

2023



Andy Hill CARE Fund
Washington's Cancer Research Endowment

ANNUAL REPORT

Fiscal Year 2023 (July 1, 2022–June 30, 2023)



The Andy Hill Cancer Research Endowment (CARE) Fund, Washington's cancer research endowment, invests in public and private entities to promote cancer research in Washington. Through research grants and strategic partnerships, CARE Fund aims to improve health outcomes by advancing transformational research in the prevention and treatment of cancer. The Washington State Legislature created CARE Fund in 2015 and this public investment in cancer research is maximized by private and other non state matching funds.





Year in Review:

Letter from our Board Chair

David R. Byrd, MD

Chair, CARE Fund Board of Directors

Photo credit: Fred Hutchinson Cancer Center

Dear friends, colleagues, and leaders,

In the eighth year since being authorized and signed into law, the Andy Hill CARE Fund took its most significant steps in its work to promote cancer research in Washington state.

One of the highlights of this past year was the administration of the state's commitment to improve the lives of Washingtonians with an historic additional investment in cancer research through CARE Fund. To make the best and highest use of these funds, the CARE Board solicited community feedback through a Request for Information, which in turn informed four new Requests for Proposals (RFPs). Proposals ranged from cancer research projects aiming to address cancer disparities, to strengthening the state's cancer research infrastructure, to making early investments in life science start-up companies.

The four grant opportunities generated a greater response from cancer researchers than any in CARE Fund's history, totaling 43 proposals, and resulting in over \$30 million in new grant awards to fund cancer research across the state, east and west of the Cascades.

This was not CARE Fund's only advance this year. In Fiscal Year 2023, CARE Fund:

- **Completed a Healthcare Workforce project for King County, to convene community leaders to produce recommendations to address health disparities in King County, and to establish a more equitable healthcare workforce.**
- **Welcomed two new Board members, broadening representation and understanding of the state's life sciences industry.**
- **Developed a new funding opportunity, Emergent Issues in Public Health, an evolution of the COVID-19 Response grant.**
- **Conducted an awareness study, to better understand perceptions of CARE Fund grantmaking and to identify opportunities for expanding CARE Fund's reach.**
- **Completed a programmatic assessment to review and evaluate CARE Fund's grantmaking process and to identify opportunities for maximizing impact.**

Finally, we completed the year with a robust strategic planning process, informed by recommendations from an expert External Advisory Committee, to guide CARE Fund's next chapter.

While we look back on this year as one of great achievements, our pride is alloyed with our recognition of the grave and persistent damage inflicted by cancer on communities, families, and at times, ourselves. We are all, sadly, constituents of cancer, and thus we are all engaged in the promotion of life-changing and life-saving cancer research.

It is in recognition of those lost to cancer, those who survive, those navigating their diagnosis, and those who provide care, support, and love that we rededicate ourselves to this work, every day.

Thank you for joining us.

