# *Coaching Researchers to Write Successful Grants*

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# SRA International kicks off its 50th Anniversary Celebration

## This month SRA International kicks off its 50th Anniversary Celebration.

Over the last 50 years, the types of research have changed, regulations have increased, international collaborations are now common place, and major technology advances have occurred. Despite all these changes, SRA International's CORE VALUES of supporting researchers so they can engage in world leading research has not changed. Our original members came from colleges and universities, research hospitals or institutes, non-profit organizations, industry and government; this still holds true today. Where we changed is that we are expanding our outreach and are now providing the latest in research management innovation and information to 110 countries across the globe.

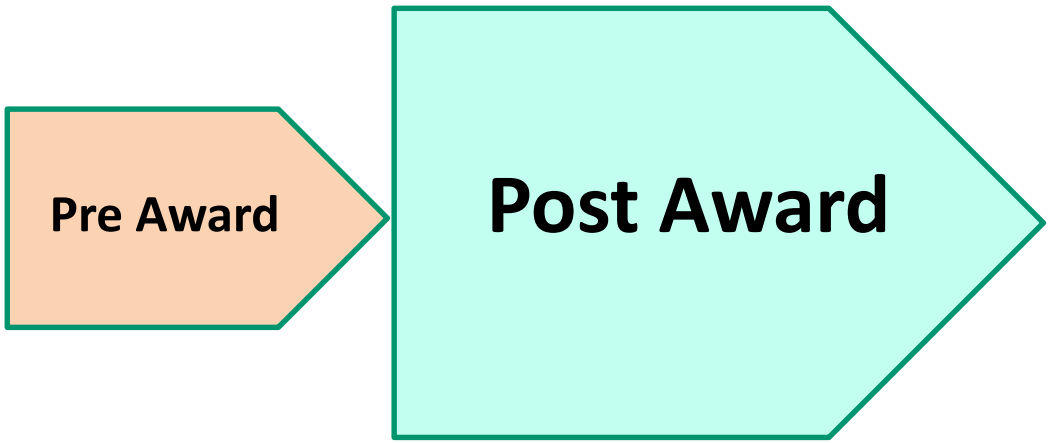
We are developing a series of events in 2016 and 2017 to highlight where we were as an organization, but more importantly to focus on our next 50 years. Each month we will be providing something new and exciting about the history or future of SRA international - look for it.

Lawrie Robertson and Jim Hanlon are co-chairing our 50th Anniversary activities and are forming broad-based teams to organize our anniversary activities. They are looking for your ideas to incorporate in our celebration. If you have old or recent photos of attending an SRA event, a story about your involvement in SRA International, or an idea for how we can celebrate our history and future, please contact Lawrie at lawriegr@gmail.com.

