



Automated Heart-Health Assessment for Cancer Survivors

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A program of the National Cancer Institute
of the National Institutes of Health



Acknowledgements

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Wake Forest NCORP Research Base

Funding support provided by:

R01CA226078, UG1CA189824,

P30CA012197

Investigators, staff, and participants from:

Cancer Research for the Ozarks NCORP

Baptist Memorial Health Care/Mid-South
Minority Underserved NCORP

Geisinger Cancer Institute NCORP

Iowa-Wide Oncology Research Coalition
NCORP

Wisconsin NCORP

VCU Massey Cancer Center Minority
Underserved NCORP

Cardiovascular Disease & Survivors

Significant burden of cardiovascular disease among post-treatment cancer survivors

- Twice the risk of fatal heart disease compared to the general population
- CVD deaths exceed deaths from primary cancer for many common cancer types

Clinical practice guidelines recommend cardiovascular disease (CVD) risk assessment and counseling for cancer survivors

Will Survivors Benefit?

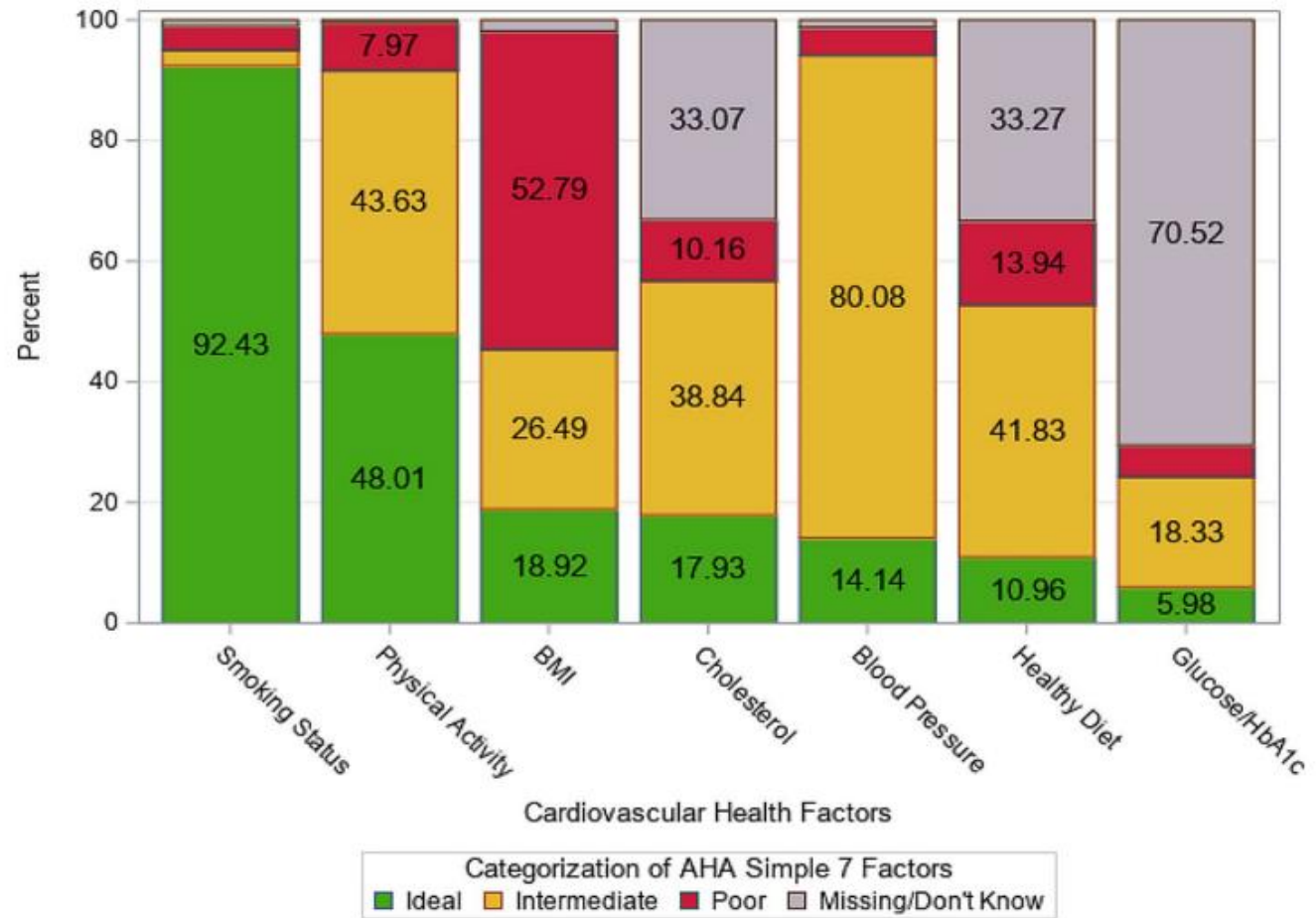


Fig. 1 Simple 7 cardiovascular health factors among post-treatment cancer survivors (N=502). American heart association simple 7 physical activity and diet components are self-reported prior to a routine oncology visit; all other components are from the electronic health record. Missing/Don't know means EHR missing and/or survivor unknown

AH-HA Clinical Decision Support

American Heart Association Simple 7 cardiovascular health (CVH) factors

- Cigarette smoking
- Obesity
- Hypertension
- High cholesterol
- Physical inactivity
- Poor diet
- Diabetes

Tailored for cancer survivors to include information about cancer treatment with cardiotoxic potential

AH-HA Automated Heart-Health Among Survivors

Cancer treatments CVH Score

Cancer treatments that may have adverse cardiac effects:

- Anthracyclines** Yes No
From 04/02/2016 to 06/02/2016 (?)
- Hormone therapy** Yes No
From 06/03/2016 to (?)
- Aromatase inhibitors** Yes No (?)
- Monoclonal antibody** Yes No
From 05/01/2016 to (?)
- Antimicrotubule agents** Yes No (?)
- Alkylating agents** Yes No (?)
- Antimetabolites** Yes No (?)
- Radiation** Yes No
From 02/01/2016 to 04/01/2016

