

Radars and health databases

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2023-04-25

My career

- Engineering physics, Uppsala 1992–1997
- PhD mathematics, Uppsala 1997–2002

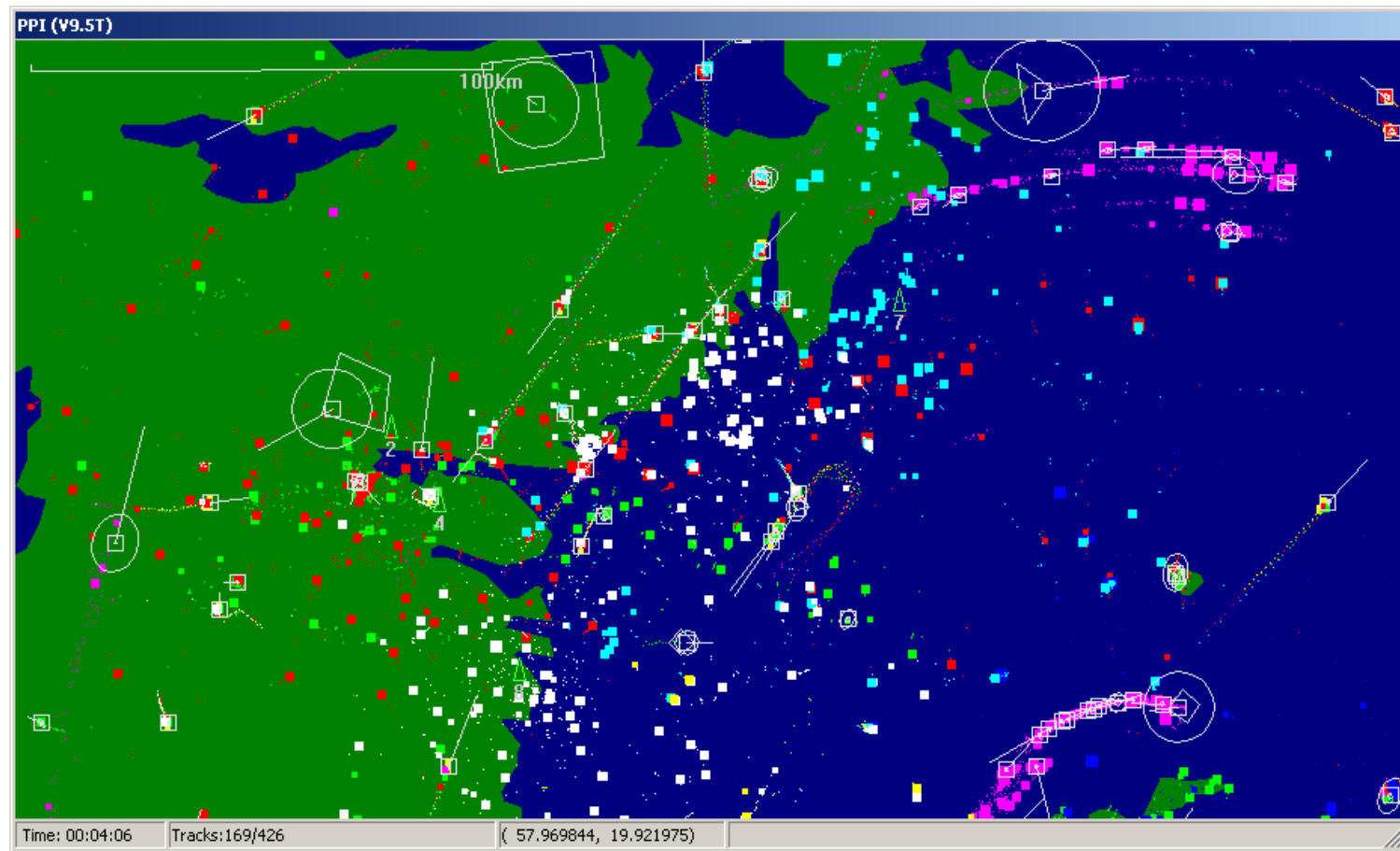
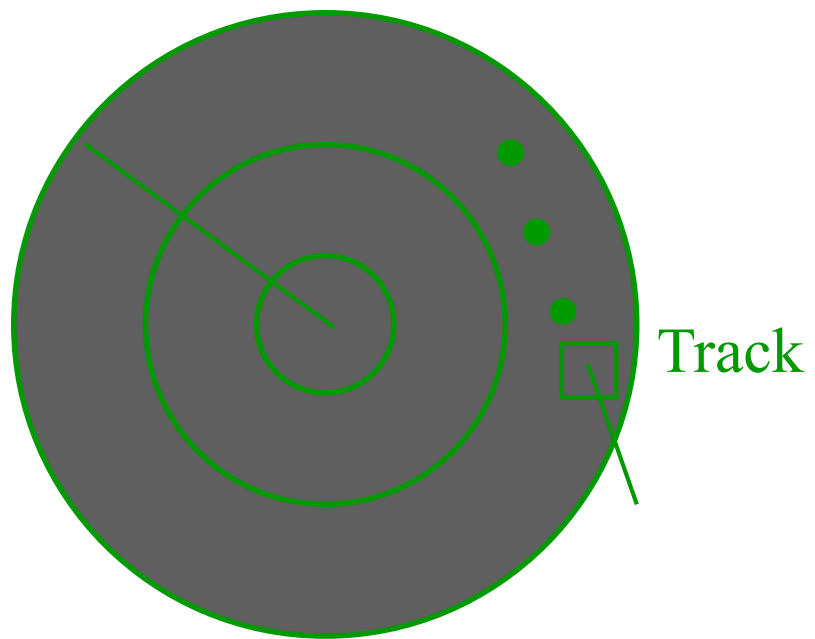
- Radar engineer, Saab 2002–2010
- Biostatistician, UCR 2010–

