



BURNS PREVENTION

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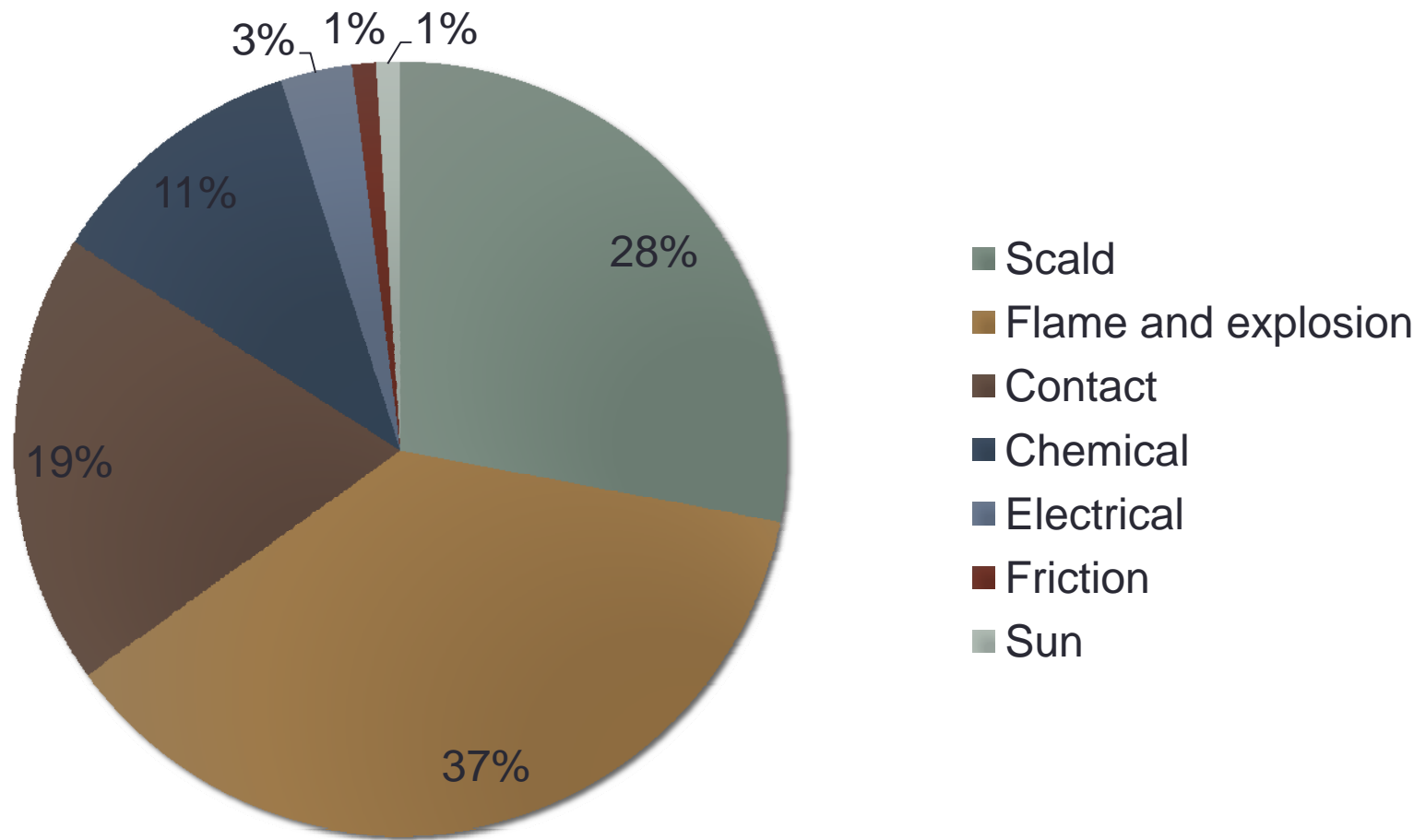
