

JULY 28, 2025

FROM IDEA TO IMPACT:

Writing Proposals & Securing Funding

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Director | Research Outcomes for Children's Surgery



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TODAY'S TAKEAWAYS



How to Write a
Winning Grant
Proposal



How to Complete
the Grant when
Awarded



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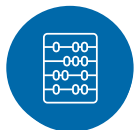
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STEPS TO WRITING A WINNING GRANT PROPOSAL



DEVELOP A
SYSTEM



ASK FOR
FUNDED GRANTS



LEARN ABOUT
YOUR FUNDER



WIN THEM OVER
ON FIRST PAGE
-AIMS PAGE-



NOTE ALL
POTENTIAL
PROBLEMS &
SOLUTIONS



PAY ATTENTION
TO DETAILS



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DEVELOP A SYSTEM

1. To obtain grant funding, commit to the game

- 5-10% of proposals are funded
- Create a plan to submit the same proposal to multiple funding sources

2. Develop a strategic plan for submissions

- Year 1: Document preliminary data
- Year 2-3: Apply for pilot funding
- Year 4-5: Submit a large proposal



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ASK COLLEAGUES FOR FUNDED GRANTS

Ask for “funded” research proposals from colleagues that are more senior to you or if at your level and have secured the funding you want

Ultimate goal, an example of successful proposal formatted exactly for where it is going (i.e., NIH R01/R21, American Heart Association Scientist Development Grant, etc)



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REVIEW THE FUNDED GRANT & FIND THE STRATEGY



How did this grant align with the funders' mission?



How many aims did they have? Are aims mechanistic, behavioral, RCT, etc?



Is there preliminary data? Do you have similar data you can use?



How is the grant formatted? Are there sections that surprise you or that you aren't prepared for and need more data?



LEARN ABOUT YOUR FUNDER

Research Grants on Improving the Use of Research Evidence

We welcome studies that pursue one of three aims:

Building, identifying, or testing ways to improve the use of existing research evidence

Building, identifying, or testing ways to facilitate the production of new research evidence that responds to decision-makers' needs

Testing whether and under what conditions using research evidence improves decision-making and youth outcomes

The online application is now open. The next deadline for applications is August 3, 2022 at 3pm ET.



LEARN ABOUT YOUR FUNDER

Do you need to submit a letter of intent?

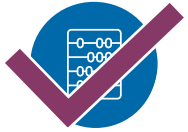
Is there a note that speaking to the program officer (PO) is strongly encouraged?

Will you be able to submit the proposal, or do you have to go through your office of grants and contracts (OGC)?

What other forms or documents are needed for submission?



STEPS TO WRITING A WINNING GRANT PROPOSAL



DEVELOP A
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GRANT PROPOSALS

The “Aims” Page



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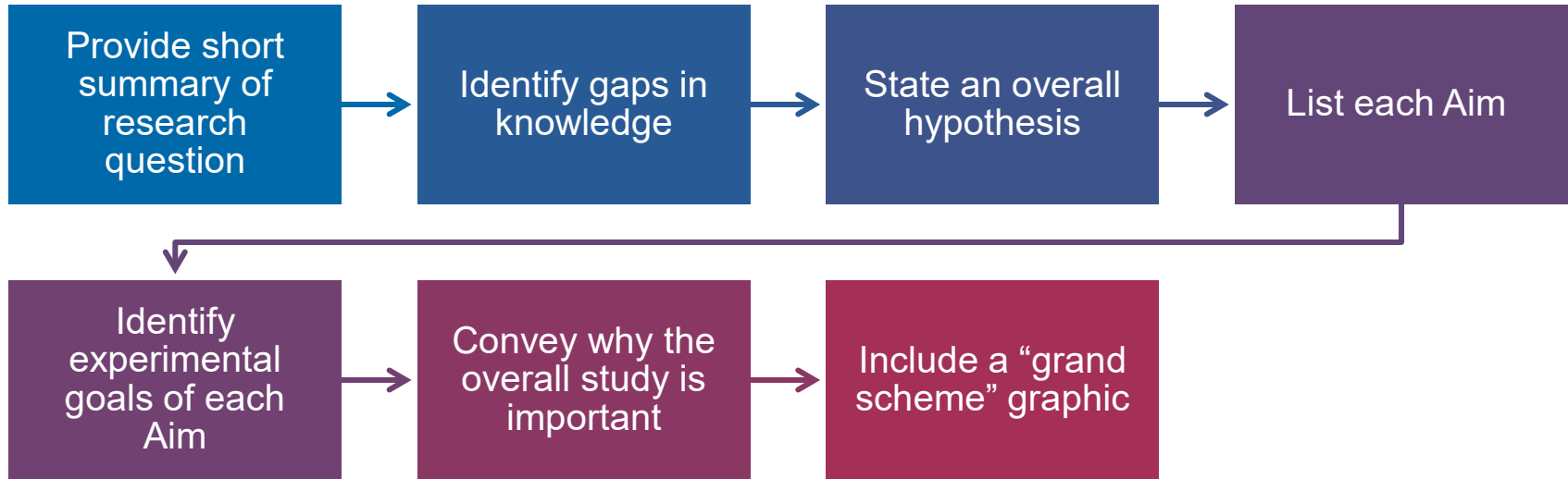
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SPECIFIC AIMS: The most crucial part of the application, do in sequence

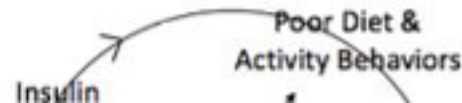


EXAMINE THE HIDDEN FORMULA

SPECIFIC AIMS

Obesity affects over one-third of US adolescents and related comorbidities, including type 2 diabetes (T2D), are increasingly prevalent in youth.^{1,2} Youth-onset T2D is associated with insulin resistance (IR) and increased mortality. Over half of youth with T2D in the TODAY and RISE randomized controlled trials (RCT) failed primary therapy by 3-years, which is almost 4 times faster than seen in similar studies of adults.^{3,4} It is thus imperative to focus on treating IR prior to the development of T2D as early intervention may offer a critical window for prevention prior to development of these long-lasting health consequences.

