Eastern Association for the Surgery of Trauma

Grant Writing Workshop for Young Faculty and Early Stage Investigators

January 14, 2014
Waldorf Astoria Naples
Naples, Florida

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**This workshop qualifies for Self-Assessment Credit.

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American College of Surgeons
Division of Education

Make or Break Your Grant: Writing The Specific Aims Page

Justin B. Dimick, MD, MPH
Associate Professor of Surgery
and Health Policy & Management
Center for Healthcare Outcomes & Policy
University of Michigan

Disclosures

- I have no relevant financial relationships to disclose as it pertains to the content of my presentation

My Qualifications: I have…

- …written a lot of crappy grants and have had many grants not funded
- …written a few good grants and had them funded: K08 (AHRQ), R01 (NIA), and R21 (NIDDK)
- …served on study section for AHRQ (Patient Safety and Quality) and NIH (Health Services Organization and Delivery)

Take home point.

1. The Specific Aims is THE MOST IMPORTANT PAGE OF YOUR GRANT BY FAR

What is a Specific Aims Page?

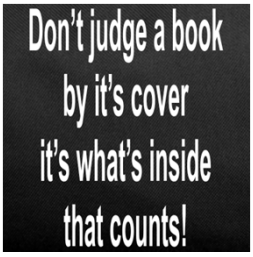
Typical Answer:

- The first page of a grant application
- Motivate and state your hypotheses, provide an overview of your research plan
- "Executive summary"

What is a Specific Aims Page?

It is actually…

- THE most visible page
- The ONLY page that gets read
- Your only chance to SELL the importance of your project

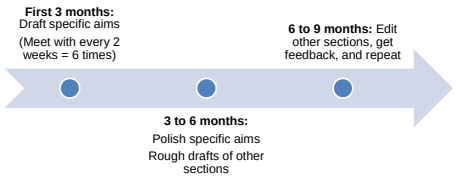


Key Principles

- Start [**really**] early
- Think carefully about structure
  - Work from a template
  - Create a "curiosity gap"
- Get feedback early and often

Start early

- Prepare in advance, and take 6-9 months to write a grant, meet with mentor or co-investigator every 2 weeks
- Mentors can be busy and it can be tough to coordinate meetings



My Mentor

Poor planning on your part does not constitute an emergency on mine.

John Birkmeyer, MD
Director, Center for Healthcare Outcomes & Policy
University of Michigan

Think carefully about structure

- Have an efficient framework
- Most research groups will work of a template

  Our template:

  P1: Significance
  P2: Knowledge Gaps
  P3: Specific Aims
  P4: Impact

The goal: create a "Curiosity Gap"

Keep your ideas simple and clear but sophisticated and innovative

Create tension between what's known and not known -- "curiosity gap"

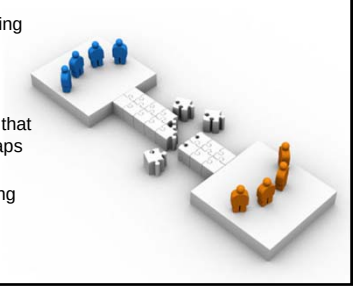
Knowledge gap vs. curiosity gap

Knowledge gap

- What's not known about the topic
- Challenge: Articulating them clearly

Curiosity gap

- A sense of urgency that these knowledge gaps need to be filled
- Challenge: Motivating them appropriately



Think carefully about structure

P1: Significance: What's the major problem? What's currently being done? (transition to P2)

P2: Knowledge Gaps:

P3: Specific Aims:

P4: Impact:

Think carefully about structure

P1: Significance: What's the major problem? What's currently being done? (transition to P2)

P2: Knowledge Gaps: What's known and not known? Parallel structure with Specific Aims

P3: Specific Aims:

P4: Impact:

Think carefully about structure

P1: Significance:	What's the major problem? What's currently being done? (transition to P2)
P2: Knowledge Gaps:	What's known and not known? Parallel structure with Specific Aims
P3: Specific Aims:	How will you fill the knowledge gaps? Including overview of methods in Approach
P4: Impact:	

Think carefully about structure

P1: Significance:	What's the major problem? What's currently being done? (transition to P2)
P2: Knowledge Gaps:	What's known and not known? Parallel structure with Specific Aims
P3: Specific Aims:	How will you fill the knowledge gaps? Including overview of methods in Approach
P4: Impact:	How will this save lives? Who will use this information?

