Changing the Approach to Cancer Treatment Decisions: An Interactive Tool Delivers a Patient-Chosen Plan

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Overview

1. Introduction
2. Breast Cancer Journey
3. Tour of the Breast Cancer Decision Support Tool
4. Patient Satisfaction Study and Findings
5. Conclusion and Future Impacts
6. Key Takeaways
Introduction

• Develop a patient engagement tool
  – Breast cancer surgical decision support tool
  – Newly-diagnosed breast cancer patients navigate through their treatment options and make critical treatment decisions

• Design the tool so that it offers a tiered decision-making process that includes all treatment options:
  – Medical, Surgical or Radiation

• Build the tool so that it’s web-based and accessible via tablet (iPad)
Breast Cancer Journey

Initial Diagnosis:
- Shock
- Information Overload
- Medical Terminology
- Tests and Reports
- Questions
- Emotions
- Outside Influences
- Time
- Travel
- Finances
- Work

Individual Differences:
- Personal Medical History
- Family History
- Cancer Characteristics (e.g., size, type, location, pathology)
- Genetics
- Personal Preferences
- Lifestyle
- Family and Friends (Influencers)
- Insurance

Decision: Mastectomy or Lumpectomy?
- Source of Support, Info. and Education
- Patient Voice
- Confidence in Decision
- Less Stress and Fear of Unknown
- Patient Preferences are Addressed
- Access to Mentors and Peer Support
- Patient is Better Prepared for the Future
- Better Use of Provider Time
- Coordination of Care
- Reduced Counseling Time
- Higher Satisfaction (Patient and Provider)
# About the Tool

## Patient-Facing Education Tool
- Education
- Personalized (Cancer Type)
- Algorithm
- Videos
- Medical Illustrations
- Values
- Confidence
- Timelines
- Email

## Provider-Facing Dashboard
- Enters core needle biopsy pathology
- Sets medical and surgical preferences
- Reviews patient values and confidence / readiness in surgical decisions
- Edits and updates changes during the surgical journey
Welcome to
“My Breast Cancer Support”

Log in  Register

SHSMD
CONNECTIONS
2017
TOUR OF THE BREAST CANCER DECISION SUPPORT TOOL
Patient tumor type:

- [ ] Ductal Carcinoma In-situ (DCIS)
- [x] Invasive Ductal Carcinoma (IDC)
- [ ] Invasive Lobular Carcinoma (ILC)
- [ ] Select Other Tumor

Involved Breast:

- [ ] Left
- [ ] Right
- [ ] Both

Tumor Grade:

- [ ] 1
- [ ] 2
- [ ] 3

Tumor Receptors:

- **Estrogen receptor**
  - [ ] Positive
  - [ ] Negative
- **Progesterone receptor**
  - [ ] Positive
  - [ ] Negative
- **HER2**
  - [ ] Positive
  - [ ] Negative
  - [ ] Not Tested
Mayo Clinic Location:

- Arizona
- Florida
- Rochester
- Select Health System

Patient options to be reviewed include:

Medical Treatments

- Chemotherapy:
  - [ ] Neoadjuvant
  - [ ] Adjuvant

- Endocrine Therapy:
  - [ ] Neoadjuvant
  - [x] Adjuvant

- HER2 Directed Therapy:
  - [ ] Neoadjuvant
  - [ ] Adjuvant

- Radiation:
  - [ ] Adjuvant

Surgical Treatments

- [ ] Lumpectomy
- [x] Mastectomy
- [x] Contralateral Prophylactic Mastectomy (CPM)
- [x] Implant Reconstruction
- [x] Tissue Reconstruction
Overview of Cancer Treatment

To determine the best treatment approach, you and your health care provider must consider many factors, including the type, stage, grade, and receptor status of your cancer; your age; your life situation; the size and shape of your breasts; and

Anatomy of the Breast

Your breasts lie on top of your chest wall. They extend from your collarbone to your bra line and from your breastbone into your underarms. Your breasts are made up of several parts. See Figure 1.

What are lymph nodes?

Lymph nodes are small round organs that contain immune system cells and fluid. Lymph nodes filter fluid. They then return the fluid back to your circulation. You have lymph nodes throughout your body. The lymph nodes that breast

What is breast cancer?

Breast cancer happens when gland cells in the breast divide more quickly than healthy cells. They may grow to form a mass in the breast and may spread to other parts of your body.

What causes breast cancer?

Researchers do not yet know the exact cause of breast cancer. But rather than just one cause, breast cancer is likely due to many factors.
Breast cancer happens when gland cells in the breast divide more quickly than healthy cells. They may grow to form a mass in the breast and may spread to other parts of your body.

Breast cancer can affect any part of your breast, although some areas are more likely to develop cancer. Most breast cancers start in the cells lining the milk ducts or lobules.

Your cancer’s stage, grade, and tumor markers (estrogen receptor, progesterone receptor, and HER-2 receptor protein) at the time of diagnosis are important factors in predicting your prognosis, the likely outcome of your disease. Stage means if and how much the cancer has spread. Grade means how fast the tumor may grow.
What are tumor grades?

