

2009 - 2010 Annual C.U.R.E. Report

Commonwealth Universal Research Enhancement



CURE



pennsylvania
DEPARTMENT OF HEALTH

Health Research Program
Pennsylvania Tobacco Settlement Act

Commonwealth of Pennsylvania
Edward G. Rendell, Governor

Michael K. Huff, R.N.
Acting Secretary of Health

Message from the Secretary

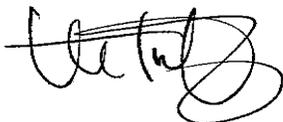
On behalf of Governor Rendell, I am pleased to present the 2009-10 Annual Report of the Pennsylvania Commonwealth Universal Research Enhancement (CURE) Program. Established under Chapter 9 of Act 2001-77, the Tobacco Settlement Act, the CURE Program awards grants to Pennsylvania-based organizations for biomedical research, clinical investigations and health services research. Studies funded by the grants aim to improve the delivery of health care, promote health, prevent disease and injury and translate research advances to community health care practice.

During State Fiscal Year (SFY) 2009-10, the ninth year of the CURE Program, health research grants totaling over \$73 million were awarded from Pennsylvania's share of the national tobacco settlement. Two types of health research grants were awarded: (1) formula grants, which were distributed by a pre-determined formula to institutions that already received funds from the National Institutes of Health (NIH); and (2) non-formula grants, which were selected through a competitive peer review process.

Thirty-one organizations received formula grants totaling \$53,415,200 during SFY 2009-10. These grants are funding 105 research projects and infrastructure projects, the majority of which are focused on biomedical research. Through these grants, researchers are addressing a broad range of research needs such as cancer, cardiovascular disease, diabetes, HIV/AIDS, immunology, infectious diseases, neuroscience, cell biology, bioengineering, obesity and tobacco and substance abuse.

The Department also awarded five new competitive non-formula grants totaling \$20,088,283. These grants will support studies on blindness and visual impairment and research to develop vaccines for preventing and treating cancer.

Over the past nine years, the Department of Health has awarded nearly \$637 million in CURE Program grants to fund over 1,500 health research projects. These grants fund laboratory construction, state-of-the-art research equipment acquisition and maintenance, ongoing research programs and new research studies. Of the 254 research grants completed as of June 30, 2010, study findings from the grants have been reported in over 1,310 peer-reviewed articles and 63 patents have been filed. Researchers have leveraged an additional \$874 million in funding to continue their research endeavors. We invite you to learn more about this program and other Department of Health initiatives by visiting the Department's Web site at www.health.state.pa.us.



Michael K. Huff, R.N.
Secretary of Health

Health Research Advisory Committee

Chair:

Everette James, J.D., M.B.A.
Secretary of Health
Commonwealth of Pennsylvania

Members:

Dwight Davis, M.D.
Professor of Medicine and Medical Director, Cardiac Rehabilitation Program
Pennsylvania State University School of Medicine

Donna Gentile O'Donnell, Ph.D.
President and CEO
TargetBiotics

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University Professor of Public Health and Professor of Epidemiology
Graduate School of Public Health at the University of Pittsburgh

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University of Pittsburgh

Michael S. Parmacek, M.D.
Herbert C. Rorer Professor of Medical Sciences and Director, Penn Cardiovascular Institute
University of Pennsylvania School of Medicine

Michael V. Seiden, M.D., Ph.D.
President and Chief Executive Officer
Fox Chase Cancer Center

Lisa Staiano-Coico, Ph.D.
President
The City College of New York

Kim Smith-Whitley, M.D.
Assistant Professor of Pediatrics, Division of Hematology
The Children's Hospital of Philadelphia

Contents of the Annual 2009-10 CURE Program Report

The Annual 2009-10 CURE Program Report consists of an overview of the health research program, accomplishments of the program for the 2009-10 state fiscal year and a financial report of grant awards and expenditures for the year. This report also includes separate annual progress reports for each grant recipient and a research development report on the commercialization of research for recipients of \$400,000 or more in formula funds, as listed below.

- Albert Einstein Healthcare Network
 - 2008 Formula Grant
 - 2009 Formula Grant
- Allegheny-Singer Research Institute
 - 2007 Formula Grant
 - 2008 Formula Grant
 - 2009 Formula Grant
- American College of Radiology
 - 2005 Formula Grant
 - 2006 Formula Grant
 - 2007 Formula Grant
 - 2008 Formula Grant
 - 2009 Formula Grant
 - Research Development Report
- Bryn Mawr College
 - 2008 Formula Grant
- Carnegie Mellon University
 - 2005 Formula Grant
 - 2006 Formula Grant
 - 2007 Formula Grant
 - 2008 Formula Grant
 - 2009 Formula Grant
 - Research Development Report
- Children's Hospital of Philadelphia
 - 2005 Nonformula Grant on Obesity
 - 2005 Formula Grant
 - 2006 Formula Grant
 - 2007 Nonformula Grant on Regenerative Medicine
 - 2007 Formula Grant
 - 2008 Nonformula Grant on Autism Spectrum Disorders
 - 2008 Formula Grant
 - 2009 Formula Grant
 - Research Development Report
- Children's Hospital of Pittsburgh
 - 2006 Formula Grant
 - 2007 Formula Grant
 - 2008 Formula Grant
 - 2009 Formula Grant
 - Research Development Report
- Drexel University
 - 2006 Formula Grant
 - 2007 Formula Grant
 - 2008 Formula Grant
 - 2009 Nonformula Grant on Cancer Vaccines
 - 2009 Formula Grant
 - Research Development Report

- Duquesne University
 - 2006 Formula Grant
 - 2007 Formula Grant
 - 2008 Formula Grant
 - 2009 Formula Grant
- Fox Chase Cancer Center
 - 2006 Formula Grant
 - 2007 Formula Grant
 - 2008 Formula Grant
 - 2009 Formula Grant
 - Research Development Report
- Geisinger Clinic
 - 2007 Formula Grant
 - 2008 Formula Grant
 - 2009 Formula Grant
- Hepatitis B Foundation
 - 2008 Formula Grant
 - 2009 Formula Grant
- Lankenau Institute for Medical Research
 - 2008 Formula Grant
 - 2009 Formula Grant
- Lehigh University
 - 2008 Formula Grant
 - 2009 Formula Grant
- Lincoln University
 - 2009 Formula Grant
- Magee Womens Research Institute
 - 2008 Formula Grant
 - 2009 Formula Grant
 - Research Development Report
- Monell Chemical Senses Center
 - 2008 Formula Grant
 - 2009 Formula Grant
- MPC Corporation (Mellon Pitts Corporation)
 - 2005 Formula Grant
 - 2006 Formula Grant
 - 2007 Formula Grant
 - 2008 Formula Grant
- National Disease Research Interchange
 - 2008 Formula Grant
 - 2009 Formula Grant
- National Surgical Adjuvant Breast and Bowel Project (NSABP) Foundation
 - 2005 Formula Grant
 - 2006 Formula Grant
 - 2007 Formula Grant
 - 2008 Formula Grant
 - 2009 Formula Grant
 - Research Development Report
- Oncology Nursing Society
 - 2008 Formula Grant
- Pennsylvania State University
 - 2005 Formula Grant
 - 2006 Nonformula Grant on Gene-Environment Interactions
 - 2006 Formula Grant
 - 2007 Nonformula Grant on Violence Prevention
 - 2007 Formula Grant

- 2008 Formula Grant
 - 2009 Formula Grant
 - Research Development Report
- Philadelphia College of Osteopathic Medicine
- 2006 Formula Grant
 - 2007 Formula Grant
 - 2008 Formula Grant
 - 2009 Formula Grant
- Pittsburgh Tissue Engineering Initiative
- 2008 Formula Grant
 - 2009 Formula Grant
- Public Health Management Corporation (formerly Philadelphia Health Management Corporation)
- 2008 Formula Grant
 - 2009 Formula Grant
- Salus University (formerly Pennsylvania College of Optometry)
- 2008 Formula Grant
 - 2009 Formula Grant
- Temple University
- 2005 Nonformula Grant on Obesity
 - 2005 Formula Grant
 - 2006 Formula Grant
 - 2007 Formula Grant
 - 2008 Formula Grant
 - 2009 Formula Grant
 - Research Development Report
- Thomas Jefferson University
- 2005 Nonformula Grant on Obesity
 - 2005 Formula Grant
 - 2006 Formula Grant
 - 2007 Formula Grant
 - 2008 Formula Grant
 - 2009 Nonformula Grant on Cancer Vaccines
 - 2009 Formula Grant
 - Research Development Report
- Treatment Research Institute
- 2007 Formula Grant
 - 2008 Formula Grant
 - 2009 Formula Grant
- University of Pennsylvania
- 2005 Nonformula Grant on Obesity
 - 2005 Formula Grant
 - 2006 Nonformula Grant on Gene-Environment Interactions
 - 2006 Nonformula Grant on Vaccine Development
 - 2006 Formula Grant
 - 2007 Nonformula Grant on Regenerative Medicine
 - 2007 Nonformula Grant on Violence Prevention
 - 2007 Formula Grant
 - 2008 Nonformula Grant on Antibiotic Resistance
 - 2008 Formula Grant
 - 2009 Nonformula Grant on Blindness and Visual Impairment
 - 2009 Nonformula Grant on Cancer Vaccines
 - 2009 Formula Grant
 - Research Development Report
- University of Pittsburgh
- 2005 Nonformula Grant on Obesity
 - 2005 Formula Grant

- 2006 Formula Grant
 - 2007 Nonformula Grant on Violence Prevention
 - 2007 Formula Grant
 - 2008 Nonformula Grant on Antibiotic Resistance
 - 2008 Nonformula Grant on Autism Spectrum Disorders
 - 2008 Formula Grant
 - 2009 Formula Grant
 - Research Development Report
- UPMC McKeesport (University of Pittsburgh Medical Center at McKeesport)
- 2008 Formula Grant
 - 2009 Formula Grant
- West Chester University of Pennsylvania
- 2009 Formula Grant
- Wills Eye Health System
- 2009 Nonformula Grant on Blindness and Visual Impairment
- Wistar Institute of Anatomy and Biology
- 2006 Nonformula Grant on Vaccine Development
 - 2008 Formula Grant
 - 2009 Formula Grant
 - Research Development Report

Health Research Program Overview and Accomplishments

Overview

Act 2001-77, the Tobacco Settlement Act, authorized the Pennsylvania Department of Health to establish the Commonwealth Universal Research Enhancement (CURE) Program to fund health research using tobacco settlement monies. Of the tobacco settlement funds, 13.6 percent (called the “formula funds”) are awarded by formula to institutions that have previously received awards from the National Institutes of Health (NIH) and National Cancer Institute (NCI); 5.4 percent (called “nonformula funds”) are awarded by competitive peer review.

The CURE Program, also called the Health Research Program, provides broad-based health research grants to Pennsylvania-based researchers, universities, medical schools and other institutions. A grant may be used to support more than one research project, but all research projects must be completed within 48 months of the start of the grant. Research projects may focus on basic biomedical research, patient-oriented clinical investigations or health services research. Up to 50 percent of the grant funds may be spent on infrastructure, which is defined in Act 149 of 2002 and includes office equipment and supplies, nonprofessional personnel, and laboratory or building construction or renovations used to conduct research.

Health research funds are awarded to projects that are consistent with the program’s research priorities. These priorities are determined by the Department in conjunction with the Health Research Advisory Committee. In developing the research priorities, consideration is given to the national health promotion and disease prevention objectives as applied to Pennsylvania. Priorities focus on critical research areas and the disparities in health status that occur among various populations within the Commonwealth.

Each year, recipients of health research grant awards report progress on research projects; this information is used to compile the annual report to the legislature. This year’s annual report, as well as past reports, is available at www.health.state.pa.us/cure. This Web site is continually updated with the most recent information about the health research program, including announcements concerning research priorities, request for applications and meetings of the Health Research Advisory Committee.

Health Research Advisory Committee

Chaired by the Secretary of Health, this nine-member advisory committee is required by Act 2001-77 to meet at least twice a year to provide advice and recommendations on research priorities, grant accountability and evaluation procedures, and other related issues. The Committee met on three occasions during the 2009-10 state fiscal year.

