Good and bad ways to deal with sex-gender differences in biomarker and biobank research, and issues I would look for as an evaluator of planned studies

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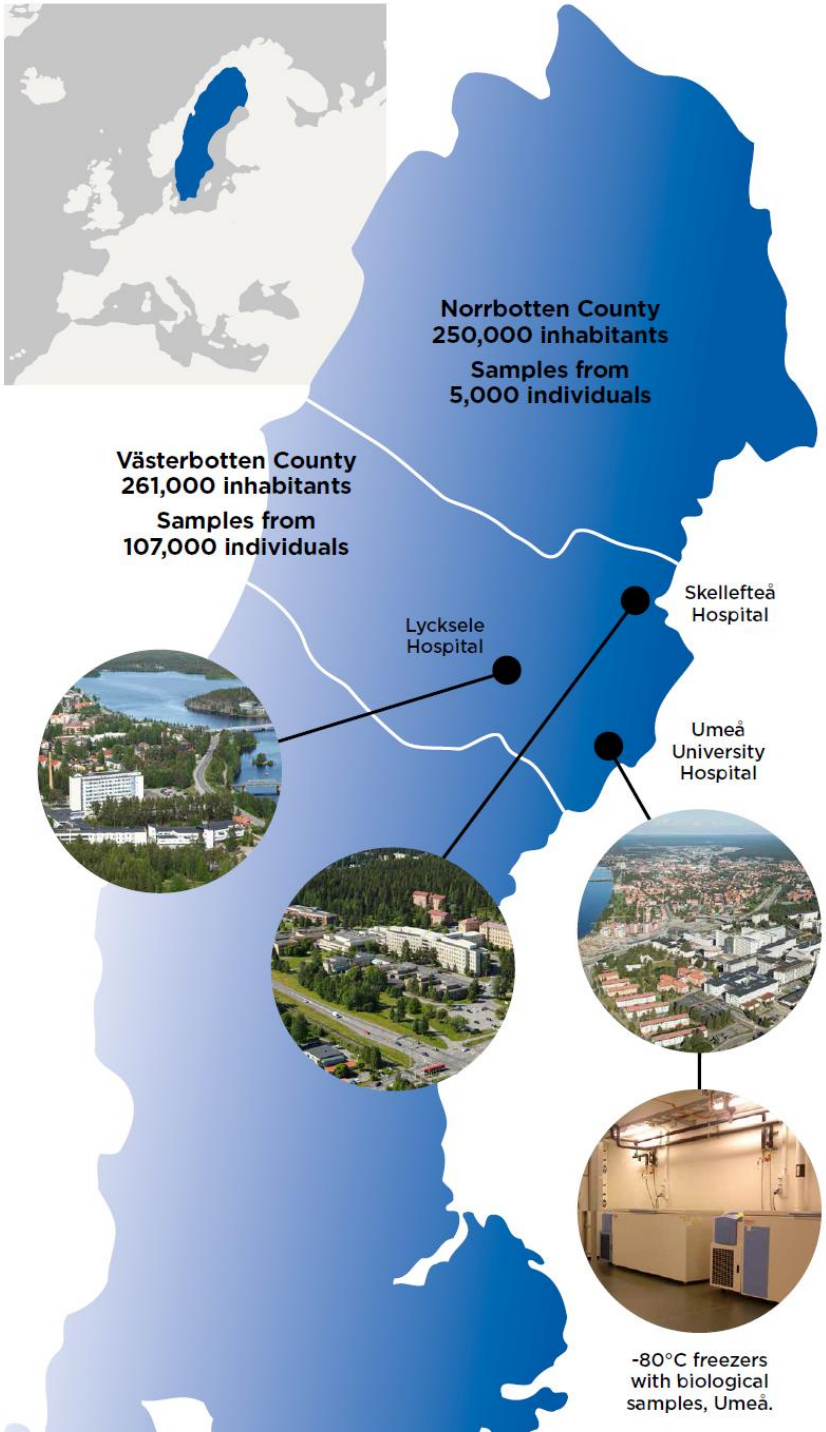
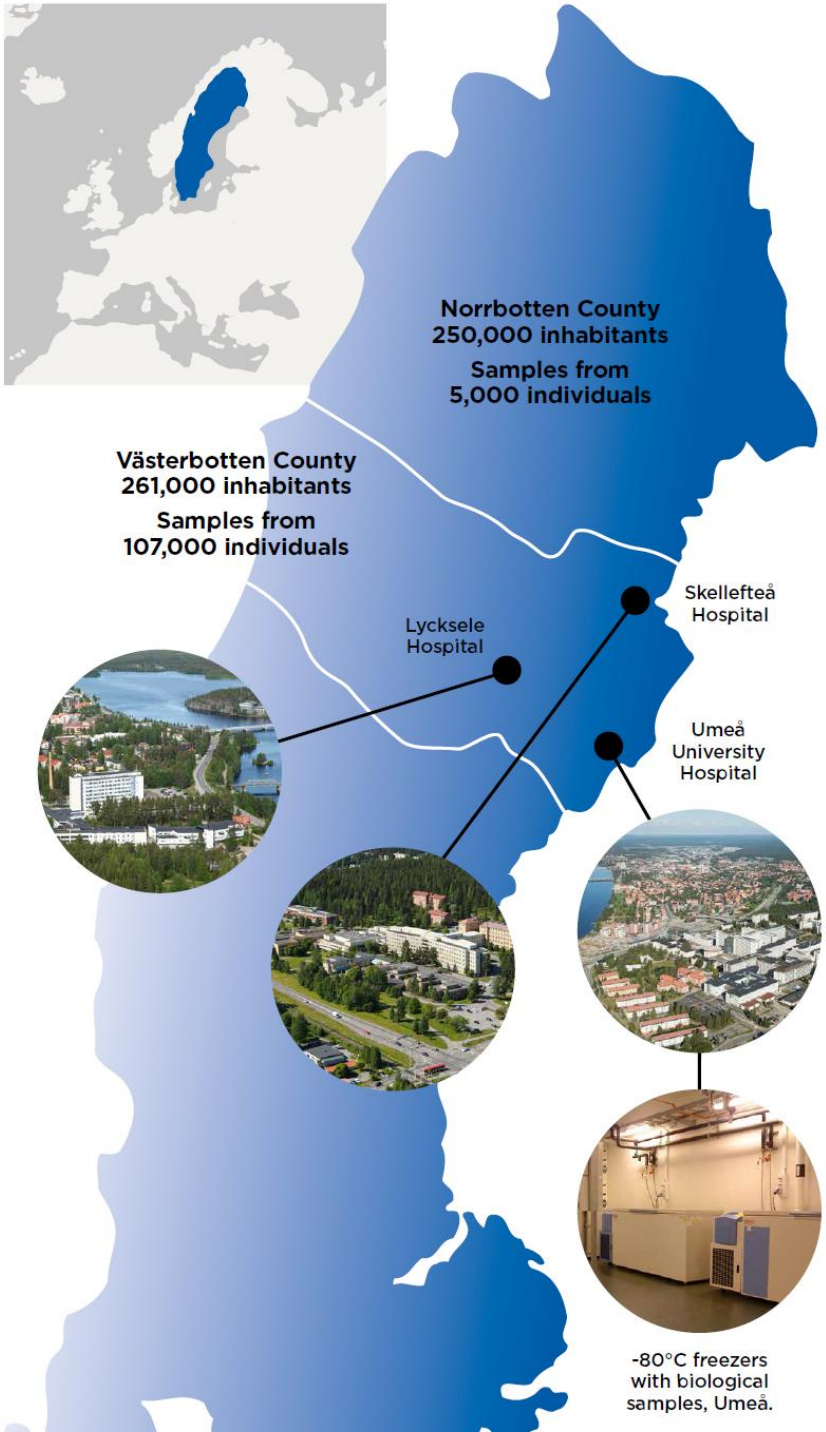
Thermo

