



# Disclosure

I have no relevant financial or nonfinancial relationships to disclose

Unwarranted socioeconomic variation in access to palliative care in a tax-financed health care system:  
Drug reimbursement due to terminal illness in Denmark

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# Background

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## Denmark

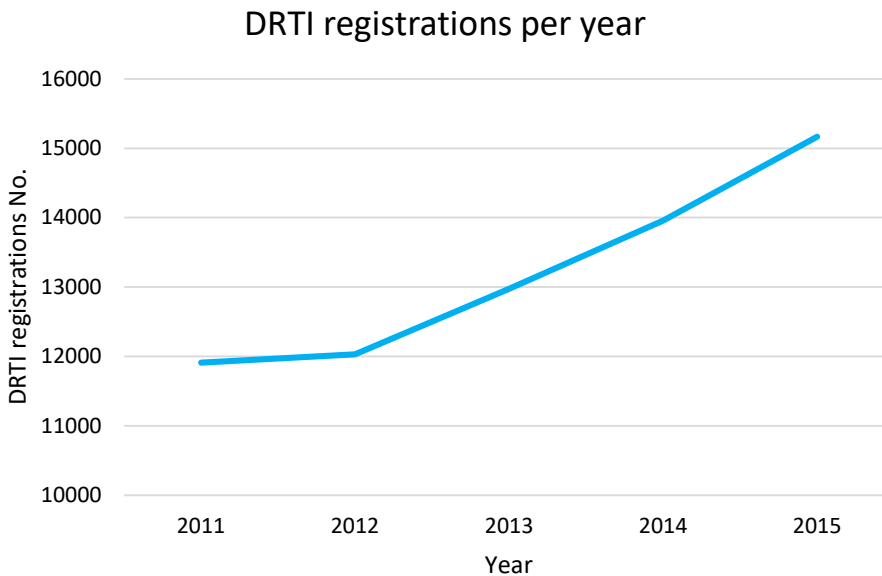
- 5.7 million inhabitants
- Tax based and universal coverage

