Make every word count twice!

Fly high!

- Work to achieve the 30,000 ft perspective
  - Practice your “Big Picture” skills
  - Develop your elevator speech
  - Tell it to your Mom

- Craft a 30,000 ft and a 5,000 ft summary statement and refer to these as you write
- Practice focus on design > methods, approach > techniques
- Create the context (big picture) carefully; add details only as needed for clarification (e.g. as examples)

Make every word count twice: Fight for brevity!

- Practice the rules of brevity:
  - Build sentences around the best subject
  - Choose verbs for compact power of expression
  - Use active voice to simplify sentences
  - Avoid abstractions and long-winded sentences
  - Avoid empty phrases (“due to the fact that…”)
  - Use controlled parallel constructions to embed lists

    Tutorial available at: http://www.academicpeds.org/espauthoring/page_01.htm
- Make your pictures worth 1000 words: use figures and tables to reduce need for narrative
- Use smart formatting to:
  - Simplify navigation around the proposal
  - Emphasize critical phrases
- When you repeat for emphasis, use new words to give a new spin or point of emphasis

Make every word count twice: Exploit those supplements!

- Use **Letters of Support** to amplify on institutional support, career development activities, and methods
- Use **Bio Sketches** (all of them!) to highlight your skills, and clarify roles of your collaborators and mentors
- Use **Resources** to build your image while reinforcing institutional commitment
- Use **Appendices** to supplement Preliminary Studies

EXAMPLES OF SUMMARIES AT DIFFERENT LEVELS OF DETAIL

Examples on this page are from a funded K-award application,
used with permission from Stephen Cook, M.D., PI, University of Rochester Medical Center

30,000 ft view of career plan (from K-award):
Investigations of the cluster of factors that comprise the metabolic syndrome are likely to uncover evolving 'New Morbidities' that will provide continuing challenges for clinicians and researchers in the coming decade. I hope to become a leader in a unique field of inter-disciplinary research that crosses multiple organ systems and specialty fields, as well as age boundaries. In this rich territory of intersecting research domains, I propose to develop a model of multi-system and multi-specialty research that may be translatable to investigations of other chronic conditions or diseases that span the life cycle.

5,000 ft view of career plan (from K-award):
My long-term goal is to develop an independent career combining clinical research with clinical medicine. I am interested in obesity and cardiovascular health, and the mechanisms by which obesity, smoking and other factors in childhood affect the progression of adult atherosclerotic/ischemic heart disease. My clinical expertise focuses on evaluation and treatment of obesity in children and adolescents in the primary care setting. I also have a strong interest in the primary care management of the chronic medical complications of obesity under a chronic care model (52-54), e.g., meeting the pharmacotherapy needs patients with specific cardiovascular risk factors such as type 2 diabetes and hypertension. Hence my clinical practice continuously informs my research endeavors in childhood obesity.

FROM SPECIFIC AIMS: Study 1 from 5,000 ft view

The proposed study will test the overarching hypothesis that abdominal obesity and tobacco exposure are two critical triggers for the sequential cascade of metabolic events resulting in CVD risk factors. We will collect a community sample of early adolescents with varying degrees of abdominal obesity and tobacco exposure, using a local practice-based research network which has a longstanding record of facilitating subject sampling, recruitment and retention. **Study 1** will be a prospective, longitudinal investigation of 200 boys and girls through early pubertal maturation to assess changes in body composition, levels of adiponectin (a novel, biomarker protective against atherosclerosis), and cardiovascular risk factors (including components of the MS). **It will test the hypothesis that AO and tobacco exposure both independently and interactively adversely affect adiponectin levels and components of the MS**. Data will be collected on body composition, components of the MS, and cotinine (a biomarker for tobacco exposure) every 12 mo for 3 yr.