AH-HA Automated Heart-Health Among Survivors

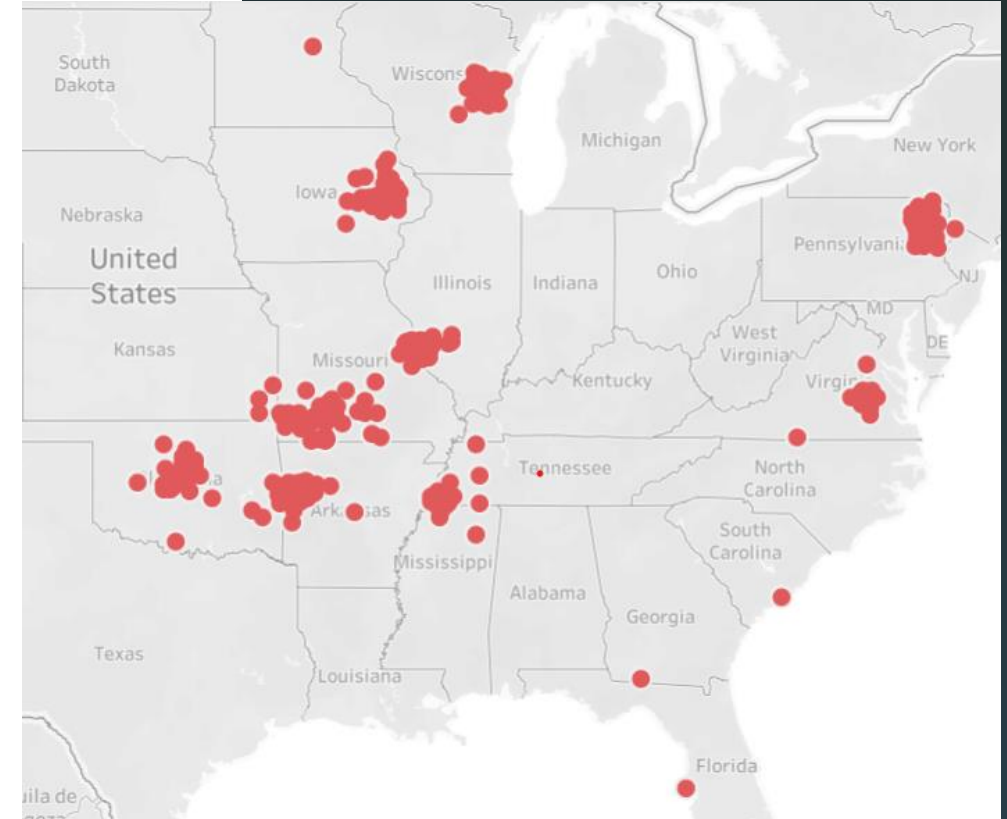
Cancer treatments CVH Score

Disable physical activity and diet parameters

- Moderate Activity** 120 min/week
- Vigorous Activity** 0 min/week (?)
- Do you eat more than 4 1/2 cups of fruits(?) or vegetables(?) in an average day? Yes No
- Do you eat 2 servings(?) or more of fish weekly? Yes No
- Do you eat 3 or more servings of whole grains(?) daily? Yes No
- Do you drink less than 36 ounces (41/2 cups) of beverages with added sugar(?) weekly? Yes No
- Do you eat a low-sodium diet of 1,500 milligrams or less(?)? Yes No
- Smoking Status** quit>=12month is never
Never Former Current Captured on 2/14/16
- Weight** 136 pounds
- Height** 5'7" foot & inch
BMI = 21.3 Captured on 4/14/16
- Blood Pressure** 147 / 92 mmHg
Meds No Meds Captured on 4/14/16
- Total Cholesterol** 220 mg/dl
Meds No Meds Captured on 2/14/16
- Hemoglobin A1c** 6.5 %
Meds No Meds Captured on 2/14/16

Methods

- Clinic-randomized hybrid effectiveness-implementation trial within the NCI Community Oncology Research Program (NCORP) network
- Eligibility criteria:
 - Survivors receiving routine cancer-related follow-up care ≥ 6 months post-potentially-curative cancer treatment for:
 - Breast
 - Prostate
 - Colorectal
 - Endometrial cancers
 - Hodgkin and non-Hodgkin lymphomas
- Randomized NCORP practices using the Epic EHR to:
 - AH-HA tool (n=4) + provider education
 - Usual care (n=5)