Example – my first R01

NIA R01 grant

"Evaluating Policies for Improving Surgical Care in the Elderly"

Policy	Natural Experiment
Selective referral	Medicare National coverage decision for bariatric surgery
Pay for performance	Medicare/Premier Hospital Quality Incentive Demonstration (HQID)
Bundled payment	Medicare Acute Care Episode (ACE) Demonstration Project
Outcomes feedback	Medicare patients in National Surgical Quality Improvement Program (NSQIP)

Timeline

- First draft of Specific Aims page in October, 2009, iterated every 2 weeks
- Came to closure on Specific Aims in March, 2010
- Presented rough draft at our "Research in Progress" Session in late April
  - Major revision
- Submitted in June 2010

Be thoughtful about structure…

P1: Significance:

What's the major problem?
What's currently being done?
(transition to P2)

More than 50,000 Medicare patients die every year undergoing inpatient surgery. Serious complications, which often lead to the loss of independence among the elderly, are much more common. To improve surgical care in the elderly, the Center for Medicare and Medicaid Services (CMS) has launched numerous initiatives, including regionalizing care to the best providers (selective referral), rewarding high quality care (pay-for performance), realigning incentives to encourage more efficient care (bundled payment), and facilitating quality benchmarking by providers (outcomes feedback).

There are lots of deaths and complications in surgery

Policymakers are trying lots of things to improve care

Be thoughtful about structure…

P2: Knowledge Gaps:

What's known and not known?
Parallel structure with Specific Aims

First sentence of 2nd paragraph: The most important sentence in the grant:

The extent to which these policies are improving outcomes and costs in surgery is unknown, however.

Does health care reform work in surgery?

Curiosity Gap:

Affordable Care Act (PPACA) –

Will it work?

Be thoughtful about structure…

P2: Knowledge Gaps:

What's known and not known? Parallel structure with Specific Aims

Setting up Aim 1:

Previous studies evaluating the impact of these policies on clinical outcomes have not included control groups. As a result, it is unclear whether changes are attributable to the policy itself or simply due to secular trends.

Previous studies didn't use control groups

Be thoughtful about structure…

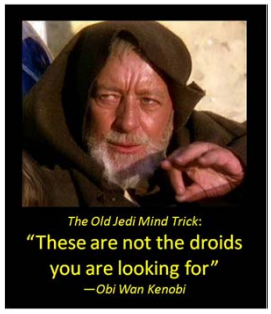
P3: Specific Aims:

How will you fill the knowledge gaps? Including overview of Approach and methods

Aim 1. To evaluate the impact of CMS improvement policies on surgical outcomes. We will conduct evaluations of pay-for-performance, selective referral, bundled payment, and outcomes feedback in the national Medicare population. For each policy approach, we will take advantage of a natural experiment (i.e., a specific program or policy implemented in the last 5 years). We will assess their impact on surgical mortality and complications for the procedures targeted by each policy. To optimally control for differences in baseline hospital case-mix and temporal trends in outcomes, we will use difference-in-difference methods.