The grade of your breast cancer refers to the way the cancer cells look under a microscope. The more normal the cells appear and the fewer the number of dividing cells, the more likely the cancer will be slow growing.

A tissue sample from your tumor is examined and assigned a grade from one to three. The higher the grade, the more likely the cancer is to grow and spread quickly.

- **Grade 1** cancer cells look similar to normal breast cells. They are likely to grow slowly.
- **Grade 2** cancer cells are slightly irregular and grow faster than normal cells.
- **Grade 3** cancer cells do not appear normal. They have an irregular shape. Grade 3 cancers are more likely to grow and divide faster than grade 1 or grade 2 cancer cells.

**Types of Tumor grades**

![Grade 1](image1)

**Grade 1**
Resemble normal cells

![Grade 2](image2)

**Grade 2**
Slightly abnormal cells

![Grade 3](image3)

**Grade 3**
Very abnormal cells
<table>
<thead>
<tr>
<th><strong>My Cancer Type(s), Cancer in right breast</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ductal carcinoma in situ (DCIS)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>My Tumor Receptors</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Estrogen Receptor Positive, Progesterone Receptor Positive, HER2 Positive</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>My Tumor Grade</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 2 Cancer Cells</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>My Lymph Nodes</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>My Genetics</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast Cancer Gene Negative</td>
</tr>
</tbody>
</table>
You have the most common type of noninvasive breast cancer, called ductal carcinoma in situ (DCIS). The term in situ means located in its natural or normal place. In this case, it means the cancer remains within the breast duct where it originated. This type of cancer usually does not spread to the surrounding breast tissue or other parts of the body if treated. This is considered a Stage 0 breast cancer. Fortunately the prognosis to women treated for DCIS is very good.

Treatment options for DCIS generally include surgery (mastectomy versus lumpectomy), radiation for those that choose a lumpectomy, and the drug tamoxifen. Treatment for DCIS is usually based on:

1. Biopsy margins. If cancer cells are found close to the edge of the tissue sample removed during a biopsy, there is a higher likelihood that some cancer cells have been left behind. In such a situation, a lumpectomy or mastectomy may be necessary.

2. Tumor size. A small tumor has a better chance of being adequately removed with lumpectomy than does a larger tumor.

3. Grade. High grade tumors have a higher rate or recurrence than do low grade tumors.

4. Cell structure. Two major subtypes of DCIS are distinguished by the structure of their cells.

   One type has large abnormal cells with the center area of dead or dying cells. This is called comedo necrosis. The other type lacks these qualities. Comedo necrosis is a more aggressive DCIS and has a higher rate of re-occurrence than the type of DCIS without comedo necrosis.

   Women with high grade comedo necrosis may be advised to have a sentinel lymph node biopsy. In a sentinel lymph node biopsy, the lymph node where the cancer is most likely to spread first, are examined for the presence of cancer cells. Because DCIS with comedo necrosis has a higher risk of spreading than do other types of DCIS, studying the sentinel lymph nodes is a way to double-check for any cancer spread to the lymph nodes. If no cancer is found, chances are the cancer is still confined to the breast.

5. Age. Women younger than age 40 with DCIS may be at higher risk of recurrence than women age 40 and older.
It's important to reflect on what you value most as you think about your decisions.
Rank how important each item is to you, 10 being the most important, 1 being the least important (slide with the circles across). You can save your rankings and re-rank at anytime.

Appearance
Least important
Most important

Number of Surgeries

Speed of Recovery

Cost

Create your own

Save
Surgical Decision

- Lumpectomy
- Mastectomy

How confident are you with your choice? (0 as not at all, 10 as completely confident)

Current value ranking:
- Most Important: Risk of Recurrence: 6
- Speed of Recovery: 6

Estimate Time Line (10 - 13 Weeks)

1. Day before surgery: Injection into your lymph nodes in order to test if cancer has spread to the lymph nodes.
2. Surgery with expander: Incision typically last 3 hours. The surgeon will check your lymph nodes and may remove lymph nodes if cancer is detected. Tissue expanders will be placed. Or if agreed with surgeon direct implant may be placed.
3. Drain Care: You’ll leave the hospital after one day with drains. Drains will stay in until the appropriate amount of fluid has left.

1 to 2 weeks
PATIENT SATISFACTION STUDY
Study Overview

• Measured patient satisfaction with Breast Cancer Decision Support Tool
  – All newly-diagnosed breast cancer patients were evaluated in the Breast Diagnostic Clinic (Mayo Clinic)
  – > 800 women participated in study
  – Ages of Participants: 31 to 86 years (average age of 59)
  – Voluntary participation: Patients who declined to participate were excluded from study
  – Distributed 90 iPads
Implementation Overview

Surgery, Medical Oncology, Radiation Oncology and Plastic Surgery Consultations

1 - 5 WEEKS

First Breast Clinic Visit:
• iPad loaned to the patient
• Patient completes initial survey incorporated into the web-based tool

Post Treatment(s):
• iPad returned after surgery
• Patient completes second patient satisfaction survey
Initial Survey
(Pre-Tool Engagement)

Choose the phrase below that best describes the role you prefer to be in when dealing with your cancer diagnosis treatment.