Sincerely,

David R. Byrd, MD

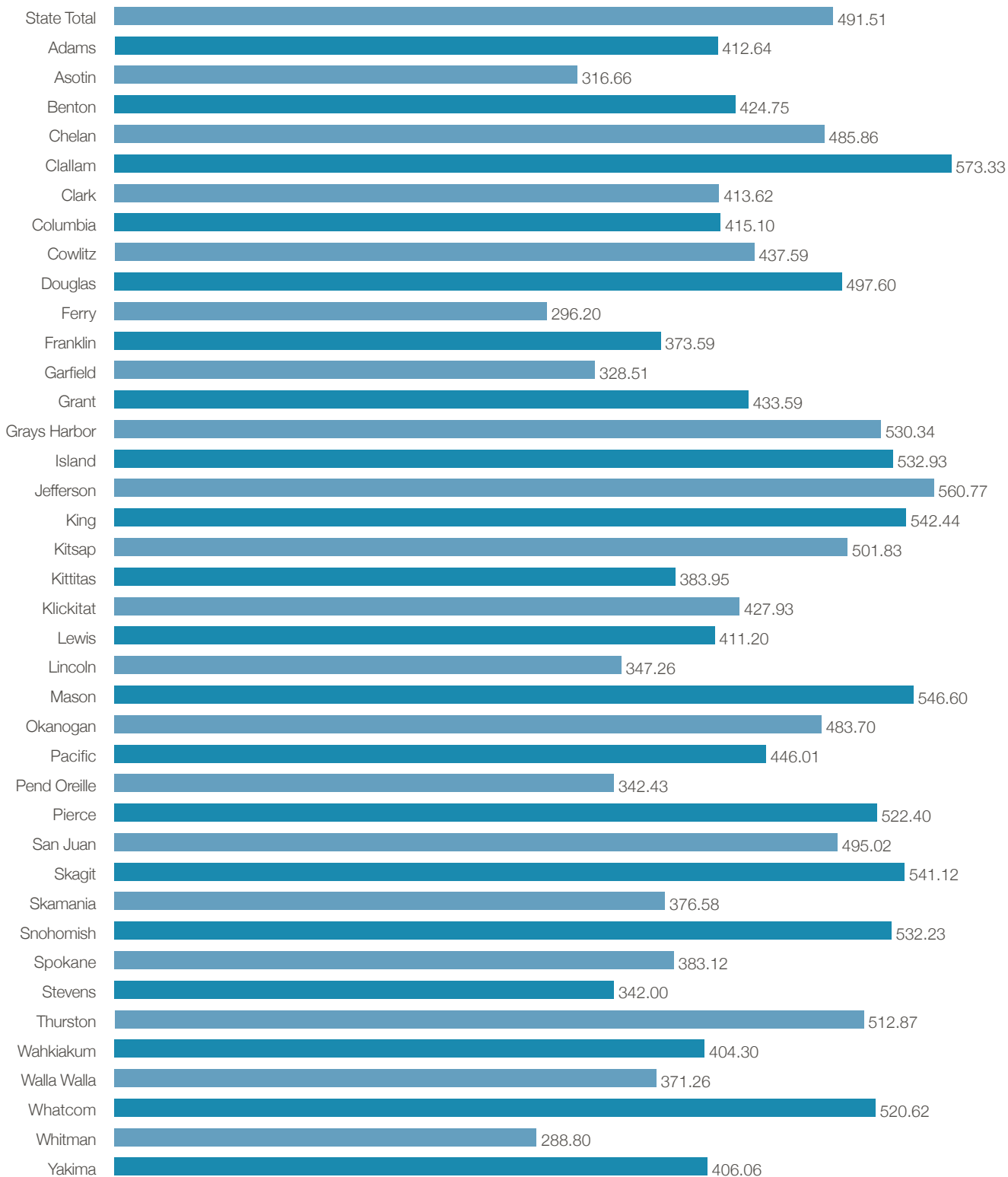
Chair, CARE Fund Board of Directors

The Need

Below is a graph of cancer incidence in Washington by county, all sexes, for the period 2015 – 2019. Source doh.wa.gov.

Every county in Washington state is touched by cancer, urban, rural, and on both sides of the Cascades. By funding innovative research at every stage of the cancer journey, from prevention and screening to diagnosis, treatment, life after cancer, and end-of-life care Washington's researchers supported by CARE Fund are making advances to prevent, treat, and survive cancer.

All Cancers Combined – Age-Adjusted Rates per 100,000. Time Period: 2015 – 2019



All Grants Made, Cumulative Years

Below and on the following pages are the number and dollar amounts of grants awarded (per RCW 43.348.040(5)).

CARE Fund grants since inception through June 30, 2023 total over \$58.063 million, in a broad spectrum of investment categories, listed in the table below. A detailed breakdown of grants made in the two most recent fiscal years follows.

| Total grant awards by year and grant program | | | |
|--|--|----------------------|----------------------|
| Fiscal Year | Grant Programs | Number of Awards | Total Amount |
| 2023 | Breakthrough Research | continued funding | \$ 3,421,555 |
| | Breakthrough Seed Funding | 6 | \$ 2,277,936 |
| | Distinguished Researchers | 3 | \$ 1,497,519 |
| | Emergent Issues in Public Health | 1 | \$ 249,993 |
| | Inclusion & Diversity in Cancer Clinical Trials | 6 | \$ 5,423,443 |
| | Life Science Start-Up & Development | 16 | \$ 16,591,772 |
| | Population Health | 5 | \$ 2,246,908 |
| | Shared Resources & Infrastructure | 8 | \$ 7,670,750 |
| Total | 45 | \$ 39,379,876 | |
| 2022 | Breakthrough Research | continued funding | \$ 3,000,000 |
| | Distinguished Researchers | 4 | \$ 1,845,000 |
| | Total | 4 | \$ 4,845,000 |
| 2021 | Breakthrough Research | continued funding | \$ 3,000,000 |
| | Emergent Issues in Public Health (COVID-19 Response) | 3 | \$ 299,907 |
| | Population Health | 2 | \$ 397,370 |
| | Total | 5 | \$ 3,697,277 |
| 2020 | Breakthrough Research | continued funding | \$ 3,491,714 |
| | Emergent Issues in Public Health (COVID-19 Response) | 5 | \$ 499,981 |
| | Distinguished Researchers | 1 | \$ 500,000 |
| | Total | 6 | \$ 4,491,695 |
| 2019 | Breakthrough Research | 2 | \$ 1,150,000 |
| | Distinguished Researchers | 5 | \$ 2,500,000 |
| | Total | 7 | \$ 3,650,000 |
| 2018 | Distinguished Researchers | 4 | \$ 2,000,000 |
| | Total | 4 | \$ 2,000,000 |
| Total Grants Awarded to Date: 6/30/2023 | | 71 | \$ 58,063,848 |

