

# **Risk of repetition of suicide attempt, suicide or all deaths after an episode of attempted suicide– a register-based survival analysis**

By MScE Erik Christiansen and MSc Børge F Jensen

**Aim:** This study was undertaken in order to estimate the incidence of repetition of suicide attempt, suicide and all deaths and to analyse the influence of psychiatric illness and socio-demographic factors on repetition, suicide and all deaths after an episode of attempted suicide.



# Plan for the presentation

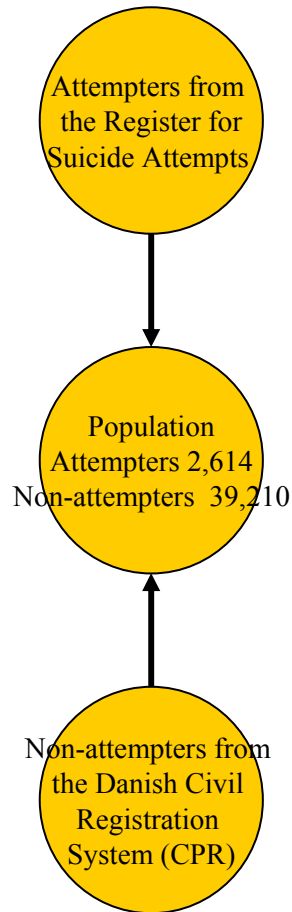
- The study and population
- Data
- Main results
- Limitations and strengths
- Conclusion



- Methodology: Danish register-based cohort study
- Participants:
  - 2,614 suicide attempters
  - 39,210 non-attempters
  - matched by gender, age and place of residence



## Suicide attempters were identified from the Register for Suicide Attempts.



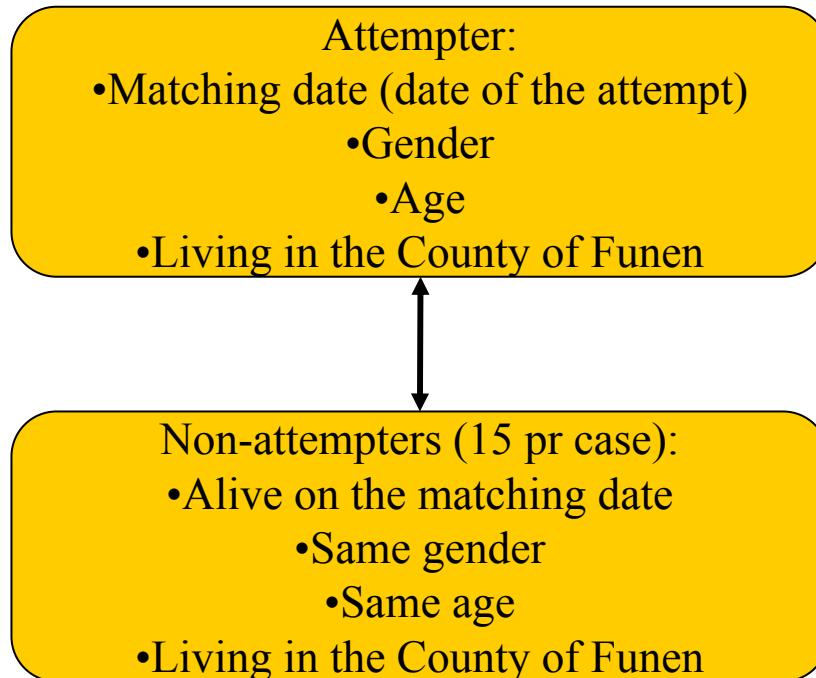
For every suicide attempter:

- Personal identification number (CPR)
- Date of the **first** attempted suicide (called matching date) between 1995-2001
- Age
- Gender
- 15 controls matched by gender, age and place of living (In the County of Funen, in Denmark)