We will evaluate these policies using control groups, and fancy econometric methods

Do not underestimate the power of the Jedi mind trick



Be thoughtful about structure…

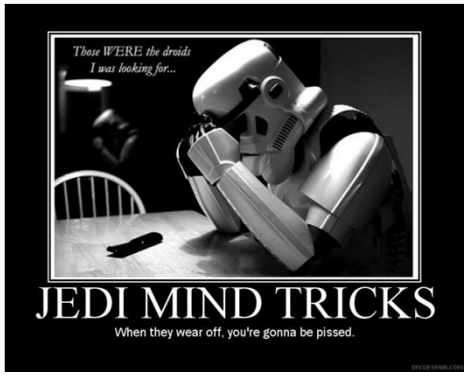
P4: Impact: How will this save lives? Who will use this information? Jedi mind-trick

What I wrote:

Results from this study have the most immediate impact on CMS policymakers. These results will facilitate evidence-based policymaking by providing data on the comparative effectiveness of these policy options. Private sector payers will also be able to use these results to select the most effective policies for improving surgical care for their patients.

What they wrote:

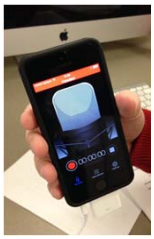
> **Overall Impact:** This study will provide CMS policymakers with data on the comparative effectiveness of various initiatives for improving quality and decreasing costs in surgical patients. Private payers will have information to select strategies for improving surgical care in the private sector. Surgical patients will benefit by receiving safer and more affordable care. This proposal is from a strong research team with an established track record of funding and dissemination. The approach is sound, and limitations inherent in the design of such a large-scale policy evaluation are carefully considered.

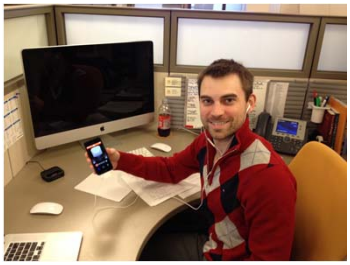


✓ *Get feedback*

It is a <u>lot</u> easier to get good feedback on 1 page than on an entire grant

Practical tip – seek verbal feedback and record it





Brad Reames, Research Fellow

Good feedback looks like this…

Remember: If it doesn't hurt, its not feedback

Key Principles

- Start [**really**] early
- Think carefully about structure
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  - Create a "curiosity gap"
- Get feedback early and often

Thank you!

Questions?
jdimick@umich.edu

Research Strategy

Shahid Shafi, MD MPH
Baylor Health Care System
Dallas, TX

Using examples from two successful grants:

- AHRQ (R01 grant)
- NTI grant

Research Strategy

Three sections in 12 Pages

- Significance – one to two pages
- Innovation – one page
- Approach – nine to ten pages

Significance

- What is the scientific problem?
- How will you solve that problem?
- Any preliminary studies to support the plan?
- What will be the impact of solving the problem?

One to two pages

Significance - Examples

Problem: Variations in patient outcomes across trauma centers

- AHRQ grant – is it due to structural differences between trauma centers?
- NTI grant – is it due to differences in clinical practices between trauma centers?

Innovation

- What's new?
- How is it better than the current approach?
- Definition of "new":
  - Brand new
  - Refinement
  - Improvement
  - New application of existing technique

One page

Innovation - Examples

- AHRQ grant: Measuring relationship between structural characteristics of trauma centers and their patient outcomes by linking VRC data to NTDB data
- NTI grant: Measuring compliance with several specific clinical interventions and its association with patient outcomes

Approach - Methods

- Overall strategy – one page graphic summary
- Data collection plan – four pages
- Data analysis plan – three pages
- Potential problems and solutions – one page
- Time line with milestones – half a page

May write a separate plan for each specific aim

Nine to ten pages

Key to success - Perseverance

Timeline of R01 grant from AHRQ:

- Dec 2005 – one pager
- Jul 2006 – version 1
- Jan 2008 – version 14 submitted
- Jul 2008 – rejected
- Feb 2009 – revised plan submitted
- Oct 2009 – Funding started

Three to four years

Career Development Awards: How to Present the Candidates, Mentors and Career Development Plan

Ben L. Zarzaur, MD, MPH
Associate Professor of Surgery
University of Tennessee Health Science Center

Disclosures

- **Funding**
  - **K23 – NIH - NIGMS**
  - **National Trauma Institute**
- **Advisory Board for Merck**
- **Borrowed from:**
  - **Presentation by Thomas Mitchell, MPH at UCSF (available at http://accelerate.ucsf.edu/training/K-grant-writing)**
  - **NIH website – K-Kiosk (available at http://grants.nih.gov/trainingcareerdevelopmentawards.htm)**

What is a Mentored Career Development Award?