Grants and Grantees, Current and Prior Fiscal Years

Below and on the following page are the grantees for the prior year (per RCW 43.348.040(5)).

Building on its history of investment in innovation across the cancer research continuum, in FY 2022 and FY 2023, CARE Fund made its most significant number of grants in the greatest number of categories.

Grants Awarded, Fiscal Year 2023

| Grant Program | Grantee | Amount Awarded | Date Awarded |
|--|---|----------------|--------------|
| Population Health Cycle 2 | Fred Hutchinson Cancer Center (Eric Chow, MD, MPH) | \$ 250,000 | Sep 2022 |
| | University of Washington (Yaw Nyame, MD, MS, MBA) | \$ 500,000 | |
| | Washington State University (Dedra Buchwald, MD; Patrik Johansson, MD, MPH) | \$ 499,873 | |
| Distinguished Researchers Cycle 6 | Fred Hutchinson Cancer Center (Christina Termini, MM, PhD) | \$ 500,000 | Nov 2022 |
| | Seattle Children's Research Institute (Jay Sarthy, MD, PhD) | \$ 497,519 | |
| | Seattle Children's Research Institute (Molly Taylor, MD, MS) | \$ 500,000 | |
| Emergent Issues in Public Health Cycle 3 | University of Washington (Linda Ko, MPH, PhD) | \$ 249,993 | Nov 2022 |
| Breakthrough Research | Institute for Systems Biology (James Heath, PhD) | \$ 3,000,000 | Feb 2023 |
| | University of Washington (André Lieber, MD, PhD) | \$ 421,555 | |
| Breakthrough Seed Funding | Institute for Systems Biology (Wei Wei, PhD) | \$ 500,000 | May 2023 |
| | Phase Genomics Inc (Steve Eacker, PhD) | \$ 500,000 | |
| | Seattle Children's Research Institute (Shannon Oda, PhD) | \$ 246,125 | |
| | University of Washington (Christopher Blosser, MD; Shreeram Akilesh, MD, PhD) | \$ 381,803 | |
| | University of Washington (Jennifer Nemhauser, PhD) | \$ 150,008 | |
| | University of Washington (Wesley Van Voorhis, MD, PhD) | \$ 500,000 | |
| Inclusion & Diversity in Cancer Clinical Trials | Fred Hutchinson Cancer Center (Jason Mendoza, MD, MPH) | \$ 999,993 | May 2023 |
| | University of Washington (Shaveta Vinayak, MD) | \$ 1,000,000 | |
| | Seattle Children's Research Institute (Sarah Leary, MD) | \$ 999,946 | |
| | Fred Hutchinson Cancer Center (Joseph Unger, PhD) | \$ 999,559 | |
| | MultiCare Health System (Deana Williams, PhD) | \$ 949,091 | |
| | MultiCare Health System (Deana Williams, PhD) | \$ 474,854 | |
| Life Science Start-Up & Development | University of Washington (John Gore, MD) | \$ 251,492 | May 2023 |
| | ConnectMyVariant (Brian Shirts, MD, PhD) | \$ 300,000 | |
| | Benaroya Research Institute (Ninomiya Kazushige, PhD) | \$ 299,850 | |
| | University of Washington (Dayong Gao, PhD) | \$ 299,998 | |
| | KayoThera, Inc. (Mark Esposito, PhD) | \$ 2,000,000 | |
| | Sygnomics, Inc. (Nitin Baliga, PhD) | \$ 2,000,000 | |
| | University of Washington (Raymond Yeung, MD) | \$ 251,492 | |

Grants and Grantees, Current and Prior Fiscal Years (continued)

