significant dangers to children. While it has been suggested that the use of improved cookstoves (ICS) may mitigate a child's exposure to burn injuries more evidence is needed. The aim of this study is to explore factors which contribute to the incidence, cause and severity of paediatric burn injuries associated with cooking. Malawi was selected for this study as; children are at particularly high risk of burns because of the nature of the environments in which they live and the paucity of burn prevention programs.

**Methods** Data was collected across four sample sites. Each site had previous exposure to an ICS technology. Hospital data and community surveys were used to elicit the incidence of burns. Household interviews, focus groups and observations obtained narrative experiences from families whose children have, and have not, experienced burn injuries in the home. Interviews were undertaken with stove organisations to better understand existing quality control and safety standards in relation to ICS.

**Results** Results will include: hospital and community based data; parents attitudes towards to the causes of burn injuries; parents perception of hazards and safety within their compound; safety precautions practiced by parents in the home; barriers to preventing burns injuries; risk factors associated with the cooking process and the kitchen environment; existing measures used to determin the safety of ICS.

**Conclusions** The findings will show the key factors associated with paediatric burn injuries accross rural and peri-urban areas of Malawi. This infromation would support the advancement of cultrually and contextually appropriate interventions and policy relating to ICS programmes. The study recommendations may also be applied to a wider number of countries, whose population rely on similar cooking processes.

## 837 ECONOMIC BURDEN OF FIRE-RELATED DEATHS IN FINLAND: INDIRECT COSTS USING A HUMAN CAPITAL APPROACH

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**Background** The aim of this research was to assess the indirect economic burden of fire-related deaths in Finland in the period 2000–2010.

**Methods** Data on all fire-related deaths during 2000–2010 in Finland were obtained from the Causes of Death register administered by Statistics Finland supplemented with demographic/socioeconomic data. Lost household- and work-related productivity was valued by a Human Capital method. Additionally, Potential Years of Life Lost due to the fire-related deaths was reported.

**Results** A total of 1090 fire-related deaths were observed during the period 2000–2010 in a population of some 5.4 million. The majority of the victims died of combustion gas poisoning (65%) followed by burns (33%). Annually lost Potential Years of Life ranged from 2094 to 3299 with an annual average of 2763. Total productivity losses in the period 2000–2010 reached EUR 342 million with overall mean for a victim at EUR 0.315 million and annual average of EUR 31.1 million while using a three per cent discount rate.

**Conclusions** Losses due to fire-related deaths are high and this study remedies the lack of academic knowledge about the issue.

## 838 FIRE INVESTIGATION PLAYS A KEY ROLE IN REDUCING FIRE DEATHS

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**Background** Fire deaths have been recorded in Finland since 1960. The annual average of fire deaths has been over 100 victims per year. The ministry of interior has a vision of less than 50 fire deaths per year. In 2007 fire departments decided to investigate all the fires causing injuries or fatalities.

**Methods** The results are based on national data collected by fire investigators of fire departments in co-operation with the police. Data are analysed by the descriptive statistics.

**Results** In 2007–2009, the average number of fire deaths was 100 persons per year. In 2010–2014, the average was 75 fire deaths per year. In proportion to the population the number of fire deaths is 14 persons per million inhabitants. Commonly, fatal fire starts in sparsely populated area in a single family house with no smoke detector. The most often cigarette ignites a furniture or interior in the living room in winter time. A typical victim is an elderly man who lives alone. Often victim is divorced with low-incomes. Normally, the victim does not react to fire because the use of alcohol has influenced his ability to function properly. There is seldom someone able to function present at the scene and the first attempts to extinguish fire are rarely made. By and large, a fatal fire is detected by a bystander who makes the emergency call.

**Conclusions** Some reasons for the reduction of fire deaths can be found. Standardised practice of fire investigation carried out by the fire departments has provided support to decision making. Reduction of fire deaths has been particularly affected by: legislative changes on cigarettes sold in Finland, legislative changes on smoke alarms, legislative obligation about fire safety risks among domestic services producing actors, and targeted operations in fire departments, including safety communication.

## 839 FIRE SAFETY EDUCATION FOR CHILDREN AND YOUNG PEOPLE; A STUDY OF CURRENT UK PRACTICE

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**Background** Fire safety education for children in the UK is delivered by local Fire and Rescue Services. The aim of this study was to document the scope, format and delivery of children's fire safety education across England, Wales and Scotland and establish the priorities and issues for such programmes.

**Methods** A mixed-methods approach was used. Information about educational programmes on the websites of the Fire and Rescue Services was collated to inform semi-structured telephone interviews with informants managing fire safety education in each service. Data analysis included mapping of programmes and thematic analysis of issues identified by informants. Telephone interviews with fire safety education leaders and experts provided contextual information on priorities and practice.

**Results** The websites of 49 Fire and Rescue Services were searched and information on fire safety education was identified from 30. Telephone interviews were conducted with 28/49 (57%) services. The quantity and delivery of programmes varied by age; with children aged 5–11 years having the greatest opportunity to receive programmes, primarily through school.

