

CARE PROVISION FIT FOR A FUTURE CLIMATE

Climate change is expected to result in hotter, drier summers with heatwaves of greater frequency, intensity and duration. The implications for older people in care homes are serious, as they are vulnerable to negative health effects from excessive heat. This study examined how far care settings in the UK are fit for a warming climate, and considered the care sector's preparedness, drawing on four case study schemes.

Key points:

- The prevalent perception was that 'old means cold', associated with providing warmth as part of good care services. There was less recognition that excessive heat also presents a health risk.
- There was a mismatch between overheating risks predicted in climate modelling and those measured through environmental monitoring. Climate modelling indicated limited overheating risks to the 2050s, but environmental monitoring revealed occurrences of overheating in care schemes already in 2015.
- Lack of standardised overheating criteria and thresholds across the built environment and health sectors causes confusion. It hinders development of long-term resilience strategies in care schemes to combat heat-related illness and death and improve comfort during hot weather.
- The case studies lacked effective heat management because of design and management issues, including: unwanted heat gains from pipework, lack of investment in long-term strategies to tackle overheating (e.g. external shading), conflicts between cooling strategies and occupants' requirements, and separation of roles in care organisations creating confusion over responsibilities in managing heating controls.
- Awareness of the health risks that heatwaves pose to older occupants needs raising. Better preparedness and adaptation strategies require input from designers, development teams and care home staff, plus support through enhanced regulations, standards and guidance from care sector bodies and government departments.

The research

By the Low Carbon Building Group of Oxford Brookes University, with the University of Manchester and Lancaster University.

MAY 2016

BACKGROUND

Climate change is expected to result in hotter, drier summers, with more intense and longer heatwaves. This has serious implications for heat-related illness and death for older people in care homes, as they are vulnerable to the negative health effects of overheating. This study examined UK care schemes' preparedness for a warming climate, including four case-study schemes and a stakeholders' workshop.

Culture of warmth

The prevalent perception throughout the care sector was that older people feel the cold. While cold is still a more prevalent health risk, there was less recognition that heat also presents a significant risk. As a result, the design, commissioning and management of care schemes have focused on providing warmth. Regulatory practices also prioritise warm environments.

Mismatch between modelling and monitoring

Disparities emerged between the overheating risks predicted in climate change modelling and those measured through environmental monitoring across the case studies. Climate modelling indicated limited overheating risks to the 2050s, but overheating as a major concern by the 2080s. By contrast, environmental monitoring revealed occurrences of overheating already during summer 2015 across all four schemes. Overheating risks were more pronounced in one south of England site, despite it being built more recently with consideration of climate change.

This emphasises the need to monitor temperatures across care settings, and provide feedback to management, staff and residents to identify occurrences of overheating and support timely remedial action.

No single overheating definition for the care sector

There is no statutory maximum internal temperature for care schemes. The sector has guidance on (outdoor) threshold temperatures at which heat-related deaths may increase, such as 24.5°C in the Public Health England (PHE) *Heatwave Plan for England* (2015). However, apart from the *Heatwave Plan* indication of keeping at least one room in care schemes below 26°C to provide a 'cool area', there is a lack of guidance or standards for indoor temperatures at which overheating occurs, and the level of associated health risks. The building sector has several overheating methods with different indoor temperature thresholds. These focus on comfort rather than health risks.

Some overlap exists between threshold temperatures in building sector guidance (e.g. Chartered Institution of Building Services Engineers *Guide A: Environmental Design 2015*) and health-related guidance (as in the PHE *Heatwave Plan*). However, evidence is lacking on overheating thresholds for the care sector and older people. This, combined with inconsistency in overheating methodologies, can lead to confusion and lack of understanding of how to identify overheating, and when and where health risks may occur.

Factors hindering effective heat management

Care facilities are both work and living spaces. Hence residents and staff showed a wide range of perceptions of comfort, which could create conflicts in terms of controlling heat and ventilation. In all case studies, the heating was on throughout the summer, with inadequate control of indoor temperatures even during hot weather.

Factors hindering effective heat management:

- Lack of design for overheating. Regulatory and cultural notions concerning heating in the care sector mean that innovative design solutions for overheating are not commonplace. Where considered, they are often compromised because of other priorities such as practical, spatial and care requirements. The tendency is to design single-aspect rooms lacking through-ventilation.