Mentored	Independent	Mid-Career
K01	K02	K24
K08	K22	
K07	R00	
K12		
K23		
K25		
K99		

What is the goal of a Mentored Career Development Award?

To act as a path to independence for promising new investigators.

K08 vs K23

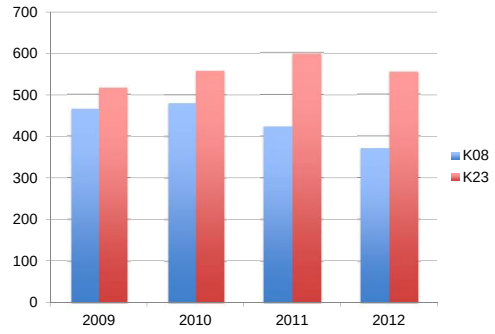
Amount of Funding per year	K08	K23
Salary Support	$75K - $105K ($75K)	$75K - $180K ($75K)
Research/ Training	$20K - $90K ($25K)	$25K - $50K ($25K)

The purpose of the Mentored Patient-Oriented Research (POR) Career Development Award (K23) is to support the career development of investigators who have made a commitment to focus their research endeavors on patient-oriented research. This mechanism provides support for three to five years of supervised study and research for clinically trained professionals who have the potential to develop into productive, clinical investigators focusing on patient-oriented research. Applicants must justify the need for a period of mentored research experience and provide a convincing case that the proposed period of support and career development plan will substantially enhance their careers as independent investigators in patient-oriented research. Clinically trained professionals or individuals with a clinical degree who are interested in further career development in biomedical research that is not patient-oriented should refer to the Mentored Clinical Scientist Career Development (K08) Award

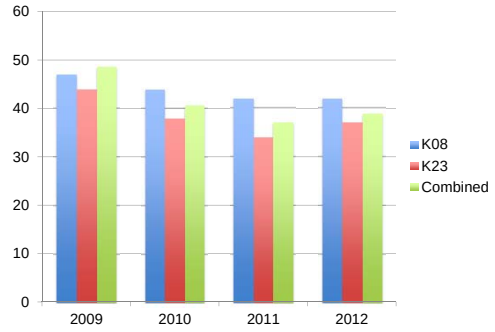
K08 vs K23

- **K23 – Patient Oriented Research**
  - **POA according to the NIH is:**
    - **Research conducted with human subjects (or on material of human origin such as tissues, specimens, and cognitive phenomena) that requires direct interactions with human subjects. Patient oriented research include the study of the disease, therapeutic interventions and clinical trials.**

Number of Applications



Success Rate



What is the anatomy of a Mentored Career Development Award?

Section of Application	Page Limits (If different than the the FOA, FOA supersedes
Introduction to Resubmission or Revision Application (if applicable)	1
Specific Aims	1
First 3 Items of Candidate Information (Candidate's Background, Career Goals and Objectives, and Career Development/Training Activities During Award Period and Research Strategy)	12
Training in Responsible Conduct of Research	1
Statements by Mentor, Co-Mentors, Consultants, Contributors	6
Institutional Commitment to Candidate's Research Career Development	1
Biographical Sketch	4
Total	25 (26 if revision)

How do I get started writing a Mentored Career Development Award?

