

General recommendation
Providers and female childhood, adolescent and young adult cancer survivors treated with chest radiation (level A evidence) and/or upper abdominal radiation exposing breast tissue at a young age (level B evidence) should be aware of the increased risk of breast cancer (strong recommendation).
Who needs breast cancer surveillance?
Breast cancer surveillance is recommended for female childhood, adolescent and young adult cancer survivors treated with <u>≥10 Gy chest radiation</u> (level A evidence, strong recommendation).
Breast cancer surveillance is reasonable for female childhood, adolescent and young adult cancer survivors treated with <u>upper abdominal radiation exposing breast tissue at a young age</u> . The surveillance decision should be an individual one, taking into account additional risk factors ² and personal values regarding the harms and benefits of surveillance (see Survivor Information Form) (level B evidence, moderate recommendation).
No recommendation can be formulated for routine breast cancer surveillance for CAYA cancer survivors treated with any type of <u>anthracyclines in the absence of chest radiation</u> , because there is currently inconsistent evidence. Because the evidence suggests that survivors treated with high-dose (≥250 mg/m ²) anthracyclines have a moderately to highly increased breast cancer risk and that survivors of Li-Fraumeni syndrome-associated childhood cancer types (leukemia, CNS tumor and non-Ewing sarcoma) ³ have a highly increased breast cancer risk, the decision to undertake breast cancer surveillance should be made by the CAYA cancer survivor and healthcare provider after careful consideration of the potential harms and benefits of breast cancer surveillance (see Survivor Information Form).
At what age should breast cancer surveillance be initiated?
Initiation of breast cancer surveillance is recommended at age 25 years or ≥8 years from radiation for female childhood, adolescent and young adult cancer survivors treated with <u>≥10 Gy chest radiation</u> (whichever occurs last) (level A evidence, strong recommendation).
Initiation of breast cancer surveillance is reasonable at age 25 years or ≥8 years from radiation for female childhood, adolescent and young adult cancer survivors treated with <u>upper abdominal radiation exposing breast tissue at a young age</u> based on clinical judgment, considering additional risk factors ² and personal values regarding the harms and benefits of surveillance (see Survivor Information Form) (level B evidence, moderate recommendation).
At what frequency should breast cancer surveillance be performed?
Annual breast cancer surveillance is recommended for at least up to 60 years of age for at risk female childhood, adolescent and young adult cancer survivors treated with <u>≥10 Gy chest radiation</u> (level A evidence, strong recommendation).
Annual breast cancer surveillance is reasonable for at least up to 60 years of age for female childhood, adolescent and young adult cancer survivors treated with <u>upper abdominal radiation exposing breast tissue at a young age</u> (level B evidence, moderate recommendation).
At what age should continuation of intensive¹ breast cancer surveillance be stopped?
Continuation of breast cancer surveillance is <u>reasonable</u> for at risk female childhood, adolescent and young adult cancer survivors who are older than age 60 years based upon clinical judgement and pending availability of further data (level C evidence, moderate recommendation).
What surveillance modality should be used?
Mammography and breast MRI are recommended for breast cancer surveillance in at risk female childhood, adolescent and young adult cancer survivors (level A and B evidence, strong recommendation).
Clinical breast exam is reasonable for at risk female childhood, adolescent and young adult cancer survivors returning for follow-up medical evaluations in countries where breast cancer surveillance access is through clinical referral (expert opinion, moderate recommendation).

Green representing a strong recommendation with low degree of uncertainty; Yellow representing a moderate recommendation representing a higher degree of uncertainty.

¹ Recommended breast cancer surveillance beyond the national breast cancer screening program.

² Patient age, family history, menopausal status, other previous cancer treatment.

³ Testing for genetic cancer predisposition syndromes like Li-Fraumeni syndrome can be considered for survivors of leukemia, CNS tumor and non-Ewing sarcoma, who have been treated with high-dose anthracyclines, in order to determine if the breast cancer risk is additionally increased.

Note: Breast cancer surveillance recommendations for female childhood, adolescent and young adult cancer survivors with a genetic predisposition to breast cancer are outside the scope of this paper. For that purpose, we refer to the country-specific recommendations.

Publication

Mulder RL, Hudson MM, Bhatia S, Landier W, Levitt G, Constone LS, Wallace WH, van Leeuwen FE, Ronckers CM, Henderson TO, Moskowitz CS, Friedman DN, Ng AK, Jenkinson HC, Demoor-Goldschmidt C, Skinner R, Kremer LCM, Oeffinger KC. Updated Breast Cancer Surveillance Recommendations for Female Survivors of Childhood, Adolescent, and Young Adult Cancer From the International Guideline Harmonization Group. *J Clin Oncol.* 2020 10;38(35):4194-4207.