mammograms My Choice Last Questions

## Average Risk in Your 40s

**1** out of **70** women between the ages of **40-49** will develop breast cancer

www.cph.com/it

First Questions Breast Cancer Mammograms My Choice Last Questions

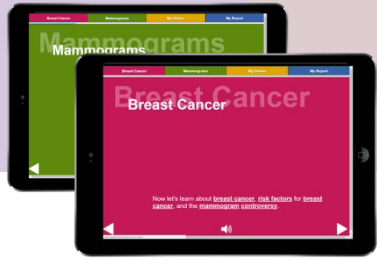
## WHEN A WOMAN HAS BREAST CANCER, IT CAN...

**GROW SLOWLY**  
Some cancers **do not spread**  
Cancers that don't spread are **less likely** to cause harm

**GROW QUICKLY**  
Some cancers **do spread**  
Cancers that do spread are **more likely** to cause harm

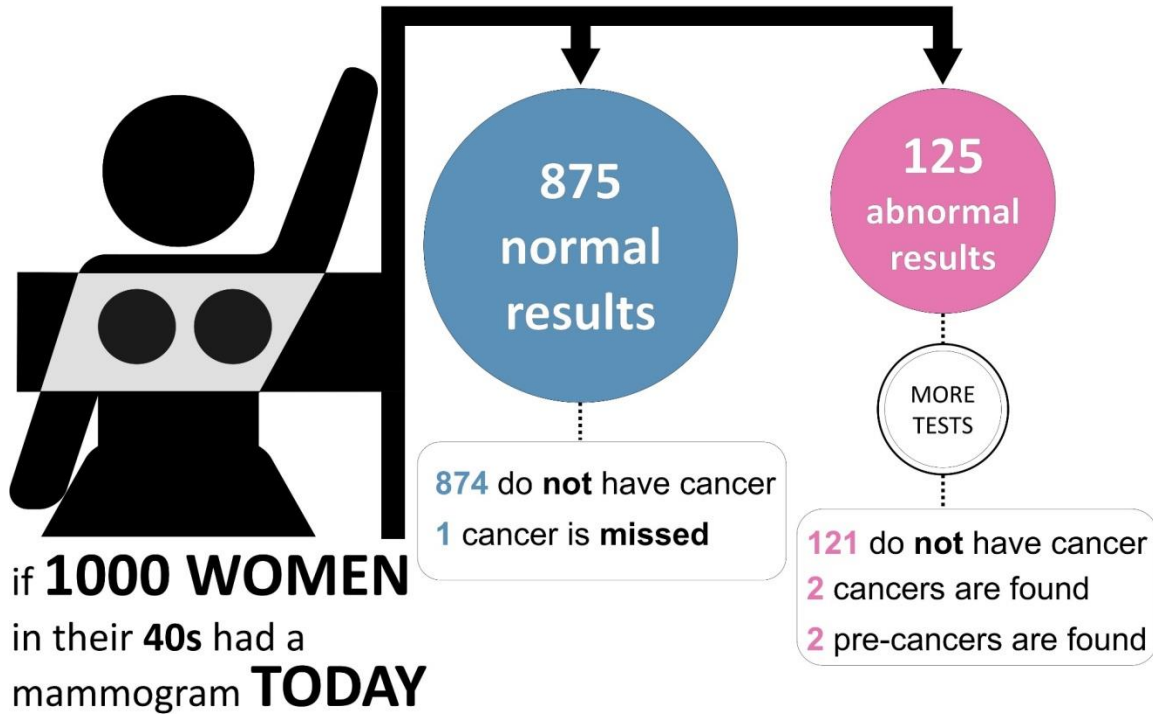
www.cph.com/it



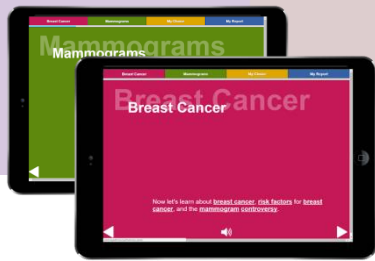


# Mammopad

The aid uses graphics to inform patients



Data from *Nelson HD, et al. 2016*



# Mammopad

## Values clarification (setting priorities)

### What Matters Most to You

Please choose the one **benefit** that matters most to you in deciding whether to have **mammograms** on a regular basis in your 40s.