Getting Started

- Organize your thoughts around a theme
  - The theme is you and your career trajectory
- Develop a personal vision and mission statement
  - Vision – Where you want to be in 10 or 20 years
    - Aspirational
    - "My vision is to change the world of outcomes research."
  - Mission – Where you want to go in the next 5 years or so.
    - Still aspirational but more concrete

Getting Started

- Helps you focus
- Extremely valuable when you sit down to write the grant
  - You will need to make a VERY compelling argument as to why you NEED the K award
  - Helps you get from point A – B
  - Provide concrete examples of areas where you need additional training/experience to reach your goal of becoming an independent researcher with R01 funding
- Realize that main focus of K award is the candidate's potential and the strength of the mentors and the training plan
  - Start with this idea and use the research plan to supplement this idea – the research plan is just another part of your training (albeit an important part)

Getting Started

- Find an example (preferably more than one) and use it
  - Friends
  - Colleagues
  - Institution
  - Search RePORTER http://projectreporter.nih.gov/reporter.cfm
  - Do not be afraid to ask

The Meat of the K Award

- The Candidate
  - Candidate's Background
  - Career Goals and Objectives
  - Career Development Activities During Award Period
  - Training in the Responsible Conduct of Research
- Statements by Mentors, Co-mentors and collaborators
- Environment and Institutional Commitment to the Candidate
- Research Plan

The Candidate

- Review Criteria
  - Quality of the candidate's academic and clinical record.
  - Potential to develop as an outstanding independent researcher.
  - Likelihood that the career development plan will contribute substantially to the scientific development of the candidate
  - Appropriateness of the content and duration of the proposed didactic and research phases of the award.
  - Consistency of the career development plan with the candidate's career goals and prior research experience.
    - Everything in the application must FLOW

Candidate Background

- Suggested length – less than a page
- Use your biosketch as a guide
- Do not be shy
  - Hard to write about yourself and say good things about yourself. Ok to use the 1st person.
- Explain your career trajectory and why you made the choices you made to get to where you are
- Keep in mind where you want to go so that you set up your training plan as the ***next logical step*** in your career development and as the pathway to independence

Candidate Background

- **Demonstrate a long standing commitment to research**
  - **Clinical or basic science (not important which)**
- **If you have been productive – point it out**
- **Describe any formal training you have**
- **Use the space to point out any "issues"**
  - **Significant gaps in training, career transition etc.**

Candidate Background Examples

- **After graduating from medical school as a member of Alpha Omega Alpha honor society, I entered residency training in General Surgery at the XXXXX, home to one of the busiest trauma centers in the country. Between XXXX, while still in surgical training, I was awarded the coveted position of working with Dr. XXXX in his National Institutes of Health funded laboratory. The research in his lab focused on modulation of the mucosal immune system in response to various routes of feeding. During my time in the basic science laboratory, I co-authored several papers and reviews, I presented the results of my work at various scientific meetings and I won numerous regional awards for my research efforts. I found I enjoyed asking clinically relevant questions, designing a study to answer a question, carrying out the study, and disseminating the results. In short, I enjoyed the challenge of the academic surgical life."**

Candidate Background Examples

- **"I received my Bachelor of Arts in Biology from XXXXX (Magna Cum Laude, 1996) and my Doctor of Medicine from XXXX (Alpha Omega Alpha Honor Society, 2000). I then completed Internal Medicine internship and residency at the XXXX (2000-2003). "**

Candidate Background Examples

- **"As I thought about these issues, it became clear that I would need to alter my thoughts regarding an academic surgical career. Until this point I had considered pursuing basic science research. However, as I learned more about injury as a disease and as an area of academic research, I decided to make a change. "**

Career Goals and Objectives

- **Suggested length – 1 or 2 paragraphs**
- **This section allows you to create a straw man argument**
  - **You have a "gap" in your training and experience**
- **What better thing to fill this "gap" than your research plan as well as the proposed training activities**

Career Goals and Objectives

- **Describe your goals and specific areas of where you need help to achieve these goals.**
- **Keep momentum going forward – do not want to stall out because you don't have the right mentors, enough time, etc.**
- **The K23 or K08 and the training and mentorship it will allow is the key for you.**
  - **You must convince the reviewers of this**

