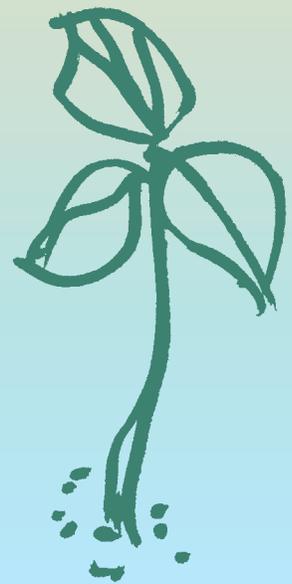
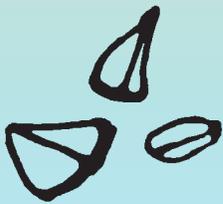


Overview of
Accomplishments
2024-25

Sowing the Seeds of Change



Childhood Cancer & *the* Environment

A project to educate and activate
health professionals to address
environmental influences on
childhood cancer



pehsu.net

Dear Colleagues,

In our third year of the **Childhood Cancer & the Environment Project**, we have seen the blossoming of a range of plantings from prior years, which you will read about in more detail in the pages of this report.



Mark Miller, MD MPH: "We're pitching for environmental health awareness across the pediatric cancer care continuum."

Importantly, emerging studies have indicated the significance of environmental exposures on morbidity and mortality outcomes in cancer survivors. This has provided an opportunity to add guidance and education about reducing environmental exposures to survivorship clinics. In the coming year, we will add a new dimension by introducing our program to genetic counselors and providers of obstetrical care. Looking forward, we intend to expand our programs to emphasize these and other opportunities to integrate environmental health awareness across the pediatric cancer care continuum.

We are always pleased to hear from providers that expanding their knowledge of environmental impacts on children's cancer improves their ability to respond to families' concerns, improve outcomes, and move towards prevention. After all, everyone wants to prevent children from getting cancer in the first place. We are all excited to be able to contribute to this effort.

—Mark Miller, MD MPH, Project Lead

Sowing the Seeds of Knowledge on Childhood Cancer

The seeds for the **Childhood Cancer & the Environment Project (CCEP)** were planted nearly ten years ago during community outreach and translation work with the Center for Integrative Work on Childhood Cancer (CIRCLE) at UC Berkeley, headed up by Dr. Catherine Metayer. **CIRCLE experts helped inform *A Story of Health – Leukemia: Stephen's Story***, one of the first chapters of the award-winning eBook and CE course released in 2015. The free CDC courses in the eBook **have been taken by over 20,000 health professionals**. This year we have **translated Stephen's Story into Spanish**.

Three years ago, we secured new funding from Trevor's Law, which was passed by Congress as part of the Toxic Substances Control Act (TSCA) reform. The goals of Trevor's Law include to identify, track, and investigate cancer clusters nationwide. Trevor's Law is supported by the **Trevor's Trek Foundation**, co-founded by Charlie Smith and Susan Rosser with Trevor Schaefer, who survived after being diagnosed with brain cancer at the age of 13. We received this funding via the Centers for Disease Control and Prevention/Agency for Toxic Substances and Disease Registry (CDC/ATSDR).



"As a two-time cancer survivor, I know that cancer can come from many sources. This legislation may provide the answers to questions that many families face when confronting disease, and it's important that we find ways to help Americans fully understand disease clusters."

—Sen. Mike Crapo (R-ID), Trevor's Law co-sponsor with Sen. Barbara Boxer (D-CA)

During the past three years we have successfully developed, cultivated and harvested a number of projects within the CCEP for a wide range of audiences. These have led to the growth of knowledge on environmental risk factors for childhood cancer amongst a field of people, from health care providers to the general public. Please read on to see what we have sown.

How has our garden grown this year?