On October 8 and 9, 2009, the Health Research Advisory Committee held workshops on nanotechnology and substance abuse and a session to hear testimony from invited speakers on various research needs within the Commonwealth. Prior to the meeting, an invitation to submit written testimony on research priorities was sent to current grantees and persons on the program’s mailing lists. The meeting notice and invitation to submit written testimony were

announced on the Department's Web site. The Department received written testimony on research priorities from 37 persons prior to the meeting.

At the October meeting the Committee recommended that all of the nonformula funds for 2010-2011 be focused on research related to substance abuse. The Committee met again on November 23, 2009 to discuss a white paper on substance abuse and narrow the focus of the research priority. The Committee also heard presentations on the progress made by the 2006 nonformula grants on vaccine development and gene-environment interactions.

On February 8, 2010 the Committee met to consider future nonformula funding priorities and the role of life science greenhouses. The Committee recommended that half of the nonformula funds for 2011-2012 be allocated to businesses for research on the discovery of drugs and the development of vaccines, devices, diagnostics and health related informatics.

Notices of Committee meetings were advertised in the Pennsylvania Bulletin, the local newspaper and on the Department's CURE Web site. Minutes of the Committee meetings were posted on the CURE Web page after the Committee approved the minutes.

Health Research Priorities

Separate health research priorities are established for formula and nonformula funds. The priorities are reviewed each year and revised as necessary. The health research priorities for the formula funds have remained unchanged since the first year of the program, while the research priorities for the nonformula funds have changed every year. The priorities for the formula funds are listed below, followed by the priorities for nonformula funds for the state fiscal year 2009-10 and 2010-11. Nonformula research priorities may be viewed at the CURE Web page (www.health.state.pa.us/cure) under the "CURE Health Research Priorities" link.

Priorities for Formula-Funded Research

Broad-based research priorities were established for the formula-funded research so that institutions could concentrate on the most promising areas of research depending on their areas of expertise, which vary widely. The research priorities for the formula grants are as follows.

The research priorities shall include the identification of critical research areas, disparities in health status among various Commonwealth populations, expected research outcomes and benefits and disease prevention and treatment methodologies.

The research priorities are clinical, health services and/or biomedical research as defined in Act 2001-77. The ultimate goal of the research should be to improve health status and access. The Department should encourage, through the application process and accountability requirements, research that:

- emphasizes collaboration
- promotes business and community involvement
- increases infrastructure and research capacity

- increases the number of new investigators, new grants, new discoveries and new products
- leverages new and existing research funds, and
- leads to population-based applications that address disparities in health status among various Commonwealth populations.

An institution that receives \$400,000 or more in formula funds shall also comply with the requirements of Section 908 (c) of Act 2001-77.

Priorities for 2009-10 Nonformula-Funded Research (adopted December 12, 2008)

For the purpose of priority setting and funding, the Health Research Advisory Committee recommends combining the two nonformula funding categories of clinical and health services research and other research. The research priorities shall involve collaborative Center of Excellence efforts integrating research efforts from several disciplines. The research priorities for nonformula-funded research are:

Blindness and Visual Impairment

Research to understand the underlying etiology of blindness and visual impairment and to evaluate promising new medical, surgical and genetic therapies to prevent and/or treat blindness and visual impairment as well as interventions to reduce disparities in access to care. Priority will be given to projects that emphasize the population aged 40 or older, given Pennsylvania's disproportionate share of older individuals as well as the over-representation of blinding eye diseases in older individuals.

Research may include, but is not limited to, the following areas:

- Studies of the molecular and genetic bases of common blinding eye diseases, such as macular degeneration, glaucoma, diabetic retinopathy, and cataract.
- Studies to develop new therapies, including molecular, genetic, cellular, or nanotechnologies for retinal regeneration or transplant; optic nerve regeneration; prevention or reversal of cataract; and definitive therapy for diabetes and diabetic retinopathy.
- Studies to determine the extent and degree of cortical plasticity in the adult visual system.
- Studies to improve the quality, coordination or delivery of early detection and treatment services to the aging population.
- Studies of methods to restore vision by leveraging the non-visual senses.
- Studies of novel interventions for reducing barriers to vision care.
- Studies to determine the most efficient and effective approaches to providing vision care to underserved populations.

Research must include, as one component, a demonstration project in a defined population. The demonstration project must include one or more of the following studies: (1) studies to improve the quality, coordination or delivery of early detection and treatment services to the aging population, (2) studies of methods to restore vision by leveraging the non-visual senses, (3) studies of novel interventions for reducing barriers to vision care, (4) studies to determine the most efficient and effective approaches to providing vision care to underserved populations, and/or (5) another demonstration project closely aligned with the proposed research program.

The research should hold the potential for addressing the health needs of underserved segments of the population, including rural, urban, racial/ethnic minorities, or older adults and other populations that are at high risk for eye diseases. To foster cross-institutional collaborative research among organizations across the Commonwealth, an applicant must conduct research in collaboration with other research institutions and organizations. To the extent possible, organizations that are not academic medical centers, such as smaller colleges and universities, businesses, biotechnology and pharmaceutical companies, health care providers and local public health agencies should be included in addition to major research institutions. At least two of the collaborators must be major research institutions. Collaboration with a minority-serving academic institution or a minority-serving community-based organization in Pennsylvania is strongly encouraged, and should include the mentoring and training of students. All research collaborators must play a substantive and meaningful role in multiple aspects of the proposed research. Research proposals must be organized around specific focused topics or issues rather than a wide range of unrelated projects. Health services research must include objective evidence of outcomes. Research must test at least one hypothesis, not be merely descriptive or hypothesis-generating.

At least 50 percent of each grant's funds must be spent on clinical and/or health services research as defined in Act 2001-77; no more than 50 percent of each grant's funds may be spent on biomedical research, as defined in Act 2001-77.

Cancer Vaccines

Research on the development, use and evaluation of vaccines for cancer prevention and treatment. Research in protective or therapeutic cancer vaccines may include, but is not limited to, the following areas:

- Studies to identify novel tumor antigens, particularly those on premalignant lesions, precursors to cancer, and/or cancer stem cells, and to develop vaccines against such antigens.
- Research on strategies to effectively co-deliver antigens and adjuvants to generate tumor-specific cellular immunity.
- Studies to identify novel viral antigens associated with or causatively linked to cancer.
- Studies to identify tumor microenvironment antigens that can be targeted to inhibit angiogenesis or tumor invasion.
- Research on novel adjuvants with potent and specific immunostimulatory function and reduced systemic toxicity such as defensins, cathelicidins, and neurokinins.
- Research on vaccine technologies designed to target dendritic cells and enhance dendritic cell-mediated tumor antigen presentation.
- Studies on epigenetic modulation of known cancer antigens.
- Research on the blockade of immunoinhibitory pathways through receptor antagonists.
- Studies to enhance viral and cancer vaccine effectiveness through immuno-augmentation adjuvant therapies.
- Studies to stimulate immunity to tumor antigens released by dead or dying tumor cells as an adjunct to traditional cancer therapies, including those based on chemotherapy or antibody-dependent cellular toxicity.

- Prevention-related health services research aimed at improving the use of the human papillomavirus (HPV) or hepatitis B vaccine among the populations at greatest risk.
- Analysis of the antigens of tumors in patients treated with immunomodulators that demonstrate antitumor efficacy, such as IL-2, IFN, and anti-CTLA4 blocking antibodies.

Research in the following areas will not be considered:

- Biomedical and clinical research to develop or improve prophylactic vaccines against hepatitis B and HPV.
- Clinical trials on the direct effects of therapeutic cancer antibodies currently approved and on the market (including but not limited to Rituxan, Herceptin, Erbitux, and Avastin).
- Research on cancer vaccines in veterinary medicine.

Research should hold the potential to address the health needs of underserved segments of the population including rural, urban, racial/ethnic minorities or older patients and other populations that are at high risk for cancer. To foster cross-institutional collaborative research among organizations across the Commonwealth, an applicant must conduct research in collaboration with other research institutions and organizations. To the extent possible, organizations that are not traditional academic medical centers such as smaller colleges and universities as well as businesses, biotechnology and pharmaceutical companies, healthcare providers and local public health agencies should be included in addition to major research institutions. At least two of the collaborators must be major research institutions. Collaboration with minority serving academic institutions or minority serving community-based organizations in Pennsylvania are strongly encouraged and should include the mentoring and training of students. All research collaborators must play a substantial and meaningful role in multiple aspects of the proposed research. Research proposals must be organized around specific focused topics or issues rather than a wide range of unrelated projects. In addition to the clinical and basic science projects proposed, the research must either include an active clinical trial or result in a proposal for an approvable clinical trial at the completion of this body of research. Health services research may include research on any aspect of the selected cancer vaccine including studies of dissemination, patient adherence, behavioral science focused on cancer vaccines, and cost effectiveness research related to hepatitis B and HPV. Health services research must include objective evidence of outcomes. Research must test at least one hypothesis, not be merely descriptive or hypothesis-generating.

At least 50 percent of each grant's funds must be spent on clinical and/or health services research as defined in Act 2001-77; no more than 50 percent of each grant's funds may be spent on biomedical research, as defined in Act 2001-77.

Priority for 2010-11 Nonformula-Funded Research (adopted November 23, 2009)

For the purpose of priority setting and funding, the Health Research Advisory Committee recommends combining the two nonformula funding categories of clinical and health services research and other research. The research priority shall involve collaborative research integrating efforts from several disciplines and institutions. The research priority for nonformula-funded research is:

Substance Abuse

Research to understand the biological basis of addiction and the neural changes that can lead to addiction and to evaluate interventions to prevent and treat addictions. The research should focus primarily on addiction to illicit drugs, but should not exclude research on alcohol or tobacco use as co-morbidities to illicit drug use or research on polydrug use. Illicit drugs include, but are not limited to, marijuana or hashish, opium, heroin, cocaine (including crack), inhalants, hallucinogens (including phencyclidine [PCP], lysergic acid diethylamide [LSD], and Ecstasy [MDMA]), or prescription-type psychotherapeutics used nonmedically, which include stimulants, sedatives, tranquilizers, and pain relievers (including opioid analgesics). Opioid analgesics include methadone, other opioids such as oxycodone and hydrocodone, and synthetic narcotics such as fentanyl and propoxyphene.

Research may include, but is not limited to, the following areas:

- Research to investigate why certain substances are addictive and what happens to cells in the brain to cause craving; which neural circuits, cells, and mediators in the brain are involved in substance abuse and how can they be modulated to break the cycle of addiction; how various substances of abuse affect brain cells, targets in the brain (receptors and transporters), communication between brain cells, and pathways that are important in behavior; how the brain changes with substance use, whether the effects are dose-dependent, when brain changes become irreversible, how brain changes alter behavior, and how people vary in their adaptive changes in brain function with substance use.
- Research on the mechanisms of drug interactions and co-drug dependency, how multiple drugs interact with each other and the brain to potentiate each other in terms of addiction risk, and how this cycle can be “short-circuited.”
- Research on animal models to elucidate the functional brain impairments associated with substance use and addiction.
- Research on the use of noninvasive brain imaging to identify brain regions and neural pathways that are differentially activated during drug addiction.
- Research to determine whether potential therapeutics for the management of substance use disorders can be identified by their ability to alter addiction-associated patterns of brain activity.
- Research on how host susceptibility, genetic factors, and environmental factors interact to contribute to addiction susceptibility, particularly early life environmental exposures and their effects on the brain.
- Research on the genetic and epigenetic factors that influence life-time risk of substance abuse.
- Research on risk factors that influence the initiation of substance use, addiction to substances and relapse from substance abuse treatment.
- Research on the use of genetic and genomic information to tailor individualized approaches to substance abuse prevention and treatment.
- Research on the measurement of risks for and severity of addiction.
- Research on disorders and risky behaviors that co-occur with substance abuse disorders and how these co-morbidities can be managed effectively.