Obesity-associated IR is an early mediator of T2D.⁵ Numerous health behaviors have been individually associated with obesity-associated IR, including excessive-poor quality energy intake, physical inactivity and insufficient sleep, all of which are common in adolescence. However, interventions targeting IR to-date in teens have focused on diet & physical activity behaviors alone, with and without medications (i.e., metformin) but have largely been ineffective.^{4,6} No lifestyle interventions to-date in adolescents have comprehensively addressed healthy lifestyles by intervening on all relevant behaviors (i.e., diet, activity, and sleep) simultaneously, nor have studies included sleep extension as a major component of the intervention.⁶ To design more effective obesity interventions in adolescents, an understanding of the impact of sleep on the underlying pathophysiology of IR is needed (Figure 1). This is a major goal of my research program, of which this proposed feasibility study addresses a critical first step.

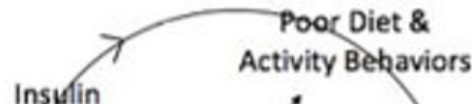


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SPECIFIC AIMS

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OPENING SENTENCE

SPECIFIC AIMS

Obesity affects over one-third of US adolescents and related comorbidities, including type 2 diabetes (T2D), are increasingly prevalent in youth.^{1,2} Youth-onset T2D is associated with insulin resistance (IR) and increased mortality. Over half of youth with T2D in the TODAY and RISE randomized controlled trials achieved remission faster than seen in previous studies. The development of new therapies for the treatment of T2D in youth is needed.

Need to immediately capture the reviewer's attention by highlighting the relevance of your topic

- Consider the mission of the funder and include key words that highlight that mission



CURRENT KNOWLEDGE

SPECIFIC AIMS

Obesity affects over one-third of US adolescents and related comorbidities, including type 2 diabetes (T2D), are increasingly prevalent in youth.^{1,2} Youth-onset T2D is associated with insulin resistance (IR) and increased mortality. Over half of youth with T2D in the TODAY and RISE randomized controlled trials (RCT) failed primary therapy by 3-years, which is almost 4 times faster than seen in similar studies of adults.^{3,4} It is thus imperative to focus on treating IR prior to the development of T2D as early intervention may offer a critical window for prevention prior to development of these long-lasting health consequences.

In 3-4 sentences what is known on the subject

- Keep in mind you are setting up the reviewer for the “gap in knowledge” you are proposing to fill with your proposal



RESEARCH GAP

Obesity-associated IR is an early mediator of T2D.⁵ Numerous health behaviors have been individually associated with obesity-associated IR, including excessive-poor quality energy intake, physical inactivity and insufficient sleep, all of which are common in adolescence. However, interventions targeting IR to-date in teens have focused on diet & physical activity behaviors alone, with and without medications (i.e., metformin) but have largely been ineffective.^{4,6} No lifestyle interventions to-date in adolescents have comprehensively addressed healthy lifestyles by intervening on all relevant behaviors (i.e., diet, activity, and sleep) simultaneously; nor have studies included sleep extension as a major component of the intervention. To design more effective obesity interventions in adolescents, an understanding of the impact of sleep on the underlying pathophysiology of IR is

Define the subject of your proposal

- Keep it simple, direct, and relate it to the preceding sentences

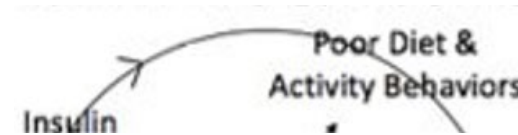


LONG-TERM GOAL

State to the reviewers where this project will go next

- They want to see that the results from this project will continue into the next logical step

Obesity-associated IR is an early mediator of T2D.⁵ Numerous health behaviors have been individually associated with obesity-associated IR, including excessive-poor quality energy intake, physical inactivity, and poor sleep. However, these behaviors alone, without an understanding of the underlying pathophysiology of IR, are unlikely to be effective. No lifestyle interventions on all relevant behaviors (i.e., diet, activity, and sleep) simultaneously, nor have studies included sleep extension as a major component of the intervention. To design more effective obesity interventions in adolescents, an understanding of the impact of sleep on the underlying pathophysiology of IR is needed (Figure 1). This is a major goal of my research program, of which this proposed feasibility study addresses a critical first step.



PART 1: IMPORTANCE

Identify the Gap in Literature

SPECIFIC AIMS

Obesity affects over one-third of US adolescents and related comorbidities, including type 2 diabetes (T2D), are increasingly prevalent in youth.^{1,2} Youth-onset T2D is associated with insulin resistance (IR) and increased mortality. Over half of youth with T2D in the TODAY and RISE randomized controlled trials (RCT) failed primary therapy by 3-years, which is almost 4 times faster than seen in similar studies of adults.^{3,4} It is thus imperative to focus on treating IR prior to the development of T2D as early intervention may offer a critical window for prevention prior to development of these long-lasting health consequences.

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needed to design a comprehensive lifestyle intervention program, of which this proposed feasibility study addresses a critical first step.



PART 2: PRELIMINARY DATA

Most adolescents report chronic exposure to short sleep, well below the recommended 8-10 hours per night.^{7,8} Current literature in adolescents demonstrates a clear association between short sleep and IR.⁶ Insufficient sleep may shift metabolism towards utilization of protein rather than fat for energy generation, processes which are associated with IR and metabolic disease in numerous conditions other than obesity. This association is potentially explained by the contribution of the circadian sleep-wake cycle to important metabolic pathways. In animal and adult experimental studies, chronic sleep restriction has been shown to induce IR as well as significantly disrupt serum metabolomic patterns reflective of underlying macronutrient metabolism (specifically in *branched chain amino acids (BCAA)* and *acylcarnitines (AC)* metabolites).⁹⁻¹² Obese adolescents are different physiologically from adults in that they experience puberty- and obesity related-IR and have a shifted circadian rhythm both of which demand separate studies as underlying mechanisms related to IR have been shown to differ.^{4,13,14}

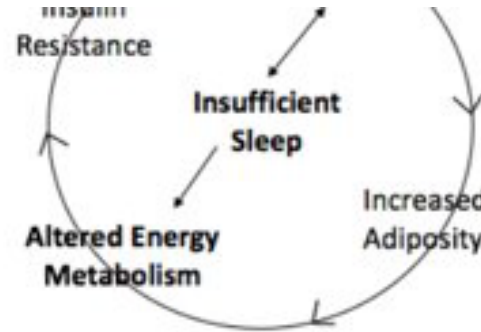


Figure 1. Cyclic Relationship of Insufficient Sleep



THE TERMS

PRELIMINARY DATA

&

PILOT DATA

CAN'T BE USED INTERCHANGEABLY.



