

Changes to age- and cause-specific mortality rates in Scotland 1981-2011

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Introduction and Aim

- Overall, there has been a reduction in the number of deaths in Scotland between 1981 and 2011
 - 1981 – 63,828 deaths
 - 2011 – 53,661 deaths
- But inequalities in all-cause mortality have widened
- **Aim:** to examine the contribution of age and specific causes of death to inequalities in mortality in Scotland

Methods

- All-cause mortality

- **Cause-specific mortality**

IHD	Alcohol
Stroke	Drugs
All cancers	Suicide*
Respiratory	Accidents*

*Excluding deaths relating to alcohol and drug poisonings

- Age-standardised mortality (European Standard Population 2013)
 - Rates expressed per 100,000 population

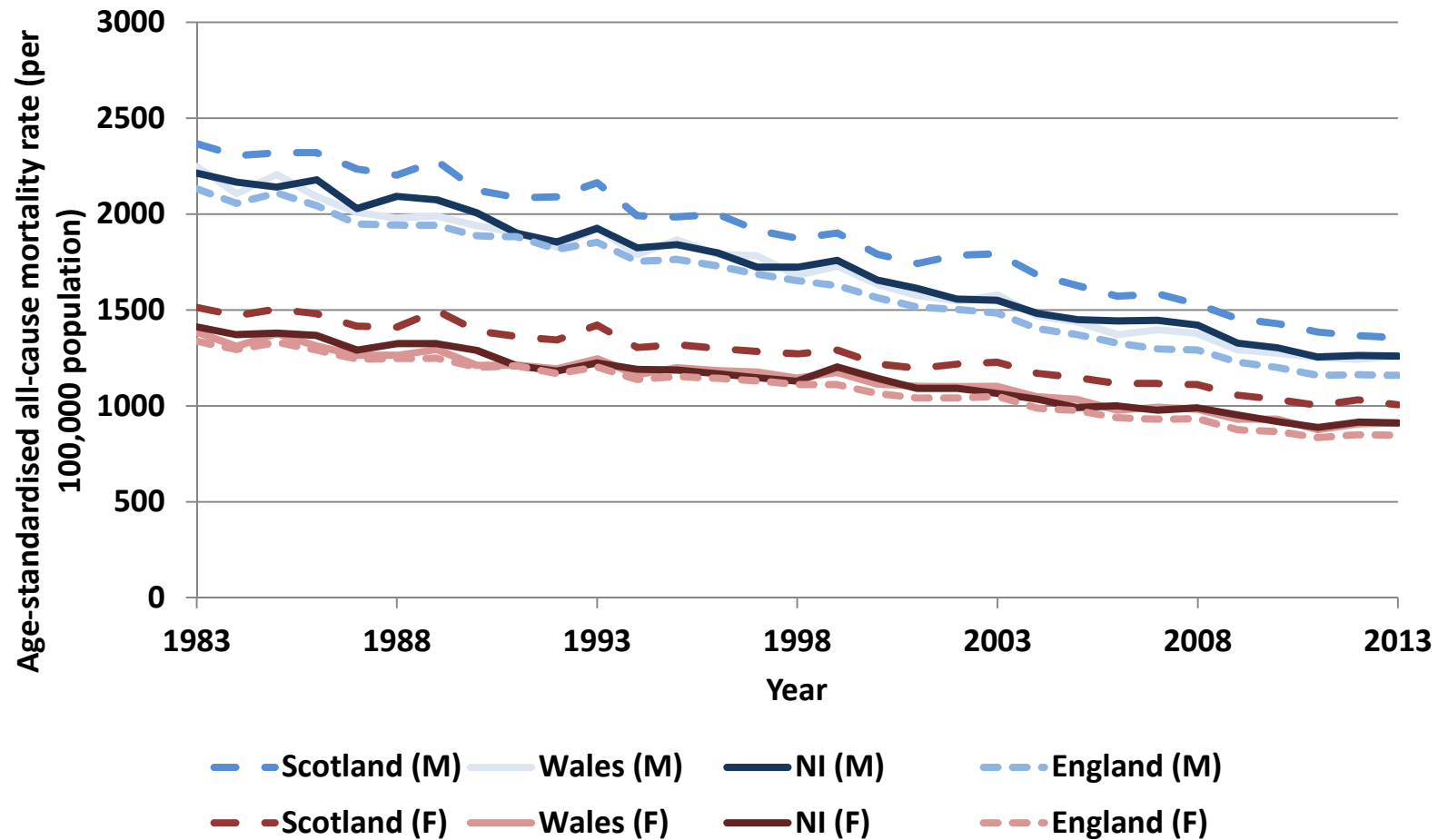
Methods (continued)

Census	Population	Years	Deaths
1981	5,178,248	1980-1982	190,252
1991	5,106,135	1991-1992*	120,497*
2001	5,062,011	2000-2002	171,592
2011	5,295,403	2010-2012	161,807

• Restructuring of postcodes in 1990

- Postcode Sector level
 - Average population in 2011: 5,233
- Carstairs deprivation scores
 - No car ownership / Male unemployment / Overcrowding / Low social class
- Population-weighted quintiles (20% of population)
 - Quintile 1: most deprived, Quintile 5: least deprived

Age-standardised all-cause mortality rates for males and females (all ages), UK



Source: Office for National Statistics

All-cause mortality rate (per 100,000 population), and % change in rate, by 15-year age bands (males)

Age	Rate	Change (%)			
	2011	81-91	91-01	01-11	81-11
0-14	38				
15-29	77				
30-44	196				
45-59	525				
60-74	2049				
75+	9830				
0-64	296	-21	-12	-25	-48

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Age	Rate	Change (%)			
	2011	81-91	91-01	01-11	81-11
0-14	38	-36	-31	-29	-68
15-29	77	-1	15	-31	-22
30-44	196	-17	17	-4	-6
45-59	525	-24	-15	-24	-51
60-74	2049	-15	-21	-29	-52
75+	9830	-9	-17	-16	-36
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Mortality rate (per 100,000), and % change in rate, by selected cause of death (males aged 0-64)

Cause	Rate	Change (%)			
	2011	81-91	91-01	01-11	81-11
IHD	46				
Stroke	9				
Accidents	12				
Respiratory	8				
All Cancers	83				
Suicide	18				
Alcohol	28				
Drugs	22				
<i>All Causes</i>	296	-21	-12	-25	-48

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Cause	Rate	Change (%)			
	2011	81-91	91-01	01-11	81-11
IHD	46	-31	-43	-41	-77
Stroke	9	-35	-29	-42	-73
Accidents	12	-34	-23	-36	-67
Respiratory	8	-37	-17	-26	-61
All Cancers	83	-9	-13	-26	-41
Suicide	18				
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Accidents	12	-34	-23	-36	-67
Respiratory	8	-37	-17	-26	-61
All Cancers	83	-9	-13	-26	-41
Suicide	18	8	34	-16	22
Alcohol	28	-1	152	-27	81
Drugs	22	27	133	31	287
<i>All Causes</i>	296	-21	-12	-25	-48