Northern Sweden Health and Disease Study (NSHDS = VIP + MONICA + MA)

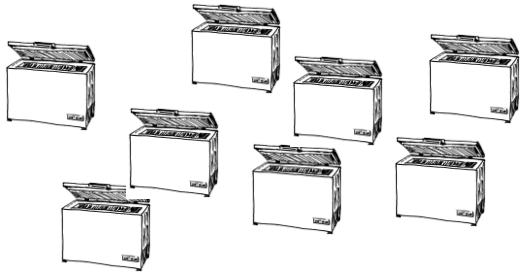




An ordinary year:

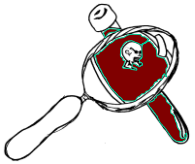
- 15,000-30,000 individuals' samples sent for analysis.
- 60-70 papers
- 30-40 new projects

Base-line sampling and examination,



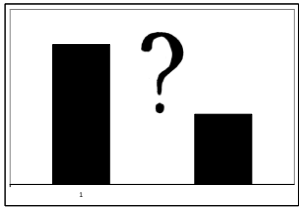
Clinical diagnosis,
e.g. kidney failure

Samples
from cases

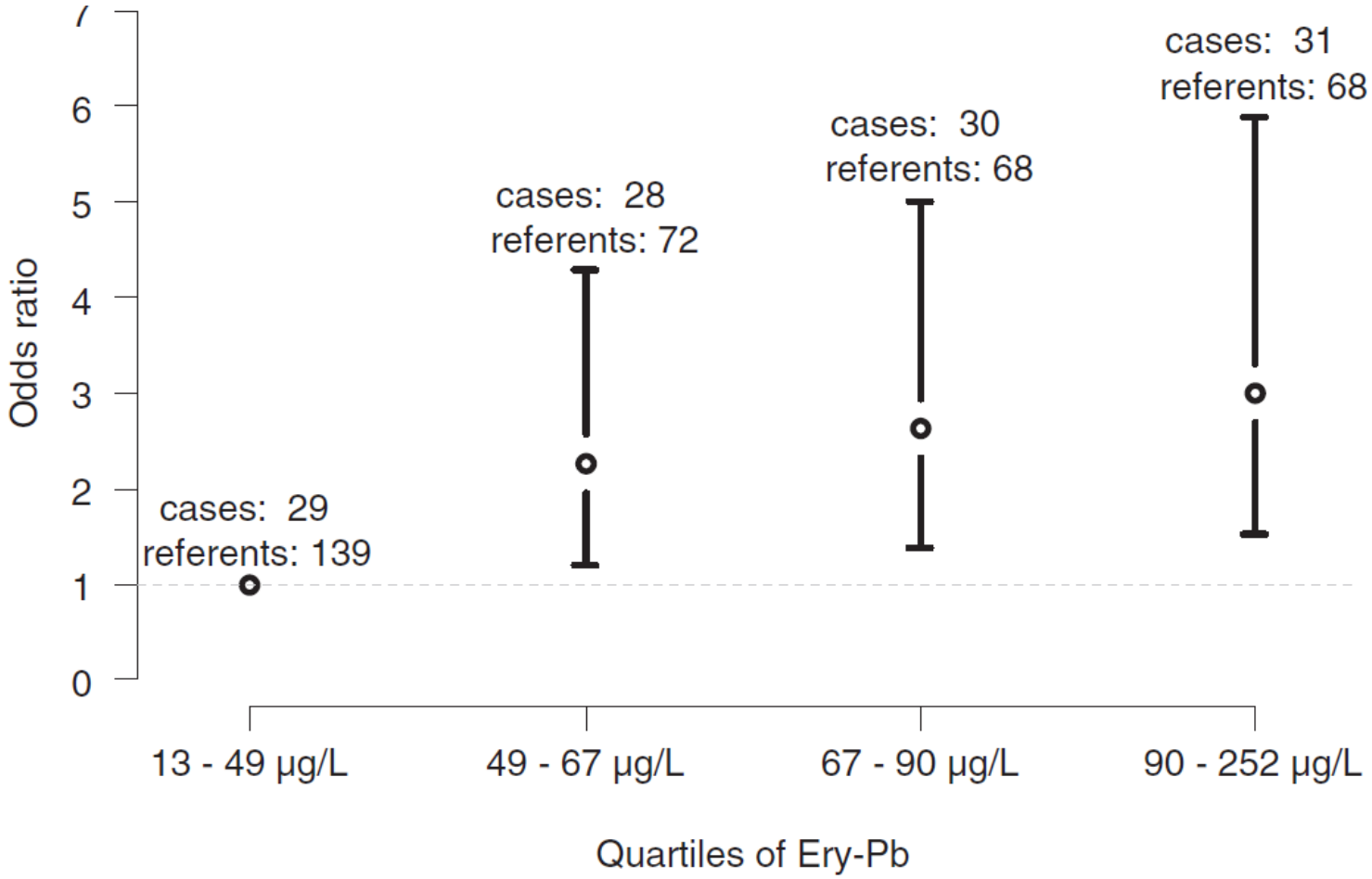


Samples from
referents (not
kidney failure)

Comparing
cases and
referents, for
ex. toxic
metals



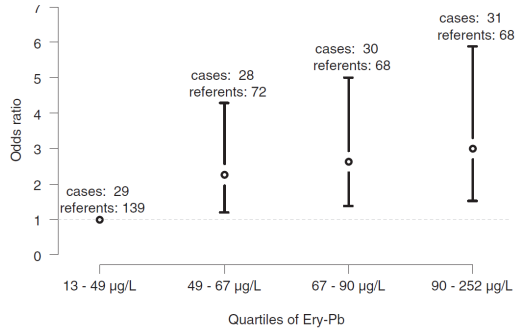
Lead and kidney disease



Sommar et al., Environ Health 2013;12:9

Three types of biobank studies

- Risk factors (prevention)



- Early biomarkers (diagnosis)

Chadeau-Hyam et al.,
Ann Oncol 2014;

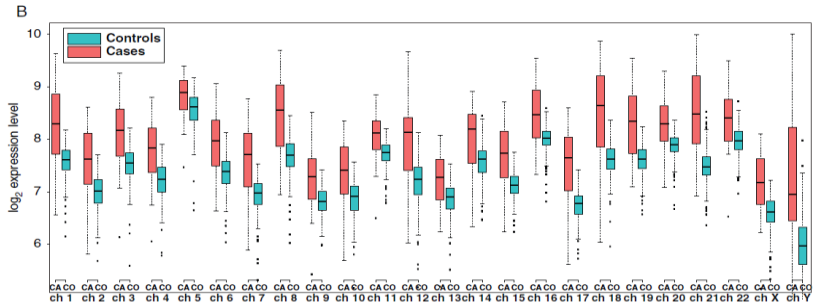
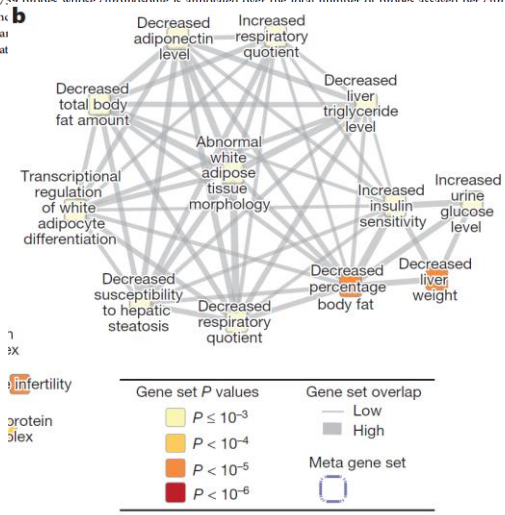