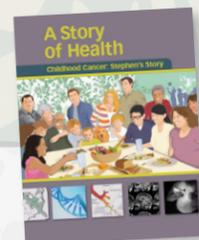
During 2024-25 we have built on the success of the first two years and expanded our seeded activities, including:



2010: Dr. Miller begins collaborating with CIRCLE at UCB on community and clinical education and outreach on childhood leukemia and the environment.



2014: Dr. Miller becomes director of translation and outreach at CIRCLE, involves PEHSU faculty in program.



2014-today: *A Story of Health* eBook Childhood Cancer chapter



2016: CIRCLE projects like *Rosa & Carlos Plan a Family*

2021: Develop plan for CCEP



2022: Trevor's Law funding begins, CCEP Launches



2022-23: Develop "champions" within the PEHSU network during virtual education sessions

Community Health Workers Till the Soil

Community outreach via Promotores de Salud and other community health workers (CHWs) is critical to delivering vital information directly to families.

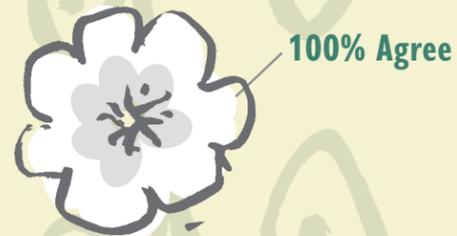
Our PEHSU champions in Texas and Washington state have been busy this year conducting trainings using our innovative flipbook materials for these hard workers, both in-person and virtually. Over 400 CHWs have been trained since our program began, with hundreds more families benefitting from home visits. Many more sessions are planned for the upcoming year, ranging from those at a Tribal Summit in New Mexico to a Texas Agricultural Extension program to community groups in Alaska.

In Washington state:

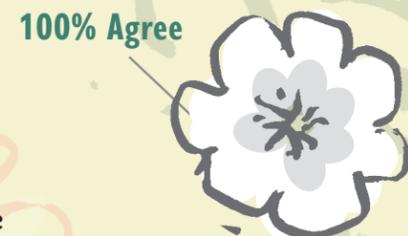
- After a training of CHWs at the Fred Hutchinson Cancer Center, 100% agreed that it made them more confident in discussing issues of environmental influences on childhood cancer.
- Results from the presentation to the Oregon Community Health Workers Association (ORCHWA) were equally positive.

"I liked that the presenter gave us a book with helpful information and resources...I can use it during home visits, group meetings, or workshops. I also like that it includes resources about air quality and pesticides."

Did the training provide additional resources and tools that you can share with the communities you support?



Did the training include information that is relevant to you and the communities you support?



"The knowledge that was given I can use to help discuss more comfortably with families about environmental concerns such as air quality, climate change, environmental health issues, and preventative ways to help reduce the risk for cancers and diseases."

"I gained a lot of knowledge as this is the first time I am hearing this topic."

The Southwest Center for Pediatric Environmental Health has enjoyed similar results with their trainings, "Get the Facts about Reducing Risk of Childhood Cancer." The SWPEHSU has continued to expand outreach and training at the intersection of pediatric cancer and environmental health with community health workers and beyond in Texas, New Mexico, California, Oklahoma and elsewhere.



Attendee comments and survey results from 2025 trainings

2022-23:
Develop resource materials

2023:
Two Wingspread workshops for pediatric oncology providers in Spring

2023:
Clinician PPT developed

2023:
Champions begin presentations around the country

- ❖ Dr. Perry Sheffield presents at a national meeting on cancer and the environment at Columbia University in NYC
- ❖ Dr. Nicole Wood presents at the Iowa Cancer Consortium

Nurturing consultative services at major hospitals with cancer centers

We have supported the **establishment of two pilot consultative services on the environment** and childhood cancer at major hospitals with cancer centers in **Texas and Kansas**. We are exploring establishing such services at other cancer centers. The goal is for them to be a resource for pediatric oncology providers and others who seek information on environmental risks to childhood cancer and to cancer survivors.



