Patient-centric development of shared decision-making aids: The ASSESS online personalized early breast cancer treatment decision support tool and resource website

Bethany A. Kerr[1]; J. Douglas Alexander[2]; Hui Zhao[2]; Michal Marczyk[3]; Laura C. Crocker[2]; Alexandra A. Erwin[1]; Erica Kuhn[1]; Hosea Baker[1]; Sainath Vaidhyanath[1]; Trevor Polischuk[1]; Kimberly A. Sabelko[1]; Lajos Pusztai[3]; Sharon H. Giordano[2]; Robert J. Volk[2]; Glendon M. Zinser[1]

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PS4-11-10

OBJECTIVES

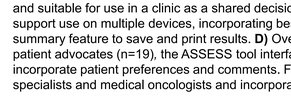
Support individuals undergoing treatment for early breast cancer. People diagnosed with breast cancer spend a considerable amount of time researching their diagnosis, treatment options and associated side effects.

Develop a new, publicly available treatment decision support tool. The discontinuation of the popular Adjuvant! Online tool left a gap for patients and doctors struggling to account for the many factors in an individual's unique diagnosis that influence treatment options and outcomes.

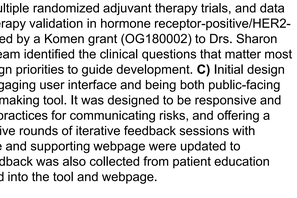
Provide trusted resources to aid in shared decision-making. Resources are often geared toward a single audience—patients or clinicians. A common foundation supports meaningful care conversations.

DESIGN PROCESS

A U.S.-Based Population for Algorithm Development



B Multidisciplinary Team



C User Design Priorities

- Clear interface with familiar inputs for demographics and disease characteristics, using radio buttons and numeric inputs
- Provide supporting information through resource links and icons throughout
- Follow best practices for risk communication with icon arrays, complemented by colored icons with text legends
- Use animations to highlight changes in survival when treatments are added or deleted
- Use a fixed follow-up window of 5 years presenting overall survival rather than disease-specific survival
- Provide information on the model's creation, development team and credentials

D Iterative Feedback Process

Round 1- Cognitive Testing of Static Mock-ups (Sept/Oct 2023)
Gain feedback on inputs, presentation of treatment options and output design.

Round 2- Cognitive Testing of Overview, Instructions, and Disclaimer Text (Nov 2023)
Assess clarity and understanding of information being provided in these sections and retest language about target audience for the tool.

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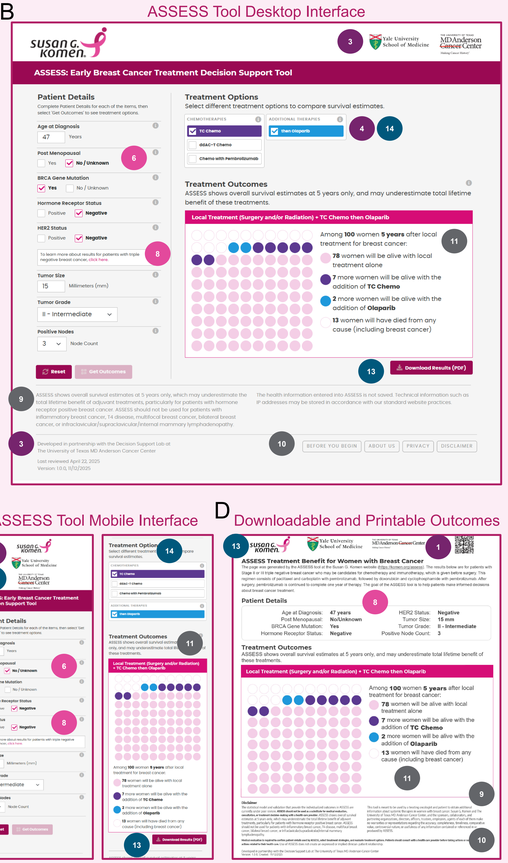
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SOLUTIONS

A ASSESS Supporting Webpage



B ASSESS Tool Desktop Interface



C ASSESS Tool Mobile Interface

D Downloadable and Printable Outcomes

E Highlighted Changes in Response to User Feedback

Credibility and Ease of Use for Clinicians

1. Included a clear description of how the tool was developed and how it works.
2. Created an introductory video to the ASSESS tool describing its development, its usage, and how the outcomes are displayed.
3. Emphasized the tool was built by trusted experts in breast cancer using up-to-date scientific evidence, including the current version number and date outcomes were generated.
4. ASSESS is updated regularly to include the most up-to-date treatment options based on landmark clinical trials.

