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Making Cancer History®

Disclaimer: This algorithm has been developed for MD Anderson using a multidisciplinary approach considering circumstances particular to MD Anderson's specific patient population, services and structure, and clinical information. This is not intended to replace the independent medical or professional judgment of physicians or other health care providers in the context of individual clinical circumstances to determine a patient's care. This algorithm should not be used to treat pregnant women.

Note: Mammograms may continue as long as the patient has a 10-year life expectancy and no co-morbidities that would limit the diagnostic evaluation or treatment of any identified problem.

ELIGIBILITY CONCURRENT COMPONENTS OF VISIT • History and physical with clinical breast exam annually • Imaging recommendations for patients assigned female at birth and transgender women who have breast tissue: o Routine imaging of the chest wall or reconstructed breast following mastectomy is not indicated Screening mammography with or without tomosynthesis annually for patients who had breast conservation therapy SURVEILLANCE o Consider additional MRI breast with and without contrast as indicated^{3,4,5} • Assess for compliance, toxicities, and continuation with **Patients** endocrine therapy if appropriate. Extended use may be with invasive breast cancer. recommended as clinically indicated. 5 years from the • Review Endocrine Therapy options (see Breast Cancer – completion of all Invasive Stage I-III algorithm) local therapy, no evidence of disease (NED) and completion of all adjuvant/systemic **MONITORING FOR** medical therapy^{1,2} **LATE EFFECTS** suggested if feasible. RISK REDUCTION/ ➤ See Page 2 **EARLY DETECTION PSYCHOSOCIAL**

DISPOSITION

- For new primary or recurrence that is biopsy proven to be invasive breast cancer see Breast Cancer – Invasive algorithm
- For a new primary or recurrence that is non-invasive histology, see Breast Cancer – Ductal Carcinoma in Situ algorithm
- o Primary Oncologist to discuss Goal Concordant Care (GCC) with patient, or if clinically indicated, with Patient Representative⁶

Continue survivorship monitoring

¹ Completion of all treatment with the exception of endocrine agents

² Medical therapy includes biological therapy (e.g., cyclin-dependent kinase (CDK), poly (ADP-ribose) polymerase (PARP) inhibitors, and human epidermal growth factor receptor 2 (HER2) directed therapy) and ovarian suppression (e.g., leuprolide acetate and goserelin acetate)

Yes

Suspected

new primary or

biopsy-proven

recurrence?

Consider additional MRI breast with and without contrast annually for patients with germline mutations (see Appendix A in the Breast Cancer Screening algorithm for type of mutation and recommended screening interval). Alternating mammography and MRI breast every 6 months is

⁴ Consider additional MRI breast with and without contrast annually if diagnosis prior to age 50 years and have heterogeneously or extremely dense breasts. Alternating mammography and MRI breast every 6 months is suggested if feasible. This can be considered as delineated in the recommendation from the American College of Radiology (ACR) and the American Cancer Society (ACS). Note that the data supporting these guidelines are outdated (as per our internal analysis) and additional imaging is not recommended by the National Comprehensive Cancer Network (NCCN) survivorship guidelines. This approach is an active area of investigation within MD Anderson.

⁵ If there's a contraindication to MRI (e.g., lack of tolerance or access to MRI), may consider bilateral ultrasound breast or contrast-enhanced mammography (CEM)

⁶GCC should be initiated by the **Primary Oncologist**. If Primary Oncologist is unavailable, Primary Team/Attending Physician to initiate GCC discussion and notify Primary Oncologist. Patients, or if clinically indicated, the Patient Representative should be informed of therapeutic and/or palliative options. GCC discussion should be consistent, timely, and re-evaluated as clinically indicated. The Advance Care Planning (ACP) note should be used to document GCC discussion. Refer to GCC home page (for internal use only).