Grants Awarded, Fiscal Year 2023 (continued)

| Grant Program | Grantee | Amount Awarded | Date Awarded |
|---|---|----------------------|--------------|
| Life Science Start-Up & Development (continued) | Sigma Genetics, Inc. (Zach Rapp) | \$ 1,676,540 | May 2023 |
| | Alpenglow Biosciences, Inc. (Nicholas Reeder, MD, MPH) | \$ 1,636,764 | |
| | Proteios Technology, Inc. (Bob Snyder, PhD) | \$ 1,676,612 | |
| | Talus Bioscience, Inc. (Alex Federation, PhD) | \$ 1,995,337 | |
| | Talus Bioscience, Inc. (Lindsay Pino, PhD) | \$ 298,973 | |
| | University of Washington (John Liao, MD, PhD) | \$ 251,491 | |
| | Deverra Therapeutics (Colleen Delaney, MD) | \$ 1,676,611 | |
| | Deverra Therapeutics (Colleen Delaney, MD) | \$ 1,676,612 | |
| | University of Washington (Daniel Leotta, PhD) | \$ 300,000 | |
| Population Health Cycle 3 | Washington State University (Ofar Amram, PhD) | \$ 497,037 | May 2023 |
| | Fred Hutchinson Cancer Center (Scott Ramsey, MD, PhD) | \$ 499,998 | |
| Shared Resources & Infrastructure | Washington State University (Anjali Sharma, PhD) | \$ 1,303,525 | May 2023 |
| | Bloodworks Northwest (José López, MD) | \$ 299,110 | |
| | University of Washington (Allison Webel, RN, PhD, FAAN) | \$ 300,000 | |
| | Seattle Children's Research Institute (Mignon Loh, MD) | \$ 875,467 | |
| | Bloodworks Northwest (David Lin, MD) | \$ 1,877,480 | |
| | Bloodworks Northwest (Tim Waters) | \$ 756,800 | |
| | Bloodworks Northwest (Aaron Posey) | \$ 737,736 | |
| | Fred Hutchinson Cancer Center (Eric Holland, MD, PhD) | \$ 1,520,632 | |
| TOTAL AWARDED IN FISCAL YEAR 2023 | | \$ 39,379,876 | |

Grants Awarded, Fiscal Year 2022

| Grant Program | Grantee | Amount Awarded | Date Awarded |
|--|---|---------------------|--------------|
| Distinguished Researchers Cycle 5 | Fred Hutchinson Cancer Center (Burcu Darst, PhD) | \$ 500,000 | Dec 2021 |
| | Fred Hutchinson Cancer Center (Vida Henderson, PhD, PharmD) | \$ 500,000 | |
| | Fred Hutchinson Cancer Center (Megan Shen, PhD) | \$ 500,000 | |
| | University of Washington (Devin Schweppe, PhD) | \$ 345,000 | |
| Breakthrough Research | Institute for Systems Biology (James Heath, PhD) | \$ 3,000,000 | Feb 2022 |
| TOTAL AWARDED IN FISCAL YEAR 2022 | | \$ 4,845,000 | |

CARE Fund Impact

Below is a report on the benefits to Washington of CARE Fund's programs to date (per RCW 43.348.040(5)).

CARE Fund continues to benefit Washington state, its people and communities through strategic investments in cancer research. Since its inception in 2015, CARE Fund has awarded \$58,063,848 in grants, including:

17

Distinguished Researchers grants to attract world-class research scientists.

16

Life Science Start-up grants to support early-stage companies and innovation.

9

Grants to address emergent issues regarding cancer and public health.

In FY 2023, CARE Fund:

Received applications from **17 first time applicants** and made grants to **12 first time awardees**.

Received a total **60 requests** for a total of **nearly \$50 million in requested funding**.



CARE Fund grantees have collectively:

- Authored or contributed to more than 300 peer-reviewed publications.
- Received nearly \$150 million in additional research funding, as the principal investigators or collaborating investigators.
- Overseen and run research programs or laboratories supporting approximately 100 jobs in research and research administration.

The most important benefit to Washington state, ultimately, is improving the health and well-being of Washingtonians. Thanks to global research, including the work supported by CARE Fund, **the mortality rate for all cancers has decreased by 12%** in Washington state from 2015 to 2020.

Grant Highlights

On the following pages are examples of CARE Fund grants awarded, grant-funded work in progress, research accomplishments, prevention, and care activities; and a summary of research, prevention, and care-related findings, including promising new areas for investment (per RCW 43.348.040(5)).