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PART 3: RATIONALE, AIMS, & HYPOTHESIS

Appropriate Aims for PILOT STUDY

No studies have used a behavioral intervention in short sleeping adolescents to improve sleep duration and examine these metabolites as potential mediators of alterations in insulin sensitivity. Understanding energy metabolism in adolescents, under conditions of adequate versus insufficient sleep, may be an essential key to provide insights for future development of interventions to improve IR. This proposal will take the first step towards filling this research gap by testing the feasibility of a sleep extension protocol in a research setting among overweight and obese adolescents diagnosed with prediabetes.

The specific aims of this **feasibility study** are:

1. To examine the feasibility of recruitment and retention of adolescents with overweight/obesity, pre-diabetes, and inadequate sleep into a sleep extension intervention.
2. To assess adherence to and initial pre-post sleep outcomes of a sleep extension intervention to increase total sleep time in adolescents with overweight/obesity, pre-diabetes, and inadequate sleep.
3. To determine estimates of the mean and variability of potential intervention outcomes, including metabolomics, body composition, and substrate oxidation.

Impact:

The results of this feasibility study will be used to inform recruitment methodology, intervention development, and sample size estimates for a pilot RCT to be submitted as an NIH R34 application to NHLBI PAR-18-463 in October 2019.



BIOSKETCH



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PERFECTLY ALIGNED

A. Personal Statement

My research examines the pathway towards establishing health behaviors (i.e., sleep, diet, physical activity, screen time) early in life. As a maternal and child health epidemiologist, I have studied how maternal factors and behaviors during pregnancy influence offspring health behaviors and ultimately impact pediatric risk for obesity and other cardiometabolic disease states (insulin resistance, type 2 diabetes, cardiovascular disease). I use observational methods to first identify key associations with health behaviors and disease risk, and then use these findings to guide intervention strategies with potential for widespread dissemination and implementation.

Through this Research Institute Pilot Study Award, I will be 1) extending my methodology expertise by utilizing the tool of metabolomics and 2) establishing a multi-disciplinary team of collaborators with unique expertise that will move forward together in applying for federal funding. This proposal will use advanced tools in metabolomics research to identify biomarkers involved in pathways that may be modified by health behavior change. Prior metabolomics research has identified unique patterns of metabolites between individuals with obesity, insulin resistance, and type 2 diabetes. No studies have used these advances in metabolomics to examine early improvements in metabolites that may result from improved health behaviors prior to seeing the improvements in clinical outcomes such as absolute fat percent or weight loss.

My fifteen years of experience in human subject research has me well-positioned to serve as PI on this project and contribute expertise in health behavior change, chronic disease risk in pediatric populations, and development of behavioral intervention strategies. This proposal presents an outstanding opportunity to enhance my leadership skills as I work closely with my multi-disciplinary team of co-investigators to accomplish the aims of this intervention study. The results of this feasibility study will be used as preliminary data for an NIH R34 application to NHLBI PAR-18-463 in October 2019.



STUDY DESIGN



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HOW TO CHOOSE STUDY DESIGN

GOAL:

- Valid and precise information
- Association between exposure and disease
- Using minimum resources

EXPERIMENTAL:

- Research question involves a prevention or treatment
- Small effect expected
- Ethical and feasible
- Money is available

OBSERVATIONAL:

- Research question involves a prevention, treatment, or causal factor
- Moderate or large effect expected
- Trial not ethical or feasible
- Trial too expensive

COHORT:

- Little known about exposure
- Evaluate many effects of an exposure
- Exposure is rare
- Underlying population is fixed

CASE-CONTROL:

- Little known about disease
- Evaluate many exposures
- Disease is rare
- Disease has long induction and latent period
- Exposure and data are expensive
- Underlying population is dynamic

PROSPECTIVE:

- Disease has short induction and latent period
- Current exposure
- Want high-quality data

RETROSPECTIVE:

- Disease has long induction and latent period
- Historical exposure
- Want to save time and money



STEPS TO WRITING A WINNING GRANT PROPOSAL



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GRANT PROPOSALS

The “Project Narrative”



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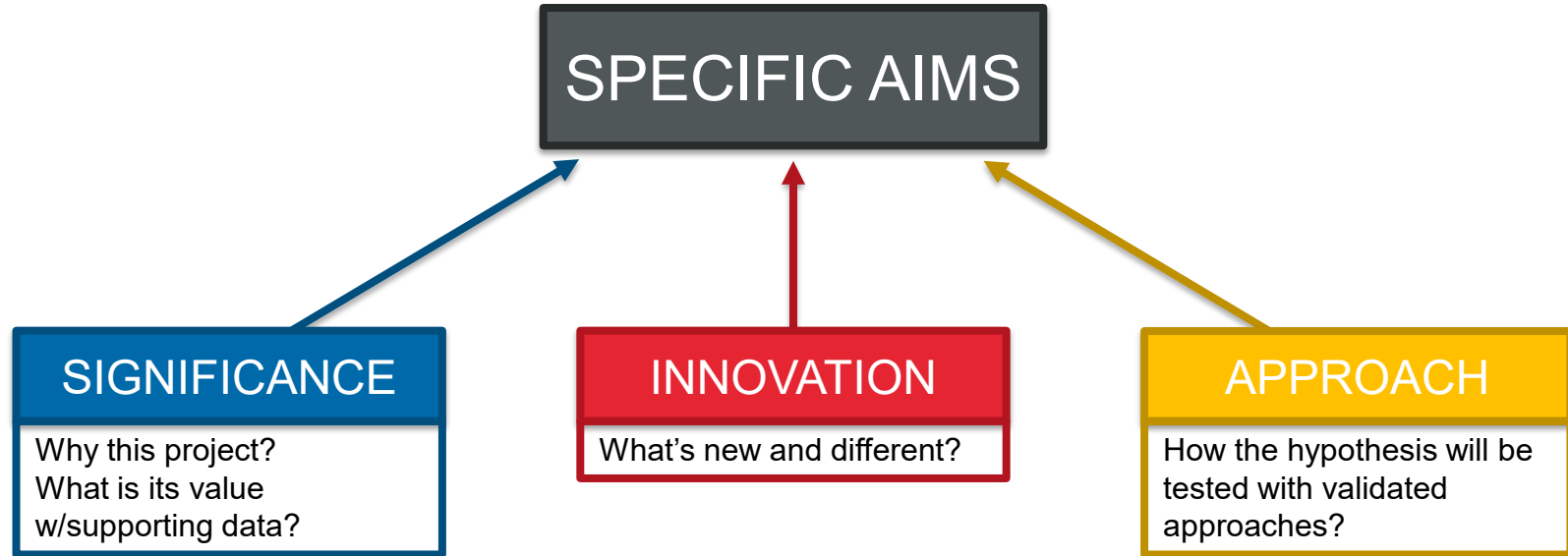
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ADDRESS THE W'S

- **Who** is your audience? Understand the focus of the granting agency
- **What** is the question you are addressing?
 - ✓ Is the biological/physiological/pathophysiological importance of the question?
 - ✓ Tools will be used to address the question?
 - ✓ Deliverables will be obtained?
- **Where** will the research lead (i.e., future directions)?
- **Why** is now the time to address your question?
 - ✓ Are you the person to perform the research?



