

## **Cancer screening practices in adult survivors of childhood cancer: A report from the Childhood Cancer Survivor Study (CCSS)**

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**Background:** Childhood cancer survivors may develop a second malignant neoplasm (SMN) and require surveillance to detect new cancers.

**Methods:** We surveyed subjects and siblings from the CCSS, a cohort study of patients who survived  $\geq 5$  years after a diagnosis of childhood cancer from 1970-86. We assessed compliance with the American Cancer Society's (ACS) guidelines for surveillance mammography, colonoscopy and PAP smears, and compared them to a matched population comparison group drawn from the 2003 National Health Interview Survey. Further, we examined compliance with the Children's Oncology Group (COG) guidelines for more frequent colonoscopy, mammography and skin exams in survivors at high risk for cancers of the colon ( $\geq 30$  Gy pelvic, abdominal or spinal radiation), breast ( $\geq 20$  Gy breast radiation in females) or skin (any radiation). Proportions screened were compared between groups with adjusted generalized estimating equations or log-binomial regression models.

**Results:** There were 8318 survivors (50.6% male, mean age at interview  $31.2 \pm 7.3$  years), 2661 siblings and 8318 population controls. 141/829 (17.6%), 592/855 (70.4%) and 3362/3690 (92.6%) eligible survivors reported a colonoscopy, mammogram or PAP smear per ACS guidelines. Survivors were less likely than siblings (odds ratio [OR] 0.30; 95% confidence interval [CI] 0.18-0.49) and population controls (OR 0.63; CI 0.50-0.80) to have a colonoscopy, and less likely than siblings to have a PAP smear (risk ratio [RR] 0.98; CI 0.97-0.99). However, they were more likely than siblings (RR 1.14; CI 1.03-1.27) and population controls (RR 1.05; CI 1.01-1.10) to have a mammogram. Among survivors at increased risk for a SMN, only 92/809 (11.4%) reported a colonoscopy within the COG recommended 5-year period, 164/537 (30.5%) reported a mammogram within a 1-year period and 1288/4833 (26.7%) reported a skin exam. Care at a cancer center was associated with mammography (RR 1.91; 95% CI 1.02-1.27) and skin exam (RR 1.55; 95% CI 1.22-1.96) in high risk patients.

**Conclusions:** Childhood cancer survivors are not screened adequately for SMN's. Surveillance is very poor amongst those at highest risk for colon, breast or skin cancer. Survivors and their physicians need education about the importance of surveillance.