Coming to Saab

- No particular plan for my life.
- But wanted to leave the university.
- A colleague's husband worked at Saab...



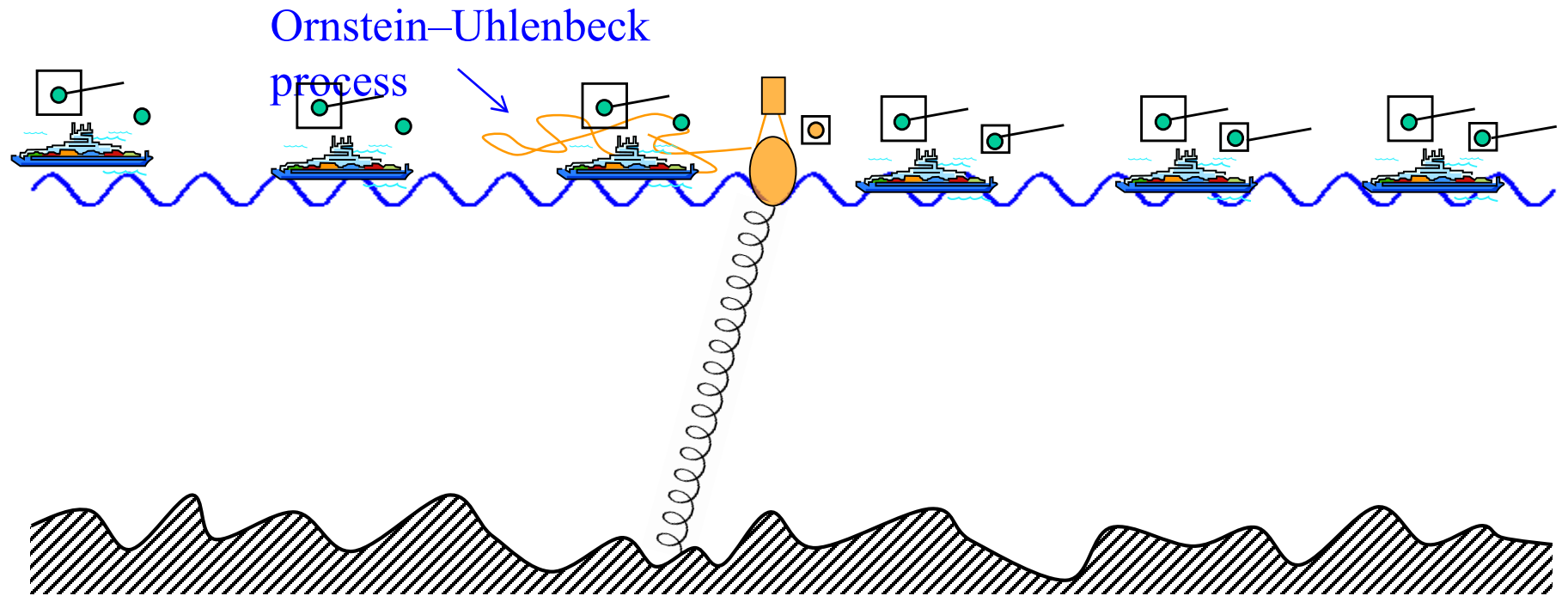
Radar tracking



Working at Saab



Radar buoy



Large ship

Leaving Saab

- Uppsala office closed in 2009.
- Transferred to Stockholm.
- Started looking for a new job.

