

Emerging trends in mortality and longevity symposium 2011
Mary Hall



Mortality in Ireland in the 20th Century

14th September 2011

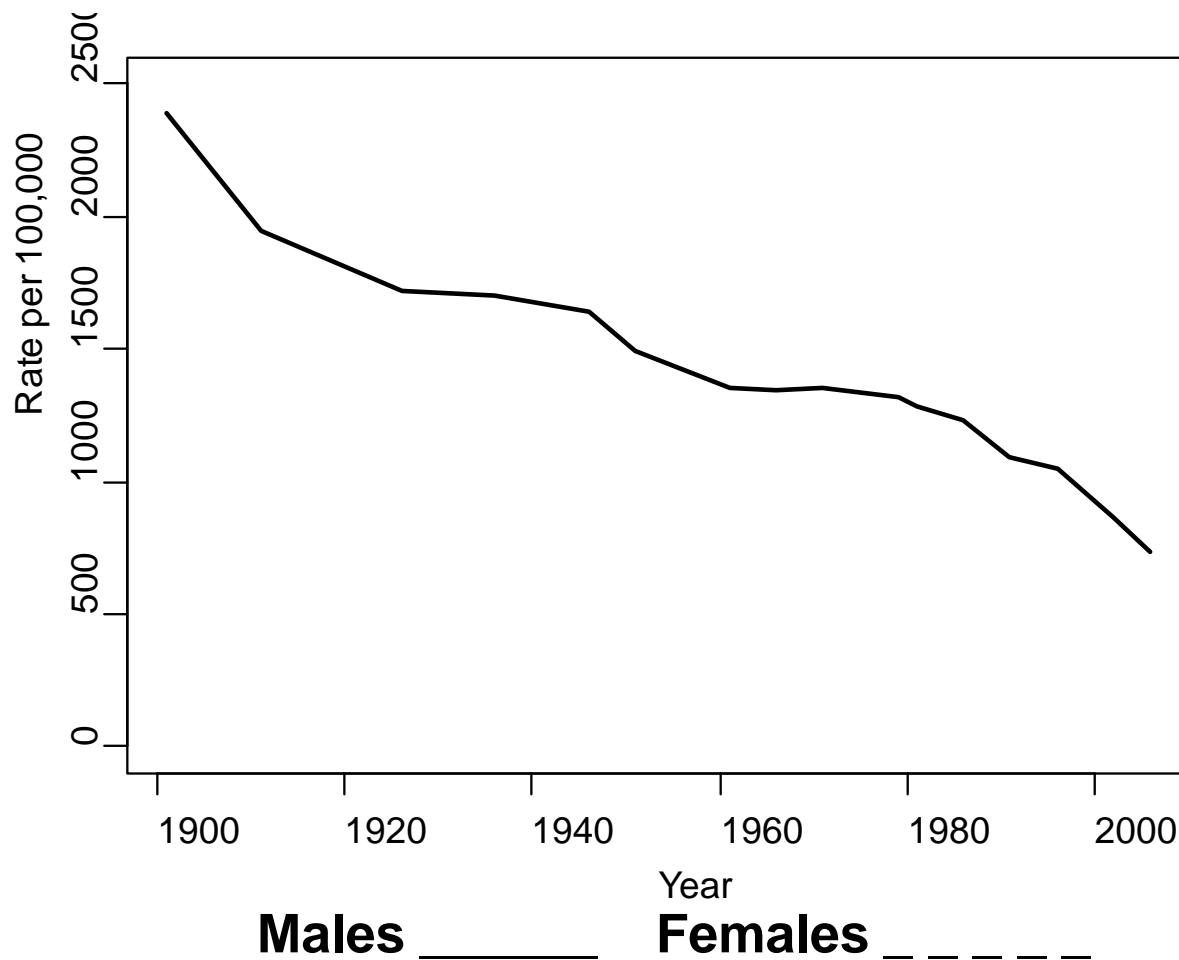
Contents

- All-cause mortality in Ireland 1901 to 2006
- Cause of death analysis in Ireland 1926 to 2006
 - Infectious Diseases - External Causes
 - Circulatory Diseases - Cancer
 - Respiratory Diseases
- Relative mortality risk
 - Northern Ireland
 - England and Wales
- Conclusions