## Non-attempters were identified

### Matching procedure:



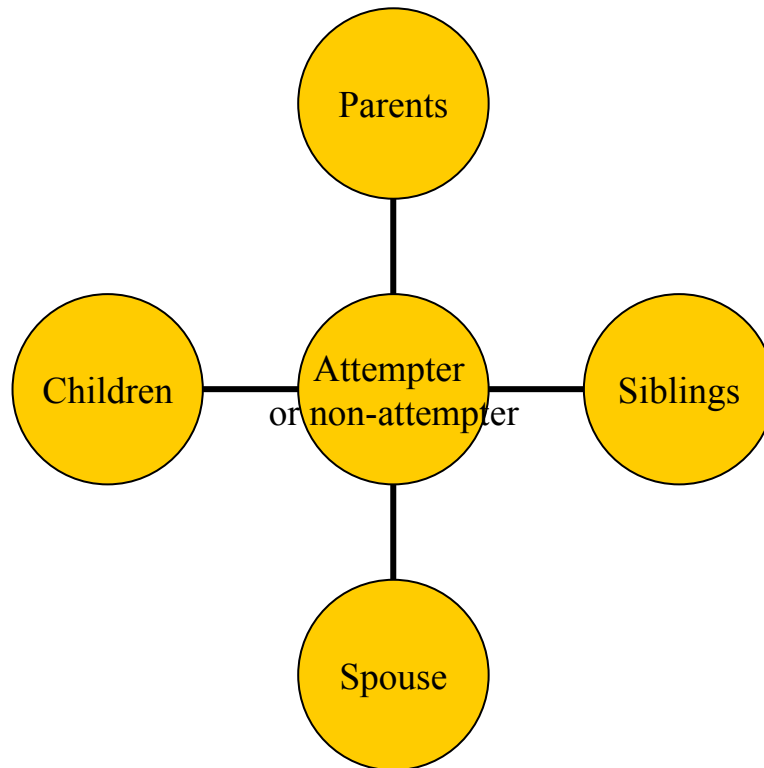
A non-attempter was matched to an attempter by:

- Alive on the matching date (the case's suicide attempt date)
- Gender
- Age
- Living in the County of Funen, in Denmark
- Not diagnosed with suicide attempt before the matching date

15 non-attempters were matched to every case



## Family relations were identified in the Demographic Database



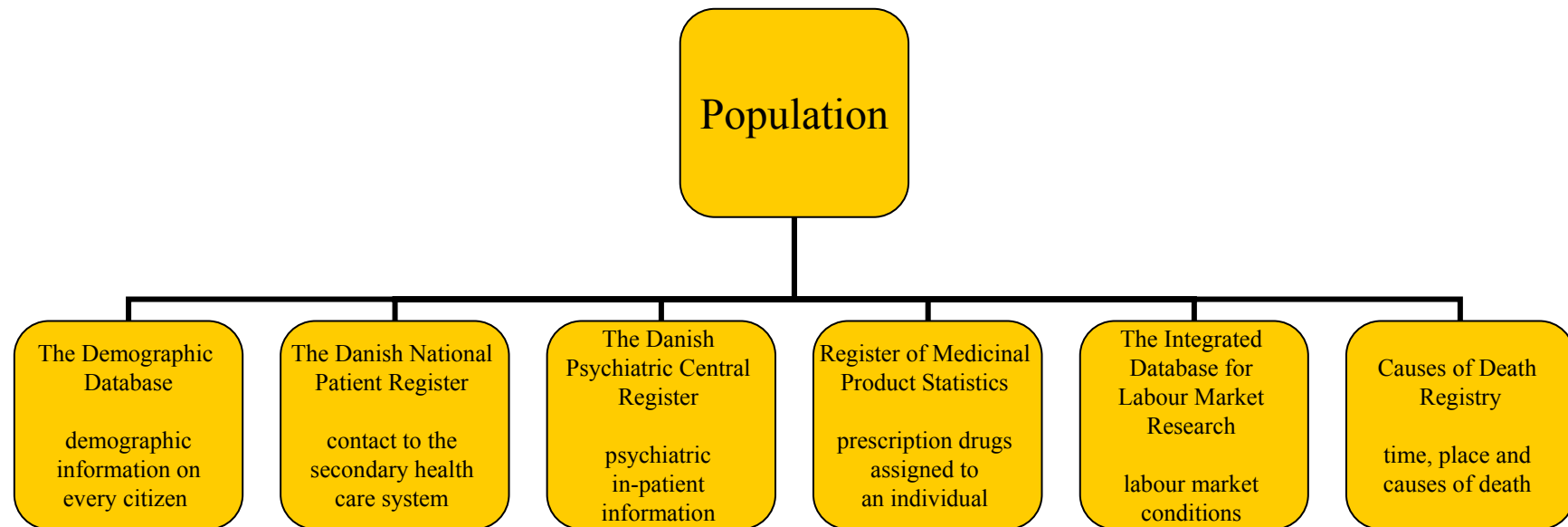
Population:

- Attempters n=2,614
- Non-attempters n= 39,210
- Family (a lot)



## Data on the population

For every individual data from various registers were found:



Data were analyzed by the use of Cox regression with time-dependent covariates

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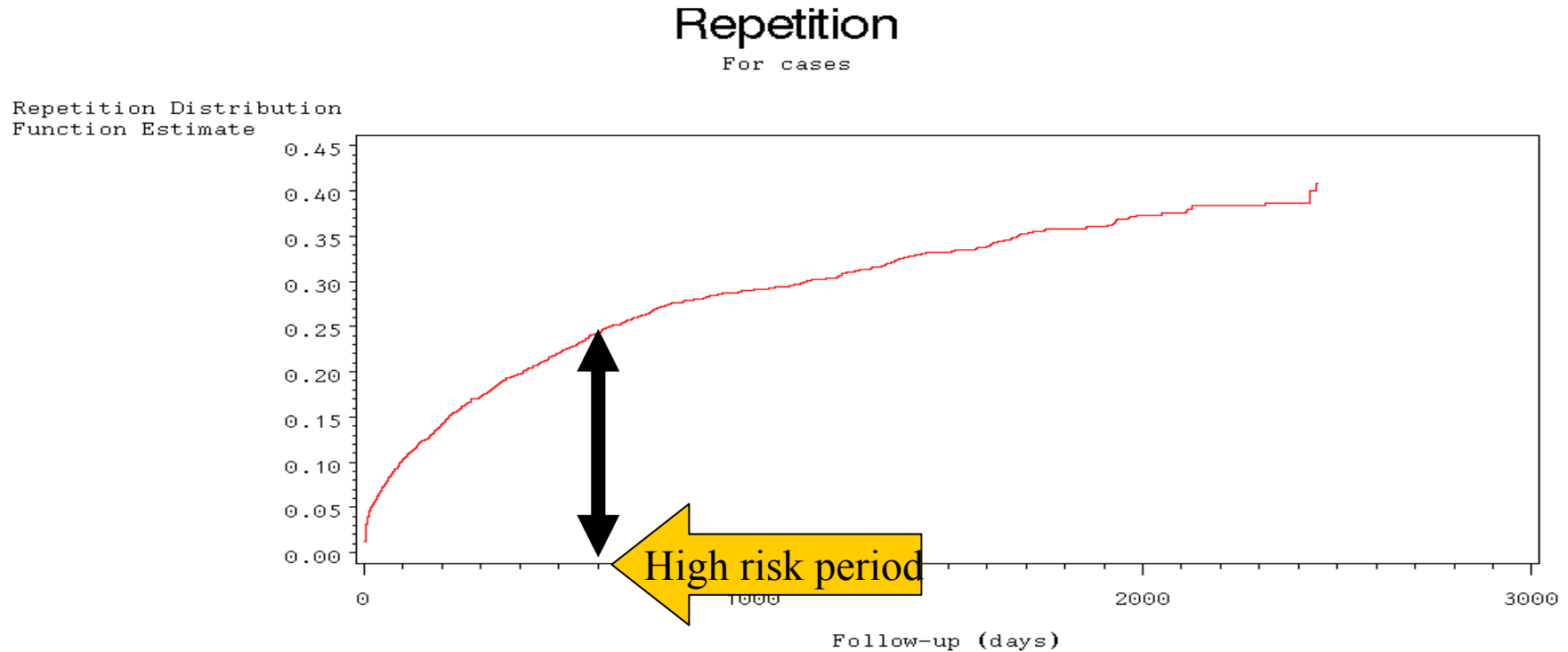


## **Part I. Risk for suicidal behaviour among attempters – follow-up**

- Average follow-up period was 3.88 years
- Estimation of the function of the distribution of attempted suicide, suicide and all deaths
- Estimation of risk factors for repetition, suicide and all deaths



