

# STRENGTHENING ANALYTICAL THINKING FOR OBSERVATIONAL STUDIES: THE STRATOS INITIATIVE

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on behalf of the STRATOS initiative

Statistics in Medicine, Early View, 30 July 2014

Initiative launched	ISCB 2013, Munich
Open and SG meetings	ISCB 2012, Bergen
Preliminary discussions	ISCB 2011, Ottawa



# Why?

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- Statistical models are always a simplification of real life processes.
- To improve these models, researchers develop new and more complicated approaches
- Different and partly conflicting approaches are proposed
- Expert knowledge is required to use methods
- Statistical software has to be available

In reality:

- Weaknesses of many analyses
  - Many analyses are conducted by people with limited statistical knowledge
- Rapid developments of statistical methodology require guidance and education

# Improvement

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At least **two tasks** are essential

1. **Experts** in specific methodological areas have to work towards **developping guidance documents**
2. An ever-increasing need for **continuing education** at all stages of the career

For busy applied researchers it is often **difficult to follow methodological progress** even in their principal application area

- Reasons are diverse
- Consequence is that analyses may be deficient
- **Knowledge** gained through research on statistical methodology needs to be **transferred** to the broader community
- Many **analysts** would be **grateful for** an overview on the current **state of the art** and for **practical expert guidance**

# Aims of the initiative

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- **Provide guidance documents** for various levels of statistical knowledge
- For the **start** we will concentrate on **state-of-the-art** documents for experienced statisticians
- Help to identify **questions requiring more primary research**

The overarching **long-term aim**:

- Raising awareness on **design** issues
- Improving key parts of statistical **analyses** of observational studies in practice

# Short term aims

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- For a small number of **highly relevant topics** we will try to assess the current **state of practice** and identify current documents which try provide some guidance
- Try to find '**agreement**' **what to recommend** within each of the three levels of statistical knowledge
- Documents have to be **understood** and at least broadly **accepted**
- **Positive examples** from the current literature will help to reach the latter goal

# Topics to start

Topic Group		Chairs and further members	
1	Missing data	Chairs:	James Carpenter
		Members:	Els Goetghebeur, Kate Lee, Rod Little, Kate Tilling, Ian White
2	Selection of variables and functional forms in multivariable analysis	Chairs:	Michal Abrahamowicz, Willi Sauerbrei
		Members:	Harald Binder, Frank Harrell, Patrick Royston
3	Descriptive and initial data analysis	Chairs:	Marianne Huebner, Saskia le Cessie, Werner Vach
		Members:	Maria Blettner, Danielle Bodicoat
4	Measurement error and missclassification	Chairs:	Raymond Carroll, Laurence Freedman
		Members:	Paul Gustafson, Victor Kipnis, Helmut Küchenhoff, Len Stefanski
5	Study design	Chairs:	Mitchell Gail, Neil Pearce
		Members:	Doug Altman, Gary Collins, Luc Duchateau, Stephen Evans, Peggy Sekula, Sharom Wacholder, Mark Woodward
6	Evaluation diagnostic tests and prediction models	Chairs:	Petra Macaskill, Ewout Steyerberg, Andrew Vickers
		Members:	Patrick Bossuyt, Gary Collins
7	Causal inference	Chairs:	Els Goetghebeur, Erica Moodie
		Members:	Bianca De Stavola, Saskia le Cessie, Ingeborg Waernbaum
8	Survival data (new)	Chairs:	Michal Abrahamowicz, Per Kragh Andersen, Terry Therneau
		Members:	---

# At the moment

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- 45 members from 13 countries
- 8 Topic Groups

[www.stratos-initiative.org](http://www.stratos-initiative.org)

# Aim of this session

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Presenting first results

Informing you!

Getting you involved!

- Session during lunchtime 12:35 – 13:15

For further information:

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or coming up soon via:

"Contact" on [www.stratos-initiative.org](http://www.stratos-initiative.org)