All-cause mortality rate (per 100,000 population), and % change in rate, by 15-year age bands (females)

Age	Rate	Change (%)			
	2011	81-91	91-01	01-11	81-11
0-14	29	-39	-26	-30	-68
15-29	34	-2	3	-12	-12
30-44	100	-19	-3	-2	-23
45-59	347	-20	-15	-17	-44
60-74	1377	-11	-19	-21	-43
75+	7762	-10	-9	-12	-27
0-64	186	-19	-16	-17	-43

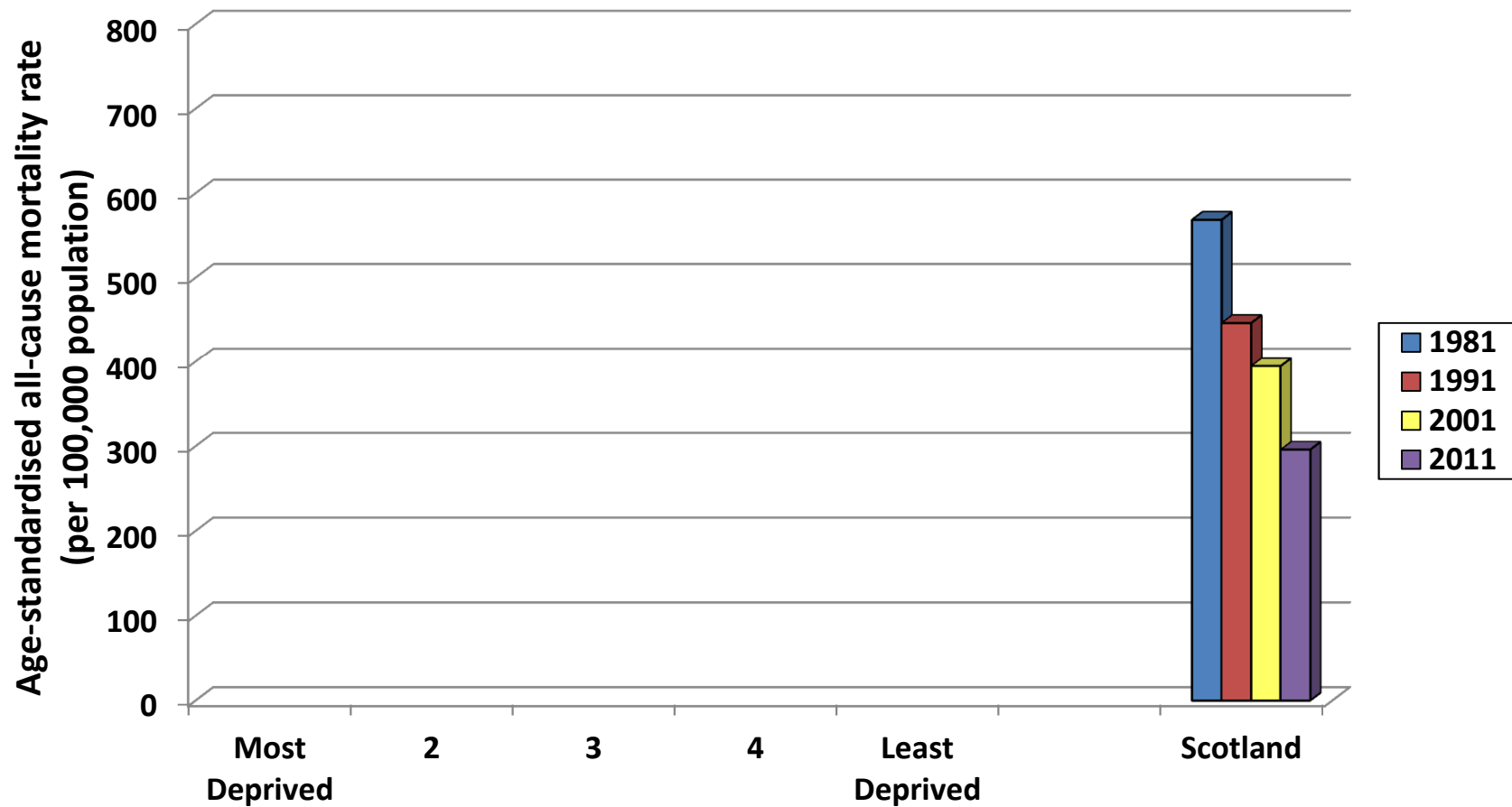
Mortality rate (per 100,000), and % change in rate, by selected cause of death (females aged 0-64)

Cause	Rate	Change (%)			
	2011	81-91	91-01	01-11	81-11
IHD	12	-25	-49	-51	-81
Stroke	7	-34	-32	-48	-76
Accidents	3	-23	-35	-39	-69
All Cancers	80	-5	-17	-14	-33
Respiratory	9	-9	-10	-3	-21
Suicide	4	-26	16	5	-10
Drugs	9				
Alcohol	13				
<i>All Causes</i>	<i>186</i>	<i>-19</i>	<i>-16</i>	<i>-17</i>	<i>-43</i>