Programmes were designed and delivered by people with different professional backgrounds which influenced content and format. Examples of mutual support between community safety teams in neighbouring counties were found. Programme evaluation was variable.

**Conclusions** Children and young people in the UK are receiving variable fire safety education and training. Devolved responsibility for programmes and financial pressures on Fire and Rescue Services are thought to contribute to differences in access, content and format. Examples of innovative programmes delivered by motivated teams were identified, though there are opportunities for greater sharing of best practice and developing evidence of effectiveness. These findings have the potential to inform future research and practice in fire safety education across the UK.

## 840 RISK, MOTIVES AND PREVENTION OF DELIBERATELY SET FIRES

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**Background** The amount of fires, such as the deliberately set fires has decreased in recent years. Regardless arsons (~2000) seems to be a permanent phenomenon in Finnish society. Even if setting a fire haven't used in political, racist or radicalised reasons, they cause every year remarkable costs, danger of life and health and personal suffer also for outsiders.

**Methods** This research examined deliberately set fires based on reports from the electronic resource and accident statistics system (PRONTO) of the Emergency Services, investigation reports from the electronic investigation and executive assistance system (Patja) of the police and telephone interviews and an email survey of the representatives of the Rescue Services and the police.

The qualitative data was gathered by analysing and categorising the typical targets, methods, severity of fires, situational elements, motives, perpetrators and other descriptive information. The main idea was to examine high-risk targets and areas as well as potential perpetrators and victims.

**Results** Research shows that deliberately set fires occur in our everyday living environment: homes, yards, parks, nearby woods and streets. The most common type of goods set on fire are miscellaneous articles: cast-off and abandoned "nobody's property". The second most common type are refuse shelters and containers, and paper and clothes collection boxes.

Of all buildings set on fire, every third one was in residential use at the time of the fire.

The control and prevention of deliberate fires is difficult by means of supervision, as the underlying causes include vandalism, curiosity, revenge, jealousy, the seeking of a financial benefit, suicidal behaviour and mental problems. A portion of the fires set by young people are caused by thoughtlessness and curiosity, some are the result of more serious, accumulated problems. Arson performs also as an extremely goal-orientated form of aggressive or destructive behaviour.

**Conclusions** The presentation concentrates on risk targets and the personal properties of fire-setters. By analysing different motives, intentions and situational conditions is possible to find out some relevant practices to combat deliberately set fires.

## 841 HUMAN BEHAVIOUR IN THE FIRE CASES

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**Background** Most of fires are caused by human activity: by accident or deliberately. People may handle incautiously electronical equipment, fire place, grill or other burning element, like matches, ash or cigarettes. They might set a fire too near the buildings, use too much charcoal lighter fluid or forgot to suppress the fire carefully. Population surveys shows that almost every responders have smoke alarm. The experience and daily observation of fire fighters this is not true especially in the cases where inhabitant has injured or dead.

**Methods** Data consist of the electronic resource and accident statistics system (PRONTO) of the Emergency Services and interviews of the representatives of the Rescue Services.

**Results** This research will start in spring 2016. Research is concentrating on human action which leads in catching fires and how people are behaving in the case on fire. More specific, the research will find out what are the most general causes of fires and what situations and circumstances are most potential for fire-related accidents.

More detailed analysis will be made on fires caused by minors, immigrants, older people and patients of institutional care. It's also interesting to investigate the circumstances where persons have injured or dead – why they didn't manage to suppress the fire or escape from the burning space.

**Conclusions** Results will benefit many authors as well researchers and planner officers to develop different safety campaigns, improve safety culture and housing safety.

## 842 GENDER DIFFERENCES IN BURNS MANAGEMENT: A CROSS-SECTIONAL STUDY FROM EMERGENCY CENTRES, SOUTH AFRICA

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**Background** Gender differences have been reported both in exposure to and outcome of burn injuries. Whereas the general gender distribution of burns is relatively well known, few studies have examined gender differences in incidence and management of burns for different burn mechanisms in sub-Saharan Africa.

**Methods** The study is cross sectional and based on case reports of patients seeking care for a burn injury at Emergency Centres in eight health care facilities in the Western Cape Province, South Africa between June 2012 and May 2013 (n = 1915). Gender specific incidence rates were compiled for age groups 0–4, 5–9, 10–14, 15–19, 20–54 and 55+. Differences in proportions in men and women were examined for AIS, length of stay and disposition. All analyses were stratified by burn mechanism.

**Results** Children 0–4 years have the highest incidence of burns with boys and girls relatively equally affected. Gender differences in burn incidence are found in ages 20 years and older. Men 55 years and older have a higher risk compared to women for hot liquid burns whereas men aged 20–54 have a higher risk of fire burns. While no gender differences in children are observed in injury management, adult men are significantly more transferred than women (all burn mechanisms aggregated) while women with both hot liquid and fire burns are treated as outpatients to a