- Peace of mind (having a mammogram that shows no cancer)
- Catching cancer early (simpler treatment and reduced chance of dying)

### What Matters Most to You

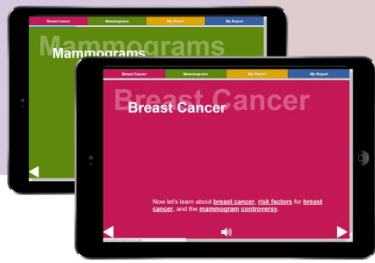
Please choose the one **harm** that matters most to you in deciding whether to have **mammograms** on a regular basis in your 40s.

- Extra tests and worry from false alarms (having a mammogram that finds something that isn't cancer)
- No improvement in length or quality of life, and unnecessary diagnosis (being diagnosed and treated for cancer that might not be harmful)

### What Matters Most to You

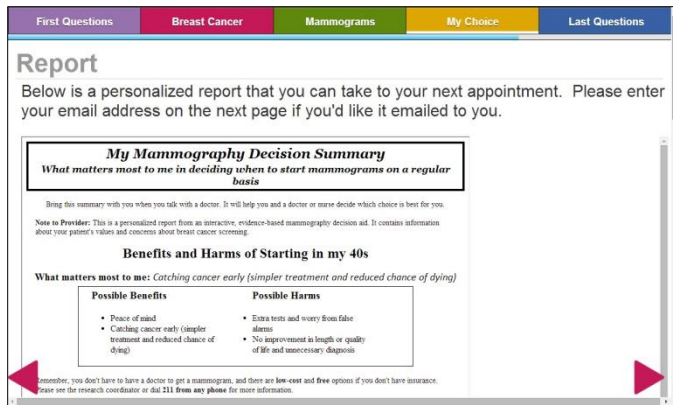
Of the one **benefit** and one **harm** that you just chose, please select which one matters most to you in deciding whether to have **mammograms** on a regular basis in your 40s

- Catching cancer early (simpler treatment and reduced chance of dying)
- No improvement in length or quality of life, and unnecessary diagnosis (being diagnosed and treated for cancer that might not be harmful)



# Mammopad

This aid provides  
customized feedback



## ***My Mammography Decision Summary*** ***What matters most to me in deciding when to start mammograms on a regular basis***

Bring this summary with you when you talk with a doctor. It will help you and a doctor or nurse decide which choice is best for you.

**Note to Provider:** This is a personalized report from an interactive, evidence-based mammography decision aid. It contains information about your patient's values and concerns about breast cancer screening.

### **Benefits and Harms of Starting in my 40s**

**What matters most to me:** *Catching cancer early (simpler treatment and reduced chance of dying)*

#### **Possible Benefits**

- Peace of mind
- Catching cancer early (simpler treatment and reduced chance of dying)

#### **Possible Harms**

- Extra tests and worry from false alarms
- No improvement in length or quality of life and unnecessary diagnosis

Remember, you don't have to have a doctor to get a mammogram, and there are low-cost and free options if you don't have insurance. Please see the research coordinator or dial 211 from any phone for more information.

### **My Concerns About Mammograms**

**I am most concerned about:** *the cost of mammograms, follow-up care, or treatment, not being able to have a mammogram because I do not have a doctor*

### **My Questions**

- I would like to know more about my risk according to my family history of cancer.
- I would like to know more about my risk according to my own personal health history (e.g. birth control pills).
- I would like to know if it is best to have a mammogram every year or every two years.
- what additional tests are needed if the mammogram is positive

### **My Plan**

*I plan to have a mammogram before age 50.*

# Before After Study

- Recruited 75 women from rural clinics (through ORPRN) to use decision aid on iPad Minis.
- Asked intention for screening, self-efficacy and questions about decisional conflict before and after using the aid.