http://srainternational.org/

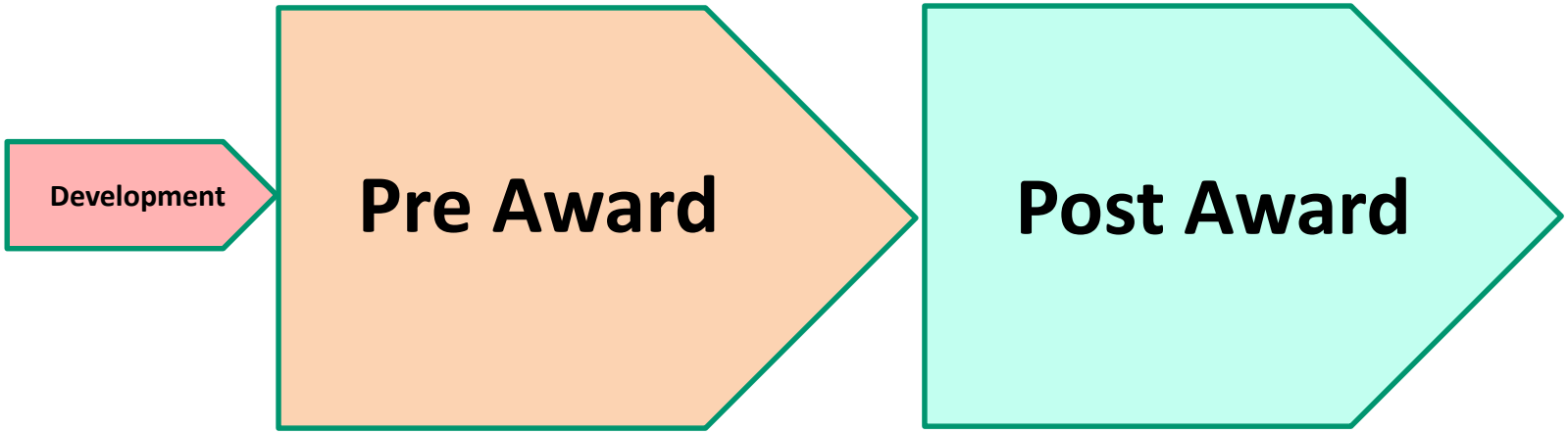
# History of Research Administration

## I. Way Back



# History of Research Administration

## II. A While Back



# History of Research Administration

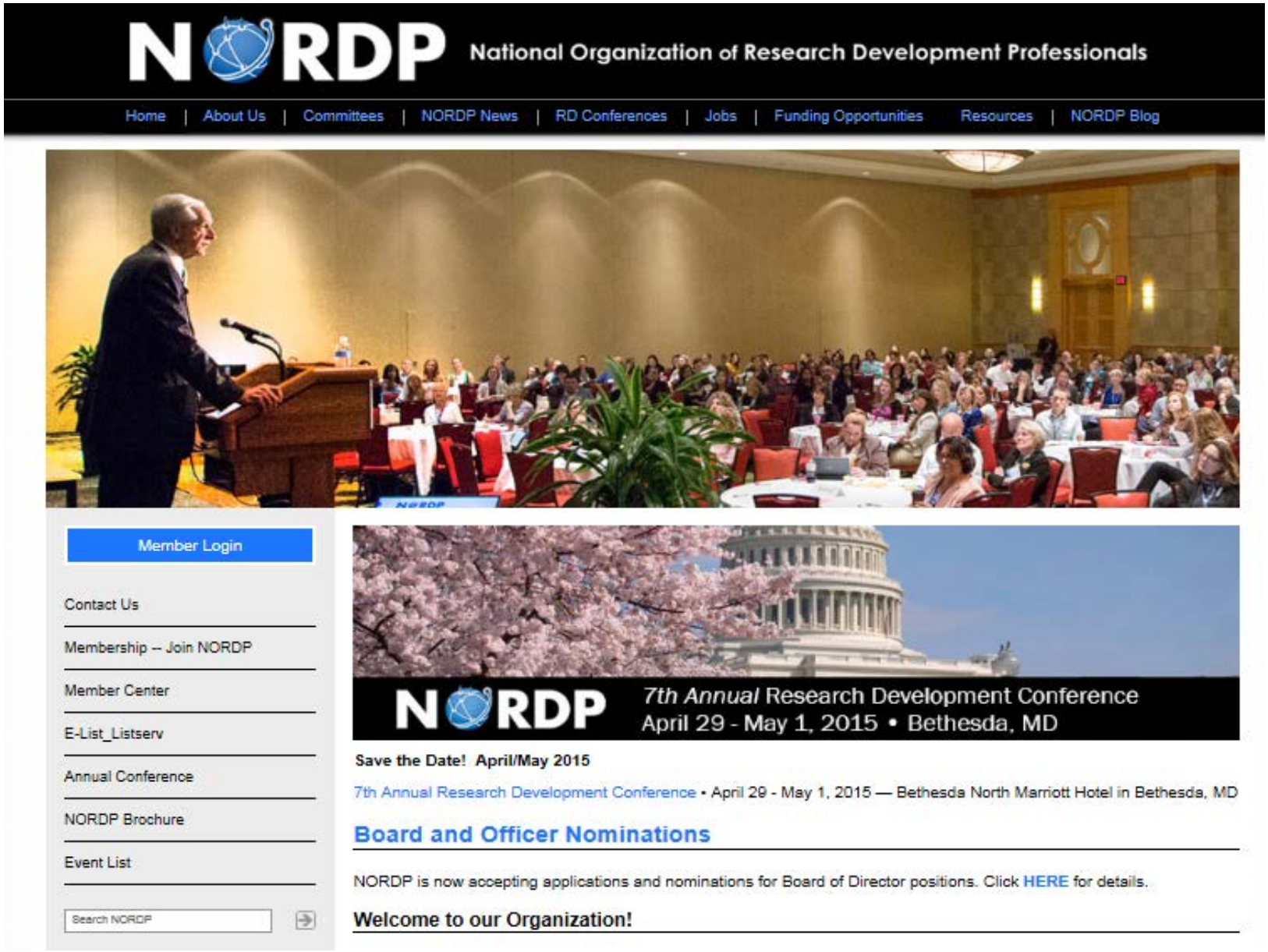
## III. Now

# Research Development: A Leadership Challenge

- Research Administration has traditionally been a “downstream” function
- Competition is increasing; smaller percentage of proposals are funded
- Universities increasingly reliant on external funding
- More focus is needed “upstream”

*GOAL:*
*More faculty writing better proposals!*

# A New Professional Group



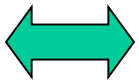

www.NORDP.org

# Contrasting perspectives

## *Academic writing:*

**Researcher-centered:**
Scholarly passion
**Past oriented:**
*Work you have done*
**Expository**:
*Explaining to reader*
**Impersonal:**
*Objective, dispassionate*
**Individualistic:**
*Usually solo activity*
**Verbosity rewarded:**
*Few length constraints:*
**Specialized terminology:**
*"Insider jargon"*

**World of ideas**
*Thesis, theme, theory:*



## *Grant writing:*

**Sponsor-centered:**
Service attitude
**Future oriented:**
*Work you wish to do*
**Persuasive:**
*"Sell" the reader*
**Personal:**
*Convey excitement*
