

National Cancer Institute



2013 Overview and Highlights

Division of Cancer Control and Population Sciences



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Turning Discovery Into Health

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cancercontrol.cancer.gov

About DCCPS

As NCI's bridge to public health research, practice, and policy, the Division of Cancer Control and Population Sciences (DCCPS) plays a unique role in reducing the burden of cancer in America. As an extramural division, DCCPS has the lead responsibility at NCI for supporting research in surveillance, epidemiology, health services, behavioral science, cancer survivorship, and social determinants of health. DCCPS can be considered a 'hybrid' division that funds a large portfolio of grants and contracts while also conducting original research to inform public health policy.

The division plays a central role within the federal government as a source of expertise and evidence on issues such as the quality of cancer care, the economic burden of cancer, geographic information systems, statistical methods, communication science, comparative effectiveness research, health disparities, tobacco control, and the translation of research into practice.

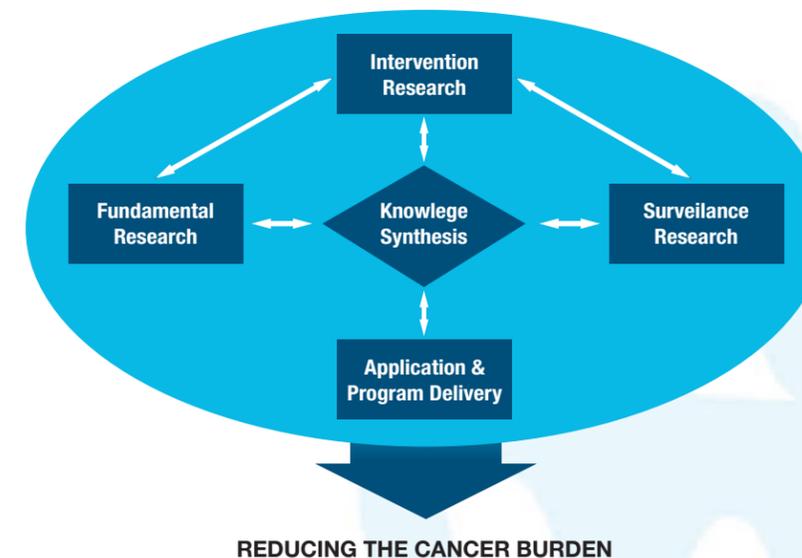
Closing the gap between research discovery and program delivery in public health, clinical practice, and health policy.

The diverse science funded and conducted by DCCPS is characterized by the varied expertise and background of the division's scientific staff. Given the focus on population science, it comes as no surprise that the disciplines of epidemiology and biostatistics are well represented. In addition, DCCPS has made a special effort to recruit experts in disciplines such as communication,

anthropology, outcomes research, psychometrics, medical genetics, health psychology, economics, social work, policy analysis, geography, and family medicine— disciplines that historically have been underrepresented at NCI. This reflects an overarching philosophy of science that guides the division's planning and priority setting: the belief that scientific progress in the 21st century will depend on the transdisciplinary integration of research methods, models, and levels of analysis.

To learn more about the division, funding opportunities, and how to collaborate with us, visit

<http://cancercontrol.cancer.gov>.



Cancer Control Framework

The dynamic and interdisciplinary nature of the division's activities is illustrated in the cancer control framework. This framework illustrates three categories into which all cancer control activities can be assigned, and the central role of knowledge synthesis.

Adapted from the 1994 Advisory Committee on Cancer Control, National Cancer Institute of Canada

Leadership at a Glance

The DCCPS senior leadership team is often described as dedicated and innovative. We pride ourselves not only in our commitment to cancer control, but also in our willingness to utilize unconventional ideas and approaches to accelerate progress in cancer research.



Research to Inform Cancer Control Policy and Practice

DCCPS supports science that informs policies and programs aimed at preventing, detecting, and treating cancer. We fund research that provides an evidence base needed to both inform public health policy and the implementation of new legislation. The division's long-standing history of collaborating across the National Institutes of Health (NIH), Department of Health and Human Services (HHS), and other agencies makes us uniquely suited to continue to play a role in the generation of evidence to shape and respond to national policy.