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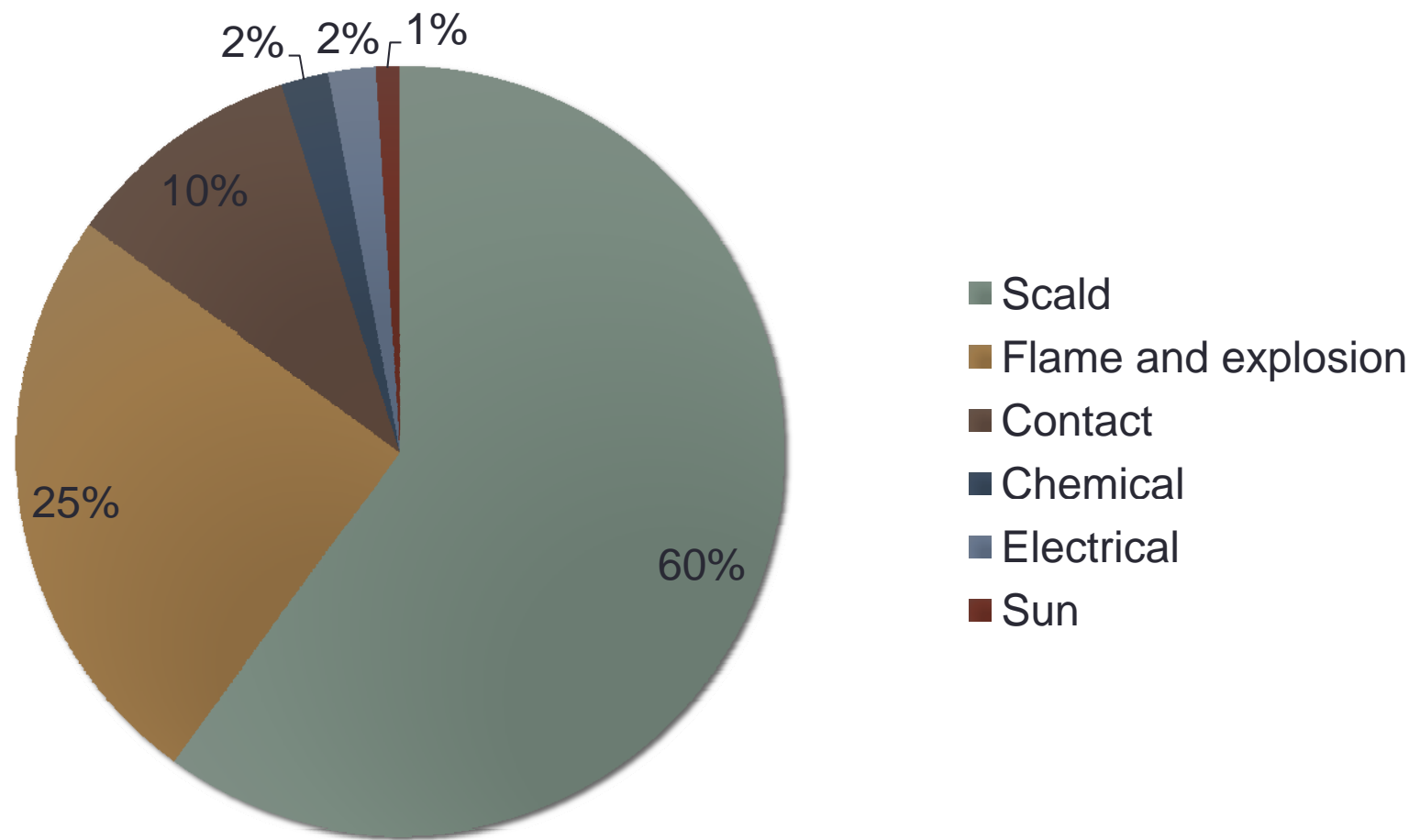
The Scale of the Problem