FUNCTIONING

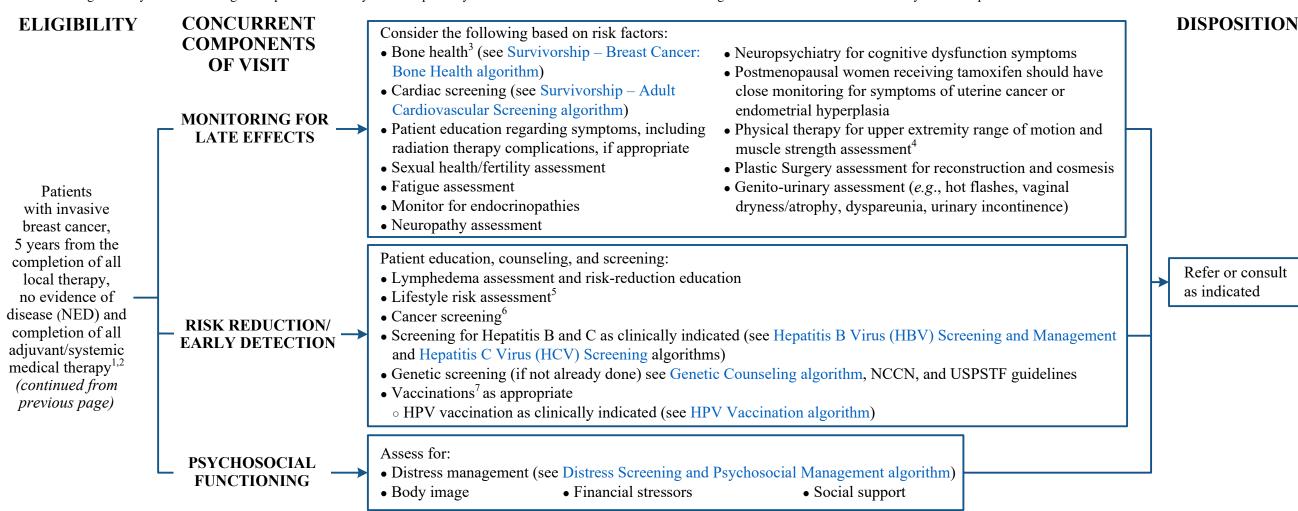


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USPSTF = United States Preventive Services Task Force

Department of Clinical Effectiveness V11

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² Medical therapy includes biological therapy (*e.g.*, cyclin-dependent kinase (CDK), poly (ADP-ribose) polymerase (PARP) inhibitors, and human epidermal growth factor receptor 2 (*HER2*) directed therapy) and ovarian suppression (*e.g.*, leuprolide acetate and goserelin acetate)

³ All postmenopausal women (especially those on aromatase inhibitors) and premenopausal women on ovarian suppression

⁴ Consider Physical Medicine and Rehabilitation consultation for patients who have restricted range of motion unrelieved by physical therapy to discuss additional strategies for improved physical functioning

⁵ See Physical Activity, Nutrition, Obesity Screening and Management, and Tobacco Cessation Treatment algorithms; ongoing reassessment of lifestyle risks should be a part of routine clinical practice

⁶Includes cervical, colorectal, liver, lung, pancreatic, prostate, and skin cancer screening