Data and Methods

- Mortality trends analysed for census years from 1901 to 2006
- Directly age standardised mortality rates
 - Standardised to the European Standard Population
- Data
 - Ireland
 - Central Statistics Office (CSO)
 - Northern Ireland
 - Human Mortality Database (HMD)
 - Northern Ireland Statistics & Research Agency (NISRA)
 - England and Wales
 - Human Mortality Database (HMD)
 - Office for National Statistics (ONS)

Directly Age Standardised All-Cause Death Rates for Ireland 1901 to 2006

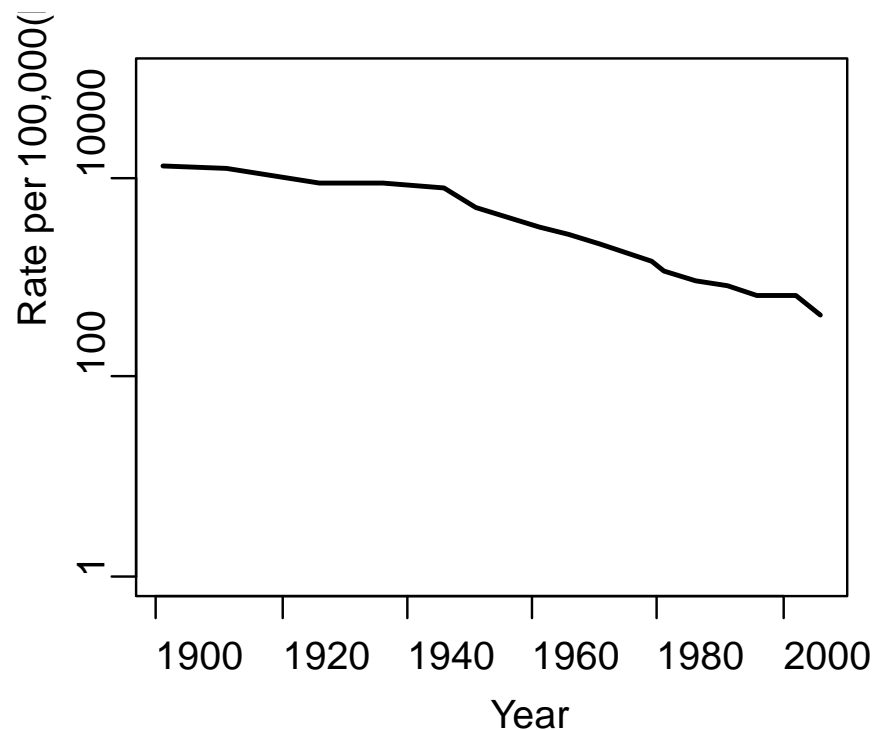


Directly Age Standardised All-Cause Mortality for Ireland 1901 to 2006

- Significant decline in standardised mortality rates
 - Males ~ 69% drop
 - Females ~ 77% drop
- Relative risk for standardised rates for males and females

Age	1901	1926	1951	1971	1981	2006
0+	1.00	1.05	1.17	1.40	1.52	1.40
0-64	1.02	1.00	1.21	1.57	1.72	1.63
65+	0.98	1.09	1.15	1.33	1.44	1.34

