

TITLE: COMBINING eHEALTH and mHEALTH STRATEGIES TO PROMOTE RISK-BASED CARDIOVASCULAR SCREENING IN ADULT SURVIVORS OF CHILDHOOD CANCER

AUTHORS: Cox CL, Leisenring WM, Stratton KL, Steen BD, Ogg SW, Robison LL, Hudson MM.

INTRODUCTION: Cardiotoxic pediatric-cancer treatments place adult survivors at substantial risk of adverse cardiovascular (CV) outcomes. While early screening/intervention is beneficial, survivors are not participating in recommended CV surveillance. We hypothesized that telephone counseling (mHealth) with an interactive survivor database (eHealth) would motivate a higher proportion of at-risk survivors to complete CV screening than would standard care.

METHODS: A 1-year randomized, controlled trial targeted 411 at-risk Childhood Cancer Survivor Study participants with no history of CV screening during the past 5 years. Survivors (age 25-59 years) were randomly assigned to either the *standard-care* group ($n=206$; mailed personalized treatment summary, recommendations for CV follow-up and lifestyle modification) or the *intervention* group ($n=205$; standard care plus 2 tailored telephone sessions with an advanced-practice nurse, informed by an interactive database). The primary outcome was completion of a left ventricular systolic function assessment and was compared between the two arms using adjusted relative risks with 95% confidence intervals. Secondary outcomes of intrinsic motivation measures were compared using adjusted linear models.

RESULTS: At 1 year, CV screening was completed by 107/205 (52.2%) survivors in the intervention group and 46/206 (22.3%) in the standard-care group. After adjustment for gender, age (≤ 30 , 30+), and COG-recommended screening frequency (every 1 year, 2 years, or 5 years), survivors in the intervention group were more than twice as likely as those in the standard care group to complete CV screening (RR 2.31; 95% CI 1.74-3.07, $p < 0.001$). The intervention group scored higher than the standard care group on all motivation measures: autonomous regulation ($P=0.001$), perceived effort ($P < 0.001$), perceived competence ($P=0.037$), and perceptions of screening value/usefulness ($P=0.022$). Echocardiograms revealed ≥ 1 cardiac abnormalities in 53% of the survivors in each study arm.

CONCLUSIONS/IMPLICATIONS: The intervention expands remote clinicians' ability to motivate at-risk survivors' cardiac screening and potentially could support risk-based screening in other survivor groups.