# Background – Drug reimbursement

General drug reimbursement



Individual drug reimbursement

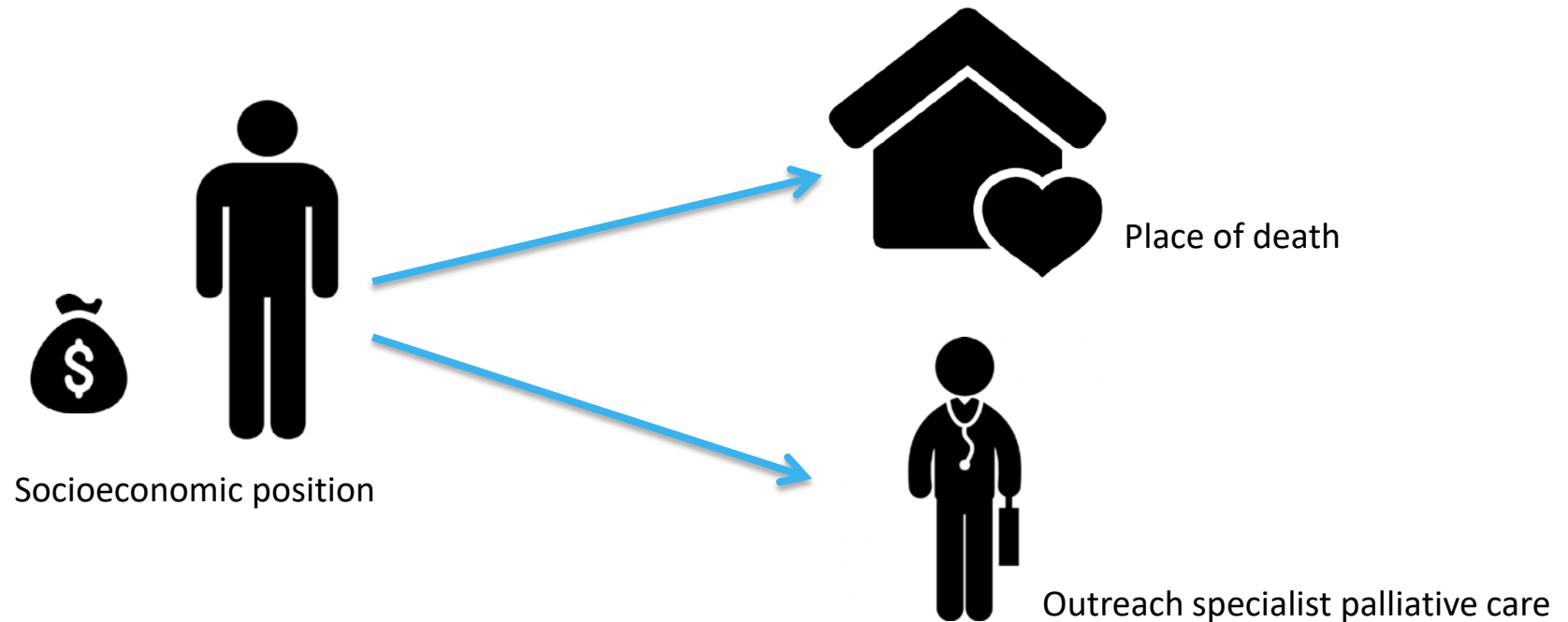


Drug reimbursement due to terminal illness (DRTI)



