Robert T. Croyle, Ph.D.
Director DCCPS

NCI’s bridge to public health research, practice, and policy
FY13 Distribution of Grants and Funding by Mechanism

Distribution of FY13 Grants by Mechanism (n=821)

- R01: 56%
- U01: 9%
- P50: 9%
- P01: 6%
- UM1: 5%
- R21: 4%
- U19: 4%
- U54: 3%
- R03: 2%
- U24: 1%
- R37: 1%
- Others*: 1%

Distribution of DCCPS FY13 Funding by Mechanism (Total Dollars=$443.6M)

- R01: 56%
- U01: 9%
- P50: 9%
- U19: 3%
- R03: 2%
- U24: 1%
- R37: 1%
- Others*: 1%

Others= mechanisms with less than 1% total dollars and number of grants
# DCCPS FY13 Highlights

<table>
<thead>
<tr>
<th>METRIC</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>$450 M</td>
<td>The DCCPS grant portfolio included approximately 800 grants valued at nearly $450 million, with work in the US and more than 40 countries aimed to reduce risk, incidence, and deaths from cancer, and to enhance the quality of life for cancer survivors.</td>
</tr>
<tr>
<td>239</td>
<td>DCCPS funded 239 new grants -- an increase in awards from the previous fiscal year. The breadth of research supported by DCCPS includes surveillance, epidemiology, health services, behavioral science, and cancer survivorship</td>
</tr>
<tr>
<td>37</td>
<td>The division provided funding support to 37 new investigators. DCCPS provides information, tools, and resources to help new grantees successfully manage their grants and advance their careers</td>
</tr>
<tr>
<td>13</td>
<td>In addition to encouraging the best scientific ideas through investigator-initiated grant applications, DCCPS led and contributed to 13 trans-NIH funding announcements in FY13 to encourage research projects in emerging or priority areas</td>
</tr>
<tr>
<td>18,500</td>
<td>The NCI CancerCtrl Twitter channel gathered more than 18,500 followers in 2013, who scan our tweets to stay informed about cancer control news from NCI. The channel is one of the top 3 most followed of NCI’s 23 Twitter accounts.</td>
</tr>
<tr>
<td>50</td>
<td>In addition to the nearly 1,000 valued investigators whose research the division funds, DCCPS collaborates with nearly 50 collaborators and partners.</td>
</tr>
</tbody>
</table>
NCI Scientific Program Leadership Group (SPL)

- Rigorous stewardship of limited resources
- Complement peer review to select the best research
- Minimize duplication and overlap (esp. vs. other recently approved grants)
- Ensure appropriate mechanism to achieve goals
- Facilitate coordination of research across NCI divisions
- Enables the senior leaders to maintain a fuller understanding of the entire NCI portfolio
- Ensure that all levels of program leadership are engaged in scientifically informed funding decisions
NCI's Grant Selection Process

• In 2013, most R01 applications with scores up to the 9th percentile were funded.
• Applications with higher scores subject to branch, program, divisional and Scientific Program Leaders (SPL) review.
• Selection of grant applications for funding by exception
  • Not by an absolute payline- instead by individual consideration
• The NCI awarded 1,095 competing Research Project Grants (RPGs), resulting in a final success rate of 14%.
NCI FY2013 Competing R01 Applications and Awards: New Investigators (Includes Early Stage Investigators)

[Bar chart showing the number of applications and awards for New Investigators and Early Stage Investigators across different percentiles.]
A 3-Pronged Strategy for DCCPS

- Focused scientific initiatives in key domains to advance knowledge
- Expand scope and effectiveness of interagency collaboration
- Develop, enhance, and expand infrastructures to enable next-gen cancer control and population science
Enabling Next-Generation Cancer Control:

*Our Research and Programs Need to be:*

- Faster
- Cheaper
- Bigger
- Better
Doing More with Less

- Bad news: shrinking budget
- Better news: improvements in infrastructure, capacity, technology, and availability of data
- Increasing capacity to do more, in less time
- Remarkable early wins in all of our four domains...faster, cheaper, bigger, better
- But, challenges remain
Faster

- High-throughput technology for omics
- DIY surveys (e.g. SurveyMonkey, REDCap, Qualtrics)
- Electronic data capture and processing
- On-line interactive data tools (e.g. SEER*stat)
- Web-enabled rapid RCTs
- Tools to accelerate research translation
The future landscape of electronic data capture in cancer registries

Hospitals
- Pathology Lab
- Diagnostic Imaging
- Radiation Oncology
- Chemotherapy
- Surgery
- Etc.

Physician Offices
- Cancer Event Report

Free-standing Clinics
- Radiation Oncology
- Chemotherapy
- Radiology

Central Cancer Registry
E-Path Reporting Sites

14 SEER registries
318 Sites (229/278 production, 49/278 installing, +40 subsidiaries)
~1,300,000 positive pathology reports delivered annually
E-Path Functionality and Benefits

• Rapid case identification, high quality data, standardization of data, more complete reporting

• Sensitivity (Ability to Detect Selectable Reports) and Specificity (Ability to Detect Non-Selectable Reports) both in the range of 99.4-99.6%

• When used as part of a Rapid Case Ascertainment system, can deliver cases to researchers in less than 30 days from date of diagnosis
Rapid, responsive, relevant (R3) research: a call for a rapid learning health research enterprise

William T Riley¹, Russell E Glasgow¹, Lynn Etheredge² and Amy P Abernethy³
New Web-enabled Methodologies (e.g., Multiphase Optimization Strategy, or MOST) enable researchers to do research more quickly, cheaply, and more efficiently.

Graphs and Maps

- **5-Year Rate Changes**
  In cancer mortality or incidence for all major cancer sites by user selectable criteria
  learn more...

- **Historical Trends**
  Compare trends in cancer mortality and incidence by user selectable criteria
  learn more...

- **Comparative Data Display (Kromogrids)**
  Explores relationships across geography of mortality, incidence, demographics, screening, risk factors
  learn more...

- **Interactive Maps**
  for states or for counties in a state - mortality, incidence, screening, or risk factor maps
  learn more...

Support Data

- **Screening and Risk Factors**
  Estimates by state (or in some cases county) of screening data, risk factors, and smoking laws
  learn more...

  - Prevalence percent from behavioral surveys
  - Population percent based on smoking laws

- **Demographic Data**
  Showing census data for counties and states - expanded data now available
  learn more...

- **Peer Countires**
  Identify counties that are comparable based on a user specified criteria
  learn more...

- **Cancer Knowledge**
  National estimates of cancer-related knowledge and awareness of cancer prevention strategies
  learn more...
New Technologies Used to Reduce Excessive Drinking

The Task Force recommends electronic screening and brief intervention to reduce excessive alcohol consumption and related harms.

2014 Meetings
February 26-27
June 18-19
October 29-30

2015-2016 Meetings

Annual Reports to Congress

What is The Community Guide?

The Guide to Community Preventive Services is a free resource to help you choose programs and policies to improve health and prevent disease in your community. Systematic reviews are used to answer these questions:

- Which program and policy interventions have been proven effective?
- Are there effective interventions that are right for my community?
- What might effective interventions cost; what is the likely return on investment?

Learn more about The Community Guide, collaborators involved in its development and dissemination, and methods used to conduct the systematic reviews.
RTIPs Celebrates its 10th Anniversary (2003-2013)!

Use the link below to select a number of criteria, and see a list that contains programs from several topics.

Select from 138 Intervention Programs

RTIPs is a searchable database of cancer control interventions and program materials, and is designed to provide program planners and public health practitioners easy and immediate access to research-tested materials.

Register your program now and be part of the RTIPs Community.

