NIH Clinical Center
National Institutes of Health

(FY 2007 $28.8 billion)

Research Grants 71%

All Other 6%

Intramural Research 10%

R&D Contracts 7%

Research Training 3%

Research Management & Support 3%

Over 80% of NIH funds support extramural research
27 Institutes and Centers
A Typical Institute/Center

Office of the IC Director

National Advisory Council

Board of Scientific Counselors

Extramural

Scientific Programs

Intramural

Program Review, $

Laboratory Studies

Clinical Studies
How many Researchers are at NIH?

- 1200 summer students
- 780 post-baccalaureate trainees
- 75 medical students
- 485 graduate students
- 3700 post-doctoral fellows
- 200 staff clinicians
- 800 staff scientists
- 300 tenure track investigators
- 950 senior investigators
- 1250 intramural research laboratories and clinical branches
National Cancer Institute

Intramural Divisions, 2

DCEG

9 Branches

Extramural Divisions, 5

CCR

57 Branches/
Laboratories/Programs
Over 250 Investigators
NCI: Extramural Divisions

- Division of Cancer Prevention
- Division of Cancer Control and Population Sciences
- Division of Cancer Biology
- Division of Cancer Treatment and Diagnosis
- Division of Extramural Activities
DCEG: Discovering the Causes of Cancer

- Biostatistics
- Clinical Genetics
- Genetic Epidemiology
- Hormonal and Reproductive Epidemiology
- Infections and Immunoepidemiology
- Translational Genomics
- Nutritional Epidemiology
- Occupational and Environmental Epidemiology
- Radiation Epidemiology
Elective Rotations at the NIH for Residents and Clinical Fellows

- Short-term elective rotations
- NIH Clinical Center = 240-bed hospital
- Patients have illnesses under investigation by NIH clinician-researchers. Often, these are the world's rarest and most interesting instances of a particular disease
- Most recent treatment strategies and new procedures are evaluated
- No housing or travel subsidy
NIH Fellowship Programs

- Physician-scientists, clinician-investigators, or institutionally based academicians
- Fully accredited by the Accreditation Council for Graduate Medical Education (ACGME)
- 16 accredited specialty or subspecialty training programs
- Jointly sponsored programs with extramural training partners within the Washington, DC area
- Non-accredited fellowship training programs within the NIH 27 Institutes and Centers.
NIH-Duke Training Program in Clinical Research

- Collaborative training program between the NIH Clinical Center and the Duke University School of Medicine
- Formalized training for physicians training for careers in clinical research
- Master of Health Sciences in Clinical Research, awarded by Duke
- Principles of clinical research, including research design, statistical analysis, health economics, research ethics, and research management
NCI Cancer Prevention Fellowships

- MPH at an approved institution, 12 month
  - NCI pays tuition, fees, books, and stipend
- Research fellowship at the NCI, 2 years
URLs for Intramural Positions

- http://www.cc.nih.gov/training/gme.html
- http://www.cancer.gov/researchandfunding/fellowships
- http://dceg/cancer/gov
NIH Extramural
The Path to Independence
Grants: Investigator-initiated (unsolicited) far outnumber Institute-initiated (solicited)
Grant Mechanisms: Activity Codes

- **F** = Fellowships
- **K** = Career Development Awards
  - K01 = Award to Increase Diversity
  - K08 = Mentored Clinical Scientist
  - K23 = Mentored Patient-Oriented
- **R, P, U, etc**
Individual Postdoctoral Fellowships

- F32
- National Research Service Award
- PostDOCTORAL
- Up to 3 years
- Work at sponsoring institution
- US citizen or permanent resident
Institutional Training Grants

- T32
- Pre- and post-doctoral fellows
- Selected by the institution PI, not the NIH
- Same rules as F32 (NRSA)
Career Development (K) Awards, 1