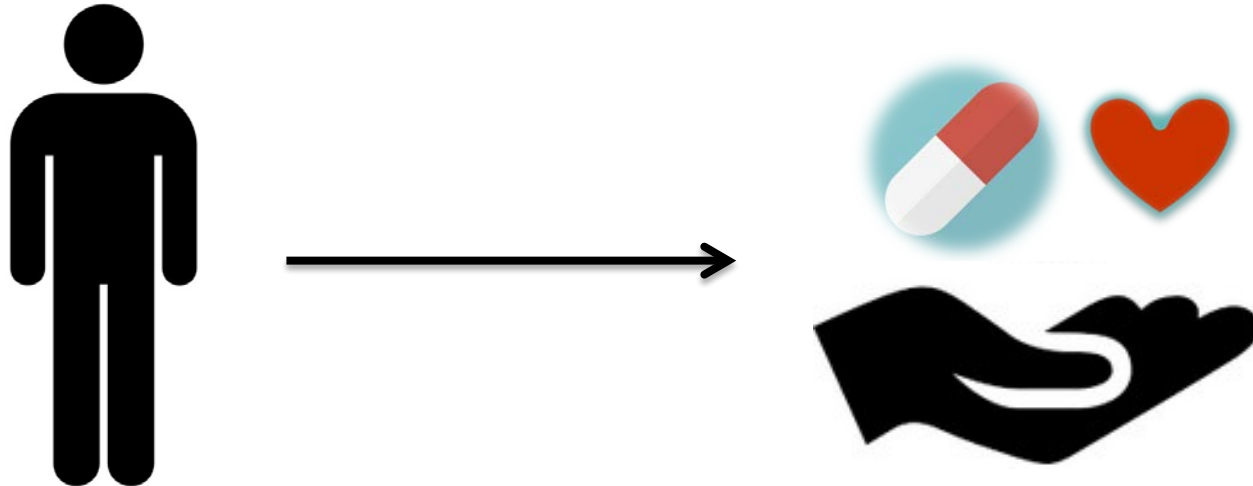
Medicine free of charge

# Background – Unequal end-of-life care



# Objective

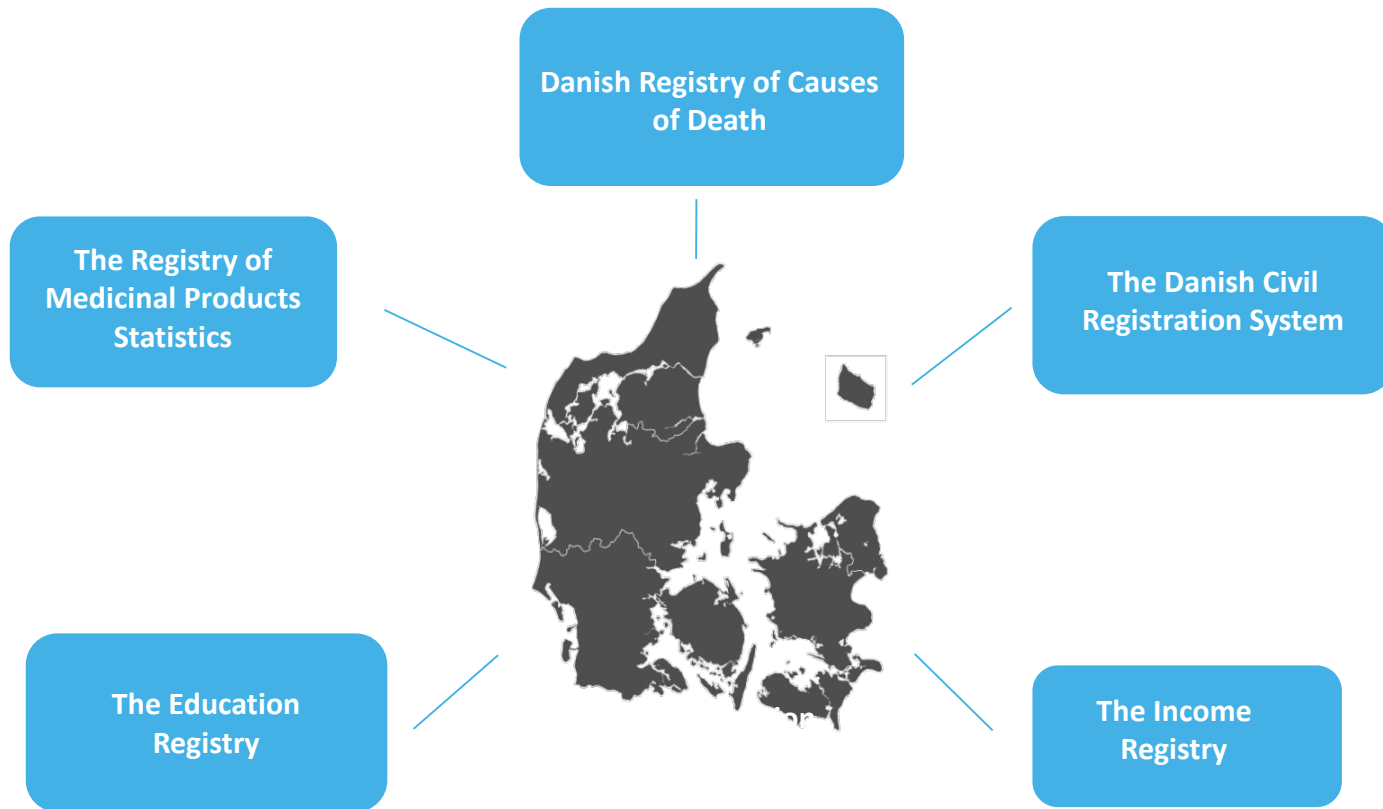
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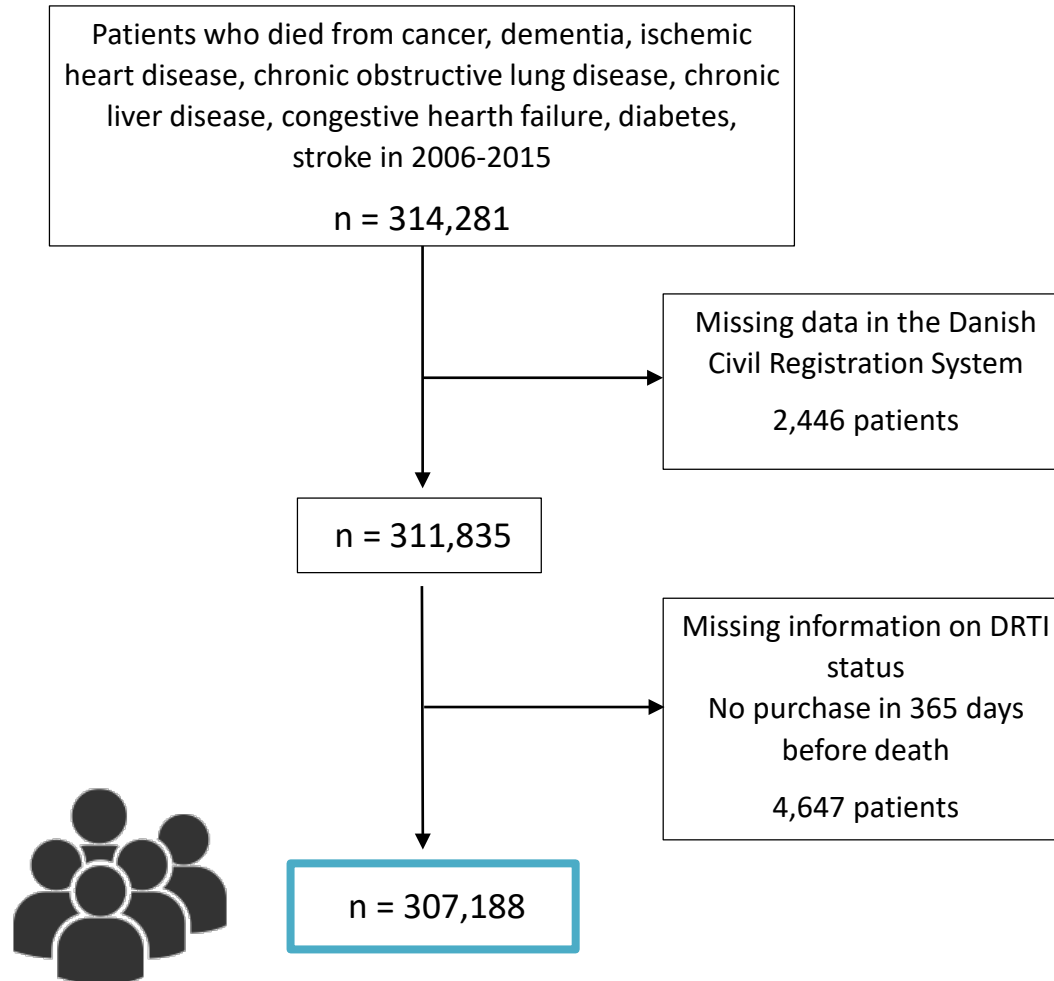
Does unwarranted socioeconomic variation occurs in relation to DRTI status among Danish end-of-life patients?