- Research on the genetic, neurological, social, and contextual factors that influence the effectiveness of programs aimed at preventing substance use and abuse in late adolescence and early adulthood.
- Research on the impact of a chronic, continuing care versus acute care addictions treatment model on the costs of treatment and health outcomes.
- Research to determine which program delivery approaches maximize program sustainability, barriers to the implementation of evidence-based practices, and how evidence-based practices can be implemented most effectively through all phases of prevention and treatment, including diagnosis, intervention, and long-term follow-up.
- Research on interventions for individuals for whom current approaches are ineffective.
- Research on the barriers to the implementation of substance abuse screening in primary care settings, effective approaches to expand screening for substance use disorders in health care settings, and tools and technologies to better identify which patients will respond to various types of treatment approaches for use in substance abuse screening.
- Research to determine the efficacy of new therapies to prevent or treat addiction. Testing of such interventions should include objective evidence of prevention or treatment in defined cohorts.

Research in the following areas will not be considered:

- Research focused primarily or exclusively on addictions other than illicit drugs. Research focused primarily or exclusively on gambling, addictive sexual behavior, obesity and food addiction, tobacco use and alcohol abuse will not be considered.
- Research on the benefits of any substance of abuse.
- Research on the abuse or misuse of antibiotics.

The research should hold the potential for addressing the health needs of underserved segments of the population, including rural, urban, racial/ethnic minorities, and other populations that are at high risk for substance abuse. To foster cross-institutional collaborative research among organizations across the Commonwealth, an applicant must conduct research in collaboration with other research institutions and organizations. To the extent possible, organizations that are not academic medical centers, such as smaller colleges and universities, businesses, biotechnology and pharmaceutical companies, health care providers and local public health agencies should be included in addition to major research institutions. At least two of the collaborators must be major research institutions. Collaboration with a minority-serving academic institution or a minority-serving community-based organization in Pennsylvania is strongly encouraged, and should include the mentoring and training of students. All research collaborators must play a substantive and meaningful role in multiple aspects of the proposed research. Research proposals must be organized around specific focused topics or issues rather than a wide range of unrelated projects. Health services research must include objective evidence of outcomes. Research must test at least one hypothesis, not be merely descriptive or hypothesis-generating.

At least 50 percent of each grant's funds must be spent on clinical and/or health services research as defined in Act 2001-77; no more than 50 percent of each grant's funds may be spent on biomedical research, as defined in Act 2001-77.

Awarding of the 2009-10 Formula Grants

The process of awarding the 2009-10 formula grants began with a determination of eligibility of Pennsylvania's institutions. The NIH Office of Extramural Research provided data to the Department on NIH awards made to Pennsylvania institutions for the past three years. For each Pennsylvania institution, the NIH provided the total awards made by all NIH Institutes and Centers (including those from NCI), as well as a list of the awards made to individual investigators at each institution. The list of awards included all types of financial support that NIH awarded to Pennsylvania institutions, including research grants, training grants, fellowships, R&D (research and development) except contracts.

Each institution received the list of the NIH and NCI awards that were made to their institution along with a certification form. The organizations were asked to certify that the awards data were correct, or if incorrect, provide copies of the NIH notice of grant or contract award documentation for additional awards. As a result of this process, 31 organizations certified that they met the requirements and would apply for funding. The Department then used the verified amounts of NIH/NCI funds for the 31 institutions that intended to apply for the funding to calculate the amount of formula funds available to each institution for 2009-10.

All health research fund recipients are required by Act 2001-77 to complete a grant application, which contains information specified in the Act and other information deemed necessary by the Department. It should be noted that the application includes a memorandum of understanding that requires applicants to abide by federal ethical and procedural standards of conduct as prescribed by the NIH on the date that the memorandum is executed.

On November 4, 2009, the Department emailed the grant application to the 31 institutions that indicated they were eligible and planning to apply for formula funds. Applications were due on December 23, 2009, with a start-up date of January 1, 2010.

The amount of the formula grant awards varied widely, from approximately \$1,000 to \$9.9 million. Typically, the smaller grantees invested in ongoing research or new research projects that could be completed within one year, whereas organizations receiving millions of dollars used their funds to support multiple new and existing research projects and research infrastructure projects to be carried out over the four years allowed by Act 2001-77.

The 2009-10 formula grants funded a total of 101 research projects and 4 research infrastructure projects. Of these projects, 73 percent were biomedical research, 11 percent were clinical research, 14 percent were health services research and the remaining 2 percent were a combination of several types of research.

At the time the grant applications were submitted to the Department, 30 percent of the proposed research projects reported other sources of funding in addition to the formula funds to support the proposed research activities. Thirty-five percent of the projects were seeking other sources of funding to help continue or expand their research efforts.

The adoption of broad-based research priorities led to a wide range of research projects, although cancer outranked other areas as the primary focus. The areas of research addressed by the 101 research projects are shown below.

Number of Projects:	Focus:
20	Oncological Sciences
19	Cell Biology, Biological Chemistry, Macromolecular Biophysics, Genomes and Genetics
13	Health of Populations, Behavioral and Biobehavioral Processes (e.g., studies on nutrition, physical activity, tobacco, substance abuse and healthcare practices)
12	Neurosciences
6	Endocrine, Metabolism, Nutrition and Reproductive Sciences
5	Bioengineering, Surgical Sciences and Technology
4	Cardiovascular Sciences
4	AIDS and Related Research
4	Musculoskeletal, Oral and Skin Sciences
3	Immunology
3	Infectious Diseases and Microbiology
2	Respiratory Sciences
2	Biology of Development and Aging
2	Digestive Sciences
2	Hematology

Awarding of the 2009-10 Nonformula Grants

For State Fiscal Year 2009-10, the Department of Health developed a Request for Applications (RFA) to solicit proposals for research projects that focused on cancer vaccines or blindness and visual impairment. On July 27, 2009, the RFA was posted on the Department of General Services Web page and emailed to persons who requested to be notified about health research RFAs. The RFA announcement also was sent to Pennsylvania colleges and universities, hospitals, medical schools, health departments, Statewide Health Improvement Partners (SHIP), and prior health research formula grant recipients.

Prior to the application due date, applicants were required to submit letters of intent describing their proposed research projects. These letters of intent were used to determine the disciplines needed for the peer review process.

All nonformula-funded research projects are subject to peer review, the process used by the NIH and other funding agencies to review and rate the scientific merit of research proposals. Researchers, physicians and scientists who possess expertise in the area addressed by the proposal serve on peer review panels. Peer review assures that the proposals are rated by experts who understand the scientific merit and significance of complex, highly specialized research methodologies.

For the 2009-10 nonformula grants, Oak Ridge Associated Universities (ORAU) managed the peer review process for the Department. Based on the research descriptions contained in the letters of intent, ORAU recruited peer reviewers. Two peer review panels were formed – one panel to review and rank proposals that addressed cancer vaccines, and a separate panel to review and rank the proposals that focused on blindness and visual impairment.

The peer review panels also reviewed the proposals to determine if there were any ethical issues. According to Act 2001-77, the Secretary of Health must convene an Ethics Advisory Board if there are any ethical issues that may lead to the denial of funding. In 2009-10, none of the projects were found to have any ethical issues that would lead to the denial of funding.

Based on the rankings established by the relevant peer review panel, the Department’s final review committee determined which applications would be funded. In determining these awards, the Department ensured that the proposals avoided unnecessary duplication, were relevant to the research priority, encouraged collaboration between applicants and provided for the development of a complementary statewide research program. The Department used these considerations and the rankings to make the final awards. The three top-ranked cancer vaccine proposals and the two top-ranked blindness and visual impairment proposals were awarded nonformula research grants, with start-up dates of June 1, 2010.

Program Measures for Completed Grants

Number and Amount of Completed Grants

As of June 30, 2010 a total of 234 formula grants and 20 nonformula grantees had completed their grants and submitted final progress reports summarizing the results of their research accomplishments. Although the amount of the grant awards for formula grants varied considerably--ranging from \$2000 to over \$9 million -- approximately half of the awards were for amounts less than \$100,000.

Number of Grants Completed by June 30, 2010: Amount of Awards by Type			
Amount of Award	Number of Formula Grant Awards	Number of Nonformula Grant Awards	Number of Total Grant Awards
\$100,000 or less	112	0	112
More than \$100,000	122	20	142
All Grants	234	20	254

Publications

Since the goal of research is to discover new scientific knowledge, an appropriate measure of the extent to which the health research grants achieve this goal is the publication of research findings in peer-reviewed journals. Ninety-eight formula grantees reported that their research resulted in peer-reviewed publications. They cited a total of 1,181 peer-reviewed publications. An additional 122 publications had been submitted for review, but were awaiting a decision at the time the grantees had submitted the final report. Seventeen nonformula grantees reported 129 peer-reviewed publications resulting from funded research and 13 additional submissions awaiting a publication decision.

Leveraging of Additional Grants

On the final progress report, grantees are asked to list funds that they were able to apply for and obtain as a result of the health research funds provided to them through the CURE program. Half of all grantees reported leveraging additional grants. A total of 110 formula grant recipients reported obtaining \$700 million as a result of the CURE funds provided to them. Seventeen nonformula grant recipients reported obtaining additional grants totaling \$174 million. The total amount of additional funding leveraged was 2.5 times the amount of the original CURE grant awards.

Selected Statistics on Original Grant Awards and Additional Funds Obtained			
	by Type of Award		
	Formula Grants	Nonformula Grants	Total Grants
Amount of Original CURE Grant Awards	\$265,342,014	\$83,873,291	\$349,215,305
Amount of Additional Grants Obtained	\$700,419,559	\$173,790,865	\$874,210,424
Ratio of Additional Funds Obtained to Original Grant Awards	2.6	2.1	2.5
Percentage of Grants that Obtained Additional Funding	47%	85%	50%

Performance Review

Overview of the Process

According to Act 2001-77, any applicant that receives a health research grant is subject to a performance review at the end of the research project or more often as deemed necessary by the Department. Beginning September 1, 2003, the Department contracted with ORAU to oversee and manage the performance review process. Two types of performance reviews are performed each year: (1) final performance reviews for grantees that have completed their research projects; and (2) interim performance reviews of nonformula grants when they are partially completed. The performance reviews are based on the requirements specified in Act 2001-77 and the criteria developed by the Department in consultation with the Health Research Advisory Committee.

For formula grants, the following criteria are applied to each and every project contained in the grant, using information submitted by research grant recipients. Note that the criteria for formula and nonformula grants are slightly different. Formula grants are not selected by a peer review process, whereas nonformula grants are subject to peer review prior to selection for funding by the Department. Therefore, for nonformula grants the performance reviewers are not asked to consider questions that were considered during peer review, e.g., questions concerning the significance of the project for improving health and adequacy of research design.

Formula Grant Evaluation Criteria:

- How well did the project meet its stated objectives? If objectives were not completely met, was reasonable progress made?
 - Did the project meet the stated objectives?
 - Were the research design and methods adequate in light of the project objectives?
 - Consider these questions about data and empirical results: Were the data developed sufficiently to answer the research questions posed? Were the data developed in line with the original research protocol?
 - If changes were made to the research protocol, was an explanation given, and, if so, is it reasonable?
 - Consider (only for clinical research projects) the extent of laboratory and clinical activities initiated and completed and the number of subjects relative to the target goal.
 - Were sufficient data and information provided to indicate or support the fact that the project met its objectives or made acceptable progress?
 - Were the data and information provided applicable to the project objectives listed in the strategic research plan?

- What is the likely beneficial impact of this project? If the likely beneficial impact is small, is it judged reasonable in light the dollars budgeted?
 - What is the significance of this project for improving health?
 - Consider the value of the research completed towards eventual improvement in health outcomes.
 - Consider any changes in risk factors, services provided, incidence of disease, death from disease, stage of disease at time of diagnosis, or other relevant measures of impact and effectiveness of the research being conducted.
 - Consider any major discoveries, new drugs and new approaches for prevention, diagnosis and treatment that are attributable to the completed research project.
 - What are the future plans for this research project?

- Did the project leverage additional funds or were additional grant applications submitted as a result of the project?
 - If leveraging of funds were expected, did these materialize?
 - Are the researchers planning to apply for additional funding in the future to continue or expand the research?