**Team-oriented:**
*Feedback needed*
**Brevity rewarded:**
*Strict length constraints*
**Accessible language:**
*Broad audience*

**World of action**
*Project, activities, outcomes*

# Academic writing sample…

From a study on workplace aggression:

**Taken together with the findings from the present study that (a) workplace aggression in the primary job was more closely associated with negative work experiences and (b) both situational and individual characteristics played a role in aggression in the secondary job, future research might benefit from a greater focus on the subjective salience of the job as a moderator of the relationship between workplace experiences and supervisor-targeted aggression. Indeed, despite the differential effects of situational and individual difference factors on aggression, it is notable that the individual difference factors exerted a consistent but relatively low-level effect on aggression across contexts, whereas the more salient situational experiences exerted context-specific effects.**

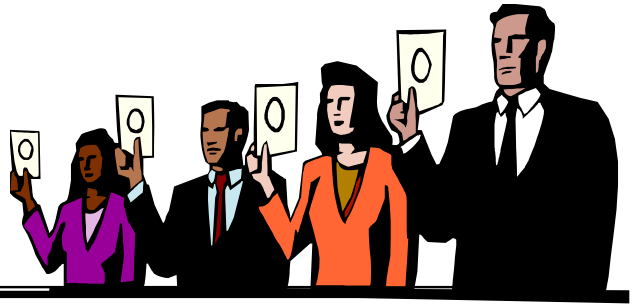
**Inness, M., Barling, J., & Turner, N. (2005). Understanding supervisor-targeted aggression: A within-person, between-jobs design.** ***Journal of Applied Psychology,*** **90, 4, 731-739.**