# Methods – Data collection

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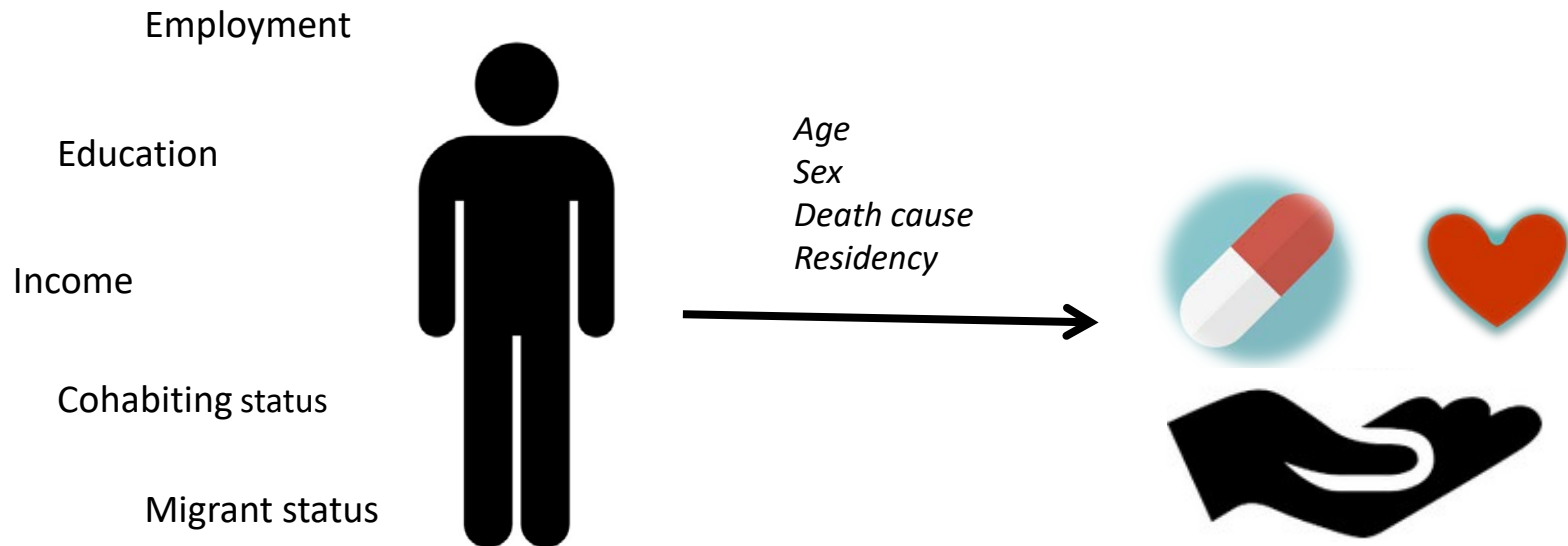


