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More than a Conversation: the Power of Bringing Scientists and the Community Together to Change Perceptions About Cancer

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Abstract
According to the Centers for Disease Control and Prevention, up to 40% of annual deaths are due to preventable, modifiable risk factors (Centers for Disease Control and Prevention 2014). Evidence in the literature suggests that increased knowledge and engagement is a critical step in preventing disease and improving health behaviors (Health Promotion International 15(3):259–267, 2000; Risk Manag Healthc Policy 3:61-72, 2010; Urology 61(2):308-313, 2003). Educational seminars, titled *Conversations with Scientists*, are offered twice per year by the Advancing a Healthier Wisconsin Endowment with the goal of helping community members, patients, and families inform themselves and others about science and health. In the first series, Cancer: Past, Present, and Future, the goals of increasing (1) knowledge, (2) intent to improve health behaviors, and (3) intent to disseminate information to friends and family were evaluated. Additionally, focus groups and interviews were conducted with speakers and audience members to explore strengths of the existing program format and opportunities to improve. The World Health Organization estimates that between 30 and 50% of all cancer cases are preventable, and has called for efforts to raise public awareness of cancer risks (World Health Organization 2017). Findings indicate that the existing seminar format achieved its intended goals, and provided additional value that can be leveraged to improve health outcomes for participants and their families.

Keywords Cancer · Prevention · Community Engagement · Education

Introduction

Cancer is a leading cause of death worldwide, and accounted for 8.8 million deaths in 2015, with up to half of those deaths estimated to be preventable [1, 2]. In a 2017 report by the World Health Organization, policies and programs that raise awareness and reduce exposure to cancer risk factors, and provide information to support healthy lifestyle choices were recommended to reduce the incidence of preventable cancer cases [3]. Common barriers to improving lifestyle choices and seeking preventative resources include a lack of awareness, fear of cancer, feelings of intimidation regarding health care system navigation, and lack of access [4–6]. In Ohio, cancer education seminars have been demonstrated to increase cancer knowledge in Appalachian communities experiencing cancer disparities, disseminate research findings, and improve capacity building in communities [7].

Inspired by the documented success of educational seminars, *Conversations with Scientists* was created to offer an engaging and interactive glimpse into science, medicine, and other health-related topics in a relaxed environment. Clinical interventions designed to improve patient self-efficacy and decision making are hampered by the limitation of only reaching those who have access to primary and specialty care providers. Given the reported literature about the intimidating nature of the health care system, an informal seminar series offers a unique opportunity to build relationships and trust, dispel fear, and help individuals connect research and biomedical science with better health [8, 9]

Conversations with Scientists is hosted by the Advancing a Healthier Wisconsin (AHW) Endowment, an organization whose mission is to improve the health of Wisconsin residents

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by serving as a connector, influencer, and high-impact investor in the state-wide community. The program is currently conducted on the Medical College of Wisconsin (MCW)'s campus over the course of four weekday evenings during the spring and fall of each year. Each four-part series is focused on a different health-related topic.

The first *Conversations with Scientists* series focused on cancer was conducted in partnership with the MCW Cancer Center, an organization with an established base of interest in cancer treatment and prevention, researchers conducting cutting-edge research, nationally recognized physicians, and strong speakers. These resources made the Cancer Center an ideal partner for the inaugural *Conversations with Scientists* series. Joint interest was expressed from both AHW and the MCW Cancer Center in expanding education and reach in the community. The hypothesis is that through deliberate program planning and evaluation, *Conversations with Scientists* will serve as a vehicle to increase knowledge of and communication about health, and improve health-related behaviors.

Methods

Program Design Preliminary meetings began with documents that detailed *What Success Looks Like* for both the AHW Endowment and the MCW Cancer Center. Subsequent meetings identified speakers and topics that would be well suited to engage a diverse audience from Southeastern Wisconsin. A member of MCW's executive leadership extended the invitation to participate as a speaker in the series by formal e-mail. All invited speakers accepted this invitation. Following acceptance, communications with an AHW Program Officer commenced.

The Program Officer offered access to a "Speaker's Toolbox" that provided tools for successful presentation. Speakers were also offered the opportunity to attend a Presentation Skills workshop with a licensed speaking coach, and a 1:1 opportunity to critique individual presentations, in order to improve delivery of health information in a cohesive and lay-friendly manner. A majority of speakers attended the group workshop; however, no speakers chose to attend the 1:1 coaching opportunity.