Figure 1. Physical repartition of the genes whose expression is measured by the 745 CLL-specific candidates. The per-chromosome proportion of significant probes (Figure 2A) is calculated from the 739 probes whose chromosome is annotated over the total number of probes assayed per chromosome. Figure 2B summarizes the expression levels in cases and ... me is annotated). Figure 2C displays for each probe (labeled a ... with the disease status as a function of their effect size estimat

- Genetic factors (basic science)

Shungin et al.,
Nature 2015;518:187.



Från: Elizabeth Pollitzer [mailto:ep@portiaweb.org.uk]
Skickat: Tuesday, February 24, 2015 1:28 PM
Till: Ingvar Bergdahl
Ämne: 7th Gender Summit - Europe, 5-7 November 2015, Berlin – gender differences in response to micropollutants

Dear Professor Bergdahl

I found your interesting comments in an article about micro pollutants and gender differences and wanted to ask if you would be interested and able to take part as speaker in one of the panel session at the forthcoming 7th Gender Summit - Europe, which will take place on 5-7th November 2015 in Berlin.

The Gender Summit is a platform for dialogue established in 2011, which brings together scientists, gender scholars and policy makers to jointly examine research evidence showing when, how and why sex/gender impact on quality and efficacy of research.

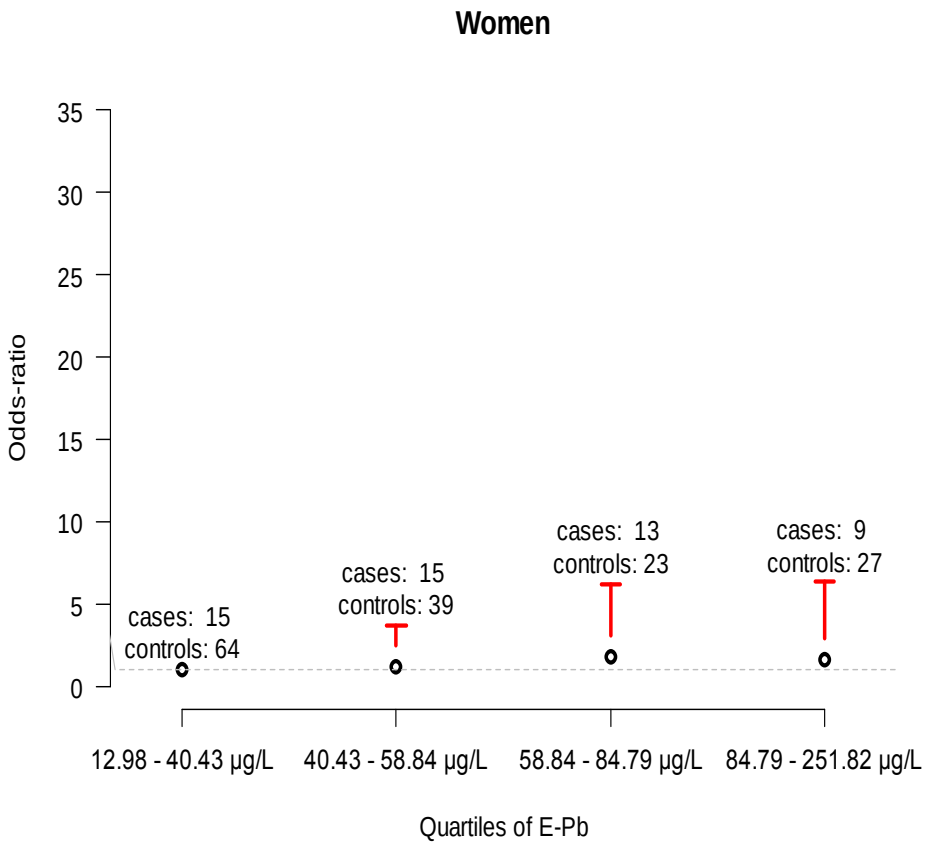
You can see details of past and forthcoming gender summit at www.gender-summit.com