# Methods – Flowchart





# Statistics



- Descriptive statistics
- Prevalence proportion ratios (PRs) and 95% confidence intervals (CIs)
- Generalized linear models with log link function and Poisson distribution
- Mutually adjustment and stratification

# Results – Characteristics of the population

**Table 1.** Characteristics of the study population according to drug reimbursement due to terminal illness (DRTI)

	All patients		DRTI registration		No DRTI registration	
	No.	%	No.	%	No.	%
Total	307,188	100	85,616	27.5	221,572	71.1
<b>Cause of death</b>						
Cancer	151,246	49.2	80,439	94.0	70,807	32.0
Dementia	30,375	9.9	893	1.0	29,482	13.3
Ischemic heart disease	24,094	7.8	342	0.4	23,752	10.7
Chronic obstructive lung disease	32,699	10.6	1,767	2.1	30,932	14.0
Chronic liver disease	7,391	2.4	341	0.4	7,050	3.2
Congestive heart failure	14,531	4.7	603	0.7	13,928	6.3
Diabetes	13,050	4.3	413	0.5	12,637	5.7
Stroke	33,802	11.0	818	1.0	32,984	14.9
<b>Age</b>						
-69	85,333	27.8	35,742	41.8	49,591	22.4
70-79	82,523	26.9	26,951	31.5	55,572	25.1
80-89	99,450	32.4	19,435	22.7	80,015	36.1
90+	39,882	13.0	3,488	4.1	36,394	16.4
<b>Cohabiting status</b>						
Living alone	184,831	60.2	37,946	44.3	146,885	66.3
Living with a partner	122,263	39.8	47,636	55.6	74,627	33.7
<b>Mean family income</b>						
Low	100,990	33.3	18,426	21.5	82,564	37.3
Middle	100,990	33.3	25,759	30.1	75,232	34.0
High	100,990	33.3	39,839	46.5	61,152	27.6

# Results – Separate socioeconomic markers

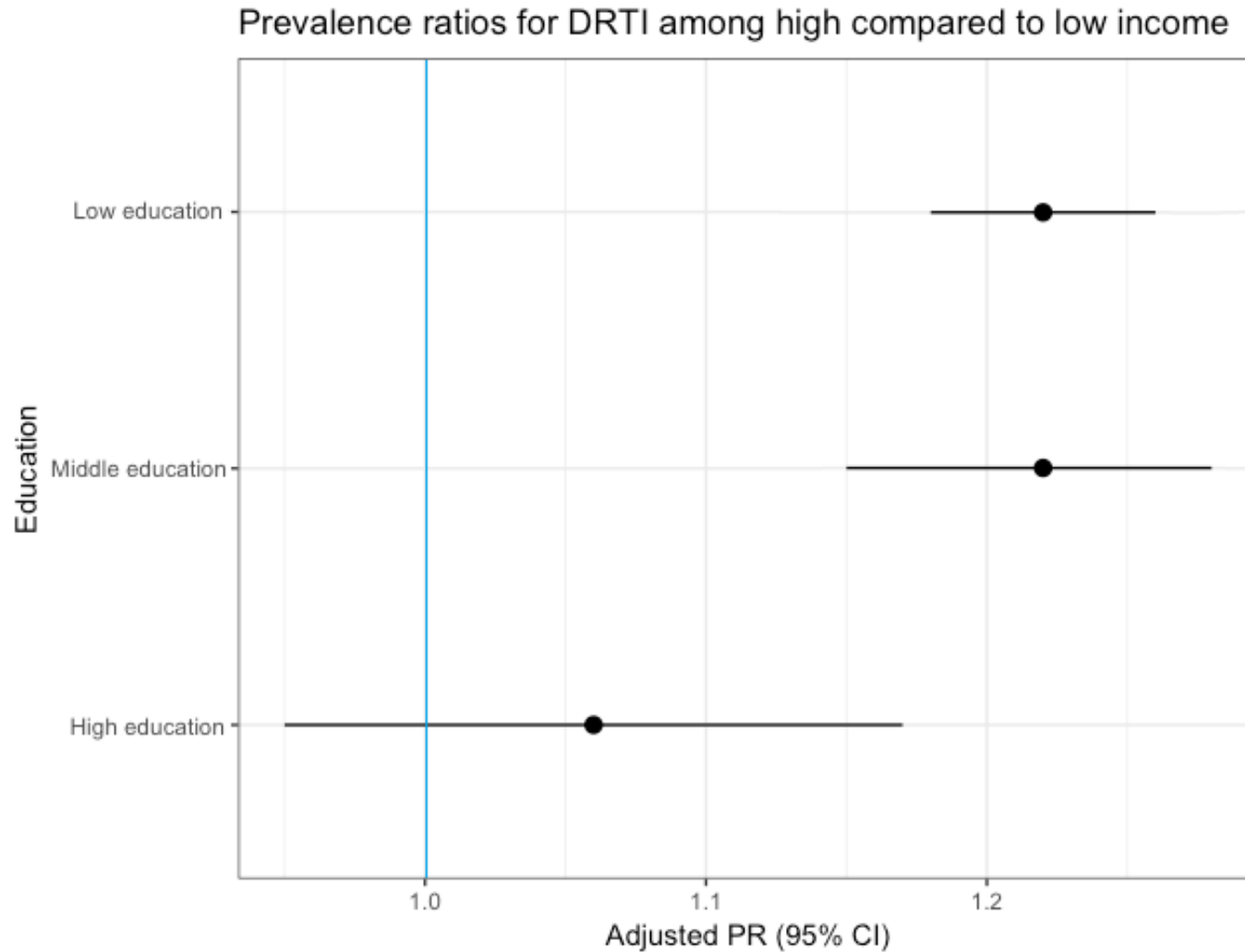
**Table 2. Crude and adjusted RR for drug reimbursement due to terminal illness (DRTI)**