- Across Scotland in 2010, 499 patients were admitted to a burns unit for treatment, with a mean length of hospital stay of 7 days (range 1-88 days)
- The cost of a hospital bed on a specialist burns unit is in the region of £750 per day (British Burn Association)
- Hospital cost from injuries may be only 23% of total economic costs (Lindqvist K, 1993)
- The cost of scalds to NHS Scotland from hot water taps alone has been estimated at £10.11 million annually (Scottish Buildings Standards Agency, 2005)

Adult Burns- Cause



Paediatric Burns- Cause



Prevention

- Burn injury rates are known to be high in **children** and the **elderly**
- Variable aetiologies for burns
- Previous studies have found that most of these injuries are preventable (Tan J et al, 2004; Huyer DW & Corkum SH, 1997)
- Their incidence is potentially reducible with **public education** and simple **safety measures** (Tan J et al, 2004; Huyer DW & Corkum SH, 1997)

Burns - Paediatric Population

- Children are more susceptible to burn injuries due to:
 - Curiosity and/or imitation
 - Limited understanding of danger
 - Limited ability to react quickly to hot contact
 - Thin skin
- Burns to children can be traumatic and result in long term psycho-social sequelae (Rivlin E, 1988)

Scalds and Children

- The number of burn injuries was maximal between the ages of 1 and 2, thereafter it reduced until the age of 4 years old (Chapman JC, 1994)
- Most common mechanisms for scald are hot drink, cooking and bath scald (Chapman JC, 1994)



Flame and Contact Burns- Children

- House fire deaths are frequently as a consequence of adult activity within the home (Squires T & Busuttill A, 1995)
- Contact burns far more common
- Cooker, iron, stove, hair straighteners...
- Mostly managed in an outpatient setting



The Elderly



Burns - Elderly Population

- The elderly are more susceptible to burn injuries due to:
 - slower reaction times
 - thinner skin
 - co-morbidities
 - poor mobility
 - possible mental deterioration (Tan J et al, 2004)
- The elderly are most likely to sustain their burn whilst cooking, bathing or smoking (Tan J et al, 2004)
- Higher mortality rate, even from relatively minor burns (Sarhadi NS et al, 1995)
- Often require lengthy hospital stays owing to multiple medical co-morbidities and social circumstances

Flame Burns and the Elderly

- Accidents due to fire and flame are the second most important cause of accidental death in the home for elderly people in the UK (Elder AT et al, 1996)
- Over half of all house fires where an elderly person has died were due to faulty or poorly maintained electrical items (Elder AT et al, 1996)
- “All those involved in the assessment of community dwelling elderly people should be aware of the enhanced risk of fire and fire death in this group and pursue the development of more effective fire prevention strategies” (Elder AT et al, 1996)

Scalds and the Elderly

- Bath scalds resulted in larger surface area scalds and comprised 50% of all the scalds seen in Scotland in one series focusing on the elderly (Sarhadi NS et al, 1995)
- In Scotland there are two fatalities from bath scalds annually with an estimated cost of £1.38 million per death (Scottish Buildings Standards Agency, 2005)
- There are thought to be in the region of 49 severe bath scald injuries in Scotland every year, costing the tax payer £7.35 million annually
- Hot water bottle scalds