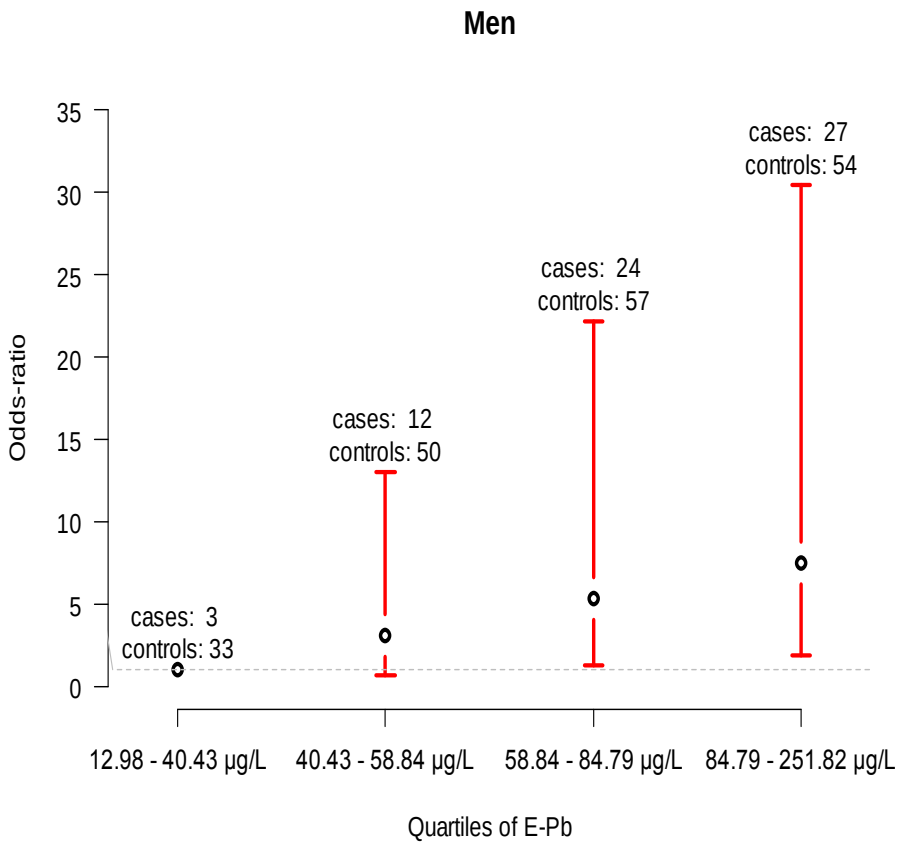
Would you be available on 6th of November to speak about this topic?
kindest regards

Elizabeth Pollitzer

First analysis: What problems do we face in studies of sex-gender differences?

Good or bad way to deal with sex- and gender difference?





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- Sex-gender differences with unknown reasons

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} Inconclusive results

JOURNAL OF WOMEN'S HEALTH
Volume 19, Number 2, 2010

DOI: 10.1089/jwh.2008.1156

Scientific Excellence in Applying Sex- and Gender-Sensitive Methods in Biomedical and Health Research

Linda Nieuwenhoven, M.P.H.,[1,2] and Ineke Klinge, Ph.D.[1,3]

Nieuwenhoven+ Klinge recommendations, as expressed by me

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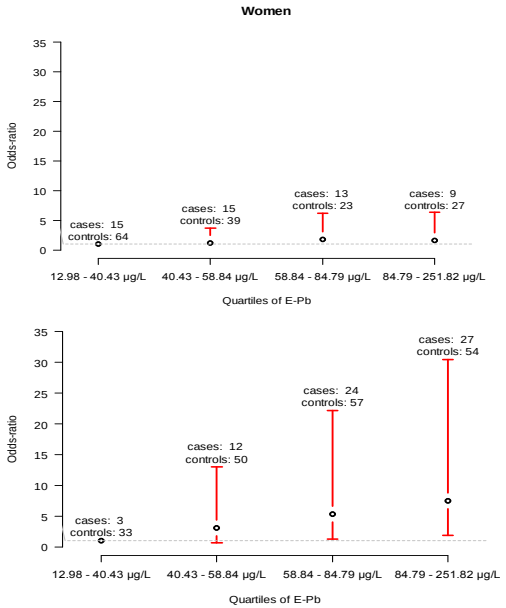
- Sex/gender relevant?
  - If yes, compare
- Read the literature
- Formulate your hypotheses
- Make sure methods are adequate
- Do the statistics properly
- Report data on sex and gender
- State your conclusions on sex- and gender differences or lack of differences