⁷Based on American Society of Clinical Oncology (ASCO) guidelines

MD Anderson Survivorship — Invasive Breast Cancer

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SUGGESTED READINGS

- Aapro, M., Abrahamsson, P. A., Body, J. J., Coleman, R. E., Colomer, R., Costa, L., ... Thurlimann, B. (2008). Guidance on the use of bisphosphonates in solid tumors: Recommendations of an international expert panel. *Annals of Oncology*, 19(3), 420-432. doi:10.1093/annonc/mdm442
- Barcenas, C. H., Shafaee, M. N., Sinha, A. K., Raghavendra, A., Saigal, B. Murthy, R. K., ... Arun, B. (2018). Genetic counseling referral rates in long-term survivors of triple-negative breast cancer. *Journal of the National Comprehensive Cancer Network*, 16(5), 518-524. doi:10.6004/jnccn.2018.7002
- Bedrosian, I., Somerfield, M. R., Achatz, M. I., Boughey, J. C., Curigliano, G., Friedman, S., ... Robson, M. E. (2024). Germline testing in patients with breast cancer: ASCO-Society of Surgical Oncology guideline. *Journal of Clinical Oncology*, 42(5), 584-604. doi:10.1200/JCO.23.02225
- Cho, N., Han, W., Han, B.-K., Bae, M. S., Ko, E. K., Nam, S.J., ... Moon, W.K. (2017). Breast cancer screening with mammography plus ultrasonography or magnetic resonance imaging in women 50 years or younger at diagnosis and treated with breast conservation therapy. *JAMA Oncology*, 3(11), 1495-1502. doi:10.1001/jamaoncol.2017.1256
- Fonseca, M. M., Alhassan, T., Nisha, Y., Koszycki, D., Schwarz, B. A., Segal, R., ... Seely, J. M. (2022). Randomized trial of surveillance with abbreviated MRI in women with a personal history of breast cancer impact on patient anxiety and cancer detection. *BMC Cancer*, 22(1), 774. doi:10.1186/s12885-022-09792-x
- Giordano, S. H., Booser, D. J., Murray, J. L., Ibrahim, N. K., Rahman, Z. U., Valero, V., ... Hortobagyi, G. N. (2002). A detailed evaluation of cardiac toxicity: A Phase II Study of doxorubicin and one- or three-hour-infusion paclitaxel in patients with metastatic breast cancer. *Clinical Cancer Research*, 8(11), 3360. Retrieved from http://clincancerres.aacrjournals.org/content/8/11/3360.full#ref-list-1
- Hillner, B. E., Ingle, J. N., Berenson, J. R., Janjan, N. A., Albain, K. S., Lipton, A., ... Pfister, D. G. (2000). American Society of Clinical Oncology guideline on the role of bisphosphonates in breast cancer. *Journal of Clinical Oncology*, 18(6), 1378-1391. doi:10.1200/JCO.2000.18.6.1378
- Hillner, B. E., Ingle, J. N., Chlebowski, R. T., Gralow, J., Yee, G. C., Janjan, N. A., ... Brown, S. (2003). American society of clinical oncology 2003 update on the role of bisphosphonates and bone health issues in women with breast cancer. *Journal of Clinical Oncology*, 21(21), 4042-4057. doi:10.1200/JCO.2003.08.017
- Jayan, A., Sukumar, J. S., Fangman, B., Patel, T., Raghavendra, A. S., Liu, D., ... Barcenas, C. H. (2024). Real-world immune-related adverse events in patients with early triple-negative breast cancer who received pembrolizumab. *JCO Oncology Practice*, 42(16), suppl1099. doi:10.1200/JCO.2024.42.16 suppl.1099
- Kamboj, M., Bohlke, K., Baptiste, D. M., Dunleavy, K., Fueger, A., Jones, L., ... Kohn, E. C. (2024). Vaccination of adults with cancer: ASCO guideline. *Journal of Clinical Oncology*, 42(14), 1699-1721. doi:10.1200/JCO.24.00032
- Ke, Y., Ng, T., & Chan, A. (2018). Survivorship care models for breast cancer, colorectal cancer, and adolescent and young adult (AYA) cancer survivors: A systematic review. Supportive Care in Cancer, 26(7), 2125-2141. doi:10.1007/s00520-018-4197-y
- Lawson, M. B., Herschorn, S. D., Sprague, B. L., Buist, D. S., Lee, S. J., Newell, M. S., ... Lee, J. M. (2022). Imaging surveillance options for individuals with a personal history of breast cancer: AJR expert panel narrative review. *American Journal of Roentgenology*, 219(6), 854-868. doi:10.2214/AJR.22.27635
- Mamounas, E. P., Bandos, H., Rastogi, P., Zhang, Y., Treuner, K., Lucas, P. C., ... Wolmark, N. (2024). Breast cancer index and prediction of extended aromatase inhibitor therapy benefit in hormone receptor-positive breast cancer from the NRG Oncology/NSABP B-42 Trial. *Clinical Cancer Research*, 30(9). 1984-1991. doi:10.1158/1078-0432.CCR-23-1977