FROM RESEARCH DESIGN: Study 1 from 1,000 ft view

Study 1 is a prospective study to examine changes in abdominal obesity (measured by waist circumference), overall overweight status (measured by BMI), MS components, and their relation to tobacco exposure during a critical stage of early puberty. We hypothesize that AO and tobacco exposure both independently and interactively adversely affect adiponectin levels and components of the MS. Subjects will be assessed every 12 mo for 3 yr and followed for changes in (a) abdominal obesity (AO) and BMI, (b) tobacco exposure (using serum cotinine levels), and (c) metabolic changes (adiponectin and components of the MS). Analyses will involve correlations and bivariate comparisons between AO, cotinine, Adiponectin and components of the MS, at the baseline visit and at each follow-up visit. Multivariate analyses will be performed to predict changes in AO based on tobacco exposure, demographics, puberty and lifestyle factors, and predicting changes in adiponectin and MS components based on tobacco exposure, AO, and other factors.

EXAMPLE OF STATING THE SAME THING IN DIFFERENT WORDS

Examples on this page are from a funded K-award application,
used with permission from Stephen Cook, M.D., PI, University of Rochester Medical Center

Multiple Ways to Articulate One's Career Goal in a K-Award

Candidate Background: This Career Development Award will allow me to develop the clinical research skills needed to become an independent investigator in the area of pediatric obesity, with special emphasis on the risk factors for diabetes and cardiovascular disease that are included in the construct called the "metabolic syndrome." ... I propose to study this problem from both the **public health and clinical perspective**, using **interdisciplinary and translational approaches**.

Career Development Plan: I am interested in obesity and cardiovascular health, and the **mechanisms** by which obesity, smoking and other factors in childhood affect the **progression of adult atherosclerotic/ ischemic heart disease**.

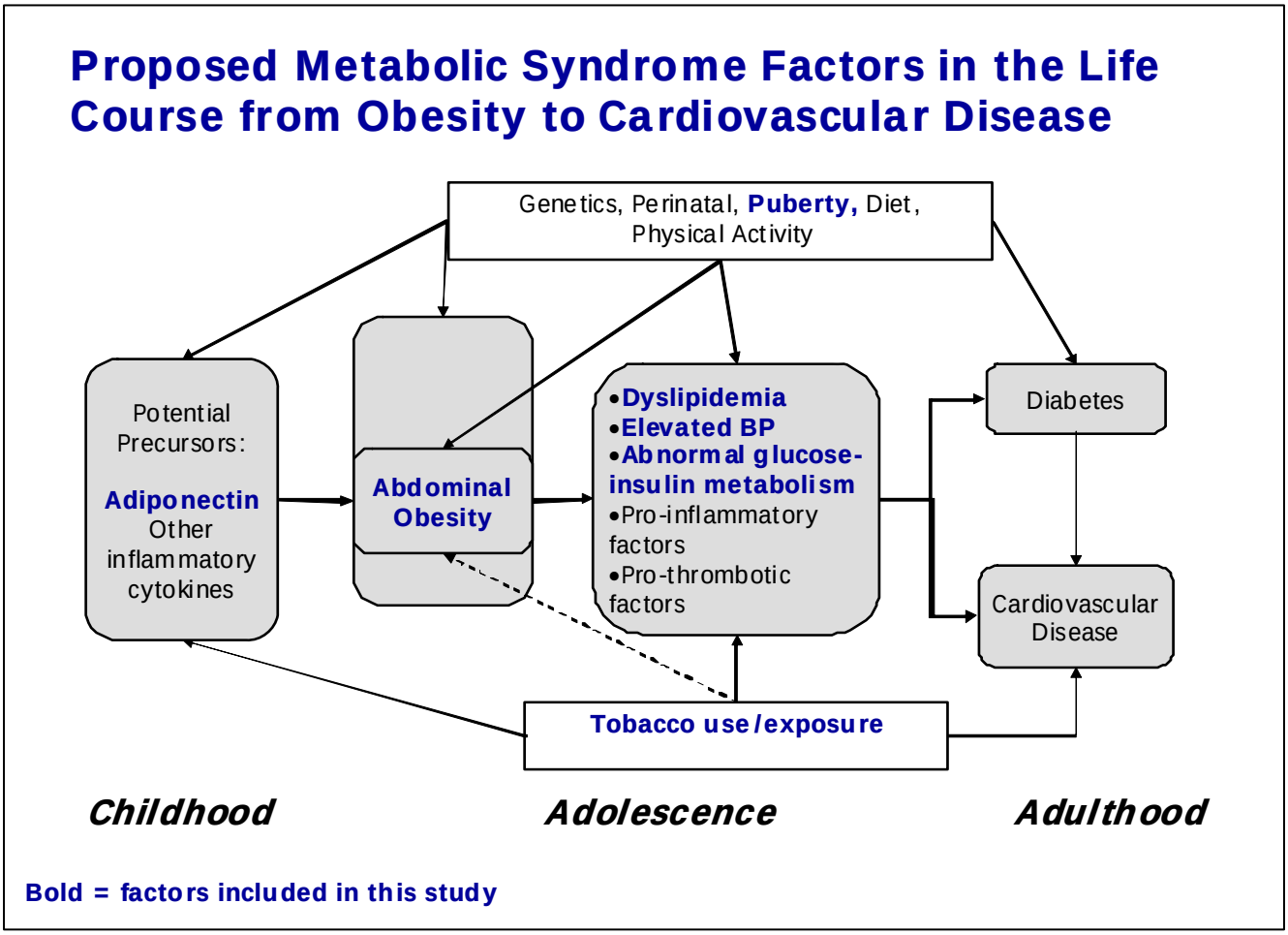
Specific Aims, First paragraph: My long term career goal is to study obesity and its impact on cardiovascular disease risk factors (CVDRF) from childhood to adulthood, including the development of the metabolic syndrome (MS). ... My proposed study **stems from my prior work** establishing the national prevalence of the MS (41) and the association between tobacco exposure and the MS among adolescents.(58)