Directly Age Standardised All-Cause Death Rates by Broad Age Group



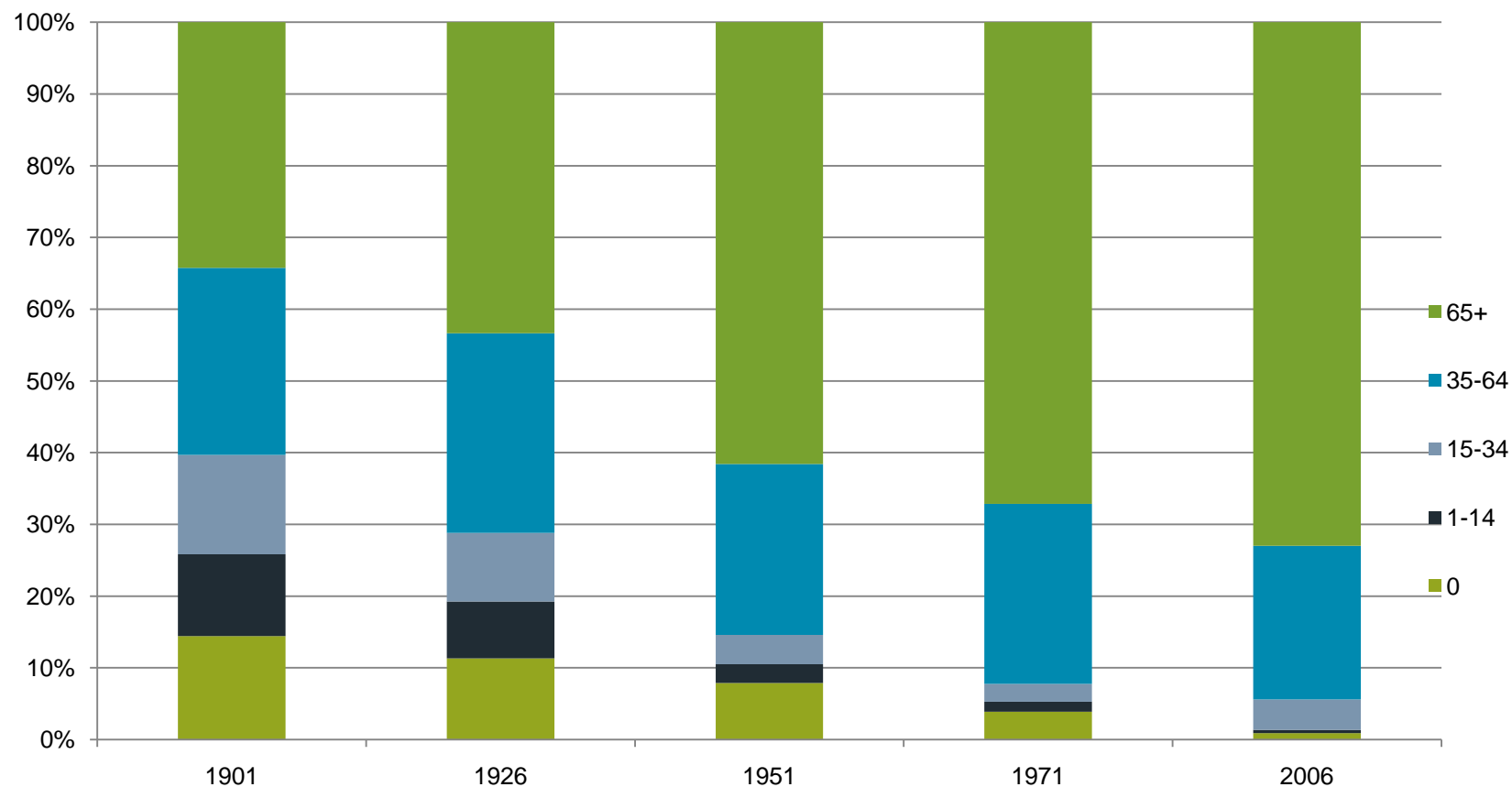
Age 0 _____ Ages 1-14 _ _ _ Ages 15-34

Ages 34-64 _____ Ages 65+ _ _ _ _

Directly Age Standardised All-Cause Death Rates by Broad Age Group

- All age groups experienced improvements in mortality
- Most significant improvements in younger age groups
- Majority of improvements in younger age groups occur in first half of 20th century
- Majority of improvements in later age groups occur in second half of 20th century

