Identifying people at risk of fuel poverty to prevent excess winter deaths

Improving the energy efficiency of houses may reduce winter deaths. A trust developed an algorithm to assess eligibility for winter warmth initiatives

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An analysis of excess winter deaths across the West Midlands found higher levels in the NHS Birmingham East and North area than in the rest of the region. The trust created an algorithm to identify those at risk of excess winter death and fuel poverty.

Around 3.5 million UK households suffer from fuel poverty, leaving people in homes that can seriously damage health or even cause death (Department for Environment, Food and Rural Affairs, 2008). Press (2003) defined fuel poverty as spending more than 10% of income on all fuel use. When income is below £10,000, households will face fuel poverty regardless of other determinants (Yorkshire and Humber Public Health Observatory, 2006), and it is estimated every 1% increase in energy prices takes 40,000 people into fuel poverty (House of Commons Food and Rural Affairs, 2008). Press (2003) accomplished "significant public health benefits, including a reduction in winter deaths". People with specific conditions, such as respiratory and cardiovascular disease, are particularly at risk from morbidity related to low indoor temperatures (Press, 2003).

Asthma and COPD People with asthma are two to three times more likely than the general population to live in damp homes (Williamson et al, 1997). Damp leads to growth of moulds and fungi, which can cause allergies and respiratory infections; 15% of homes report mould (Office of the Deputy Prime Minister, 1998).

EXCESS WINTER DEATHS The UK has one of the highest numbers of excess winter deaths in Europe, accounting for around 40,000 deaths a year. Excess winter deaths are the number of deaths of people aged 65 and over in the four winter months (December to March), minus the average number over during the preceding four months (August to November) and subsequent four months (April to July).

According to Fowajuh and Smith (2009), excess winter deaths are generally associated with lower temperatures, with an extra 8,000 deaths for every degree Celsius the temperature falls below the winter average. Wilkinson et al (2001) argued improving the energy efficiency of UK houses could accomplish significant public health benefits, including a reduction in winter deaths.

The cold impairs lung function and is an important trigger of bronchoconstriction in asthma and chronic obstructive pulmonary disease (Collins, 2000). Temperatures below 16°C are thought to lower resistance to respiratory infection.

Heart attacks and strokes The risk of heart attacks and strokes increases with increasing blood pressure. Blood pressure rises in older people who are exposed to temperatures below 12°C (Goodwin, 2000). In those aged 65-74, a 1°C decrease in living room temperature below 12°C is associated with a rise of 1.3 mmHg systolic and 0.6 mmHg diastolic blood pressure (Woodhouse et al, 1993).

NHS BIRMINGHAM EAST AND NORTH During routine health improvement monitoring in 2008, NHS Birmingham East and North (NHS BEN), was reported as having a high excess winter deaths index (EWDI) than other trusts in the West Midlands. An investigation was carried out to determine the cause of this variation. EWDIs were calculated for specific age groups and specified seasacategories using the World Health Organization’s International Classification of Diseases (ICD 10). The analysis by Parsons (2009) showed: The high level of excess winter deaths in NHS BEN were not because the catchment area had a larger older population, as predicted;

CASE STUDY: ‘THE NEW BOILER HAS MADE A WORLD OF DIFFERENCE TO MY ARTHRITIS’ William Clegg (not his real name), aged 72, lives in Birmingham with his wife Mary. He has arthritis and bronchitis. The central heating in their home had a history of breaking down and it eventually stopped working. The cold temperatures in the home were exacerbating his health problems.

Mr Clegg’s local council neighbourhood office referred him to npower’s Health Through Warmth scheme to see if he could receive any help towards replacing his boiler. As a result, he had a new boiler installed. This cost £2,532, and payment was split equally between Mr Clegg and the npower Health Through Warmth crisis fund.

Mr Clegg said: “I’m extremely grateful for the help I have received. “The new boiler has made a world of difference to my arthritis; the rooms heat up really quickly and the house is much more comfortable now it’s warm. “The new boiler is really reliable and I now have the peace of mind that I can keep my home warm, particularly in the cold winter months when my arthritis is at its worst.”

PRACTICE POINTS

I People move in and out of fuel poverty – it is a dynamic process.
I Anyone who spends more than 10% of their income on keeping warm is in fuel poverty.
I Energy efficiency measures can help reduce the risk of fuel poverty.
I The algorithm can be used to help nurses identify individuals who could benefit from winter warmth interventions.

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EWDIs for many of the ICD 10 chapters were considerably higher in NHS BEN than in the region as a whole; In NHS BEN, neoplasms, nervous system, circulatory, respiratory and digestive ICD 10 codes accounted for 85% of excess winter deaths.

**THE ALGORITHM**

Following this analysis, the health improvement directorate of the PCT developed an algorithm of eligibility to help reduce fuel poverty and improve winter warmth (Fig 1), for use by a range of health and social care professionals within the PCT. Referral is third party only so the algorithm needed to be easy and quick to use by a range of busy practitioners.

The algorithm was to be used, in the first instance, by the trust’s telephone based long term condition care management service, Birmingham Own Health (BOH). This service offers a personalised, multilingual programme of healthcare support for people in Birmingham who have a range of long term conditions. It is delivered over the telephone by a team of care managers, who are principally nurses, physiotherapists and occupational therapists.

The service helps patients, known as members, to take better control of their condition and stay as healthy as possible. Each care manager is dedicated to specific GP practices. They build and maintain ongoing relationships with members, giving support, motivation and information. As part of routine care, the algorithm is used to identify any issues with home heating. The care manager helps individuals to:

- Better understand their own medical condition;
- Gain skills and knowledge to make positive lifestyle changes that can benefit their condition and health;
- Correctly follow treatment as prescribed by their GP; and
- Understand how to engage and use local NHS services more appropriately and effectively.

The algorithm lends itself to use in a variety of settings and by a range of staff.

**NPPOWER HEALTH THROUGH WARMTH**

The algorithm was developed in partnership with npower Health Through Warmth, a practical scheme that works in partnership with local, regional and national agencies (www.healththroughwarmth.com). In use in 15 areas of England and Wales, it aims to help vulnerable people whose health is adversely affected by cold and/or damp living conditions by helping install energy efficiency and heating measures. The case study (opposite) illustrates how the case study has helped one family.

**DISCUSSION**

The plan this winter is to extend the use of the algorithm in a targeted manner to include patients on GP COPD registers and other vulnerable adults.

Analysis of EWDI for NHS BEN in 2007-08 showed a significant reduction in excess winter deaths. It is not possible to say whether this is a direct result of the algorithm, but it may have contributed to its improvements observed. Feedback from npower Health Through Warmth referrals and anecdotal accounts suggest initiatives like this are valued. Day and Hutchings’ (2009) research demonstrates the importance placed on heating in both low and high income groups. They suggested in many cases older adults would sacrifice other expenditure to ensure they could keep warm.

**CONCLUSION**

Ensuring warmth at home is a critical part of integrated care and could help lessen the winter pressure on the NHS.

**REFERENCES**