- Did the project result in any peer-reviewed publications, licenses, patents or commercial development opportunities? Were any of these submitted/filed?
 - If any of the above listed were expected, did these materialize?
 - Are the researchers planning to submit articles to peer-reviewed publications, file for any licenses or patents, or begin any commercial development opportunities in the future?
 - Consider the number/quality of each.

- Did the project enhance the quality and capacity for research at the grantee's institution?
 - Were there improvements made to infrastructure?
 - Were any new investigators added or were any researchers brought into the institution to help carry out this research?

- Were funds used to pay for research performed by pre- or post-doctoral students?
- Did the project lead to collaboration with research partners outside of the institution, or new involvement with the community?
 - Are the researchers planning to begin any collaborations as a result of the research?
 - For clinical research only: consider the number of hospitals and health care professionals involved and the extent of penetration of the studies throughout the region or the Commonwealth.

Nonformula Grant Evaluation Criteria:

- How well did the grant meet its stated objectives? If objectives were not completely met, was reasonable progress made?
 - Did the grant meet the stated objectives?
 - Consider these questions about the data and empirical results: Were the data developed sufficiently to answer the research questions posed? Were the data developed in line with the original research protocol?
 - If changes were made to the research protocol, was an explanation given, and, if so, is it reasonable?
 - Consider (only for clinical research grants) the extent of laboratory and clinical activities initiated and completed and the number of subjects relative to the target goal.
 - Were sufficient data and information provided to indicate or support the fact that the project met its objectives or made acceptable progress?
 - Were the data and information provided applicable to the project objectives listed in the strategic plan?
- What is the likely beneficial impact of this grant? If the likely beneficial impact is small, is it judged reasonable in light the dollars budgeted?
 - Consider any changes in risk factors, services provided, incidence of disease, death from disease, stage of disease at time of diagnosis, or other relevant measures of impact and effectiveness of the research being conducted.
 - Consider any major discoveries, new drugs and new approaches for prevention, diagnosis and treatment, which are attributable to the completed research grant.
 - What are the future plans for this research grant?
- Did the grant leverage additional funds or were additional grant applications submitted?
 - If leveraging of funds were expected, did these materialize?
 - Are the researchers planning to apply for additional funding in the future to continue or expand the research?
- Did the grant result in any peer-reviewed publications, licenses, patents or commercial development opportunities? Were any of these submitted/filed?
 - If any of the above listed were expected, did these materialize?
 - Are the researchers planning to submit articles to peer-reviewed publications, file for any licenses or patents or begin any commercial development opportunities in the future?
 - Consider the number/quality of each and what was proposed in the original application.

- Did the grant enhance the quality and capacity for research at the grantee's institution?
 - If any improvements in infrastructure were expected, were they made?
 - Were any new investigators added or were any researchers brought into the institution to help carry out this research?
 - Were funds used to pay for research performed by pre- or post-doctoral students?
- Did the grant lead to collaboration with research partners outside of the institution, or new involvement with the community?
 - Are the researchers planning to begin any collaborations as a result of the research?
 - For clinical research only: consider the number of hospitals and health care professionals involved and the extent of penetration of the studies throughout the region or the Commonwealth.

Assignment of Performance Review Ratings to Research Projects and Grants:

Each research project within each grant is reviewed and assigned an overall rating by a minimum of three reviewers. These reviewers are experts in the technical fields of the grant projects; they also have been screened for conflicts of interest. Reviewers are instructed not to compare research projects to each other, but to base all comments against the documented evaluation criteria.

The final overall rating for a research project is the average rating obtained from all of the reviewers of each project. If a grant consists of only one research project, the overall grant rating will be the average overall rating for the research project. If the grant consists of more than one research project, the overall grant rating is an average rating for all projects funded by the grant.

The performance review ratings are as follows:

1.00 – 1.33 = *Outstanding*

1.34 – 2.66 = *Favorable*

2.67 – 3.00 = *Unfavorable*

The rating is made according to the following guidelines:

- *Outstanding* indicates that: (1) major strengths were identified throughout the project with few, if any, weaknesses; (2) the project met all or most of its stated objectives; and (3) the project is likely to have some beneficial impact.
- *Favorable* indicates that: (1) strengths were identified within the project with one or more weaknesses; (2) the project met some of its stated objectives and/or made acceptable progress to do so; and/or (3) the project may or may not have a beneficial impact.
- *Unfavorable* indicates that: (1) major weaknesses were identified that are pervasive throughout the project; (2) the project did not meet any of its objectives or did not make any acceptable progress to meet the objectives; (3) the project is not likely to have any beneficial impact; (4) insufficient data and information were provided to support the fact that the project met any of its objectives or made acceptable progress; or (5) the information and data provided were not applicable to the project objectives listed in the strategic plan.

The overall rating reflects the adequacy of the research activities performed during the funding period, taking into consideration all of the significant attributes identified in the review, including the following categories:

- Major strength - an attribute of the project or grant that clearly distinguishes it well above the standards set by the program objectives and that provides compelling justification for continued funding.
- Strength - a noteworthy attribute of the project or grant compared to the objectives.
- Weakness - a noteworthy deficiency or flaw compared to program objectives.
- Major weakness - a very serious, if not fatal, flaw or deficiency compared to the objectives or common research practices.

Use and Impact of Performance Review Reports

The Department sends a report of the performance review to the grantees. The report includes the overall rating for the grant and the ratings for each research project contained in the grant, as well as the reviewers' comments on the strengths and weaknesses of the research projects and recommendations for future improvement. The Department then requires that each grantee submit a written response describing how the weaknesses and recommendations will be addressed in future health research grants.

A grant that receives an *Unfavorable* performance review by the Department may be subject to a reduction in funding or become ineligible for health research funding in the future. The consequence of receiving one *Unfavorable* grant rating is a written warning outlining the future funding impacts of subsequent *Unfavorable* ratings. A second consecutive *Unfavorable* grant rating will render the grantee ineligible to receive any nonformula funds in the next funding cycle, and will result in a 25 percent reduction in the amount of formula grant funds that the grantee would have received if there were no reduction. A third consecutive *unfavorable* grant rating will render the grantee ineligible to receive any nonformula funds in the next funding cycle and will result in a 50 percent reduction in the amount of formula grant funds that the grantee would have received if there were no reduction. A fourth consecutive *unfavorable* grant rating will render the grantee ineligible to receive any nonformula or formula funds in the next funding cycle.

Outcomes of Performance Reviews Conducted during the 2009-10 State Fiscal Year

Interim Performance Reviews

Interim performance reviews were conducted for the five nonformula grants that were awarded during the 2007-08 state fiscal year. Two grants conducted research on regenerative medicine and three conducted research on interventions designed to reduce youth violence. The grantees had completed approximately 18 months of work in their 4-year grants. The purpose of the interim performance review is to evaluate the overall progress of the research projects to date, identify successful projects, and determine if there are any areas of concern in the research project that can be modified to improve the project before it ends. All grants received favorable evaluations. The Department initiated a monthly progress reporting process to monitor

recruitment and other issues identified in the interim performance review for two of the projects which were experiencing problems with recruitment.

Final Performance Reviews

During the 2009-10 state fiscal year, final performance reviews were finalized for 35 formula and four 2004 nonformula grants. These grants contained 233 research projects.

Of the 35 formula grants:

- Three grants received *Outstanding* evaluations,
- Twenty-nine grants received *Favorable* evaluations, and
- Three grants received *Unfavorable* evaluations. One of the grantees no longer receives NIH funds and therefore is not eligible for formula grants. The other grantees either have submitted corrective action plans or are in the process of developing these plans to address the non-performance issues identified during the review process.

Of the four 2004 nonformula grants:

- Four grants received *Favorable* evaluations.

Progress Reports for Research Grants Active during SFY 2009-10

This report contains a summary of the research progress made by the 2005-06, 2006-07, 2007-08, 2008-09 and 2009-10 grantees during the 2009-10 state fiscal year (July 1, 2009 – June 30, 2010). For the 2009-10 grants, the start-up dates were January 1, 2010 for the formula grants and June 1, 2010 for the nonformula grants. Thus, many of the research projects funded by the 2009-10 grants have no significant progress to report, as they are only in the initial stages of planning the projects, hiring research staff and acquiring equipment. For information on grants that ended prior to July 1, 2009, refer to prior Annual CURE Program Reports at www.health.state.pa.us/cure.

Research Development Accomplishments of Formula Grant Recipients

In accordance with Act 2001-77, the Department of Health requested institutions receiving \$400,000 or more in formula funds to describe various initiatives and activities that they would undertake to enhance the commercialization of research results. The grant applications for these institutions included the following information related to commercialization initiatives:

- A plan for licensure and commercial development of research results.
- Copies of standard agreement forms used to license research results.
- A description of opportunities planned to train researchers about licensing and the commercial development of research.
- Outreach efforts planned to inform the business community of research developments at the institution.
- Plans to establish partnerships with postsecondary educational institutions for training students and health professionals in biomedical research.
- A plan for collaboration with Pennsylvania's Life Sciences Greenhouses and other institutions to participate in the development of research.

Annual progress reports submitted by grantees receiving \$400,000 or more in formula funds included an update describing accomplishments related to these training, outreach and commercialization activities. A report of research development activities for the 2009-10 state fiscal year is included with each institution's progress report.

Financial Report

All of the \$74,624,000 allocated for health research for the state fiscal year 2009-10 was committed to health research grants or a contract for peer and performance review. This section of the report provides an overview of the health research funding provisions of Act 2001-77 and summarizes the commitments and expenditures for the grants that were awarded during the 2005-06 through 2009-10 state fiscal years. These are the only grants that may have incurred expenditures during the 2009-10 state fiscal year. The financial reports for grants awarded during prior state fiscal years may be viewed in prior Annual CURE Reports at www.health.state.pa.us/cure.

Chapter 3 of Act 2001-77 allocated 19 percent of the tobacco settlement funds for health research. Eighteen percent of the tobacco settlement funds are allocated in accordance with Sections 906 and 908 of the act and one percent of the tobacco settlement funds are allocated in accordance with Section 909.

Section 906 funds are divided into two separate types of funds. Seventy percent of Section 906 funds (called “formula funds”) are awarded on the basis of a formula calculated using an institution’s average award from the NIH for the past three consecutive years. Thirty percent of Section 906 funds (called “nonformula funds”) are awarded as a result of a competitive bid. Section 908 further breaks down the distribution of the formula funds, reserving 20 percent of Section 906 formula funds for two institutions which averaged more than \$175 million in NIH funding and 17 percent of the Section 906 funds for one institution that averaged more than \$175 million in federally supported research and development funds as reported by the National Science Foundation and more than \$60 million in NIH funding.

Section 909 funds (“formula funds”) are allocated to institutions on the basis of a formula calculated using an institution’s average award from the National Cancer Institute for the past three years.

2005-06 Grant Awards and Expenditures

The Department awarded \$49,805,538 in formula grants and \$18,607,677 in nonformula funds from the 2005-06 state fiscal year. Tables 1 and 6 list the grant awards and expenditures for the last five state fiscal years.

2006-07 Grant Awards and Expenditures

During the 2006-07 state fiscal year the Department awarded \$45,726,700 in formula grants and \$16,824,386 in nonformula funds. Tables 2 and 7 list the grant awards and expenditures for the last four state fiscal years.

2007-08 Grant Awards and Expenditures

During the 2007-08 state fiscal year the Department awarded \$47,843,897 in health research formula grants and \$17,785,551 in nonformula grants. The amount of grant awards and

expenditures for the last three state fiscal years are shown in Tables 3 and 8.

2008-09 Grant Awards and Expenditures

During the 2008-09 state fiscal year the Department awarded \$48,429,119 in formula grants and \$17,926,819 in nonformula grants from. Tables 4 and 9 show the amount of the grant awards and the expenditures for last two state fiscal years.

2009-10 Grant Awards and Expenditures

A total of \$53,415,200 was available for health research formula grants and awarded to 31 organizations. Table 5 provides the amount of the awards and expenditures during the six months of the grant award (January 1 – June 30, 2010).

A total of \$21,208,800 was available in nonformula funds (30% of Section 906 funds). A portion of the nonformula funds was set aside for the peer review and performance review contract (\$1,120,517). These services were provided by Oak Ridge Associated Universities (ORAU). The remaining nonformula funds (\$20,088,283) were awarded in the form of five research grants. The amount of each nonformula grant award and the expenditures for the award period (June 1 – June 30, 2010) are shown in Table 10.

