This search summary contains the results of a literature search undertaken by the Lincolnshire Knowledge and Resource Service librarians in;

**January 2012**

All of the literature searches we complete are tailored to the specific needs of the individual requester.

If you would like this search re-run with a different focus, or updated to accommodate papers published since the search was completed, please let us know.

We hope that you find the information useful. If you would like the full text of any of the abstracts listed, please let us know.

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Fuel poverty and health

Fuel Poverty + Health.
A guide for primary care organisations, and public health and primary care professionals
This paper discusses:
- Physiological mechanisms
- Cold and cardiovascular disease
- Cold and respiratory diseases
- The cost to the NHS of fuel poverty
And has a very helpful table on the various conditions it induces.

Understanding the costs and benefits of fuel poverty interventions: A pragmatic economic evaluation from Greater Manchester
Commissioned by: Angela Mawle, Chief Executive, UK Public Health Association April 2011
Dr Anthony Threlfall

Fuel Poverty & Health
There is a concomitant rise in morbidity with worsening asthma and chronic obstructive pulmonary disease rates, increased blood pressure and risk of heart attack and strokes, worsening arthritis, increased accidents at home and impaired mental health. P.2
**Cardiovascular and Cold**

**Temperature and cardiovascular mortality**
1994 BMJ
Excess deaths from heart disease and stroke in northern Europe are due in part to the cold

**Cold and the risk of cardiovascular diseases. A review.**
Näyhä S.
The higher occurrence of cardiovascular diseases in winter is well known, and several explanatory mechanisms have been suggested based on increased blood pressure, haematological changes and respiratory infections. Most investigations have used ecological data such as daily temperatures recorded at weather stations and mortality in the general population. Cause-specific mortality is the outcome measure most commonly used. Local myocardial infarction community registers would offer an ideal database, but may suffer from inadequate statistical power. Hospital discharge records, linked with out-of-hospital deaths, provide a powerful tool for detecting even weak effects of temperature. The association of coronary heart disease and temperature is usually U-shaped, mortality being lowest within the range 15-20 degrees C and higher on both sides of this. The increase in mortality on the colder side is in the region of 1% per 1 degree C fall in temperature, but the increase on the warmer side may be very steep. The exact location of the minimum temperature and the magnitude of the effect can vary between countries. In Finland the winter excess mortality from coronary heart disease has been levelling off during recent decades, but it still represents approximately 6% of annual deaths due to this condition.

**Cardiovascular mortality in winter.**
Keatinge WR, Donaldson GC.
Ischaemic heart disease is the biggest single cause of excess mortality in winter, accounting for approximately half of all the excess deaths. Most of these deaths take place hours or a day or two after exposure to cold suggesting that some result from thrombosis starting during or shortly after cold exposure, although some can result from immediate reflex effects of cold, and some can occur in association with respiratory deaths which are delayed many days after cold weather. Changes in blood composition observed in the cold that may explain the rapid thrombotic deaths include increased red cell count, plasma cholesterol, and plasma fibrinogen, which are all thrombogenic. The protective protein C does not increase significantly. British data suggests that cold housing particularly affects respiratory mortality in winter, and outdoor cold exposures mortality from arterial thrombosis. A Europe-wide survey is now being run as part of the EC-funded project "Eurowinter" to assess such factors.
Excess cardiovascular mortality associated with cold spells in the Czech Republic.
Kysely J, Pokorna L, Kyncl J, Kriz B.
BACKGROUND: The association between cardiovascular mortality and winter cold spells was evaluated in the population of the Czech Republic over 21-yr period 1986-2006. No comprehensive study on cold-related mortality in central Europe has been carried out despite the fact that cold air invasions are more frequent and severe in this region than in western and southern Europe.

METHODS: Cold spells were defined as periods of days on which air temperature does not exceed -3.5 degrees C. Days on which mortality was affected by epidemics of influenza/acute respiratory infections were identified and omitted from the analysis. Excess cardiovascular mortality was determined after the long-term changes and the seasonal cycle in mortality had been removed. Excess mortality during and after cold spells was examined in individual age groups and genders.

