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Nursing and climate change: An emerging connection



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Received 5 May 2013; received in revised form 26 September 2013; accepted 28 October 2013

KEYWORDS

Nurse education;
Public health;
Sustainability;
Fossil fuels;
Renewable energy;
Advocacy

Summary Awareness of the importance of climate change to public health has been growing. Calls for health professionals, including nurses, to take action to prepare for, and mitigate, climate change have been coming from a number of credible sources. This paper will assist nurses to recognise the health consequences of climate change, to generate and disseminate knowledge about these health consequences, to be active in mitigating emissions locally and within their organisations and to advocate and have input into policy processes. It is valuable for nurses to understand the health co-benefits of emission mitigation and the current health costs of fossil fuels. As advocates for evidence-based public health initiatives, nurses have a role to play in communicating to the public and to policy makers accurate information, including about the health costs of fossil fuel policies and the affordability of renewable energy technologies.

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Climate change has major implications for health (Campbell, 2008). These health implications have been discussed in four series of articles in the *Lancet* (2007, 2009a, 2009b, 2010), a special issue in the *American Journal of Preventive Medicine* (2008) and in other medical, nursing and health journals (for example, Afzal, 2007; Barna, Goodman, & Mortimer, 2012; Haines & Patz, 2004; Mayner & Arbon, 2010; Mayner, Arbon, & Usher, 2010; Polivka, Chaudry, & Mac Crawford, 2012; Sayre, Rhazi, Carpenter, & Hughes, 2010; St Louis & Hess,

2008; Voelker, 2009). The health impacts of climate change that these sources discuss include: increased transmission of disease; greater incidence of extreme weather events including droughts; sea level rise with inundation of infrastructure, living areas and food growing areas; reduced food production; shortages of food and clean water; mass migrations as populations seek to leave affected areas; strains on government finances and structures (due in part to decreased income and increased costs to repair infrastructure and take care of displaced people); and conflict over water and food (Costello et al., 2009; McMichael, Woodruff, & Hales, 2006; WHO/UNFCCC/CBD/UNCCD, 2011). The Australian Nursing Federation has called for nurses to engage in

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strategies to reduce the impact of climate change (Reale, 2009) and momentum is growing globally for nursing involvement (Barna et al., 2012). However, nurses often report feeling ill-equipped to address the issue and health impacts of climate change (Polivka et al., 2012). This situation has prompted a call for nurse educators to prepare future registered nurses for their role of addressing the impact of climate change as a public health issue (Barna et al., 2012; Goodman, 2011; Sayre et al., 2010). Some institutions have responded, for example Flinders University developed a programme specifically addressing disaster nursing and associated research (Mayner & Arbon, 2010), but greater response is needed. The purpose of this paper is to provide nurses, including nurse academics and nurse leaders, with background information to assist them to prepare for the increasing impact climate change will have on public health and to play a role in the mitigation of that impact.

The emissions trajectory of the world is such that the effects of climate change are likely to be worse than those anticipated by earlier reports of the Intergovernmental Panel on Climate Change (Costello et al., 2009; Richardson et al., 2009). While limiting global temperature increases to 2 °C above pre-industrial levels is often referred to as the 'guardrail' against dangerous climate change, a 2012 World Bank report (Potsdam Institute, 2012) states that current policy settings are driving the world towards a 4 °C increase. The message of the World Bank report is that, since a 4 °C rise would likely bring changes beyond that to which institutions (including health systems) could adapt, this level of warming must be avoided.

Rather than only producing effects that will occur sometime in the future, climate change has been having significant effects for some time now. The World Health Organization (2013) asserts that over 150,000 deaths per year can currently be attributed to climate change, through increased disease transmission, increased malnutrition and extreme weather events. Menne and Bertollini (2005) state that 35,000 additional deaths occurred due to the 2003 heat wave in Europe. However, the greatest health impacts of climate change are on the poorest and most vulnerable communities worldwide (Campbell, 2008; Homer, Hanna, & McMichael, 2009).