Here we highlight recent noteworthy examples from DCCPS where a scientific evidence base supports decision making by policy makers and public health practitioners.

Tobacco Regulatory Science

In 2012, NIH and the US Food and Drug Administration (FDA) formed an inter-agency partnership to foster tobacco regulatory research. The NIH and the FDA have been collaborating for more than 20 years on many initiatives that have led to the improvement of health of millions of Americans. Recently, the Family Smoking Prevention and Tobacco Control Act of 2009 (The Tobacco Control Act) granted the FDA authority to regulate the manufacturing, marketing, and distribution of tobacco products. Cancer control grantees generate evidence that informs the FDA's implementation of the new regulatory authority granted by The Tobacco Control Act. In addition, this research increases the understanding of tobacco chemical constituents, addiction, marketing, and use. Recently funded research explores many of the FDA research priorities, such as consumer perceptions of tobacco products including the impact of labeling and marketing; smokeless tobacco initiation, use, perceptions, dependence, and toxicity; and impact of nicotine reduction on tobacco product use behavior. Ultimately, the research collaboration between the FDA and NIH aims to reduce the public health toll from tobacco products in the United States.

Evidence to Inform US Preventive Services Task Force Guidelines

Over recent years, the conversation about cancer screening has started to change within the medical, advocacy, and health journalism community. DCCPS has played an important role in planning, implementing, and maintaining a comprehensive research program to promote the appropriate use of effective cancer screening tests, as well as strategies for informed decision making regarding cancer screening technologies, in both community and clinical practice.

DCCPS initiatives and funded research have provided the evidence used by the US Preventive Services Task Force (USPSTF) and other various organizations tasked with developing and revising screening recommendations. For example, the USPSTF used the evidence from the Cancer Intervention and Surveillance Modeling Network (CISNET), funded by DCCPS, as they revised screening recommendations for breast cancer. The CISNET study examined the benefits and harms associated with specific screening schedules at various ages. For this evaluation, there were six independently developed models, each including unique assumptions but estimating the same outcomes. The independent nature of the models means that the comparative analyses of results were enriched because there was consistency seen across the models. The study was possible, in part, because of the contributions on current screening practices and outcomes from the DCCPS-led Breast Cancer Surveillance Consortium (BCSC), a well-established standardized dataset for studies designed to assess the delivery and quality of breast cancer screening.

Similarly, CISNET investigators used the vast amount of data generated by NCI's National Lung Screening Trial (NLST), to model harms and benefits of different regimens of lung cancer screening. The NLST participants were current or former heavy smokers, ages 55-74, and all NLST trial outcomes relate to people in that age and risk group. The latest CISNET findings, published in 2013, extrapolate beyond that group and will greatly inform screening guidelines currently being considered.

Corrective Statements

As part of the ruling from a case brought by the federal government, *US v. Phillip Morris Inc., et al.*, under the Racketeer Influenced & Corrupt Organizations (RICO) statute, against the nation's largest cigarette makers, the defendants must publish and pay for "corrective statements" that state they concealed the dangers of smoking for decades and that disclose smoking's health effects, including death, in various types of advertisements, both broadcast and print. The US Department of Justice (DOJ) formally asked HHS for assistance with regard to the "Corrective Statement" remedy. Each corrective ad is to be prefaced by a statement that a federal court has concluded that the defendant tobacco companies "deliberately deceived the American public about the health effects of smoking." NCI took the lead in providing assistance to DOJ, and a team of DCCPS scientists conducted qualitative and quantitative studies of the proposed Corrective Statements.