Nieuwenhoven+ Klinge recommendations, as expressed by me



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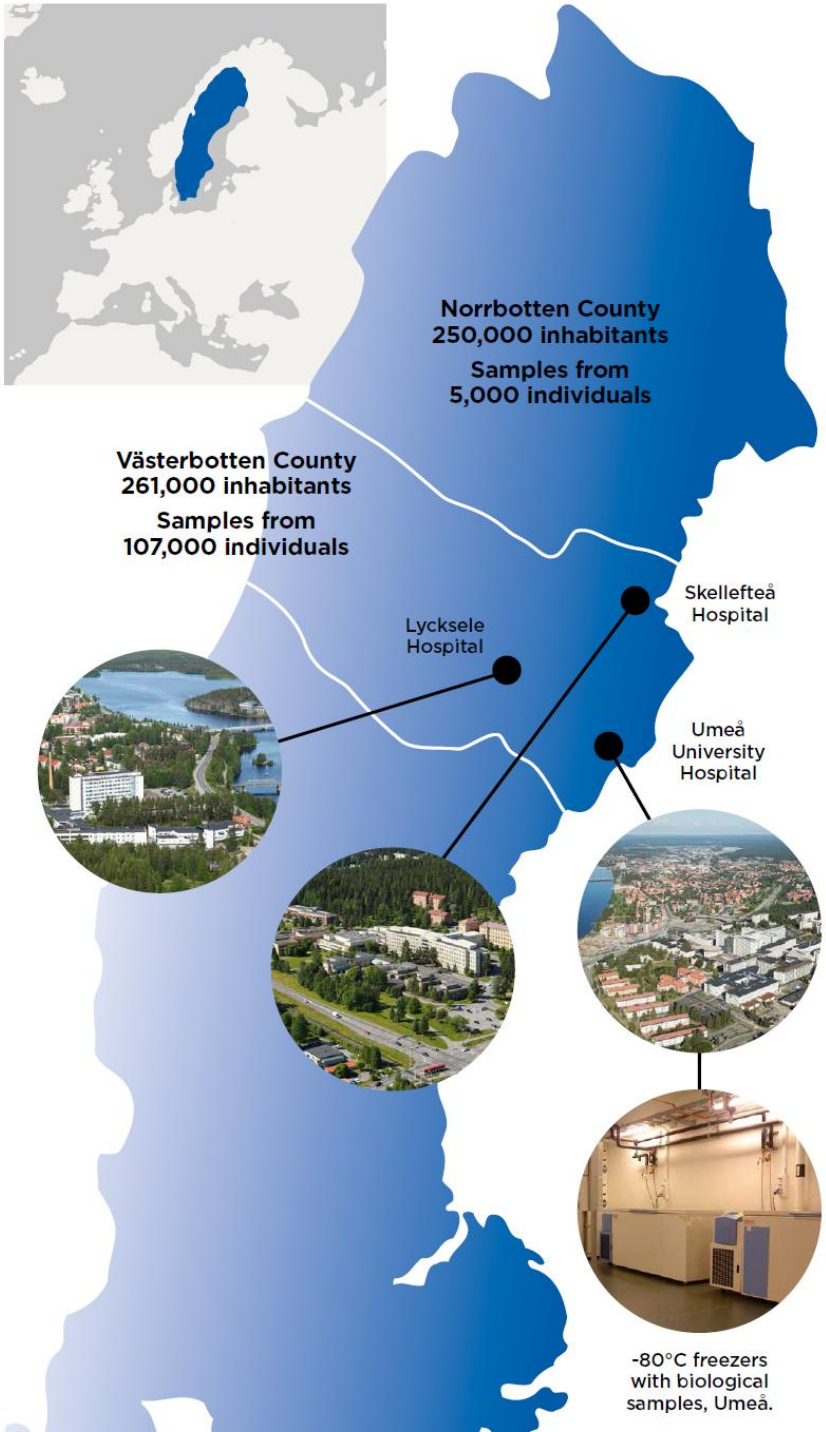
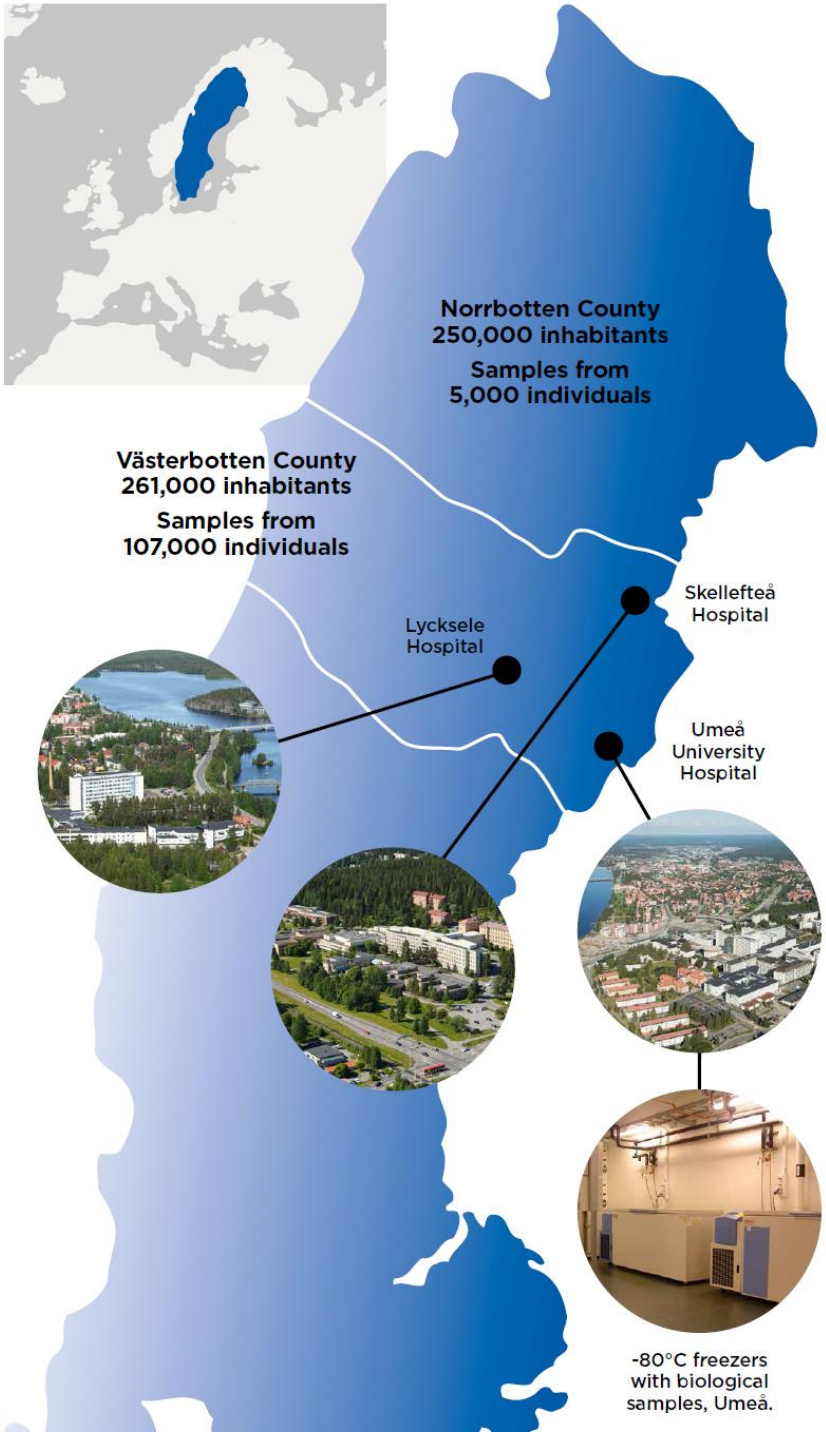