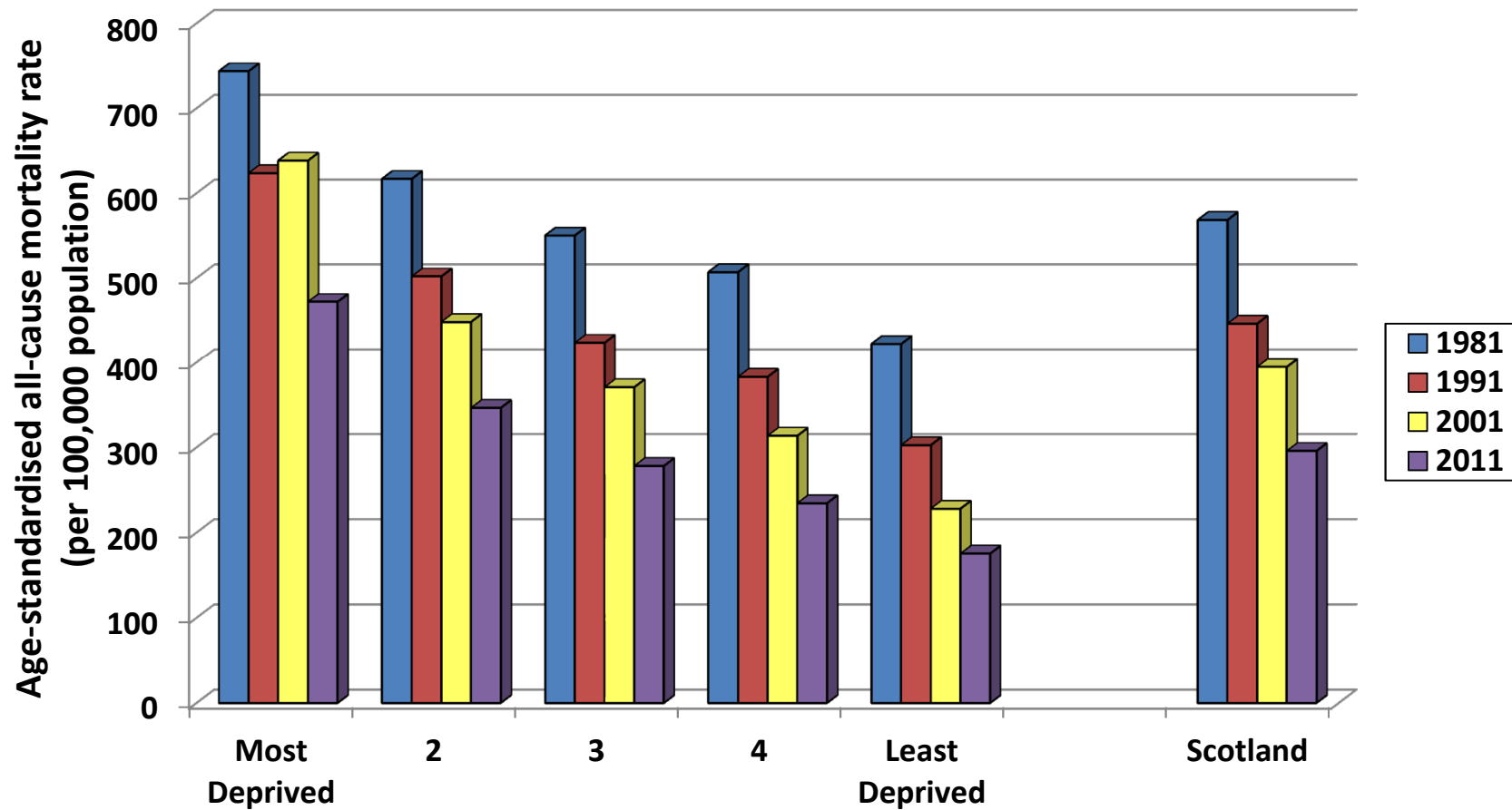
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Respiratory	9	-9	-10	-3	-21
Suicide	4	-26	16	5	-10
Drugs	9	-31	41	41	38
Alcohol	13	6	91	-18	65
<i>All Causes</i>	<i>186</i>	<i>-19</i>	<i>-16</i>	<i>-17</i>	<i>-43</i>

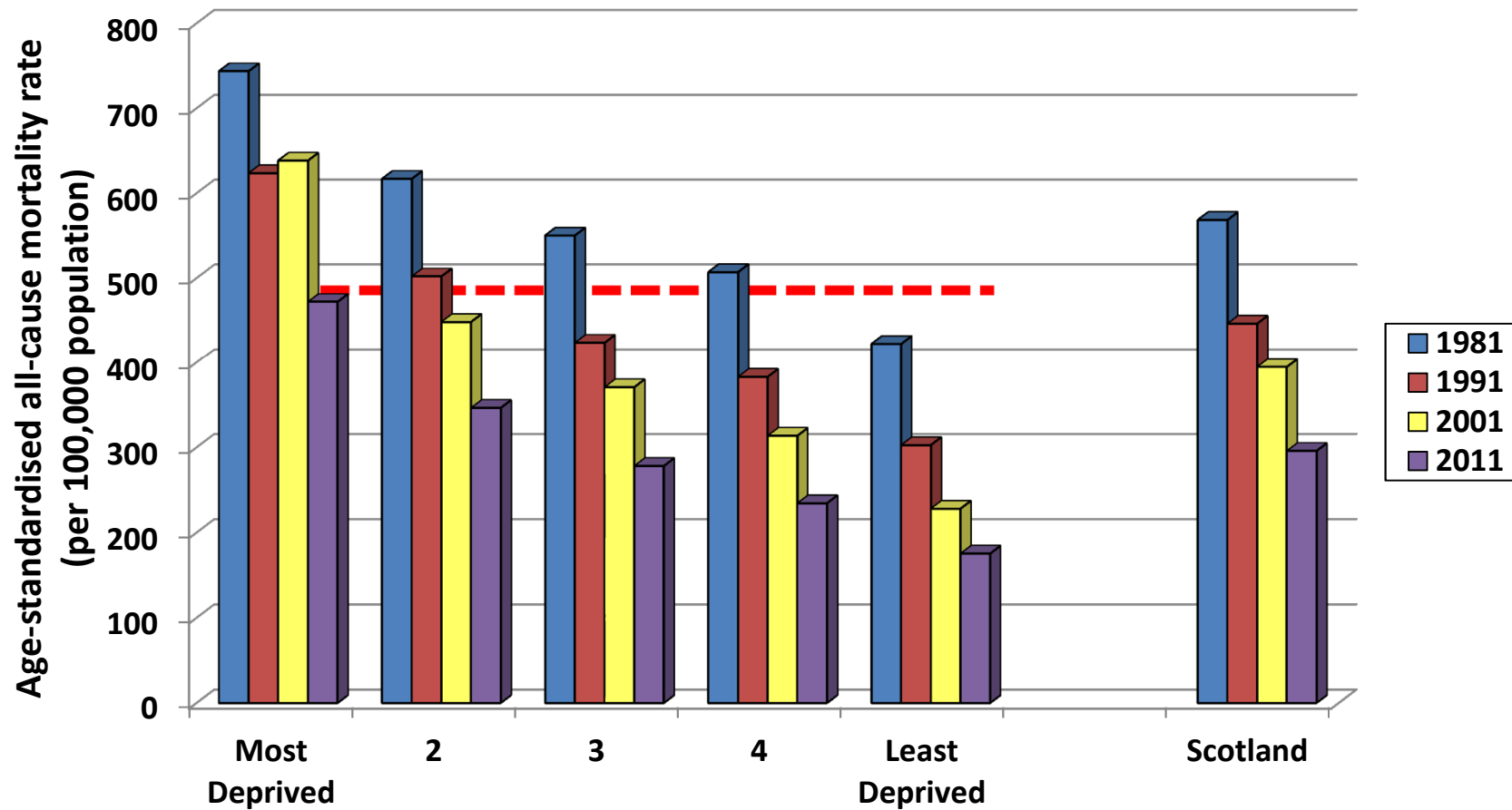
All-cause mortality by Carstairs population-weighted quintiles of deprivation 1981-2011 (males aged 0-64)