STRATEGIC PLAN



FORMAT, FORMAT, AND FORMAT...

Does the funder recommend section headings, a specific format, page limits, font size, font style, etc?

Research Strategy

Significance
Scientific Premise
Research Gap
Innovation

Approach

Preliminary Studies
Study Design
Study Procedure
Assessments
Analytical Plan
Project Timeline
Future Directions

- Summary of Proposed Work (100 words)
- Project Significance & Potential Impact
- Research Hypothesize and Study Aims
- Research Design: Data and Study Methods
- Key Personnel
- Anticipated Products and Target Audience
- Prior/Ongoing Research Directly Related to the Proposed Work

Significance
Research Plan
Personnel
Resources



TIPS AND TRICKS

Assume

Assume reviewers don't know anything about the topic of your work

Use

Use text from the funding announcement that highlights how your work will address one of their needs/focus areas

Consider

Consider framing your work using a theory of change or mechanism of action



COMMON PROBLEMS

The project you
plan to do is not
clearly defined

The significance of
the project doesn't
match the research
you propose to do

Lack of information
regarding the
setting, population,
and outcomes



LIST POTENTIAL PROBLEMS WITH SOLUTIONS

Roadblocks and Alternatives, Rigor and Reproducibility, and Future Directions

Potential Roadblocks and Alternatives. Challenges with in-school intervention delivery: It is possible that in some schools or with some teachers, students will not be released from class on schedule to attend intervention sessions. If this occurs, we will build on our 3 years of experience partnering with schools to engage relevant school stakeholders (e.g., administrators, teachers, and staff) to identify acceptable routines and schedules to enable students to participate in the intervention. Loss to follow-up at one-year assessment: Similarly, we will work closely with our school partners to identify improved methods for assessments (e.g., scheduled grade-wide assessments administered by ALLY facilitators). However, if these occur, these roadblocks relate directly to the implementation factors and outcomes under investigation; thus, encountering these problems and exploring their causes (e.g., lack of adoption, low satisfaction, low fidelity) will inform our Aim 3 analyses and conclusions and allow us to identify strategies to improve future implementation of ALLY in a wide range of school settings. Lastly, in the circumstance that our hypothesized effect is not observed in Aim 1, associations of potential mediators with negative affectivity (Aim 2) will still be examined to inform future interventions.



POWER ANALYSIS

Sample size determination and power analysis: We will recruit up to $n=26$ to conservatively account for up to 20% attrition, for a final sample size of $n=20$. We will make every effort to minimize attrition from the study by frequent contacts in person and by phone. This is a feasibility study where most study aims will be evaluated using descriptive statistics. The sample size of 20 will be sufficient to address study feasibility, such as alerting the research team to non-rare adverse events and establishing procedures for recruitment and retention (Aim 1). The sample size will also provide stable estimates of the mean and variability of the proposed intervention outcomes (Aim 3). Formal power analyses were conducted for detecting changes in sleep from pretest to posttest (Aim 2). Assuming two-sided alpha of 0.05, the sample size of $n=20$ will provide 80% power to detect an effect size of Cohen's $d = 0.66$ for change in total sleep time. Although this is a large effect, it is reasonable based on research demonstrating sleep improvements of 71 minutes ($t = 12.52$, $p < .001$) in 18 adolescents following a sleep extension protocol.⁵⁰



PAY ATTENTION TO DETAILS



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ADVICE FROM COLLEAGUES



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AIMS PAGE: CRITICAL COMPONENT

Spend 80% of time writing the grant on the aims page

Share the aims page with people in and outside the field

Most often this is the only page reviewers (2nd-3rd) will review and your score will be a result of this page only



GENERAL ETIQUETTE AND TIMELINE

Etiquette

- Draft letters of support
 - This will give you an opportunity to document the key items you need from each person
- Email colleagues early and provide due date and draft
 - Give them due date 7-10 business days before your deadline

Takes Time

- Give yourself 4-6 months of dedicated time to process ideas, get feedback, and rewrite
- Writing proposal is not something you do in your “free time”
- Schedule 2-3 hour blocks of time to write – consider your best “creative” time



REVIEWER'S PERSPECTIVE

Reviewers are asked to review many grants, and in a short amount of time

Most reviewers will skim read

- Make points clear and simple
- Use tables and bullets to summarize key elements

Read the reviewer criteria to ensure you are addressing each of the criteria very clearly

- In other words, hand them what they need and don't make them have to work to find it
- Bold and underline this specific language so the reviewers see it immediately

Don't assume

- Reviewers may know nothing about you and your field
- The only information they know is written in your proposal



SUMMARY



BE PATIENT



STAY FOCUSED



COLLABORATE



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HOW TO COMPLETE A FUNDED PROJECT



PROTOCOL &
IRB APPLICATION



DATA
COLLECTION



DATA ENTRY
& CLEANING



ANALYZE &
INTERPRETATION
OF RESULTS



PUBLICATIONS



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DATA ANALYSIS AND INTERPRETATIONS



List the main findings



Plan how to best
communicate the findings



Create a plan to
disseminate the results



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PUBLICATION STRATEGY



SUBMIT ABSTRACT



DRAFT MANUSCRIPT



CLOSER TO CONFERENCE
DATE – SUBMIT MANUSCRIPT



LIST POTENTIAL JOURNALS



<http://jane.biosemantics.org/>

5

Journal Metrics

3.739 2018 Impact Factor	9th of 123 Rank in Thomson ISIs Pediatrics category	2.9 Weeks to First Decision
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THANK YOU

Questions?