# Grant Writing: A Low Probability Game?

- Proposal success rates average 20 to 30 per cent (NSF, NIH, USDA, most private foundations)
    - More than half (60%) are rejected on first reading because:
        - Proposal did not match program
        - Applicant did not follow directions

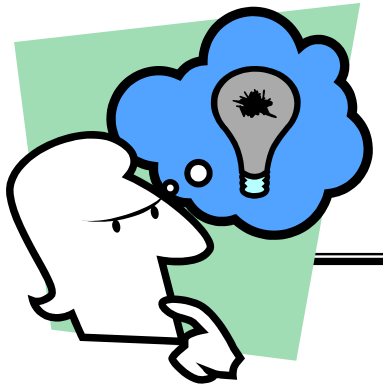
New & Quick, Grantseeker's Toolkit, 1998

# The Critics Weigh In…



(Actual comments made by actual reviewers)

- *"The problem statement, such as it is, is too global, showing no relationship to reality with no potential solution being indicated or even possible."*
- *"This problem has been studied to death. I'm surprised the writer doesn't know this."*
- *"It is almost impossible to understand what the author wants to study or what the main theme is. The problem is full of jargon and totally unclear as stated."*
- *"I cannot ascertain what approach the researcher will take in examining the problem as outlined."*
- *The writer has a flair for the dramatic. The world will not collapse if we do not fund a study of students' daydreams."*



# So what's the problem?…

*"The problem makes the proposal."*

- ✓ An important need or issue that should be addressed
- ✓ A gap between where we are now and where we could be
- ✓ A limitation of current knowledge or way of doing things

*It's also an opportunity...*

- ✓ A fresh idea that can advance our understanding or address a societal need
- ✓ A refinement that improves efficiency or lowers the cost of goods and/or services
- ✓ A new paradigm that reshapes our thinking or way of doing things

# What makes a proposal competitive?

- ✓ Significance (important area of research)
- ✓ Original approach
- ✓ Strong likelihood of success, i.e., will make a significant contribution to the field
- ✓ Knowledge and experience in the discipline
- ✓ Experience in essential methodology
- ✓ Succinct, logical and focused project plan
- ✓ Realistic amount of work
- ✓ Cost effective

50th SRA International

NSF

# Top Ten Reasons for Failure*

**presented at an NIH grants conference*

1. Lack of original ideas
2. Diffuse, unfocused or superficial Research Plan
3. Lack of knowledge of relevant published work
4. Lack of experience in essential methodology
5. Uncertainty concerning future directions
6. Questionable reasoning in experimental approach
7. Absence of acceptable scientific rationale
8. Unrealistically large amount of work
9. Lack of sufficient experimental detail
10. Uncritical approach

# Consider the Reviewer...

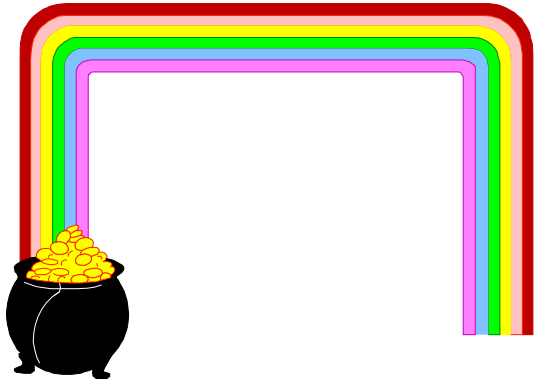
- Many competitive programs utilize review panels (especially federal and state)
- Most private foundations use staff to “screen” proposals for Program Director
- The more competitive, the more reviewer(s) will look for reasons to reject proposals

# Success = Good Ideas - Pitfalls

- **There is plenty of evidence to show that good ideas are often undermined by missteps in proposal preparation**
- **The following are some common proposal pitfalls and strategies to avoid them**

# A Starting Point...

- **What are you passionate about?**
- **What is the problem (and why is it important)?**
- **How is existing knowledge or practice inadequate?**



- **Why is your idea better?**
- **How is it new, unique, different?**
- **What will it contribute and who will benefit from it?**

**Pitfall 1: Poor fit**

# 1. Verify the match

- Develop your funding search skills
- Study program goals and eligibility
- Make contact with program officer before starting proposal!


- Read program announcement carefully; note questions
- Research previous awards!
- Send brief (2-3 short paragraphs) overview of proposed project
- Inquire about alternative funding sources

**Pitfall 2:**
**Poor organization**

# 2. Structure the Proposal

Always follow the format provided by the sponsor! Where none is provided, build your case in distinct sections:

I. Problem Statement; or Significance of the Research

II. Project Purpose (Overall goal + Specific objectives)
*NB: Cite "fit" with program objectives!*

III. Research Design; or Workplan (Activities + Timelines)

IV. Applicant Qualifications and Capabilities

V. Evaluation Plan; or Expected Outcomes

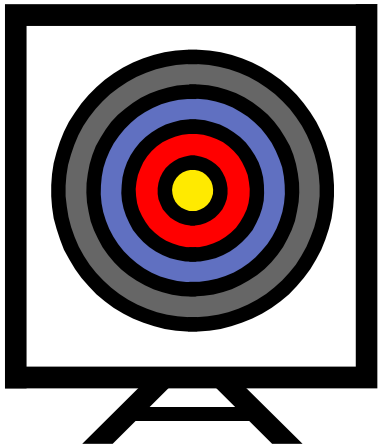
VI. Budget (Summary + Justifications)

Appendix (supplementary materials)

**Pitfall 3:**
**Weak argument**

# 3. Prove the importance of your project

- State your purpose and case for need up front; build a compelling argument
- Think “Op Ed,” not academic journal
- Cite an authoritative source(s)