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SUGGESTED READINGS - continued

- Mayer, D. K., Nekhlyudov, L., Snyder, C. F., Merrill, J. K., Wollins, D. S., & Shulman, L. N. (2014). American Society of Clinical Oncology clinical expert statement on cancer survivorship care planning. *Journal of Oncology Practice*, 10(6), 345-351. doi:10.1200/JOP.2014.001321
- MD Anderson Institutional Policy #CLN1202 Advance Care Planning Policy Advance Care Planning (ACP) Conversation Workflow (ATT1925)
- Mehta, T. S., Lourenco, A. P., Niell, B. L., Bennett, D. L., Brown, A., Chetlen, A., ... Moy, L. (2022). ACR Appropriateness Criteria imaging after breast surgery. *Journal of the American College of Radiology*, 19(11), S341-S356. doi:10.1016/j.jacr.2022.09.003
- Miller, K. D., Nogueira, L., Devasia, T., Mariotto, A. B., Yabroff, K. R., Jemal, A., ... Siegel, R. L. (2022). Cancer treatment and survivorship statistics, 2022. *CA: A Cancer Journal for Clinicians*, 72(5), 409-436. doi:10.3322/caac.21731
- National Comprehensive Cancer Network. (2024). Breast Cancer (NCCN Guideline Version 4.2024). Retrieved from https://www.nccn.org/professionals/physician_gls/pdf/breast.pdf
- National Comprehensive Cancer Network. (2024). Survivorship (NCCN Guideline Version 1.2024). Retrieved from https://www.nccn.org/professionals/physician_gls/pdf/survivorship.pdf
- Nguyen, D. L., Liang, A., Mullen, L. A., Oluyemi, E., Myers, K. S., Panigrahi, B., & Ambinder, E. B. (2021). Diagnostic versus screening mammography recommendations for postlumpectomy imaging surveillance of patients with breast cancer. *American Journal of Roentgenology*, 217(5), 1081-1082. doi:10.2214/AJR.20.25417
- O'Carrigan, B., Wong, M. H. F., Willson, M. L., Stockler, M. R., Pavlakis, N., & Goodwin, A. (2017). Bisphosphonates and other bone agents for breast cancer. *Cochrane Database of Systematic Reviews*, 2017(10), CD003474. doi:10.1002/14651858.CD003474.pub4
- Park, V. Y., Kim, M. J., Kim, G. R., & Yoon, J. H. (2021). Outcomes following negative screening MRI results in Korean women with a personal history of breast cancer: Implications for the next MRI interval. *Radiology*, 300(2), 303-311. doi:10.1148/radiol.2021204217
- Reid, D. M., Doughty, J., Eastell, R., Heys, S. D., Howell, A., McCloskey, E. V., ... Coleman, R. E. (2008). Guidance for the management of breast cancer treatment-induced bone loss: A consensus position statement from a UK expert group. *Cancer Treatment Reviews*, 34(1), S3-S18. doi:10.1016/j.ctrv.2008.03.007
- Runowicz, C. D., Leach, C. R., Henry, N. L., Henry, K. S., Mackey, H. T., Cowens-Alvarado, R. L., ... Ganz, P. A. (2016). American Cancer Society/American Society of Clinical Oncology breast cancer survivorship care guideline. *Journal of Clinical Oncology*, 34(6), 611-635. doi:10.1200/JCO.2015.64.3809
- The American Society of Breast Surgeons. (2019). *Position Statement on Screening Mammography*. Retrieved from https://www.breastsurgeons.org/docs/statements/Position-Statement-on-Screening-Mammography.pdf



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DEVELOPMENT CREDITS

This survivorship algorithm is based on majority expert opinion of the Breast Cancer Survivorship workgroup at the University of Texas MD Anderson Cancer Center. It was developed using a multidisciplinary approach that included input from the following:

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