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

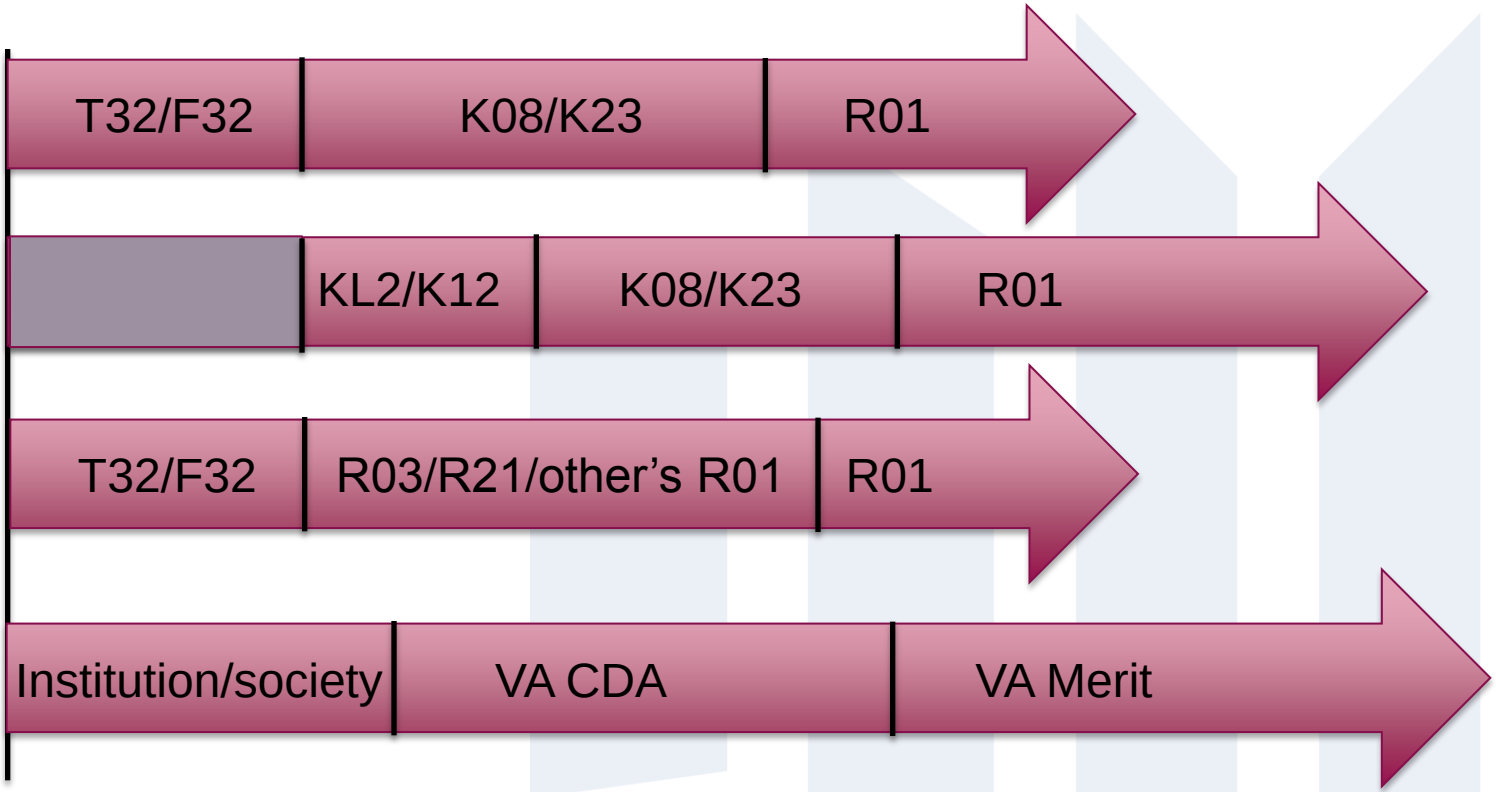
Start-up Package for Funding

- 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 v 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

