EMOLLIENT AND FIRE SAFETY PROJECT – CASE STUDY

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At time of writing the project has won a Norfolk Fire and Rescue Service Annual Award and a National Fire Chiefs Council Celebrating Prevention Award, both for partnership working, and has also been shortlisted as a finalist for an Excellence in Fire & Emergency Award for collaborative working.

Norfolk and Waveney, as with other areas, has had ongoing issues with fire related injury and harm related to emollient use. This unfortunately included two fatalities which prompted the Norfolk Safeguarding Adults Board (NSAB) and Norfolk Fire and Rescue Service (NFRS) in 2023 to produce a seven-minute briefing and letter for care homes to inform them of the risk and advise them on appropriate mitigations.

NFRS has responded to subsequent emollient related fire fatalities and our system has seen further incidences reviewed through the Learning through Lives and Deaths: People with Learning Disability and Autistic People (LeDeR) process and through concerns escalated by the West Norfolk Community Learning Disability Team. LeDeR is a service improvement programme which aims to improve care, reduce health inequalities, and prevent premature mortality of people with a learning disability and autistic people by reviewing information about the health and social care support people received. The learning from reviews is then converted into actions which aim to deliver local service improvement.

To respond to the repeated incidences, a multi-disciplinary working group was established with partners from across the system to explore some of the issues behind these incidences. A broad range of actions was agreed to tackle the gaps identified in service provision. The gaps fell into distinct themes which are outlined below:

- Developing a series of webinars and a resource library to educate care colleagues of the risks and outcomes of emollient prescribing for vulnerable people, including how all providers need to use appropriate and robust personal fire risk assessments.
- An immediate review of cases to identify and address any high-risk cases where people on the learning disability register use emollients and smoke cigarettes.
- Exploring prescribing advice updates via local formularies.
- Improving incidence reporting.
- Developing easy read information to support conversations with people with learning disabilities about the risk of emollient use.

The risks

Emollients

Emollients are moisturisers applied directly to the skin which can come in many forms including creams, lotions, ointment and sprays, and are safely used by millions of people every day to help manage dry, itchy or scaly skin conditions (Ridd *et al* 2022). They may be prescribed but are also available from pharmacies and supermarkets without a prescription.

Although the UK Medicines and Healthcare products Regulatory Agency (MHRA) reported 53 fire fatalities related to emollient contaminated fabrics in the eight years between 2010 and 2018, this is felt to be a significantly under-reported incident (McDermott *et al* 2025a). As such, the issue is much more prevalent than previously thought, and this is borne out in recent research.

McDermott *et al* (2025a) in their study of fire deaths and serious incidents in the seven-year period between 2015 and 2022, had 84 reported incidences, 78 of these being a death. This is far higher than previously reported via the MHRA yellow card scheme.

"LeDeR is a service improvement programme which aims to improve care, reduce health inequalities"

This study suggests that as many as 6% of all fire deaths in the UK and 25% of fire deaths where clothing or a textile was the item first ignited, could be related to an emollient being present (McDermott *et al* 2025a).

Emollients may contain paraffin or other ingredients such as shea or cocoa butter, beeswax, lanolin, nut oil or mineral oils which can leave a flammable residue. Despite previously held beliefs being widespread in the care community, both paraffin and non-paraffin emollients can equally act as an accelerant when absorbed and dried into clothing/fabrics and exposed to naked flames or other heat sources (McDermott *et al* 2025b). It is important to note, however, that emollients are not flammable in themselves, and the risk occurs when they absorb and dry into fabrics and are then exposed to naked flames or heat sources (Ridd *et al* 2022).

Another fabric to consider are viscose bandages which are often used in conjunction with emollients and demonstrate similar burn behaviour in testing (McDermott *et al* 2023). Research also showed that fabrics with characteristic flame-retardant properties, for example furniture or flame-retardant bedding, are also affected by emollient build up (McDermott *et al* 2025b).

People

In the McDermott *et al* (2025a) study, the combined age demographics of 65+ accounted for 71% of fire deaths, supporting suggestions that those most at risk are elderly. In tests, an increased speed of flame development and intensity of burn were noted in fabrics contaminated with all types of emollient, which would both result in more severe injury and a higher mortality rate in those with a slower or impeded reaction time (McDermott *et al* 2025b).

Those who are elderly, smoke, live alone and have reduced mobility or are bed bound are most at risk (Hall *et al* 2020; McDermott *et al* 2025a). It is especially important to consider those requiring multiple emollient applications per day and over large areas of their body, as this can lead to repeated impregnation of emollients onto fabrics (Ridd *et al* 2022). Indeed, McDermott *et al* (2025b) reference that the significantly increased flammability in testing is noted after only one application of an emollient, and so the risks of repeated exposure and build up has to be considered.