With leadership from champions Drs. Omar Shakeel at Texas Children's Cancer Center/Baylor College of Medicine, and Nicole Woods at Children's Mercy Hospital Kansas, we planned and conducted daylong workshops at their institutions for physicians, nurse practitioners, nurses, social workers, researchers and others. Responses were very positive. Followup meetings with champions are ongoing.

90%

Over 90% at both workshops agreed that they gained knowledge on topics such as air pollution, pesticides and other environmental risks for childhood cancer.

At the Texas Children's Cancer Center/ Baylor College of Medicine, workshop comments were encouraging:



"We will investigate developing a practice standard around collecting environmental exposure data in our cancer center."

"My role as a Psychosocial Coordinator is to screen newly diagnosed oncology families. Now, with this new information I would be able to acknowledge and validate families' concerns and share the information learned to the best of my abilities and reassure them more information will be provided."

"I will start taking environmental histories in survivor clinic and have better responses to my patients at diagnosis."

Childhood Cancer & the Environment

Responses from attendees at the Childhood Cancer Prevention Symposium & Kansas Pediatric Oncology Consultant Training at Mercy Hospital, Kansas were equally positive:

"My fellow nurse colleagues and I are going to put together a short presentation on the environmental risk factors for children, and present the information to the hem/onc clinic. I hope we will train several nurses to be able to be consulted for families who have environmental risk factors questions."

"(I will) Work more closely with internal and external partners to deliver better care and understand those risks better."

"I am planning on presenting a shortened version of this class to my entire unit... so that all of our team is aware of the environmental risk factors and how much research has developed."

2023: Community outreach materials developed

Dec 2023: CCEP newsletter launched

2024: CHW/promotore outreach using the flipbook begins in Regions 6 and 10 in Texas, New Mexico, Washington State, Oregon and elsewhere—hundreds are reached

Jan 2024: Began quarterly webinar series on childhood cancer and the environment

Jan 2024: Dr. Miller interviewed for blog "Poisoning our Children"

Feb 2024: Consulting program starts at Texas Children's Cancer Center/Baylor College of Medicine

2024: First Childhood Cancer Prevention Symposium — Dr. Miller presents on environment and cancer

2024: Drs. Miller, Wiemels and Metayer present at the annual Pediatric Academic Societies meeting in Toronto



Spreading the seeds through educational presentations, webinars

PEHSU champions continue to conduct educational sessions both in-person and virtually to pediatric healthcare providers to introduce and/or deepen their knowledge of environmental risks for childhood cancer.

Examples include:

- Drs. Mark Miller and Catherine Metayer have conducted a number of webinars for clinicians, PEHSU colleagues and others on trends in childhood leukemia incidence and survivorship, how our knowledge about childhood cancer and environmental exposures has improved, and on the state of the scientific literature on environmental risk factors for childhood cancer and leukemia. These include the **Collaborative on Health and the Environment's (CHE)** webinar **Childhood Cancer & the Environment Prevention Opportunities** and the **5th Annual Herbert Needleman Lecture: Childhood Cancer and the Environment** at UCSF.

- Drs. Wood, Miller and Shakeell presented at professional annual meetings such as the [American Society of Pediatric Oncology and Hematology \(ASPHO\)](#). Dr. Miller also presented at the International Society for Children's Health and the Environment (ISCHE), and presented a webinar on childhood cancer and the environment to the Hawaiian Chapter of the American Academy of Pediatrics.

- Drs. Alan Woolf and Marissa Hauptman of Region 1 presented at the Dana Farber Cancer Institute in Boston and at a PEHSU network sponsored webinar on their new collaborative research project, *Spatial Patterns and Risk of Childhood Cancer* (see Research and Publishing).

- The Southwest PEHSU's Erica Guerrero spoke with Dr. Miller on Pediatric Environmental Health Radio's [Childhood Cancer & the Environment: The Role of Community Health Workers](#).