Nurses, and hence nurse academics engaged in curriculum design and education, have an important role in anticipating and responding to the direct and indirect health effects of climate change (Haines et al., 2007; Horton, 2009; St Louis & Hess, 2008). As Sayre et al. (2010, p. 334) argue, "Climate change needs to be reframed as a public health issue, and the importance of nurses to be educated and engaged cannot be overstated." This assertion for nurses to be involved in what are often perceived as political issues when they impact health is not new. Almost thirty years ago, nurses were urged to become involved in what was then also a global health risk, the proliferation of nuclear weapons (Jameton & Jackson, 1984). Nurses have joined other health professionals with the aim of preparing for climate change effects and acting to mitigate these effects. For example, the Climate and Health Council (CHC, 2013) with 4800 members (as of March, 2013) was established: "to enable health professionals around the world to take personal and collective action against the causes of climate change..." (Roberts & Stott, 2010, pp. 4–5).

The actions that nurses can take, with the support of pre-registration and continuing education, are of several types (for discussions of actions beyond the scope of this article, see Sayre et al., 2010 and the website of the Climate and Health Alliance, <http://caha.org.au/>). Because of their trusted place in the community (Afzal, 2007; Gill & Stott, 2009; Sayre et al., 2010), nurses can have an influential role through sharing information about the health effects of climate change. Nurses can also research the health effects of climate change to generate new knowledge about these effects and how they can be managed (McMichael et al., 2006). For example, nurse researchers can study how to manage increases in the transmission of diseases such as salmonellosis, expected to increase with each degree temperature rise above 5 °C (Menne & Bertollini, 2005), or how continuity of health services can be maintained in disasters such as that faced by New York with Superstorm Sandy (Redlener & Reilly, 2012). Nursing education can assist practitioners to develop a 'local eco-medical literacy', an ability to recognise the influence on health conditions of local ecological effects of climate change, as Bell (2010) describes with medical education. As the evaluation research of an innovative train the trainer health education programme states: "There are multiple benefits – health, financial, reputational and environmental – for health professionals and health services to take a lead on sustainability" (Charlesworth, Madden, Capon, & Engelhard, 2011, p. 3) The greatest proportion of the health professional workforce are nurses (AACN, n.d.; ANF, 2011) and they can also act within their organisations and communities to bring about lower emissions from service provision and community ways of life, for example through 'energy efficiency' (Kats & Capital, 2003; Wilkinson, Smith, Beevers, Tonne, & Oreszczyn, 2007; Wilkinson et al., 2009).

Energy efficiency is "about avoiding energy waste and using less energy to achieve the same outcomes" (New South Wales Auditor General, 2013, p. 23). Energy efficiency includes initiatives such as increasing the insulation of buildings, using more efficient models of equipment, installing highly efficient lighting or planning transport trips in ways that lessen the number of trips and distance travelled. Energy efficiency is considered one of the most cost-effective forms of emission abatement, as savings from decreased energy use often pay off the cost of energy efficiency investments within a few years (McKensy & Co., 2009; Ürge-Vorsatz & Metz, 2009). Given that the energy use of the health sector can constitute over 20% of public sector emissions and over 50% of the total building energy use of state government (Pencheon, Rissel, Hadfield, & Madden, 2010), energy efficiency in the health sector can be significant and lead the way for the business and wider community.

Advocacy is another important, perhaps crucial, health strategy that nurses can use to work towards significantly affecting health outcomes (Barna et al., 2012; Coote, 2006; Frumkin, 2011; Haines et al., 2007; St Louis & Hess, 2008). In an Australian report, Gruszyn, Hetzel, and Glover (2012) describe how the success of major health reforms of the 20th century that challenged existing players was dependent in large part on advocacy; for example, banning smoking in public places; banning products containing asbestos; making the use of seat belts compulsory; and setting and monitoring blood alcohol limits for drivers. The mobilisation of groups

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