

## 1 The Problem: Bioscientists learn research through uneven informal mentoring

- Mentoring as a process has many strengths, but suffers from high levels of variability as a teaching modality
- Mentor-based teaching and communication are especially complicated when mentor and mentee gender and race/ethnicity are different
- Mentees often spend much more time doing research initiated by their mentors than developing skills for conceptualizing, designing and writing proposals on their own ideas
- New faculty, ESPECIALLY MD FACULTY, often arrive at their first position with limited experience with the complex skills of writing research proposals
- Senior faculty too often lack skills and time to adequately assist junior faculty seeking grant funding

## 2 An Alternative/Complementary Framework – Dedicated time with skilled “coach” and “teaching” approach to develop the talents of young scientists

- Dedicated “coach” highly experienced with mentoring and teaching research skills focuses on development of young researchers as a primary role, not a sidelight or last task on the to-do list
- Allows a much broader array of teaching methods to complement informal/unpredictable mentoring
- Selects for and employs individuals who are highly skilled mentors/coaches, bringing their expertise to many
- Requires different and highly specialized skills of the coach

## 3 Grant Writers Groups for Beginners – Most writing NIH K and R proposals

### Week 1

- Ideal size 4-6 – can work as large as 8
- Determine level of experience and stage of design/writing for each person
- Deconstruct the elements of whatever they are writing
- Logic model for each section of proposal – what it has to achieve
- Obsessive focus on writing for reviewers – goal is “mind control” of the reviewer
- Simultaneously writing for 3 different types of reviewers
- Outline plan for subsequent sessions, timelines, deadlines, etc.

### Week 2

- Show and talk through NIH video of mock study section – sets context for what reviewers do, level of detail, discussion, etc.
- Everyone comes with paper copy of their research questions, hypotheses or Specific Aims depending on how far they are along
- In real time walk through and discuss each one – model talking through what I am interpreting from what I read – brings the unspoken out in the open
- Others do the same thing once they see the method
- Prolonged focus on Specific Aims page – once this is really tight the rest of the proposal easily takes shape – may take 4 weeks or more

### Week 3 through week 8 – typical length of Group

- Highly variable depending on each group
- Typically everyone begins to actively engage and provide very good feedback
- Much easier to see problems in other’s work than your own, but gradually begins to transfer
- If scientific, research design, or other roadblocks emerge, put writing on hold to get input from scientific experts or mentors
- As writing continues, focus on 1-2 pages of section of proposal at a time in work sessions – Significance, Innovation, Impact, Approach
- Typically spend least time on Approach as this section most/best help from discipline mentors

## 4 Other Variations and Enhancements

### For K Writing Groups

- In Session 1 talk through logic model and what needs to be accomplished in sections unique to K – emphasis on how ALL sections must be strong or will drag down the rest
- As the research design and writing gets well-formed shift to other sections
- Emphasis on the concept of who are you now, what do you want to become, what skills do you have now, what skills do you have to master
- Often spend quite a bit of time on choice of mentoring team
- Always spend time on development plan

### More Advanced Writers Groups

- Well formulated proposal that needs some help
- Often working on revisions for resubmission
- Critical need for help with reading and interpreting reviews!
- Bringing the critical reviews to the group – much ‘safer’ than taking to close colleagues – establishes community of peers helping each other

### Enhancements

- Audio recording of discussion for each person – audio file sent after the meeting so they don’t miss anything – very simple and effective
- Animated PowerPoints with voice-over audio on various aspects of the writing process – some used in the group and all available to go back to (see laptop with demos)

## 5 Groups and Coach Provide Active Acculturation and Entree into the Research Community of Practice

- Development or refinement of scientific thinking, ability to define research questions, hypotheses
- Scientific writing skills – down to level of sentence construction
- Viewing proposal writing as a highly refined stylistic pattern
- Detailed knowledge of what goes into each section and why
- Ability to ‘think like a reviewer’
- Simulation of grant review process and realities
- Positive peer group – all in it together
- Demystification – grant writing is a very learnable skill
- Continued engagement with other mentors
- Professional coaching to complement scientific mentoring
- Career development guidance – sometimes harsh reality check
- Some see what it takes and realize not for them – usually positive
- Cross-fertilization between even basic and clinical studies
- Can’t always salvage poor science!

## 6 Outcomes to Date

Participants – some attended more than one Group	
Mixed R/K Group	2 Group, 19 Faculty
R Groups	6 Groups, 57 Faculty
K Groups	5 Groups, 55 Faculty
Proposals from Groups - Survey – 37 responses out of 75 who attended more than one session - July 2008 – March, 2011	
Submitted	30
Funded	5
Pending Review	11
Resubmitted	4
Being Revised	10
Not Being Revised	2

## 7 Feedback from Grant Writers Group Participants – Survey of first 100

On a scale of 1-5 (1 being lowest, 5 being highest, or NA) how would you rate the impact of the Grant Writer's Groups:

Answer Options	No Impact	Small Impact	Modest Impact	Substantial Impact	Major Impact	N/A	Rating Avg.
Knowledge of the overall structure of NIH proposals	0	4	5	11	9	1	3.86
Knowledge of the NIH review process	0	7	6	8	8	1	3.59
Skill at conceptualizing a research question	0	4	6	9	9	2	3.82
Skill at designing a research study/project	0	5	12	7	4	2	3.36
Skill at writing a Specific Aims page	0	0	2	9	17	2	4.54
Skill at writing Significance sections	0	3	2	13	8	4	4.00
Skill at writing an Innovation section	1	1	6	11	6	3	3.80
Skill at writing an Approach section	2	6	5	7	5	5	3.28
Skill at writing the Candidate Background	3	6	4	3	4	10	2.95
Skill at writing the Career Development Plan	2	4	3	0	5	16	3.14
The input and feedback from other group members	4	3	6	10	6	1	3.38
The input and feedback from Rick McGee	0	1	0	7	21	1	4.66
Your ability to help colleagues write grants	1	5	9	10	2	3	3.26
Scientific writing in general	1	3	12	9	3	2	3.36
The overall impact of being in one or more groups	0	5	4	11	6	4	3.69
Clarity of your career goals	5	4	5	5	6	5	3.12
Clarity of your plan to achieve career goals	5	5	4	5	7	4	3.15
Sum of Responses	24	66	91	135	126	66	

## 8 When does it not work as well?

- Too small a group – less than 3 or 4 – shift to more one-on-one – or too big a group – over 8
- Group too disparate – e.g. mix of VERY basic, clinical, behavioral, community, etc.
- Inconsistent attendance
- Conflicting advice between coach, group and mentors – delicate but real life
- Inadequate support or iffy position within department
- Participant who does not know what they want to become, or prior training not aligned with goals