- Dr. Joseph Wiemels, a noted researcher and key CCEP partner, presented a webinar sponsored by the national PEHSU Network on *Developmental and Infectious Causes of Childhood Cancer*; Dr. Catherine Metayer provided a separate webinar on *PFAS and Risk of Leukemia in Children: Emerging Evidence from Epidemiologic Studies*.



2024

Dr. Woods presents at an in-person and virtual **Cancer Environmental and Survivorship Research Symposium** in Omaha, Nebraska,



2024:

New Spanish Language *Childhood Cancer & the Environment* Factsheet published



2024:

New science videos by Drs. Metayer and Wiemels



2024:

New social media videos by artist Miranda Kahn



2024:

More educational webinars including at hospitals in and around NYC by PEHSU champions led by Dr. Perry Sheffield, and a webinar by Laura Anderko, a Region 3 CCEP champion.



2024:

More public outreach through podcasts, radio including the "Well Beyond Medicine" [Nemours Children's Health Podcast](#)



July 16 2024:

[Cancer Moonshot webinar](#) with Dr. Miller speaking

Spreading seeds further through media outreach

Our team has been busy in the media on the radio and in newsletters, such as:

- **The Collaborative on Health and the Environment (CHE) blog** on Childhood Cancer & the Environment: Opportunities for Prevention, adapted to be published in a special CHE issue of the San Francisco Medicine Journal.

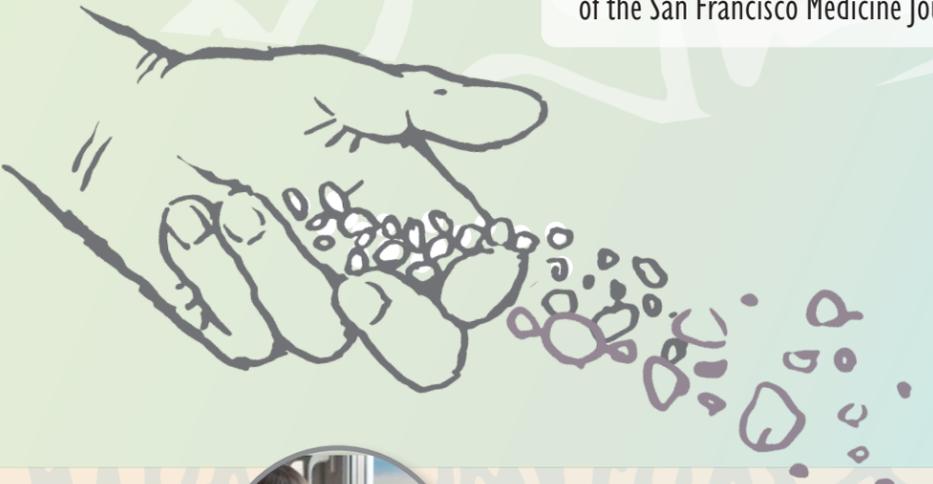
- CHE has also produced two **“Science Snippets”** on childhood cancer by Drs. Miller and Metayer. These videos are posted on YouTube.

- **Help and Hope Happen Here: A Pediatric Cancer Podcast**, an interview with Dr. Mark Miller and two parent advocates for childhood cancer prevention.

- **CCEP bi-monthly newsletter** — We continue to publish a bi-monthly CCEP newsletter, now issued to nearly 200 followers, with each featuring a key theme such as pesticides, water, the immune system and other topics related to childhood cancer, along with a range of associated resources.

- **Promotores’ newsletter** — Team member Dr. Vickie Leonard continues to publish, in collaboration with CIRCLE, the Children’s Environmental Health Newsletter for CHW/Promotores de Salud on environmental health topics, with two this year featuring childhood cancer topics.

- **Website resources** — We continue to add to and update our resource-rich Childhood Cancer & the Environment website with new materials.