K 23 Award Program	
Benefits	**Drawbacks**
♦ Mandates protected time. ♦ Salary support creates independence; the award is even transportable. ♦ Long-term funding promotes greater professional development, ensures employment and thereby creates a sense of security. ♦ Legitimizes the researcher. ♦ Jump-starts a career. ♦ Allows time to study with emphasis on interdisciplinary exposure. ♦ "Space" to round-out clinical training with development as a scientist.	♦ Restricting clinical time to 25% is a struggle. ♦ $25,000 does not cover the cost of large research projects. ♦ The mentor/mentee component could set the mentee up to be used as "free labor." ♦ Need supplemental sources of funding for: - Administrative support - Unexpected project expenses ♦ The 75% support prevents awardees from applying for other federal grants. http://grants.nih.gov/training/k23_report.pdf

Professional Societies

AAS
Association for Academic Surgery

- 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

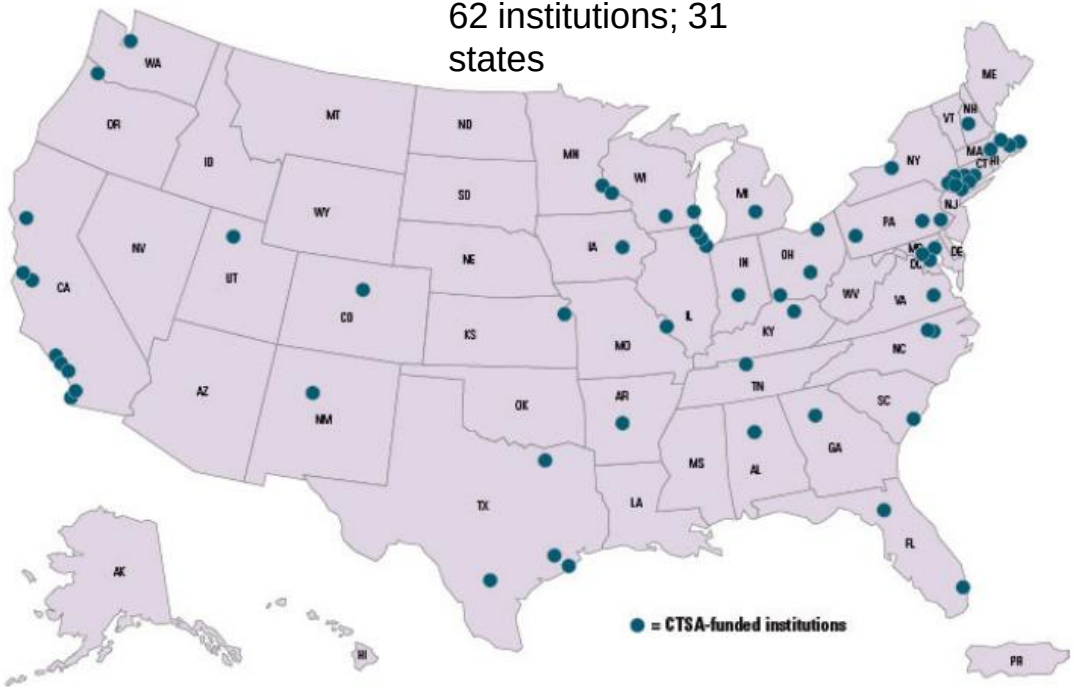
- Large and prestigious
  - American Cancer Society
- Prestigious and flexible
  - American Surgical Association Foundation
- Provide matching funds for federal CDA
  - Information available on the ACS website
- Can be smaller but build track record of funding and provide pilot data for the next grant

