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Hypothesis and Study Design

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@AmirGhaferi

Disclosures

- No financial disclosures

Lubitz, Carrie C., M.D.

Hey guys. You have both reached out to me about what to cover in your talks. I know these talks are tough - which is why I asked the two of you to give them. I know it is nearly impossible to make these fun, but if anyone can do it...



Stanford Business 

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Audiences begin to lose attention after roughly 10 minutes of hearing the same presenter stanford.io/2e9VxYb



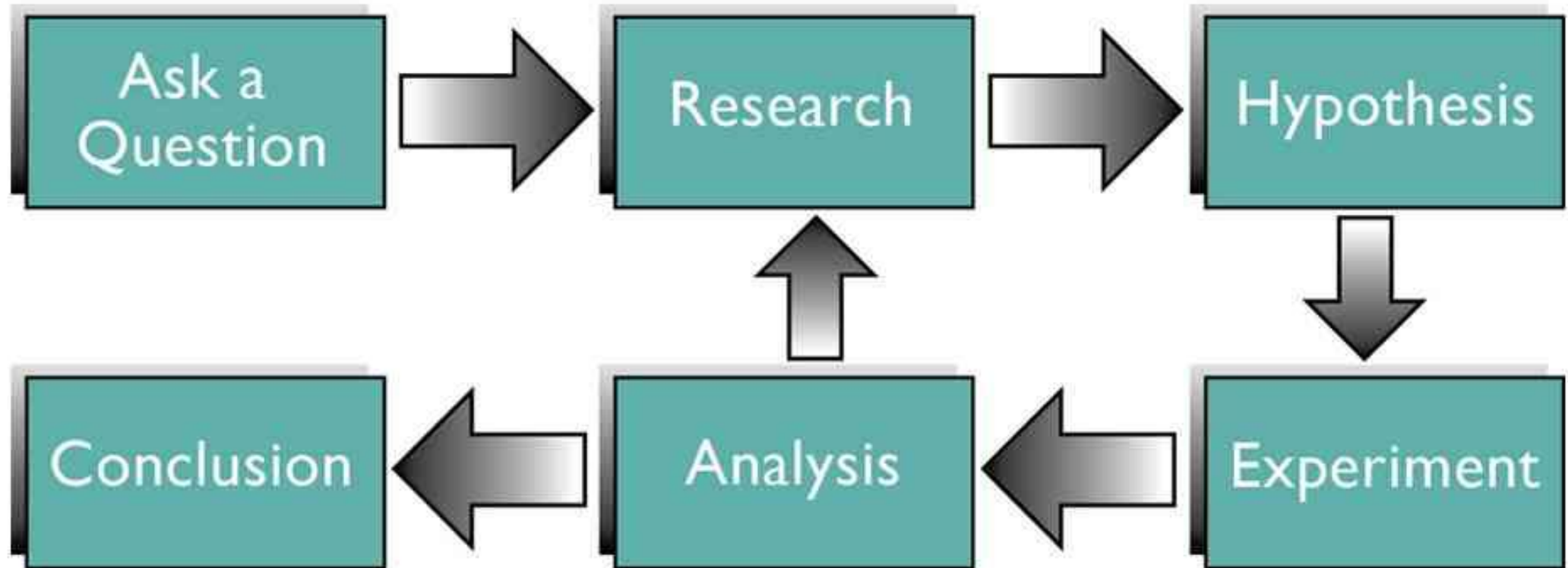
10 Tips For Giving Effective Virtual Presentations

