What is already known on this topic

Stopping smoking after a serious cardiac event is associated with a significant decrease in mortality

Up to 70% of smokers who survive cardiac surgery smoke again within a year

Intensive interventions delivered by dedicated staff can help cardiac patients not to start to smoke again

What this study adds

An intervention delivered by cardiac rehabilitation nurses within routine care during patients' hospital stay failed to increase the number who managed to stop smoking in the long term

For busy staff with competing priorities, the 30 minute intervention was also on the borderline of practicability

Patients admitted after a myocardial infarction were over twice as likely to give up than those admitted for a bypass operation

consistently because of pressure on time and competing priorities.

Overall, the results are challenging and of direct practical relevance. Advice by doctors and nurses reaches primarily light "non-dependent" smokers.[13] Patients who suffer serious health consequences of their smoking, are keen to stop, and yet carry on smoking are typically highly dependent, and single session interventions do not seem to have sufficient power to help them. In these groups, interventions comprising several sessions with specialists have been shown to be effective.[14] The new specialist smoking cessation services, which are funded by the government and are now established in all health authorities to provide intensive behavioural and pharmacological treatments should collaborate with staff on wards and include hospital patients as one of their priority target groups.

We thank the cardiac rehabilitation nurses who took part in this study and their managers for the high quality of their input. The following hospitals took part: Barnet General, Basildon, Crawley, Derriford in Plymouth, Epsom General, Greenwich District, Homerton, Joyce Green in Dartford, King's College, The London Chest, Newham General, Royal Brompton and Harefield, The Royal London, Royal Sussex County in Brighton, St Bartholomew's, St George's in London, and Whittington. We are grateful to Enid Hennessy for her advice on statistics. Tracy Thorns helped to set up and start the study, and Rachel Evans implemented a major part of it; their help was essential for this project.

Contributors: See bmj.com

Funding: NHS research and development programme on cardiovascular disease and stroke.

1 Wilson K, Gibson N, Willan A, Cook D. Effect of smoking cessation on mortality after myocardial infarction: meta-analysis of cohort studies. *Arch Intern Med* 2000;160:939-44.
2 Department of Health and Human Services (US). *The health benefits of smoking cessation: a report of the surgeon general.* Rockville, MD: Public Health Service, Office on Smoking and Health, 1990.
3 Cavender JB, Rogers WJ, Fisher LD, Gersh BJ, Coggin CJ, Myers WO. Effects of smoking on survival and morbidity in patients randomized to medical or surgical therapy in the coronary artery surgery study: 10-year follow-up. *J Am Coll Cardiol* 1992;20:287-94.
4 Rigotti NA, McKool KM, Shiffman S. Predictors of smoking cessation after coronary artery bypass graft surgery. Results of a randomized trial with 5-year follow-up. *Ann Intern Med* 1994;120:287-93.
5 Ockene J, Kristeller JL, Goldberg R, Ockene I, Merriam P, Barrett S, et al. Smoking cessation and severity of disease: the coronary artery smoking intervention study. *Health Psychol* 1992;11:119-26.
6 Taylor CB, Houston-Miller N, Killen JD, DeBusk RF. Smoking cessation after acute myocardial infarction: effects of a nurse-managed intervention. *Ann Intern Med* 1990;113:118-23.
7 DeBusk RF, Miller NH, Superko HR, Dennis CA, Thomas RJ, Lew HT, et al. A case-management system for coronary risk factor modification after acute myocardial infarction. *Ann Intern Med* 1994;120:721-9.
8 Dornelas EA, Sampson RA, Gray JF, Waters D, Thompson PD. A randomized controlled trial of smoking cessation counselling after myocardial infarction. *Prev Med* 2000;30:261-8.
9 West R, Edwards M, Hajek P. A randomized controlled trial of a "buddy" system to improve success at giving up smoking general practice. *Addiction* 1998;93:1007-11.
10 Klesges RC, Haddock CK, Lando H, Talcott GW. Efficacy of forced smoking cessation and an adjunctive behavioral treatment on long-term smoking rates. *J Consult Clin Psychol* 1999;67:952-8.
11 Stevens VJ, Glasgow RE, Hollis JF, Mount K. Implementation and effectiveness of a brief smoking-cessation intervention for hospital patients. *Med Care* 2000;38:451-9.
12 Hajek P, West R, Lee A, Foulds J, Owen L, Eiser R, et al. Randomised controlled trial of a midwife-delivered brief smoking cessation intervention in pregnancy. *Addiction* 2001;96:485-94.
13 Royal College of Physicians. *Nicotine addiction in Britain.* London: Royal College of Physicians, 2000.
14 West R, McNeill A, Raw M. Smoking cessation guidelines for health professionals: an update. *Thorax* 2000;55:987-99.