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



http://www.ncats.nih.gov/files/factsheet-ctsa.pdf

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

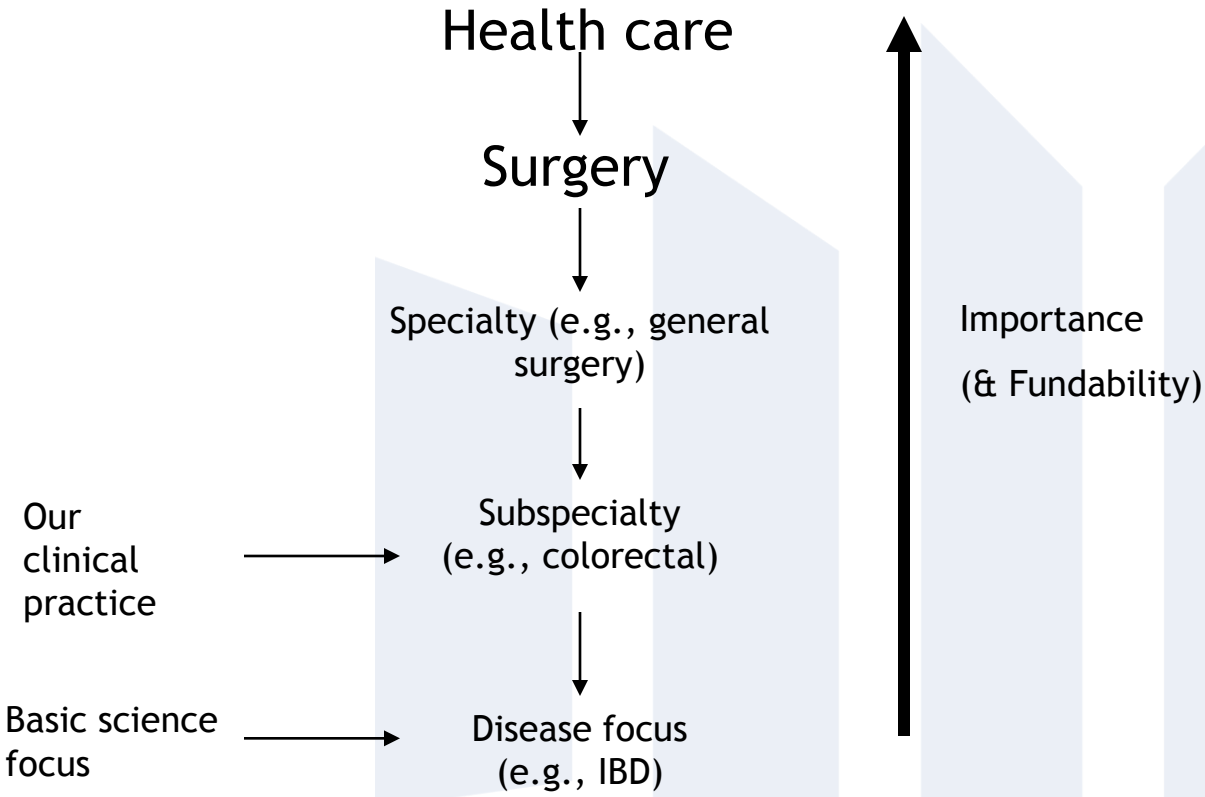
You Got Your First Grant – Now What??

AAS
Association for Academic Surgery

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



Introduction to NIH

AAS
Association for Academic Surgery

- 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

Study Sections

- 35 – 65% less peer-review activity by surgeons
- 3,311 participants in 142 panels with < 2% surgeons

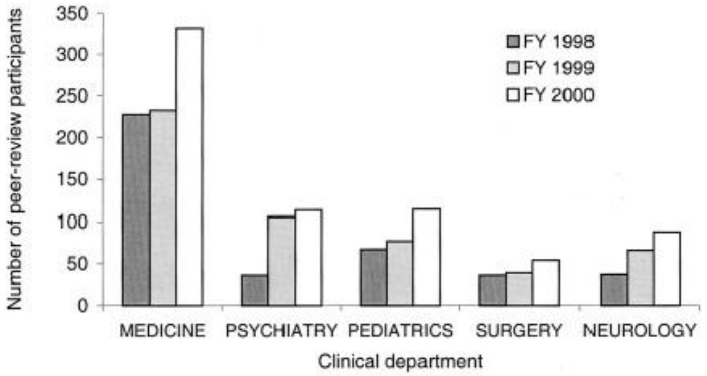


Figure 4. Relative peer-review activity of major clinical departments during FY 1998–2000 fall cycles. There was no difference in the relative increase (recruitment) of participants between surgical and nonsurgical departments during the 3-year period (surgery 50%, nonsurgery 46–317%; $P = .27$).