Search Research to Reality (R2R)
NCI’s online community of practice that links cancer control practitioners and researchers, for discussions, cyberseminars, and much more.

RTIPs News:
- RTIPs is cited in the Cancer Screening Interventions Resources Reference Package
- RTIPs turns 10! Read more
- The N.O.T Program was featured 04/09/2013 on WTOP radio, as part of a George Washington University study. See the “Exercise helps teens quit smoking” news brief for more information
- RTIPs was featured in the PubMed article - What Works to Prevent Adolescent Smoking? A Systematic Review of the National Cancer Institute’s Research-Tested Intervention Programs

New Programs on RTIPs:
- Obesity
  - Vtrim - Your Online Partner for Healthy Weight (Post date: September, 2013)
  - Keep ME Healthy (Post date: July, 2013)
- Colorectal Cancer Screening
  - Flu-FIT and Flu-FQBT Program (Post date: August, 2013)

New programs are released periodically. Please check for updates.

RTIPs and Research Reviews

The Guide to Community Preventive Services evaluates the effectiveness of types of interventions (as opposed to individual programs) by conducting systematic reviews of all available research in collaboration with partners. The Task Force on Community Preventive Services then uses the systematic review findings as the basis for their recommendations for practice, policy and future research. The symbol to the right links to Community Guide findings. Many Research-tested Intervention Programs (RTIPs) are directly linked to associated Community Guide findings.

Tools Available:
- Using What Works, a train-the-trainer course that teaches users how to adapt a research-tested intervention program to the local community context

We welcome your feedback on the Research-tested Intervention Programs Web site. To submit feedback, please contact us. Thank you for helping to improve this site for the cancer control community.

If you use tobacco and are trying to quit, please visit Smokefree.gov

Looking for general information about cancer? Please visit Cancer.gov or call the Cancer Information Service at 1-800-4-CANCER.

Last Modified: 09/27/2013
Wash. U.’s “Make it Your Own (MIYO)” Platform for Community-Based Participatory Research

Community Tool to Enable Local Customization, Intervention
Research to Reality is an online community of practice that links cancer control practitioners and researchers and provides opportunities for discussion, learning, and enhanced collaboration on moving research into practice.

Sign up to join the community!

Featured R2R Partner

Beth Casey Gold, M.S., RD

We are happy to feature Beth Casey Gold as our RTIPS Featured Partner this month. The RTIPS site recently posted "Vtrim - Your Online Partner for Healthy Weight" for adoption in a variety of settings.

Learn about R2R

Watch the video tutorial to learn how to use Research to Reality.

Recent Activity

Thursday October 24, 2013 at 8:49am
Russ has participated in the Discussion “PRECIS and Transparent Reporting”

Wednesday October 23, 2013 at 1:20pm
The Event APhA Cancer Forum Business Meeting & Social Hour has been added to the Calendar

Wednesday October 23, 2013 at 12:55pm
The Event R2R Cyber seminar Using New Social Media for Cancer Control & Prevention Interventions has been added to the Calendar

Wednesday October 23, 2013 at 11:50am
The Cyber-Seminar Using New Social Media for Cancer Control & Prevention Interventions has been added!

Tuesday October 22, 2013 at 1:33pm
Karon has participated in the Discussion “PRECIS and Transparent Reporting”

Events

Next Event
October 31, 2013 - 1:00PM - 2:00PM EDT
Twitter Chat on Health Literacy & the ACA