Anticipated Disbursement Schedule by Fiscal Year

The 2009-10 Health Research Grant recipients received the full amount of the grant award shortly after the startup date of the grant agreements. Grant recipients are required to invest the funds in an insured interest bearing account or in accordance with other investment guidelines contained in the grant agreement. Earnings derived from the investments must be applied toward health research projects approved by the Department. Any unspent funds at the completion of the grant award period are returned to the Department for reinvestment in the tobacco settlement investment account.

Aggregate Amount of Research Grants Awarded to Each Institution

Some institutions received both formula and nonformula grants. Table 11 provides the aggregated amount of research grants awarded to each institution since the inception of the program.

Table 1. 2005-06 Formula Grants — Funds Awarded and Summary of Expenditures for State Fiscal Years 2005-06, 2006-07, 2007-08, 2008-09 and 2009-10

2005-06 Formula Grant Institutions	Funds Awarded	Expenditures SFY 2005-06*	Expenditures SFY 2006-07*	Expenditures SFY 2007-08*	Expenditures SFY 2008-09*	Expenditures SFY 2009-10*
Albert Einstein Healthcare Network	\$165,620.00	\$0	\$37,989.70	\$136,889.41	\$0	\$0
Allegheny-Singer Research Institute	\$226,528.00	\$31,236.78	\$111,791.05	\$40,369.95	\$54,945.27	\$0
American Aging Association	\$1,699.00	\$1,699.00	\$0	\$0	\$0	\$0
American Association for Cancer Research	\$83,371.00	\$0	\$83,759.00	\$0	\$0	\$0
American College of Radiology	\$2,590,126.00	\$1,839.39	\$550,995.80	\$350,947.70	\$612,018.21	\$335,942.15
Arcadia University	\$17,426.00	\$30.00	\$16,193.39	\$2,156.06	\$0	\$0
Bryn Mawr College	\$9,544.00	\$8,807.08	\$801.55	\$0	\$0	\$0
Carnegie Mellon University	\$737,186.00	\$97,985.31	\$324,992.59	\$155,278.46	\$83,989.59	\$52,998.18
Children's Hospital of Philadelphia	\$3,460,487.00	\$132,733.37	\$894,318.01	\$1,303,845.84	\$1,089,735.82	\$329,994.58
Children's Hospital of Pittsburgh	\$722,169.00	\$161,282.00	\$174,767.27	\$176,453.16	\$249,827.92	\$0
Donald Guthrie Foundation for Education and Research	\$21,219.00	\$0	\$21,906.71	\$0	\$0	\$0
Drexel University	\$1,055,561.00	\$385,926.93	\$592,702.26	\$103,664.68	\$0	\$0
Duquesne University	\$82,990.00	\$9,464.18	\$63,491.69	\$13,650.71	\$0	\$0
Family Planning Council	\$12,184.00	\$0	\$12,428.00	\$0	\$0	\$0
Fox Chase Cancer Center	\$3,001,121.00	\$1,073,769.00	\$1,332,514.00	\$691,143.00	\$0	\$0
Geisinger Clinic - Weis Center for Research	\$110,724.00	\$705.96	\$58,618.54	\$57,933.50	\$0	\$0
Juniata College	\$9,495.00	\$5,778.22	\$5,156.78	\$0	\$0	\$0
Lankenau Institute for Medical Research	\$244,328.00	\$90,246.43	\$155,163.66	\$0	\$0	\$0
Lehigh University	\$130,662.00	\$430.62	\$82,232.19	\$51,325.32	\$0	\$0
Lincoln University	\$20,913.00	\$10,085.28	\$11,391.69	\$0	\$0	\$0
Madlyn and Leonard Abramson Center for Jewish Life	\$35,639.00	\$8,535.52	\$27,336.04	\$0	\$0	\$0
Magee-Womens Health Corporation	\$600,197.00	\$197,385.00	\$418,359.00	\$0	\$0	\$0
Medical Diagnostic Research Foundation	\$50,384.00	\$30,031.01	\$20,654.91	\$0	\$0	\$0
Monell Chemical Senses Center	\$281,629.00	\$132,402.48	\$150,685.63	\$0	\$0	\$0
MPC Corporation	\$160,481.00	\$3,374.73	\$115,557.84	\$33,224.98	\$2,572.63	\$4,947.08
National Disease Research Interchange	\$55,546.00	\$12,928.00	\$43,011.00	\$0	\$0	\$0
National Surgical Adjuvant Breast and Bowel Project (NSABP) Foundation	\$1,588,633.00	\$0	\$303,188.43	\$485,937.95	\$247,250.56	\$701,731.25
Oncology Nursing Society	\$32,860.00	\$29,286.46	\$3,225.00	\$0	\$0	\$0
Pennsylvania State University	\$7,845,194.00	\$882,813.00	\$2,936,507.00	\$2,325,306.00	\$1,972,491.00	\$194,964.00
Philadelphia FIGHT	\$29,970.00	\$0	\$30,145.00	\$0	\$0	\$0
Pittsburgh Tissue Engineering Initiative	\$26,589.00	\$7,441.01	\$19,129.68	\$0	\$0	\$0
Public Health Management Corporation ¹	\$6,505.00	\$2,256.50	\$4,248.00	\$0	\$0	\$0
Salus University ²	\$52,203.00	\$15,032.67	\$53,020.37	\$0	\$0	\$0
Temple University	\$2,034,995.00	\$127,823.00	\$885,913.00	\$498,219.00	\$359,278.00	\$287,270.03
Thomas Jefferson University	\$4,262,076.00	\$922,958.04	\$1,696,169.09	\$1,136,503.95	\$504,038.30	\$96,268.35
Treatment Research Institute	\$97,407.00	\$15,337.00	\$83,062.00	\$0	\$0	\$0
University of Pennsylvania	\$9,229,640.00	\$408,653.95	\$3,171,511.50	\$1,710,628.49	\$1,148,827.19	\$3,387,948.99
University of Pittsburgh	\$9,229,640.00	\$1,782,279.00	\$3,674,033.00	\$2,604,901.00	\$1,203,732.00	\$497,606.00
Wills Eye Hospital	\$8,591.00	\$1,600.00	\$7,336.26	\$0	\$0	\$0
Wistar Institute	\$1,474,006.00	\$498,360.00	\$980,048.00	\$0	\$0	\$0
TOTAL	\$49,805,538.00	\$7,090,516.92	\$19,154,354.63	\$11,878,379.16	\$7,528,706.49	\$5,889,670.61

* Grantees receive the full amount of the grant award at the start of the grant. They must invest the funds in an insured, interest bearing account and apply earnings derived from the interest toward health research projects. Amounts shown in the expenditures columns include expenditures on funds derived from interest earnings. Therefore, an institution's total expenditures may exceed the amount shown in the "Funds Awarded" column, which shows the amount of the original grant award, excluding any interest earned.

¹ Formerly known as Philadelphia Health Management Corporation ² Formerly known as Pennsylvania College of Optometry

Table 2. 2006-07 Formula Grants — Funds Awarded and Summary of Expenditures for State Fiscal Years 2006-07, 2007-08, 2008-09 and 2009-10

2006-07 Formula Grant Institutions	Funds Awarded	Expenditures SFY 2006-07*	Expenditures SFY 2007-08*	Expenditures SFY 2008-09*	Expenditures SFY 2009-10*
Albert Einstein Healthcare Network	\$147,561.00	\$24,421.70	\$126,610.07	\$2,764.30	\$0
Allegheny-Singer Research Institute	\$223,389.00	\$61,070.73	\$106,701.88	\$61,037.89	\$0
American Aging Association	\$1,638.00	\$1,638.00	\$0	\$0	\$0
American Association for Cancer Research	\$79,766.00	\$50,011.00	\$29,845.00	\$0	\$0
American College of Radiology	\$2,511,654.00	\$0	\$245,671.19	\$507,320.99	\$663,508.85
Arcadia University	\$15,155.00	\$7,301.06	\$8,014.95	\$0	\$0
Bryn Mawr College	\$10,431.00	\$84.95	\$10,496.83	\$0	\$0
Carnegie Mellon University	\$649,424.00	\$9,580.61	\$200,537.25	\$119,684.23	\$213,281.65
Children's Hospital of Philadelphia	\$3,315,523.00	\$0	\$586,161.41	\$883,784.78	\$983,687.69
Children's Hospital of Pittsburgh	\$732,956.00	\$8,634.80	\$166,629.87	\$250,781.51	\$170,736.67
Drexel University	\$1,048,705.00	\$352,005.32	\$661,463.16	\$57,060.47	\$0
Duquesne University	\$71,320.00	\$1,973.86	\$19,568.78	\$9,799.59	\$29,521.39
Fox Chase Cancer Center	\$2,768,335.00	\$483,264.00	\$1,614,819.00	\$541,362.00	\$216,750.00
Geisinger Clinic - Weis Center for Research	\$89,315.00	\$0	\$66,310.59	\$26,796.09	\$0
Hepatitis B Foundation	\$5,368.00	\$2,867.40	\$2,572.16	\$0	\$0
Juniata College	\$9,345.00	\$6,004.36	\$4,780.64	\$0	\$0
Lankenau Institute for Medical Research	\$212,216.00	\$81,510.11	\$132,345.30	\$0	\$0
Lehigh University	\$116,229.00	\$0	\$118,842.71	\$0	\$0
Lincoln University **	\$0	\$0	\$0	\$0	\$0
Madlyn and Leonard Abramson Center for Jewish Life	\$19,011.00	\$9,720.58	\$9,399.88	\$0	\$0
Magee-Womens Health Corporation	\$598,185.00	\$207,274.62	\$406,648.54	\$0	\$0
Monell Chemical Senses Center	\$256,897.00	\$88,020.35	\$170,692.88	\$0	\$0
MPC Corporation	\$160,944.00	\$0	\$60,599.75	\$65,246.84	\$31,460.06
National Disease Research Interchange	\$49,644.00	\$23,403.00	\$26,534.00	\$0	\$0
National Surgical Adjuvant Breast and Bowel Project (NSABP) Foundation	\$1,286,019.00	\$20,202.43	\$530,223.48	\$173,664.79	\$380,469.96
Oncology Nursing Society	\$26,655.00	\$25,292.68	\$1,377.91	\$0	\$0
Pennsylvania State University	\$7,201,999.00	\$303,490.00	\$2,869,793.00	\$1,886,066.00	\$1,917,912.00
Philadelphia College of Osteopathic Medicine	\$15,859.00	\$1,577.88	\$4,404.42	\$4,137.95	\$3,625.93
Pittsburgh Tissue Engineering Initiative	\$25,651.00	\$10,101.85	\$15,539.91	\$0	\$0
Public Health Management Corporation ¹	\$7,898.00	\$1,526.15	\$6,380.94	\$0	\$0
Salus University ²	\$52,788.00	\$7,261.94	\$46,604.06	\$0	\$0
Temple University	\$1,839,493.00	\$101,145.00	\$573,093.00	\$273,664.00	\$54,065.71
Thomas Jefferson University	\$3,674,642.00	\$372,535.08	\$1,156,864.84	\$792,841.85	\$998,622.69
Treatment Research Institute	\$119,268.00	\$58,835.00	\$61,009.00	\$0	\$0
University of Pennsylvania	\$8,472,940.00	\$0	\$1,801,741.02	\$3,411,137.29	\$1,379,693.22
University of Pittsburgh	\$8,472,940.00	\$1,100,191.00	\$3,346,902.00	\$2,319,787.00	\$1,497,503.00
UPMC McKeesport	\$58,248.00	\$0	\$59,979.85	\$0	\$0
Wistar Institute	\$1,363,886.00	\$477,711.86	\$898,992.85	\$0	\$0
TOTAL	\$45,711,297.00	\$3,898,657.32	\$16,113,720.62	\$11,386,937.57	\$8,540,838.82

* See footnote on Table 1.

** Lincoln University did not start their SFY2006-07 grant and returned their entire formula grant award + interest to the Commonwealth.