Proportion of Deaths by Broad Age Group for Males



Relative All-Cause Mortality Risk for Ireland and Northern Ireland

Males

1-14

Relative All-Cause Mortality Risk for Ireland and Northern Ireland

Females

1-14

Relative All-Cause Mortality Risk for Ireland and England and Wales

Males

1-14

Relative All-Cause Mortality Risk for Ireland and England and Wales

Females

1-14

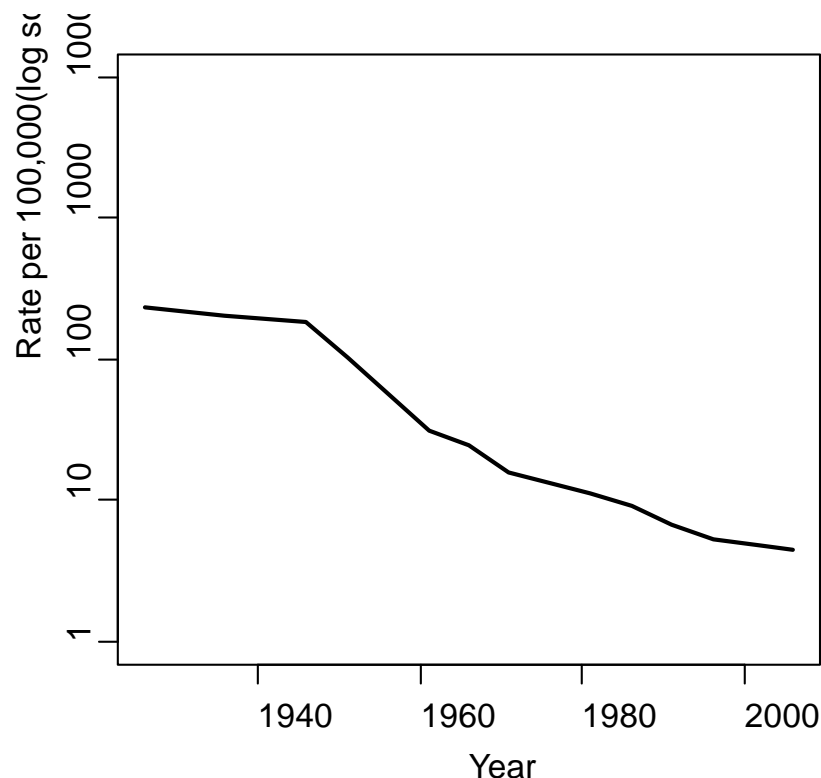
Relative All-Cause Mortality Risk

- Northern Ireland
 - Gap fluctuates over the period
 - At “All Ages” Irish females experienced worse relative mortality in 2nd half of 20th century
- England and Wales
 - At “All Ages” Irish males experienced worse mortality in 2nd half of 20th century
 - At “All Ages” Irish females experienced consistently worse mortality in 20th century
- Ireland experienced significant improvements in relative mortality in early years of 21st century.

Cause of Death 1926 - 2006

- Five major causes of death analysed:
 - Infectious Diseases
 - Circulatory Diseases
 - Respiratory Diseases
 - External Causes
 - Cancer
- Grouping by ICD (International Classification of Diseases) Codes

Directly Age Standardized Cause of Death Mortality Rates 1926 to 2006



Infectious
External

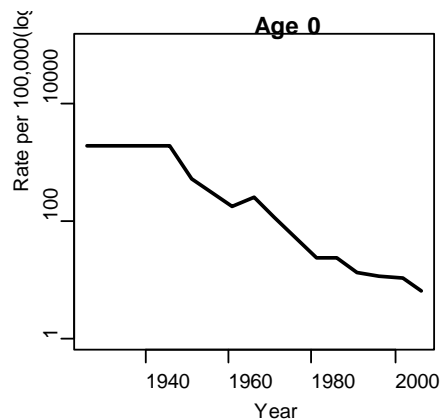
Circulatory
Cancer

Respiratory

Directly Age Standardized Cause of Death Mortality Rates 1926 to 2006

- Males and females show similar trends
- Infectious diseases show greatest drop
- Circulatory diseases and cancer primary cause of death at end of 20th century and start of 21st century