Career Goals and Objectives Examples

- **"My goal in seeking a Mentored Research Career Development Award is to acquire the necessary training, practical experience, and knowledge to become a leading independent clinical investigator in implementing public health interventions to reduce the burden of obesity and diabetes in low-income communities. I propose to investigate the association between food insecurity and the incidence and management of obesity and diabetes using two longitudinal studies. I will then undertake a pilot project to determine whether reducing financial barriers to fruit and vegetable consumption improves dietary intake and diabetes self-management in a clinical population at high risk of food insecurity. "**

Career Goals and Objectives Examples

- **"As I consider my future research career, my over-arching goal is to become an independent researcher and leader in the field of quality of life outcome disparities following injury. My objectives on the way to achieving this over-arching goal are to: 1) obtain funding via the K-23 mechanism within the next year; 2) to obtain R-level funding for ongoing research in my chosen field by the end of my career development award period; 3) to maintain consistent funding for my research for the next 15-20 years; 4) to advance in the academic ranks of my institution; and 5) once I am established, to develop a mentoring program within my research team to bring younger researchers into the field. "**

Career Goals and Objectives Examples

- **"However, to begin to reach these objectives it is critical that I have the time to devote to furthering my expertise in the area of health disparities and quality of life outcomes following injury. While my introductory course work in my Master's of Public Health program provided me with some basic epidemiologic skills, I have a gap in my knowledge base that must be filled in order for me to become an independent researcher. The didactic course work, the mentoring plan, and the mentored research project outlined in this proposal will fill this gap and will help me accomplish my long-term goal. The time required to complete my training efforts will be afforded to me through the K-23 grant mechanism. Without the K-23 grant mechanism, I would face significant challenges in finding the time and resources as a young academic surgeon to devote to my training efforts. As evidenced by my past accomplishments, when given an opportunity to learn and to apply my newfound knowledge, I will be successful and productive. With the resources granted to me via this K-23 proposal, I will meet the goals laid out in this proposal and I will become an independent researcher."**

Career Goals and Objectives Examples

- **"I have made progress in developing my clinical research skills, but there are three important areas where I require additional training, mentoring, and experience: (1) multi-disciplinary collaboration with clinical and basic scientists, (2) the design and implementation of prospective study design with involvement in the IPFnet, and (3) advanced study design and biostatistical methodology. In the following section, I present a detailed career development plan designed to enable me to acquire the additional training and mentored research experience I need to address these deficiencies and compete successfully for R01 funding, thereby achieving independence as a clinical investigator."**

Career Development Activities During Award Period

- **Suggested length – 1 or 2 pages**
- **Attack this section as you would the research plan**
  - **Training "Specific Aims"**
  - **How you will get from point A to B**
  - **Be specific on which courses / training activities you will engage in and WHY**
- **Everything must fit together and make sense**

Career Development Activities During Award Period Examples

- **"In consultation with my mentors, I have developed a five-year plan that will provide me with the necessary skills to gain independence as a researcher in the field of outcome disparities following injury. Each project, meeting, and course that makes up my career development plan will meet at least one of my three career development aims. These aims include 1) acquiring core knowledge, 2) gaining further expertise in research methodology, data management and interpretation, and 3) strengthening my scientific writing, research ethics and academic leadership skills."**

