

## 006 CORONARY HEART DISEASE MORTALITY IN THE NETHERLANDS FROM 1972 TO 2007

doi:10.1136/jech.2010.120956.6

<sup>1</sup>I Vaartjes, <sup>2</sup>M O'Flaherty, <sup>1</sup>M Bots, <sup>2</sup>S Capewell. <sup>1</sup>Julius Center for Health Sciences and Primary Care, University Medical Center Utrecht, Utrecht, The Netherlands; <sup>2</sup>Department of Public Health, University of Liverpool, Liverpool, UK

**Background** Coronary heart disease (CHD) mortality has steadily declined since the early 1970s in The Netherlands. Recent work suggests that in some Western countries the rate of decline in some groups has begun to decrease and may be starting to plateau or even reverse. These changes may be a result of changes in the pattern for major cardiovascular risk factor trends.

**Methods** Data for all deaths between 1972 and 2007 in The Netherlands were grouped by year, sex, age at death and contemporaneous ICD code for CHD as cause of death. Per age-sex-group a joinpoint regression was fitted to detect points in time at which significant changes in the trends occur. For every period the linear slope of the trend, p-value, observed number of deaths (min-max) and observed CHD mortality rates (min-max) were tabulated. Furthermore we calculated the change in observed CHD mortality rate per period.

**Results** Between 1972 and 2007, the age-adjusted CHD mortality rates decreased overall by 75.6% in men and by 75.7% in women. In men aged 35–54 the decline in CHD mortality rate attenuated in the period 1993–1999 (change in CHD mortality rate in period 1980–1993: –0.53 and in period 1993–1999: –0.16). In women aged 35 to 54 the decline in CHD mortality rate attenuated in the period 1989–2000 (change in CHD mortality rate in period 1979–1989: –0.58 and in period 1989–2000: –0.02). After 1999–2000 CHD mortality rate further declined in both gender (in men change in CHD mortality rate in period 1999–2007 was –0.46, in women change in CHD mortality rate in period 2000–2007 was –0.38).

**Conclusions** Evidence from several Western countries suggests some levelling out of CHD mortality rates among younger men and women and warn that CHD mortality rates in these groups may be starting to increase. In the present study attenuation of the decline in CHD mortality among men and women aged 35–54 years has been observed starting in the mid 90s. Furthermore, we observed that after a period where the decline in CHD mortality was attenuated, an increase in the pace of decline was observed. In order to explain these recent changes in CHD mortality rates, a detailed analysis of recent changes in cardiovascular risk factors is urgently required.

## 007 ASSOCIATIONS BETWEEN MARITAL STATUS AND SURVIVAL AFTER A FIRST ACUTE MYOCARDIAL INFARCTION IN SCOTLAND, 1988–2004

doi:10.1136/jech.2010.120956.7

C A Davies, A H Leyland. *MRC Social and Public Health Sciences Unit, Glasgow, UK*

**Background** There is evidence that marriage has a beneficial effect on health; unmarried experience higher mortality and incidence of mental and physical disorders. In particular, being unmarried is associated with elevated coronary heart disease mortality.

**Objectives** Investigate the association between marital status and survival after a first acute myocardial infarction (AMI) and any trends and relationships with age, sex and deprivation.

**Design** Linked hospital discharges and death records for all AMI events from 1981 to 2004 for those aged 30+ years. Case-fatality was divided into CF0: death on day of first AMI; CF1: death in 2–28 days following first AMI; and CF2: death in 29–365 days. Area deprivation (DEPCAT) was assessed using Carstairs scores. Marital status was categorised into married, never-married/widowed and other.

**Setting** Scotland, population 5.1 million.

**Main outcome measures** Directly age standardised case-fatality rates were calculated. Odds of case-fatality by marital status, adjusting for age, sex, year, and area deprivation were estimated through multilevel logistic regression.

**Results** Between 1988 and 2004, 178 781 (48%) of the 372 349 patients with a first AMI died on the day of event, 34 198 (18%) of those surviving the day of their first AMI died within 28 days and 17 971 (11%) of those surviving 28 days after their first AMI died within 1 year. Marital status was significantly associated with each case-fatality outcome. The odds of CF0 for never-married/widowed compared to married increased over time and was strongest in 60–74 year-olds living in deprived areas—for example, OR for men aged 60–74 in most deprived areas in 2000–2004 was 2.81 (95% CI 2.65 to 2.98) and for men 30–59 was 2.43 (95% CI 2.27 to 2.60); the protective effect of marriage appeared stronger for women than is, the respective ORs for women were 3.00 (2.82–3.19) and 3.05 (2.76–3.37). The odds of CF1 by marital status increased and were strongest in younger ages—for example, OR for men aged 30–59 in 2000–04 was 1.54 (1.34–1.77) and for women was 1.45 (1.26–1.67). The odds of CF2 increased over time (OR in 2000–04 was 1.75 (1.61–1.90)) but did not differ by age, sex or deprivation.

**Conclusions** Marriage is beneficial to survival after a first AMI. This relationship differs by socio-economic and demographic circumstances. The benefits of being married may be due to stronger social support—for example, relationship with short-term case-fatality may be explained by married patients taking less time to seek medical attention and may be explained long-term by higher uptake/commitment to secondary prevention programmes.

## 008 CAUSAL EFFECTS OF COX-2 SELECTIVE INHIBITORS RELATIVE TO NON-SELECTIVE NON-STEROIDAL ANTI-INFLAMMATORY DRUGS ON GASTROINTESTINAL BLEEDING AND ACUTE MYOCARDIAL INFARCTION: AN INSTRUMENTAL VARIABLE ANALYSIS

doi:10.1136/jech.2010.120956.8

N M Davies, G Davey-Smith, F Windmeijer, R M Martin. *Department of Social Medicine, University of Bristol, UK*

**Objective** To compare ordinary least squares (OLS) and instrumental variable (IV) estimates of the effects of COX-2 selective inhibitor non-steroidal anti-inflammatory drugs (COX-2s) relative to non-selective NSAIDs (non-selectives) on incidence of gastrointestinal (GI) bleeding, and acute myocardial infarction (MI). We test the validity of the IV estimates, and compare to estimates from randomised controlled trials (RCTs).

**Design** Cohort study using administration data.

**Setting** Primary care.

**Participants** 93 562 patients aged over 65 years attending one of 104 general practices (GP) in the UK.

**Main outcomes** GI bleeding and acute MI.

**Methods** We use data from the UK general practice research database. Our outcomes are incident gastrointestinal bleeding and myocardial infarctions within 60, 120, 180 and 360 days of the first prescription. We estimate risk differences in outcomes using OLS and IVs, using physician prior prescribing as an IV, and compare them to RCT estimates.

**Results** The OLS estimates suggested COX-2s were positively associated with GI bleeds, and were negatively associated with MI. Adjusted OLS estimates were attenuated. In contrast our IV estimates imply –0.43(–1.54,0.68) fewer GI bleeds per 100 people treated with COX-2s after 180 days. The IV estimates provide little evidence, –0.55(–1.2, 1.5), of a difference in MI between treatments. These are comparable to previously published IV estimates and RCT evidence.