Methods and Analyses to Inform Dietary Guidelines for Americans

DCCPS scientists have developed methodologies for estimating Americans' usual intake of key food groups and nutrients as well as the food sources of those intakes. DCCPS scientists have used these methodologies to conduct numerous analyses of Americans' diets. The Dietary Guidelines Advisory Committee made extensive use of these resources as part of the evidence base for the 2010 Dietary Guidelines for Americans. Several resulting guidelines were written in stronger terms, as a result of the impact of these data. Issued by the US Department of Agriculture (USDA) and HHS in January 2011, the 2010 Guidelines establish the scientific and policy basis for all federal nutrition programs, which account for about \$100 billion annually. Consumer materials and tools to implement the Guidelines continue to be released over the 5-year lifespan following their issuance. DCCPS staff are currently preparing analyses for consideration by the newly appointed 2015 Dietary Guidelines Advisory Committee.

Improvements to Colorectal Cancer Health Services

DCCPS-supported research has continued to change clinical practice. The Colorectal Cancer Care Collaborative was established by the Veterans Administration (VA) in 2005 to investigate approaches for reducing the time from a positive colorectal cancer (CRC) screening test (usually a fecal occult blood test [FOBT]) to diagnostic colonoscopy. DCCPS-supported observational research determined that two infrastructure improvements and three process improvements (out of a total of 16 identified activities) were highly predictive of an increase in the proportion of patients receiving a timely colonoscopy. These results have provided an evidence base on which VA facilities can optimize their quality improvement investments.

Breast Cancer and the Environment: Findings in Adult Women Focuses Attention on Exposures Earlier in Life

The trans-NIH Breast Cancer and the Environment Research Program (BCERP), a joint effort co-funded by the National Institute of Environmental Health Sciences (NIEHS) and DCCPS, has documented earlier breast development in its epidemiologic cohort of girls compared with that observed more than a decade ago. Breast development is one of the hallmarks of puberty, and the pubertal period is recognized as a potential window of susceptibility for breast cancer. Longitudinal data are emerging from the epidemiologic cohort that will allow investigators to determine the mean age of breast development as well as determine precisely the environmental and genetic factors associated with the earlier onset of puberty.

Enabling the Cancer Control Research Community

The sources of our greatest advances in cancer control are difficult to predict and typically emerge from the talented investigators in our funded research community. Often, their rich experimental ideas can only be realized with NCI funding support and free and open access to the robust, high-quality data and sophisticated research tools that DCCPS provides. By gathering, synthesizing, and making massive amounts of scientific information readily available, using the latest technology, DCCPS affords opportunities to our research community they would otherwise not have.

Here we list a few examples of some of the large-scale, sophisticated efforts led by DCCPS that ensure that researchers, public health practitioners, and policy makers have the resources they need to make large leaps in the complex and national effort to control cancer.

Cancer Control P.L.A.N.E.T. is a portal that provides access to data and resources that can help planners, program staff, and researchers to design, implement, and evaluate evidence-based cancer control programs.

cancercontrolplanet.cancer.gov

Cancer Control Publications (CC Publications) is a searchable database of more than 20,000 publications from DCCPS-funded research and DCCPS scientists that can be used to query the scientific landscape and identify potential gaps as research opportunities.

publications.cancer.gov

Public Use Data Sets and Analyses include dozens of data resources for researchers and the public available through DCCPS and our partners. Areas of focus include health disparities, surveillance, molecular epidemiology, quality of care, behavioral research, survivorship, and implementation and dissemination.

dccps.cancer.gov/cr-dataset.html

To address unique populations and key emerging areas of particular interest to the research community and policy makers, DCCPS continually develops new ways to synthesize and disseminate knowledge – engaging, encouraging, and energizing NCI's cancer control research community to move science further. Some examples of these recently developed (or updated) data-rich, technologically responsive resources are listed below:

Automated Self-Administered 24-Hour Recall (ASA24™). Extensive evidence has demonstrated that 24-hour dietary recalls provide the highest quality, least biased dietary data. ASA24 is a freely available Web-based tool that enables automated self-administered 24-hour recalls in English and Spanish. New in 2012, DCCPS developed ASA24-Kids, which includes features and modifications that make the tool amenable to use with children, such as an animated avatar to guide and maintain respondents' interest and the inclusion of common misspellings in the database to minimize problems with finding foods.