Before the talk, speakers were provided with audience demographics from registration. Audio/visual equipment was available on site to record talks that were later made available on the AHW website. Throughout the series, documents that detailed the step-by-step process of program planning were compiled by an AHW staff member. These documents ensured sustainability and continuity for future series topics in the program.

Marketing and Registration A communications tracking spreadsheet was created that listed outreach and communication efforts including distribution of printed collateral, digital outreach, online calendar postings, social media, news releases, and contact lists for previous attendees and relevant organizations. Registration occurred online through the AHW website. Data was downloaded weekly and saved to a compiled spreadsheet. Audience demographics were sent to the speakers 4 weeks before the start of the series, and were updated weekly leading up to the event.

Audience Surveys Surveys were handed out at the beginning of each evening and collected at the end of the night. Surveys were included in a packet that contained a program of each evening's topics and speaker profiles, a "*Do More, Think Big*" section that provided additional resources for learning and engagement, and a statement informing the audience that data collected from surveys would be used for research purposes.

Post-Presentation Focus Groups with Audience Members Audience members were invited to participate in a focus group session to provide feedback on the strengths of the series and opportunities for improvement. Invitations to participate were presented in a small section of the brochure for each evening and mentioned briefly in e-mails and announcements made by staff members throughout the series. Audience members were encouraged to contact the focus group facilitator by e-mail if they were willing to participate. Ten audience members expressed desire to provide feedback, and an evening date was scheduled 3 weeks after the series that six of the ten audience members were able to attend. The other four audience members were invited to provide feedback to focus group questions via e-mail, which two audience members took advantage of. The six participants who attended the focus group session in person were incentivized with a $10 gift card and a catered dinner.

Post-Presentation Interviews with Speakers Speakers who presented for the series were invited to a lunch interview to share thoughts on their experience. Invitations to participate were presented by e-mail. Of the nine presenters who spoke, five expressed interest in participating in an interview. Lunches were scheduled with five participants, but two had to cancel due to scheduling conflicts. The three speakers who participated were incentivized with a catered lunch during the interview session.

Analysis of Surveys, Interviews, and Focus Groups Quantitative data in surveys, interviews, and focus groups was compiled in a shared Microsoft Excel spreadsheet for use in future programs. Qualitative data from surveys was compiled in a shared Microsoft Word document that was reviewed by AHW staff within 2 days of each presentation to allow for responsive measures to be taken to address audience suggestions. During a break period at the final evening in

Table 1 Demographics of the *Conversations with Scientists* audience and prior knowledge survey

Why did you register?	*N*	*N* (%)	Highest level of education attained	*N*	*N* (%)
Learning about cancer	37	34	Less than high school	7	6
Learning something new	17	15	High school	2	2
Life affected by cancer	35	32	Trade or vocational training	3	3
Curious about topics	17	15	Associate's degree	9	8
Excited about speakers	4	4	Bachelor's degree	33	30
			Master's degree	31	28
Age			Terminal degree	10	9
0–15	0	0	Prefer not to respond/blank	15	14
15–24	9	8	**Preferred source of information on scientific topics (Check more than one option available)**		
25–44	38	35	Media	23	21
45–64	35	32	Internet	37	34
65 or over	14	13	Healthcare provider	27	25
Prefer not to respond/blank	14	13	Social media	27	25
			Friends/family	13	12
Gender			Other	14	13
Male	23	21	Prefer not to respond	2	2
Female	75	68	**Familiar with AHW prior to series**		
Blank	12	11	Not at all	58	53
			Somewhat familiar	27	25
Race/ethnicity			Familiar	13	12
Native American, Alaskan or Pacific Islander	3	3	Extremely familiar	12	11
African American	6	5	**Familiar with MCW prior to series**		
Asian	9	8	Not at all	10	9
Hispanic	2	2	Somewhat familiar	31	28
White	78	71	Familiar	33	30
Prefer not to respond/blank	12	11	Extremely familiar	36	33

the program, aggregated audience responses were disseminated to participants to encourage response and confirmation of the data collected. Qualitative data from interviews and focus groups was transcribed verbatim, cleaned, de-identified, and coded for relevant themes.