Burns Prevention- Strategies

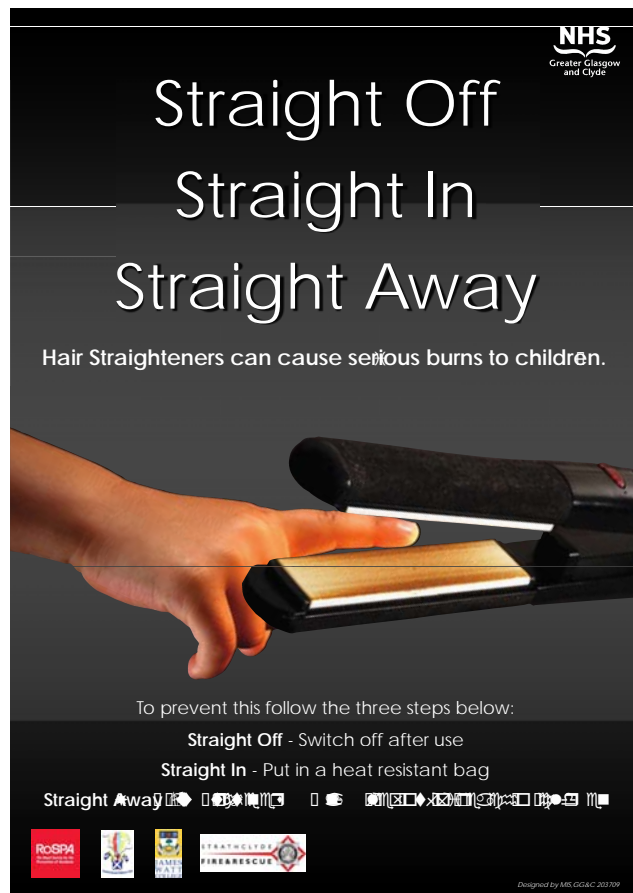


Strategies

- Previous reviews of paediatric injury prevention methods emphasise that passive strategies are more likely to be of benefit than active strategies (Hazinski MF et al, 1993)
- Canadian burns prevention campaign for older adults, disseminated information and established popularity and outcome measures (Tan J et al, 2004)
- Burns first aid treatment education programmes reduce hospital admissions and operative interventions (Skinner AM et al, 2004)
- In Scotland, legislation introduced in the past has been instrumental in reducing both the number and the severity of burns. Notably, the Buildings Acts 1959, 1970; The heating Appliances (Fireguards) Regulations 1967 Amended 1984, The Oil Heaters (Safety) Regulations 1977 and Consumers Safety Act 1978 (Sarhadi NS et al, 1995)
- Scottish Buildings Standards Agency, 2005

Strategies

- Many active measures already instituted by Burns specialist nurses at Yorkhill (posters, thermometers...)



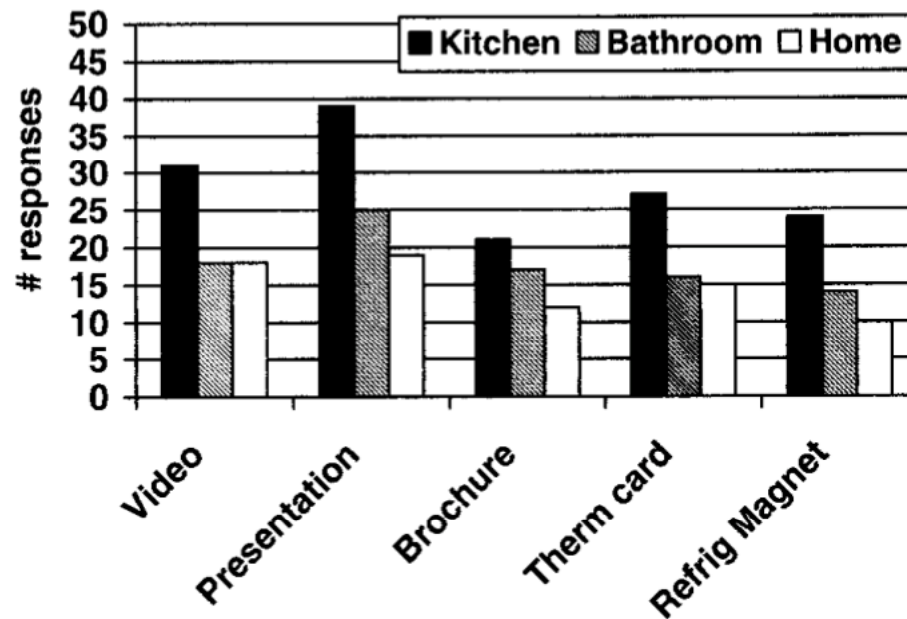
Dissemination of Prevention Advice

- Successful healthcare campaigns have been assessed by the Scottish Government
- Common elements:
 - a sustained campaign of more than two years
 - variety of media used
 - seeking an emotional response
 - content based on good research of the target population
- The aim is to reach different demographics using appropriate media with the intention of providing information to modify behaviour, and thus reduce the risk of sustaining a serious burn

