

Health Equipment and Fire Risk

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Community Safety

Home Fire Safety Visits and the Risks Associated with Types of Health Equipment

What is the Problem?

There have been several fire related incidents involving health associated equipment such as oxygen cylinders, air flow pressure relieving mattresses, emollient creams and incontinence pads, these incidents have led to serious injuries and fire fatalities.

The main causes of these incidents are smoking related, including careless disposal of cigarettes and related smoking materials. But elsewhere in the UK incidents have included one caused by a hot hairdryer placed on an air flow mattress, and another by a television which caught fire resulting in melted plastic falling onto the air flow mattress.

Home Oxygen Treatment

Home oxygen treatment, also known as home oxygen therapy, involves patients storing oxygen cylinder(s) or a concentrator machine in their home. Oxygen supports combustion, if a fire occurs in an area where high concentrations of oxygen are present, the consequences can be devastating. Although many patients receive oxygen every day without incident, when associated with smoking the risk of fire increases and as a result injuries occur. Historically, when a patient has a fire and is burnt as a result, often the Brigade are not called to attend and are therefore not notified of the incident. This can be due a number of factors a) the fire was extinguished by the patient/family member, and they feel the Brigade is not needed, b) the patient is too embarrassed to alert the Brigade and, c) the patient deliberately does not report the incident as they have previously stated to health professionals that they no longer smoke. Proactive work is underway by the Brigade to increase awareness of fire risk to health practitioners, including the heightened risk associated with smoking and home Oxygen use. This work demonstrates the need for a vigorous risk assessment to be undertaken for all patients prescribed oxygen for home use. Patients considered as high risk should be immediately referred for a home fire safety visit. Some health partners are also giving consideration to not prescribing Oxygen until a patient has engaged with smoking cessation services so as to further reduce risk.

What are:

a) Dynamic Air Flow Pressure Relieving Mattresses?

Dynamic Air Flow Pressure Relieving Mattresses (and *overlays* placed on top of standard mattresses) are provided for prevention and treatment of pressure ulcers (bedsores) to people who spend extended periods of time in bed, or are bedbound, due to illness and impaired mobility. The mattresses/overlays are often used in hospitals or in-patient settings but are also provided in the home environment including care homes. The mattresses/overlays are filled with air by a pump. For the purpose of this document the term mattress will also include overlays.

These mattresses are used by people who spend extended periods of time in bed or are bedbound. This means that if a fire starts or smoke detection activates, the individual using the bed is unlikely to be able to respond/escape without assistance.

A tell tale sign of an air flow pressure relieving mattress is a pump connected to the main electricity supply. There is usually a corrugated plastic pipe leading to the mattress.

b) Emollient Creams

People confined to bed often have dry skin and are therefore treated with emollient (moisturising) creams. Home oxygen users are also prescribed emollient creams as use of the nasal cannula can result in soreness and dry skin. Health partners have previously been advised that these creams can increase a patient's risk of fire as they are primarily paraffin based but non-flammable creams are also available at the same cost.

c) Incontinence Pads

The flammability of incontinence care products is an increasing concern across the UK. The London Fire Brigade has attended a number of fatal incidents involving the elderly and immobile who smoke, and incontinence pads have featured as a contributory factor. A category has now been added to information management systems within the London Fire Brigade, in order to monitor and record the number of incidents involving incontinence pads as the first item of ignition.

Fire Safety Advice

Smoking near home oxygen equipment, air mattresses, emollient creams and incontinence pads increases fire risk considerably.

Oxygen will intensify a fire, but when in compressed form, it also presents a significant explosion and shrapnel hazard. With the involvement of any oxygen equipment, the fire is likely to develop more rapidly. If the person has health and mobility issues, they are less able to react to a fire, this increases the chance of injury or death.

Typically in incidents associated with air flow mattresses when fires started, air was released, the mattress was punctured by the fire effectively fanning the flames and causing it to spread more quickly and intensely. Should the mattress pump fail a battery back-up cuts in and the pump continues working. If a fire should occur, if it is safe to do so, the power supply should be isolated by turning off the pump.

Individuals using paraffin-based emollients should be advised to keep away from fire or flames as dressings and clothing soaked with the ointment can be easily ignited. Bedding, including bottom sheets, can become impregnated with emollient creams, therefore increasing its flammability and reducing their effectiveness.

Incontinence pads are often stored in bulk and are kept next to/near to where a resident spends most of their time i.e. next to a bed/chair. These products must be kept away from naked flames at all times and stored well away from areas where a patient smokes. The use of additional fire retardant materials should be considered. E.g. fire retardant bedding, blankets or night clothes.

Those carrying out HFSVs should ensure that individuals using any of the health equipment and those who are responsible for the individuals care should receive advice and education on the fire risk associated with each item of equipment.

Key Messages are;

Keep all items away from ignition sources, these include:

- Cigarettes, pipes and e-cigarettes
- Matches and lighters
- Candles
- Fires and heaters

If an individual smokes:

- Do not smoke in bed or where you may fall asleep i.e. a cosy armchair
- Do not use an e-cigarette in bed
- Store incontinence pads away from furniture where a carelessly discarded cigarette or match could fall onto the them.
- Use a deep ashtray placed on a stable surface, within easy reach.
- Use fire retardant bedding/blanket/nightwear.
- Deposits of paraffin based emollient cream on fire retardant bedding can reduce their effectiveness, use non-flammable emollient creams
- Consideration should be given to installation of domestic sprinklers and linking smoke detection to a telecare system (refer to HFSV Referral Matrix - <http://www.london-fire.gov.uk/Documents/HFSV-referral-matrix.pdf>)

Electrical items:

- Don't have electrical equipment in the vicinity of an air flow mattress e.g. TV over the bed
- Don't use electric blankets in combination with an air flow mattress
- Don't have fires and heaters in the vicinity of the bed/mattress
- Don't place hot items, such as hairdryers or heated hairstyling appliances, on the bed/mattress
- Don't overload plug sockets
- Ensure essential electrical items are maintained, and switched off and unplugged at the mains when not in use

Further risk reduction measures:

Monitored smoke detection covering all areas of risk, fire retardant bedding and potentially sprinklers should all be in place but if not London fire Brigade crews will carry out a HFSV and fit smoke detectors to lower the immediate risk.

London Fire Brigade crews will then refer this high risk individual as a serious outstanding risk (SOR) to their Station Manager as further partnership work will be needed to ensure that appropriate smoke detection and monitoring are in place. Fire retardant bedding should be advised/provided as part of a structured care plan and all fire risk noted on an individuals risk assessment