Compliance with Ethical Standards Survey, interview, and focus group documents were submitted to MCW's Institutional Review Board (IRB) for ethical approval, in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments and ethical standards. Due to the minimal to non-existent risk for harm to audience participants as a result of participating in evaluative measures, this research was approved for exempt status. A letter informing participants that data was being collected for the purpose of producing scholarly, peer-reviewed publications and presentations was disseminated with the evening brochure in the place of a formal consent process.

Results

Demographics of the Audience Demographic information was collected for 110 audience members. All audience members responded to general information regarding intent to attend all or some of the four evening events that made up the series, where they heard about the program, why they registered, and their general familiarity with MCW and AHW Endowment. There was an option to provide additional personal demographic information on gender, age, race/ethnicity, highest level of education attained, and preferred source of receiving information about cancer. Ninety-seven of the 110 audience respondents chose to provide answers to all or some of the personal demographic information (Table 1).

Quantitative Survey Data Separate surveys were administered for participants who were first-time participants, or those who had attended a lecture previously. On average, there were 87.5 registered participants each evening. Of those, first-time

Table 2 Quantitative survey data from participants in the *Conversations with Scientists* series

Variable	% Agree (*N*)
I learned something new about what causes cancer	98 (45)
I learned something new about cancer myths and legends	100 (46)
This experience made me curious to find out more about this topic and/or discuss it with others	100 (46)
As a result of this experience, I am more likely to make better-informed choices about my health	100 (46)
After participating in this evening, I intend to use what I have learned in my life and/or work	100 (46)
This experience presented science in a relevant, accessible, enjoyable way	98 (45)
I would recommend this experience to others	100 (46)

survey data was completed and returned from 46 participants (Table 2). All participants were invited to rank the quality of the topics and speakers of each night, regardless of prior attendance at a *Conversations with Scientists* event. Rankings were overwhelmingly favorable, with 96% of the audience ranking the topics as "good" or "excellent." Ninety-six percent of the audience also ranked the speakers as "good" or "excellent." The combined "good" or "excellent" ratings for the location of the series, quality of sound, and time that the series was held were 88, 84, and 83%, respectively.

Qualitative Survey Data Space was left at the bottom of surveys for audience members to give feedback on the program. One section asked for overall comments, and another section asked for suggestions for improvement. Overall, audience members took the opportunity to give positive feedback, with many requests for more programs like *Conversations with Scientists*. Favorite features of the series included appreciation for creative analogies to describe difficult topics, the engaging presentation style of the speakers, and the use of "real life" examples of experiments, clinical procedures, and case studies throughout the talks.

Suggestions were made regarding the format, but no overarching themes emerged. Some audience members requested more time for questions, more "real data," or different locations to host the event, while others thought the event was a little long, needed "less difficult jargon," or liked the MCW location as a permanent home for the program. Instead of having questions at the end of each talk, questions were taken in panel format, with multiple speakers sharing thoughts on a single question. Additional suggestions were made for topics that could have been included, but no one suggested a topic was repeated. Multiple audience members requested that slides and videos of the presentation be made available on the website, which was accommodated by the AHW team.

Analysis of Focus Groups with Participants Focus group participants confirmed overwhelmingly positive feedback about the series. They communicated appreciation for the comfortable setting, unique opportunity, and expertise present. Surprise was expressed at the humor and collegiality of the researchers. One focus group member stated that they had perceived researchers as extremely competitive individuals, and was surprised to see that presenters "shared respect and fraternity with one another." Other surprising facts that stuck with the audience in the 3 weeks following the series were the "eye-opening" cost and complexity required to bring a new cancer drug to the market and the fact that obesity is a leading risk factor for cancer. The group expressed appreciation for personal details that were included with the introductions of each speaker, especially those that described how speakers engage with cancer prevention, treatment, and survivorship efforts outside of their professional obligations.

In the surveys handed out to audience members, questions were asked about behavioral changes that were likely to result from participating in the *Conversations with Scientists*

Table 3 Intent to perform actions following the *Conversations with Scientists* series accurately reflects behavioral change

Which of the following are you likely to do as a result of attending CWS?	% Agree immediately following lecture (*N*)	% Who completed task in the 3 weeks after series (*N*)
Discuss the topic with family, friends, or colleagues	84 (36)	100 (6)
Read a newspaper article about the topic	37 (16)	50 (3)
Read a science magazine article about the topic	44 (19)	50 (3)
Read a book about the topic	35 (15)	17 (1)
Search the internet for more information regarding the topic	81 (35)	83 (5)
Try to stay more up to date on science and health topics in general	72 (31)	100 (6)

program. In the focus groups, we repeated the questions on the survey to assess which of the participants completed the tasks listed (Table 3). Results indicate that the self-reported intentions regarding health and education indicated by the audience as a whole were likely to translate into actions after the series.