Classification of Laws Associated with School Students (C.L.A.S.S.) uses two policy classification systems to monitor and evaluate state-level codified laws for physical education (PE) and nutrition in schools. The scoring criteria for these systems are based on current public health research and national recommendations and standards for PE and nutrition in schools. C.L.A.S.S. can be used to compare codified state laws in nutrition and PE to national standards, and to assess differences in codified state laws in nutrition and PE across states over time.

The Cancer Trends Progress Report Update summarizes our nation's progress against cancer in relation to Healthy People 2020 targets set forth by HHS. The report includes key measures of progress along the cancer control continuum and uses national trend data to illustrate where advancements have been made.

The Geographic Information Systems (GIS) and Science website is supported by NCI as a central source of information about GIS and related resources for use by the public, cancer researchers, and the GIS Special Interest Group. DCCPS is developing five geographic information system (GIS) web-based mapping tools and services. These tools will be integrated into the Surveillance, Epidemiology, and End Results (SEER) GIS Portal, a collaborative geospatial content management system that enables users to find, share, organize, and use maps, applications, and other resources. The tools will help users aggregate and visualize large and multi-dimensional datasets, including population-based cancer statistics and behavioral, environmental, clinical, socioeconomic, and policy data. The portal will also allow users to build communities around common interests by creating specific groups and by organizing and sharing content through these groups.

CancerGEM KB (Cancer Genomic Evidence-based Medicine Knowledge Base) is a continuously updated, searchable, online resource that provides access to scientific information on the use of genomic information in cancer care and prevention. Intended for researchers, public health professionals, policy makers, and health care providers, CancerGEM KB provides objective synthesis and timely dissemination of information on cancer human genome epidemiology (genetic associations, gene-environment interactions, and gene prevalence information) and aggregated evidence on cancer genomic tests in transition to clinical and public health practice. It also offers summary information on genomic tests through *PLoS Currents: Evidence on Genomic Tests*, an open-access journal for systematic reviews and structured, short summaries of evidence for the validity and utility of genetic tests.

A centralized listing of scientific tools, reagents, services, and information developed by NCI that are available to the research community free or at minimal cost are available at the NCI Research Resources webpage:
<https://resresources.nci.nih.gov/>

Opportunities for Researchers

In addition to encouraging the best scientific ideas for researchers through investigator-initiated applications and omnibus solicitations, DCCPS develops and participates in NIH funding opportunities aimed at stimulating new directions in specific research to examine, discover, and test methodologies to improve public health. The following are examples of recent Funding Opportunity Announcements to encourage research projects in emerging or priority areas:

- Effects on biomarkers of prognosis and survival in physical activity and weight control interventions among cancer survivors (PA-12-228 and PA-12-229)
- Effect of care planning on cancer survivors' health and psychosocial outcomes (PA-12-274 and PA-12-275)
- Development and testing of culturally appropriate interventions for health promotion and disease prevention in Native American populations (PAR-11-346)
- Development of tools and methods to address spatial uncertainty in data, modeling, and communication (PA-11-238, PA-11-239, and PA-11-240)
- Bridging the Gap Between Cancer Mechanism and Population Science (PAR-13-081)
- Mechanistic Insights from Birth Cohorts (PAR-13-109)
- Dissemination and Implementation Research in Health (PAR-13-055, PAR-13-54, and PAR-13-056)
- Tobacco Control Regulatory Research (RFA-OD-13-011, RFA-OD-13-010, and RFA-OD-13-012)

More information about funding opportunities can be found at: cancercontrol.cancer.gov/funding.html

SEER 40th Anniversary

NCI's Surveillance, Epidemiology, and End Results (SEER) Program in DCCPS, a premier source for cancer statistics in the United States, celebrates its 40th anniversary in 2013. The SEER Program's cancer registries collect information on cancer incidence, prevalence, and survival from specific geographic areas representing 28 percent of the US population. Every year, more than 3,000 researchers throughout the world download and use the SEER data files, and to date over 7,000 publications in the scientific literature have used SEER data. Thousands more researchers, physicians, patients, journalists, and policy makers access SEER statistics on incidence, prevalence, survival, and mortality published in regular online reports.