RESULTS: Cold spells were associated with positive mean excess cardiovascular mortality in all age groups (25-59, 60-69, 70-79 and 80+ years) and in both men and women. The relative mortality effects were most pronounced and most direct in middle-aged men (25-59 years), which contrasts with majority of studies on cold-related mortality in other regions. The estimated excess mortality during the severe cold spells in January 1987 (+274 cardiovascular deaths) is comparable to that attributed to the most severe heat wave in this region in 1994.

CONCLUSION: The results show that cold stress has a considerable impact on mortality in central Europe, representing a public health threat of an importance similar to heat waves. The elevated mortality risks in men aged 25-59 years may be related to occupational exposure of large numbers of men working outdoors in winter. Early warnings and preventive measures based on weather forecast and targeted on the susceptible parts of the population may help mitigate the effects of cold spells and save lives.
Link to see graphs and images: http://www.ncbi.nlm.nih.gov/pubmed/19144206
A study of weekly and seasonal variation of stroke onset
Hongbing Wang, Michikazu Sekine, Xiaoli Chen and Sadanobu Kagamimori
International Journal of Biometeorology
Volume 47, Number 1, 13-20
A registry based study was conducted to assess the variation in first-onset stroke with weekdays and seasons, in relation to the effects of age. Between 1 December 1991 and 30 November 1998, 10,729 first-onset stroke patients aged 25 or more were registered in Toyama Prefecture, Japan. We compared the weekly and seasonal variation in first-onset stroke by a one-way goodness-of-fit chi(2)-test. The relationship between seasonal variation in stroke onset and age was also evaluated by the method of Kendall's tau-b R x C tables with ordered categories. The frequency of onset of all strokes and cerebral infarctions (CI) was significantly higher on weekdays than at weekends (P < 0.01). More men had strokes and CI on a Monday (P < 0.01), and more women had cerebral hemorrhage (CH) on a Monday and CI at the end of the week. Stroke incidence was higher in patients aged less than 60 years (20.6%) than in those aged 60 years or over (18.7%) on a Monday compared to the weekend. By chi(2)-test, comparing observed with expected numbers of stroke onsets, weighted by the number of days in each 3-month period, the incidence of all strokes, CI and CH was significantly higher in winter and spring than in summer. The seasonal variation in the onset of stroke declined with age: all strokes (P < 0.001) and CH (P < 0.001) in both genders; subarachnoid hemorrhage (P < 0.001) only in men. Our study shows that the onset of stroke is more frequent on weekdays than on weekends, and may be associated with changes in psychophysiological stresses between working days and the weekend. We also observed a clear negative dose response relationship between seasonal variations in occurrence and age. It may be speculated that younger people have more change to work outdoors, exposing themselves to the winter environment. Their lifestyle and physiological condition may be different from those of older people.

Seasonal, Weekly, and Circadian Variability of Ischemic and Hemorrhagic Stroke
Clinical Hypertension and Vascular Diseases, 2007, II, 293-308
Tudor D. Vagaonescu and Robert A. Phillips
Circadian rhythms have been recognized in many biological phenomena, including secretion of hormones, activities of the autonomic nervous system, and various cardiovascular pathologies. Transient myocardial ischemia (1,2), acute myocardial infarction (3), embolism (4), rupture of aortic aneurysms (5), sudden cardiac death (6), and death as a result of hypertension, ischemic heart disease, and cerebrovascular disease (7) have been shown to follow a certain circadian pattern; the same has been observed in the onset of stroke.
Seasonal pattern of spontaneous cervical artery dissection
Wouter I. Schievink, M.D., Eelco F. M. Wijdicks, M.D., And James D. Kuiper, B.S.
Object. The etiology of spontaneous cervical artery dissection is poorly understood; however, it may involve genetic and environmental factors. The purpose of this study was to determine whether seasonality of spontaneous cervical artery dissection exists.
Methods. The seasonal pattern of spontaneous cervical artery dissection was analyzed in a group of 200 consecutive patients (104 females and 96 males with a mean age of 44.9 years) who were evaluated using the Rayleigh test during the period from 1970 to 1990. The majority of patients resided in the midwestern section of the United States, where large seasonal fluctuations in climate occur. A circannual periodicity was found in the frequency of spontaneous cervical artery dissections with a peak occurring in October (p < 0.02). The seasonal variation was substantial, with approximately 58% more patients suffering a cervical artery dissection during autumn than during other seasons.
Conclusions. A seasonal pattern of spontaneous cervical artery dissection exists with a peak occurring in October.
The cause of the seasonality remains to be explained; however, weather- or infectious disease–related factors may provide etiological leads.
http://thejns.org/doi/pdf/10.3171/jns.1998.89.1.0101