Study Enrollment and
Baseline Assessment

AHA Simple 7 cardiovascular factors knowledge & awareness

Routine Post-treatment
Follow-up Visit

Use AH-HA tool OR Routine Care

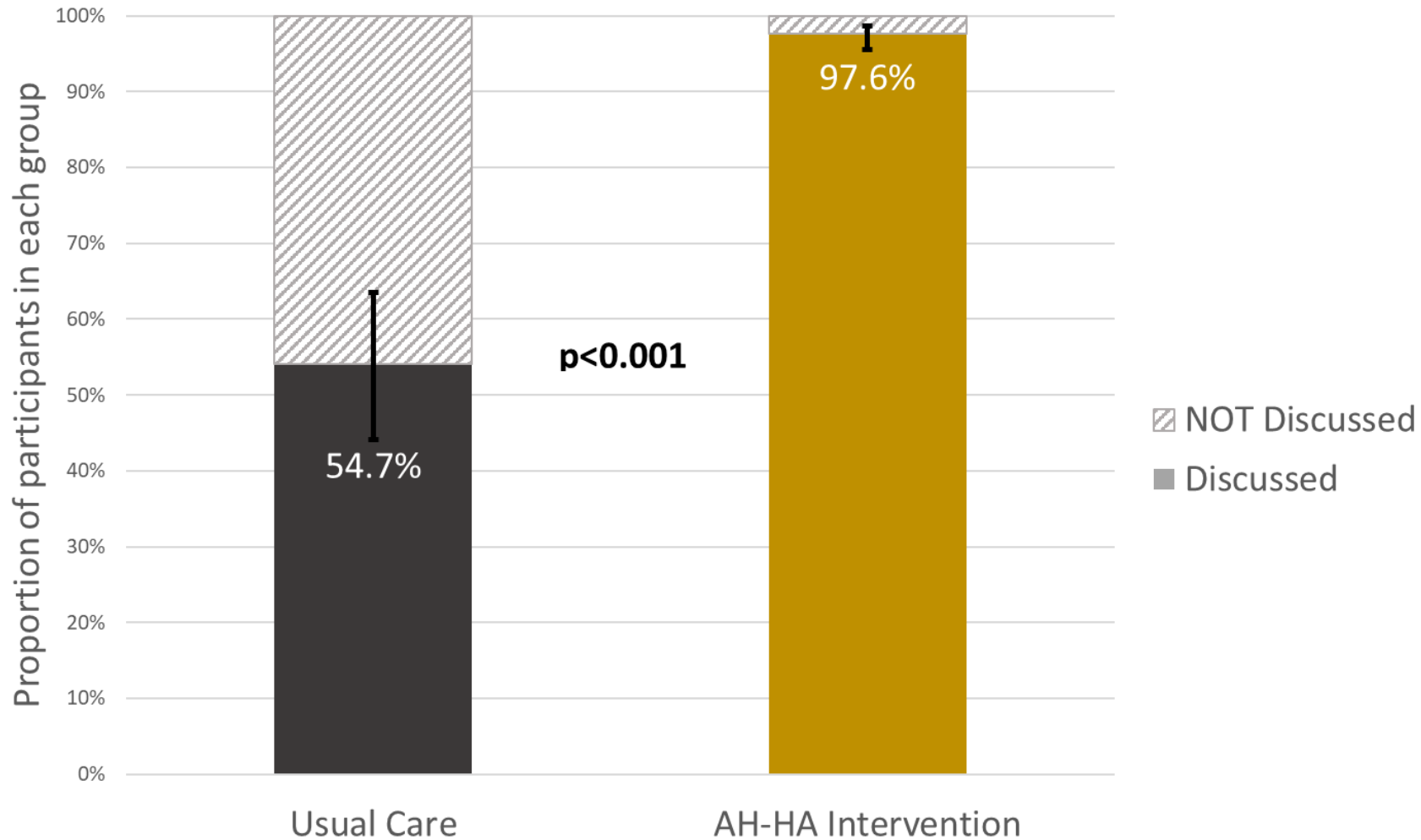
Post-visit

- Survivors: CVH discussions, intervention acceptability
- EHR: CVH documentation, referrals

6 & 12 month follow-up

- CVH factors
- Completed visits
- CVH tests & medications

Discussion with Providers for ≥ 1 Non-Ideal or Missing CVH Factor



N=645

- 96% female
- 82% breast, 8% endometrial, 10% other types
- M= 3.5 years post-diagnosis
- 18% rural
- 84% white, non-Hispanic, 8% Black, 4% Hispanic

Results- Discussions & Referrals

	Usual Care 5 practices N=343	AH-HA Intervention 4 practices N=292	Adjusted P- value
# of Factors discussed per participant self-report, mean (std)	1.23 (1.49)	4.12 (1.57)	<0.001
# of Factors documented as discussed in EHR, mean (std)	0.75 (1.01)	4.15 (2.64)	0.03
Referral to (% yes):			
Primary care	81 (24.1%)	112 (38.5%)	0.03
Cardiology	20 (6.0%)	18 (6.2%)	0.93

Provider Acceptability

JCO Oncol Pract 19, 2023
(suppl 11; abstr 423)