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Research Outcomes in
Children's Surgery (ROCS)

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Designing Your Path

Jill L Kaar, PhD, FAFA

Associate Professor | Dept Pediatrics & Surgery

Director | Research Outcomes for Children's Surgery



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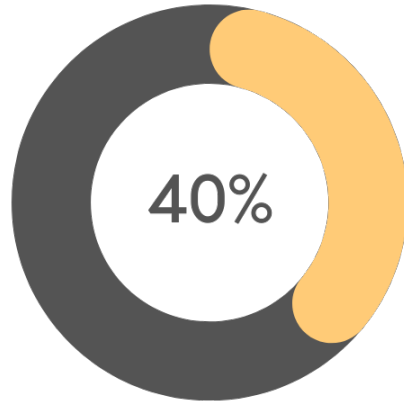
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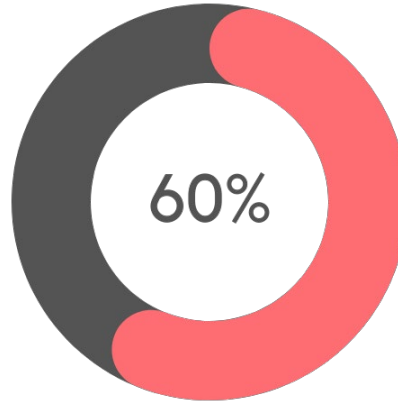
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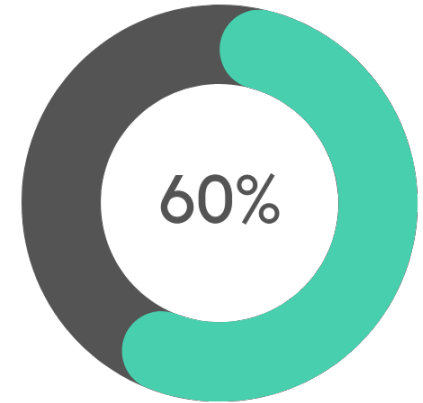
INSTITUTIONAL SALARY SUPPORT JOURNEY



ASSISTANT PROFESSOR



ASSOCIATE PROFESSOR

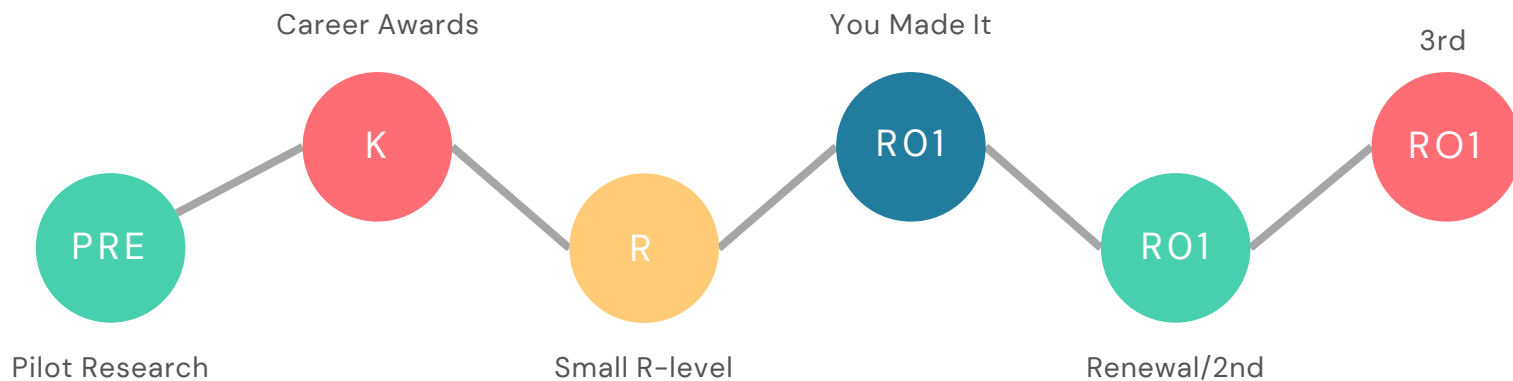


PROFESSOR

*Disclaimer: These targets are specific for research faculty w/in DOP.



FOCUSED RESEARCH TIMELINE



JOURNEY TO FUNDING YOUR FOCUSED RESEARCH



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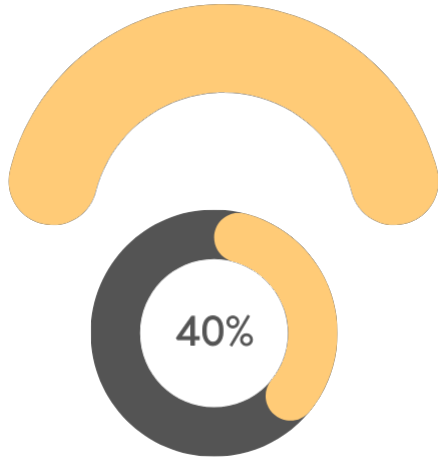


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YOUR FUNDING JOURNEY

0.75 FTE



ASSISTANT PROFESSOR

0.30 FTE



ASSOCIATE PROFESSOR

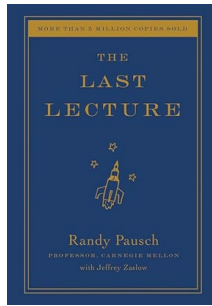
0.30 FTE



PROFESSOR



"WORK HARD. I GOT TENURE A YEAR EARLY. JUNIOR FACULTY MEMBERS USED TO SAY TO ME: "WOW, WHAT'S YOUR SECRET?" I SAID: IT'S PRETTY SIMPLE. CALL ME ANY FRIDAY NIGHT IN MY OFFICE AT 10 O'CLOCK, AND I'LL TELL YOU."



BY RANDY PAUSCH



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STRATEGIC COLLABORATIONS



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BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. DO NOT EXCEED FIVE PAGES.