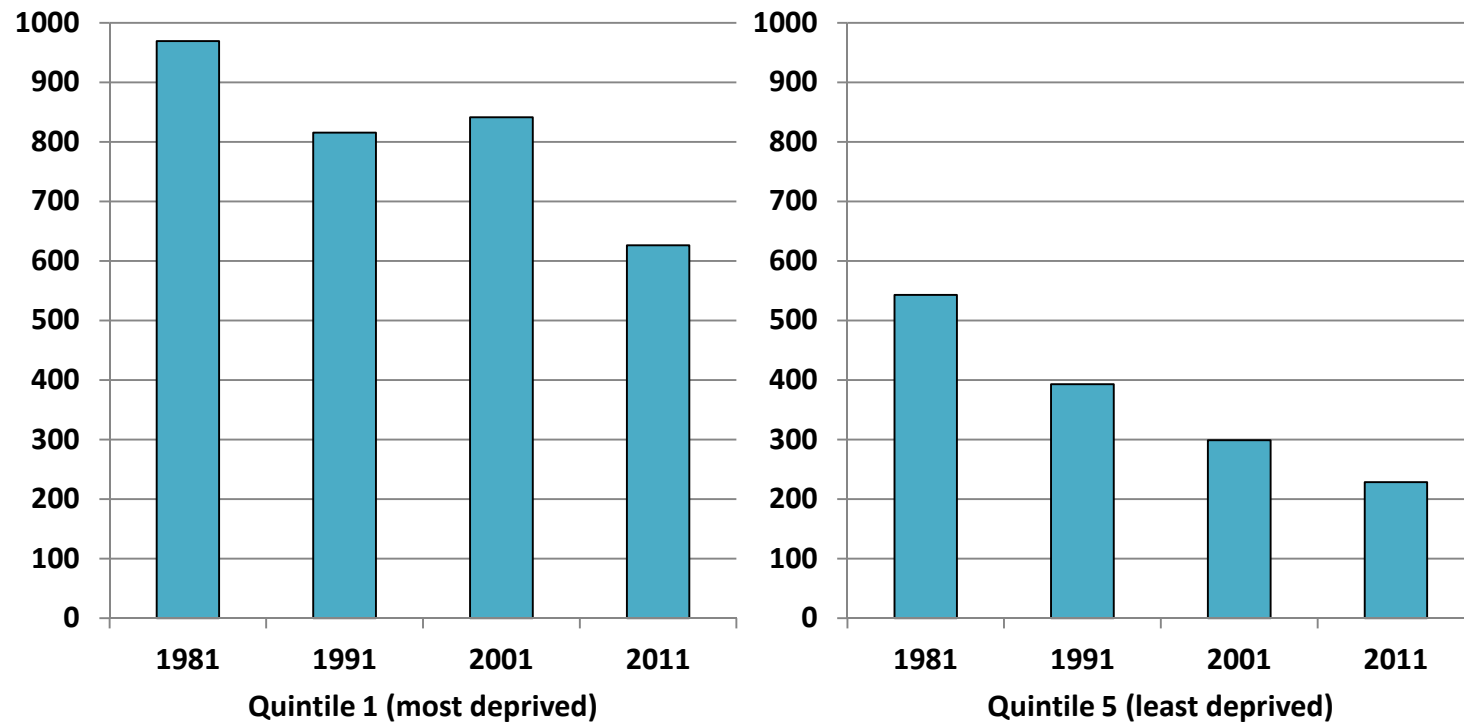
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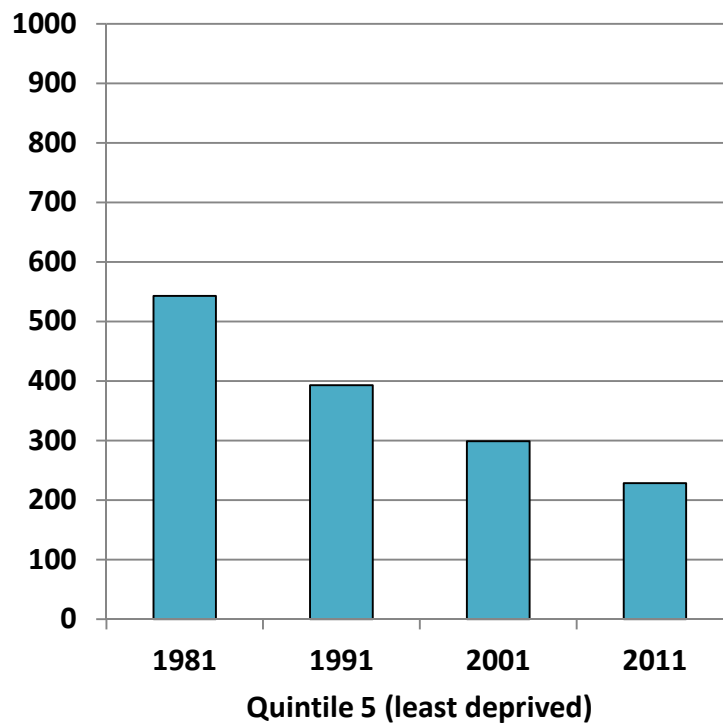
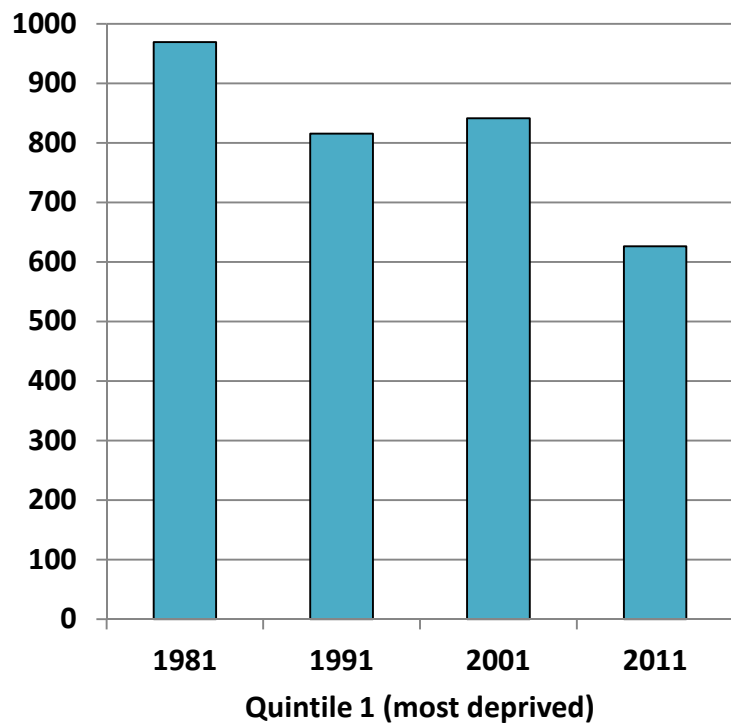
Contribution of specific causes of death (rate per 100,000), in most and least deprived quintiles (males aged 20-64)



