The Value of Partnerships in Multi-Component Skin Cancer Prevention Interventions

MEGAN M. TRAN, BS; C. KELLY SMITH, MSW; GEORGE ANDOSCIA, MPH; JOHN KAWAOKA, MD; MARTIN A. WEINSTOCK, MD, PhD; DIVYA SHARMA, MD

ABSTRACT

Melanoma causes most skin cancer-related deaths, yet melanoma mortality rates can be decreased by life-long reduction of ultraviolet radiation exposure and early detection. The disease is readily detectable through skin examinations by trained medical providers; however, the U.S. Preventive Services Task Force cites insufficient evidence to recommend "visual skin examination by a clinician to screen for skin cancer" in asymptomatic adults in the United States. As a coastal state with much outdoor occupational and recreational exposure to ultraviolet light, Rhode Island has developed a coordinated statewide partnership of stakeholders who provide valuable resources and expertise that maximize the reach and efficacy of targeted skin cancer prevention and screening programs. These programs include public skin cancer screening events, shade planning efforts, distribution of sunscreen at state parks and beaches, and educational programming.

KEYWORDS: skin cancer, screening, prevention, policy, dermatology

INTRODUCTION

Skin cancer is the most commonly diagnosed cancer in the United States,[1] and is a significant public health issue at both state and national levels. The total annual cases of keratinocyte carcinomas (nonmelanoma skin cancers) has increased from 1 million cases in the 1990s to more than 3 million diagnoses today.[1-3] These figures reflect gradual increases in the incidence of all skin cancer types at an estimated $8.1 billion in associated costs. Skin cancer prevention programs have been shown to reduce costs that would have been incurred for treatment services.[4] While the United States Preventive Services Task Force (USPSTF) has not issued a recommendation for routine screening of asymptomatic adults due to insufficient evidence,[5] other evidence-based interventions can be implemented to reduce community-level burdens of skin cancer. In Rhode Island, efforts to reduce the incidence of skin cancer and other sun-related damage have enlisted the energies of numerous partners to create multi-component community interventions. This paper will describe the public-private partnerships cultivated in these skin cancer prevention interventions and the advantages of creating such partnerships.

Multi-component, community-wide interventions have been endorsed by the Centers for Disease Control and Prevention's Community Preventive Services Task Force (Community Guide) as an effective means of reducing skin cancer.[6] Specifically, community-wide, multicomponent interventions involve individual-directed strategies, mass-media campaigns, and environmental policy changes across multiple settings in a geographically defined area.[7] In addition, multicomponent and multichannel interventions have demonstrated to be effective, particularly in the context of skin cancer prevention through community engagement. The results in a randomized, controlled trial demonstrated that individuals in the study's intervention communities had significantly better sun protection than those in control communities.[8] Multi-component, community-wide interventions implemented in Rhode Island were made possible through a coordinated statewide public-private partnership through which stakeholders provide valuable resources and expertise. The synergies from these partnerships allow for maximal reach of efforts in skin cancer prevention and may potentially be applied in other states with high incidence rates of skin cancer.

RHODE ISLAND SKIN CANCER MULTI-COMPONENT INTERVENTIONS

In Rhode Island, the age-adjusted rate of new melanomas of the skin was 21.5 per 100,000 people in 2018.[9] Other common skin cancers are not tracked in the state cancer registry, but national incidence was estimated at approximately 5.4 million annual diagnoses of keratinocyte carcinomas in 3.3 million individuals in a recent year (2012)[2], and these do not include many other precancerous skin conditions that can be removed by medical practices. From 2013 to 2019, Rhode Island's public health department has implemented community-wide, multicomponent interventions in an effort to reduce the burdens of skin cancer in the state (the COVID-19 pandemic put these efforts on pause in 2020). Specifically, the Rhode Island Department of Health's (RIDOH) Comprehensive Cancer Control Program, in partnership with Rhode Island's state cancer control coalition, created a network of stakeholders to support the implementation of skin cancer

prevention interventions. These interventions aimed to reduce the personal and societal burdens associated with skin cancer through periodic screening by board-certified dermatologists and encouraging individual engagement in protective behaviors.

Screening

One intervention involves a long-term collaborative partnership between cancer control programs and one of the state's largest dermatology practices to improve public awareness of and access to skin cancer screening for people who may be at higher risk of sun-related damage. This initiative couples skin cancer prevention education with dermatology resident-performed skin cancer screenings in communities throughout the state. The resident physicians who perform the screenings are supervised by attending dermatologists. Screenings are held at beaches and outdoor recreation areas, providing accessibility to those who spend extended periods of time outdoors, tan, or have higher than average exposure to harmful UV radiation. Typically, eight free screenings are held at public beaches and parks throughout each summer during peak UV flux hours, and screenings for outdoor workers are held periodically during non-summer months.[10] About 500 people are screened each summer. Skin cancer screening efforts in Rhode Island have gone back at least 30 years.[11]

This public-private partnership includes the state's department of public health, the state cancer control coalition, one of the state's largest dermatology practices, dermatology residents and medical students from two medical schools, the community health branch of the state's largest hospital system, a broadcast and online media outlet with high market ratings and a large viewership, and a diverse array of volunteers. Each partner brings its strengths to the collective work. The core group of partners annually ensures that the resources and expertise needed to effectively implement each component of the intervention are available and shared. All partners work together to identify and garner support from stakeholders, such as beach managers and local businesses, to coordinate community-level multicomponent interventions, plan public events, and recruit volunteers to support them. The state public health department provides technical assistance to support and evaluate skin cancer-related policy, systems, and environmental change (PSE) strategies to reduce disease burden.