NAME: Kaar, Jill

eRA COMMONS USER NAME (credential, e.g., agency login): landsbaugh.j

POSITION TITLE: Associate Professor

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE (if applicable)	END DATE MM/YYYY	FIELD OF STUDY
University of Pittsburgh, Pittsburgh, PA	BS	05/2002	Nutrition/Psychology
University of Pittsburgh, Pittsburgh, PA	MS	08/2003	Exercise Physiology
University of Pittsburgh, Pittsburgh, PA	PHD	05/2007	Physical Activity Epidemiology
University of Cambridge, Medical Research Council Epidemiology Unit, Cambridge, Cambridgeshire	Postdoctoral Fellow	07/2010	Maternal and Child Health Epidemiology
University of Michigan	Other training	11/2022	Social Determinants of Health Research
Institute for Healthcare Advancement	Other training	12/2022	Health Literacy Specialist



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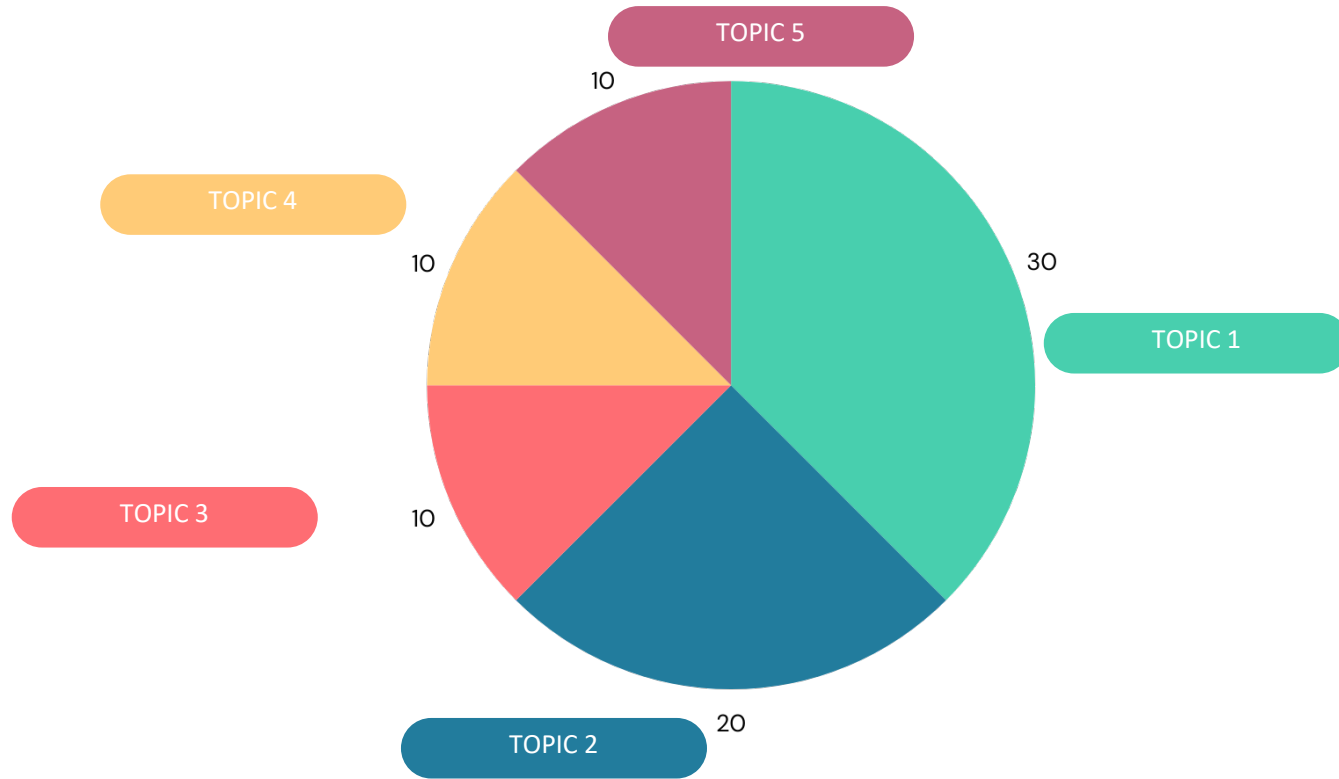
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CONTRIBUTIONS TO SCIENCE



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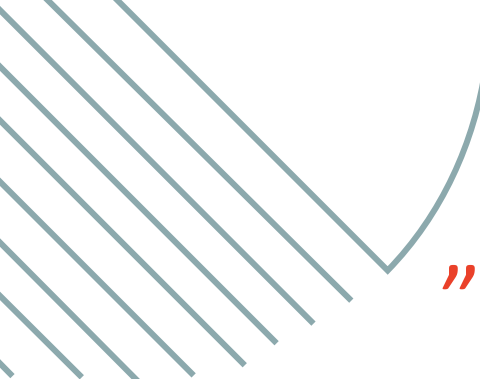
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“WE CANNOT CHANGE THE
CARDS WE ARE DEALT;
JUST HOW WE
PLAY THE GAME”