The SEER Program has been at the forefront of providing access to cancer data.

Since its establishment in 1973, SEER has constantly evolved to become more sophisticated and robust, while still maintaining – and enhancing – data confidentiality, quality, and reliability, as well as training for cancer registry professionals. In addition, the establishment of linkages between SEER data and Medicare records



have opened up new avenues of cancer research that focus on treatment, particularly quality, patterns, and cost of care.

To improve the user experience, the division extensively revamped the SEER website for improved ease of navigation and visual design. An exciting new addition to the SEER site has been the development of five geographic information system (GIS) web-based mapping tools and services, which have been integrated into the SEER GIS Portal. The site includes NCI Map Stories, which combine intelligent web maps with text to inform, educate, and inspire.

For four decades, the SEER Program has been at the forefront of providing access to cancer data for both public health professionals and the advocacy community through user-friendly analytical tools. SEER will continue to be an important resource for the public health community, using population-based science to have a significant impact on measuring our nation's progress in cancer prevention and treatment and guiding future directions for cancer research.

Collaborating to Power Research: The Cohort Consortium

Statistical power analyses have indicated that large numbers of study participants and biospecimen samples are critical for obtaining highly informative results of studies of genetic and environmental influences on cancer risk. To address this need, DCCPS and NCI's intramural Division of Cancer Epidemiology and Genetics (DCEG) joined together on large-scale collaborations, the Cohort Consortium, in order to pool the large quantity of data and biospecimens necessary to conduct a wide range of cancer studies, providing more accurate estimates of genetic effects.

DCEG and DCCPS researchers foster communications, promote collaborative projects, and identify common challenges and solutions. This collaboration provides a coordinated, interdisciplinary approach to tackling important scientific questions, economies of scale, opportunities to quicken the pace of research, and a collaborative network of investigators.

The Cohort Consortium extramural-intramural partnership includes investigators responsible for more than 40 high-quality cohorts involving more than four million people. The cohorts are international in scope and cover large, rich, and diverse populations. Extensive risk factor data are available on each cohort, and biospecimens including germline DNA collected at baseline, are available on more than two million individuals. Investigators team up to use common protocols and methods, and to conduct coordinated parallel and pooled analyses.

More than 20 initiatives have been launched by the Cohort Consortium members, and several other approved projects are at various phases of planning, data collection, data analysis, and publication. These large-scale studies have helped researchers to better understand the complex etiology of cancer, and have provided fundamental insights into key environmental, lifestyle, clinical, and genetic determinants of this disease and its outcomes. The evidence generated has provided key evidence for the development of risk prediction analyses and models, prevention and therapeutic strategies, health policies, and guidelines.

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DCCPS Signature Initiatives

DCCPS funds a number of large, signature initiatives across the cancer control research continuum, including

- Integrated surveillance systems;
- Epidemiology consortia, registries, and large-scale genetic studies;
- Transdisciplinary science centers to address public health challenges;
- Networks and consortia to examine quality of care and outcomes; and
- Tobacco control research initiatives.

Below, we highlight selected examples of currently funded initiatives to illustrate the capacity, variety, and breadth of these large initiatives.

Cancer Intervention and Surveillance Modeling Network (CISNET)

CISNET is a consortium of NCI-sponsored investigators that use statistical modeling to improve our understanding of cancer control interventions in prevention, screening, and treatment and their effects on population trends in incidence and mortality.

Genetic Associations and Mechanisms in Oncology (GAME-ON)

GAME-ON is a network of consortia for post-genome-wide association research, launched by DCCPS in 2010 with joint support from NCI's Division of Cancer Biology. GAME-ON fosters an intradisciplinary and collaborative approach to the translation of promising research leads deriving from the initial wave of cancer genome-wide association studies.