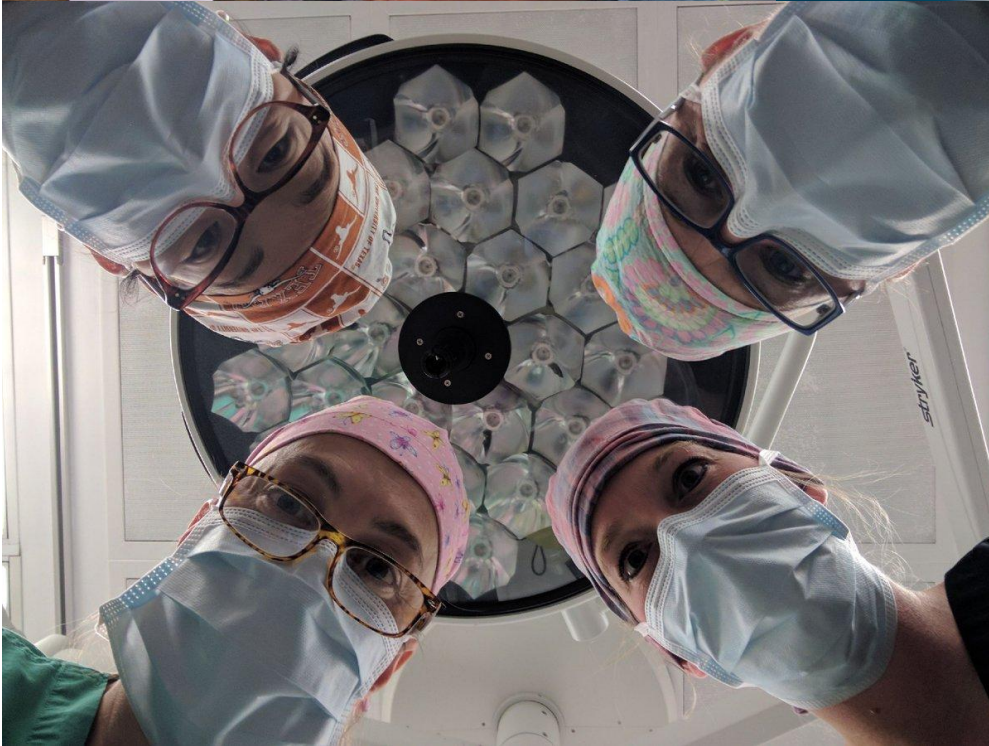
What to know before you go live.

Outline

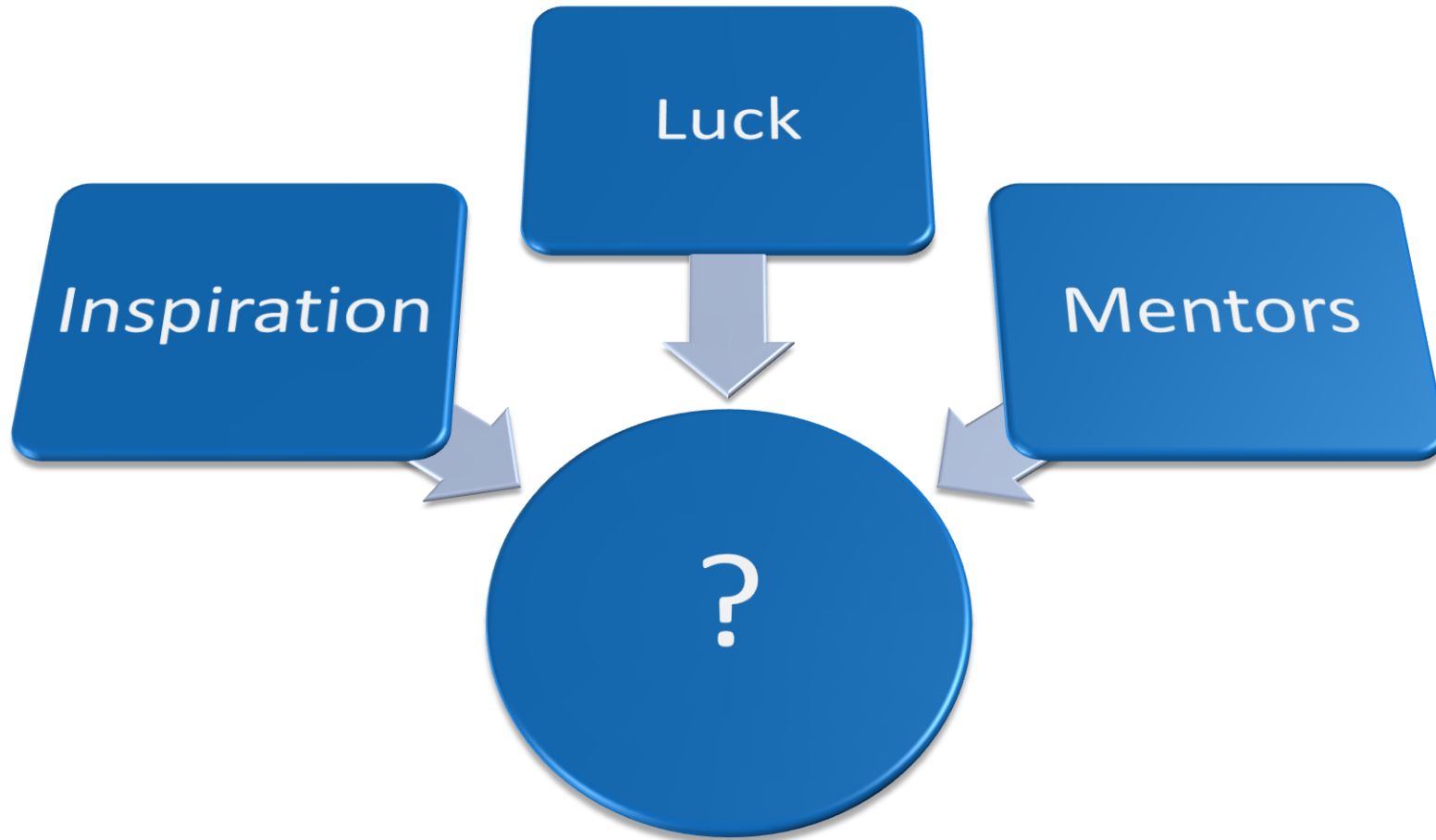
- Finding your inspiration
- Understand what's known and unknown
- Formulate a hypothesis
- Choose a study design
- Write