BY RANDY PAUSCH



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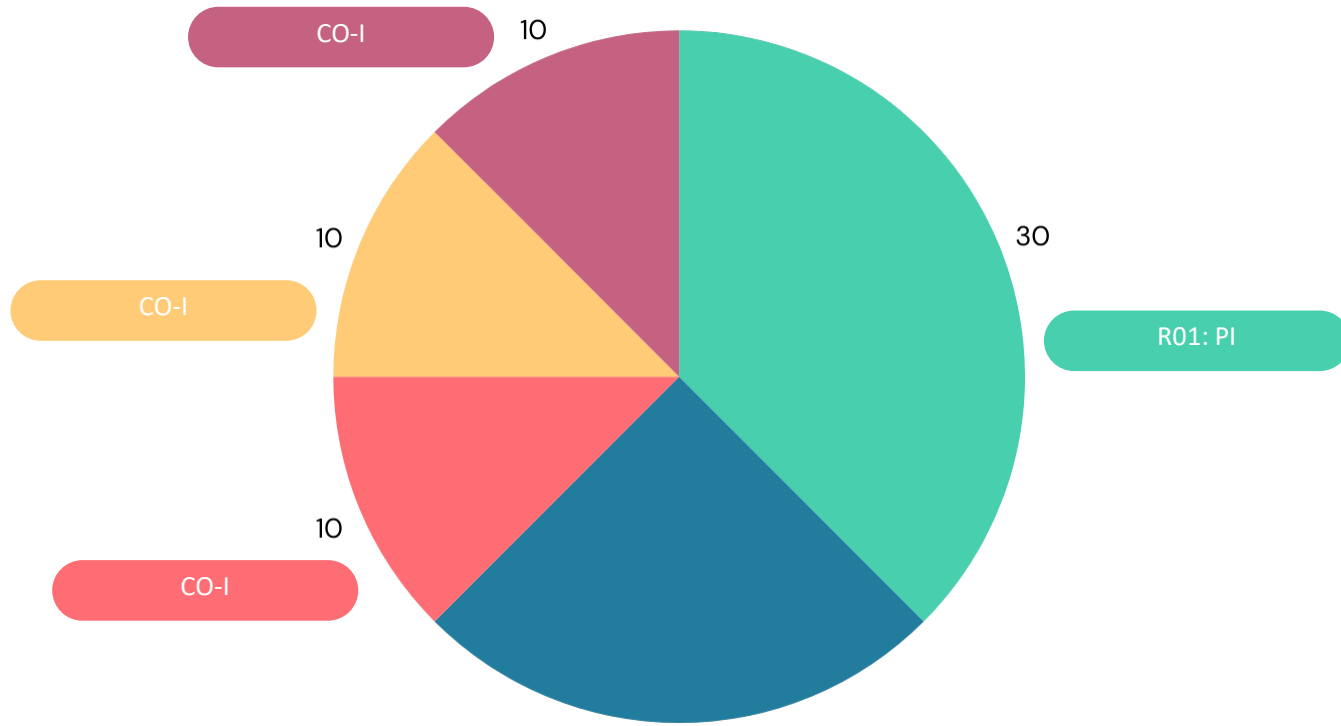
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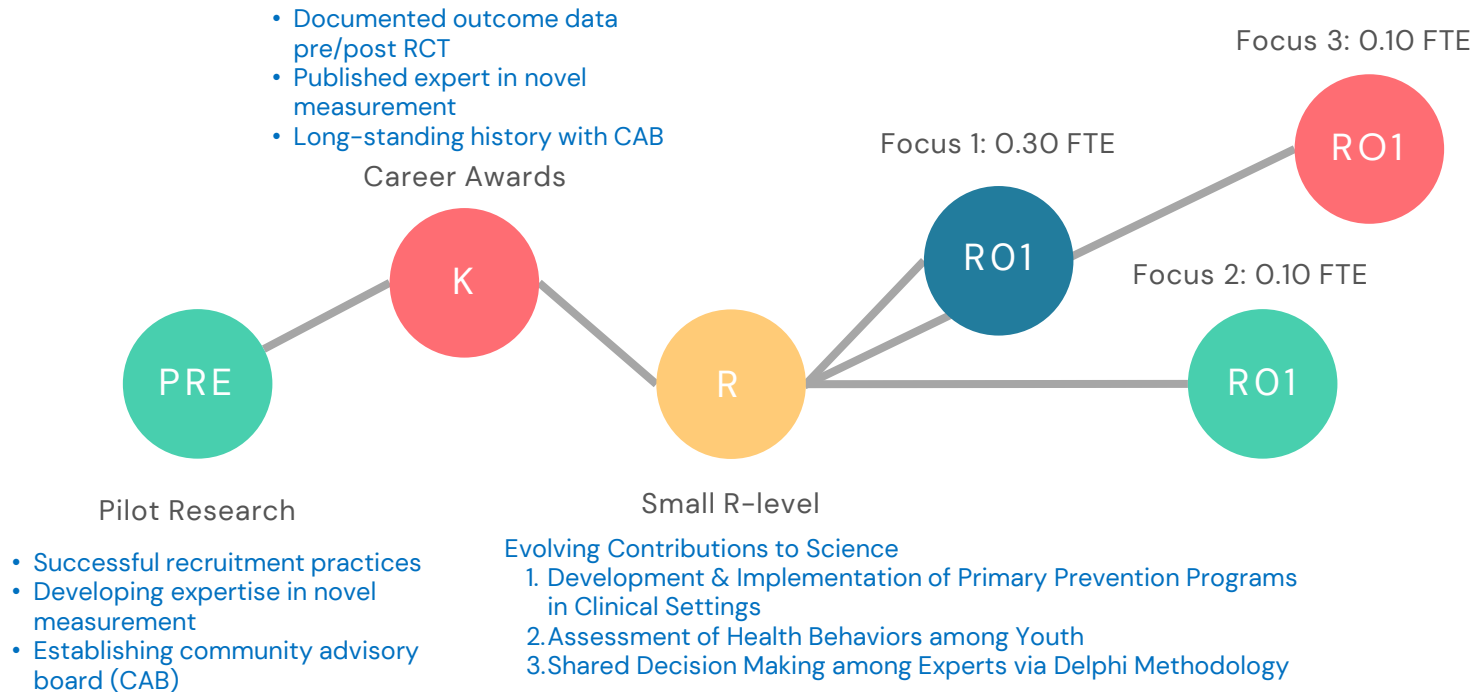
CO-I/MPI



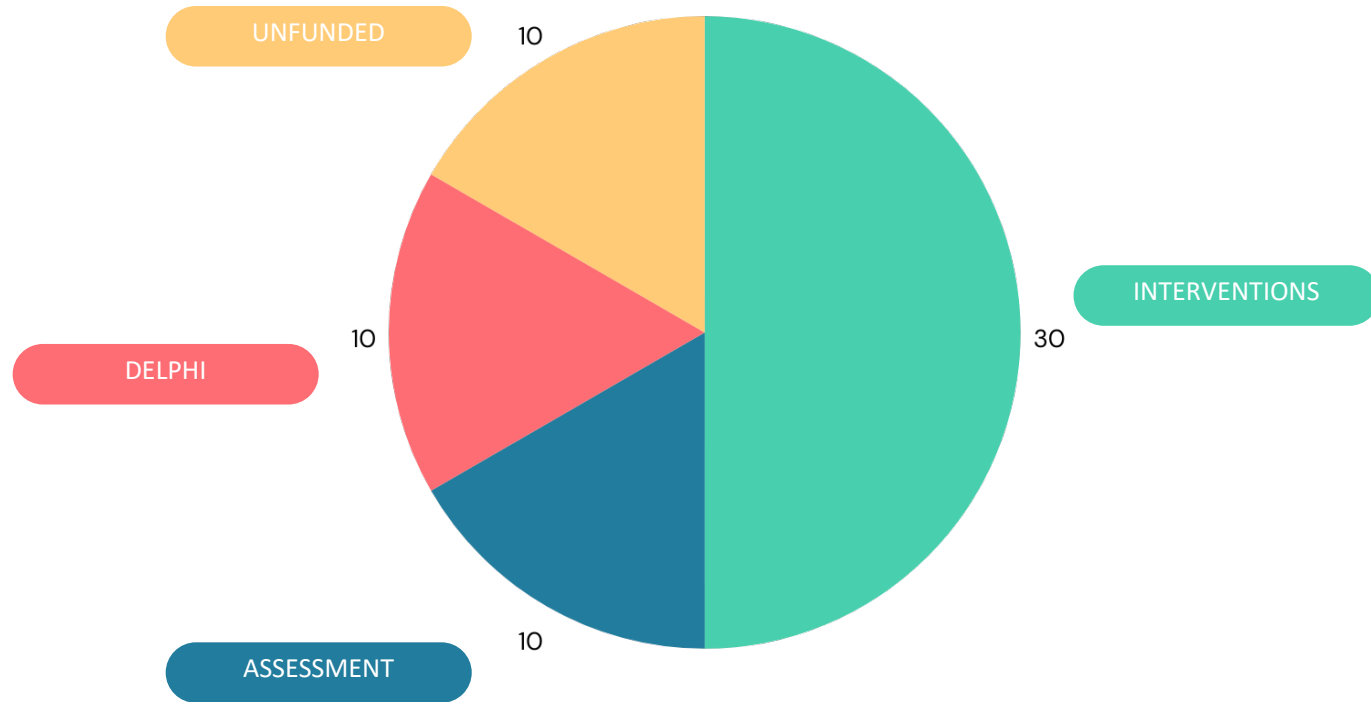
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STRATEGIC RESEARCH TIMELINE