Television and Radio

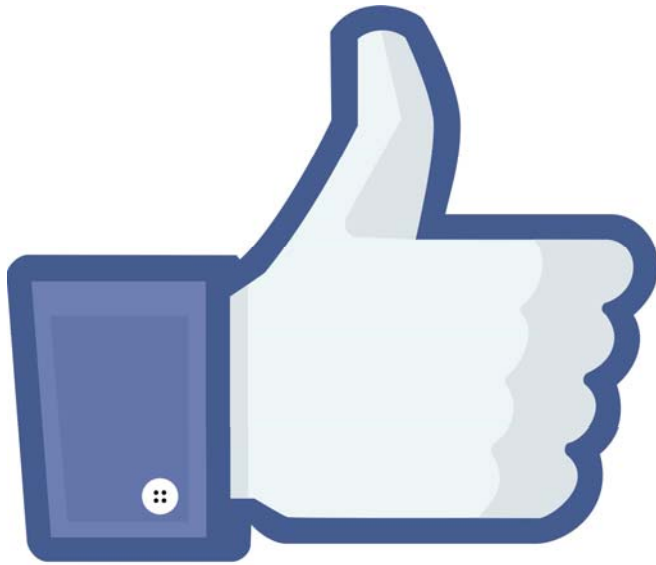
- Burns risk factors and risk reduction were raised in a video presentation by Tan et al and were found to be a popular choice in raising awareness in the elderly (Tan J et al, 2004)
- Similar public health promotions have been shown to greatly increase the awareness of the risks of certain lifestyle choices (Ratcliffe J et al, 1997)
- Campaign was cost effective (Ratcliffe J et al, 1997)
- Raised awareness seems likely to reduce the risk, if the campaign is correctly targeted

Community Presentation



- Such presentations could be easily incorporated into regular programmes for older adults at day and community centres

Social Media



www.nbt.nhs.uk/hotdrinksharm

HOT DRINKS HARM!

Every day 180 children are rushed to hospital with burns from hot drinks

DON'TS

- ✗ Do not hold a small child and hot drink at the same time
- ✗ Do not place drinks low and close to surface edges
- ✗ Never leave children un-supervised in the kitchen

DO'S

- ✓ Keep hot drinks out of children's reach
- ✓ Any scald should be held under cold running water for 15mins
- ✓ Then cover with cling film or a clean tea towel and seek medical advice urgently

Supported by The South West Children's Burn Centre, Frenchay Hospital Bristol

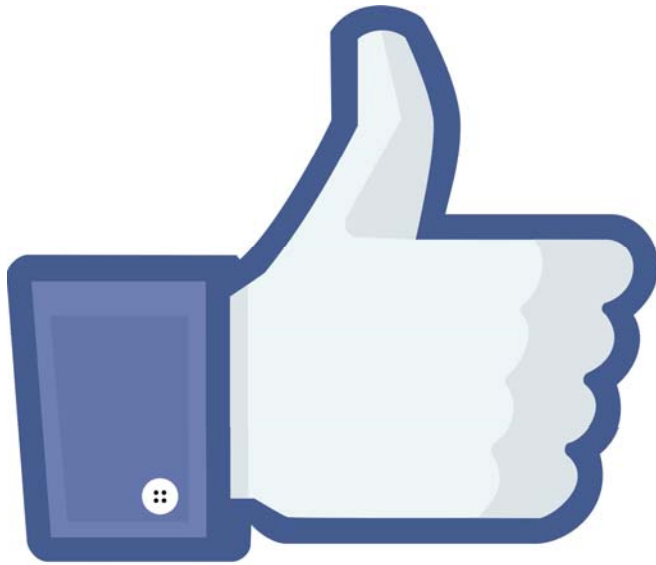
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Social Media





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Older people

Be a good citizen and look out for elderly relatives and neighbours over the festive period.