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1981-2011: 343 per 100,000

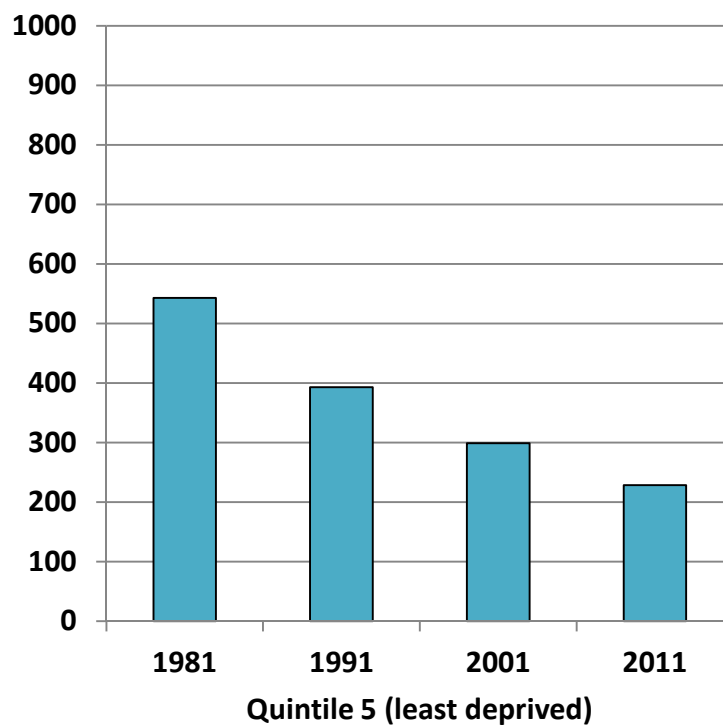
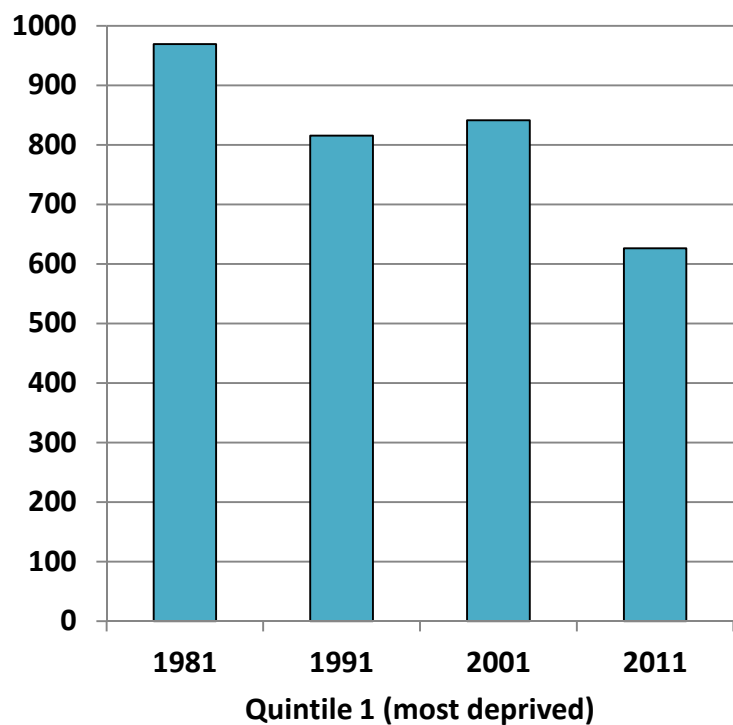
1981-2011: 315 per 100,000



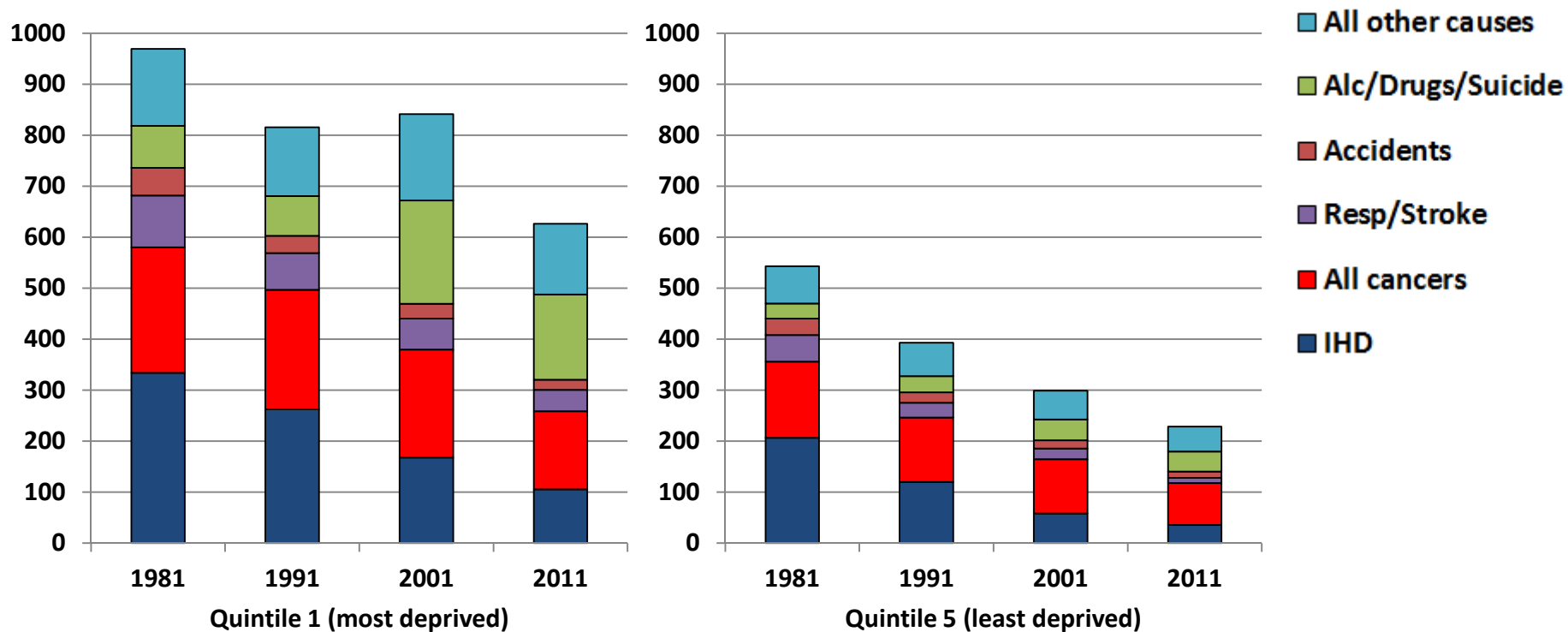
Contribution of specific causes of death (rate per 100,000), in most and least deprived quintiles (males aged 20-64)