Calendar
ASCO CANCER*LINQ: A Learning Oncology System

Oncology as information science: “The Learning Health Care System”
Cheaper

• Lower unit costs
• Reduce labor costs
  – e.g. Amazon’s Mechanical Turk
  – Reduce interviewer time
• Use existing data
Wetterstrand KA. DNA Sequencing Costs: Data from the NHGRI Genome Sequencing Program (GSP) Available at: www.genome.gov/sequencingcosts. Accessed [10-21-13].
Wetterstrand KA. DNA Sequencing Costs: Data from the NHGRI Genome Sequencing Program (GSP) Available at: www.genome.gov/sequencingcosts. Accessed [10-21-13].
Automated Self-Administered 24-hour Dietary Recall (ASA24)
• Freely available web-based tool for collecting high-quality dietary intake data
• Since September 2009
  – Released beta, ASA24-2011, ASA24-Kids-2012
  – Registered over 800 studies
  – Collected over 113,000 recalls
  – ASA24-3013 soon to be released
• Adaptations: Canada (underway); Australia (under consideration)
• Mobile device version currently under development
SEER-Medicare

• What’s available now?
  – Clinical, demographic, and death information on 1.6 million cancer cases from SEER
  – Health care services from Medicare, beginning in 1991
  – 5% random sample of Medicare enrollees without cancer

• Expanding available data
  – 4 years of Medicare Part D information
  – More diversified analyses (e.g., hospice and provider level data)
  – Plans to integrate census data
Recent Pubs...

- 13 SEER-Medicare publications from Oct 1 to 22, 2013
  - Contraindicated use of bevacizumab and toxicity in elderly patients with cancer (Hershman DL et al., J Clin Oncol)
  - Influence of patient, physician, and hospital factors on 30-day readmission following pancreateoduodenectomy in the US (Hyder O et al., JAMA Surg)
  - Practices that reduce Latina survival disparity after breast cancer (Smith-Gagen J et al., J Womens Health)
• Beyond the Medicare Population
  – Cancer Research Network
    • All age groups
    • Pre-diagnostic data on the “whole patient”
    • Information on ~25% of Medicare enrollees who do not have claims because they are part of managed care plans

• Screening Processes and Outcomes
  – Population-based Research Optimizing Screening through Personalized Regimens (PROSPR)
    • Diverse range of delivery systems
    • Incorporate additional physician, facility, and system data
As of January 2, 2014

1. 88,418 datasets

2. 65,378 data sets posted in past 12 months (908 by HHS)

• 1,875,270 visitors in past 12 months

• Too overwhelming? Try healthdata.gov
Huge, Ongoing Challenge:

• How to support submission, storage, curation, access, and user support for data NOT collected by the federal government
Bigger

- Larger sample size for statistical power
- Consortia to enable collaboration and raise scientific ambition
- Expanded population coverage
- Linked datasets to provide more comprehensive data per subject
- A larger environmental context
- Greater reach of interventions
Network of Cancer Consortia (NOCC)

- Evidence of an existing collaborative superstructure between scientific teams in the field of cancer epidemiology.

- Scientific research teams were mapped using the co-membership of investigators in multiple distinct teams.

- This network indicates characteristics of a “small world” network, which exhibit enhanced signal-propagation and synchronization properties for transferring information.

- These findings suggest NOCC provides an efficient framework for the dissemination of knowledge, methodologies, and discoveries within cancer epidemiology accelerating the translation of research results.
EGRP-associated Cancer Epidemiology Cohorts: Population Characteristics

No. of participants (thousands)

<table>
<thead>
<tr>
<th>Enrollment (EGRP supported CECs)</th>
<th>2003</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total enrollment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>200</td>
<td>400</td>
</tr>
<tr>
<td>Females</td>
<td>800</td>
<td>1000</td>
</tr>
<tr>
<td>White</td>
<td>700</td>
<td>1200</td>
</tr>
<tr>
<td>Black</td>
<td>100</td>
<td>200</td>
</tr>
<tr>
<td>Asian</td>
<td>300</td>
<td>500</td>
</tr>
<tr>
<td>Hispanic</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>
A Comprehensive Genetic Analysis of Common Cancer Risk Through the Development of the OncoArray Network