Population-Based Research Optimizing Screening through Personalized Regimens (PROSPR)

Established in 2011, PROSPR is collecting and analyzing patient, provider, facility, and health care system data on the entire screening process, which includes recruitment, screening, results reporting, diagnostic evaluation, and referral for first course of treatment.

Transdisciplinary Research on Energetics and Cancer (TREC)

The TREC initiative fosters collaboration among transdisciplinary teams of scientists, with the goal of accelerating progress toward reducing cancer incidence, morbidity, and mortality associated with obesity, low levels of physical activity, and poor diet.

Cancer Research Network (CRN)

The CRN offers unique opportunities to conduct cancer research in the population-based integrated health care setting, and welcomes research collaborators.

Cancer Prevention and Control Research Network (CPCRN)

Initiated in 2002, with funding from the Centers for Disease Control and Prevention (CDC) and DCCPS, the CPCRN is a national network of academic, public health, and community partners who work together to reduce the burden of cancer, especially among those disproportionately affected.

To learn more about these and our division's other major initiatives, please visit http://cancercontrol.cancer.gov/current_research.html



Investments in Cancer Control Research

Researchers funded by DCCPS have advanced the science to improve public health for over 15 years, and we celebrate their scientific advances and research accomplishments in cancer control and population sciences. Major programmatic areas include epidemiology and genomics research, behavioral research, applied research, surveillance research, and survivorship research.

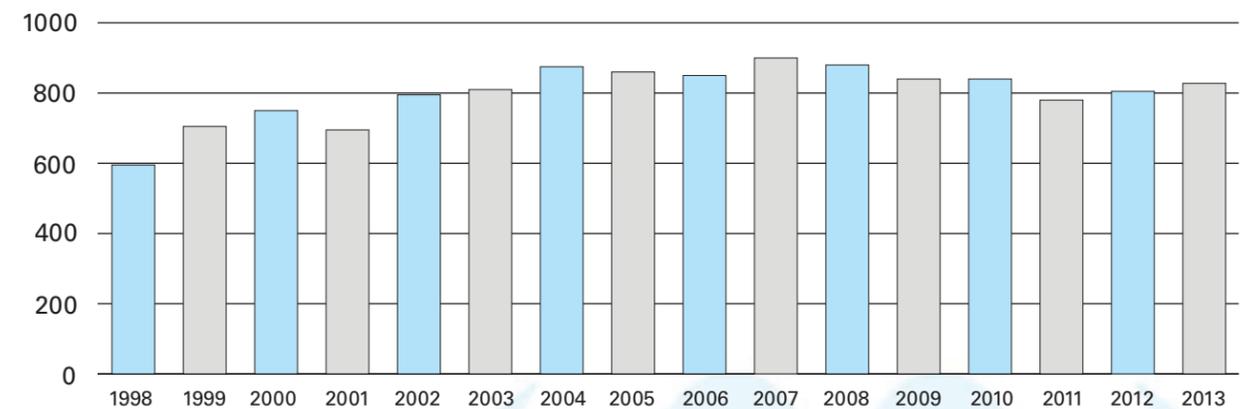
In fiscal year 2013, DCCPS funded approximately 800 grants valued at nearly \$450 million, with work in the United States and over 40 countries aimed to reduce risk, incidence, and

deaths from cancer, and to enhance the quality of life for cancer survivors. While the majority of DCCPS funding is for investigator-initiated research project grants, the division also uses a variety of strategies to support and stimulate research such as multi-component specialized research centers and cancer epidemiology cohorts.