Enhancing Patient Understanding

5. Written with patient-friendly wording using accurate and clear language for clinical terminology and using a question-and-answer layout preferred by patient advocates.
6. Linked to evidence-based resources describing why inputs are important to outcomes and where to find each patient's details.
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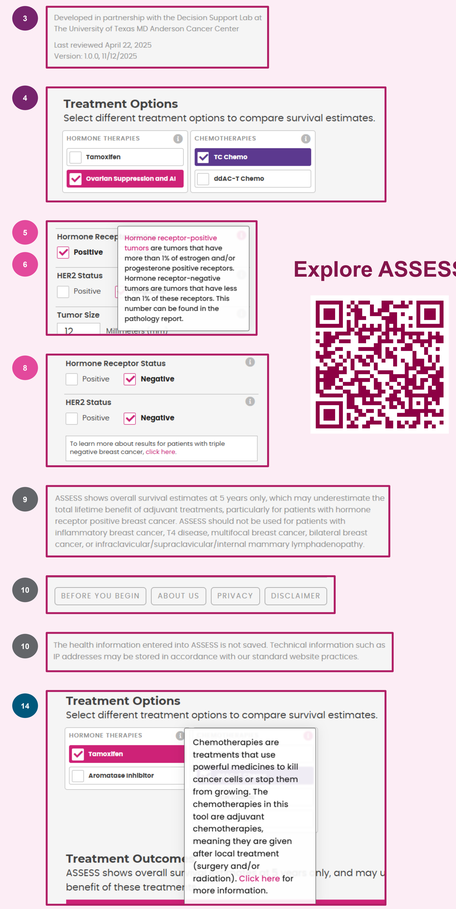
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9. Clear explanations of which patient populations will benefit from the tool.
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11. Outcomes presented as colored circles using dynamic changes in color with the treatments chosen to visualize changes in survival.

Shared Decision-making Support

12. The tool and supporting website adapt to desktop and mobile environments for ease of use on the go or in the clinic.
13. Treatment outcomes, including the entered patient details and report date, can be downloaded and printed for shared decision-making discussions.
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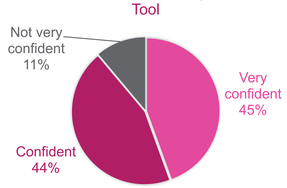
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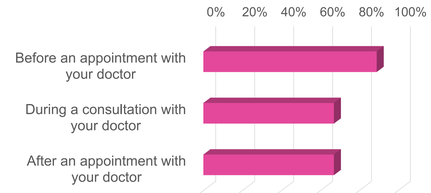
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RESULTS

A Patient Confidence in Making a Shared Treatment Decision after Using the ASSESS Tool



B Patient Perceptions on When the ASSESS Tool Should Be Used



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> Patients get a lot of information when they are diagnosed, and it is often hard to analyze/categorize all that information. This tool could help with that. It is also useful because it is a visual representation—often all we get is verbal info. *–Patient Advocate Tester*
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Patients favor using the tool at multiple stages, highlighting opportunities to effectively integrate shared decision-making tools into care.