# Before After Study

## Decisional Conflict Scale

- The decisional conflict scale measures perceptions of uncertainty about options. A total conflict score is computed.
- The subscales are:
  1. Informed
  2. Supported
  3. Clear Values
  4. Certain

# Before After Study

## Aid reduced decisional conflict

- After using Mammopad, women reported reduced overall decisional conflict (mean before 46.33 versus after 8.33;  $Z=-7.225$ ;  $p<0.001$ ) and reported reduction on all subscales ( $p<0.001$ ).

Eden KB, Scariati P, . . . , Nelson HD. *J Womens Health* (Larchmt). 2015 Sep 11. [Epub ahead of print].

# References

## Evaluations of Aid

- Eden KB, Scariati P, Klein K, Watson L, Remiker M, Hribar M, Forro V, Michaels L, Nelson HD. Mammography decision aid reduces decisional conflict for women in their forties considering screening. *J Womens Health*. 2015;24(12):1013-1020.
- Scariati P, Nelson L. Watson L, Bedrick S, and Eden KB. Impact of a decision aid on reducing uncertainty: Pilot study women in their 40s and screening mammography. *BMC Medical Informatics and Decision Making*. 2015;15:89.

# References

## Breast Cancer Risk Screening

- Bellcross CA, Lemke AA, Pape LS, Tess AL, Meisner LT. Evaluation of a breast/ovarian cancer genetics referral screening tool in a mammography population. *Genet Med.* 2009;11:783–9.
- Bellcross C. Further development and evaluation of a breast/ovarian cancer genetics referral screening tool. *Genet Med.* 2010;12:240–240.
- Georgia Breast Cancer Genomic Consortium. Breast Cancer Genetics Referral Screening Tool (B-RST). <https://www.breastcancergenescreen.org/>.



# References

## Screening Recommendations

- Siu A, U.S. Preventive Services Task Force. Screening for breast cancer: USPSTF recommendation statement. *Ann Intern Med.* 2016;164:279-296.
- Nelson HD, Fu R, Cantor A, Pappas M, Daegas M, Humphrey L. Effectiveness of breast cancer screening: systematic review and meta-analysis to update the 2009 USPSTF recommendation. *Ann Intern Med.* 2016;164:244-255.
- Nelson HD, Pappas M, Cantor A, Griffin J, Daegas M, Humphrey L. Harms of breast cancer screening: systematic review to update the 2009 USPSTF recommendation. *Ann Intern Med.* 2016;164:256-267
- Offinger KC et. al. Breast cancer screening for women at average risk 2015 guideline Update from the American Cancer Society. *JAMA.* 2015;314(15):1599-1614.

# Overview of Implementation

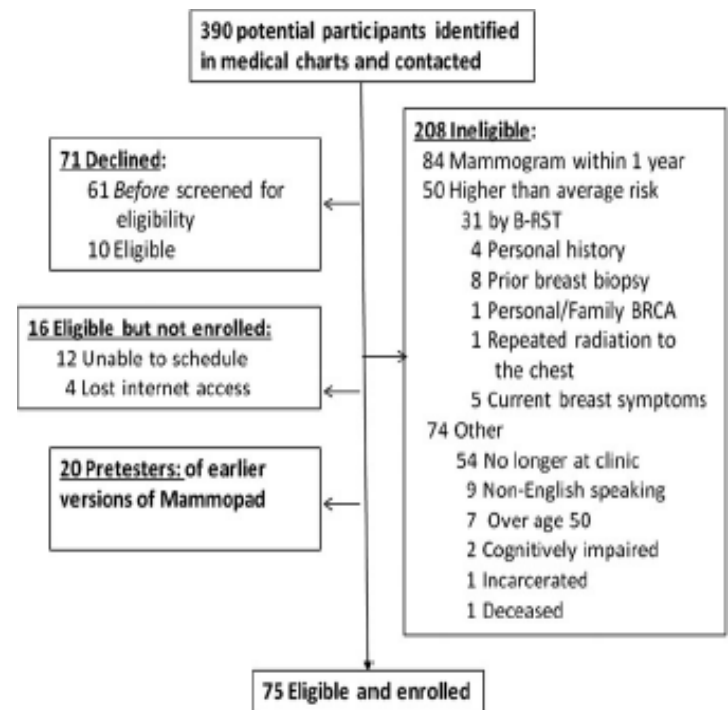
- 3 small rural clinics
  - 3 PCPs/clinic
  - EMR: Greenway (2), NextGen (1)
- Two stages of implementation:
  - Locating eligible patients
  - Administering the DA