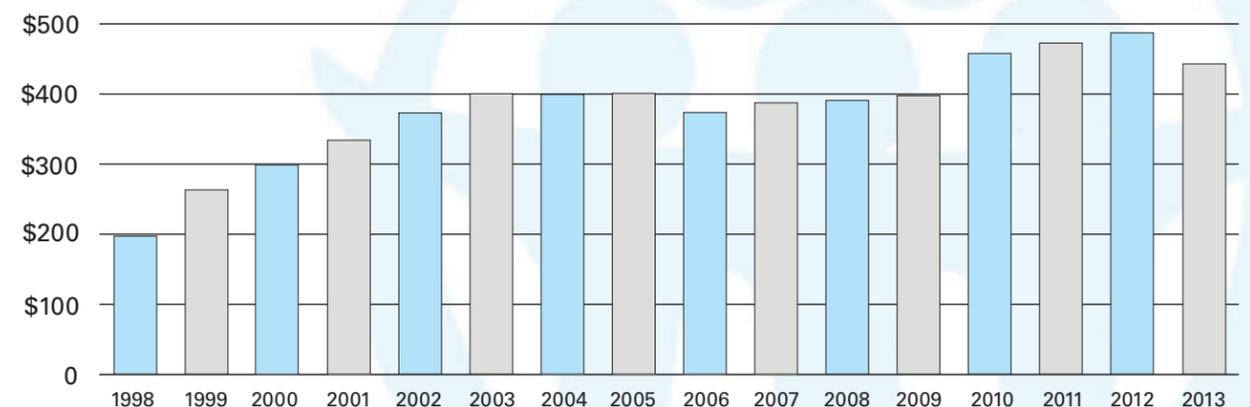
Learn more about the DCCPS grant portfolio and funding trends at maps.cancer.gov/overview/ and fundedresearch.cancer.gov/

