Funding Your Research: How to Start and How to Keep it Going

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Disclosures

• Consultant for the Johnson & Johnson Institute as a member of the Global Education Council
• This is not relevant to the content of this talk
Different Types of Research

• Clinical outcomes research projects – Important for promotion, engage students and residents
• Collaborator – Key personnel on other people’s grants
  – Supply patients and tissue for translational research
  – Provide clinical expertise for engineering project
• Program - An externally-funded body of work around a unified theme with which people associate your name
  – Basic science, translational, clinical trials, HSR
The Facts of (Funded) Life

• In most environments, even with good mentorship and an established research group, you will need money and/ or resources

• Your first grant is unlikely to be from NIH so look for local funding opportunities

• Don’t be afraid to spend your start-up funds

• You need resources to be successful
Start-up Package for Funding

- Define protected time, compensation structure must support
- Written commitment of mentorship and collaborations
- Support for equipment, lab set up, programming, biostatistics
- Research assistant and level (tech vs PhD) – support for FTE vs start-up coverage
- Access to core resources
- Separate, contiguous space with other like-minded researchers
- Define “progress towards funding”; what metrics define success?
Set aside enough time

- Protected time is more important than “talent,” especially early in your career.
- Creative thought requires time where you are not distracted by clinical or administrative duties.
- It takes a long time to write a fundable grant so be realistic in your (and your boss’s!) expectations.
- Spend time getting your aims page right. Everything else will follow.
There is No One Right Path
Who Should Apply for a CDA?

• Additional supervised career development
• Training needs
• Mentorship needs
• Demonstrated gap that is necessary to build an independent research program
• Unique opportunity to protect time for research and (re)-immerse in academic pursuits after training
A Few Tips for Surgeons with CDAs

• Make sure they believe you will have 75% protected time
• Make sure you have methodological expertise
• A multi-disciplinary mentoring team is key
• Primary mentor should be at your institution
• Get resources that you can use to lure other disciplines to work with you!
Pros and Cons of a CDA

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Drawbacks</th>
</tr>
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<tbody>
<tr>
<td>Mandates protected time.</td>
<td>Restricting clinical time to 25% is a struggle.</td>
</tr>
<tr>
<td>Salary support creates independence; the award is even transportable.</td>
<td>$25,000 does not cover the cost of large research projects.</td>
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<tr>
<td>Long-term funding promotes greater professional development, ensures</td>
<td>The mentor/mentee component could set the mentee up to be used as “free labor.”</td>
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<tr>
<td>employment and thereby creates a sense of security.</td>
<td>Need supplemental sources of funding for:</td>
</tr>
<tr>
<td>Legitimizes the researcher.</td>
<td>- Administrative support</td>
</tr>
<tr>
<td>Jump-starts a career.</td>
<td>- Unexpected project expenses</td>
</tr>
<tr>
<td>Allows time to study with emphasis on interdisciplinary exposure.</td>
<td>The 75% support prevents awardees from applying for other federal grants.</td>
</tr>
</tbody>
</table>
Professional Societies

- Most sponsor career development and/or research awards
- Apply to more than one
- Identify society funding priorities and follow the rules
- Study list of previous winners and funded projects
- If applying for a CDA, check for joint funding opportunities
Society CDA Opportunities

• Large and prestigious
  – American Cancer Society

• Prestigious and flexible
  – American Surgical Association Foundation

• Provide matching funds for federal CDA
  – Information available on the ACS website

• Can be smaller but build track record of funding and provide pilot data for the next grant
Intramural/Institutional Funding

• Departmental/ institutional start-up funds

• Intramural grants
  - Fund pilot and collaborative clinical research projects to generate preliminary data for submission of a research grant application
  - Examples include NCI Cancer Center, NIH CTSA, large programs, University endowments/awards
NIH Clinical and Translational Science Awards (CTSA): U54

62 institutions; 31 states

Getting Your First Grant

• These first few years on guarantee are a gift. DON’T WASTE IT. You don’t get a second chance.
• Money is money – an institutional K or society CDA is a great place to start and can convert to an individual K award.
• You will need significant support above and beyond the K. Start-up funds, matching funds, or another grant are a must.
• But MOST OF ALL YOU NEED TIME TO WRITE
You Got Your First Grant – Now What??
The next grant…and the next...