In FY 2023, the CARE Board made an unprecedented 45 grants. Among these were one [Emergent Issues in Public Health](#) grant to support research that aims to address an emergent issue regarding cancer and public health, and three [Distinguished Researchers](#) grants, which bolster cancer research in Washington state by providing matching funds to recruit best-in-class talent from around the globe.



Emergent Issues in Public Health Linda Ko, MPH, PhD

[University of Washington](#)

Dr. Linda Ko is a behavioral scientist at University of Washington and leads the Health Communication Research Team at the School of Public Health. This study aims to increase cancer screening among limited English proficient (LEP) populations by building the capacity of community health workers (CHWs) to select, adapt, and implement evidence-based interventions (EBIs) for cancer prevention and control. Cancer prevention and control among LEP communities is a national priority, and National Cancer Institute has identified implementation science as key to increasing adoption of EBIs. Dr. Ko's research team has developed an implementation strategy (coined Implementation Studio) to build the capacity of CHWs employed by community-based organizations (CBO) to select, adapt, and implement EBIs for cancer prevention and control with funding from Centers for Disease Control and Prevention. The objective of the Implementation Studio is to build knowledge of EBIs and skills on the implementation of EBIs in CBO setting. Implementation Studio was pilot tested with CHWs who serve Spanish-speaking Latinos in rural communities through virtual training. Dr. Ko and the team will expand the training beyond Spanish-speaking CHWs and rural communities. The project aims to conduct and evaluate the Implementation Studio with CHWs who serve LEP communities, will build the institutional capacity of CBOs and interpersonal capacity of CHWs, and aims to address cancer screening disparities among LEP communities in Washington state.



Distinguished Researcher Dr. Jay Sarthy

[Seattle Children's Research Institute](#)

Dr. Jay Sarthy is a physician and a principal investigator at Seattle Children's Research Institute whose research focuses on the epigenetics of pediatric cancers and identifying less toxic pediatric cancer treatments. Dr. Sarthy and his research team have found that a DNA-binding histone protein normally expressed in sperm cells is accidentally turned on in many pediatric and young adult cancers, lymphomas in particular, and that this protein is very important for cancer cell growth. Proteins that are very important for normal development can be inappropriately hijacked to promote diseases including cancer. They believe that this histone protein changes the way the cell decodes its own DNA, allowing cancer cells to grow and spread more quickly. Dr. Sarthy is studying how this testis histone exerts its effects and has identified a new treatment that can kill cancer cells expressing this protein more efficiently and safely. Related to this work, mutations in histones have been found in up to 40% of bladder and endometrial carcinomas as well as many other common cancers. They are investigating whether these mutant histones cause cancer in the same manner that the testis histone does and whether these cancers are also sensitive to drugs that target protein-DNA interactions more efficiently and safely. Abnormal histones are increasingly being recognized as major contributors to a variety of cancers, and their work has the potential to impact the lives of thousands of residents in Washington state each year, and in particular spare children the long-term effects of harsh chemotherapies.



Distinguished Researcher **Dr. Molly Taylor**

Seattle Children's Research Institute

Dr. Molly Taylor is a pediatric oncologist and a principal investigator at Seattle Children's Research Institute who specializes in translational biobehavioral research. Physical and mental health are closely connected, and this is especially true for young persons with cancer. Teenage cancer patients have high rates of anxiety, depression, and other mental health issues, which have in turn been associated with cancer relapse and death rates. The immune and nervous systems are important links between the mind and the body, and psychological stress can activate the fight-or-flight response, which then creates a specific genetic pattern in immune cells. This pattern can cause inflammation and may be responsible for some poor outcomes in cancer. Dr. Taylor's research will use wearable technology, genomic analysis, and surveys to explore whether the nervous system activation and molecular response pattern associates with altered immune cell function and with mental health symptoms. With an understanding of the biology of how an adolescent's mental state affects the cancer in their body, novel targeted psychosocial and pharmacologic therapies aimed at the stress response can be developed. This new type of 'precision supportive care' promises to improve both psychological and cancer outcomes in these vulnerable young patients.