We all know older people who are at risk – it could be a grandmother, aunt, friend or neighbour.

Year on year, the festive and New Year period sees a peak in deaths and injuries resulting from house fires. SFRS offer a free service that can help protect those people most at risk. Many of us know a friend, relative or neighbour, often someone living alone, who could be vulnerable from fire.

Our campaign calls on local people to join Scotland's Fight Against Fire. You can help us prevent fire deaths and injuries by making sure that you or someone you know gets a Home Fire Safety Visit.

Arranging a Visit is easy:

- call 0800 0731999
- [complete our online form](#)

A Home Fire Safety Visit from the Scottish Fire and Rescue Service will help make sure your home is as safe as it can be. Firefighters will even install smoke alarms, free, if you need them. The process only takes about 20 minutes, and their advice and help could save your life.

The Scottish Fire and Rescue Service are here to serve and protect. Our firefighters will visit anyone at risk from fire at a time that suits, day or night. But we need you to contact us. Tell us about someone at risk before it's too late.

Share



ELECTRICAL SAFETY >



Whether it's fairy lights, new electronic toys or electric heaters - most of us will be plugging in more than usual at this time of year. Don't overload 4-bar adaptors. [Read more](#)

WOOD BURNING >



As we head into the winter months the SFRS is keen to offer simple, easy-to-follow advice for those using wood burning or solid fuel heating systems. [Read more](#)

BOOK A FREE HOME FIRE SAFETY VISIT

Every hour of every day there's a house fire somewhere in Scotland. You can help reduce the chances of this happening to you by [booking a home fire safety visit](#). They're free and easy to arrange so book your visit today!



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A Role for Passive Prevention?



Strategies for Prevention- Passive

- In Washington State, USA, where legislation was passed to require new water heaters to be pre-set at 49°C, there was a 56% reduction in scald admissions compared to before the legislation was passed (Erdmann TC, 1991)
- The HSE in the UK advises hot water be stored at 60°C to kill Legionella
- Water temperature in most UK homes is between 60-70°C (Huyer DW & Corkum SH, 1997)
- Thermostatic mixing valves (TMVs)- can limit water temperature at delivery to 44°C
- Compulsory in new houses built since 2006 and in healthcare settings in Scotland

Strategies for Prevention- Passive

- “Thermostatic mixer valves need to be fitted as close as possible to outlets, **where a scald risk is identified**” (Health and Safety Executive)
- “Those at risk [of a scald] include children, older people, people with reduced mental capacity, reduced mobility, a sensory impairment, or people who cannot react appropriately, or quickly enough, to prevent injury” (Health and Safety Executive)
- “The proportion of people in Scotland with a long-term activity-limiting health problem or disability was 20 per cent in 2011” (Scotland’s census 2011)

Strategies for Prevention- Passive

- Retrofitted installation of TMVs in every existing household with a vulnerable adult could be considered
- Priority should be given to baths, where the risk of serious scald is at its highest (Scottish Buildings Standards Agency, 2005)
- This could result in an annual saving of £4.1 million for severe scalds and £1.38 million for the one fatality that would be prevented annually (Scottish Buildings Standards Agency, 2005)
- Heating sources, covered heating pipes...

Conclusion

- Burns still represent a serious financial and human burden
- Most burns are preventable; a targeted public education campaign likely to be feasible and cost effective
- More ambitious (passive) measures would require a feasibility study
- There are some good indications that these may be cost effective following the large initial outlay

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