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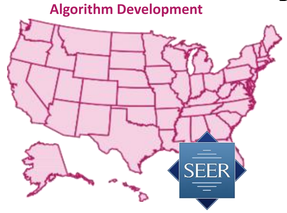
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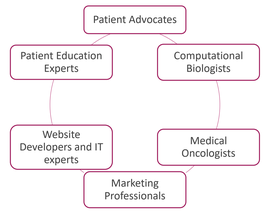
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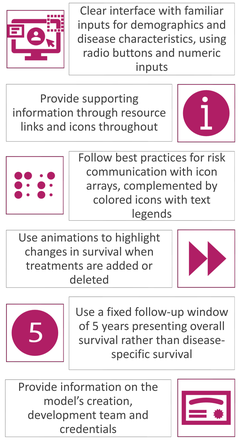
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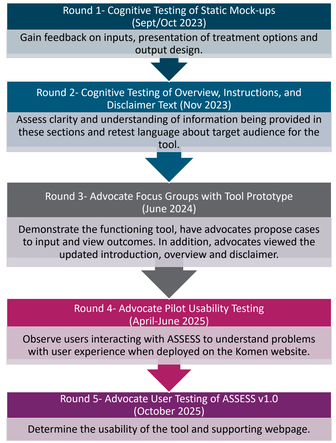
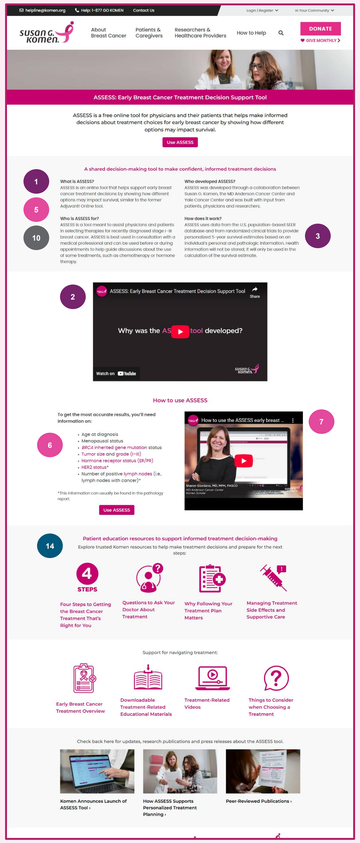


