

MAJOR REVIEWS IN 2015/16 - RAISING STANDARDS IN PRIVATE RENTED SECTOR ACCOMMODATION - WITNESS SESSION 2

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REASON FOR ITEM

To enable the Committee to gather evidence as part of their Major Review into 'Raising Standards In Private Rented Sector Accommodation'

OPTIONS AVAILABLE TO THE COMMITTEE

1. Question the witnesses
2. Highlight issues for further investigation.
3. To make a note of possible recommendations for the review.

BACKGROUND

At the Committee meeting on 22 April 2015, Members discussed a number of potential review topics for 2015/16 and requested officers to prepare a scoping report on *Raising Standards In Private Rented Sector Accommodation*'.

At 3 September 2015 meeting, the first witness session provided a profile of the sector and its tenants and how this had changed for comparative purposes. It also provided an overview of the impacts of recent benefits and other relevant legislation, and gave an insight into the (financial) accessibility of the sector.

This witness session will focus on the health implications of poor housing.

INFORMATION

Housing and Health Introduction

The World Health Organisation has defined health as “a state of complete physical, mental and social well being”. This report deals with the important contribution made to health and illness by the standard of accommodation..

Recognition of the impact of poor housing on health is not recent. In 1842, Chadwick established a link between the appalling living conditions of the poor and their ill health. Many of the most significant gains in health that followed stemmed from public health measures, notably clean water, sanitation, and reduced exposure to extreme cold and other factors associated with improved accommodation. The second half of the 20th century saw a widening recognition of the health consequences of poor housing. The government-commissioned Black Report ¹ placed particular emphasis on housing as a health inequality issue and saw adequate housing as a prime requisite for health. The social and physical characteristics of the surrounding area are also vital in maintaining good health. If poor quality accommodation is situated in impoverished surroundings with few local amenities this could lead to vulnerable persons placing a greater reliance on domiciliary services.

Housing has long been recognised as an important mechanism for improving people’s health and sense of well-being and for reducing health inequalities between different groups. The relationship between housing and health is, however, a complex one as housing is inextricably linked with other key determinants of health such as the socioeconomic circumstances of individuals and locality factors.

Groups such as those who are already unwell, older people, people with disabilities and the unemployed are among those most likely to live in poor housing and also tend to spend long periods of time indoors exposed to potentially hazardous environments. Housing improvements among these groups may have the potential for greater health gain and may, therefore, be used as a tool for tackling the complex dynamic between poverty and poor health. It should also be noted that, while for some vulnerable groups their specific housing needs are self-evident (for example stair-free access for wheelchair users), for some it may depend on a clear understanding of their individual needs. A person with inflammatory bowel disease (Crohn's disease or ulcerative colitis) may have regular and urgent need for access to lavatory facilities and therefore may not be best served by shared bathroom arrangements, for example.

The following sections briefly describe specific health problems associated with common hazards found in poor housing.

¹ Black Report 1980 <http://www.ncbi.nlm.nih.gov/pubmed/7118327>

Indoor dampness and mould problems in homes

Dampness, moisture and mould in indoor environments have been associated with adverse health effects in population studies in Europe, North America and elsewhere. Most commonly reported health effects are airways symptoms, such as cough and wheeze, but other respiratory effects, and skin and general symptoms have also been reported. There is a relative lack of knowledge regarding the role of specific exposures in dampness and mould related health problems, largely due to their complex nature, the large variety of microbes that may play a role for the adverse health effects, and problems with quantitative exposure assessment methods for bio aerosols. Bio aerosols, i.e., particles of biological origin, may be found in elevated concentrations in the indoor air of damp and/or poorly ventilated buildings. Bio aerosols relevant to health in damp indoor environments include fungi (especially moulds and yeasts), fungal spores, hyphae, as well as fungal fragments and allergens; bacteria and bacterial spores; microbial toxins and pro-inflammatory components (e.g. mycotoxins, endotoxin, exotoxins, peptidoglycans); arthropod allergens (e.g. from mites); algae; and amoebae (Jaakkola 2012²). In addition to bio aerosols, indoor dampness may result in elevated concentrations of microbial volatile organic chemicals as well as increased chemical emissions of building materials, such as phthalates.