1. I prefer to make the decision about which treatment I will receive
2. I prefer to make the final decision about my treatment after seriously considering my doctor’s opinion
3. I prefer that my doctor and I share responsibility for deciding which treatment is best for me
4. I prefer that my doctor makes the final decision about which treatment will be used, but seriously consider my options
5. I prefer to leave all decisions regarding my treatment to my doctor
6. No answer
Initial Survey Results
(Pre-Tool Engagement)

Choose the phrase below that best describes the role you prefer to be in when dealing with your cancer diagnosis treatment.

- 49.3%
- 28.0%
- 5.7%
- 1.2%
- 5.8%

n=755
Initial Survey Results

Choose the phrase below that best describes the role you prefer to be in when dealing with your cancer diagnosis treatment.

1. I prefer to make the decision about which treatment I will receive
2. I prefer to make the final decision about my treatment after seriously considering my doctor’s opinion
3. I prefer that my doctor and I share responsibility for deciding which treatment is best for me
4. I prefer that my doctor makes the final decision about which treatment will be used, but seriously consider my options
5. I prefer to leave all decisions regarding my treatment to my doctor
6. No answer
Initial Survey Results
(Pre-Tool Engagement)

How confident are you in your decision regarding your treatment?
Scale of 1 to 10 with 1 = low confidence and 10 = high confidence

- Ranking of 8-10: 48.5%
- Ranking of 1-7: 51.5%

n=847
Survey Results
(Post-Treatment)

Did you use the decision making tool during your treatment?

- Preferred written material (39 patients)
- No internet (10)
- Difficult to navigate (8)
- Do not like iPad (7)
- My information was not provided (7)
- Preferred IPhone/used IPhone instead (2)
- Overwhelmed w/appts. and so much to do (1)
- Does not use electronics at home (1)
- Surgery next day (1)

n=394
Survey Results
(Post-Treatment)

Did you find it useful?

- Helpful information: 179 patients
- Easy to navigate: 149
- Increased my confidence in my treatment plan: 109
- Helped my husband/children understand my disease and treatment
- Good to refer back for my specifics
- It was my security blanket
- I wish I could have until after surgery

n=267
Survey Results
(Post-Treatment)

To what extent did the information in the iPad increase your understanding of breast cancer treatment?
Scale of 1 to 10 with 1 = low confidence and 10 = high confidence

- Ranking of 8-10: 60.4%
- Ranking of 1-7: 39.6%

n=231
Survey Results
(Post-Treatment)

Would you recommend this iPad tool to other patients newly diagnosed with breast cancer?

Yes: 93.8%
No: 6.2%

n=341
Survey Results
(Post-Treatment)

How would you rate the overall amount of educational information in this iPad tool?

- About right: 84.4%
- Not enough: 13.2%
- Too much: 2.5%

n=308
Survey Results
(Post-Treatment)

How confident are you in your decision regarding your treatment?
Scale of 1 to 10 with 1 = low confidence and 10 = high confidence

n=326

Ranking of 8-10
90.8%

Ranking of 1-7
9.2%
How confident are you in your decision regarding your treatment?
Scale of 1 to 10 with 1 = low confidence and 10 = high confidence

Survey Results

PRE-TOOL ENGAGEMENT

Ranking of 8-10
48.5%
Ranking of 1-7
51.5%

POST-TOOL ENGAGEMENT

Ranking of 8-10
90.8%
Ranking of 1-7
9.2%

n=326
n=847
Summary of Conclusions

• The Breast Cancer Decision Support Tool successfully assessed patient values and confidence / readiness for surgical treatment
  – Patient satisfaction level with the tool was high
  – Tool proved to improve patient confidence in surgical decisions

• The tool proved to create efficiencies within the practice:
  – Patients who were more equipped with knowledge (through the tool) had more meaningful and personalized visits with specialists
  – Nursing staff reported less follow-up calls from patients
Future Impacts

• Mayo Clinic continues to evaluate the impact of this type of tool to enhance the patient experience and the quality of breast cancer care

• Expand tool concept to other types of cancers such as lung, ovarian, colon and prostate cancers
  – Or other chronic diseases such as diabetes or hypertension

• The opportunities to enhance, expand and evolve these types of tools are endless and will continue to transform patient / provider interactions and the future of health care
Key Takeaways

1. Discover how technology continues to help innovate the patient experience.

2. Learn how decision support can plan a critical role in the patient experience.

3. Explore how an educational and interactive software tool can improve patient confidence, readiness and satisfaction regarding surgical and non-surgical treatment decisions.
Questions?

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Please be sure to complete the session evaluation on the mobile app!