DCCPS Research Portfolio by Fiscal Year

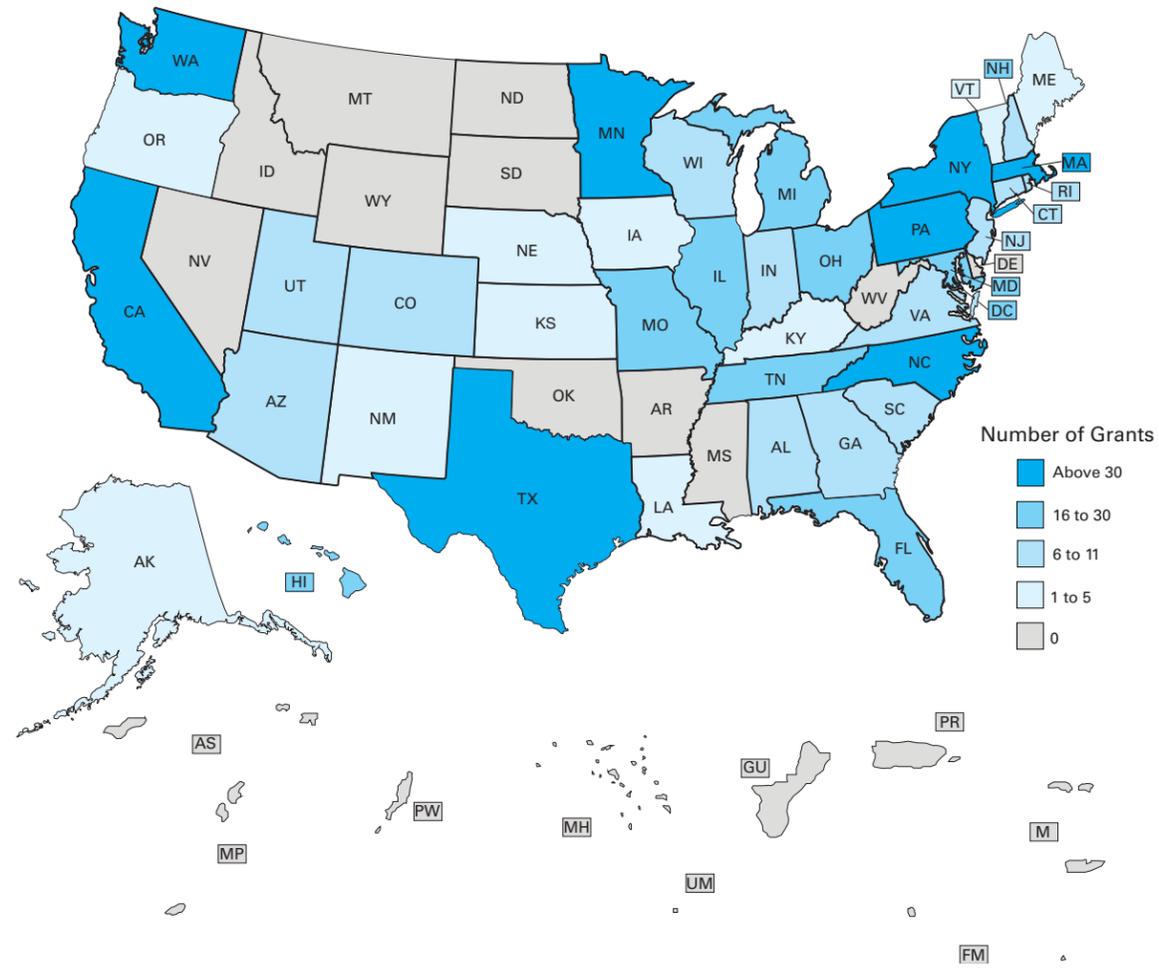
Total Grants



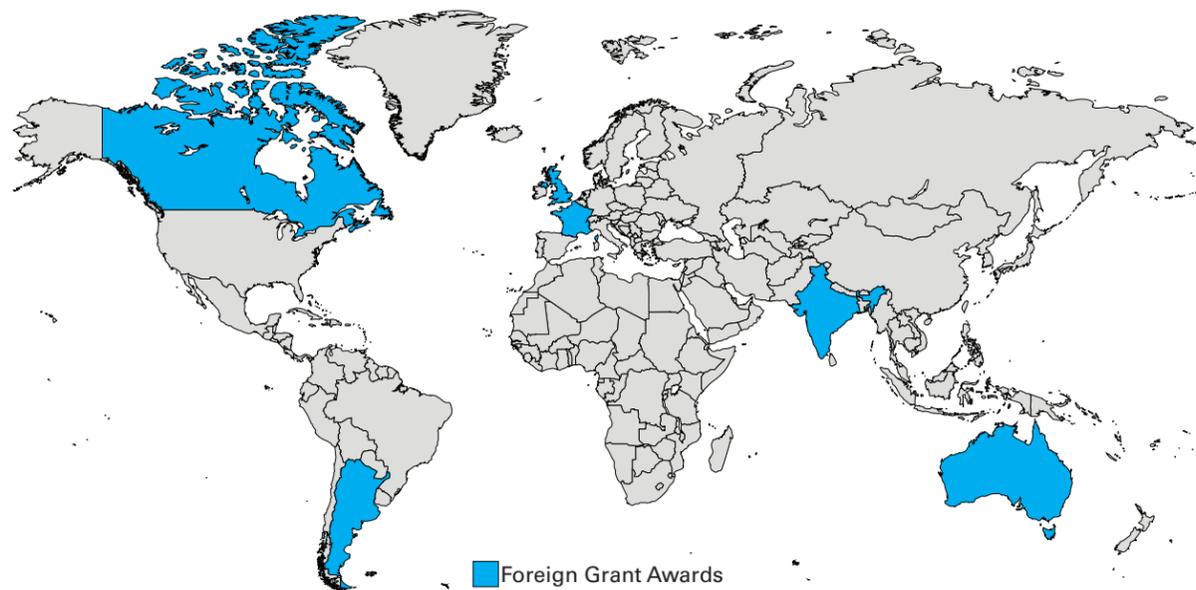
Total Dollars (in Millions)



DCCPS Research Grants Awarded to Institutions by State, District and Territory



DCCPS Research Grants Awarded to Foreign Institutions by Country



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cancercontrol.cancer.gov