Specific Aims, Last paragraph: Ultimately, we propose to test the hypothesis that **adolescence is a vulnerable period that establishes the course of future cardiovascular disease in adults**. A better understanding of early stages of CVDRF will allow us to optimize **prevention and intervention strategies**.

End of Significance: The study will help to identify factors in the early adolescent population that are unique to that age group, or **confirm that factors already identified in adults are present at an earlier age**, when **preventive** measures or **direct interventions** are more likely to protect individuals from a lifetime of disease.

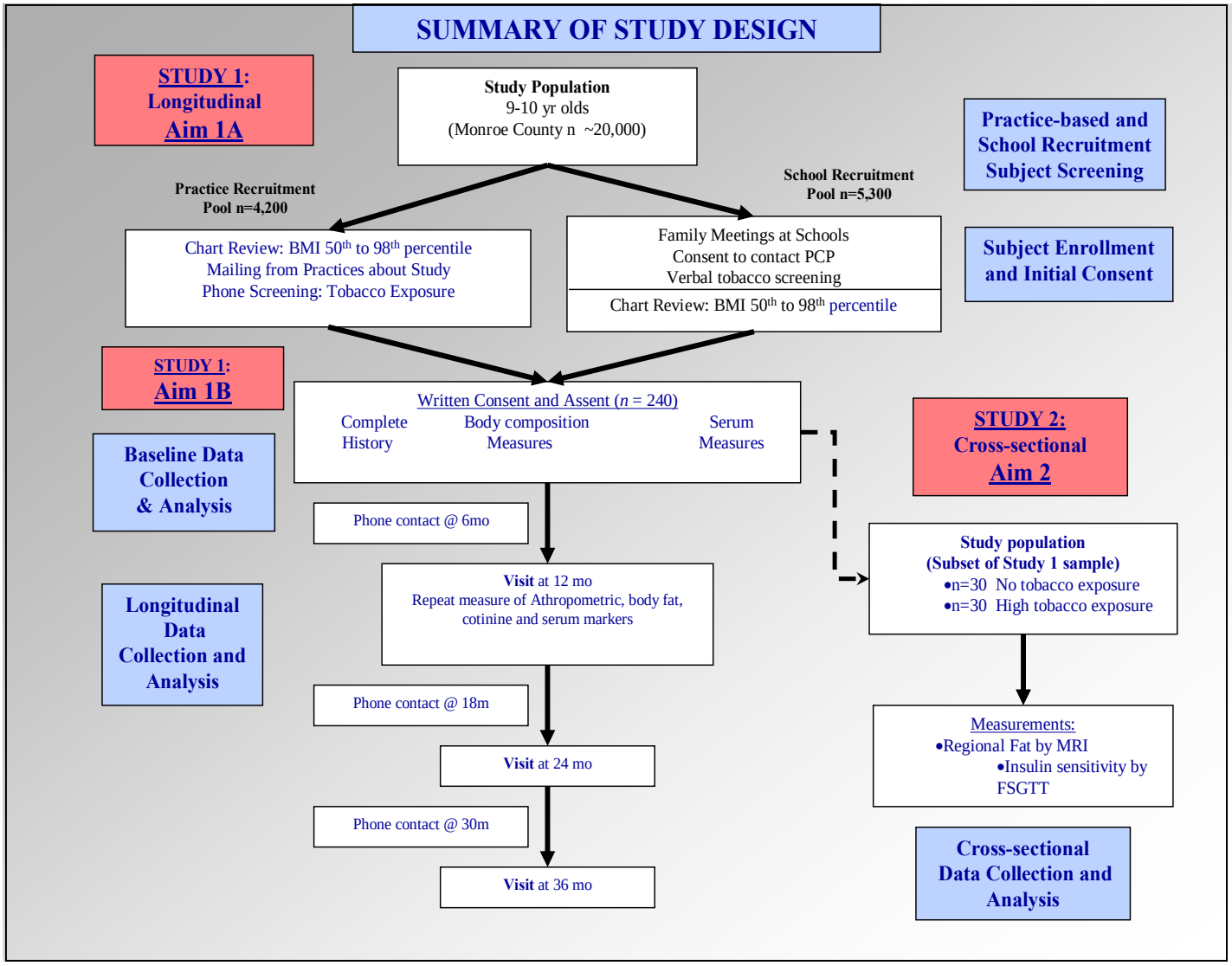
End of Preliminary Studies: The proposed studies should contribute to the **design of preventive strategies and early interventions** for future clinical research.

EXAMPLES OF DIAGRAMS



This diagram in the Signficance Section shows what is being studied (bold) in the larger context of 1) what is known in the field and 2) the human life cycle.

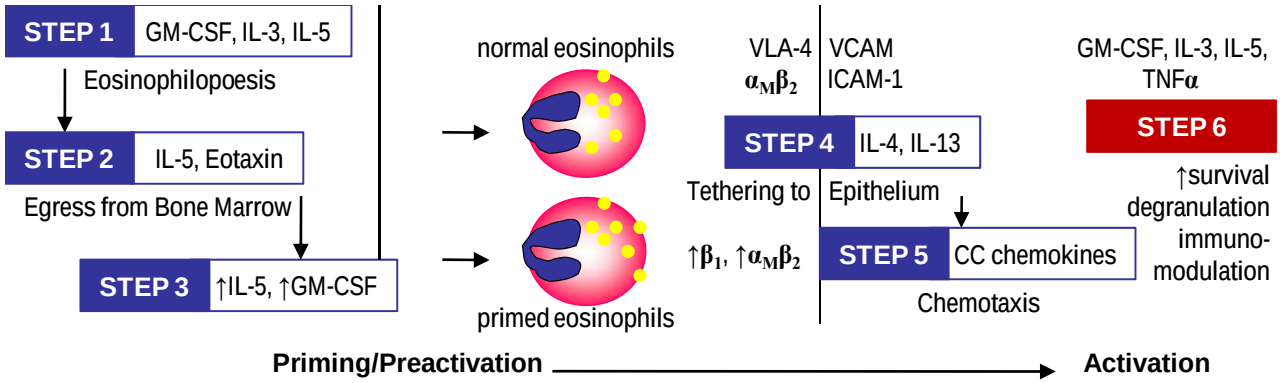
Example on this page is from a funded K-award application,
used with permission from Stephen Cook, M.D., PI, University of Rochester Medical Center