- Know the timelines and burn rates for your grant
- Work backwards from the completion date and account for the need to resubmit
- Have a contingency plan
- Build a portfolio of funding that supports your program from different sources with different timelines
- Money is money – any opportunity for hard money should be seized
Start Small but Think Big

Health care

Surgery

Specialty (e.g., general surgery)

Subspecialty (e.g., colorectal)

Disease focus (e.g., IBD)

Importance (& Fundability)

Our clinical practice

Basic science focus
Introduction to NIH
• No surgical institute creates challenge for broad surgical studies

• Non-NIH federal funding
  – Department of Defense
  – National Science Foundation
  – Agency for Healthcare Research and Quality
  – Patient-Centered Outcome Research Institute
• 35 – 65% less peer-review activity by surgeons

• 3,311 participants in 142 panels with < 2% surgeons
Study Section Bias

- Don’t believe protected time
- Don’t acknowledge methodological expertise
  - You have to have PhDs on the team
- Don’t understand career paths and culture
  - Publication record outpaces scientific training
- May not have the clinical expertise to understand clinical impact (or lack thereof)
- KNOW YOUR REVIEWERS AND WRITE FOR THE RIGHT AUDIENCE!!
## NIH Overview

<table>
<thead>
<tr>
<th>Types of Grants</th>
<th>Examples of Codes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T and F series</td>
<td>T32, F32, F33</td>
<td>Residency and post-doctoral fellowship training awards</td>
</tr>
<tr>
<td>K series</td>
<td>K08/K23, K 24, K99</td>
<td>Career development awards</td>
</tr>
<tr>
<td>R series</td>
<td>R03, R01, R21</td>
<td>Research grant programs</td>
</tr>
<tr>
<td>P series</td>
<td>P01, P20, P30, P50</td>
<td>Large, multi-project efforts that include a diverse array of research activities</td>
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</tbody>
</table>
NIH Research Grants: R01, R03, R21

- **What is the scale/scope of the project?**
  - Collection of preliminary data?
  - Pilot or feasibility study?

- **What are the qualifications of the investigator?**
  - Independent?
  - Track record?

[Diagram showing Scale/scope of the project, with Small scale study that can be completed in 2 years R03, Exploratory project R21, and Project with preliminary data R01.]

http://grants.nih.gov/grants/funding/funding_program.htm#RSeries
<table>
<thead>
<tr>
<th>Grant</th>
<th>Number of years of award</th>
<th>Funds</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>R01 Research Project Grant Program</td>
<td>3-5 years</td>
<td>Up to $500K per year</td>
<td>Discrete, specified, circumscribed research project</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Preliminary data is generally required</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>All NIH Institutes and Centers (ICs)</td>
</tr>
<tr>
<td>R03 Small Grant Program</td>
<td>2 years</td>
<td>Up to $50,000 per year</td>
<td>Short project:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Pilot or feasibility studies</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Collection of preliminary data</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Secondary analysis of existing data</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Small, self-contained projects</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Development new technology</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Used by more than ½ ICs</td>
</tr>
<tr>
<td>R21 Exploratory/Developmental Research</td>
<td>2 years</td>
<td>Combined budget not to</td>
<td>New, exploratory, and developmental research projects</td>
</tr>
<tr>
<td>Grant Award</td>
<td></td>
<td>exceed $275,000</td>
<td>No preliminary data is generally required</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Used by most ICs</td>
</tr>
</tbody>
</table>

http://grants.nih.gov/grants/funding/funding_program.htm#RSeries
• Large, multi-project
• Diverse research activities
• i.e., Specialized Programs of Research Excellence (SPOREs) in Human Cancer (P50)

• New investigators can be given meaningful roles to play in center projects!
R01-Equivalent Grants
NIH: Transition to Independence

• **New Investigator:** has not competed successfully as PI for a substantial NIH independent research award

• **Early Stage Investigator (ESI):** new investigator within 10 years of completing terminal research degree or is within 10 years of completing medical residency (or the equivalent)

• ESI is only considered on traditional R01 grants

http://grants.nih.gov/grants/new_investigators/#earlystage
R01 Success Rates for New Grants

Established Investigator

First time applicant

Funding for K08/K23 Awards

K08 Applications and Awards: 44% funded in FY2017

K23 Applications and Awards: 34% funded in FY2017

DoD CDMRP

CDMRP Applications and Awards: 15% funded in FY2017
<table>
<thead>
<tr>
<th>Award Type</th>
<th>Total Reviewed</th>
<th>Total Funded</th>
<th>Success Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Merit Review</td>
<td>466</td>
<td>111</td>
<td>24%</td>
</tr>
<tr>
<td>Career Development</td>
<td>22</td>
<td>9</td>
<td>41%</td>
</tr>
<tr>
<td>Pilot Studies</td>
<td>8</td>
<td>2</td>
<td>25%</td>
</tr>
</tbody>
</table>

https://www.research.va.gov/services/shared_docs/resources.cfm#5
Federal Funding Agencies

Annual Budget In Millions

- AHRQ
- DoD CDMRP
- PCORI

Budget Amounts:
- AHRQ: $400
- DoD CDMRP: $1,200
- PCORI: $600

$0, $200, $400, $600, $800, $1,000, $1,200

Association for Academic Surgery
Federal Funding Agencies

Annual Budget In Millions

- AHRQ
- DoD CDMRP
- PCORI
- NIH

Budget amounts range from $0 to $35,000 million.
Conclusions

• It takes time and resources to build a funded research program so be realistic

• Match your individual program and project to the right funding agency and grant mechanism

• Start local – CTSA, cancer center, other institutional awards

• But think BIG!
THANK YOU

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