January 2025:
 Blog (CHE), Childhood Cancer & the Environment: Opportunities for Prevention



January 2025:
 “Help and Hope Happen Here” podcast about the second Childhood Cancer Prevention Symposium with Dr. Miller and others



January 2025:
Childhood Cancer, the Environment and the Role of Community Health Workers with Mark Miller, MD, MPH, and Erica Guerrero MS, MPAS, PA-C. Pediatric Environmental Health Radio



February 2025:
 5th Annual Herbert Needleman Lecture/ Webinar: *Childhood Cancer and the Environment* with Drs. Miller and Metayer

Deepening knowledge via research and publishing

- Region 1 PEHSU faculty are pursuing an ongoing pilot investigation, the ***Spatial Patterns and Risk of Childhood Cancer (SPARCC)*** – a collaboration between Boston Children’s Hospital, Dana Farber Cancer Institute, and the Bureau of Environmental Health of the Massachusetts Department of Public Health.

SPARCC investigates how geospatial aspects of environmental and social exposures are associated with pediatric cancer diagnosis, distant metastasis and mortality and how they could be incorporated into the electronic medical record (EMR) to inform clinicians who want to counsel families on measures they can take to screen patients for environmental exposures at home in order to mitigate exposure to environmental carcinogens.

The region 1 PEHSU team have used this opportunity to integrate environmental risks, as displayed using the EMR data, into the first-year curriculum for Hematology/Oncology fellows at Dana Farber Cancer Institute, Boston, Massachusetts.



- PEHSU experts led by Dr. Omar Shakeel published the paper in the journal *Cancers* on ***Environmental Exposures Increase Health Risks in Childhood Cancer Survivors*** on the results of a 2024 study conducted at the Texas Children’s Hospital Cancer and Hematology Center. It reveals that 80% of oncology team members receive questions about environmental impacts on childhood cancer and survivorship rates but only 25% feel comfortable responding to these questions. (Reported by physicians, advanced practice providers, social workers, and nurses.) The study, (conducted in April 2024), also included a one-hour focus group involving 19 families from the Center’s Family Advisory Team. Families expressed frustration at the lack of expertise from health professionals on environmental risks, leading to increased anxiety and reliance on misinformation stemming from their own internet research. The discussion revealed a strong need for the development of a pediatric cancer environmental referral service.

Figure used with permission from: Shakeel O, Wood NM, Thompson HM, Scheurer ME, Miller MD. *Environmental Exposures Increase Health Risks in Childhood Cancer Survivors*. *Cancers*. 2025; 17(13):2223.

This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>). The figure was not modified.



March 2025: Kansas Pediatric Oncology Consultant Training at Mercy Hospital Kansas, the second consultative service begins



March 2025: The 2nd Childhood Cancer Prevention Symposium – Dr. Miller and 4 other CCEP faculty present on environment and health



April 2025: Educational webinar with the Collaborative on Health and the Environment



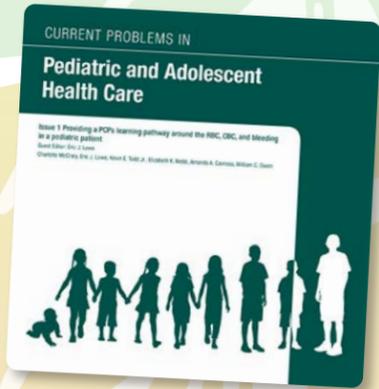
2025: Drs. Alan Woolf and Marissa Hauptman conduct a webinar for the Dana Farber Cancer Institute in Boston on their study



2025: More outreach to CHWs, promotores de salud by Erica Guerrero MS and Dr. MaryKate Cardon in Oklahoma, Texas, New Mexico and Washington state



Deepening knowledge, (continued)



• Dr. Mark Miller is guest editing a **special edition** on childhood cancer and the environment for **the journal *Current Problems in Pediatric and Adolescent Health Care***. It is scheduled to be published in late 2025 or early 2026. Updating a volume published by CIRCLE and the WSPEHSU a decade ago, seven papers by leading PEHSU CCEP and academic researchers explore key new findings related to understanding the impact of environmental influences on childhood cancer. They also address improving the understanding of mechanisms to make the case for action today and in the future, as well as integrate the expanding knowledge of environmental impacts on children’s cancer to respond to family’s concerns, improve outcomes, and move towards prevention.