- Gaps in communicating knowledge of operating heating and ventilation systems, and how design and energy-efficiency measures may impact on overheating risks. These occur from scheme design to handover and through to day-to-day operation.
- Conflicts between the design of passive cooling strategies, and residents' quality of life and regulatory issues. For example, health and safety requirements such as restricted window openings hinder ventilation, while keeping blinds closed during the day is feasible only in unoccupied rooms.
- Centralised heating and hot water systems. These contribute to buildings overheating if pipework is poorly designed, or localised controls are not installed and used.
- Lack of investment in long-term measures to tackle overheating, such as external shutters and shading.
- Confusion about how heating and ventilation systems work and whose responsibility it is to turn them on or off. Separation of roles, with building management and maintenance teams often based off-site, can create confusion over responsibilities for managing heat and cooling. A lack of urgency among care staff in operating heating controls also inhibits action.
- Conflict between residents' preferences and what is best for their health and comfort, especially where residents have cognitive frailties. As dementia is likely to become increasingly common, the balance between providing accessible, user-operable controls and automated controls will become more critical.
- Ingrained habits of carers and residents. These can result in inflexibility in adapting eating or bathing routines during hot weather.

Lack of awareness and long-term strategies

There was general lack of awareness of the impacts of overheating and the prevalence of current and future overheating risk, from designers to frontline care staff and residents. This was reflected in prioritisation of other care requirements and needs, and the lack of long-term strategic planning for mitigating and adapting to overheating risks. Planning for future overheating was not 'top of the agenda', since providers tend to plan for the near future. They do not anticipate climate change effects being large enough to impact on operations within the next 30 years or so.

All the care managers interviewed were aware of the PHE *Heatwave* plan, which offers guidance on how to prepare for and respond to heatwaves. Awareness was lower among frontline care staff, although they knew some measures. Most of these were short-term reactions, such as hydration, lighter clothing and mobile electric fans, rather than proactive longer-term measures (such as shading) and strategic responses (e.g. cool rooms). Care managers found it impractical to provide cool rooms because of a lack of suitably large rooms and the difficulties of moving older residents.

Conclusion

Overheating risks are likely to be exacerbated because of climate change. Yet there is little awareness and implementation of long-term strategies to provide adaptation methods and increase resilience within the care sector. Such strategies require input from designers, care home commissioners and development teams, asset/service managers, and care home managers and staff. They also need support, through focused regulations, standards and guidance, from key national care sector bodies and government departments. Most urgently, however, the care sector needs a culture change, to prioritise the health risks of excessive heat alongside those from cold.

Recommendations

National policy-makers and practitioners need to:

- challenge the culture of warmth and increase awareness of the current and future risks of climate change and overheating in the care sector;
- promote best practice in design and management to enable resilience and adaptation;
- share insights from case studies which have experienced and tackled heatwaves with those involved in designing, managing and using care homes.

National policy-makers need to:

- develop detailed guidance on temperature monitoring for minimising heat risk in the care sector;
- develop and implement an overheating detection protocol for raising awareness and early identification of overheating risks using smart sensors and surveys during summer in buildings with vulnerable occupants, and promote it in the *Heatwave Plan*;
- standardise health-related and thermal comfort-related overheating thresholds, particularly for care settings;
- consider preparedness for climate change as a health risk within the care sector and how care-related policies and procedures address this risk;
- integrate preparedness criteria for overheating and other climate change risks with implementation of the *Heatwave plan for England* into care sector inspection arrangements;
- undertake monitoring in hot weather to provide evidence on the scale of the problem, when health effects occur, and the take-up of guidance.

Practitioners need to:

- improve resilience and promote awareness of overheating in the care sector through: monitoring and minimising overheating risk; adopting heatwave plans, combining PHE guidance with actions for the local setting (short-term responses and longer-term solutions); and briefings/training for care managers and staff to address managing overheating risk generally and within their specific setting;
- support communication and greater clarity over staff roles and responsibilities for operating heating and ventilation systems in care homes, as well as other responses by site management and maintenance staff, care scheme managers, frontline care staff and residents;
- ensure that design of care facilities covers climate change impacts, for example location, orientation and other physical measures to reduce solar and internal gains and avoid future overheating problems.

About the project

The study comprised a literature review and research in four case studies (two residential care and two extra-care settings) in England, covering climate change modelling, design features analysis, monitoring of temperatures, semi-structured interviews with designers, managers, care staff and residents, and a workshop with key stakeholders.

FOR FURTHER INFORMATION

This summary is part of JRF's research and development programme. The views are those of the authors and not necessarily those of JRF.

The full report, *Care provision fit for a future climate* by the Low Carbon Building Group of Oxford Brookes University, with the University of Manchester and Lancaster University, is available as a free download at www.jrf.org.uk

Read more summaries at www.jrf.org.uk
Other formats available
ISBN 978-1-910783-59-7

Joseph Rowntree Foundation
The Homestead
40 Water End
York YO30 6WP
Tel: 01904 615905

email: publications@jrf.org.uk
www.jrf.org.uk
Ref: 3209