(Accepted 7 September 2001)

Excess winter mortality: influenza or cold stress? Observational study

G C Donaldson, W R Keatinge

Epidemics of influenza are associated with increases in mortality and morbidity.[1] Health professionals and the media, therefore, have often focused their attention on influenza as a cause of increased mortality and demands on health services in winter. Cold weather alone causes striking short term increases in mortality, mainly from thrombotic and respiratory disease.[2] Non-thermal seasonal factors such as diet may also affect mortality.[3] The increases in mortality are greater in London than in regions surveyed in continental Europe.[4] We used multiple regression to assess the proportion of excess winter mortality that was attributable to influenza in south east England.

Methods and results

A daily record was kept of deaths that occurred in south east England from 1970 to 1999 for all causes and for influenza. We obtained daily estimates of population by linear regression from mid-year values (17.2×10^6 in 1971 and 18.4×10^6 in 1998) and used them to calculate mortalities. We used the maximum and minimum temperature at Heathrow Airport each

Medical Sciences, Division of Biomedical Sciences, Queen Mary and Westfield College, London E1 4NS

G C Donaldson *senior research associate*

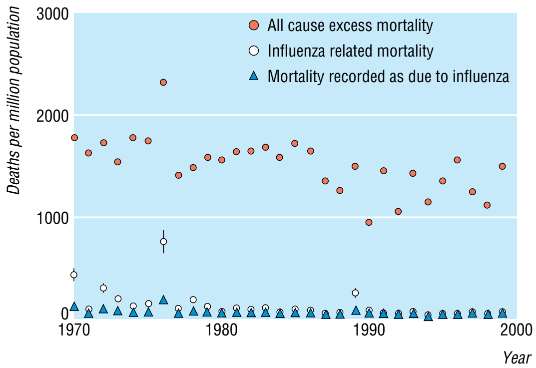
W R Keatinge *emeritus professor*

continued over

BMJ 2002;324:89–90

Correspondence to: W R Keatinge

w.r.keatinge@qmw.ac.uk



Mortality due to influenza and total excess winter mortality in south east England, 1970-99. All results are per million and the vertical bars represent 95% confidence intervals

day to obtain the mean. Temperature was lagged three days to give the steepest relation between temperature and mortality.[2] Total mortality each year related to cold was obtained as the sum of excess daily mortalities (per million). Excess daily mortalities were mortalities that occurred below the temperature—in a 3°C band—at which mortality was lowest, compared with mortality in that band. The mean temperature of the lower limit of the band over the 30 years was 19.0°C (95% confidence interval 18.2°C to 19.8°C).