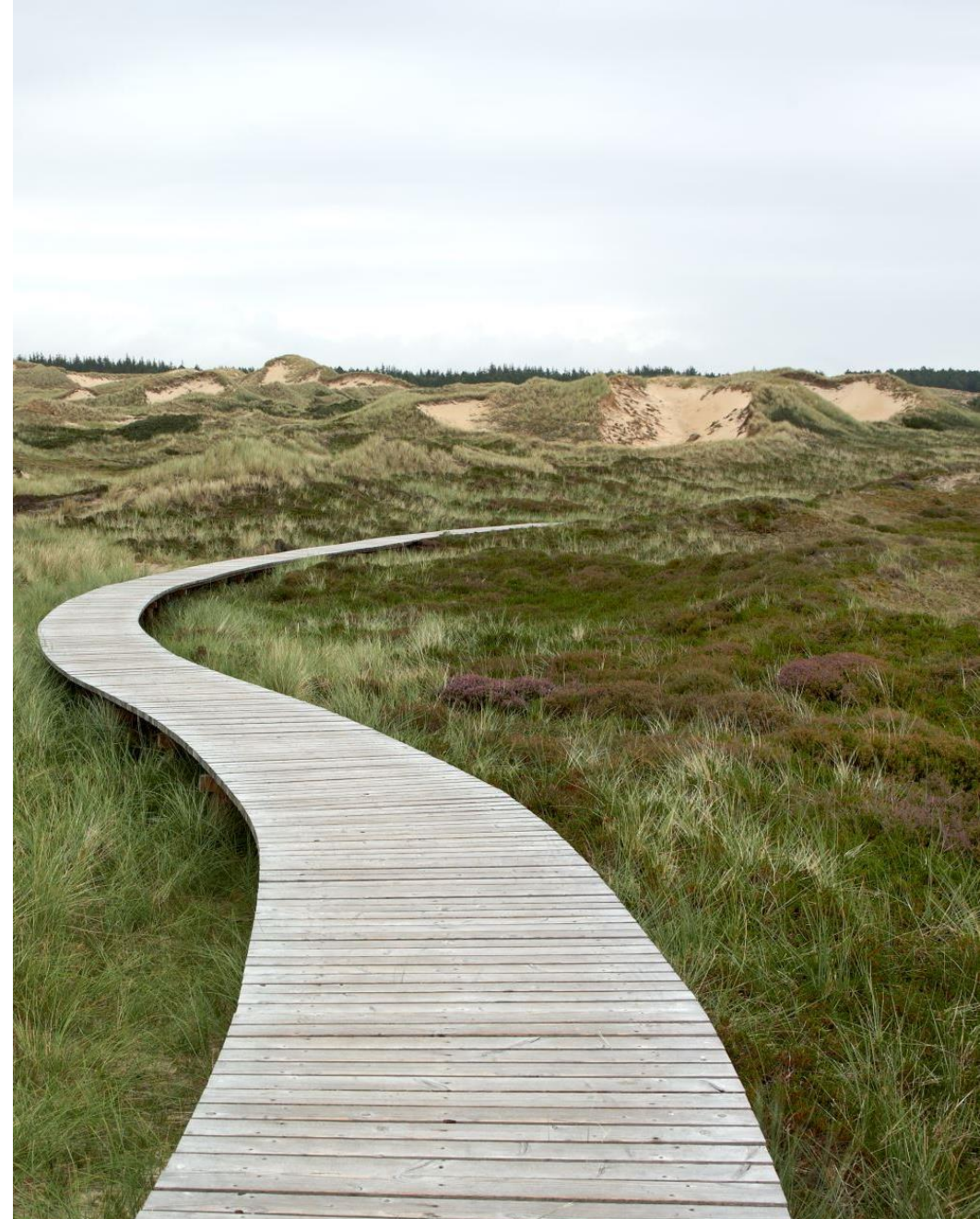
Provider Satisfaction with AH-HA Tool (N=15)	Mean (SD)
Provides useful information	5.93 (1.16)
Helps me be more effective	5.33 (1.63)
Makes information easier to access	4.87 (1.77)
Meets my needs when providing survivorship care	5.27 (1.49)
Easy to use	5.60 (1.24)
Useful format	5.93 (1.07)

Conclusion

- The AH-HA tool was effective at promoting:
 - CVH discussions during routine follow-up care for survivors
 - 4x as many cardiovascular health factors discussed and documented in intervention clinics
 - Referrals to primary care, but not cardiology
- Tool was acceptable to providers
- Data on longer-term impacts of the tool is being collected

Next Steps

- Tool upgrade to Essential 8 and collection of self-report indicators via patient portal
- Pragmatic clinical trial with additional NCORP sites
- Clinical implementation within multiple campuses of the Atrium Health Wake Forest Baptist Comprehensive Cancer Center (Charlotte & Winston-Salem)



It take a village
(and funding)

- Cancer Prevention Fellowship Program
- Pilot work supported by Atrium Health Wake Forest Baptist Comprehensive Cancer Center (P30CA012197) and the Wake Forest Clinical Translational Science Institute (UL1TR001420)
- RCT supported by the National Cancer Institute through **R01CA226078** and the **Wake Forest NCORP Research Base** (UG1CA189824)
- Support from **Atrium Health Wake Forest Baptist Comprehensive Cancer Center** Qualitative and Patient-reported Outcomes Shared Resource (UL1TR001420)

Investing in Cancer Care Delivery Research

- NCORP CCDR expansion in 2014
- Platform for implementation science and hybrid trials in oncology treatment settings
- Engagement of community oncology providers and staff
- Speeding the translation of research to practice