Scientific Method









Examples of questions

- What is the role of NK cells in regulating macrophage-mediated adipose tissue inflammation
- Do we prescribe too many opioids after surgery?
- What are main drivers of variations in hospital mortality rates following high risk surgery?
- Are laparoscopic simulators useful in improving technical skills amongst residents?

Outline

- Finding your inspiration
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Author Contains

	Author	Year	Title
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Reference Preview

Evolution of Data Creation, Management, Publication, and Curation in the Research Process

Line 1: Zilinski, David Alan; Scherer, Jr., Darryl M.; Bullock, Deborah; Horton, and Courtney Carl Matthews

Abstract: The evolution of data creation, management, publication, and curation in the research process is a complex and multifaceted phenomenon. This paper explores the historical and contemporary challenges and opportunities associated with this process, focusing on the role of digital technologies and the impact of open access and data sharing initiatives. The authors discuss the importance of data management plans (DMPs) and the need for standardized data formats and metadata. They also examine the role of data curators and the challenges of long-term data preservation. The paper concludes by discussing the future of data management and curation in the research process, emphasizing the need for continued collaboration and innovation.

KEYWORDS: data management, data curation, digital technologies, open access, data sharing, DMPs, data preservation, data formats, metadata, data curators, long-term data preservation, collaboration, innovation.

INTRODUCTION: The evolution of data creation, management, publication, and curation in the research process is a complex and multifaceted phenomenon. This paper explores the historical and contemporary challenges and opportunities associated with this process, focusing on the role of digital technologies and the impact of open access and data sharing initiatives. The authors discuss the importance of data management plans (DMPs) and the need for standardized data formats and metadata. They also examine the role of data curators and the challenges of long-term data preservation. The paper concludes by discussing the future of data management and curation in the research process, emphasizing the need for continued collaboration and innovation.

CONCLUSION: The evolution of data creation, management, publication, and curation in the research process is a complex and multifaceted phenomenon. This paper explores the historical and contemporary challenges and opportunities associated with this process, focusing on the role of digital technologies and the impact of open access and data sharing initiatives. The authors discuss the importance of data management plans (DMPs) and the need for standardized data formats and metadata. They also examine the role of data curators and the challenges of long-term data preservation. The paper concludes by discussing the future of data management and curation in the research process, emphasizing the need for continued collaboration and innovation.