# Overview of Implementation

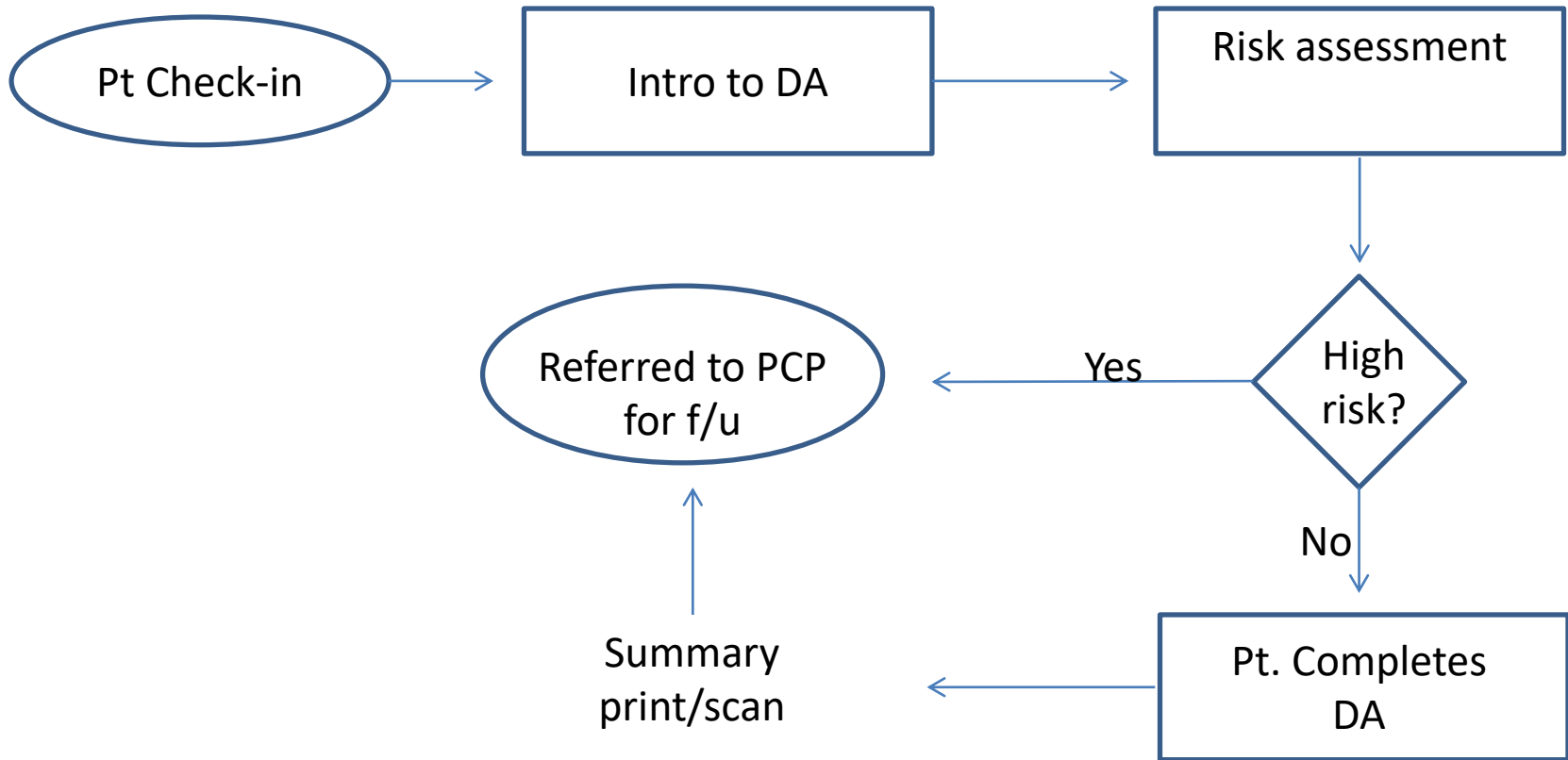
## Stage 1: Locating Eligible Patients

- Eligibility criteria:
  - Women
  - Age 40-49
  - No mammography during the previous year
  - No high risk factors
    - Family Hx
    - Previous biopsy
    - Current symptoms
    - Genetic marker (e.g., BRCA1)
    - Hx of repeated radiation to the chest
    - Ashkenazi Jewish Heritage



# Overview of Implementation


## Stage 2: Decision Aid Administration





# Overview of Implementation

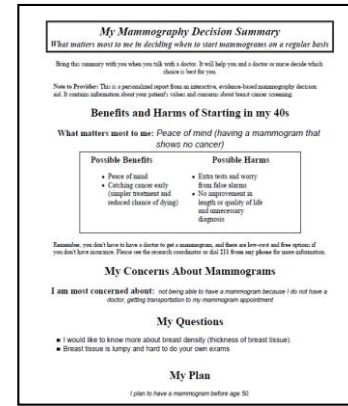
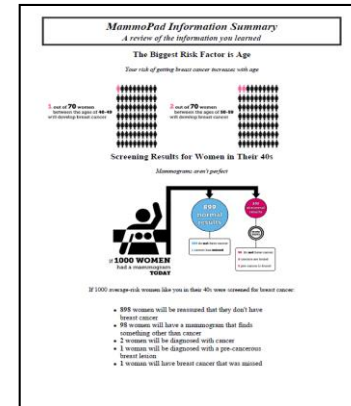
## Barriers for Clinics

- Sustainable workflow
  - Internet access
  - DA documentation
  - Prompt for PCP to engage patient
- 