The seasonality in heart failure deaths and total cardiovascular deaths.
Barnett AG, de Looper M, Fraser JF.
Australian and New Zealand Journal of Public Health
Volume 32, Issue 5, pages 408–413, October 2008
OBJECTIVES: To examine the seasonal pattern in heart failure (HF) and cardiovascular disease (CVD) by climate and cause of death in Australia.

METHODS: A retrospective analysis of a national database of deaths in the eight Australian State and Territory capitals between January 1997 and November 2004. We examined the seasonal pattern in HF and CVD deaths, we identified variations in the pattern by: sex, age, time, climate and cause of death (for total CVD using seven groups determined by ICD-10 code).

RESULTS: Deaths in all seven groups of CVD significantly increased in winter. The largest increase in mortality rates was 23.5% observed for HF. The magnitude of this increase varied greatly between cities, with the lowest winter mortality rates in the coldest (Hobart) and warmest (Darwin) cities. The pattern in CVD deaths showed a clearer correlation with climate than HF deaths.

CONCLUSION AND IMPLICATIONS: Winters in Australia are mild but winter increases in HF and CVD are a significant problem. Increased blood pressure and lack of vitamin D in winter are the most likely causes of the increase. Reducing exposure to cold, particularly in the elderly, should reduce the number of winter CVD deaths in Australia.
Temperature extremes and mortality from coronary heart disease and cerebral infarction in elderly Chinese
Original Text
W-H. Pan PhD * a, L-A. Li PhD b, M-J. Tsai MS c
We studied the relation between outdoor temperature and mortality rates from cardiovascular disease in Taiwan from 1981 to 1991. In 11 years, there were 30,085, 21,750, and 39,818 deaths from coronary artery disease, cerebral infarction, and cerebral haemorrhage, respectively, among 7.6 million residents aged 25 and over in selected areas where climate was recorded. A temperature-mortality relation was especially apparent in the elderly. A U-shaped relation was observed between temperature and mortality from coronary artery disease and cerebral infarction. The range corresponding to least deaths from coronary artery disease (26-29°C) and cerebral infarction (27-29°C) was higher than that in countries with colder climates. In the elderly, the risk of cerebral infarction at 32°C was 66% higher than that at 27-29°C; the risk increased by 3.0% per 1°C reduction from 27-29°C. The risk of coronary artery disease at 32°C was 22% higher than that at 26-29°C; below 26-29°C, the risk increased by 2.8% per 1°C reduction. Mortality from cerebral haemorrhage decreased with increasing temperature at a rate of 3.3% per 1°C. These results imply a pathophysiological difference between thromboembolic and haemorrhagic cardiovascular diseases. Poor thermoregulation in older people may precipitate cardiovascular disease events.

Cold and Health Generally

Cold--an underrated risk factor for health.
Mercer JB.
Cardiovascular diseases (CVD) are responsible for around 20% of all deaths worldwide (approximately 14 million) and are the principal cause of death in all developed countries, accounting for 50% of all deaths. Variations in the annual per capita death rates in different countries are well documented. Less well known are seasonal variations in death rates, with the highest levels occurring during the colder winter months, which have been described in many countries. This phenomenon is referred to as excess winter mortality. CVD-related deaths account for the majority of excess winter deaths (up to 70% in some countries), while about half of the remaining are due to increases in respiratory diseases. Paradoxically, CVD mortality increases to a greater extent with a given fall in temperature in regions with warm winters. While much of the indirect evidence points to the notion that cold is somehow involved in explaining excess winter deaths, the mechanism by which seemingly mild exposure to cold ambient conditions can increase the risk of death remains unclear. The strong indirect epidemiological evidence coupling cold climate to mortality may be related to indoor rather than outdoor climatic conditions (e.g., cold/damp houses versus warm/dry houses) coupled with a plethora of factors including health status, ageing-related deterioration in physiological and behavioral thermoregulation, toxicology, and socioeconomic factors.