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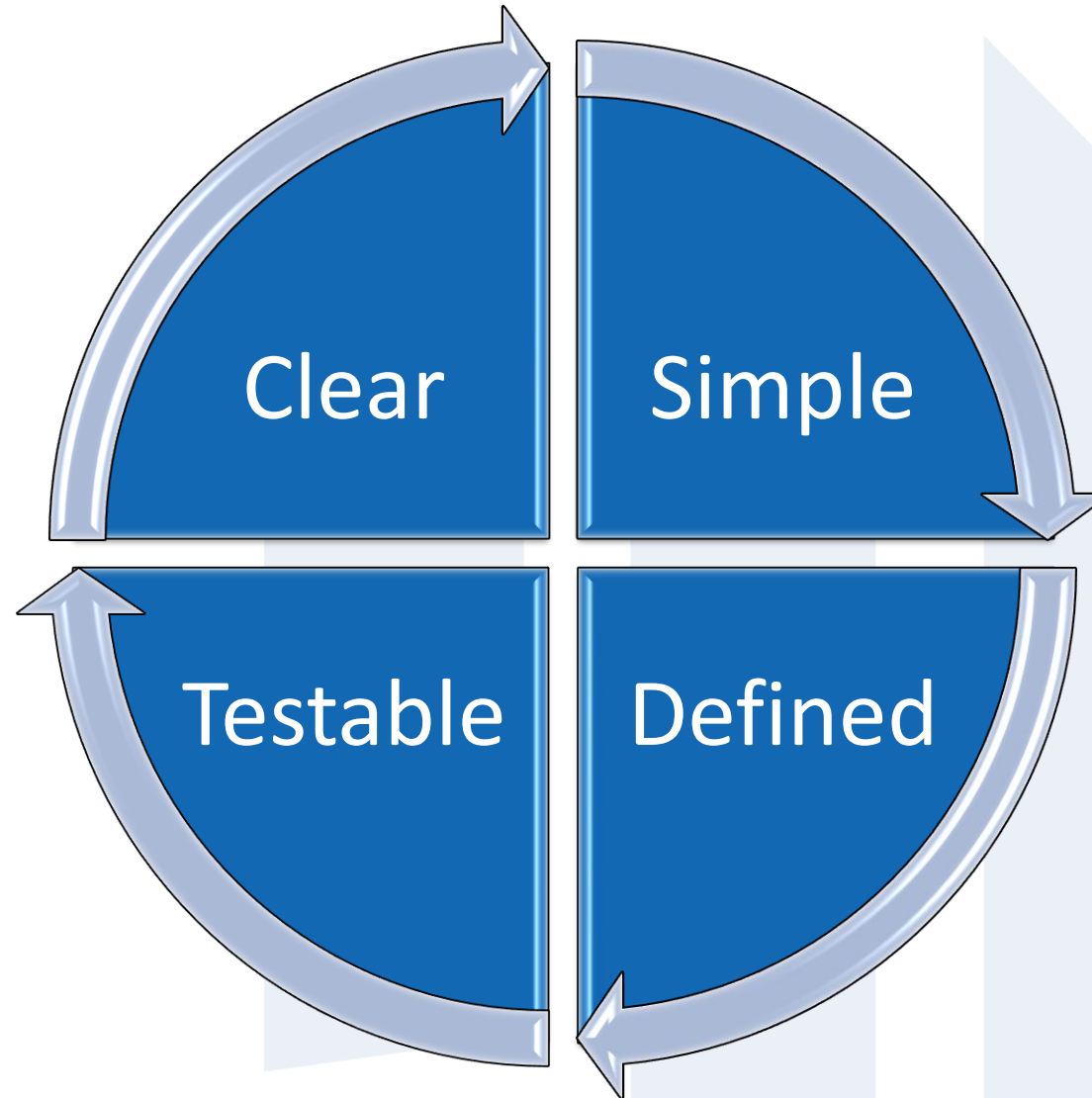
Layout