Analysis of Interviews with Speakers Speakers used words like "invigorating," "engaging," and "informative" to describe their experience speaking for the *Conversations with Scientists* Program. Themes that emerged included appreciation for the organization, preparation, and support on behalf of the AHW Endowment, especially the audience demographics that helped them "tailor their talk to the audience." Time with a speaking coach in a group setting was appreciated, but there was not much added value perceived in the "Speaker's Toolbox" or 1:1 opportunity to be coached. The expertise of fellow speakers and the presence of MCW leadership at the event were also well received. Speakers felt that it set a tone that public engagement is an "expectation and an opportunity." Finally, speakers were impressed by the level of engagement during question and answer portions of the evening.

Discussion

Seminars that educate the public on prevention, treatment, and etiology of major diseases have great potential to improve health outcomes. Lack of knowledge of screening, clinical settings, and appropriate behavioral change has all been cited in multiple studies as major barriers to improving health [4, 5, 10, 11]. Encouraging researchers and health professionals to communicate about their work to non-experts without scientific jargon has strong potential to improve trust, build relationships, and improve health outcomes in the community [12].

Feedback from the first four-part *Conversations with Scientists* series, Cancer: Past, Present, and Future, offered encouraging results. The team learned that the series of thoughtful meetings conducted beforehand with the MCW Cancer Center clarified goals, expectations, and needs from the two participating organizations. Endorsement from institutional leadership, availability of resources and coaching, and solicitation of feedback left speakers with the feeling that "this matters, that this work is important."

Demographic information collected in advance and distributed to speakers was identified as a critical resource for tailoring the talk to respect the diverse representation of educational levels, ages, and backgrounds in the audience (Table 1). Quantitative survey data provided encouraging evidence that the talks imparted useful knowledge, aroused curiosity, and inspired participants to make positive changes in their health behaviors (Table 2). Focus groups allowed for confirmation that specific health behaviors, such as discussing the topic with others and reading more about the topic, did in fact occur during the 3 weeks following the conclusion of the series (Table 3).

The qualitative data collected from focus groups and interviews was a powerful method to confirm the unanticipated results of the program. During one presentation, a speaker showed an image of cancer cells migrating across a dish. Upon seeing these images, one participant expressed:

> "*I left with a sense of hope, because there are so many new treatments. When someone said cancer, you thought it was some horrible ugly thing growing in someone's body, but to learn the genetics and everything, it's amazing.*"

Measuring the impact of programs like these in both qualitative and quantitative measures is critical to encourage additional efforts in community engagement. The *Conversations with Scientists* series has continued on with programs in infectious disease, cardiovascular health, and neuroscience, and will continue to incorporate an evaluative approach toward measurement and improvement on the impact of programs such as these to increase knowledge about health and improve health behaviors. Future series will incorporate post-tests that will further elucidate the knowledge retained long-term and behavioral changes initiated in individuals following program participation.

A major limitation of the study is its ability to reach the highest risk populations. The demographic of the audience was not a proportional representation of the population of Milwaukee, where racial and ethnic minorities experience higher incidence and mortality from cancer. MCW was selected as a location for the series due to the ability to record the event clearly. As the AHW Endowment continues the *Conversations with Scientists* series, existing lecture materials available online from the cancer series can be used to train junior investigators to conduct similar programs in communities experiencing cancer disparities and measure similar improvements in knowledge and intent to improve behavior.

Conclusion

Many organizations offer public lectures, but the *Conversations with Scientists* program increases the potential for positive health outcomes by providing resources to speakers to help them communicate effectively and incorporating an evaluative approach to optimize programmatic structure. Using this approach, the *Conversations with Scientists*, Cancer: Past, Present, and Future series demonstrated success in increasing audience knowledge, intent to improve health behaviors, and intent to share information with their social networks.

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflicts of interest.

Ethical Approval All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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