Study Section Bias

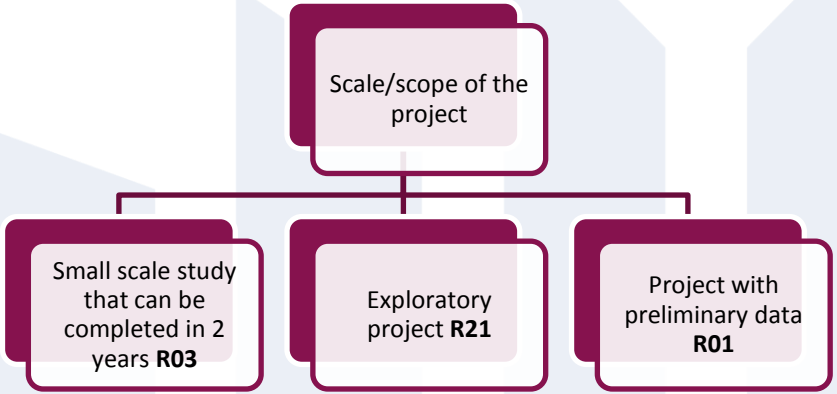
- Don't believe protected time
- Don't acknowledge methodological expertise
  - You have to have PhDs on the team
- Don't understand career paths and culture
  - Publication record outpaces scientific training
- May not have the clinical expertise to understand clinical impact (or lack thereof)
- KNOW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

NIH Overview

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

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?



http://grants.nih.gov/grants/funding/funding_program.htm#RSeries

NIH Research Grants: R01, R03, R21

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

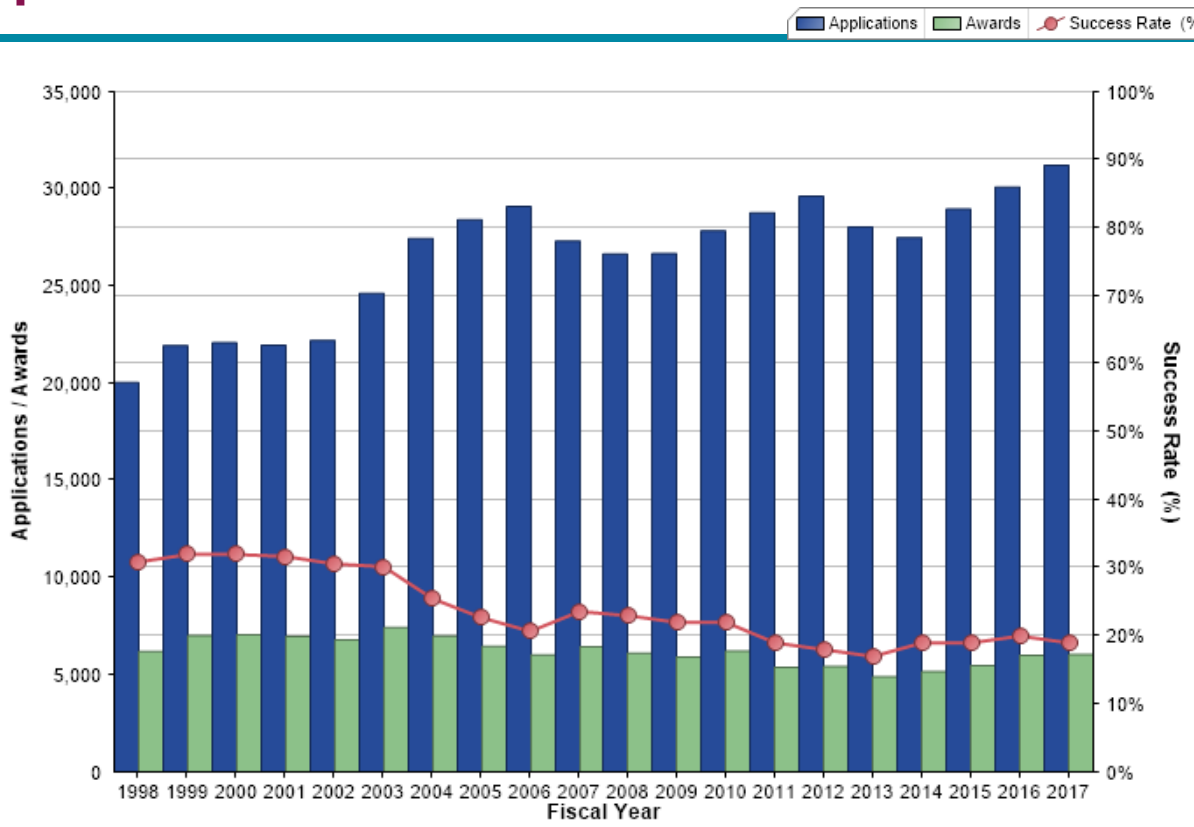
http://grants.nih.gov/grants/funding/funding_program.htm#RSeries