¹ Formerly known as Philadelphia Health Management Corporation ² Formerly known as Pennsylvania College of Optometry

Table 3. 2007-08 Formula Grants — Funds Awarded and Summary of Expenditures for State Fiscal Years 2007-08, 2008-09 and 2009-10

2007-08 Formula Grant Institutions	Funds Awarded	Expenditures SFY 2007-08*	Expenditures SFY 2008-09*	Expenditures SFY 2009-10*
Albert Einstein Healthcare Network	\$141,075.00	\$9,299.08	\$134,174.77	\$0
Allegheny-Singer Research Institute	\$237,838.00	\$28,755.07	\$116,697.73	\$95,790.00
American Aging Association, Inc.	\$1,809.00	\$1,809.00	\$0	\$0
American College of Radiology	\$2,433,581.00	\$0	\$611,302.73	\$672,438.54
Bryn Mawr College	\$11,524.00	\$1,582.88	\$9,965.13	\$0
Carnegie Mellon University	\$710,806.00	\$0	\$289,742.69	\$222,518.85
Children's Hospital of Philadelphia	\$3,499,480.00	\$97,784.60	\$628,657.42	\$538,135.85
Children's Hospital of Pittsburgh	\$879,637.00	\$94,029.00	\$407,824.40	\$207,390.91
Drexel University	\$1,138,730.00	\$245,150.07	\$772,930.95	\$130,865.11
Duquesne University	\$84,549.00	\$15,005.63	\$47,498.18	\$15,474.85
Fox Chase Cancer Center	\$3,038,276.00	\$561,408.00	\$1,625,249.00	\$876,529.00
Geisinger Clinic - Weis Center for Research	\$92,771.00	\$0	\$55,555.99	\$38,382.22
Hepatitis B Foundation	\$3,707.00	\$1,377.58	\$2,338.28	\$0
Lankenau Institute for Medical Research	\$214,033.00	\$112,411.35	\$102,447.99	\$0
Lehigh University	\$116,442.00	\$69,865.21	\$47,855.80	\$0
Magee-Womens Research Institute and Foundation	\$894,069.00	\$419,776.38	\$486,748.32	\$0
Monell Chemical Senses Center	\$213,928.00	\$107,237.79	\$107,172.32	\$0
MPC Corporation	\$136,227.00	\$1,508.47	\$16,552.07	\$77,087.08
National Disease Research Interchange	\$53,760.00	\$28,738.71	\$25,066.36	\$0
National Surgical Adjuvant Breast and Bowel Project (NSABP) Foundation	\$1,306,064.00	\$47,443.00	\$680,979.82	\$303,116.36
Oncology Nursing Society	23,037.00	\$3,123.29	\$20,006.58	\$0
Pennsylvania State University	\$7,538,293.00	\$349,758.00	\$2,570,080.00	\$2,089,065.00
Philadelphia College of Osteopathic Medicine	\$19,760.00	\$1,430.45	\$8,281.59	\$6,323.50
Pittsburgh Tissue Engineering Initiative, Inc.	\$21,247.00	\$1,587.21	\$19,639.49	\$0
Public Health Management Corporation ¹	\$14,218.00	\$6,797.28	\$6,882.60	\$0
Salus University ²	\$63,639.00	\$10,688.17	\$53,407.07	\$0
Temple University	\$1,957,901.00	\$0	\$450,777.00	\$344,567.74
Thomas Jefferson University	\$3,591,514.00	\$725,800.33	\$875,115.02	\$694,525.94
Treatment Research Institute	148,376.00	\$15,807.00	\$118,062.00	\$15,752.00
University of Pennsylvania	\$8,868,580.00	\$559,297.03	\$1,304,538.22	\$2,740,972.03
University of Pittsburgh	\$8,868,580.00	\$1,238,157.00	\$2,269,829.00	\$1,309,986.00
UPMC McKeesport	\$47,237.00	\$0	\$47,436.00	\$0
Wistar Institute	\$1,473,209.00	\$494,146.33	\$983,803.36	\$0
TOTAL	\$47,843,897.00	\$5,249,773.91	\$14,896,617.88	\$10,378,920.98

* See footnote on Table 1.

¹ Formerly known as Philadelphia Health Management Corporation ² Formerly known as Pennsylvania College of Optometry

Table 4. 2008-09 Formula Grants — Funds Awarded and Summary of Expenditures for State Fiscal Years 2008-09 and 2009-10

2008-09 Formula Grant Institutions	Funds Awarded	Expenditures SFY 2008-09*	Expenditures SFY 2009-10*
Albert Einstein Healthcare Network	\$135,484.00	\$19,398.74	\$74,960.60
Allegheny-Singer Research Institute	\$202,774.00	\$21,156.19	\$183,247.51
American College of Radiology	\$2,144,345.00	\$0	\$232,160.74
Bryn Mawr College	\$12,570.00	\$5,315.13	\$7,314.01
Carnegie Mellon University	\$747,818.00	\$14,222.32	\$543,725.76
Children's Hospital of Philadelphia	\$3,640,981.00	\$346,824.59	\$847,561.89
Children's Hospital of Pittsburgh	\$958,038.00	\$341,962.74	\$154,609.36
Drexel University	\$1,215,241.00	\$394,536.71	\$760,847.31
Duquesne University	\$94,131.00	\$3,290.00	\$49,325.37
Fox Chase Cancer Center	\$3,131,563.00	\$401,131.00	\$1,019,837.00
Geisinger Clinic - Weis Center for Research	\$95,564.00	\$3,467.83	\$31,354.44
Hepatitis B Foundation	\$2,537.00	\$1,054.80	\$1,491.80
Lankenau Institute for Medical Research	\$223,613.00	\$119,141.75	\$104,671.60
Lehigh University	\$108,901.00	\$14,043.60	\$71,274.47
Magee-Womens Research Institute and Foundation	\$1,194,952.00	\$415,157.45	\$780,074.20
Monell Chemical Senses Center	\$217,894.00	\$104,032.91	\$113,933.69
MPC Corporation	\$115,727.00	\$46,691.43	\$68,162.03
National Disease Research Interchange	\$58,338.00	\$28,530.33	\$29,947.67
National Surgical Adjuvant Breast and Bowel Project (NSABP) Foundation	\$1,288,794.00	\$229,589.04	\$372,498.51
Oncology Nursing Society	\$12,473.00	\$176.19	\$11,900.91
Pennsylvania State University	\$7,628,852.00	\$204,634.00	\$2,830,492.00
Philadelphia College of Osteopathic Medicine	\$17,036.00	\$712.50	\$11,525.59
Pittsburgh Tissue Engineering Initiative, Inc.	\$15,697.00	\$8,687.70	\$7,027.30
Public Health Management Corporation ¹	\$20,369.00	\$7,815.24	\$12,570.74
Salus University ²	\$60,332.00	\$8,618.50	\$51,850.06
Temple University	\$2,005,437.00	\$56,651.00	\$804,230.77
Thomas Jefferson University	\$3,455,597.00	\$146,373.04	\$1,235,156.71
Treatment Research Institute	\$158,950.00	\$17,178.00	\$98,549.00
University of Pennsylvania	\$8,975,120.00	\$953,423.15	\$2,208,275.60
University of Pittsburgh	\$8,975,120.00	\$736,896.00	\$3,660,978.00
UPMC McKeesport	\$53,071.00	\$0	\$53,136.00
Wistar Institute	\$1,461,800.00	\$662,621.72	\$804,914.76
TOTAL	\$48,429,119.00	\$5,313,333.60	\$17,237,605.40

* See footnote on Table 1.

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Table 5. 2009-10 Formula Grants — Funds Awarded and Summary of Expenditures for State Fiscal Year 2009-10

2009-10 Formula Grant Institutions	Funds Awarded	Expenditures SFY 2009-10*
Albert Einstein Healthcare Network	\$119,376.00	\$14,491.51
Allegheny-Singer Research Institute	\$186,525.00	\$25,836.04
American College of Radiology	\$2,043,960.00	\$8,626.10
Carnegie Mellon University	\$910,547.00	\$61,000.94
Children's Hospital of Philadelphia	\$4,034,902.00	\$386,125.32
Children's Hospital of Pittsburgh	\$1,039,905.00	\$62,786.19
Drexel University	\$1,431,165.00	\$385,726.92
Duquesne University	\$121,663.00	\$12,310.38
Fox Chase Cancer Center	\$3,477,323.00	\$948,220.00
Geisinger Clinic - Weis Center for Research	\$104,117.00	\$2,506.48
Hepatitis B Foundation	\$1,073.00	\$389.20
Lankenau Institute for Medical Research	\$241,281.00	\$122,727.61
Lehigh University	\$119,007.00	\$4,835.06
Lincoln University	\$23,171.00	\$0
Magee-Womens Research Institute and Foundation	\$1,541,095.00	\$918,721.82
Monell Chemical Senses Center	\$240,428.00	\$124,227.81
National Disease Research Interchange	\$73,679.00	\$21,233.11
National Surgical Adjuvant Breast and Bowel Project (NSABP) Foundation	\$1,255,581.00	\$26,464.52
Pennsylvania State University	\$8,412,824.00	\$185,265.00
Philadelphia College of Osteopathic Medicine	\$25,305.00	\$0
Pittsburgh Tissue Engineering Initiative, Inc.	\$12,224.00	\$2,700.00
Public Health Management Corporation ¹	\$21,969.00	\$0
Salus University ²	\$59,678.00	\$8,681.61
Temple University	\$2,375,033.00	\$0
Thomas Jefferson University	\$3,746,521.00	\$686,689.50
Treatment Research Institute	\$171,222.00	\$11,733.00
University of Pennsylvania	\$9,897,440.00	\$600,340.82
University of Pittsburgh	\$9,897,440.00	\$2,470,418.00
UPMC McKeesport	\$48,585.00	\$8,550.00
West Chester University of Pennsylvania	\$4,080.00	\$0
Wistar Institute	\$1,778,081.00	\$938,811.11
TOTAL	\$53,415,200.00	\$8,039,418.05

* See footnote on Table 1.

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Table 6. 2005-06 Nonformula Grants — Funds Awarded and Summary of Expenditures for State Fiscal Years 2005-06, 2006-07, 2007-08, 2008-09 and 2009-10

2005-06 Nonformula Grant Institutions	Funds Awarded	Expenditures SFY 2005-06*	Expenditures SFY 2006-07*	Expenditures SFY 2007-08*	Expenditures SFY 2008-09*	Expenditures SFY 2009-10*
Children's Hospital of Philadelphia (Obesity)	\$4,151,919.00	\$0	\$389,953.29	\$838,779.25	\$1,197,113.56	\$1,313,184.47
Temple University (Obesity)	\$4,151,920.00	\$7,456.00	\$556,269.00	\$1,036,733.00	\$1,179,646.00	\$1,564,896.95
Thomas Jefferson University (Obesity)	\$4,151,919.00	\$1,233.90	\$777,102.20	\$1,150,815.41	\$1,343,782.77	\$1,143,260.31
University of Pennsylvania (Obesity)	\$2,000,000.00	\$1,157.26	\$240,990.54	\$479,235.25	\$850,597.64	\$575,130.81
University of Pittsburgh (Obesity)	\$4,151,919.00	\$0	\$578,483.38	\$1,128,898.97	\$1,264,021.03	\$1,496,115.66
TOTAL	\$18,607,677.00	\$9,847.16	\$2,542,798.41	\$4,634,461.88	\$5,835,161.00	\$6,092,588.20

* See footnote on Table 1

Table 7. 2006-07 Nonformula Grants — Funds Awarded and Summary of Expenditures for State Fiscal Years 2006-07, 2007-08, 2008-09 and 2009-10