Influenza epidemics cause deaths additional to those registered as being due to influenza, such as deaths caused by arterial thrombosis. Therefore, we estimated total mortality related to influenza. Daily mortality was the dependent variable; we used mean registered deaths due to influenza over the period five days before and after the index day as the explanatory variable, and temperature at three day lag as confounding variable, with a linear time trend term. The regression used daily data in the linear portion of the temperature-mortality relation (range 0-15°C), pooled for 1970-99. To eliminate autoregression[2] without distorting quantitative relations, the regression used a train of data spaced at 15 day intervals, starting 1 January 1990. The regression was repeated for similar trains starting on each consecutive day from 2 to 15 January to give 15 estimates of the mean of total influenza related mortality per recorded death from influenza. The 15 values averaged 5.1 (95% confidence interval 4.4 to 5.9) per million. We used this figure to calculate annual mortality related to influenza. Multicolinearity was acceptably low (variance inflation factor 1.02).

The annual rate of deaths caused by influenza has declined with time (figure). Mortality increased sharply during some epidemics, but even during the worst epidemic, in 1976, only 143 deaths per million were registered as due to influenza. Total influenza related deaths that year were calculated as 729 per million, less than half the total of excess winter deaths (2308 per million). Over the past 10 years, deaths registered as due to influenza averaged 5.01 per million per year, and annual influenza related deaths averaged 29.9 per million, or 2.4% (2.0% to 2.7%) of 1265 annual excess winter deaths per million.

Comment

Of 1265 annual excess winter deaths per million over the past 10 years, 2.4% were due to influenza either directly or indirectly. The decline in influenza related deaths is probably due to immunisation and to a reduction in the number of new viral strains. With influenza causing such a small proportion of excess winter deaths, measures to reduce cold stress offer the greatest opportunities to reduce current levels of winter mortality. Warm housing is important but it can coexist with high winter mortality,[5] and outdoor cold stress has been independently associated with high excess winter mortality.[4] Campaigns to reduce exposure to cold outdoors provide obvious scope for future preventive action.

The Office for National Statistics supplied mortality and population data and the Royal Meteorological Office supplied the temperature data.

Contributors: Both authors designed the study, assessed the data, and wrote the paper. GD computed the data and WRK drafted the paper. Both are guarantors for the paper.

Funding: EU Biomed grant.

Competing interests: None declared.

1 Fleming DM. The contribution of influenza to combined acute respiratory infections, hospital admissions, and deaths in winter. *Communicable Dis Pub Health* 2000;3:32-8.
2 Donaldson GC, Keatinge WR. Early increases in ischaemic heart disease mortality dissociated from, and later changes associated with, respiratory mortality, after cold weather in south east England. *J Epidem Community Health* 1997;51:643-8.
3 Khaw K-T, Woodhouse P. Interrelation of vitamin C, infection, haemostatic factors, and cardiovascular disease. *BMJ* 1995;310:1559-63.
4 Eurowinter Group. Cold exposure and winter mortality from ischaemic heart disease, cerebrovascular disease, respiratory disease, and all causes, in warm and cold regions of Europe. *Lancet* 1997;349:1341-6.
5 Keatinge WR. Seasonal mortality among elderly people with unrestricted home heating. *BMJ* 1986;293:732-3.

(Accepted 10 July 2001)

A memorable week

I found out that I had passed the MRCPsych in Washington, DC, where my friend's sister was getting married. On the wedding day I found myself being introduced as an MRCPsych person to the guests. Many were US marine and navy officers, like the bride and groom themselves. Others were members of the medical profession, including a shy psychiatrist. The rest included fascinating characters, such as a very elegant lady who was a distant relation to Edgar Allan Poe.

The MRCPsych introduction prompted many stories, the sort that start with the sentence: "I happen to know somebody that . . . ." The tales included cases of personality disorder, alcohol and substance misuse, post-traumatic stress disorder, dysfunctional families, US favourites like psychotherapies and psychoanalysis, a request to prescribe benzodiazepines here and now, and even a persistent delusional disorder characterised by a belief of repulsive body odour.

I was kept busier than in an average outpatient clinic. By then I had realised the psychiatrist wasn't shy but simply clever.

I Agell *specialist registrar in continuing care, St Luke's Hospital, Huddersfield*