NIH Program Project/Center Grant: P01, P50, U01

- 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

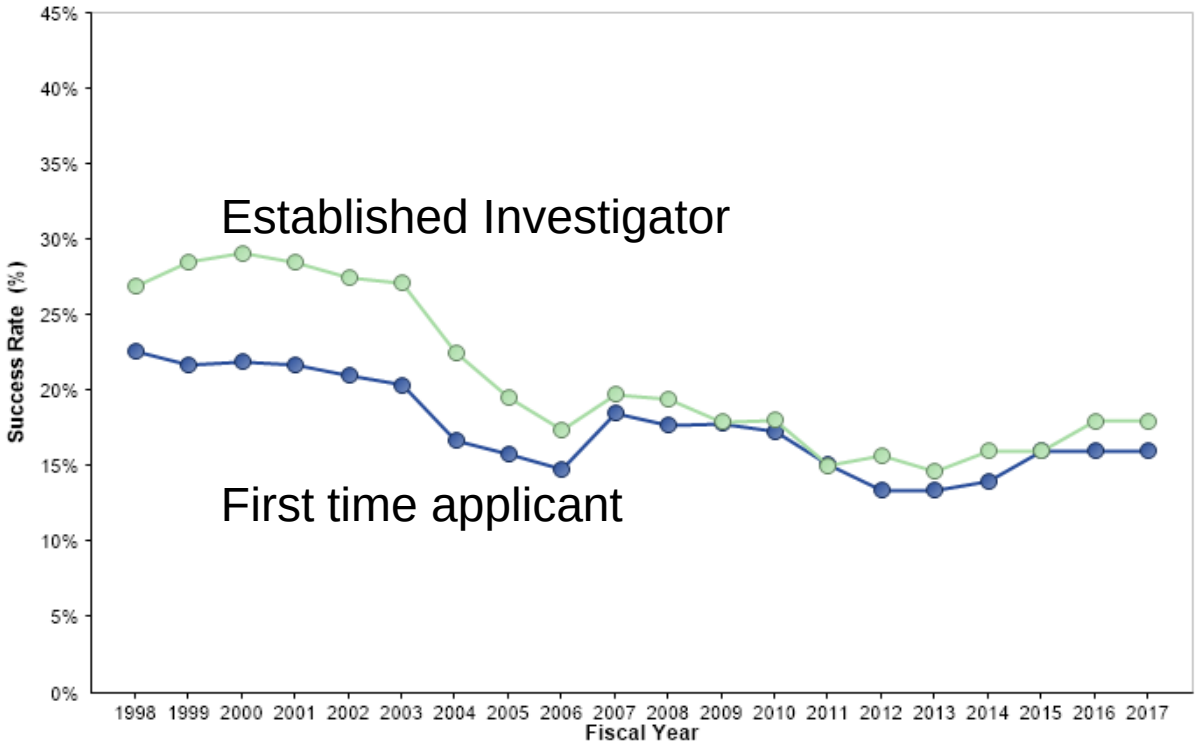
- **New Investigator:** has not competed successfully as PI for a substantial NIH independent research award