Now on our checklist:

- What is known about sex- and gender differences?
- How are such differences to be analysed?



Now on our checklist:

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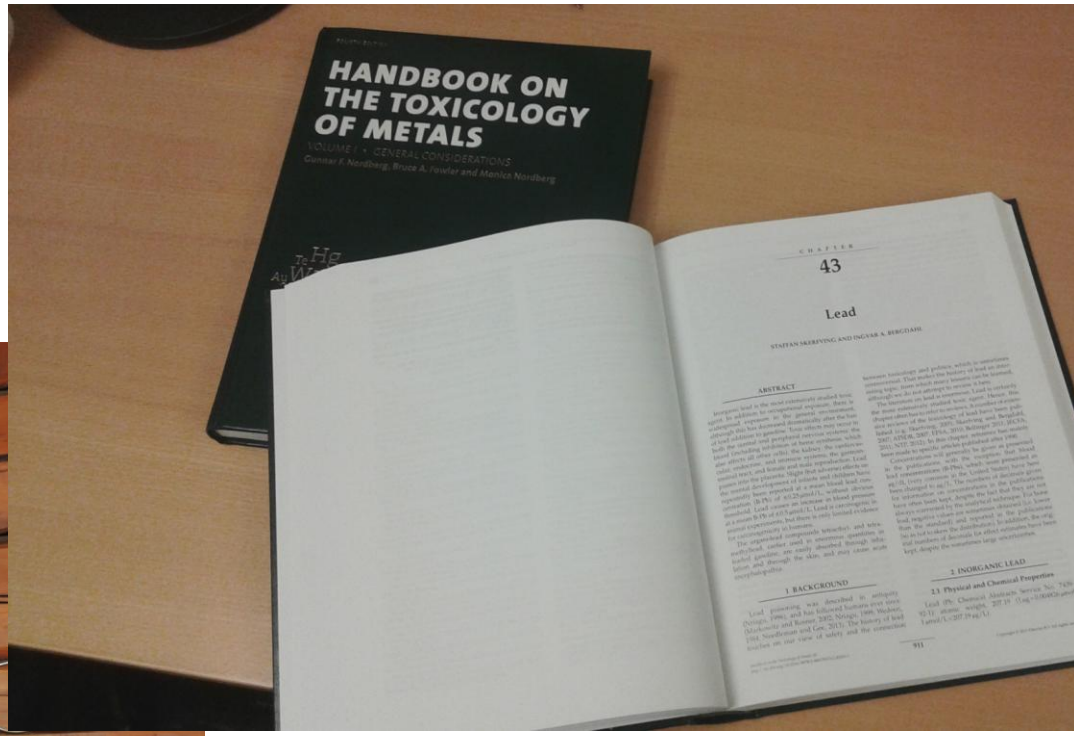
...and should be added to all evaluators' checklists?

Two additional comments



Reviews?

- Most reviews include information on sex and gender differences.
- But only when specifically pointed out in the reviewed papers?
- Should not reviews be systematic, weighing the evidence and describe gaps in knowledge?
- Inclusion of systematic review of sex-gender differences in WHO-, Environmental Health Criteria, Efsa opinions, etc? Do these today answer the question ‘What is known about sex-gender differences?’