EX:

“This proposal addresses a priority of the World AIDS Foundation: AIDS prevention in developing countries. Specifically, we propose to conduct a series of five-day AIDS prevention workshops in four cities in Indonesia. The participants will be…”

# Start with the Pitch: Sell Your Idea!

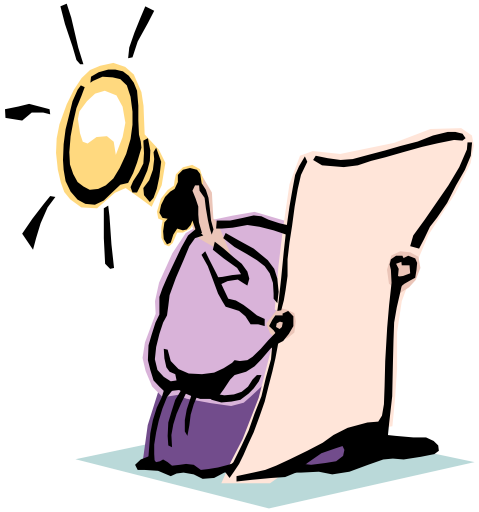
## I. Set the Stage – Lay Out the Problem *("Who Cares?")*

A. Get the reviewer interested at the outset

B. Identify the importance—stress the need

C. Summarize the state of the art

D. Describe technical challenges to solving the problem and potential benefits



## II. State the theme – Your Solution

E. Describe the concept and establish credibility

F. Describe your project's fundamental purpose

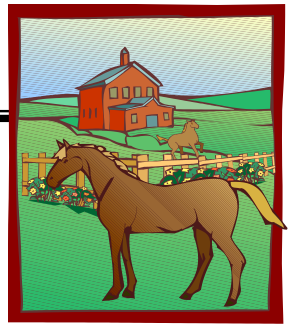
## III. Create a Vision *("So What?")*

G. Show how your work will advance the field

H. Envision the world with the problem solved

The "pitch" should be the opening 2 - 3 paragraphs of the proposal's very first section (after the abstract), regardless of what that section is called (INTRODUCTION, BACKGROUND, PROBLEM STATEMENT, SIGNIFICANCE OF THE RESEARCH, SPECIFIC AIMS, etc.)

# Sample Pitch: USDA Grant



**Intravenous Magnesium as a Treatment Modality for Recurrent Airway Obstruction**

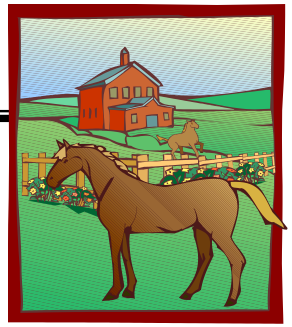
## I. SETTING THE STAGE

(A) Recurrent Airway Obstruction (RAO) is a progressive, debilitating respiratory disease, occurring in 50% of mature horses, (B) with 5% affected severely enough to result in an end to their working careers or to euthanasia. [1,2] It is a chronic, recurrent condition with clinical characteristics that are well recognized, although its pathogenesis is complex, multifactorial, and currently not well understood. As an indication of industry concern, in June of 2000, 30 of the world's leading investigators were joined by pharmaceutical companies at a Michigan State University conference devoted entirely to improving RAO prevention and management.[3] (C) Further, current management and therapeutic regimens for horses with chronic or severe disease are either not efficacious or are not able to be implemented. (D) For example, drugs commonly used to manage RAO, such as corticosteriods with anti-inflammatory properties and bronchodialators that open the passageways, also stress the heart, adding additional risk to an already debilitated animal.[4,5] Strategies to remove environmental precipitators such as dust and mold often fail as many horse owners are unable or unwilling to comply with such husbandry recommendations.[5]

## II. PROJECT THEMES

(E) With this study, we propose to administer intravenous magnesium to horses with acute and chronic RAO to determine if this treatment improves respiratory function and/or reduces arterial hypertension, without the deleterious side effects of other commonly administered drugs. Recent case reports show magnesium to be efficacious for acute human asthmatics who fail to respond to more conventional therapy.[7,8] (F) As RAO is increasingly seen as an equine analog to asthma in humans (replacing the previous use of the COPD model),[9,10] and severely affected RAO horses demonstrate many of the same clinical signs as human asthmatics, RAO horses could be equally responsive to this treatment.

# Sample Pitch: USDA Grant, cont'd



**Intravenous Magnesium as a Treatment Modality for Recurrent Airway Obstruction**

## III. VISION

(G) Should the research hypothesis be proved, clinicians will have another viable treatment modality at their disposal, one that is inexpensive, and effective in treating a resistant disease without the damaging side effects of other modalities. (H) Additionally, horse owners and breeders could reduce the significant financial losses caused by the malady, currently estimated at more than $800 million annually in the US alone.[11]

**Pitfall 4: Gyrating jargon**

# 4. Assume an uninformed but intelligent reader

- Use clear, accessible language
- Stick with direct statements and active voice
- Avoid insider jargon and acronyms

*"An expanding awareness of the limitations of our training settings, the political fallout of our training mission, the consequence of having therapists work in a particular work setting, and the need to change established institutional structures (e. g., child protective services, Aid to Families with Dependent Children, juvenile court) are examples of the contextualization of training and supervision."*

# Passive vs. Active Voice

- *It has been demonstrated by research that…*
- *The SAP program is being implemented by our department…*
- *Following administration of the third dosage, measurements will be taken...*

- *Research shows clearly that…*
- *Our department launched SAP this year…*
- *After dosage 3, we will measure…*

**Pitfall 5: Murky Goals & objectives**

# 5. Formulate specific, measurable objectives

**Goal**: General statement of the project's overall purpose(s)

*"Our aim with this innovative curriculum is to improve the supply of graduates with National Registry certification."*