Reversible airflow obstruction, enhanced bronchial reactivity and chronic airway inflammation form the basis for current definitions of asthma. They represent the major pathophysiological mechanisms leading to the symptoms of wheezing, breathlessness, chest tightness and cough by which physicians clinically identify this disorder, together with lung function measurements. Associations with both new-onset asthma and asthma exacerbations have been documented especially in children, and to some extent also in adults.

Housing conditions and home injury

Injuries include burns, poisonings, ingestion of foreign objects, and fire-related injuries (including death from smoke inhalation), as well as drownings, falls, cuts and collisions with objects. Faulty gas and electricity installations can result in carbon monoxide poisoning and risk of fire.

Injuries in the home present an important health burden worldwide. In Europe, almost 110 000 people die each year as a result of a home/leisure injury and an estimated 32 000 000 are hospitalised (WHO 2011³). The 2003-2005

² Residential mould <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3492391/>

³ WHO Environmental Burden of Disease associated with inadequate housing 2011 <http://www.euro.who.int/en/publications/abstracts/environmental-burden-of-disease-associated-with-inadequate-housing.-summary-report>

home/leisure fatal injury rate is 22/100 000 over all Europe. The injury burden is particularly important for children: in Europe, home injury deaths are highest in children under 5 years of age and then sharply decrease, in contrast to road traffic deaths, which increase with age.

Overcrowding

Definitions on overcrowding include a normative judgement about the adequacy of personal space in a dwelling and an objective measure of number of people per room in a dwelling (Office of the Deputy Prime Minister, 2004⁴) The measurement of the extent of crowding and overcrowding also varies considerably. Some studies measure the number of people per dwelling whilst others focus on the number of people per room or persons per bedroom. The threshold whereby a property is deemed to be overcrowded also differs between studies. Overcrowding may have both direct and indirect effects. The latter are of course less easily measured. For example, children's education may be affected by overcrowding directly, through a lack of space for study, as well as indirectly because of school absences caused by illness, which may be related to overcrowding. Findings on the impact of overcrowding may also be subject to possible 'selection effects'. This can happen in two main ways. People with poor health may have difficulty holding down or securing employment and may not be able to afford housing appropriate to their needs. As a result they may end up living in overcrowded housing. Additionally, people with illnesses may live in overcrowded conditions as a result of their need for care and support from relatives. This was evident in Kempson's study⁵ of overcrowding in Bangladeshi households in Tower Hamlets.

Overcrowding can lead to both physical illnesses such as tuberculosis from close contact with infected co-inhabitants and mental illnesses caused from stress due to invasions of privacy, noise and limited access to facilities. Noise from people in adjacent rooms or neighbours can have psychological adverse effects. Children may not be able to concentrate sufficiently to carry out homework and sleep may be disturbed. People with HIV or who are otherwise immunocompromised may find overcrowded properties detrimental to their health due to exposure to infectious agents which may exacerbate their illnesses. The risks to children from co-sleeping are covered in section 10.

⁴ The impact of overcrowding on health and education, 2004,
<http://dera.ioe.ac.uk/5073/>

⁵ Overcrowding in Bangladeshi Households
<http://www.bristol.ac.uk/geography/research/pfrc/themes/housing/overcrowding.html>

Indoor cold and mortality

Cold indoor temperatures are caused by a combination of factors. Firstly, energy inefficient building design and/or heating systems can make homes difficult to heat. In conjunction with poor building characteristics, low household income and high fuel prices both further exacerbate heating affordability. Energy inefficient housing and difficulties with paying heating bills vary widely in Europe (Whyley, Callender, 1997⁶).

Temperature variations within a building can cause thermal stress on the respiratory and circulatory systems. Most excess winter deaths are attributed to cardiovascular and respiratory diseases (Khaw, 1995⁷). According to Khaw, the seasonal variation in blood pressure is more strongly related to indoor than to outdoor temperature. Cardiovascular conditions include ischaemic heart disease and stroke; respiratory conditions affected or exacerbated by the cold include influenza-like disease, asthma, Chronic Obstructive Pulmonary Disease (COPD), and respiratory viruses.

COPD accounted for more than 40% of emergency respiratory hospital episodes in one London Borough over a 4-year period (Rudge, Gilchrist, 2007⁸) , where there was found to be a noticeable winter excess for emergency respiratory episodes in general.

