

## Statistics: more than a compilation of computations techniques

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## More than just numbers

- Statisticians do *not* think of themselves as number crunchers
- They think of themselves
  - *keepers* of the scientific method
  - *servants* of the *scientific method*
- The scientific method is not about numbers; it is about asking questions, doing studies, collecting evidence, analyzing evidence, and making conclusions – only a small portion of the work is numerical

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## All research starts with a question

- What percentage of people have diabetes?
- What percentage of people will develop diabetes?
- Does a diet high in carbohydrates predispose to diabetes?
- How does a diet high in carbohydrates predispose to diabetes?

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## Selected statistics processes

1. Determination of variables and how they are to be **measured**
2. Determination of **groups** to be studied, and how they are going to be sampled
3. Collection of **data**
4. Organization and **summarize data**
5. Drawing **conclusions** to try to answer the *original question*

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## Lamppost metaphors



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Source: <http://www.180360720.no/?p=386>

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## Conclusions

Statistics is the art of using the scientific method to answer research questions

Statistical methods are involved in every step of the research process (not just the number crunching)

Statisticians are involved in drawing conclusions, discussing limitations, and designing future studies to answer questions derived by previous studies.

Statistics is more than just about numbers!

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