How we can manage the risks

Primarily, everyone should have a personalised fire risk assessment completed, and any measures to reduce the hazard should be recorded in a robustly followed care plan which needs to consider all aspects of care and support. For example, the increased flammability of fabrics has been seen even after washing and, as such, laundered fabrics cannot be considered as without risk; while emollients also transfer onto uncontaminated clothes when washed together, so this is also

LeDeR FATAL FIRE CASE STUDY

Jack was a 69-year-old gentleman who had mild/moderate learning disability and a complex health profile. He lived in a nursing home and his mobility had gradually deteriorated, meaning he was dependent on using a wheelchair and had some functional impairment associated with his severe mental illness. Jack was a heavy smoker. He had received 1:1 education and support with smoking cessation and had managed to quit for almost a year at one point but restarted.

On the day of the incident, Jack had had his usual emollients applied that morning. In the afternoon, Jack was taken outside to smoke and was left unattended. His emollients were not considered within his fire risk assessment and, despite having a care plan which stated that he was not to be left alone while smoking, Jack was alone when his clothing unfortunately caught fire.

Due to his mobility difficulties, he was unable to respond to the engulfment or even attempt to extinguish the fire himself. He was admitted to the local hospital via ambulance with severe burns to his face, neck, thorax, abdomen, right leg and both upper limbs. He received treatment from the emergency department and was quickly transferred from the local acute hospital to a specialist burns unit where his burns were confirmed to be full thickness and covering 35% of his total body surface area. Jack sadly succumbed to his injuries and died the next day.

NFRS FATAL FIRE CASE STUDY

Robert was a 76-year-old man living alone in his own home, he had a complex health profile and was bedbound. His care plan included regular daily visits to support his wish to remain at home. He required frequent application of emollient skin products and was known to misuse alcohol and smoke in bed.

Despite ongoing concerns, Robert consistently declined support from other agencies or his family to improve the safety of his environment. He refused to alter his smoking habits or permit the repair of faulty smoke alarms in his home.

As a final attempt to mitigate fire risk, Robert was prescribed a paraffin-free, oat-based emollient skin product that did not carry a flammability warning. However, research shows that paraffin-free emollients can be equally flammable and may even accelerate flame spread and intensity in comparison to paraffin-based products.

Tragically, Robert died in a fire caused by a dropped cigarette igniting bedding contaminated with dried emollient residue.

a factor to be considered in laundry routines (Hall *et al* 2021).

There may be a need to think creatively when planning someone's support needs. For instance, it is recommended that emollients should be left to dry after application, before introducing any fabrics such as getting dressed or getting into bed (McDermott *et al* 2025b) and an adaption to a person's personal care routine to allow for this may be required.

Secondly, we need improved communication as to the risks of emollient use (McDermott *et al* 2025a); McDermott *et al* 2025b). We must ensure patients and their carers understand, and are alert to, the inherent fire risk associated with the build-up of emollient residue on all fabrics and encourage and support action to minimise the risk, including appropriate fire safety advice. This information needs to be communicated in a way which is accessible and considers any required reasonable adjustments. There is also a role for system level input, and organisations concerned with leading fire safety and health and care within regions could improve the availability and accessibility of up-to-date safety advice both internally for professionals and for the wider public (Blackburn *et al* 2022).

There are multiple opportunities for different professionals or carers to prevent harm, either at the point of prescribing, recommending, dispensing, selling, or applying emollient products to patients. This suggests that addressing and advising on the risks is not a "one-and-done" conversation but there are multiple opportunities for us to offer information on harm minimisation. This could include:

- Make the education of fire risks and emollients a core part of training for health and care staff who may be supporting a person using emollients, especially those providing direct care. The education devised in Norfolk and Waveney is available and free to access on the Knowledge NoW website.
- Regularly changing clothes and washing (at a high temperature) fabrics contaminated with dried on emollients, and washing contaminated fabrics seperate from other laundry.
- Involving families, friends and carers in conversations about the risks and any plans to prevent harm.
- If smoking cessation is not an option then consider smoking aprons, deep ashtrays, a supervised smoking arrangement or use of e-cigarettes.
- Safe cooking advice (electric hob instead of gas).
- Advice to keep a good distance from any heat source such as open, gas or electric fires, candles or halogen heaters.
- Additional smoke detection and telecare linked detection systems or portable fire suppression units.
- Fire retardant throws or bedding.
- If someone remains at high risk, despite all reasonable actions in assessing and mitigating risks, then contact the local fire and rescue service for a home fire safety visit. HFSC

Photo from a fatal fire investigation by Norfolk Fire & Rescue Service

Lastly, where we do see incidences of harm there needs to be robust reporting pathways, whether we see fatality or injury from fire, or indeed a near miss where intervention may have avoided harm occurring. The understanding of reporting routes needs publicising amongst colleagues including the expectations we report all fire incidences via the MHRA yellow card scheme (McDermott *et al* 2025b). The research also recommends reporting routes through safeguarding, emergency care and admission routes (McDermott *et al* 2025a) which is an important opportunity for systems to explore and act on local learning.

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