# Overview of Implementation

## Benefits of Using Mammopad

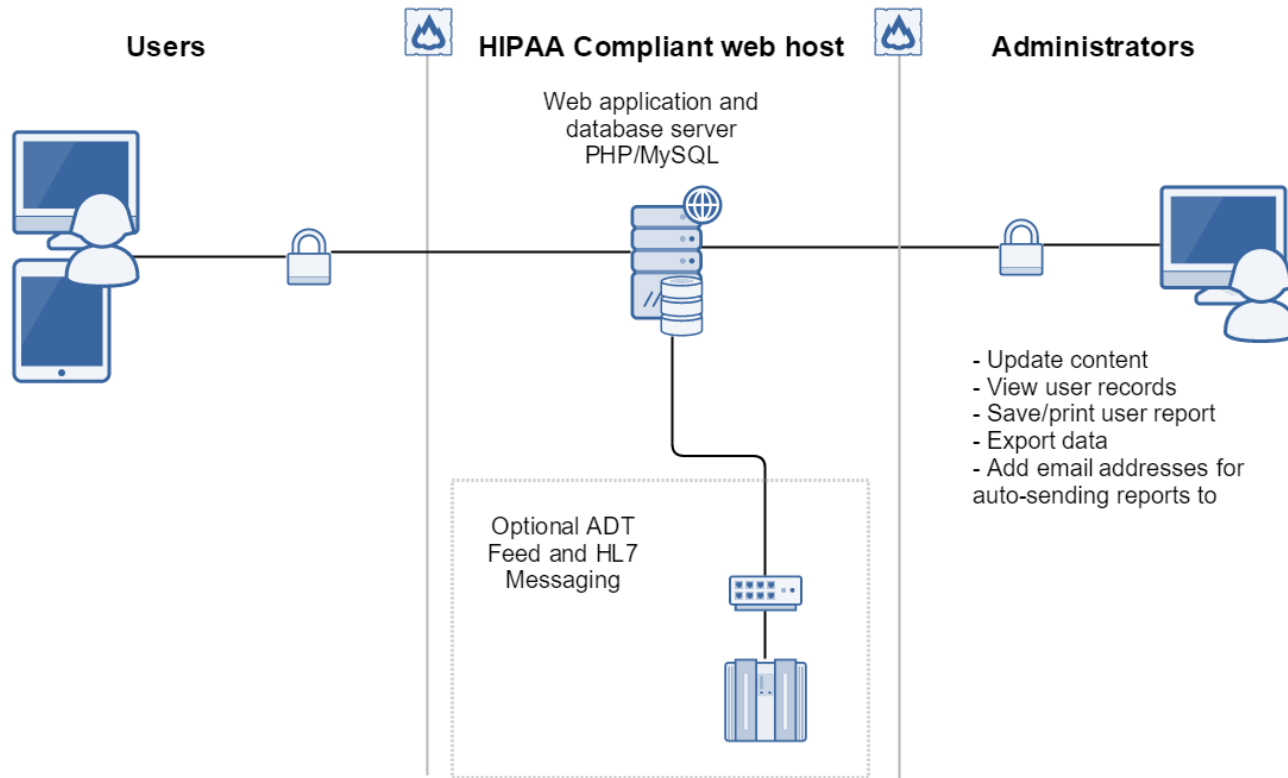
- Ease of use/convenience
- Increased access
- Portable
- Privacy
- Future uses
- Identification of 16 high risk women
- Visuals helped with communication
- CPC milestone 7



**1 out of 70 women** between the ages of **40-49** will develop breast cancer



# Technology Network Diagram



# Technology

## Platform

- HTML5/Javascript/PHP/MySQL stack
- jQueryMobile for mobile responsiveness
- Text-to-speech (TTS) – [www.voicerss.org](http://www.voicerss.org)
- Admin console for basic management
- Excel import for content and CMS capable



# Technology

## Admin Console

### User data access – raw data and report

Administration Exit

Configuration **Participants** Data Export

Filter items...

**Participants**

Done In Progress Not Started

500	Status: In Progress Progress: screen_noconsent Date Started: 2014-05-08 10:51:26
2133	Status: Done Progress: thank_you Date Started: 2014-01-24 16:51:58
1134	Status: In Progress Progress: screen_family Date Started: 2014-01-24 15:45:58