**Objective:** A specific, measurable outcome or milepost

*Which is the better objective? Why?*

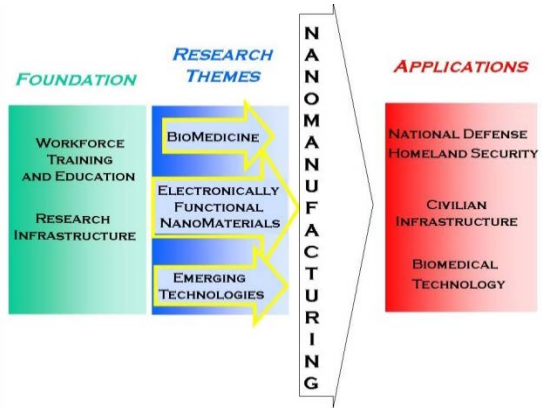
*"It is anticipated that completion of the new curriculum will result in enhanced student scores."*

*"At least 90 per cent of course graduates will pass the National Registry Examination."*

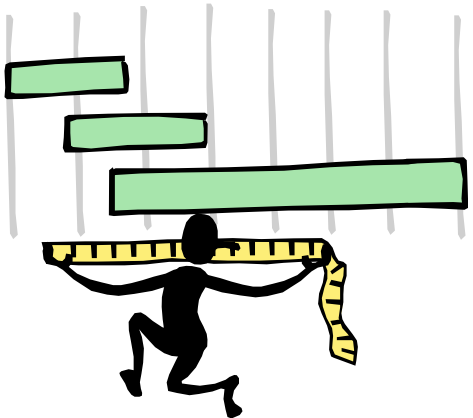
**Pitfall 6: Unclear project description and work plan**

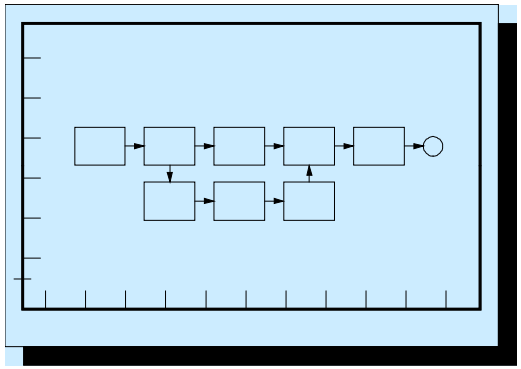
# 6. Illustrate: Project concept and the work plan

1) Overall concept:




2) Work plan:



1) Visualize the overall project with a drawing
2) Specify major tasks and timelines; use Gantt charts, calendars or flow charts

**Pitfall 7: Deviating from guidelines**

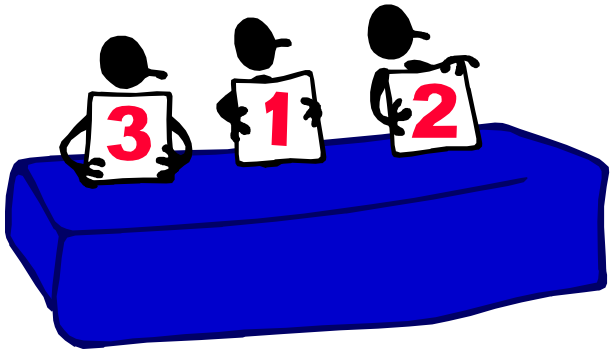
# 7. Follow application instructions exactly!

- Common sins:
  - **Late submission**
  - **Narrative too long**
  - **Fonts, margins, spacing too small**
  - **Signatures, certifications missing**
  - **Budget narrative missing**
  - **Insufficient number of copies**
  - **Inappropriate binding**

**Pitfall 8: Ignoring review criteria**

# 8. Pay attention to all review criteria

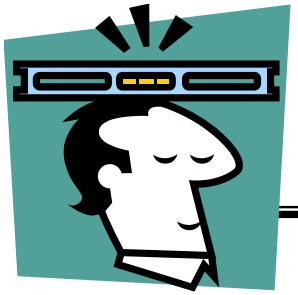
- Read evaluation standards carefully; then reference them in the project narrative
- Touch all the bases--not just the ones you're comfortable with




**Reviewers will use the criteria to "score" your proposal**

# General NSF Review Criteria

- What is the **intellectual merit** of the proposed activity?
- What are the **broader impacts** of the proposed activity?
- **Program specific criteria** may be listed in the program announcement



# Intellectual Merit – 5 strands

1) How important is the proposed activity to **advancing knowledge and understanding** within its own field or across different fields?*

2) How **well qualified** is the proposer to conduct the project?

3) To what extent does the proposed activity explore **creative, original, or potentially transformative concepts**?

4) How **well conceived and organized** is the proposed activity?

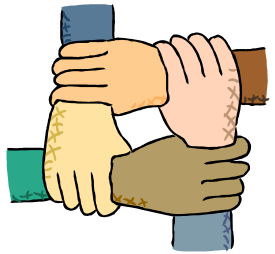
5) Is there sufficient **access to necessary resources?**

**Strongest emphasis in new definition*

# Broader Impacts – 5 strands

1. What may be the **benefits** of the proposed research **to society**?*
2. How well does the activity advance discovery and understanding while **promoting teaching, training and learning**?**
3. How well does the proposed activity **broaden the participation of women and underrepresented groups**? ("Diversity")
4. To what extent will it **enhance the infrastructure for research and education**, such as facilities, instrumentation, networksand partnerships?
5. Will the results be **disseminated broadly to enhance scientific and technological understanding**?

