**Urban Flood**

**Overview**

Urban floods can arise from extreme thunderstorms or from river overflow. Both rapid rise and slow rise floods can have a significant impact on public health in an urban area.1 While the adverse health effects of flooding include direct impacts on human health, the pathways can be complicated and indirect.

**Health impacts**

**Disruption to essential health care.** Treatment for serious illnesses, such as cancer, can be disrupted by flooding, due to transport infrastructure being knocked out for prolonged periods of time.2 Health care practitioners may also become overwhelmed by the increased demand for services.1

**Drowning or physical trauma.** Rapid rise floods can cause sudden changes to the environment, increasing the risk of drowning and injuries.3 Slow rise floods can also be deadly when there is a lack of preparedness.1

**Illnesses.** Diseases can be spread from undisinfected groundwaters by the onset of flooding.4 Increased instances of cholera5, diarrheal diseases5, hepatitis A and E5, leptospirosis5, melioidosis6, respiratory infections7, and typhoid5 have been observed after floods in urban areas.

**Malaria.** Epidemics in the wake of flooding in tropical regions can occur due to clogging of storm water drains, causing stagnant water to allow genesis of vectors of malaria.7,8

**Malnutrition** Damage to infrastructure, and disruption to food systems can cause malnutrition, with children and the elderly particularly vulnerable.9

**Psychological distress.** The mental health effects of a flood can last long after the flood itself, with reports of increased prevalence of psychological morbidity (including depression, anxiety, PTSD) in residents up to 1 year after floods, particularly if residents are displaced.10,11

**Deliverables**

**Potential projects with improved forecasting**

**Wildfire**

**Overview**

**Health impacts**

**Burns.** Direct flame and thermal burns can result from a wildfire. The great increase in burns victims in a short time puts significant pressure on health care burns units, which can overwhelming these specialist centres.12

**Carbon monoxide poisoning.** This is mainly a risk to those who are in the immediate vicinity of the fire, such as firefighters. It can cause hypoxic injury, nervous system damage, and death.

**Eye irritation.** Those living close to the wild fires can experience eye irritation, as well as reduced general visibility due to ambient smoke, which can make vehicular accidents more likely.13 Corneal abrasions can also result from the eyes’ exposure to wildfire smoke.14

**Heat-induced illness.** Working in hot and humid conditions can cause many health issues (see ‘Urban Heat Waves and Pollution’). Firefighters can be particularly vulnerable when attempting to deal with the controlling the extent of the fires.

**Particulate matter inhalation.** Burning of organic material can produce several varieties of particulate matter. PM10 (particles under 10µm in diameter) can pass through the upper respiratory tract and are deposited in airways.12 PM2.5 (particles under 2.5 µm in diameter) can penetrate even deeper into the lungs and deposited where gaseous exchange takes place.12 Short-term exposure leads to increases in hospital admissions for respiratory conditions.15 Exposure to particulate matter will cause long-term health problems, and is a known risk factor for cardiopulmonary and lung cancer mortality.16,17

**Psychological distress.** Wildfires can cause the complete destruction of homes and livelihoods. This in turn can lead to depression, anxiety, and PTSD.18

**Respiratory complications.** Breathing in bushfire smoke will exacerbate breathing problems for both children and adults. [ref]

**Water and land contamination.** Large concentrations heavy metals (such as arsenic, cadmium, copper, and lead) have been found deposited in soil from ash debris after a wildfire, which can cause various long-term health effects.19

**Deliverables**

**Potential projects with improved forecasting**

**Localised Extreme Wind**

**Overview**

**Health impacts**

**Deliverables**

**Potential projects with improved forecasting**

**Disruptive Winter Weather**

**Overview**

**Health impacts**

**Deliverables**

**Potential projects with improved forecasting**

**Urban Heat Waves and Air Pollution**

**Overview**

**Health impacts**

**Deliverables**

**Potential projects with improved forecasting**

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