People appear to be better protected going out from a warm house into cold outdoor conditions than from a cold house (Goodwin, 2013⁹), indicating the importance of the link between effects of indoor and outdoor conditions.

Indoor radon and lung cancer

Radon gas is an established carcinogen and the major source of natural ionizing radiation exposure in most countries. The evidence available to date suggests that indoor exposure to radon is a significant risk factor for lung cancer. Between 5 and 10% of all lung cancers can be attributed to radon,

⁶ Fuel Poverty in Europe <http://fuelpoverty.eu/2014/06/01/measurement-in-europe-part-2/>

⁷ Seasonal Variations <http://www.ncbi.nlm.nih.gov/pubmed/7508540>

⁸ Measuring the health impact of temperature dwellings, Newham, http://www.researchgate.net/publication/223489772_Measuring_the_health_impact_of_temperatures_in_dwellings_Investigating_excess_winter_morbidity_and_cold_homes_in_the_London_Borough_of_Newham

⁹ The impact of home energy efficiency ... <http://www.nets.nihr.ac.uk/projects/phr/11300531>

although varying local conditions may lead to even higher (or lower) estimates (WHO 2011ⁱⁱⁱ)

Residential second-hand smoke exposure and lower respiratory infections, asthma, heart disease and lung cancer

Breathing in other people's tobacco smoke (second-hand, passive or involuntary smoking) is known to cause a range of disorders from minor eye and throat irritation to heart disease and lung cancer. Children are particularly vulnerable to the effects of second-hand smoke and exposure increases the risk of cot death, glue ear, asthma and other respiratory disorders, including emphysema later in life. The Royal College of Physicians¹⁰ has estimated that every year in the UK children's exposure to second-hand smoke results in:

- over 20,000 cases of lower respiratory tract infection
- 120,000 cases of middle ear disease
- at least 22,000 new cases of wheeze and asthma
- 200 cases of bacterial meningitis
- 40 sudden infant deaths – one in five of all SIDs

Each year, these cases generate over 300,000 UK GP consultations and about 9,500 hospital admissions, and also cost the NHS about £23.3 million. Other people who are particularly at risk from the effects of second-hand smoke include pregnant women and people with pre-existing heart or respiratory illnesses.

Household carbon monoxide poisoning

Carbon monoxide (CO) is a toxic gas that is colourless, odourless, tasteless and non-irritating, and thus without warning properties. CO is produced by the incomplete combustion of carbonaceous materials including vehicle and heating fuels. Without appropriate ventilation, indoor levels of CO can reach harmful or even life-threatening concentrations, sometimes within minutes. CO inhalation leads to tissue hypoxia and toxicity through several mechanisms. CO in indoor air are the most common cause of intoxication. In several developed countries, 50- 64% of CO poisoning occurs in the home (Sam-Lai et al., 2003¹¹). Accordingly, CO is a highly relevant risk related to inadequate housing conditions. Unintentional CO poisoning in the home is related to inappropriate or faulty heating, cooking or other combustion appliances and the entry of vehicle exhaust from attached garages. Gas

¹⁰ Passive Smoking, RCP, 2010, <https://www.rcplondon.ac.uk/publications/passive-smoking-and-children>

¹¹ Carbon Monoxide Poisoning Monitoring Network, 2003
<http://www.tandfonline.com/doi/abs/10.1081/CLT-120022001>

heating and cooking can be significant contributors to CO concentration in homes (Bruinen et al., 2004¹²).

Individuals with greater susceptibility to CO exposure include pregnant women, infants and small children, the elderly and persons with underlying cardiopulmonary disease. Additionally, certain homes or residential areas (e.g., those with older/poorly maintained heating systems) are at significantly higher risk for both episodic CO elevations and/or chronically higher CO concentrations.

Housing quality and mental health

There are several potential reasons why poor housing quality might impact mental health. Housing symbolizes self identity and thus inadequate housing may lead to stigmatization and feelings of inadequacy. Poor housing is stressful in several respects: more worries about hazards and safety (particularly if children or frail elderly are involved), hassles with maintenance, and financial worries related not only to housing itself but also things like utility bills. Some types of housing (e.g., high rise buildings) may foster social isolation.