	DRTI		Unadjusted PR		Adjusted PR <sup>1</sup>		Mutually adjusted PR <sup>2</sup>	
	No.	%	PR	95% CI	PR	95% CI	PR	95% CI
<b>Employment</b>								
Unemployed, social security, student	6,774/13,117	51.6	1.00	(Reference)	1.00	(Reference)	1.00	(Reference)
Pensioner	69,200/270,330	25.6	0.50	(0.48-0.51)	1.01	(0.99-1.03)	0.98	(0.97-1.00)
Employed	7,471/17,954	41.6	0.81	(0.78-0.83)	<b>0.86</b>	<b>(0.84-0.87)</b>	<b>0.83</b>	<b>(0.82-0.85)</b>
Academic or leadership position	2,139/5,705	37.5	0.73	(0.69-0.76)	1.00	(0.96-1.03)	0.95	(0.92-0.99)
<b>Education</b>								
Low	38,573/138,996	27.8	1.00	(Reference)	1.00	(Reference)	1.00	(Reference)
Middle	31,627/94,397	33.5	1.21	(1.19-1.23)	1.00	(0.99-1.01)	0.98	(0.97-0.99)
High	10,773/29,297	36.8	1.33	(1.30-1.35)	1.02	(1.00-1.04)	0.98	(0.97-1.00)
<b>Income</b>								
Low	18,426/100,990	18.3	1.00	(Reference)	<b>1.00</b>	<b>(Reference)</b>	<b>1.00</b>	<b>(Reference)</b>
Middle	25,759/100,991	25.5	1.40	(1.37-1.43)	<b>1.16</b>	<b>(1.14-1.19)</b>	<b>1.10</b>	<b>(1.07-1.12)</b>
High	39,839/100,991	39.5	2.16	(2.13-2.20)	<b>1.22</b>	<b>(1.17-1.27)</b>	<b>1.13</b>	<b>(1.10-1.17)</b>
<b>Cohabiting status</b>								
Living alone	37,946/184,8318	20.5	1.00	(Reference)	<b>1.00</b>	<b>(Reference)</b>	<b>1.00</b>	<b>(Reference)</b>
Living with a partner	47,636/122,263	39.0	1.90	(1.87-1.92)	<b>1.18</b>	<b>(1.15-1.22)</b>	<b>1.12</b>	<b>(1.09-1.14)</b>
<b>Migrant status</b>								
Non-immigrant or descendent	82,444/296,886	27.8	1.00	(Reference)	<b>1.00</b>	<b>(Reference)</b>	<b>1.00</b>	<b>(Reference)</b>
Immigrant including descendants	3,172/10,302	30.8	1.11	(1.07-1.15)	<b>1.04</b>	<b>(1.01-1.07)</b>	<b>1.08</b>	<b>(1.05-1.11)</b>

<sup>1</sup> Adjusted for age, sex, death cause and municipality.