Trends by Broad Age Group - Males



Infectious _____ Circulatory _ _ _ _ Respiratory
 External _____ Cancer _ _ _ _

Trends by Broad Age Group

- Males and females show similar trends
- Age Groups 0-34
 - Dramatic drop in deaths due to infectious diseases
 - External causes now primary cause of death for ages > 0
- Age group 35-64
 - Cancer and circulatory disease primary cause of death by 2006
- Age group 65+
 - Deaths due to ill-defined" causes distort trends in 1st half of 20th century
 - Cancer and circulatory disease primary cause of death by 2006

Relative Mortality Risk By Cause of Death for Ireland and Northern Ireland

Males

Males	1951	1961	1971	1981	1991	2000
Infectious	1.33	1.35	1.24	2.14	1.98	1.83
Circulatory	0.90	0.88	0.88	0.94	1.01	1.10
Respiratory	0.90	0.85	1.04	0.96	0.88	0.90
External	0.80	0.86	0.91	0.89	1.00	1.20
Cancer	0.93	0.94	0.97	1.02	1.01	1.08
Ill-Defined	2.34	6.65	7.07	3.04	2.80	1.02

Relative Mortality Risk By Cause of Death for Ireland and Northern Ireland

Females

Females	1951	1961	1971	1981	1991	2000
Infectious	1.56	1.68	1.30	1.60	2.31	1.65
Circulatory	0.92	0.94	0.97	1.01	0.99	1.06
Respiratory	0.99	1.03	1.32	0.97	0.84	0.81
External	0.86	0.77	1.01	0.87	1.01	1.13
Cancer	0.93	1.03	1.07	1.03	1.04	1.02
Ill-Defined	2.34	6.18	6.54	3.12	2.37	0.54

Relative Mortality Risk By Cause of Death for Ireland and England and Wales

Males

Males	1951	1961	1971	1981	1991	2000
Infectious	1.76	1.60	1.79	2.31	1.37	0.99
Circulatory	0.88	0.99	1.04	1.14	1.11	1.21
Respiratory	0.76	0.64	0.91	1.01	1.39	1.10
External	0.70	0.75	1.30	1.52	1.40	1.48
Cancer	0.76	0.77	0.84	0.90	0.96	1.07
Ill-Defined	9.29	6.46	3.68	1.54	1.12	0.57

Relative Mortality Risk By Cause of Death for Ireland and England and Wales

Females

Females	1951	1961	1971	1981	1991	2000
Infectious	2.61	2.20	2.06	2.04	1.25	1.04
Circulatory	1.01	1.13	1.17	1.21	1.10	1.18
Respiratory	1.17	1.05	1.22	1.05	1.45	1.04
External	0.73	0.66	1.10	1.22	1.26	1.32
Cancer	0.88	0.97	1.03	1.00	1.00	1.05
Ill-Defined	8.56	5.34	3.12	1.54	0.77	0.25

Conclusions

- Mortality in Ireland improved significantly over the 20th century.
- Females experienced greater overall improvements in mortality.
- Irish Males
 - Typically experienced better mortality relative to Northern Ireland and England and Wales in the 1st half of 20th century
 - Relative mortality dis-improved in 2nd half of 20th century
- Irish Females
 - Experienced consistently worse mortality relative to England and Wales in the 20th Century

Conclusions

- Improvements in Irish mortality relative to Northern Ireland and England and Wales at start of 21st century.
- Cause of death changed significantly over 20th century.
- By the start of the 21st century circulatory diseases and cancer were the primary causes of death.
- Irish mortality improvements at start of 21st century mainly due to drop in deaths due to circulatory and respiratory causes.

Questions or comments?

Expressions of individual views by members of The Actuarial Profession and its staff are encouraged.

The views expressed in this presentation are those of the presenter.