The GAME-ON Initiative
Aims of OncoArray Network

• Genotyping of 210,000 cancer cases and 200,000 controls using a set of 600,000 markers. Define the effects of genetic factors in multiple ethnic groups and evaluate gene-gene effects.
• Meta-analysis jointly evaluating risk to identify shared and cancer-specific risks for common cancer development.
• Detailed fine mapping of established loci from each cancer site to identify candidate functional and causative variants.
• Integrative analyses that allow us to partition competing risk for common cancers, allowing for effects from genetic and environmental factors that are measured across sites.
Summary

• By genotyping a very large number of samples on the same platform we can identify variants that influence common cancers
• Common platform facilitates gene-gene interaction studies
• Low cost and high throughput platform facilitates additional studies
The Team Science Toolkit is an interactive website that provides resources to help users support, engage in, and study team-based research.
Expansion of SEER Registries over time

SEER 9: 1975+ (10%)
SEER 13: 1992+ (14%)
SEER 18: 2000+ (28%)

Legend:
- Blue: Registries funded by SEER/NCI
- Dark blue: American Indian/Alaskan Native registries funded by NCI
- Light blue: Registries funded by SEER and the National Program of Cancer Registries
SEER Program 28% of U.S. Population

- Medicare Claims Database 1991
- National Longitudinal Mortality Study 2000
- Electronic Medical Records 2000
- Residual Tissue Repository 2003
- Medicare Health Outcomes Survey 2007
- Consumer Assessment of Healthcare Providers and Systems 2015
Spatial Data for Etiological and Prevention Research

- Census tract SES data
- Exposure (UV, toxins, pollution)
- Small area estimates
- Community Health Status
- Urban sprawl index
- Screening frequency
- SEP Index
- Smoking prevalence
- Built environment
GIS to Explore Built Environment Influences on Physical Activity

Radial and Network Buffers Around a Participants Home

Association Between Walking and Intersection Density for Different Buffer Sizes

James et al. 2013, Submitted – Health and Place
Improving Energy Balance Related Exposure Assessment with $100 GPS devices

The Geographic Information Systems and Science website is supported by the National Cancer Institute as a central source of information about GIS and related resources for use by the public, cancer researchers, and the GIS Special Interest Group.

Overview
An introduction to Geographic Information Systems at NCI.

NCI GIS Portal
Interactive web-based mapping tools and services.

GIS Research
View publications and see how institutions use GIS technology.

Tools & Data
Tools and data services to assist in analysis and visualization.

Why Spatial Context Matters
Exposure: Water Quality
Certain cancers can be triggered by exposure to toxic agents, such as chemicals in the water supply.

Popular Resources
- NCI GIS Portal
- NCI Tools: ColorTool for ArcMap
- NCI Tools: Installation of ArcMap Tools
- Geographic Information Systems Special Interest Group (GISSIG)

Recent Updates
- New NCI Map Story showing incidence and mortality rate maps with the most recent cancer statistics for prostate cancer has been released - 9/25/13
- The Animated Historical Atlas, a web-based tool designed to visualize the historical patterns of cancer mortality, has been released - 7/22/13
Map Story: Breast Cancer


This map shows age-adjusted incidence rates of breast cancer for all races, females and all ages for the years 2005 - 2009. This data was sourced from [http://statecancerprofiles.cancer.gov](http://statecancerprofiles.cancer.gov)


This map shows age-adjusted mortality rates of breast cancer for all races, both sexes and all ages for the years 2005 - 2009. This data was sourced from [http://statecancerprofiles.cancer.gov](http://statecancerprofiles.cancer.gov)

Download Options:

Map Options: [✓ Description □ Legend]

Download Options: [Interpret | PDF | Data]
Smokefree Women

RECENT ARTICLES

3 Very Real Dangers of Secondhand Smoke
Secondhand smoke is the combination of smoke...
Read full story: 3 Very Real Dangers of Secondhand Smoke

4 Benefits of Quitting Smoking
Many women are surprised by how well...
Read full story: 4 Benefits of Quitting Smoking

Tips
Give Yourself a Smokefree Makeover!
Making over areas of your life can help you stay smokefree.
• Within a few minutes after your last cigarette, your body starts to heal itself from the damage caused by smoking. Give yourself a makeover...
• For many people, the hardest place to resist the urge to smoke is at home. Give your home a makeover...
• Exercise is a great way to stay smokefree & gives you a burst of energy. Give your workout a makeover...
• Mood changes are common after you quit smoking. Give your mood a makeover...