**New emphasis in 2013*
***Integration of education with research required of all NSF proposals!*




# Possible rankings by reviewers

Individual rankings:

- "Excellent"
- "Very Good"
- "Good" (not good!)
- "Fair"
- "Poor"

Panel recommendation:

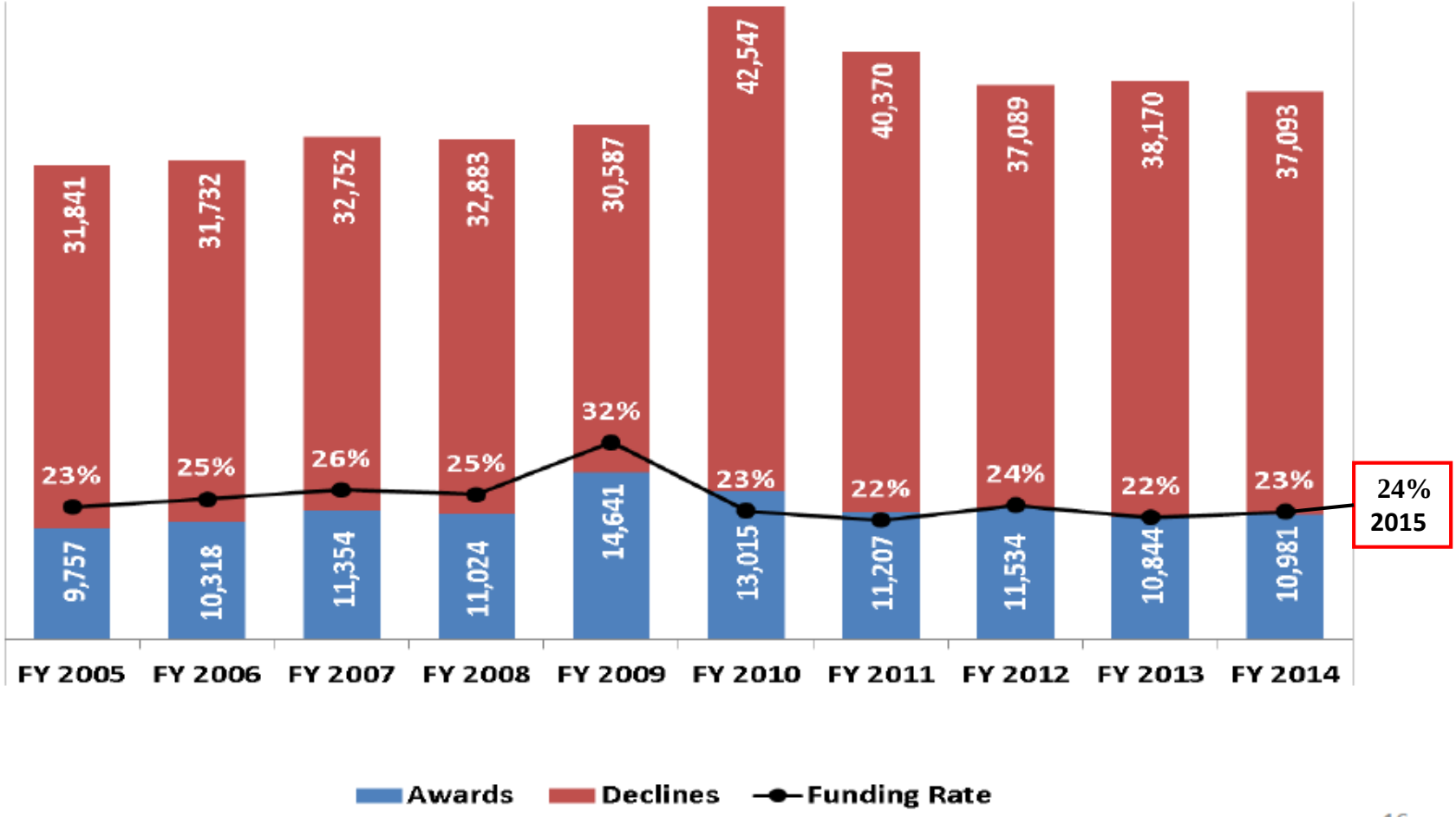
**"HIGH PRIORITY"**

**"MEDIUM PRIORITY"**

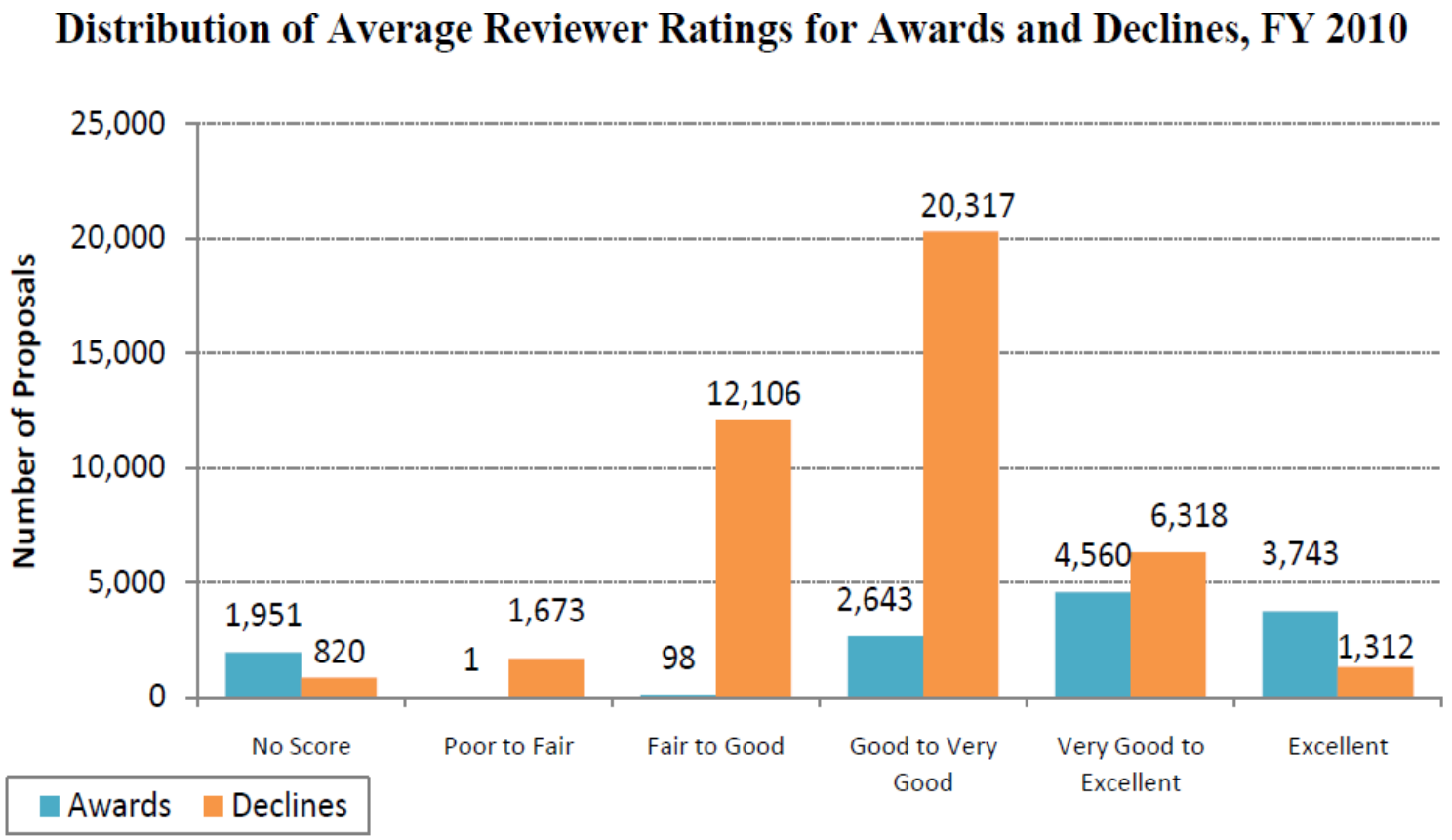
**"LOW PRIORITY**

***Remember:***
***Panels rarely reach a consensus ranking; only those proposals with a majority of "Excellents" are likely to be funded***

# NSF Competitive Awards, Declines & Funding Rates



# NSF:




**Awards: 13,000**
**Declines: 43,000**

# NIH Review criteria

## Five criteria apply to <u>all</u> NIH proposals:

- **Significance: ability of project to improve health**
- **Approach: feasibility of research methods & budget**
- **Innovation: originality of project approach**
- **Investigator: qualifications and experience of investigator(s)**
- **Environment: facilities, equipment & institutional support**