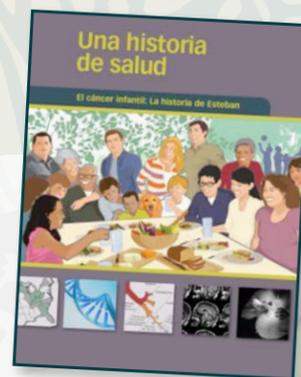
• Groups in the United States and around the world **are using CCEP materials to educate their audiences on childhood cancer and the environment.**

Organizations in the US focused on children’s health, childhood cancer and environmental health have promoted our recorded webinars, educational materials, and training programs. Efforts by international colleagues have included distribution of our CCEP science videos, our newsletters, and use of our community health worker flipbook curriculum.

Our colleagues at the University of California, Berkeley’s Center for Integrative Research on Childhood Cancer, Leukemia and the Environment (CIRCLE) have translated *A Story of Health on Childhood Cancer: Stephen’s Story* into **Spanish language as “*La Historia de Esteban*”** to make it accessible to Spanish speakers. The Spanish version now links to many Spanish language resources and references.



2025: The Region 9 bilingual **Children’s Environmental Health Newsletter for CHW/Promotores de Salud** continues to reach out via the newsletter featuring issues focused on childhood cancer and the environment



2025: *A Story of Health in Spanish, La Historia de Esteban*



2025: New “Science Snippet” videos by Drs. Miller and Metayer



July 2025: Paper published in the journal *Cancers* “*Environmental Exposures Increase Health Risks in Childhood Cancer Survivors*”



2025 CCEP newsletter continues with bi-monthly publications (sign up above!)

Growing collaborations



- **Childhood Cancer Prevention Consortium** - The PEHSUs entered into a collaboration with groups, including Prep4Gold and the Children's Environmental Health Network, who conducted Childhood Cancer Prevention Symposia in 2024 and 2025. The most recent meeting was held in February at Texas Children's Hospital. It brought together experts, (including several CCEP faculty), researchers, and advocates, to discuss the latest advancements and strategies in preventing childhood cancer and led to the launch of the *Childhood Cancer Prevention Consortium*.
- **A new collaboration began with the KoaStrong Childhood Cancer Prevention Organization (KoaStrong)**. Founded in memory of the founder's son, KoaStrong's mission is to shift the focus toward understanding the causes of childhood cancer, advancing prevention, and enabling earlier detection. They have been sharing our educational materials at outreach events across California, and their founder also served on the advisory committee for the California State Cancer Plan 2026–2035, which for the first time will feature more in-depth information and resources on childhood/AYA cancers.

This work was supported by cooperative agreement FAIN: NU61TS000356 from the Centers for Disease Control and Prevention/Agency for Toxic Substances and Disease Registry (CDC/ATSDR). The U.S. Environmental Protection Agency (EPA) provided support through Inter-Agency Agreement 24TSS2400078 with CDC/ATSDR. The Public Health Institute supports the Pediatric Environmental Health Specialty Units as the National Program Office. The findings and conclusions in this presentation have not been formally disseminated by CDC/ATSDR or EPA and should not be construed to represent any agency determination or policy. Use of trade names that may be mentioned is for identification only and does not imply endorsement by the CDC/ATSDR or EPA.



Childhood Cancer & the Environment

A project to educate and activate health professionals to address environmental influences on childhood cancer



pehsu.net