Nationwide, these types of screening programs have helped increase awareness of the risk of skin cancer and encouraged people to obtain skin examinations. A study in the Journal of the American Academy of Dermatology about screening participants found that nearly half of individuals diagnosed with a suspected melanoma during skin cancer screenings between 2001 and 2010 indicated that a doctor had never checked their skin for signs of skin cancer.[12] Furthermore, most screening participants in this study did not have a regular dermatologist and nearly half indicated that they would not have sought out a skin examination had it not been for the program. In fact, a key barrier for melanoma mortality reduction is that people do not thoroughly examine their own skin.[13] A study evaluating the 27 Rhode Island skin cancer screening events between 2015 and 2019 reported that 25% of 2354 screened subjects were referred for dermatological follow-up and that the number needed to biopsy was 3.0 and, of those who could be contacted and kept their appointments by the time of the call, the number needed to screen was 18.3.[10]

By providing accessible skin cancer screening, Rhode Island's partners help make skin cancer awareness a priority among parks and recreation programs. The in-kind engagement of a key broadcast and social media news outlet has given the screening partnership tremendous visibility and reach, disseminating public health education about skin cancer risks, prevention and prevalence through its health reporting and social media. This media partner promotes the screening initiative's events, ensuring public awareness; engages local business partners in volunteering and promotion of the screening program; and is present at every event. Some participants diagnosed with skin cancer at the screening events indicated that they attended only after hearing about them from reporters. The coordination of educational messaging and the availability of screening has led not only to consistently well-attended events, but has empowered attendees to identify their increased risks for skin cancer – a factor that has led to diagnoses of melanoma, basal, and squamous cell carcinomas, precancers, and many findings and referrals for other follow-up dermatological services. However, a risk of this intervention is the potential for overdiagnosis of skin cancers, which may lead to unnecessary intervention.[14,15]

Interventions to Increase Adherence to Sun Protection Behaviors

Other multicomponent community-wide interventions to reduce skin cancer in Rhode Island include provision of free SPF 30, broad spectrum, certified reef-safe sunscreen at state-owned outdoor recreation areas. This initiative, supported by a separate partnership between the Rhode Island Departments of Health and Environmental Management, the state cancer control coalition, a local dermatology practice, and a Rhode Island-based sunscreen manufacturer, made this free sunscreen available at 24 locations throughout Rhode Island state parks and beaches. Further, partnerships have been developed to increase UV protection for employees and patrons of beaches, golf courses, parks, and other outdoor recreation areas. Through consultations, education, and the dissemination of resources, the public health department has established relationships that have resulted in improved public access to shade during mid-day hours. Finally, PSE technical assistance has better prepared key stakeholders, such as cancer coalition members, dermatologists, and

medical students, to lead policy reform efforts (e.g., the state legislature's 2017 ban of indoor tanning for minors). Such collaboration helps to ensure that meaningful, evidence-based testimony and expertise will continue to influence public policy.

Public-private partnerships allow these initiatives to reach a wide range of individuals. Rhode Island's other skin cancer prevention efforts include working with a local school district to incorporate skin cancer prevention into their health curricula and partnering with a local minor league baseball team to provide skin cancer prevention education and sunscreen to fans. Another initiative included encouraging adherence to sun protection by distributing banners that remind people to seek shade and use sunscreen at parks and recreation programs, community gardens, and golf courses. Collaboration with the sports team provides ready access to individuals of all ages who may have more sun exposure from frequent outdoor activities. These initiatives foster positive health behaviors that can help reduce future burdens of skin cancer. A study found that a multi-component community-wide skin cancer prevention program implemented in Melbourne, Australia named SunSmart found that SunSmart contributed to the reduction in melanoma among younger cohorts, though there was an estimated lag of 20 years.[16] Thus, while many cancer screening initiatives focus on older adults, prevention efforts targeting younger populations promote behavior change during critical developmental periods and may provide the foundations for their future health habits and lifestyles.

DISCUSSION

Rhode Island's multi-component, community-wide interventions to reduce skin cancer have gained momentum during recent years, but more formal evaluation of these efforts is needed to accurately measure their impact. These interventions have been proven sustainable through the significant contributions made by the partners. Each provides valuable resources and expertise that improves the collective reach and efficacy of efforts designed to reduce the burden of skin cancer in Rhode Island. Since each state has similar stakeholders, this public-private partnership can be replicated in many communities across the nation and may help influence policy to protect people from harmful UV radiation. Rhode Island's skin cancer prevention and screening interventions provide many opportunities for public engagement and each partner feels supported and engaged in collective efforts to effect change in attitudes towards skin cancer prevention and in associated behaviors regarding sun protection.