**NEW CRITERION (2010): IMPACT**

***Final score and most important!***

# NIH Peer Review: New Scoring System

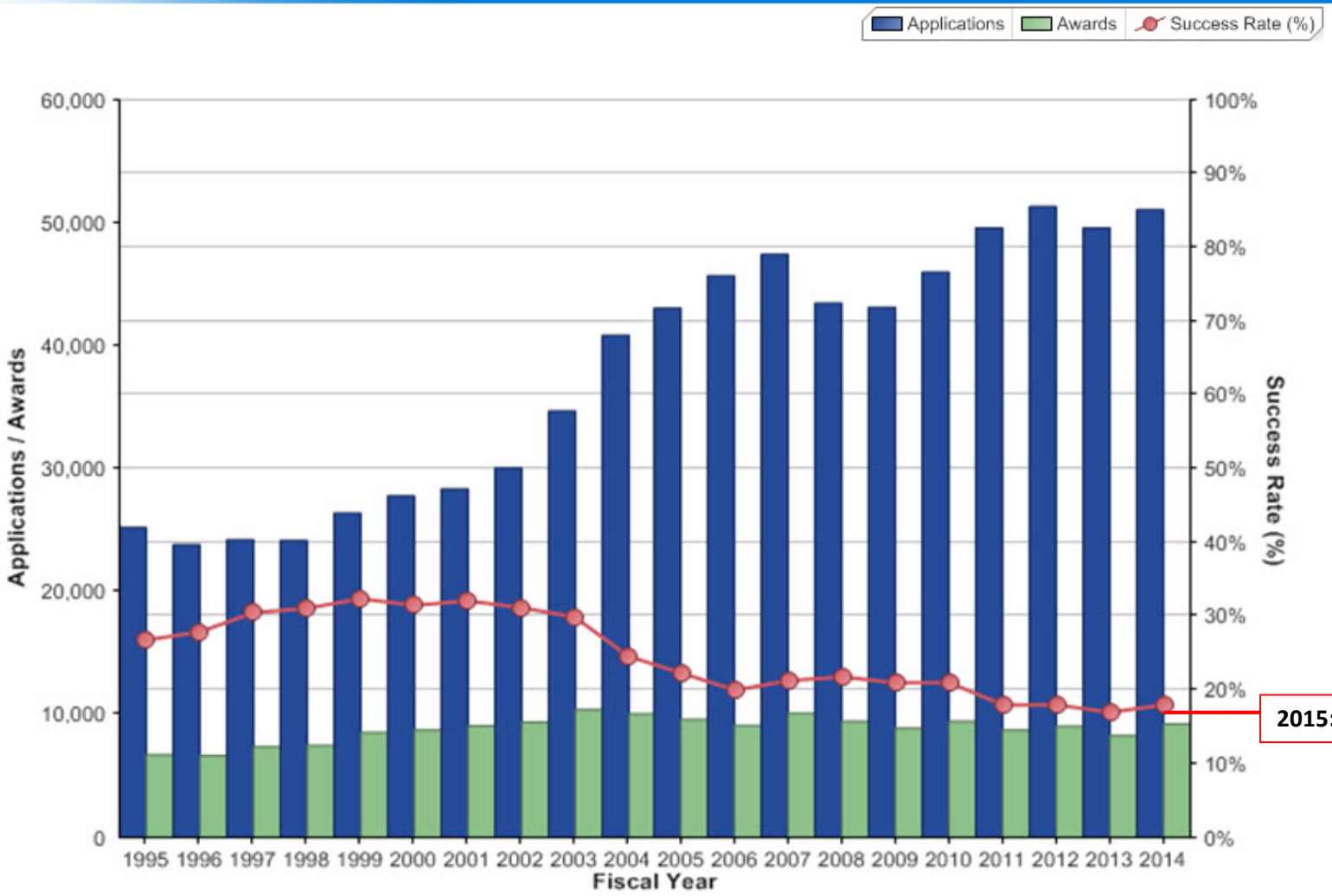

- **9-point** scale introduced in 2010
  (1 = "Exceptional" and 9 = "Poor")
- Reviewers will a provide ratings for each of five traditional NIH criteria
  - **Significance**
  - **Innovation**
  - **Approach**
  - **Investigator(s)**
  - **Environment**
- Most important new score will be the final **IMPACT** rating:
  (1 to 9), then multiplied by 10 (Ex: Average of 2.4 = 24)
- Average IMPACT scores are then <u>percentiled</u> for final ranking to determine <u>funding order</u>

# New Scoring System, cont'd


**Definition of 9 – point scale:**

| Impact | Score | Descriptor | Additional Guidance on Strengths/Weaknesses |
|---|---|---|---|
| High | 1 | Exceptional | Exceptionally strong with essentially no weaknesses |
| | 2 | Outstanding | Extremely strong with negligible weaknesses |
| | 3 | Excellent | Very strong with only some minor weaknesses |
| Medium | 4 | Very Good | Strong but with numerous minor weaknesses |
| | 5 | Good | Strong but with at least one moderate weakness |
| | 6 | Satisfactory | Some strengths but also some moderate weaknesses |
| Low | 7 | Fair | Some strengths but with at least one major weakness |
| | 8 | Marginal | A few strengths and a few major weaknesses |
| | 9 | Poor | Very few strengths and numerous major weaknesses |
| **Non-numeric score options:** NR = Not Recommended for Further Consideration, DF = Deferred, AB = Abstention, CF = Conflict, NP = Not Present, ND = Not Discussed | | | |
| **Minor Weakness:** An easily addressable weakness that does not substantially lessen impact<br>**Moderate Weakness:** A weakness that lessens impact<br>**Major Weakness:** A weakness that severely limits impact | | | |

# Research Project Grants
## Applications, awards, and success rates




National Institutes of Health
Office of Extramural Research

NIH Data Book – (http://report.nih.gov/ndb/index.aspx) Data provided by the Division of Statistical Analysis and Reporting Branch

**Pitfall 9:**
**Weak abstract**

# 9. Polish the abstract

- Written last, but read first by reviewers
- Must be an intriguing “first advertisement”
- Should reflect entire scope of project
- Summarizes project purpose and methods
- Must convey:
  - **What researcher intends to do**
  - **Why it’s important**
  - **Expected outcome(s)**
  - **How work will be accomplished**
- Has to be both CONCISE and COMPLETE!

*This may be the only narrative that some reviewers will read*

**Pitfall 10: Writing solo**

# 10. Presubmission review

- Ask seasoned colleagues for comments and suggestions
- Should be qualified to critiques proposal content
- Check your ego at the door
- Allow time for rewrites!

**Pitfall 11: Document errors**

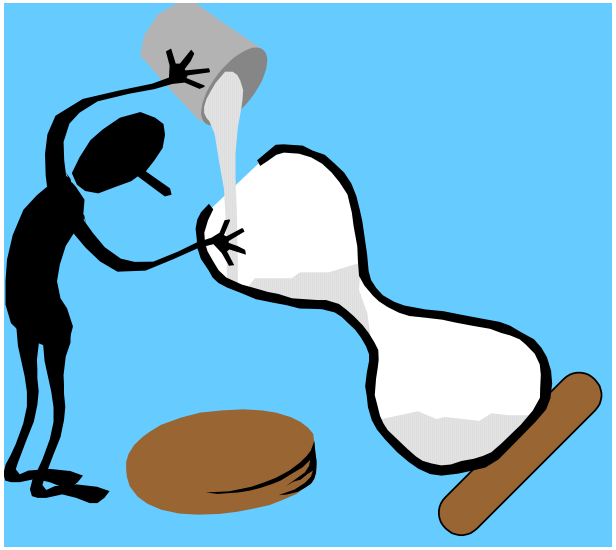
# 11. Use proofreaders

- Find an eagle eyed perfectionist
- Proofreaders read for form, not content
- Must be someone who has no stake in the project!
- Learn to love what s/he will do for you
- Zero tolerance--no error is too small to correct
- Root out inconsistencies in format as well as typos, misspellings, grammar, etc.

**Pitfall 12:**
**Insufficient editing**

# 12. Write, rewrite & rewrite

- Most winning proposals have been polished repeatedly
- Let it rest in between; sleep on every rewrite
- Fight the evil Pride of Authorship
- Must allow time!



(Famous rewriters: Hemingway, Michener)

# And Tips for Success...

- Fit research and grant writing into your job
- Find a mentor(s)
- Read successful grants; attend workshops
- Find collaborators; network
- Get on a review panel!
- Get funding alerts; conduct your own searches regularly
- Think big, think small, think different
- Submit, revise & resubmit!
- Treat it like a game (which it is)