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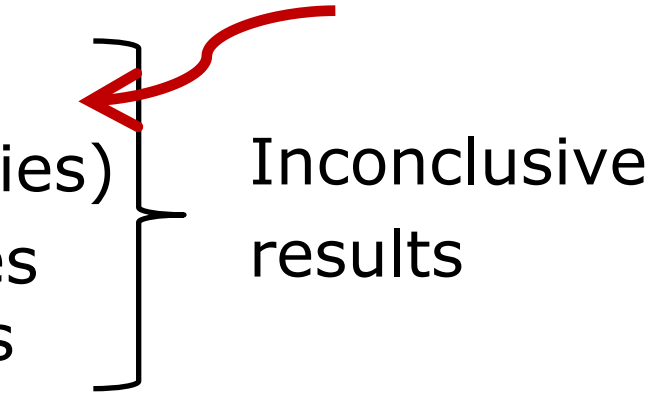

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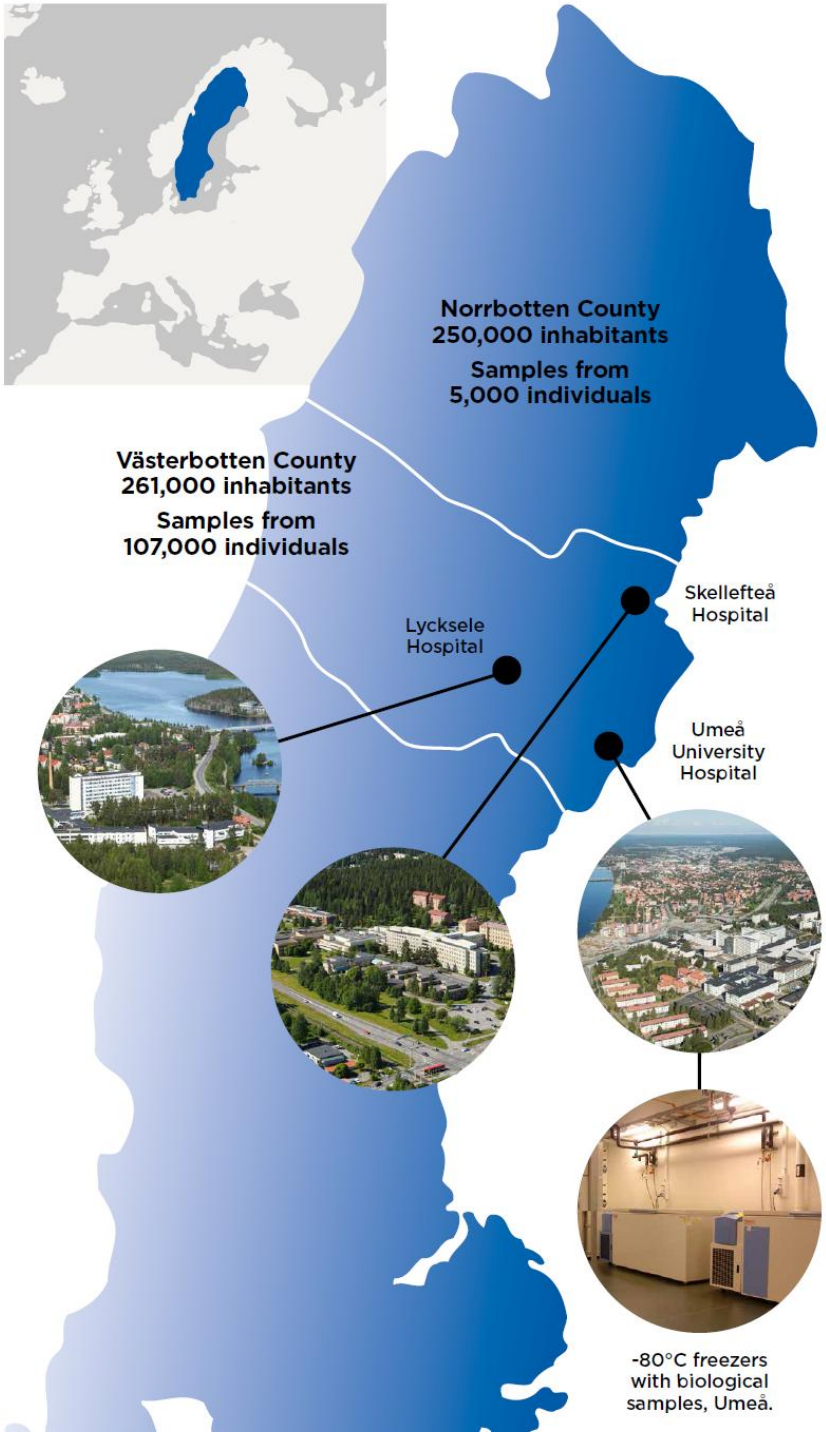
Inconclusive results

- Double my study-size funding?

In conclusion

- When evaluating a research proposal, ask:
- - What is known about sex-gender differences?
  - How are such differences to be analysed?

- Reviews: Identify gaps in knowledge on sex-gender differences
- Double my study-size funding?



Thank you for listening!