For many people, their home is a refuge, a place to recover from the stress and strain of daily life and work. But for those with inadequate housing, the home may mean more difficulties, not a place of refuge (Evans, 2003¹³). Two key aspects of parenting, responsiveness to children's needs and monitoring, can be disrupted when parents must contend with chronic housing difficulties. Many of the features of poor quality housing are beyond the control of the occupants and thus may lower self- efficacy and feelings of mastery over the environment.

Infectious Diseases

Features of substandard housing, including lack of safe drinking water, absence of hot water for washing, ineffective waste disposal, intrusion by disease vectors (e.g., insects and rats) and inadequate food storage have long been identified as contributing to the spread of infectious diseases (Krieger, 2002¹⁴). Overcrowding is associated with transmission of tuberculosis

¹² Personal Carbon monoxide exposure levels 2004, <http://www.ncbi.nlm.nih.gov/pubmed/15254478>

¹³ The built environment and mental health, 2004, <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3456225/>

¹⁴ Housing and Health, 2002, <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1447157/>

and respiratory infections. Norovirus can be transmitted easily due to its contagious nature and often cause residential and nursing homes to close when the virus is circulating

Impact of poor housing on children's health

Living in substandard housing can have an impact on a child's physical and mental development, with implications for both their immediate and future life chances. The lifecourse of an individual can therefore be adversely affected if ill health develops at an early age from poor housing (Harker 2006¹⁵). The evidence is particularly strong on the effect of cold, damp and mould. Cold temperatures lower resistance to respiratory infections; damp conditions are favourable to bacteria and viruses; and mould and fungi produce allergens that can lead to asthma and other respiratory problems. Damp and mould impact more strongly on children than adults. Reviews of the evidence in the UK and other countries have concluded that children living in damp, mouldy homes are between one and a half and three times more prone to coughing and wheezing – symptoms of asthma and other respiratory conditions – than children in dry homes. Such symptoms can lead to sleep loss, restrictions on children's daily activities, and absence from school, all of which have long-term implications for a child's personal development. Children living in overcrowded housing are up to 10 times more likely to contract meningitis, and as many as one in three people who grow up in overcrowded housing have respiratory problems in adulthood.

Living in cold, damp housing may well have an impact on children's mental health too, increasing children's chances of experiencing stress, anxiety and depression. It is hard to isolate a causal link though, because children living in poor housing conditions have often experienced considerable adversity besides substandard housing. Nevertheless there is some evidence to suggest that improving housing conditions can lead to measurable mental health gains. Rehousing may also have a positive impact on mental health, but this has not been proven unequivocally. A link has been demonstrated between unfit and overcrowded housing and psychological distress in eight- to eleven-year-olds. Living in such conditions children may have difficulty coping, feel angry, anxious or depressed, or have difficulty sleeping.

Poor housing conditions also affect children's recreational opportunities. A study undertaken by Shelter of 505 families living in overcrowded conditions found that four-fifths of families felt that there was not enough room in their homes for their children to play. Children living in temporary accommodation

¹⁵ Chance of a lifetime, 2006,
http://england.shelter.org.uk/professional_resources/policy_and_research/policy_library/policy_library_folder/chance_of_a_lifetime_-_the_impact_of_bad_housing_on_childrens_lives

often face limited space to play and some studies suggest that this can lead to depression or aggressive behaviour.

Where parents sleep with young infants because of limited space or for other reasons, (co-sleeping) there is an increased risk of infant death. The risk of infant mortality can also be increased from second hand smoke where parents do not smoke outside.

Impact of poor housing on older people

- Older people living in cold, damp homes are at greater risk of (Oldman¹⁶) : Arthritic symptoms and rheumatism, which can result in prolonged immobility, making it even more difficult to keep warm;
- Domestic accidents and falls, including fatalities;
- Social isolation;
- Mental health problems.
- Neighbourhood effects

Physical housing conditions may be a determining factor of health, but there is evidence that the wider neighbourhood – the level of antisocial behaviour, fear of crime – are also important.

Loneliness and exclusion is a reality for millions of older people according to a report from Age UK which states that 11% of people aged 65 or over are often or always lonely and that neighbourhoods that exclude older people can exacerbate isolation and feelings of loneliness.