Quit Guide
From those of us at Smokefree Women...
Congratulations! You are taking the first step towards a healthier, new lifestyle.
Start Today

What Do You Think?
WHICH SMOKEFREE RESOURCE DO YOU THINK IS MOST HELPFUL?
- SmokefreeTXT
- QuitGuide Mobile App
- Information about topics related to smoking and quitting

Our Tools
The Smokefree Women Web site includes a variety of interactive tools to help you quit smoking.
- Smokefree TXT
  24/7 encouragement, advice, and tips.

Together
WE ARE STRONG ENOUGH TO QUIT

"We can support a pregnant woman to quit and stay smokefree."
Smokefree Teen

Want to quit but don't know how?
Get your daily dose of the support you crave.

Learn more

Smokefree TXT
Sign up for this text message program that provides 24/7 encouragement, advice, and tips to help you quit smoking.

QuitSTART
Download this quit smoking app to track your cravings, mood, smoking triggers, and overall smokefree progress.

Quizzes
Think you have all the answers? Prove it! Quiz yourself on what's really important.
SmokefreeTXT Program
SmokefreeTXT Metrics
Total Subscriptions
March 2012- July 2013
Better

- Data quality and completeness
- Recognition of the importance of replication
- Measurement reliability and validity
- Transdisciplinary team science culture and practice
Accelerometer-Based Tools for Physical Activity Assessment, Monitoring & Interventions

Past Technology (1990’s)
- High cost - $450/unit
- Poor reliability/Manual Calibration
- No consumer market
- Use in very small studies

Current Technology
- Improved cost & capabilities
  - Research Tools - $225/unit
- High reliability/no calibration
- Use across diverse research areas, study designs & sizes

Emerging Opportunities
Large scale exploitation of wearable & embedded sensors in consumer technology for clinical & research applications
Accelometer Cites in Scopus 2000-2012

Trend in Accelerometer Articles

Year

Articles


0 100 200 300 400 500 600 700
Accelerometers in National Surveillance

- Canadian Health Measures Surveys (2007-11)
- Health Survey for England 2008
Large Cohorts with Accelerometers

- Activity and Function of the Elderly in Ulm (ActiFE Ulm)
- Avon Longitudinal Study of Parents and Children (ALSPAC)
- Child Heart and Health Study in England (CHASE)
- European Youth Heart Study (EYHS)
- Identification and Prevention of Dietary- and Lifestyle-Induced Health Effects in Children and Infants (IDEFICS)
- International Study of Childhood Obesity, Lifestyle and the Environment (ISCOLE)
- Millennium Cohort Study
- Personal and Environmental Associations with Children’s Health (PEACH)
- Raine Study
- Sport Physical Activity & Eating Behaviour: Environmental Determinants in Young People (SPEEDY)
- Women’s Health Study
Mobile Tools for Clinical Monitoring, Surveillance & Intervention Research

- Remote participant enrollment
- Collect, store & analyze streaming sensor data
- Support phones, consumer wearables & research sensors
Our Challenge: In an Era of Faster, Cheaper, Bigger, Better, How do we Balance:

• What is easy?
• What is interesting?
• What is fundable?

– Vs.

• What is important?
And, we still need, when appropriate...

• Small-scale studies
• Traditional, single-investigator studies
• Basic, mechanistic knowledge

• ...but in cancer control and population sciences, biology is just one of many levels of analysis that are critical
Thank you!
cancercontrol.cancer.gov