1133	Status: Done Progress: thank_you Date Started: 2014-01-24 15:25:57
1121	Status: Done Progress: thank_you Date Started: 2014-01-24 12:27:12
1139	Status: Done Progress: thank_you Date Started: 2014-01-24 11:31:46
1129	Status: Done Progress: thank_you

**Participant PDF Report**

Download

**Participant Data**

userId	2133
userState	returnuser-new
RESULT_BENEFIT_HARM_SELECTED	No improvement in length or quality of life, and unnecessary diagnosis (being diagnosed and treated for cancer that might not be harmful)
RESULT_CONCERN_SELECTED	I am concerned about the cost of mammograms, follow-up care, or treatment. I am concerned about being exposed to radiation from mammograms
RESULT_QUEST_SELECTED	I would like to know more about my risk according to my family history of cancer. I would like to know more about my risk according to my own personal health history (e.g. birth control pills). I would like to know more about breast density (thickness of breast tissue).
date_started	2014-1-24 16:21:00
CNS_CONSENT	1
SCRN_CANCER	0
SCRN_RADIATION	0
SCRN_GENE	0
SCRN_DISEASE	0
SCRN_BIOPSY	2
SCRN_BIOPSY_RESULTS	
SCRN_ASHKENAZI	0
SCRN_FAMILY_O	0
SCRN_MOTHER_O	