2006-07 Nonformula Grant Institutions	Funds Awarded	Expenditures SFY 2006-07*	Expenditures SFY 2007-08*	Expenditures SFY 2008-09*	Expenditures SFY 2009-10*
Pennsylvania State University (Gene-Environment Interactions)	\$4,206,097.00	\$0	\$791,205.62	\$1,122,328.58	\$1,284,658.78
University of Pennsylvania (Gene-Environment Interactions)	\$4,206,096.00	\$11,871.85	\$569,956.62	\$849,754.65	\$1,035,710.25
University of Pennsylvania (Vaccine Development)	\$4,206,097.00	\$0	\$300,066.84	\$940,270.65	\$1,367,026.40
Wistar Institute (Vaccine Development)	\$4,206,096.00	\$27,725.54	\$625,998.96	\$1,089,205.55	\$1,014,788.75
TOTAL	\$16,824,386.00	\$39,597.39	\$2,287,228.04	\$4,001,559.43	\$4,702,184.18

* See footnote on Table 1

Table 8. 2007-08 Nonformula Grants — Funds Awarded and Summary of Expenditures for State Fiscal Years 2007-08, 2008-09 and 2009-10

2007-08 Nonformula Grant Institutions	Funds Awarded	Expenditures SFY 2007-08*	Expenditures SFY 2008-09*	Expenditures SFY 2009-10*
Pennsylvania State University (Violence Prevention)	\$3,912,217.00	\$0	\$784,270.20	\$1,211,047.81
University of Pennsylvania (Violence Prevention)	\$3,941,025.00	\$0	\$414,359.80	\$672,751.56
University of Pittsburgh (Violence Prevention)	\$3,932,889.00	\$0	\$630,648.38	\$1,083,403.36
Children's Hospital of Philadelphia (Regenerative Medicine)	\$2,110,362.00	\$8,141.53	\$306,296.96	\$500,052.25
University of Pennsylvania (Regenerative Medicine)	\$3,889,058.00	\$0	\$767,681.27	\$885,245.16
TOTAL	\$17,785,551.00	\$8,141.53	\$2,903,256.61	\$4,352,500.14

* See footnote on Table 1

Table 9. 2008-09 Nonformula Grants — Funds Awarded and Summary of Expenditures for State Fiscal Years 2008-09 and 2009-10

2008-09 Nonformula Grant Institutions	Funds Awarded	Expenditures SFY 2008-09*	Expenditures SFY 2009-10*
University of Pennsylvania (Antibiotic Resistance)	\$5,531,053.00	\$21,530.67	\$890,306.99
University of Pittsburgh (Antibiotic Resistance)	\$4,708,555.00	\$16,036.37	\$1,198,072.37
Children's Hospital of Philadelphia (Autism Spectrum Disorders)	\$4,708,555.00	\$10,248.68	\$528,361.23
University of Pittsburgh (Autism Spectrum Disorders)	\$2,978,656.00	\$0	\$399,611.79
TOTAL	\$17,926,819.00	\$47,815.72	\$3,016,352.38

* See footnote on Table 1

Table 10. 2009-10 Nonformula Grants — Funds Awarded and Summary of Expenditures for State Fiscal Year 2009-10

2009-10 Nonformula Grant Institutions	Funds Awarded	Expenditures SFY 2009-10*
Drexel University (Cancer Vaccines)	\$2,769,497.00	\$1,718.30
Thomas Jefferson University (Cancer Vaccines)	\$4,500,000.00	\$17,088.28
University of Pennsylvania (Cancer Vaccines)	\$4,620,420.00	\$11,138.30
University of Pennsylvania (Blindness & Visual Impairment)	\$4,600,000.00	\$28,095.59
Wills Eye Health System (Blindness & Visual Impairment)	\$3,598,366.00	\$2,874.48
TOTAL	\$20,088,283.00	\$60,914.95

* See footnote on Table 1

Table 11. Total Grants Awards — Formula and Nonformula Funds Awarded for State Fiscal Years 2001-02, 2002-03, 2003-04, 2004-05, 2005-06, 2006-07, 2007-08, 2008-09 and 2009-10

ALL FORMULA AND NONFORMULA GRANT INSTITUTIONS	SFY TOTAL AWARDS				GRAND TOTAL
	SFY 2001-02	SFY 2002-03	SFY 2003-04	SFY 2004-05	
Albert Einstein Healthcare Network	\$96,908	\$168,475	\$186,128	\$182,685	\$1,343,312
	SFY 2005-06 \$165,620	SFY 2006-07 \$147,561	SFY 2007-08 \$141,075	SFY 2008-09 \$135,484	
	SFY 2009-10 \$119,376				
Allegheny-Singer Research Institute	SFY 2001-02 \$4,240,705	SFY 2002-03 \$307,259	SFY 2003-04 \$264,887	SFY 2004-05 \$209,634	\$6,099,539
	SFY 2005-06 \$226,528	SFY 2006-07 \$223,389	SFY 2007-08 \$237,838	SFY 2008-09 \$202,774	
	SFY 2009-10 \$186,525				
American Aging Association	SFY 2001-02 \$0	SFY 2002-03 \$0	SFY 2003-04 \$1,875	SFY 2004-05 \$1,706	\$8,727
	SFY 2005-06 \$1,699	SFY 2006-07 \$1,638	SFY 2007-08 \$1,809	SFY 2008-09 \$0	
	SFY 2009-10 \$0				
American Association for Cancer Research	SFY 2001-02 \$0	SFY 2002-03 \$142,976	SFY 2003-04 \$115,950	SFY 2004-05 \$89,360	\$511,423
	SFY 2005-06 \$83,371	SFY 2006-07 \$79,766	SFY 2007-08 \$0	SFY 2008-09 \$0	
	SFY 2009-10 \$0				
American College of Radiology	SFY 2001-02 \$0	SFY 2002-03 \$2,053,097	SFY 2003-04 \$2,156,639	SFY 2004-05 \$2,372,081	\$18,305,483
	SFY 2005-06 \$2,590,126	SFY 2006-07 \$2,511,654	SFY 2007-08 \$2,433,581	SFY 2008-09 \$2,144,345	
	SFY 2009-10 \$2,043,960				
Arcadia University	SFY 2001-02 \$0	SFY 2002-03 \$0	SFY 2003-04 \$0	SFY 2004-05 \$0	\$32,581
	SFY 2005-06 \$17,426	SFY 2006-07 \$15,155	SFY 2007-08 \$0	SFY 2008-09 \$0	
	SFY 2009-10 \$0				
Bryn Mawr College	SFY 2001-02 \$9,368	SFY 2002-03 \$8,581	SFY 2003-04 \$10,932	SFY 2004-05 \$9,536	\$82,486
	SFY 2005-06 \$9,544	SFY 2006-07 \$10,431	SFY 2007-08 \$11,524	SFY 2008-09 \$12,570	
	SFY 2009-10 \$0				

Table 11. Total Grants Awards (continued)

Carnegie Mellon University	SFY 2001-02 \$4,362,007	SFY 2002-03 \$1,081,443	SFY 2003-04 \$962,758	SFY 2004-05 \$822,602	\$10,984,591
	SFY 2005-06 \$737,186	SFY 2006-07 \$649,424	SFY 2007-08 \$710,806	SFY 2008-09 \$747,818	
	SFY 2009-10 \$910,547				
Children's Hospital of Philadelphia	SFY 2001-02 \$2,800,005	SFY 2002-03 \$3,727,099	SFY 2003-04 \$3,657,085	SFY 2004-05 \$8,419,246	\$47,525,644
	SFY 2005-06 \$7,612,406	SFY 2006-07 \$3,315,523	SFY 2007-08 \$5,609,842	SFY 2008-09 \$8,349,536	
	SFY 2009-10 \$4,034,902				
Children's Hospital of Pittsburgh	SFY 2001-02 \$479,289	SFY 2002-03 \$720,940	SFY 2003-04 \$723,892	SFY 2004-05 \$700,355	\$6,957,181
	SFY 2005-06 \$722,169	SFY 2006-07 \$732,956	SFY 2007-08 \$879,637	SFY 2008-09 \$958,038	
	SFY 2009-10 \$1,039,905				
Delaware Water Gap Science Institute	SFY 2001-02 \$15,998	SFY 2002-03 \$0	SFY 2003-04 \$0	SFY 2004-05 \$0	\$15,998
	SFY 2005-06 \$0	SFY 2006-07 \$0	SFY 2007-08 \$0	SFY 2008-09 \$0	
	SFY 2009-10 \$0				
Donald Guthrie Foundation for Education and Research	SFY 2001-02 \$39,698	SFY 2002-03 \$55,570	SFY 2003-04 \$46,918	SFY 2004-05 \$34,542	\$197,947
	SFY 2005-06 \$21,219	SFY 2006-07 \$0	SFY 2007-08 \$0	SFY 2008-09 \$0	
	SFY 2009-10 \$0				
Drexel University *	SFY 2001-02 \$164,560	SFY 2002-03 \$197,969	SFY 2003-04 \$6,130,470	SFY 2004-05 \$1,100,707	\$16,252,605
	SFY 2005-06 \$1,055,561	SFY 2006-07 \$1,048,705	SFY 2007-08 1,138,730	SFY 2008-09 \$1,215,241	
	SFY 2009-10 \$4,200,662				
Drexel University College of Medicine *	SFY 2001-02 \$2,243,051	SFY 2002-03 \$1,445,034	SFY 2003-04 \$0	SFY 2004-05 \$0	\$3,688,085
	SFY 2005-06 \$0	SFY 2006-07 \$0	SFY 2007-08 \$0	SFY 2008-09 \$0	
	SFY 2009-10 \$0				

Table 11. Total Grants Awards (continued)

Duquesne University	SFY 2001-02 \$75,689	SFY 2002-03 \$100,115	SFY 2003-04 \$89,848	SFY 2004-05 \$89,469	\$809,774
	SFY 2005-06 \$82,990	SFY 2006-07 \$71,320	SFY 2007-08 \$84,549	SFY 2008-09 \$94,131	
	SFY 2009-10 \$121,663				
Family Planning Council	SFY 2001-02 \$0	SFY 2002-03 \$0	SFY 2003-04 \$18,107	SFY 2004-05 \$14,582	\$44,873
	SFY 2005-06 \$12,184	SFY 2006-07 \$0	SFY 2007-08 \$0	SFY 2008-09 \$0	
	SFY 2009-10 \$0				
Fox Chase Cancer Center	SFY 2001-02 \$3,831,779	SFY 2002-03 \$4,508,784	SFY 2003-04 \$3,818,851	SFY 2004-05 \$3,195,298	\$30,771,330
	SFY 2005-06 \$3,001,121	SFY 2006-07 \$2,768,335	SFY 2007-08 \$3,038,276	SFY 2008-09 \$3,131,563	
	SFY 2009-10 \$3,477,323				
Geisinger Clinic - Weis Center for Research	SFY 2001-02 \$167,916	SFY 2002-03 \$183,198	SFY 2003-04 \$163,358	SFY 2004-05 \$128,587	\$1,135,550
	SFY 2005-06 \$110,724	SFY 2006-07 \$89,315	SFY 2007-08 \$92,771	SFY 2008-09 \$95,564	
	SFY 2009-10 \$104,117				
Hepatitis B Foundation	SFY 2001-02 \$0	SFY 2002-03 \$0	SFY 2003-04 \$0	SFY 2004-05 \$0	\$12,685
	SFY 2005-06 \$0	SFY 2006-07 \$5,368	SFY 2007-08 \$3,707	SFY 2008-09 \$2,537	
	SFY 2009-10 \$1,073				
Immaculata University	SFY 2001-02 \$4,962	SFY 2002-03 \$6,378	SFY 2003-04 \$5,090	SFY 2004-05 \$0	\$16,430
	SFY 2005-06 \$0	SFY 2006-07 \$0	SFY 2007-08 \$0	SFY 2008-09 \$0	
	SFY 2009-10 \$0				
Juniata College	SFY 2001-02 \$0	SFY 2002-03 \$0	SFY 2003-04 \$0	SFY 2004-05 \$0	\$18,840
	SFY 2005-06 \$9,495	SFY 2006-07 \$9,345	SFY 2007-08 \$0	SFY 2008-09 \$0	
	SFY 2009-10 \$0				

Table 11. Total Grants Awards (continued)

