

Pruning the research question

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Pruning the research question

- What is “**pruning**”?
- **Verb:** ‘to prune’
- Meaning: (Webster dictionary)
 - What gardeners do: to cut off or cut back parts, for better shape or more fruitful growth: *“prune the branches”*
- Pruning necessary for fruitful research question

Talk based on:

Vandenbroucke JP, Pearce N.

- From ideas to studies: how to get ideas and sharpen them into research questions. Clin Epidemiol. 2018;10:253-264.
- Appendices with examples, additional explanations

Why pruning?

- The research question is the most important part of your research
- A clear and precise research question:
 - Less data collection, transparent design
 - Obtain funding, enlist help of others
 - Get work done, get published
 - Saves from frustration of unfeasible research, or research that does not deliver clear answers
 - In the end, your research is only going to be as good as the question you asked

Two main topics

- How to find an idea
- How to refine the idea into a solvable research question

Having the idea...

- Few handbooks, papers on how to get ideas in medical research
- A description can help:
 - If you feel uncertain
 - Starting point of “pruning” and refining
 - Helps to “cultivate your thoughts”

Having the idea

- Review existing practice
- Challenge accepted ideas
- Look for conflicting views
- Investigate geographical variation
- Identify “Cinderella topics”
- Let loose the imagination

Crombie and Davis, Research in Health Care, 1997

Cultivate your thoughts: **Keep idea - diaries**

- Laboratory scientists: notebooks, lab diaries
- Mills: “*The sociological imagination*” (1959): keep a card system of your own ideas – write down anything of interest - continuously reshuffle the cards to group them according to topic - think of possible research projects – not just at the time of grant applications: ideas mature over time!

The real pruning: going back and forth between

- The idea
- The research question
- The study design

Sometimes ideas lead directly to study designs, mostly not – have to be turned into a research question that is feasible

What makes good research question?

Do not

- Say that you will be occupying yourself with....
- Say that you will try to formulate a good subject

Do

- Make up your mind to change something
- Tell what you want to accomplish with the subject

“Wrist watch metaphor”

Verschuren, 1986

You should securely know where you are heading, by...

1. Limit the research question
2. Do a pilot study
3. Write your paper beforehand

General strategy of how to achieve:

- Precise & limited aim

Advice of great consultants: *“Begin at the end!”*

- Proceed in the inverse sequence of the final paper that you will write: what will be in the last paragraph?

Advice of great consultants: *“Begin at the end!”*

- Alvan Feinstein: *“What is the chief complaint”* and *“What will you do with the answer”*
- ***“Latent objective” differs from “stated objective”***

= the aim ‘of’ the research differs from aim ‘in’ the research

Practical questions for guidance

- What is gap in our knowledge (aetiology, pathogenesis, prognosis)?
What has to change (diagnosis, therapy)?
- What Table (2x2) or simple Figure is necessary?
- What study design derives from this?
- Is it feasible?
- Will your colleagues be convinced?

After all these deliberations...

May I now start?

May I now start?

“Never rush into a study!”

Crombie and Davis, 1997

Do a pilot study

= complete study, pocket size

- Are data available? Can they be collected, abstracted? How much time?
- Can data be entered?
- Displayed and analysed?
- Is this the *type* of table (figure) that we expected?
- Is this really the study that we want?

Feedback of pilot...

- What if pilot fails?
- Lessons from pilot
 - You may change study design, even research question
 - By doing pilot, you know why and how you changed protocol, you may explain others

After pilot...

May I now start?

No! First write your paper

The key to efficient use of your and my time is that we start exchanging outlines and proposals as early in a project as possible. *Do not, under any circumstances, wait until the collection of data is “complete” before starting to write an outline.* No project is ever complete, and it saves enormous effort and much time to propose a plausible paper and outline as soon as you see the basic structure of a project. Even if we decide to

Start writing possible outlines for papers *early* in a project.
Do not wait until the “end”. The end may never come.

G.M. Whitesides, Advance Materials 2004

Write your paper

- Paper can be written beforehand
 - Introduction
 - Materials and Methods
 - Results
 - Discussion
- Aim of early writing
 - Precise formulation, does it run smoothly, what are objections?
 - Writing is difficult: several versions needed
 - “Definitive protocol”

Now,

...you can start your project

Appendices of the paper: Clin Epidemiol 2018;10:253

- Examples of finding ideas
- Examples of turning ideas into a research question
- Examples of settling for a 'lesser' question
- Guidelines for doing pilot studies
- Guidelines for writing

Thank you for listening!