1981-2011: -35%

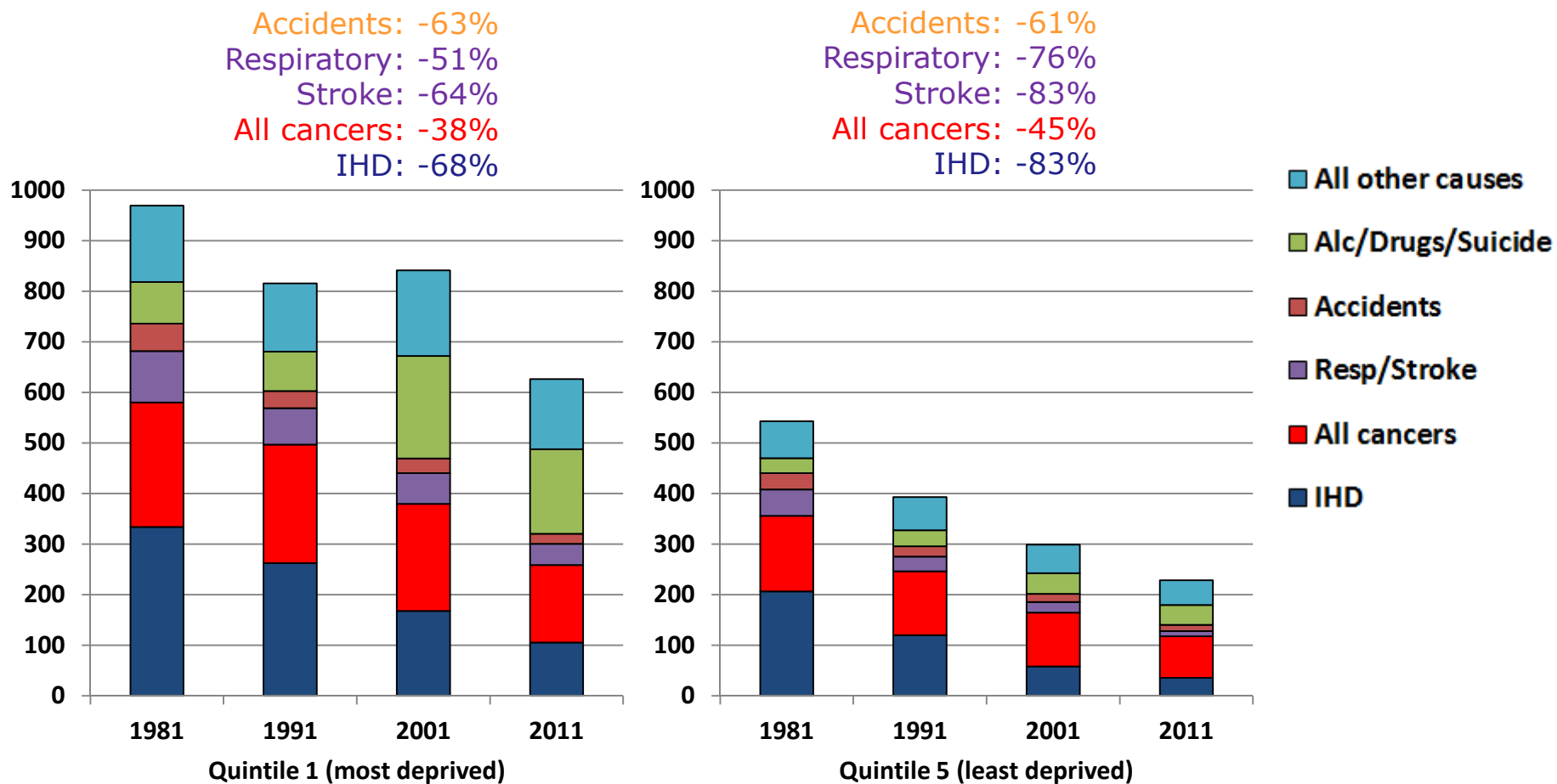
1981-2011: -58%



Contribution of specific causes of death (rate per 100,000), in most and least deprived quintiles (males aged 20-64)