Distinguished Researcher **Dr. Christina Termini**

Fred Hutchinson Cancer Center

Dr. Christina Termini is an Assistant Professor in the Clinical Research Division at the Fred Hutchinson Cancer Center. Her research goal is to define how adult blood stem cells recover from radiation, chemotherapy, and transplant. Radiation and chemotherapy are used to treat more than 50% of all cancer patients, which kills cancer cells but also depletes the patient's blood and immune systems. This puts patients at increased risk of developing life-threatening complications, such as infection or hemorrhage. Dr. Termini's research aims to define the molecular processes that control blood and immune system recovery after radiation, chemotherapy, and transplant to avoid these dangerous risks. Additionally, many cancer patients require stem cell transplants to replenish their blood and immune system, but if unsuccessful, patients require another transplant. And for some populations (e.g., Black, Latinx), the probability of finding a donor is substantially lower than White patients which creates a barrier to treatment and contributes to cancer disparities. Dr. Termini's research aims to identify new ways to improve stem cell transplant efficiency to maximize the output of the rare donor cells and prevent the need for multiple transplants, thereby improving patient outcomes overall and reducing cancer disparities.

Future Program Directions

Below are CARE Fund's future program directions with respect to cancer research, prevention, and care (per RCW 43.348.040(5)).

CARE Fund's theory of change is that developing and maintaining a thriving research culture is essential to improving cancer outcomes in Washington.

In FY 2023, the CARE Board issued five Requests for Information (RFI) to help inform its grantmaking framework. The RFI responses and the CARE Board's strategic deliberation resulted in four Requests for Proposals, three of which created new funding categories, reflecting community stakeholder interest in future program directions in research, prevention, and care:

- Population Health, to support cancer research projects that aim to address cancer disparities for population groups.
- Inclusion and Diversity in Cancer Clinical Trials, to support projects that enhance clinical trial site capacity or infrastructure to conduct cancer clinical trials or address patients' barriers to participation.
- Shared Resources and Infrastructure, to bolster Washington state's cancer research ecosystem by supporting efforts to plan, develop, or support shared resources that will advance cancer research in Washington state.
- Life Science Start-up and Development, to support early-stage companies and innovative researchers to translate promising research into the development of tools, devices, or therapeutics related to cancer.

Also in FY 2023, the CARE Board convened to develop a three-year strategic plan to build on past successes, and build on past objectives, strategies, and targets. An External Advisory Committee comprised of individuals with nationally recognized expertise in the scientific, clinical, ethical, commercial, and regulatory aspects of cancer research, prevention, and care, made recommendations that informed the strategic plan. Additional inputs included two studies, designed to identify opportunities for broadening communications and outreach and incorporate promising practices in grantmaking to support and promote cancer research.





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Thanks to the Legislature’s support for the Andy Hill CARE Fund, we’re able to expand support for our life sciences sector and strengthen our focus on inclusive delivery of care. We see exciting innovations from Washington-based companies every day that are helping people around the world remain healthy and live longer.

— Governor Jay Inslee

”

Fiscal Year 2023 Financial Summary (unaudited)

Below is information that shows the endowment's administrative expenses and provides an assessment of the availability of funding for cancer research, prevention, and care from sources other than the endowment (per RCW 43.348.040(5)).

From CARE Fund's inception, the state Legislature has consistently appropriated and grown investment in CARE Fund, making an additional one-time investment of over \$30 million in FY 2023. CARE Fund was able to leverage funding from sources other than the endowment totaling \$535,868.

CARE Fund continued to increase efficiencies and improve infrastructure with its program administrator, Evergreen Social Impact. The cost of CARE Fund program administration in FY 2023 was \$2,589,759. These costs included general program administration, state agency costs, and Assistant Attorney General services.

FY 2023 grants awarded
totaled **\$39,379,876.**



Board of Directors

The work of CARE Fund would not be possible without the vision and expertise of the CARE Board of Directors.*

J. Elaine Albert, MD, MHA
Seattle Children's Hospital

**Frederick Appelbaum, MD,
Immediate Past Board Chair**
Fred Hutchinson Cancer Center

Cliff Berkman, PhD
Washington State University

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*Organizational affiliations are for identification purposes only.



Laura Flores Cantrell, Executive Director

Peter Choi, Director of Program Design & Evaluation

Tasha Florez, Senior Program Officer

Jennifer Puttuck, Administrative Manager

Joseph Sparacio, Deputy Director



The Andy Hill Cancer Research Endowment (CARE) Fund is named in honor of state Senator Andy Hill who was a dedicated legislator and public champion of cancer research. He lost his battle with cancer at the age of 54. CARE Fund carries on his legacy of promoting cancer research and ensuring access to scientific advancements for all Washingtonians.

[Evergreen Social Impact](#) is the contracted program administrator to CARE Fund.



Andy Hill CARE Fund
Washington's Cancer Research Endowment

Andy Hill CARE Fund
c/o Evergreen Social Impact
P.O. Box 429
Bothell, WA 98041

www.wacarefund.org