# Estimation of the function of the distribution of repetition of suicide attempt



High incidence of repetition. 819 (31,33 %) repeated within the follow-up period

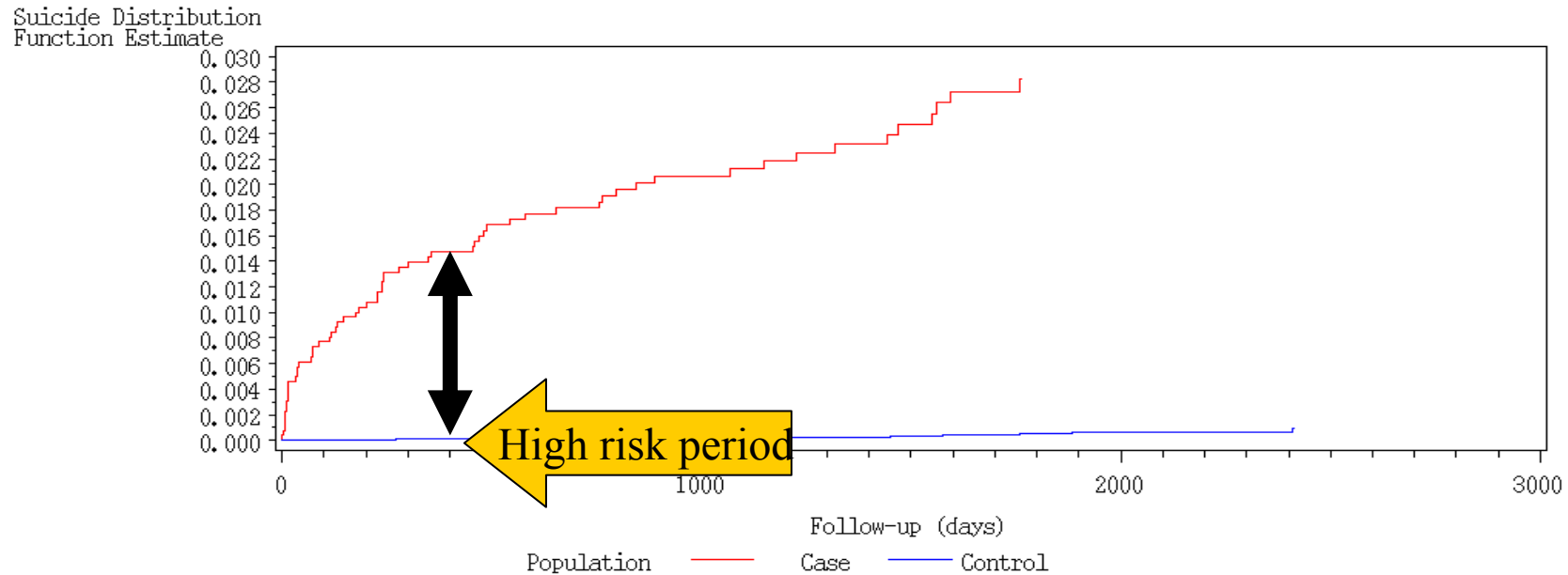
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# Estimation of the function of the distribution of suicide

## Suicide as cause of death

Cases and controls matched by age and gender



High incidence of suicide. 61 ( 2.33 %) suicides within the follow-up period and only 16 (0.04 %) among controls. The distributions are significantly different (Wilcoxon  $\chi^2(1)=766.07, p<0.0001$ )

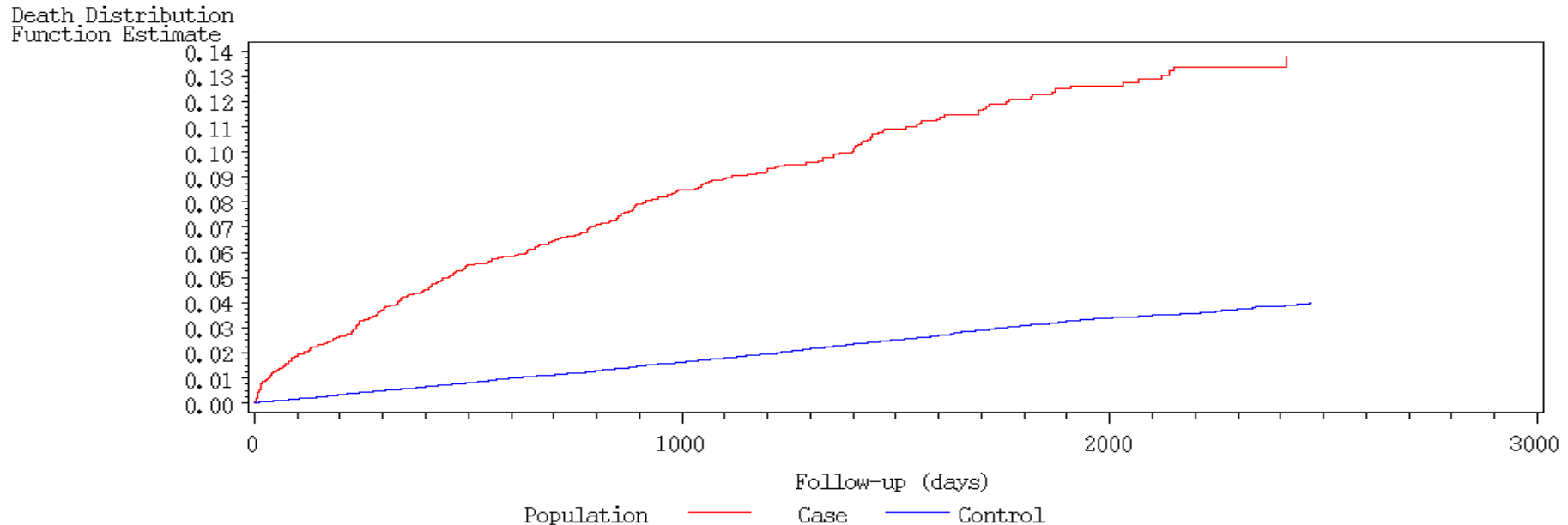
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# Estimation of the function of the distribution of death