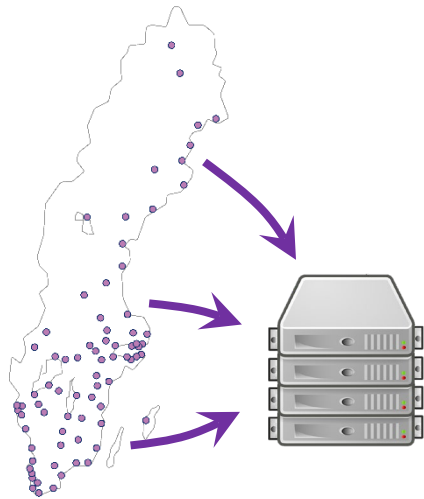


Biostatistician at UCR

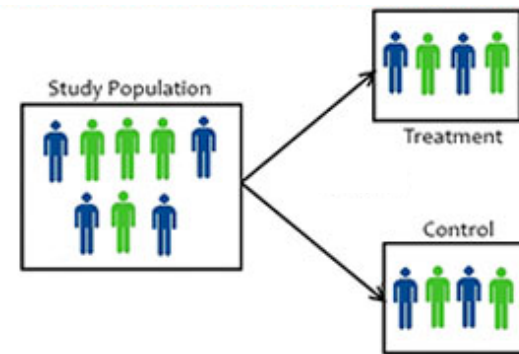
- ... experience of clinical trials
- ... deep knowledge of SAS or R

Coming to UCR

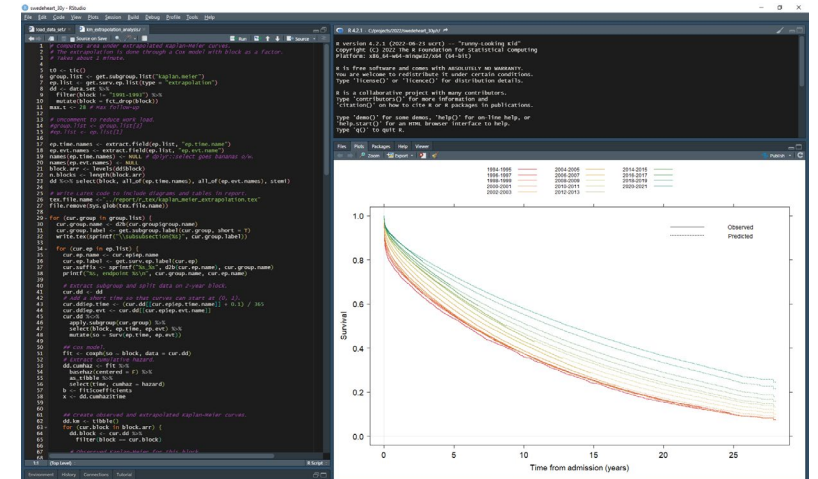
- Uppsala Clinical Research Center
- Owned by UU and the hospital
- Supports medical research
- ~ 150 employees



Quality registers



Clinical trials



17 statisticians

Working at UCR

- Beta blockers are known to be beneficial as long-term treatment of myocardial infarction patients with heart failure.
- What about patients without HF?
- Use registry data to compare treated and untreated patients 1 year after the MI.