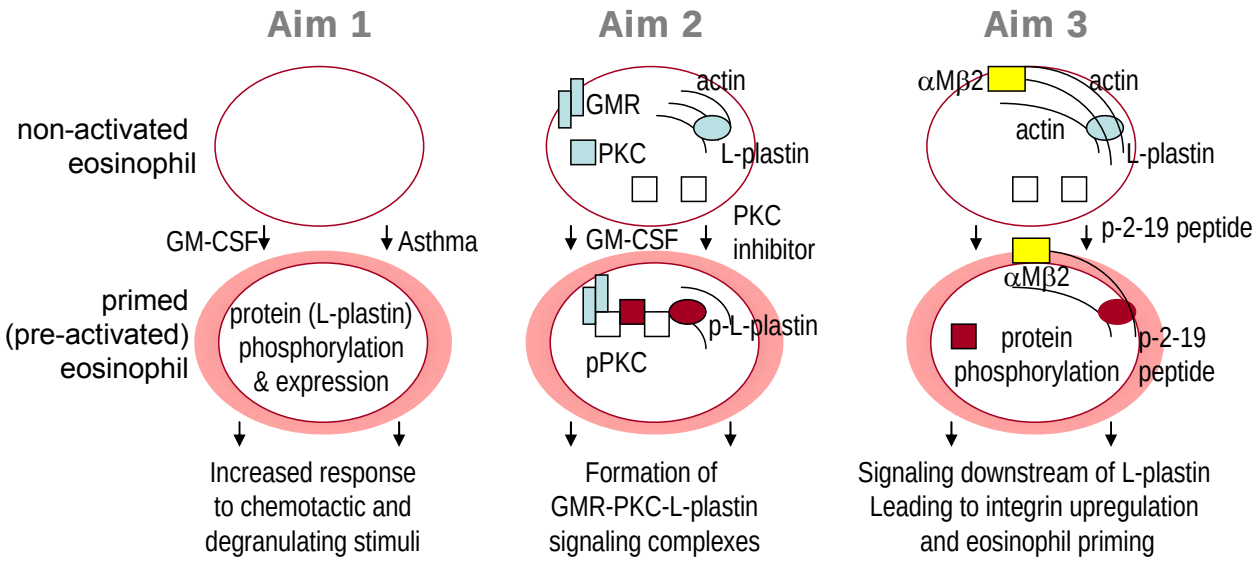
This diagram packs in a small space a large amount of information about study design and methods. The graphic format makes it easy for the reviewers to capture the details and see how they fit the whole picture. together.

Example on this page is from a funded K-award application,
used with permission from Stephen Cook, M.D., PI, University of Rochester Medical Center

A complex conceptual model *(accompanied in proposal by narrative explanation)*



This overlay of Specific Aims on a Conceptual Model provides an elegant and compact summary of the study design.



Accompanying text: Successfully completing our Specific Aims should establish proteomic signatures relevant to eosinophil priming in asthmatic patients (**Aim 1**), identify molecular mechanism linking signaling from IL-3/IL-5/GM-CSF receptor with with phosphorylation of cytoskeletal proteins and priming for chemotaxis and adhesion (**Aim 2**), and determine the potential for the modulators of PKCβII and L-plastin interaction in upregulation of eosinophil motility and effector functions (**Aim 3**).

Examples on this page are used with permission of Konrad Padzrak, MD, PhD, Assistant Professor of Biochemistry & Molecular Biology, NHLBI Proteomics Center, University of Texas Medical Branch at Galveston