The tables below list the 29 recognised hazards and related health conditions.

¹⁶ Housing in Later Life, Oldman, 2014

http://www.ageuk.org.uk/search1/?keyword=housing+in+later+life&nation=ageuk_en-GB

Hazard	Key housing factors contributing to hazard	Main health problems linked to hazard
Damp and mould growth	<ul style="list-style-type: none"> - Heating and thermal insulation - Ventilation - Damp proofing - Disrepair allowing water penetration - Exposed water tanks and pipework - Condition and design of water using amenities - Small room sizes/overcrowding 	<ul style="list-style-type: none"> - Respiratory disease - Allergic symptoms (eg asthma, rhinitis) - Infections (mainly fungal) - Nausea and diarrhoea - Depression and anxiety
Excess cold	<ul style="list-style-type: none"> - Energy efficiency (heating, thermal insulation and fuel) - Dampness - Ventilation 	<ul style="list-style-type: none"> - Cardiovascular conditions - Respiratory diseases - Rheumatoid arthritis - Impaired thermoregulation (hypothermia)
Excess heat	<ul style="list-style-type: none"> - Thermal insulation - Heating controls - Area and orientation of glazing 	<ul style="list-style-type: none"> - Cardiovascular conditions - Genito-urinary disease
Asbestos and MMF	<ul style="list-style-type: none"> - Presence of asbestos – accessible position or unsealed - Presence of MMF – accessible position or unsealed - Disrepair to asbestos-based material 	<ul style="list-style-type: none"> - Respiratory problems, pleural disease, lung cancer, mesothelioma - Dermatitis
Biocides	<ul style="list-style-type: none"> - Use/misuse of chemicals to treat timber and mould growth 	<ul style="list-style-type: none"> - Varies depending on the chemical used
Carbon monoxide and fuel combustion products	<ul style="list-style-type: none"> - Disrepair to flueless appliances (including cookers) - Inadequate ventilation or flues - Disrepair to flues or ventilation 	<ul style="list-style-type: none"> - Headaches and dizziness to unconsciousness and death - Damage to nervous system – short-term memory loss - Respiratory problems - Aggravation of asthma
Lead	<ul style="list-style-type: none"> - Lead water pipes - Lead paint 	<ul style="list-style-type: none"> - IQ deficiency - Lead poisoning
Radon (radiation)	<ul style="list-style-type: none"> - Design and repair of floors 	<ul style="list-style-type: none"> - Lung cancer - Other cancers (leukaemia, skin, gastrointestinal)
Uncombusted fuel gas	<ul style="list-style-type: none"> - Condition, design and siting of gas supplies and appliances 	<ul style="list-style-type: none"> - Asphyxiation
Volatile organic compounds	<ul style="list-style-type: none"> - VOC-emitting materials or treatments used - Inadequate ventilation 	<ul style="list-style-type: none"> - Allergic reactions involving eyes, nose, skin and respiratory tract - Headaches, nausea, dizziness and drowsiness
Crowding and space	<ul style="list-style-type: none"> - Level of occupancy - Size of kitchen in relation to occupancy and use - Sharing of amenities 	<ul style="list-style-type: none"> - Psychological distress - Reduced concentration - Reduced tolerance - Poor hygiene - Increased risk of accidents - Spread of contagious disease
Entry by intruders	<ul style="list-style-type: none"> - Defensible space - External lighting - Natural surveillance - Locks to windows and doors - Condition of windows and doors - Concierge/entryphone for flats 	<ul style="list-style-type: none"> - Emotional stress (from fear of crime or as a result of burglary) - Injuries from aggravated burglary
Lighting	<ul style="list-style-type: none"> - Size, shape and position of windows - Obstruction of windows - Adequate artificial lighting and controls 	<ul style="list-style-type: none"> - Depression and psychological conditions - Eye strain
Noise	<ul style="list-style-type: none"> - Situation of dwelling - Sound insulation - Repair of windows and external doors - Noisy/badly sited equipment or facilities 	<ul style="list-style-type: none"> - Psychological stress - Sleep disorders - Anxiety and irritability - Cardiovascular conditions
Domestic hygiene, pests and refuse	<ul style="list-style-type: none"> - Repair/design allowing ingress of pests - Refuse space (internal and external) - Refuse chutes (flats) 	<ul style="list-style-type: none"> - Gastro-intestinal disease - Asthma and allergic rhinitis - Emotional distress - Depression and anxiety
Food safety	<ul style="list-style-type: none"> - Repair/design of sinks, worktops, cooking provision, food storage facilities - Ratio of facilities to occupants - Sharing of facilities 	<ul style="list-style-type: none"> - Food poisoning (mild to fatal)