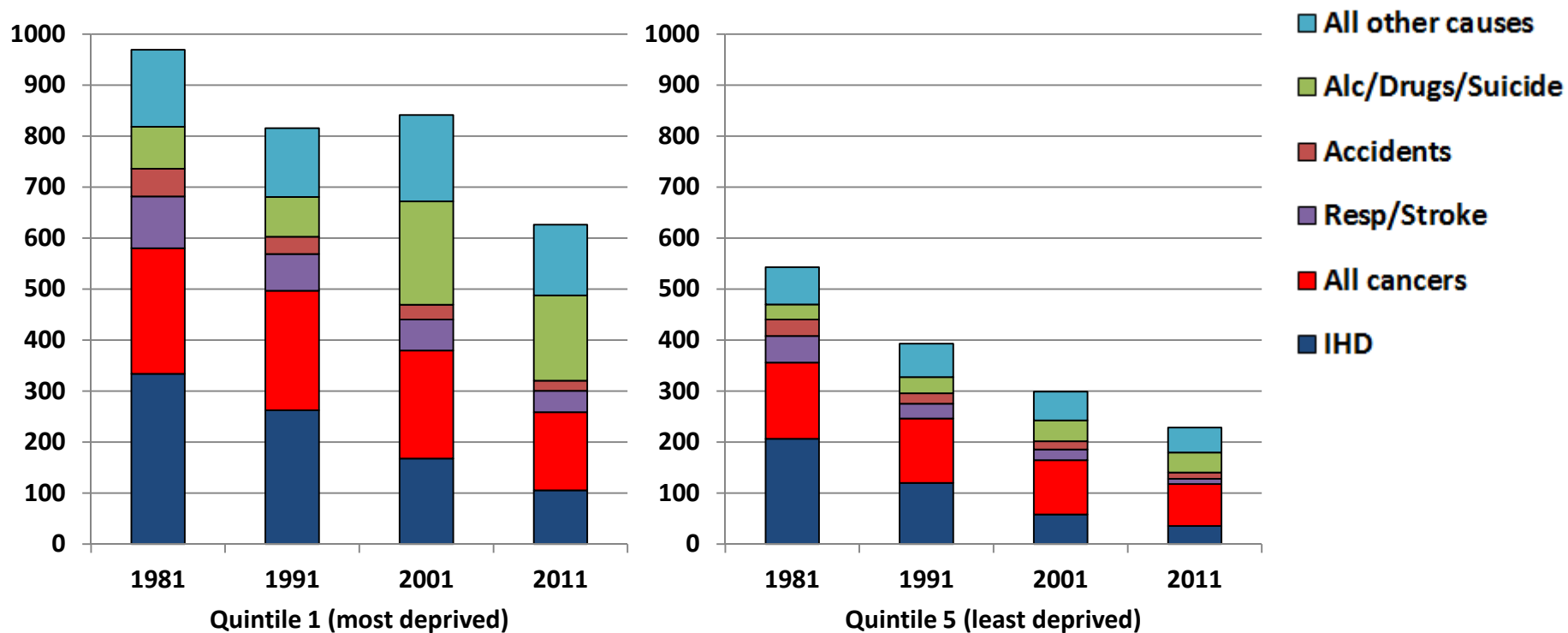
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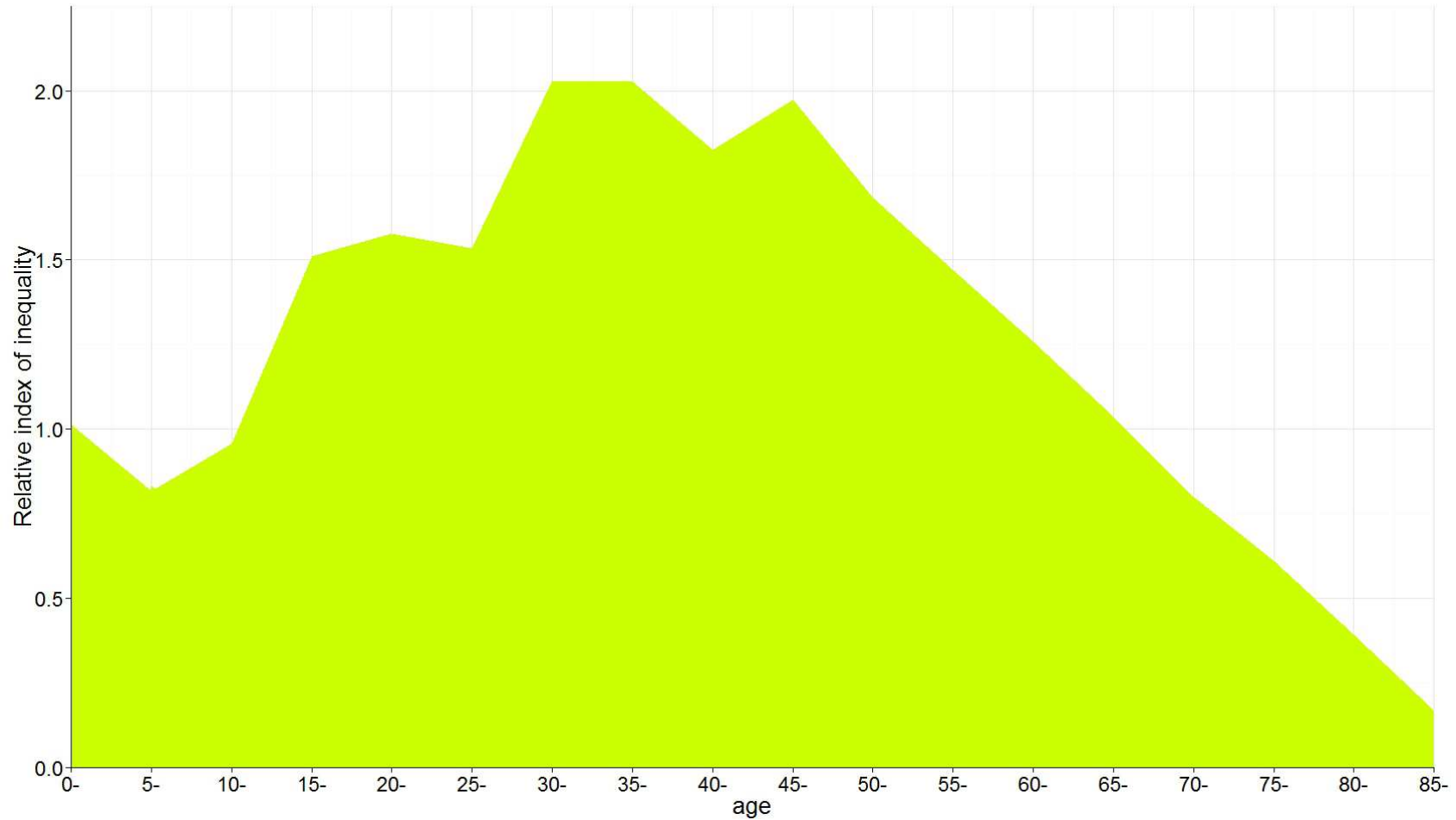
Contribution of specific causes of death (rate per 100,000), in most and least deprived quintiles (males aged 20-64)