- Less than 5 years of postdoctoral research
- K01
  - PhD, or non-Board eligible MD
- K08
  - MD, basic research
- K23
  - MD, patient-oriented clinical research
- K25
  - Non-biomedical PhD, moving into biomedical research
Career Development (K) Awards, 2

- **K99/R00**
  - NIH Pathway to Independence
  - Transition from fellowship to independent research
  - Need not be US citizen
  - 2 yrs of being mentored, 3 yrs independent support

- **K18**
  - Career enhancement award for stem cell research
  - Junior faculty, training in stem cells
  - 6 mo – 2 yrs

- **K24**
  - Mid-career MD, moving into more research
Investigator-Initiated Grants (R)

- **R01**
  - Discrete, specified, circumscribed research project
  - Payline for new investigators better than for established
  - 3-5 years

- **R03**
  - Pilot studies
  - Increase knowledge in a well-established area
  - Up to 2 years

- **R21**
  - Exploratory/developmental
  - Break new ground
  - Up to 2 years

- **R56**
  - High priority, short term project
  - May not apply
  - Meritorious R01, but not funded
Institutional, Program Project Grant (P)

- P01
- Integrated, multi-project research projects, several independent investigators who share knowledge and common resources
- Each project contributes or is directly related to the common theme of the total research effort, thus forming a system of research activities and projects directed toward a well-defined research program goal
Cooperative Agreements (U)

- "U" series
- A huge variety
- Extramural/intramural partnerships permitted
Loan Repayment Program (Intramural and Extramural)

- Attract health professionals to NIH-relevant careers in research
- Two-year commitment to research career
- NIH pays
  - Up to $35,000/year of educational debt x 2 years
  - Additional 39% to cover Federal taxes
  - Reimburse state taxes that result from these payments
- Eligibility
  - Doctoral-level clinical researchers with domestic nonprofit or U.S government (Federal, state or local) funding
  - US citizens or permanent residents
- Clinical research for 50% or more of total level of effort
- Categories: Clinical, pediatric, health disparities, contraception and infertility research; and disadvantaged backgrounds
Writing the Application, 1

- Specific aims
- Hypotheses
- Theory
- Pilot data
- Detail about methods
- Power calculations
- Analysis plan
- Minority recruitment plan
Writing the Application, 2

- Follow the instructions
- Be brief, concise, and clear
- Be organized and logical
- Show what is new
- Be complete
- Submit on time! (don’t wait until last day)
‘I THINK YOU SHOULD BE MORE EXPLICIT HERE IN STEP TWO.’
Peer Review – New System

- Score from 1 (exceptional) to 9 (poor)
- Core review criteria: Significance, Investigator(s), Innovation, Approach, and Environment
- Formatted reviewer critiques
- Scoring of individual criteria
- Clustering of new investigator applications
- Shorter applications (12 pages)
- Only one resubmission
### Scoring System

<table>
<thead>
<tr>
<th>Impact</th>
<th>Score</th>
<th>Descriptor</th>
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<tbody>
<tr>
<td><strong>High Impact</strong></td>
<td>1</td>
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<tr>
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<td>Outstanding</td>
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<td>Excellent</td>
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<td>Very Good</td>
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<td></td>
<td>8</td>
<td>Marginal</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Poor</td>
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</tbody>
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- **Strengths/Weaknesses**
  - Strengths
  - Weaknesses
After you get your Score/Summary Statement (If it is not Favorable)

- Don’t whine
- Have the right attitude: “Three very smart people have donated their time to help me improve my study.”
- Don’t take the criticisms personally
- Be as persistent as you would with a manuscript
“You miss 100% of the shots you never take.”

Wayne Gretzky
to submit a grant application to the NATIONAL INSTITUTES OF HEALTH!
URLs for Extramural Grants

- http://www.lrp.nih.gov/
- http://www.training.nih.gov/
- http://www2.niddk.nih.gov/Funding/TrainingCareerDev/
Acknowledgments

- Bill Anderson
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