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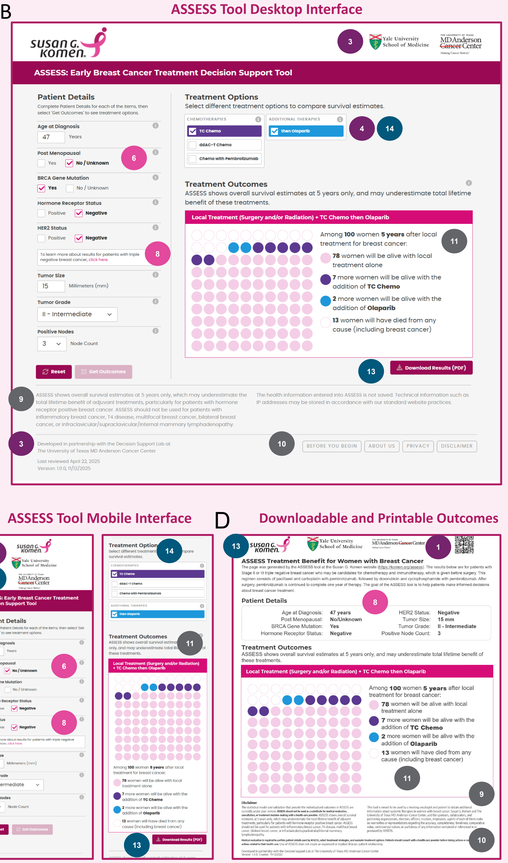
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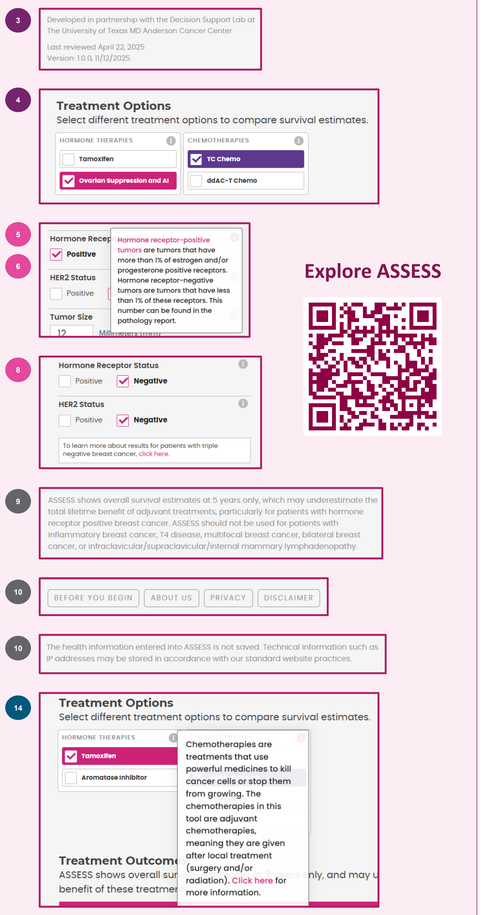
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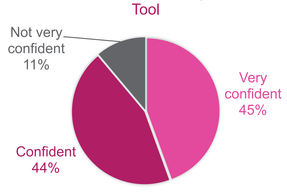
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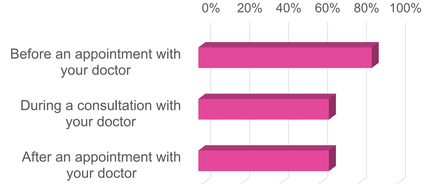
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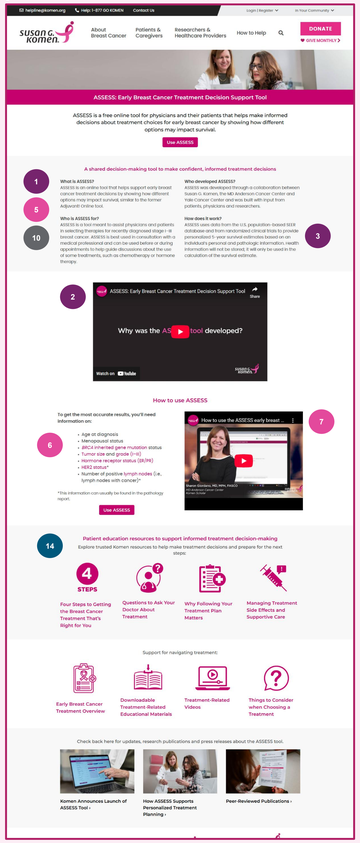
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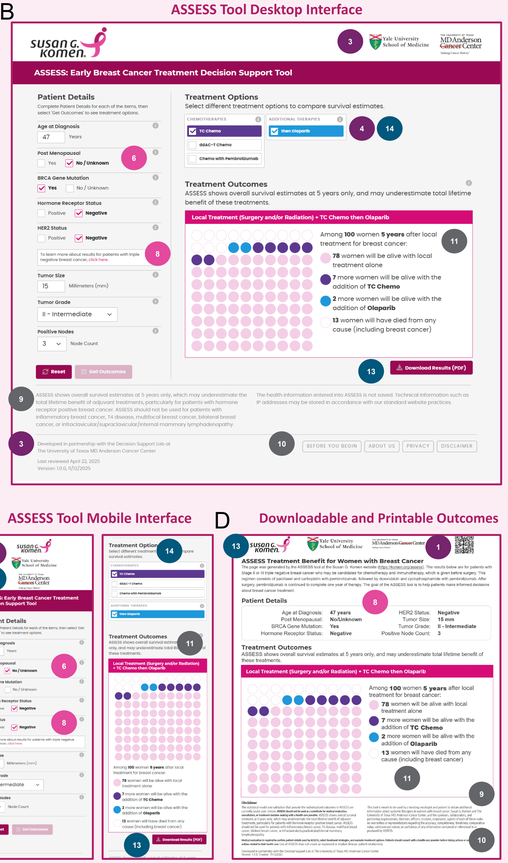
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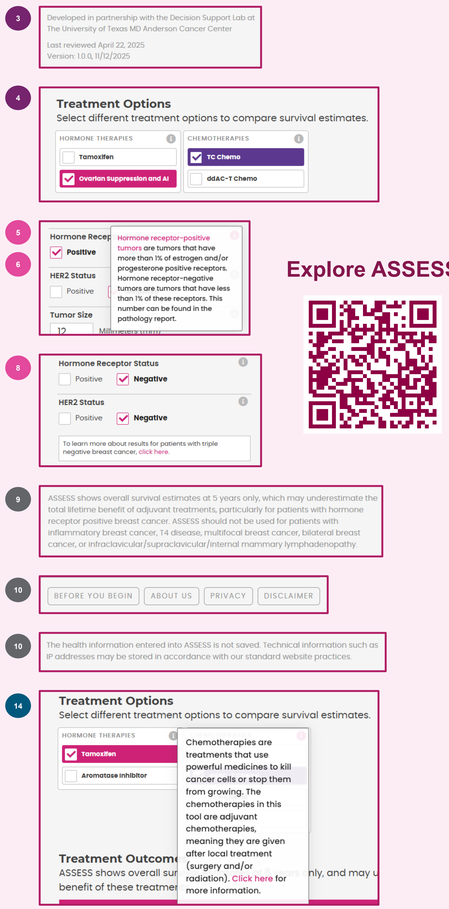
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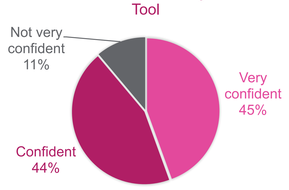