<sup>2</sup> Adjusted for age, sex, death cause, municipality and socioeconomic markers

# Interaction between education & income?



# Worst -/ best off & DRTI

## Worst off

Employed  
Low education  
Low income  
Living alone  
Non-immigrant



## Best off

Pensioner  
High education  
High income  
Living with a partner  
Immigrant



### Adjusted PR<sup>1</sup>

Worst off group	1.00	(Reference)
Best off group	1.44	(1.18-1.75)

<sup>1</sup>Adjusted for age, sex, death cause and municipality

# Does DRTI matter?

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# Results – Medicine use

Redeemed palliative drug* prescriptions the last month before death		
	Median	10 <sup>th</sup> and 90 <sup>th</sup> percentiles
DRTI	5	(1-11)
No DRTI	2	(0-6)

Costs of redeemed prescriptions on palliative drugs* the last month before death		
	Median	10 <sup>th</sup> and 90 <sup>th</sup> percentiles
DRTI	137.5	(17.5-693.7)
No DRTI	21.4	(0-155.6)

Medical expenses are shown in USD

\* opioids, anxiolytics, sedatives and antidepressants

# Methodological considerations

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## Strengths

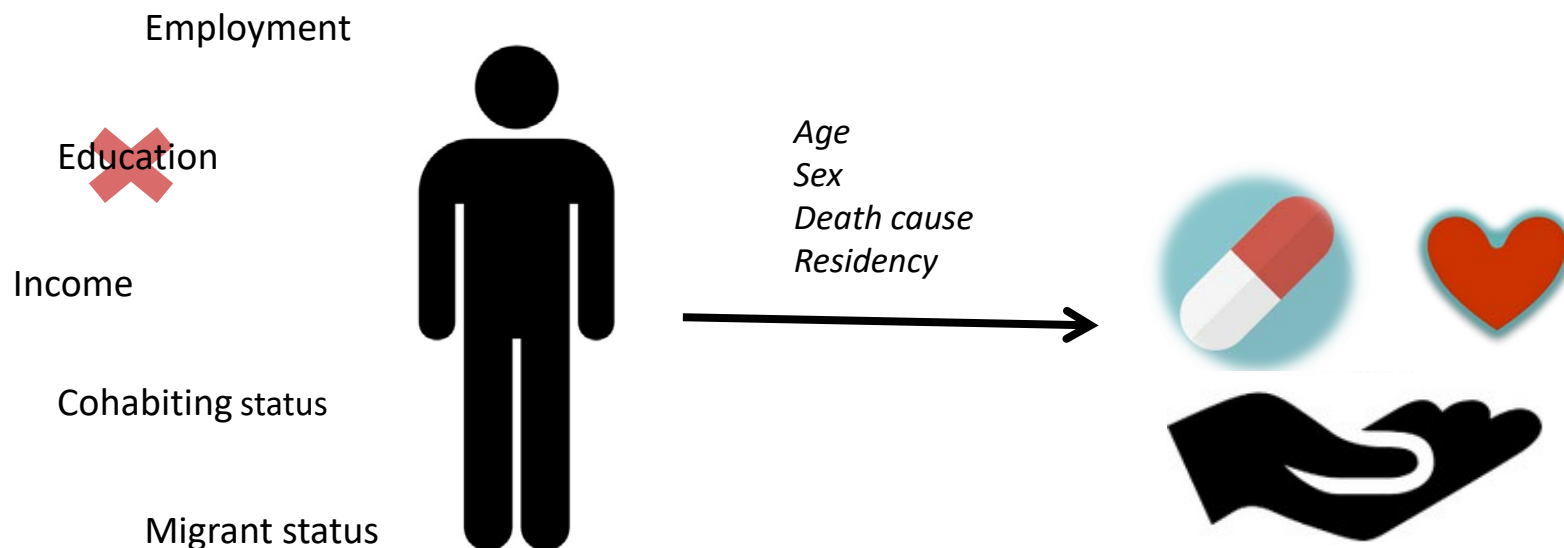
- Nationwide study
- Low risk of bias
- Individual level information

## Weaknesses

- No data on comorbidity or hospital admission
- No lifestyle data
- No data on cancer type
- Need and wish of DRTI?
- Residual confounding



# Conclusion



Drug reimbursement due to terminal illness may not be equally accessible for all Danish residents.



# THANK YOU

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