Career Development Activities During Award Period Examples

- **"Detailed below are the specific courses that I plan to take at the XXXX and the XXX:**
- **SOCI 3401 Social Inequalities – *Aim 1*- This course focuses on the unequal distribution of power, property, and prestige and social relations of dominance and subordination in the American class system; how and why this inequality develops and persists; differences in life chances and options across different social classes.**
- **SOCI 4442 Sociology of Poverty – *Aim 1*- This course focuses on the structural sources of inequality and how experiences of poverty are shaped by race, gender and age.**
- **BIOE 820 Clinical Research in Special Populations – *Aim 2*- This course will expose students to issues pertaining to clinical research in special populations including children, pregnant women, normal healthy subjects, and groups that may include international participants.**
- **BIOE 862 Advanced Categorical Data Techniques for Epidemiology – *Aim 2*- This course covers specific topics for the modeling of categorical data include logistic regression for dichotomous and polytomous response, conditional logistic regression, generalized estimating equations, and generalized linear mixed modeling for models with random effects. In addition, the course will explore loglinear modeling for count data and life estimation and Cox proportional hazards model for categorized time to event data.**
- **BIOE 822 Advanced Epidemiology – *Aim 2*- This course provides the foundation skills for independent analysis of epidemiologic data. Topics to be covered include the analysis of vital statistics data, statistical analysis of simple epidemiologic measures, identification and control of confounding in epidemiologic data, model building using epidemiologic data, logistic regression, and proportional hazards modeling."**

Career Development Activities During Award Period Examples

- **"Johns Hopkins Summer Institute in Health Policy and Management**
- **Health Disparities and Cultural Competence – *Aim 1* - This course will familiarize students with the issue of health disparities. The course will cover health disparities by race/ethnicity as well as socioeconomic status.**
- **Assessing Health Status and Patient Outcomes – *Aim 2*- Provides an understanding of the conceptual basis for measures of health; some of the common measures, their properties, and strengths and weaknesses; and a framework for judging the appropriateness of a particular measure for students' own work.**
- **Foundations of Leadership: A Leadership Survey Course – *Aim 3* - Students develop an understanding of the role of the organizational leader, and the essential knowledge and skills the role requires. Drawing from a variety of disciplines, places emphasis on the role of the leader in relation to organizational effectiveness, developing a vision for the future, leading change, and building adaptive organizational cultures."**

Table 2. Career Development Plan and Aims

Year		Course/Meeting/Project	Career Aim
1	Fall	Clinical Research in Special Populations (BIOE 820) Advanced Categorical Data Techniques for Epidemiology (BIOE 862) Department of Surgery Grand Rounds Monthly Mentor and College of Nursing Research Meetings Submit Preliminary Data Articles	2 2 1,2,3 1,2,3 2,3
	Spring	Social Inequalities (SOCI 3401) Advanced Epidemiology (BIOE 822) Department of Surgery Grand Rounds Monthly Mentor and College of Nursing Research Meetings Submit Preliminary Data Articles Begin Mentored Research Project	1 2 1,2,3 1,2,3 2,3 1,2,3
	Summer	Johns Hopkins Summer Institute in Health Policy and Management Monthly Mentor and College of Nursing Research Meetings Mentored Research Project	1 1,2,3 1,2,3
2	Fall	Sociology of Poverty (SOCI 4442) Mixed Linear Models (BIOE 818) Department of Surgery Grand Rounds Monthly Mentor and College of Nursing Research Meetings Mentored Research Project	1 2 1,2,3 1,2,3 1,2,3
	Spring	Introduction to Health Services Research (BIOE 851) Integrity in the Conduct of Scientific Research (IP 801) ACS Young Surgical Investigators Conference Department of Surgery Grand Rounds Monthly Mentor and College of Nursing Research Meetings Mentored Research Project	3 3 2,3 1,2,3 1,2,3 1,2,3
	Summer	MD Anderson Cancer Center Annual Summer Workshop on Disparities in Health in America Monthly Mentor and College of Nursing Research Meetings	1 1,2,3
3	Fall	Workshop in Scientific and Technical Writing (ENGL 7808) Department of Surgery Grand Rounds Monthly Mentor and College of Nursing Research Meetings Mentored Research Project	3 1,2,3 1,2,3 1,2,3
	Spring	ACS Surgeons as Leaders Course Department of Surgery Grand Rounds Monthly Mentor and College of Nursing Research Meetings Mentored Research Project	3 1,2,3 1,2,3 1,2,3
	Summer	Begin R-Level Writing MD Anderson Cancer Center Annual Summer Workshop on Disparities in Health in America Monthly Mentor and College of Nursing Research Meetings	2 1 1,2,3
4/5	Fall	R-Level Writing Department of Surgery Grand Rounds Monthly Mentor and College of Nursing Research Meetings Mentored Research Project	3 1,2,3 1,2,3 1,2,3
	Spring	R-Level Submission (Year 5 Only) Department of Surgery Grand Rounds Monthly Mentor and College of Nursing Research Meetings Mentored Research Project	3 1,2,3 1,2,3 1,2,3
	Summer	MD Anderson Cancer Center Annual Summer Workshop on Disparities in Health in America Monthly Mentor and College of Nursing Research Meetings	1 1,2,3