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Hazard	Key housing factors contributing to hazard	Main health problems linked to hazard
Personal hygiene, sanitation and drainage	<ul style="list-style-type: none"> - Ratio of facilities to occupants - Adequate supplies of hot and cold water - Disrepair to facilities - Drainage - Sharing of facilities 	<ul style="list-style-type: none"> - Gastro-intestinal illness (mild to fatal) - Anxiety and depression
Water supply for domestic purposes	<ul style="list-style-type: none"> - Quality of water supply - Water tanks protected against contamination 	<ul style="list-style-type: none"> - Gastro-intestinal illness (mild to fatal) - Legionnaires disease
Falls associated with baths etc.	<ul style="list-style-type: none"> - Design and condition of baths/showers - Size and layout of bath/shower rooms - Poor lighting/glare 	<ul style="list-style-type: none"> - Physical injury (cuts, swellings, fractures, death) - Deterioration in general health for elderly
Falls on the level	<ul style="list-style-type: none"> - Trips steps or steep slopes - Uneven surfaces - Disrepair to surfaces - Inadequate drainage of surface water - Poor lighting/glare 	<ul style="list-style-type: none"> - Physical injury (cuts, swellings, fractures, death) - Deterioration in general health for elderly
Falls associated with stairs or steps	<ul style="list-style-type: none"> - Design and state of repair of stairs/steps - Provision and condition of handrails and guardrails - Poor lighting/glare - Size/design of landings - Projections to stairs at foot of flight 	<ul style="list-style-type: none"> - Physical injury (cuts, swellings, fractures, death) - Deterioration in general health for elderly
Falls between levels	<ul style="list-style-type: none"> - Design and state of repair of windows - Design and state of repair of balconies - Height above ground - Hardness/projections on ground 	<ul style="list-style-type: none"> - Physical injury (cuts, swellings, fractures, death) - Deterioration in general health for elderly
Electrical hazards	<ul style="list-style-type: none"> - Age/disrepair of electrical installation - Number and location of socket outlets 	<ul style="list-style-type: none"> - Electric shock (mild to fatal)
Fire	<ul style="list-style-type: none"> - Location of heater/cooker - Adequacy and repair of heating - State of repair of electrical installation - Number and location of socket outlets - Fire protection to escape routes - Detectors/alarms - Fire fighting equipment 	<ul style="list-style-type: none"> - Inhalation of smoke/fumes (mild to fatal) - Burns (mild to fatal)
Hot surfaces and materials	<ul style="list-style-type: none"> - Unprotected hot surfaces or flames - Temperature of hot water to taps - Poor layout or inadequate space to kitchen 	<ul style="list-style-type: none"> - Burns and scalds - Psychological distress
Collision and entrapment	<ul style="list-style-type: none"> - Design, location and disrepair to doors - Design, location and disrepair to windows - Unprotected gaps in banisters - Low headroom, beams or ceilings 	<ul style="list-style-type: none"> - Physical injury (cuts, piercing, trapping, bruising, crushing)
Explosions	<ul style="list-style-type: none"> - Design and repair of gas supply and appliances - Design and repair of hot water systems - Inadequate or defective LPG storage 	<ul style="list-style-type: none"> - Physical injury (crushing, bruising, fractures, death)
Position and operability of amenities	<ul style="list-style-type: none"> - Space and layout of kitchen amenities - Space and layout of washing and WC amenities - Design/repair of taps, windows and doors 	<ul style="list-style-type: none"> - Physical injury (sprains, sprains, bruises, fractures)
Structural collapse and falling elements	<ul style="list-style-type: none"> - Structural movement or cracks - Disrepair to external fabric (esp. chimneys and cladding) - Disrepair to internal fabric (esp. ceilings and stairs) 	<ul style="list-style-type: none"> - Physical injury (minor to fatal)