- **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

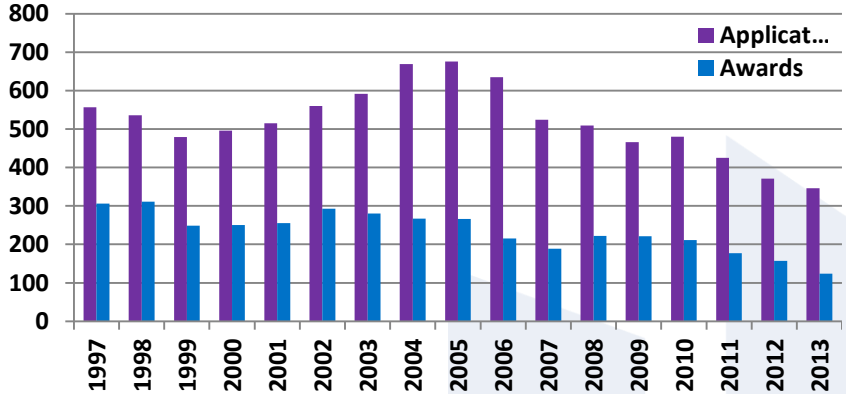
http://grants.nih.gov/grants/new_investigators/#earlystage

R01 Success Rates for New Grants



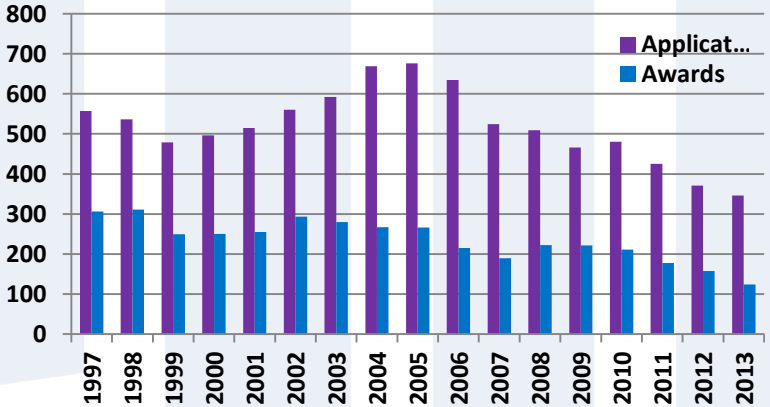
https://report.nih.gov/NIHDatabook/Charts/Default.aspx?showm=Y&chartId=136&catId=13

Funding for K08/K23 Awards



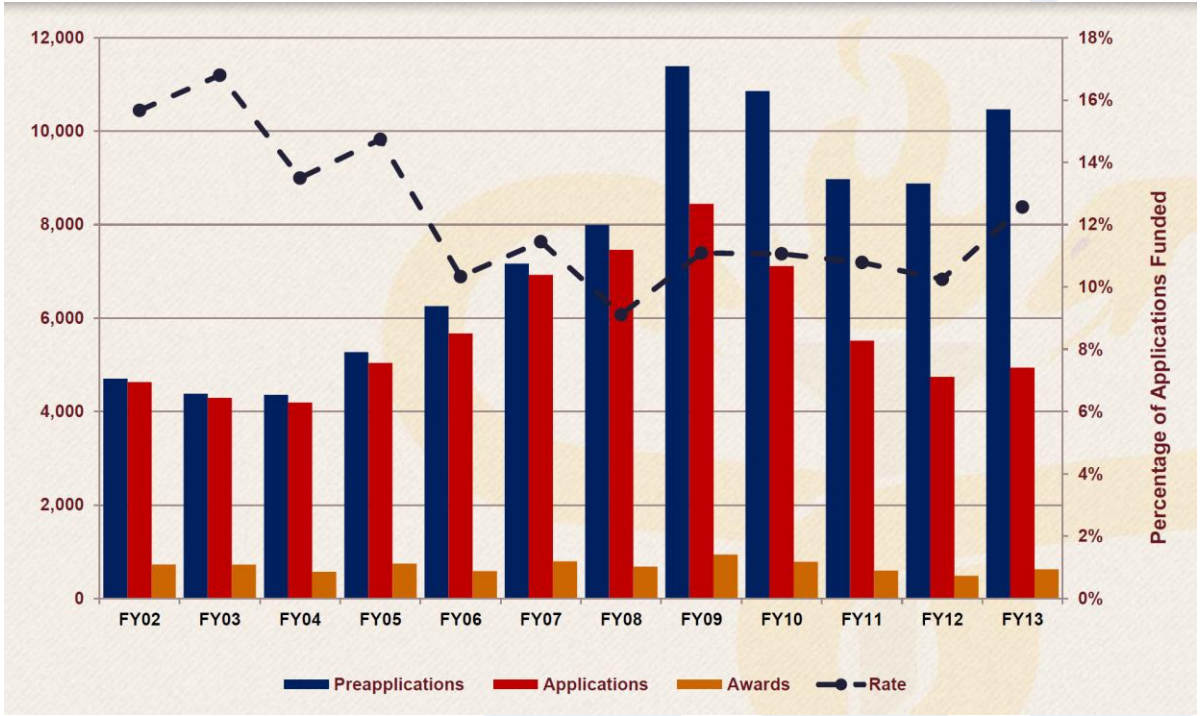
K08 Applications and Awards: 44% funded in FY2017