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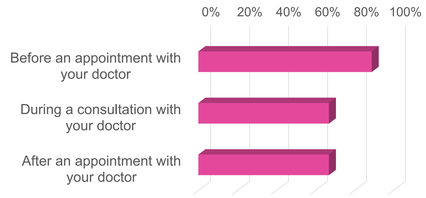
Figure 2. Updates to the ASSESS webpage and tool interface in response to patient advocate feedback.
A) The ASSESS supporting webpage was designed to provide information to support the use of the ASSESS tool and shared decision-making. The webpage is responsive on mobile and desktop platforms. **B)** The ASSESS tool's desktop interface uses a single window to display the inputs and treatment outcomes. **C)** The ASSESS tool interface was adapted for use in a mobile environment for user accessibility. **D)** The treatment outcomes can be downloaded as a PDF, printed, and shared. **E)** Numbers highlighting changes to the ASSESS supporting webpage and tool made in response to patient advocate feedback.
F) Examples of details within the ASSESS webpage and tool that were updated in response to patient advocate and clinician feedback.

RESULTS

A Patient Confidence in Making a Shared Treatment Decision after Using the ASSESS Tool



B Patient Perceptions on When the ASSESS Tool Should Be Used



C

Patients get a lot of information when they are diagnosed, and it is often hard to analyze/categorize all that information. This tool could help with that. It is also useful because it is a visual representation—often all we get is verbal info. –*Patient Advocate Tester*

I think that many have really missed "Adjuvant! Online"! We all use Oncotype to help us with estimates for ER+ early breast cancer. But we lack good tools to estimate risk for HER2+ (both ER+ and ER-) and triple negative breast cancer, so this could really fill a gap. –*Clinician Tester*

I think that it would relieve some treatment anxiety and build trust in the doctor. –*Patient Advocate Tester*

The ability to place the information in the hands of the woman making this decision is powerful. –*Patient*

Figure 3. Patient advocates tested the ASSESS tool and supporting webpage before completing a survey regarding their satisfaction with the ASSESS shared decision-making aides and their usability.
A) Patient confidence in their ability to ask questions and compare treatment options with their health care provider after using the ASSESS tool. **B)** Patient advocate testers were asked when the ASSESS tool should be used. **C)** Comments on the utility of the ASSESS tool and supporting webpage from patient advocate and clinician testers.

CONCLUSIONS

- ASSESS is a collaboratively developed, clinically credible, and patient-friendly joint decision-making tool.
- Patients report feeling more prepared and more confident about treatment decisions after using the tool.
- Patients favor using the tool at multiple stages, highlighting opportunities to effectively integrate shared decision-making tools into care.

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[1] Marczyk M, Tobiasz J, Rozenblit M, Volk RJ, Győrffy B, Pusztai L, Giordano SH. Abstract P4-02-04: Development of ASSESS, a breast cancer decision support tool using SEER data and treatment benefit estimates from randomized adjuvant therapy trials. Clinical Cancer Research. 2025 Jun 13;31(12_Supplement):P4-02.