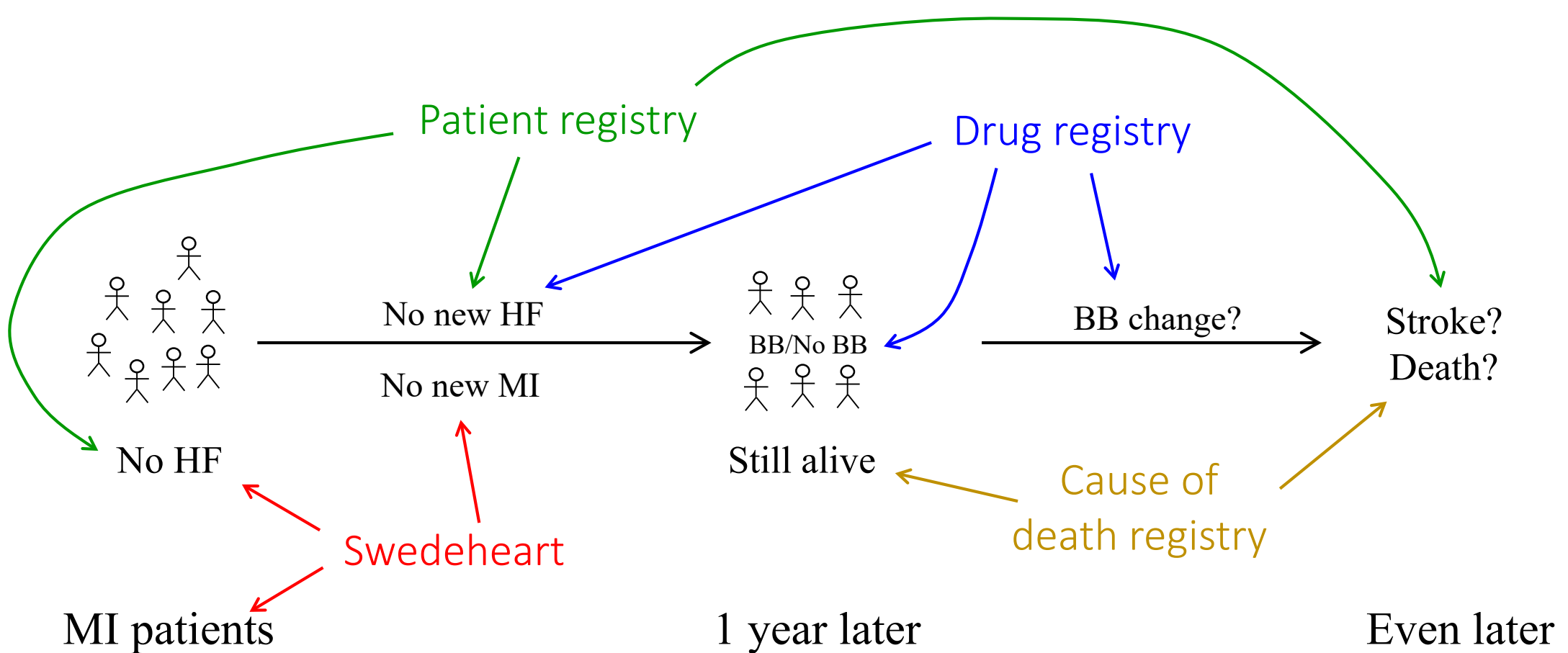


Table 36. Results of Cox models for the endpoint All-cause mortality. No censoring. [Click for CSV file.](#)

Subgroup	PP/ITT	Crude HR (95% CI) <i>p</i>	Adjusted HR (95% CI) <i>p</i>	Adjusted + PS-weighted HR (95% CI) <i>p</i>
All patients	PP	0.56 (0.53, 0.60) <0.001	0.68 (0.63, 0.73) <0.001	0.80 (0.74, 0.88) <0.001
	ITT	0.72 (0.67, 0.78) <0.001	0.96 (0.89, 1.04) 0.31	1.00 (0.92, 1.09) 0.93
	CNS	0.70 (0.62, 0.78) <0.001	1.01 (0.90, 1.13) 0.86	1.01 (0.90, 1.14) 0.85
MI before hospitalization	PP	0.88 (0.70, 1.10) 0.25	0.90 (0.72, 1.13) 0.38	0.92 (0.71, 1.21) 0.56

Mathematics, and reality

Theorem Let the data \mathcal{D} be
... **linear** ... **normal distribution** ...
Then, as $n \rightarrow \infty$,

$$\hat{\theta}_n \xrightarrow{a.s.} \theta_0$$

Errors in data

Non-linear



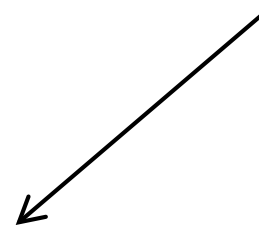
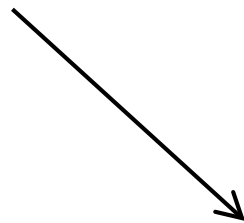
Missing values

Non-normal

Refuse to take treatment

Mathematics

Reality



Statistical method