Efforts like these may provide evidence of efficacy of public screening with prevention education for future USPSTF reviewers. USPSTF recommendations are important because only preventive services that receive a grade A or B recommendation from USPSTF must be covered by most health insurance plans without cost-sharing under the Patient Protection and Affordable Care Act and, therefore, may have a substantial effect on the extent of skin examination as a part of routine medical care or screening events. Until then, community-based screening events and facilitation of sun protection behaviors may help individuals at high risk for skin cancer detect their cancers at earlier stages when they are most responsive to treatment.

References

1. Cancer Facts & Figures 2021. In: Society AC, ed. Atlanta: *American Cancer Society*. 2021.
2. Rogers HW, Weinstock MA, Feldman SR, Coldiron BM. Incidence Estimate of Nonmelanoma Skin Cancer (Keratinocyte Carcinomas) in the U.S. Population, 2012. *JAMA Dermatol* 2015;151:1081-6.
3. Miller DL, Weinstock MA. Nonmelanoma skin cancer in the United States: Incidence. *J Am Acad Dermatol* 1994;30:774-8.
4. Shih STF, Carter R, Heward S, Sinclair C. Skin cancer has a large impact on our public hospitals but prevention programs continue to demonstrate strong economic credentials. *Aust N Z J Public Health* 2017;41:371-6.
5. Wernli KJ, Henrikson NB, Morrison CC, Nguyen M, Pocobelli G, Blasi PR. Screening for Skin Cancer in Adults: Updated Evidence Report and Systematic Review for the US Preventive Services Task Force. *JAMA* 2016;316:436-47.
6. Sandhu PK, Elder R, Patel M, et al. Community-wide Interventions to Prevent Skin Cancer: Two Community Guide Systematic Reviews.
7. Skin Cancer: Multicomponent Community-Wide Interventions. (Accessed 12/2/2019, at https://www.thecommunityguide.org/findings/skin-cancer-multicomponent-community-wide-interventions.)
8. Olson AL, Gaffney C, Starr P, Gibson JJ, Cole BF, Dietrich AJ. SunSafe in the Middle School Years: a community-wide intervention to change early-adolescent sun protection. *Pediatrics* 2007;119:e247-56.
9. U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool, based on 2020 submission data (1999-2018): U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; www.cdc.gov/cancer/dataviz, released in June 2021.
10. Lee KC, Fulton JP, Kazemi L, George EA, Smith CK, Andoscia G, Kawaoka JC, Almeida-DoRosario A. Clinical Outcomes of Free, Public Skin Cancer Screening Events, Rhode Island, 2015-2019.
11. Weinstock MA. Prevalence of the early warning signs of melanoma among participants in the 1989 Rhode Island skin cancer screening. *J Am Acad Dermatol* 1990;23:516-8.
12. Okhovat J-P, Beaulieu D, Tsao H, Halpern AC, Michaud DS, Shaykevich S, Geller AC. The first 30 years of the American Academy of Dermatology skin cancer screening program: 1985-2014. *J Am Acad Dermatol* 2018;79:884-91.e3.
13. Weinstock MA. Thorough Skin Examination for the Early Detection of Melanoma. *Am J Prev Med* 1999;17.
14. Welch HG, Black WC. Overdiagnosis in cancer. *J Natl Cancer Inst* 2010;102:605-13.
15. Welch HG, Woloshin S, Schwartz LM. Skin biopsy rates and incidence of melanoma: population based ecological study. 2005;331:481.
16. Tabbakh T, Volkov A, Wakefield M, Dobbinson S. Implementation of the SunSmart program and population sun protection behaviour in Melbourne, Australia: Results from cross-sectional summer surveys from 1987 to 2017. *PLoS Med* 2019;16:e1002932.

Acknowledgments

This article was supported by Cooperative Agreement Number NU58DP006291, funded by the Centers for Disease Control and Prevention.

Authors

Megan M. Tran, BS, Department of Dermatology, The Warren Alpert Medical School of Brown University, Providence, RI.

C. Kelly Smith, MSW, Comprehensive Cancer Control Program Manager, Rhode Island Department of Health; Adjunct Faculty, Providence College.

George Andoscia, MPH, Policy, Systems and Environmental Change Specialist, Comprehensive Cancer Control Program, Rhode Island Department of Health.

John C. Kawaoka, MD, Assistant Professor of Dermatology, The Warren Alpert Medical School of Brown University, Providence, RI.

Martin A. Weinstock, MD, PhD, Department of Dermatology, The Warren Alpert Medical School of Brown University, Providence, RI; Center for Dermatoepidemiology, Veterans Affairs Medical Center, Providence, RI.

Divya Sharma, MD, Department of Dermatology, The Warren Alpert Medical School of Brown University and Rhode Island Hospital, Providence, RI.

Disclaimer

The views expressed herein are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention or the Department of Health and Human Services.

Correspondence

Megan Tran
Brown University Department of Dermatology
593 Eddy St., APC 10
Providence, RI 02903
401-444-7139
Megan_Tran1@brown.edu