## All causes of death

Cases and controls matched by age and gender



High incidence of death. 271 (10.37 %) death within follow-up period and only 991 (2.53 %) among controls. The distributions are significantly different (Wilcoxon  $\chi^2(1)=631.82$ ,  $p<0.0001$ )

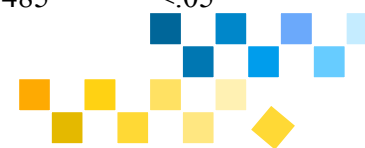
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## A wide range of risk factors were analyzed:

Risk factor:†	Repetition		
	Hazard ration	95% CI	p
Gas, cut or stab as method (BL=Medical drugs )	1.269	1.050-1.534	<.05
15-24 years old	2.713	1.853-3.970	<.0001
25-59 years old	2.414	1.760-3.312	<.0001
Admitted to mental hospital	1.287	1.068-1.550	<.05
Admitted to psychiatric hospital during follow-up*	2.095	1.761-2.492	<.0001
Admitted to mental hospital because of alcohol abuse (before attempt)	1.233	1.016-1.495	<.05
Admitted to mental hospital because of drug abuse (before attempt)	1.374	1.074-1.757	<.05
Use of anxiolytic during follow-up*	1.418	1.186-1.695	<.0001
Use of sedative or hypnotic	1.236	1.041-1.467	<.05
Use of sedative or hypnotic during follow-up*	1.333	1.111-1.600	<.05
Use of antidepressant	0.792	0.657-0.953	<.05
Use of antidepressant during follow-up*	1.235	1.027-1.485	<.05

\* Time dependence covariate  
† Baseline like in table 2.



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## A wide range of risk factors were analyzed:

	<b>Suicide</b>		
Repetition during follow-up*	4.917	2.784-8.686	<.0001
Jumped from high place or in front of traffic as method	4.755	1.138-19.867	<.05
15-24 years old	0.230	0.069-0.761	<.05
25-59 years old	0.270	0.131-0.556	<.05
Other reasons for not working	0.316	0.118-0.849	<.05

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## A wide range of risk factors were analyzed:

### Death

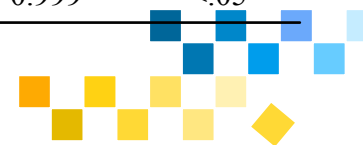
Repetition during follow-up*	2.035	1.528-2.709	<.0001
Jumped from high place or in front of traffic as method	3.188	1.399-7.266	<.05
15-24 years old	0.185	0.086-0.395	<.0001
25-59 years old	0.362	0.258-0.508	<.0001
Female	0.622	0.483-0.800	<.05
Living alone on the day of the first attempt	1.346	1.032-1.754	<.05
Pensioner	1.682	1.064-2.657	<.05
No information on occupation	21.780	2.643-179.6	<.05
No information on level of education	2.123	1.419-3.174	<.05
Use of antipsychotic	1.537	1.152-2.052	<.05
Admitted to mental hospital because of alcohol abuse during follow-up*	1.514	1.053-2.178	<.05
Receiving sickness benefits in one quarter of a year	1.768	1.080-2.893	<.05
No link to parent	1.972	1.360-2.866	<.05
At least one of the parent is dead	0.548	0.301-0.999	<.05

\* Time dependence covariate

† Baseline like in table 2.

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# Limitations and strengths

## Limitations

The attempters are selected from a register, which is a longitudinal register that **only** includes suicide attempts that result in a contact to the health care system

It may not be an index suicide attempt

The structure of the registers limits our information and therefore does not provide an optimal retrospective data collection period

## Strengths

The number of variables in the study is high

Emigrates are censored out of the study at the precise date

The relatively large number of suicide attempts ensures that it is possible to make good survival estimates



## Conclusion

The risk for subsequent suicidal behaviour was highest in the period immediately after the attempt

The best predictors for suicide and death were repetition, suicide attempt method and treatment of mental illness

The best predictors for repetition were age, gender and mental illness

Individuals with a history of suicide attempts are a well-defined high-risk group for suicide, and they ought to receive treatment immediately after they attempted suicide



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Thank you for listening