K23 Applications and Awards: 34% funded in FY2017



http://report.nih.gov/nihdatabook/index.aspx

DoD CDMRP



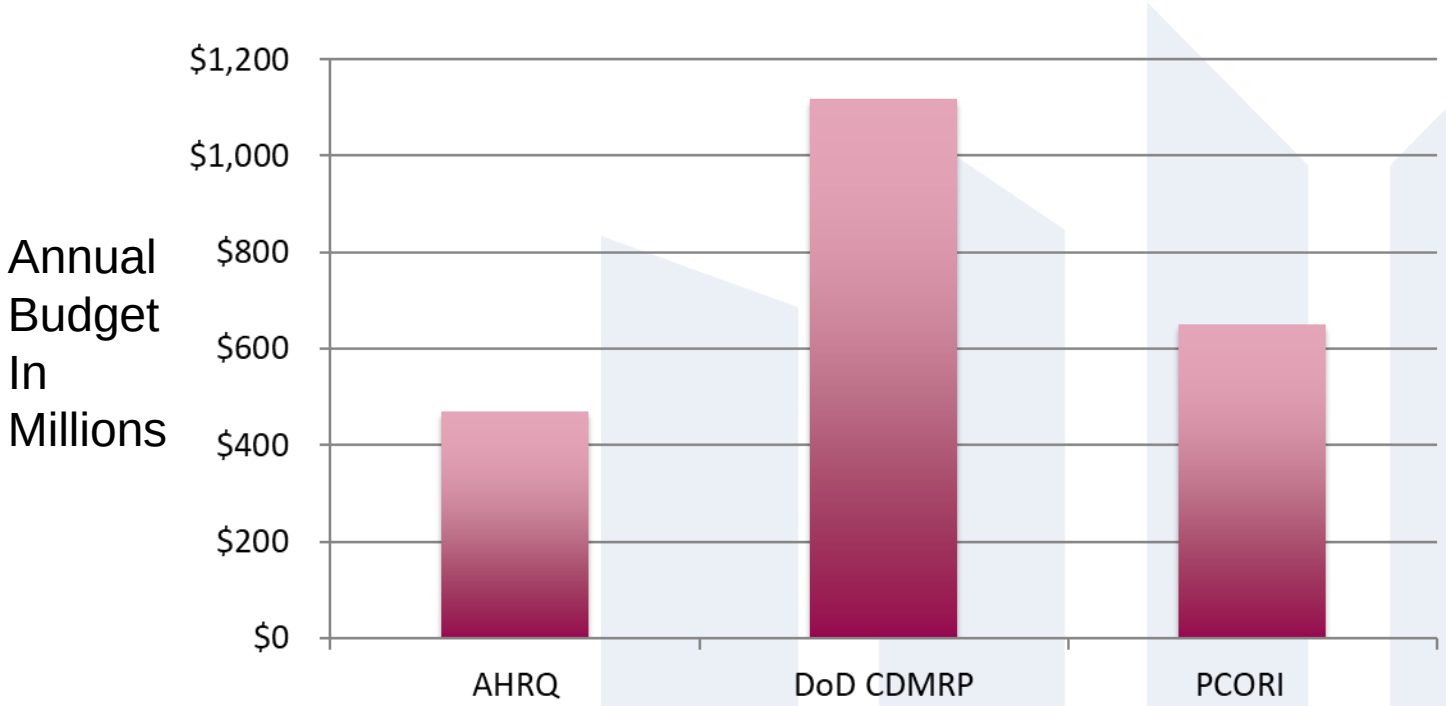
CDMRP Applications and Awards: 15% funded in FY2017