Lankenau Institute for Medical Research	SFY 2001-02 \$307,220	SFY 2002-03 \$409,168	SFY 2003-04 \$346,399	SFY 2004-05 \$287,621	\$2,485,879
	SFY 2005-06 \$244,328	SFY 2006-07 \$212,216	SFY 2007-08 \$214,033	SFY 2008-09 \$223,613	
	SFY 2009-10 \$241,281				
Lehigh University	SFY 2001-02 \$84,515	SFY 2002-03 \$117,425	SFY 2003-04 \$127,442	SFY 2004-05 \$131,021	\$1,051,644
	SFY 2005-06 \$130,662	SFY 2006-07 \$116,229	SFY 2007-08 \$116,442	SFY 2008-09 \$108,901	
	SFY 2009-10 \$119,007				
Lincoln University *	SFY 2001-02 \$17,070	SFY 2002-03 \$19,364	SFY 2003-04 \$21,977	SFY 2004-05 \$22,412	\$124,907
	SFY 2005-06 \$20,913	SFY 2006-07 \$0	SFY 2007-08 \$0	SFY 2008-09 \$0	
	SFY 2009-10 \$23,171				
Madlyn and Leonard Abramson Center for Jewish Life	SFY 2001-02 \$32,827	SFY 2002-03 \$41,864	SFY 2003-04 \$48,506	SFY 2004-05 \$39,055	\$216,902
	SFY 2005-06 \$35,639	SFY 2006-07 \$19,011	SFY 2007-08 \$0	SFY 2008-09 \$0	
	SFY 2009-10 \$0				
Magee-Womens Research Institute and Foundation	SFY 2001-02 \$544,531	SFY 2002-03 \$681,269	SFY 2003-04 \$683,748	SFY 2004-05 \$631,282	\$7,369,328
	SFY 2005-06 \$600,197	SFY 2006-07 \$598,185	SFY 2007-08 \$894,069	SFY 2008-09 \$1,194,952	
	SFY 2009-10 \$1,541,095				
Medical Diagnostic Research Foundation	SFY 2001-02 \$0	SFY 2002-03 \$57,612	SFY 2003-04 \$62,239	SFY 2004-05 \$58,488	\$228,723
	SFY 2005-06 \$50,384	SFY 2006-07 \$0	SFY 2007-08 \$0	SFY 2008-09 \$0	
	SFY 2009-10 \$0				
Mercy Hospital of Pittsburgh	SFY 2001-02 \$28,721	SFY 2002-03 \$0	SFY 2003-04 \$0	SFY 2004-05 \$0	\$28,721
	SFY 2005-06 \$0	SFY 2006-07 \$0	SFY 2007-08 \$0	SFY 2008-09 \$0	
	SFY 2009-10 \$0				

Table 11. Total Grants Awards (continued)

Monell Chemical Senses Center	SFY 2001-02 \$257,357	SFY 2002-03 \$312,634	SFY 2003-04 \$284,558	SFY 2004-05 \$302,317	\$2,367,642
	SFY 2005-06 \$281,629	SFY 2006-07 \$256,897	SFY 2007-08 \$213,928	SFY 2008-09 \$217,894	
	SFY 2009-10 \$240,428				
MPC Corporation	SFY 2001-02 \$218,236	SFY 2002-03 \$266,553	SFY 2003-04 \$246,020	SFY 2004-05 \$193,969	\$1,498,157
	SFY 2005-06 \$160,481	SFY 2006-07 \$160,944	SFY 2007-08 \$136,227	SFY 2008-09 \$115,727	
	SFY 2009-10 \$0				
National Disease Research Interchange	SFY 2001-02 \$57,995	SFY 2002-03 \$80,999	SFY 2003-04 \$77,132	SFY 2004-05 \$59,884	\$566,977
	SFY 2005-06 \$55,546	SFY 2006-07 \$49,644	SFY 2007-08 \$53,760	SFY 2008-09 \$58,338	
	SFY 2009-10 \$73,679				
National Surgical Adjuvant Breast and Bowel Project (NSABP) Foundation	SFY 2001-02 \$0	SFY 2002-03 \$0	SFY 2003-04 \$2,278,516	SFY 2004-05 \$1,856,715	\$10,860,322
	SFY 2005-06 \$1,588,633	SFY 2006-07 \$1,286,019	SFY 2007-08 \$1,306,064	SFY 2008-09 \$1,288,794	
	SFY 2009-10 \$1,255,581				
Oncology Nursing Society	SFY 2001-02 \$24,693	SFY 2002-03 \$28,676	SFY 2003-04 \$33,420	SFY 2004-05 \$31,527	\$213,341
	SFY 2005-06 \$32,860	SFY 2006-07 \$26,655	SFY 2007-08 \$23,037	SFY 2008-09 \$12,473	
	SFY 2009-10 \$0				
Pennsylvania State University	SFY 2001-02 \$7,390,257	SFY 2002-03 \$9,286,165	SFY 2003-04 \$13,948,556	SFY 2004-05 \$8,225,637	\$85,596,091
	SFY 2005-06 \$7,845,194	SFY 2006-07 \$11,408,096	SFY 2007-08 \$11,450,510	SFY 2008-09 \$7,628,852	
	SFY 2009-10 \$8,412,824				
Philadelphia College of Osteopathic Medicine	SFY 2001-02 \$9,517	SFY 2002-03 \$16,087	SFY 2003-04 \$0	SFY 2004-05 \$0	\$103,564
	SFY 2005-06 \$0	SFY 2006-07 \$15,859	SFY 2007-08 \$19,760	SFY 2008-09 \$17,036	
	SFY 2009-10 \$25,305				

Table 11. Total Grants Awards (continued)

Philadelphia FIGHT	SFY 2001-02 \$55,224	SFY 2002-03 \$66,088	SFY 2003-04 \$62,772	SFY 2004-05 \$42,916	\$256,970
	SFY 2005-06 \$29,970	SFY 2006-07 \$0	SFY 2007-08 \$0	SFY 2008-09 \$0	
	SFY 2009-10 \$0				
Pittsburgh Tissue Engineering Initiative	SFY 2001-02 \$0	SFY 2002-03 \$0	SFY 2003-04 \$22,965	SFY 2004-05 \$23,447	\$147,820
	SFY 2005-06 \$26,589	SFY 2006-07 \$25,651	SFY 2007-08 \$21,247	SFY 2008-09 \$15,697	
	SFY 2009-10 \$12,224				
Public Health Management Corporation *	SFY 2001-02 \$0	SFY 2002-03 \$0	SFY 2003-04 \$19,349	SFY 2004-05 \$11,489	\$101,797
	SFY 2005-06 \$6,505	SFY 2006-07 \$7,898	SFY 2007-08 \$14,218	SFY 2008-09 \$20,369	
	SFY 2009-10 \$21,969				
Salus University *	SFY 2001-02 \$38,785	SFY 2002-03 \$47,559	SFY 2003-04 \$48,971	SFY 2004-05 \$45,969	\$469,924
	SFY 2005-06 \$52,203	SFY 2006-07 \$52,788	SFY 2007-08 \$63,639	SFY 2008-09 \$60,332	
	SFY 2009-10 \$59,678				
Swarthmore College	SFY 2001-02 \$0	SFY 2002-03 \$0	SFY 2003-04 \$0	SFY 2004-05 \$7,697	\$7,697
	SFY 2005-06 \$0	SFY 2006-07 \$0	SFY 2007-08 \$0	SFY 2008-09 \$0	
	SFY 2009-10 \$0				
Temple University	SFY 2001-02 \$2,189,275	SFY 2002-03 \$8,231,989	SFY 2003-04 \$7,351,100	SFY 2004-05 \$2,165,659	\$34,302,802
	SFY 2005-06 \$6,186,915	SFY 2006-07 \$1,839,493	SFY 2007-08 \$1,957,901	SFY 2008-09 \$2,005,437	
	SFY 2009-10 \$2,375,033				
Thomas Jefferson University	SFY 2001-02 \$4,922,826	SFY 2002-03 \$6,229,638	SFY 2003-04 \$5,488,272	SFY 2004-05 \$8,200,818	\$52,223,823
	SFY 2005-06 \$8,413,995	SFY 2006-07 \$3,674,642	SFY 2007-08 \$3,591,514	SFY 2008-09 \$3,455,597	
	SFY 2009-10 \$8,246,521				

Table 11. Total Grants Awards (continued)

Treatment Research Institute	SFY 2001-02 \$0	SFY 2002-03 \$62,697	SFY 2003-04 \$75,727	SFY 2004-05 \$78,251	\$911,898
	SFY 2005-06 \$97,407	SFY 2006-07 \$119,268	SFY 2007-08 \$148,376	SFY 2008-09 \$158,950	
	SFY 2009-10 \$171,222				
University of Pennsylvania	SFY 2001-02 \$8,694,420	SFY 2002-03 \$19,312,867	SFY 2003-04 \$15,657,124	SFY 2004-05 \$16,302,480	\$138,404,360
	SFY 2005-06 \$11,229,640	SFY 2006-07 \$16,885,133	SFY 2007-08 \$16,698,663	SFY 2008-09 \$14,506,173	
	SFY 2009-10 \$19,117,860				
University of Pittsburgh	SFY 2001-02 \$20,288,781	SFY 2002-03 \$20,278,241	SFY 2003-04 \$10,877,580	SFY 2004-05 \$14,547,334	\$127,207,675
	SFY 2005-06 \$13,381,559	SFY 2006-07 \$8,472,940	SFY 2007-08 \$12,801,469	SFY 2008-09 \$16,662,331	
	SFY 2009-10 \$9,897,440				
University of the Sciences in Philadelphia	SFY 2001-02 \$12,149	SFY 2002-03 \$9,779	SFY 2003-04 \$0	SFY 2004-05 \$0	\$21,928
	SFY 2005-06 \$0	SFY 2006-07 \$0	SFY 2007-08 \$0	SFY 2008-09 \$0	
	SFY 2009-10 \$0				
UPMC McKeesport	SFY 2001-02 \$0	SFY 2002-03 \$0	SFY 2003-04 \$0	SFY 2004-05 \$0	\$207,141
	SFY 2005-06 \$0	SFY 2006-07 \$58,248	SFY 2007-08 \$47,237	SFY 2008-09 \$53,071	
	SFY 2009-10 \$48,585				
West Chester University	SFY 2001-02 \$0	SFY 2002-03 \$0	SFY 2003-04 \$0	SFY 2004-05 \$0	\$4,080
	SFY 2005-06 \$0	SFY 2006-07 \$0	SFY 2007-08 \$0	SFY 2008-09 \$0	
	SFY 2009-10 \$4,080				
Wills Eye Health System *	SFY 2001-02 \$11,119	SFY 2002-03 \$11,779	SFY 2003-04 \$11,748	SFY 2004-05 \$9,146	\$3,650,749
	SFY 2005-06 \$8,591	SFY 2006-07 \$0	SFY 2007-08 \$0	SFY 2008-09 \$0	
	SFY 2009-10 \$3,598,366				

Table 11. Total Grants Awards (continued)

Wistar Institute	SFY 2001-02 \$1,397,012	SFY 2002-03 \$1,751,632	SFY 2003-04 \$5,099,020	SFY 2004-05 \$1,531,984	\$21,536,726
	SFY 2005-06 \$1,474,006	SFY 2006-07 \$5,569,982	SFY 2007-08 \$1,473,209	SFY 2008-09 \$1,461,800	
	SFY 2009-10 \$1,778,081				
TOTAL — ALL INSTITUTIONS	SFY 2001-02 \$65,114,465	SFY 2002-03 \$82,027,003	SFY 2003-04 \$81,225,929	SFY 2004-05 \$72,177,508	\$636,982,672
	SFY 2005-06 \$68,413,215	SFY 2006-07 \$62,535,683	SFY 2007-08 \$65,629,448	SFY 2008-09 \$66,355,938	
	SFY 2009-10 \$73,503,483				

* Drexel University College of Medicine, originally MCP Hahnemann in SFY 2001-02, was combined with Drexel University in SFY 2003-04.

* Lincoln University did not start their SFY2006-07 grant and returned their entire formula grant award \$15,403 + interest \$595.74 to the Commonwealth on 9/9/08.

* Public Health Management Corporation was formerly known as Philadelphia Health Management Corporation (7/2008).

* Salus University was formerly known as Pennsylvania College of Optometry (7/2008).

* Wills Eye Health System was formerly known as Wills Eye Hospital (7/2009).