Alcohol: 76%
 Drugs: 340%
 Suicide: 19%

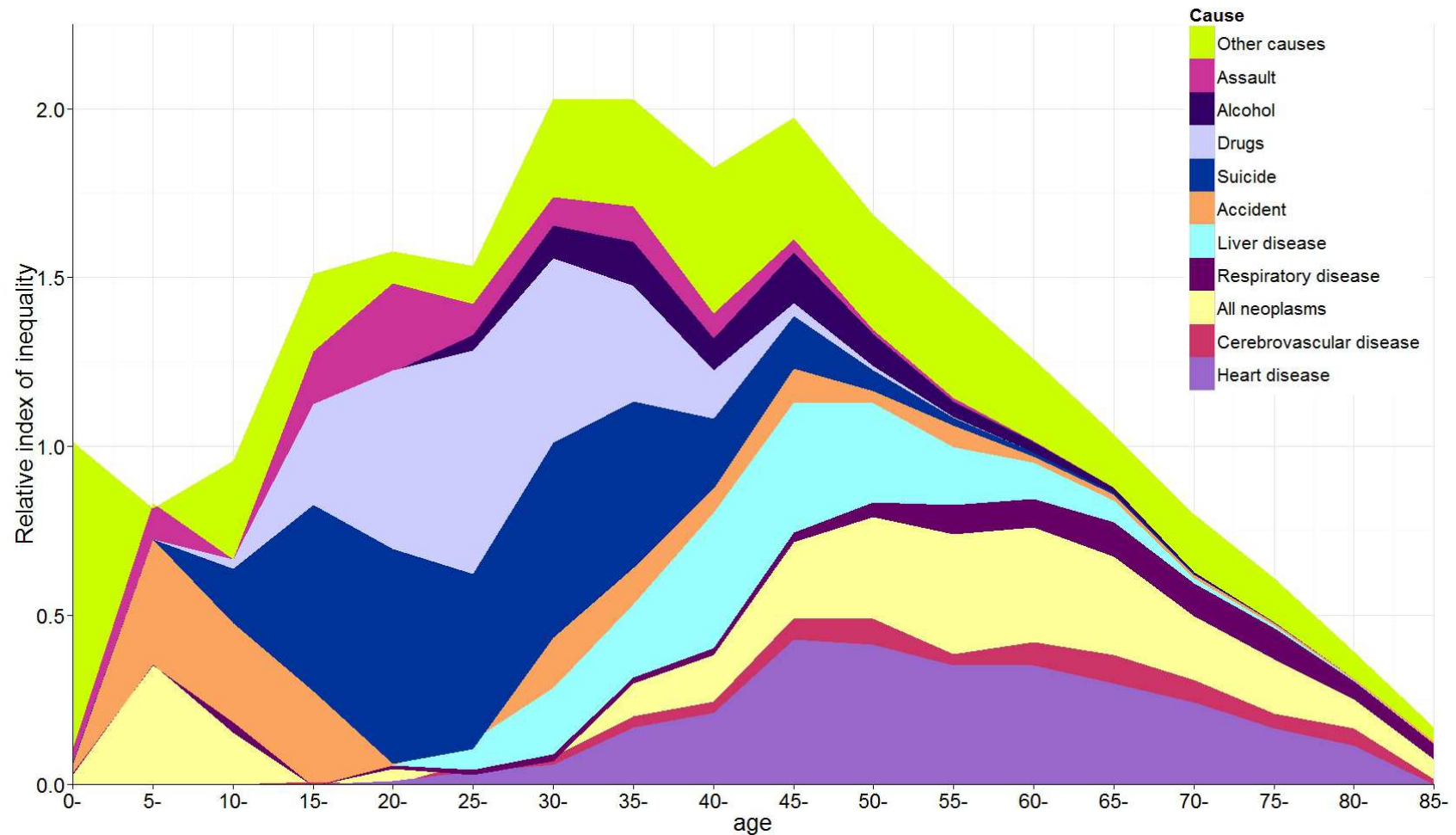
Alcohol: 29%
 Drugs: 126%
 Suicide: 4%



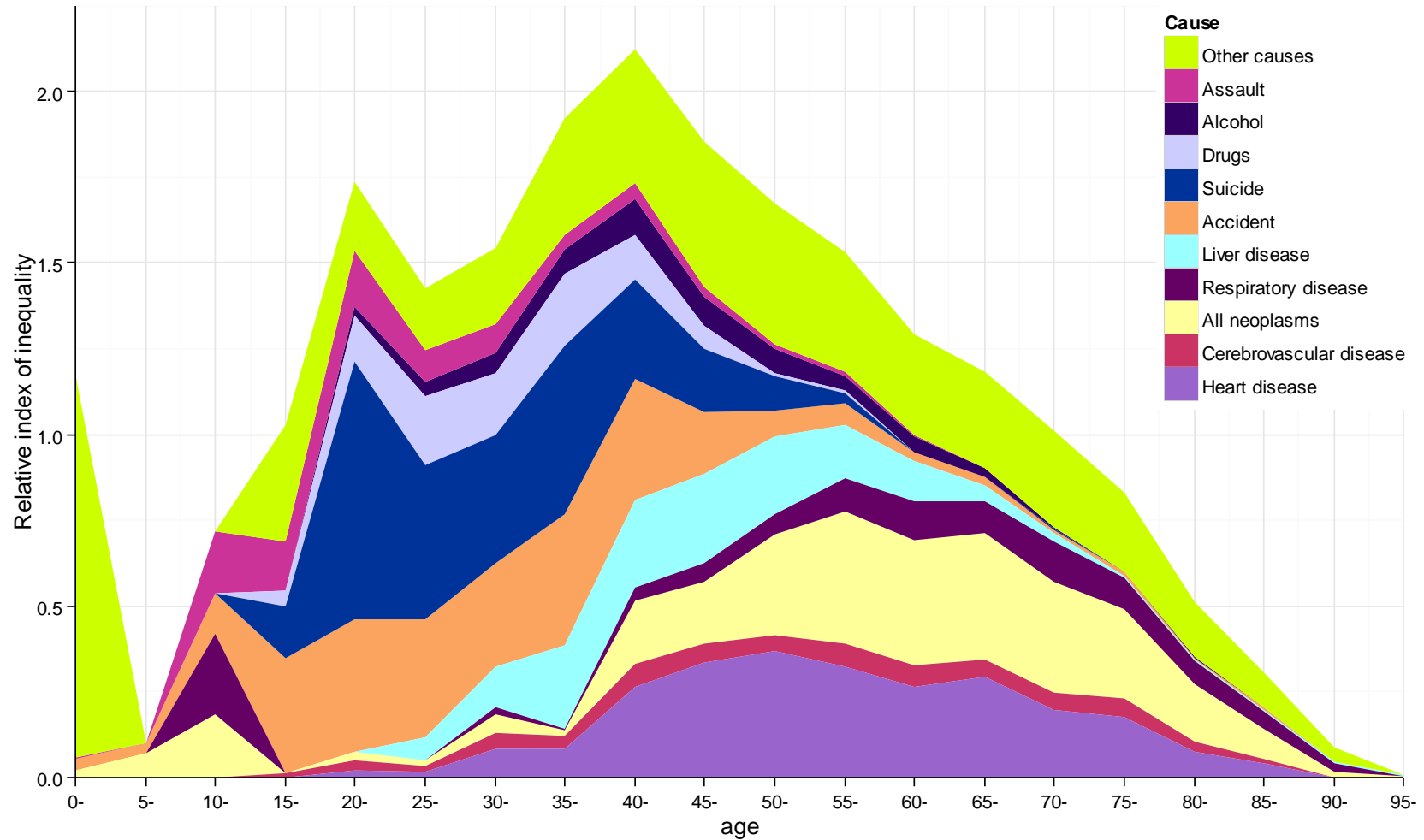
Contribution of specific causes of death to inequalities in mortality by 5-year age bands (males all ages, 2001)



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Contribution of specific causes of death to inequalities in mortality by 5-year age bands (males all ages, 2011)



Summary

- All-cause mortality rates in Scotland have declined over the last 3 decades and the gap between males and female rates has narrowed
- Males
 - Those aged 30-44 experienced the lowest rate of decline in all-cause mortality and those aged 0-14 the largest
 - IHD, stroke, accidents, all cancers and respiratory reduced
 - Suicide, alcohol- and drug-related harm increased
- Females
 - Those aged 15-29 experienced the lowest rate of decline in all-cause mortality and those aged 0-14 the largest
 - IHD, stroke, accidents, all cancers, suicide and respiratory reduced
 - Alcohol- and drug-related harm increased
 - Alcohol now at a similar rate (per 100,000) to IHD

Summary (continued)

- Rates in the most deprived quintile in 2011 greater than rates in the least deprived quintile in 1981
- Absolute change in rates 1981-2011 in Q1 and Q5 were similar
 - But all-cause mortality rates reduced by *more than half* in the least deprived areas and by only *a third* in the most deprived
 - For the causes reducing: greater reduction in the *least* deprived quintile
 - For the causes increasing: greater increases in the *most* deprived quintile
 - For females - similar but rates lower/inequalities less
- Contributions of specific causes to inequalities changed across age groups
- In 2001, inequalities for males peaked around age 30. In 2011, the peak had shifted to around age 40

Conclusions

- Mortality is declining, but inequalities in mortality continue to increase
- Rates have reduced least in the most deprived areas
- Causes of death linked to suicide and alcohol- and drug-related harm are increasing at a faster rate in the most deprived areas
- For these causes of deaths, rates are rising more quickly in young adult populations