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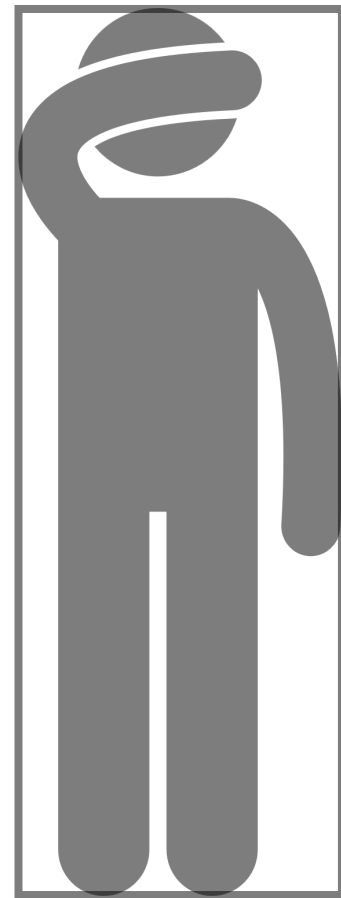
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SENSITIVE

CONTENT



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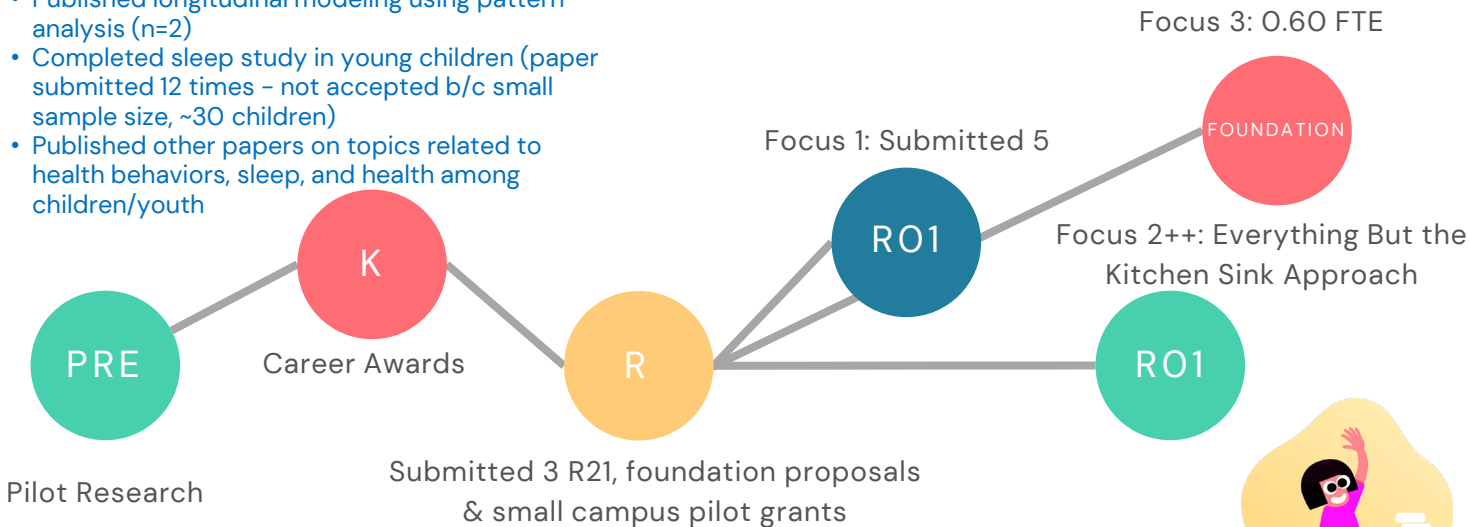
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MY HINDSIGHT IS 20/20

STRATEGIC RESEARCH TIMELINE

- Published longitudinal modeling using pattern analysis (n=2)
- Completed sleep study in young children (paper submitted 12 times – not accepted b/c small sample size, ~30 children)
- Published other papers on topics related to health behaviors, sleep, and health among children/youth



- Novel longitudinal modeling approaches & pattern analysis
- Gained experience collecting objective sleep data in children <6 years
- Participated in Delphi method processes as co-author

Evolving Contributions to Science

1. Pattern Analysis for Health Behaviors
2. Assessment of Objective Sleep Data (young children)
3. Examining Potential Intervention Targets (i.e., health behaviors) via Advanced Statistical Analyses



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NIH to Limit AI Use, Cap P.I. Grant Applications at 6 per Year



NIH Implements Immediate \$4 Billion Cut to Indirect Research Funding



* Research Professional News
US NIH halts funding for new projects ...

SUMMARY

01 - DEVELOP UNIQUE EXPERTISE



02 - STRATEGIZE FOCUS AREAS



03 - PILOT TEST COLLABORATIONS



THANK YOU!

Questions?



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