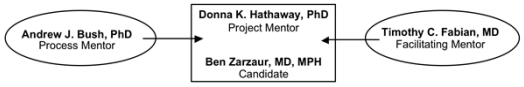
What about the Mentor?

Mentor

- K08 / K23 - do not require a mentor plan, BUT….
  - Put a short description of how your mentor / mentors will fit into your training plan (Remember the mentoring plan must make sense and flow with the rest of the application).
  - Be very specific
    - "I will meet with my mentoring team 1 time per month as a group in the Surgery Conference room which is central to all parties."
      - In your mentor's statements make sure that they commit to coming to the meetings
        - » Be consistent
  - Use the mentor statements to supplement the mentoring plan

Mentor

- Find a mentor near you (geographically)
  - Preferable at same institution but does not have to be if the person is close
  - Cold call them if needed
  - Use NIH RePORTER (http://projectreporter.nih.gov/reporter.cfm) to find funded investigators in your field
- Primary mentor MUST have NIH funding track record
- Can have more than one mentor
- Does not have to be a surgeon
  - Probably will not be in many cases
- Plan to meet with the mentor must be feasible
  - If you have an out of town mentor must make a plan to meet them somehow on a regular basis – not recommended for the primary mentor



Statements By Mentor, Co-mentors, Consultants, Contributors

- **Suggested length for signed letters**
  - **Primary mentor: At least 2 pages**
  - **Other mentors: no more than 1 or 2 pages apiece**
  - **Limit is 6 pages total**
- **Keep the mentoring team small**
  - **3 – 4 people at most**
  - **If you need more people for some reason call them collaborators or technical advisors and include them in the research plan**

Statements By Mentor, Co-mentors, Consultants, Contributors

- **Letter from the primary mentor**
  - **Write a sample letter for the primary mentor and the other mentors if you have more than 1**
- **To address the review criteria for this part of the grant the letter should include:**
  - **Qualifications in the research area proposed by the candidate**
  - **Previous experience as a mentor**
  - **Include an evaluation component that describes how your mentors will assess your progress**
  - **What resources, if any, they will make available to you in support of your training and/or research**
  - **Specific role in the candidate's career development**
    - **Be VERY specific**

Statements By Mentor, Co-mentors, Consultants, Contributors

- **Use the letter/s to address any "issues"**
  - **Poor publication record on your part**
  - **If the research plan is ambitious with regard to the budget – address how the mentor might make up the difference**
  - **Overlap with the primary mentor's research – demonstrate how your research will be different or go in a new direction**
  - **Geographic distance between mentors and how the distance will be bridged (i.e. feasibility)**
  - **Major change in career or research focus on the part of the candidate**

Institutional Commitment to Candidate's Research Career Development

- **Page limit : 1 page**
- **Letter from the Chair or Division Chief**
- **Evaluation criteria**
  - **Applicant institution's commitment to the scientific development of the candidate and assurances that the institution intends the candidate to be "*an integral part of its research program*."**
  - **Applicant institution's commitment to protect at least 75% of the candidate's effort for proposed career development activities**