Outline

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Formulate a hypothesis



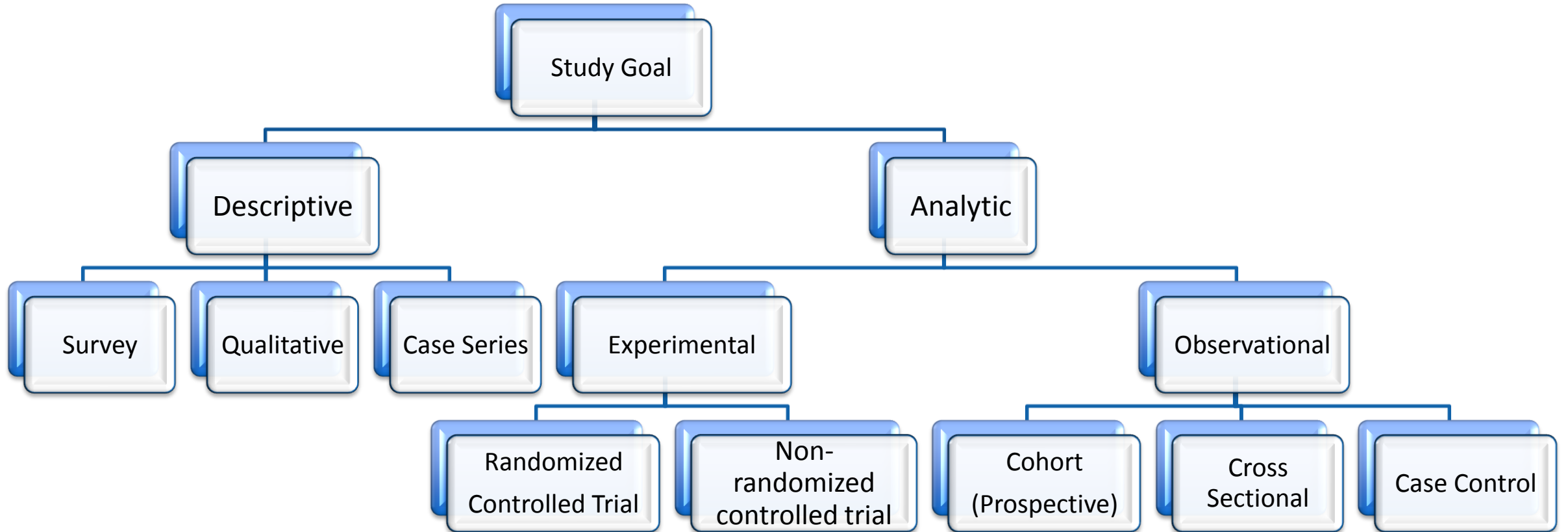
Examples of hypotheses

- Systemic NK cell ablation attenuates intra-abdominal adipose tissue macrophage infiltration in murine obesity
- Following laparoscopic cholecystectomy, patients have >50% of their opioid pills left over
- Failure to rescue is the main driver of variation in hospital mortality after pancreatectomy
- Structured, weekly practice on laparoscopic simulators improves resident OSATS scores more than OR cases alone

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Study Types



Outline

- Finding your inspiration
- Understand what's known and unknown
- Formulate a hypothesis
- Design your study
- **Write**

Write... something

- Review article
 - Methods paper
 - Research paper
 - Pilot grant
 - Large grant proposal
- 

Summary

- Find something you are passionate about
- Ask an interesting question
- Do your research
- Run with it

What's your story?



Thank you

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Qualitative	Quantitative
<ul style="list-style-type: none">• Understanding• Interview/observation• Discovering frameworks• Textual (words)• Theory generating• Quality of informant more important than sample size• Subjective• Embedded knowledge• Models of analysis: fidelity to text or words of interviewees	<ul style="list-style-type: none">• Prediction• Survey/questionnaires• Existing frameworks• Numerical• Theory testing (experimental)• Sample size core issue in reliability of data• Objective• Public• Model of analysis: parametric, non-parametric