Department of Veterans Affairs

Award Type	Spring 2016		
	Total Reviewed	Total Funded	Success Rate
Merit Review	466	111	24%
Career Development	22	9	41%
Pilot Studies	8	2	25%

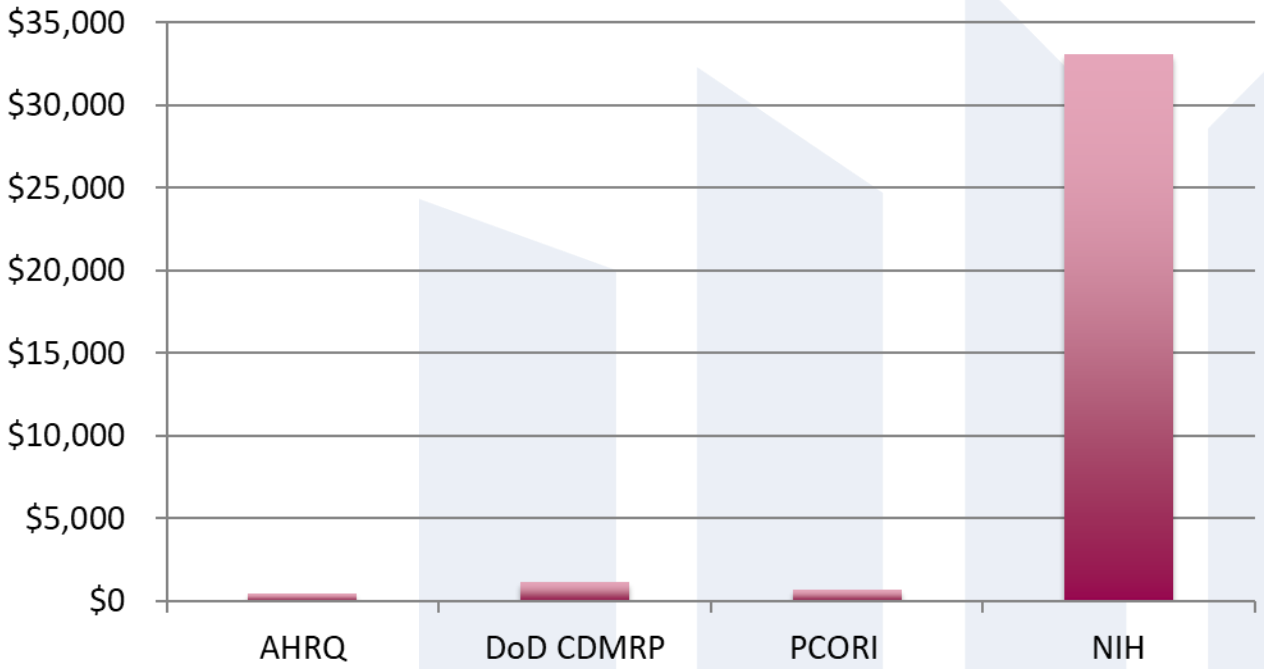
https://www.research.va.gov/services/shared_docs/resources.cfm#5

Federal Funding Agencies



Federal Funding Agencies

Annual Budget In Millions



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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