### Basic configurations

Administration Exit

Configuration **Participants** Data Export

**Options**

- Participant Password
- Admin Password
- Email Report Addresses
- Add Email Report Address

**Report Email**

Save

# Questions?

Karen Eden

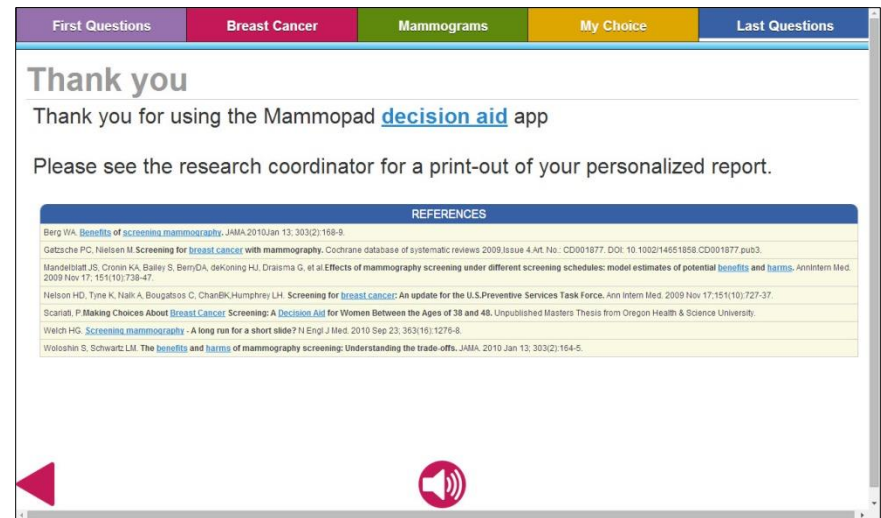
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The screenshot shows a web application interface with a navigation bar at the top containing five tabs: 'First Questions', 'Breast Cancer', 'Mammograms', 'My Choice', and 'Last Questions'. The 'Breast Cancer' tab is currently selected. Below the navigation bar, the main content area displays a 'Thank you' message: 'Thank you for using the Mammopad [decision aid](#) app. Please see the research coordinator for a print-out of your personalized report.' Below this message is a section titled 'REFERENCES' with a list of five references:

- Berg WA. [Benefits of screening mammography](#). JAMA. 2010;Jan 13; 303(2):168-9.
- Getzsche PC, Nielsen M. [Screening for breast cancer with mammography](#). Cochrane database of systematic reviews 2009, Issue 4. Art. No.: CD001877. DOI: 10.1002/14651858.CD001877.pub3.
- Mandelstam JS, Cronin KA, Bailey S, Berry DA, deKoning HJ, Draisma G, et al. [Effects of mammography screening under different screening schedules: model estimates of potential benefits and harms](#). Ann Intern Med. 2009 Nov 17; 151(10):738-47.
- Nelson HD, Tine K, Naik A, Bougatos C, Chan BK, Humphrey LH. [Screening for breast cancer: An update for the U.S. Preventive Services Task Force](#). Ann Intern Med. 2009 Nov 17; 151(10):727-37.
- Scanlan P. [Making Choices About Breast Cancer Screening: A Decision Aid for Women Between the Ages of 38 and 48](#). Unpublished Masters Thesis from Oregon Health & Science University.
- Weich HG. [Screening mammography - A long run for a short slide?](#) N Engl J Med. 2010 Sep 23; 363(16):1276-8.
- Woloshin S, Schwartz LM. [The benefits and harms of mammography screening: Understanding the trade-offs](#). JAMA. 2010 Jan 13; 303(2):164-5.

At the bottom of the interface, there is a red left-pointing triangle and a red speaker icon.