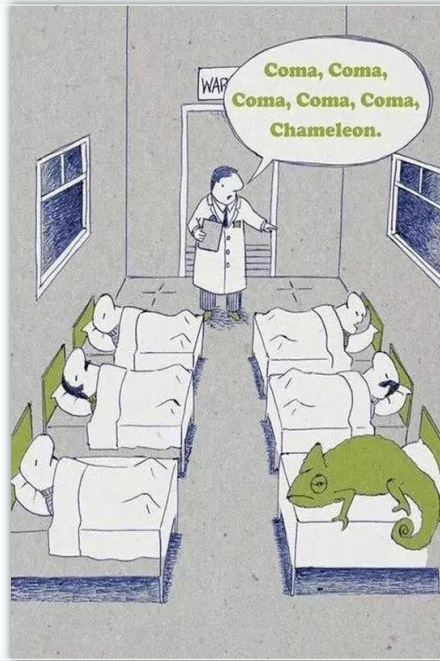




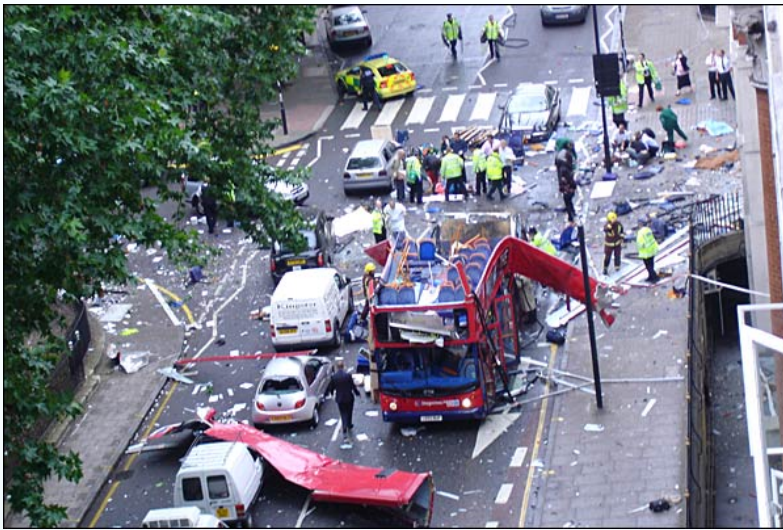
Non Communicable Disease Following Disasters The Forgotten Story

Peter Aitken
Penny Burns
Ben Ryan

Thanks To

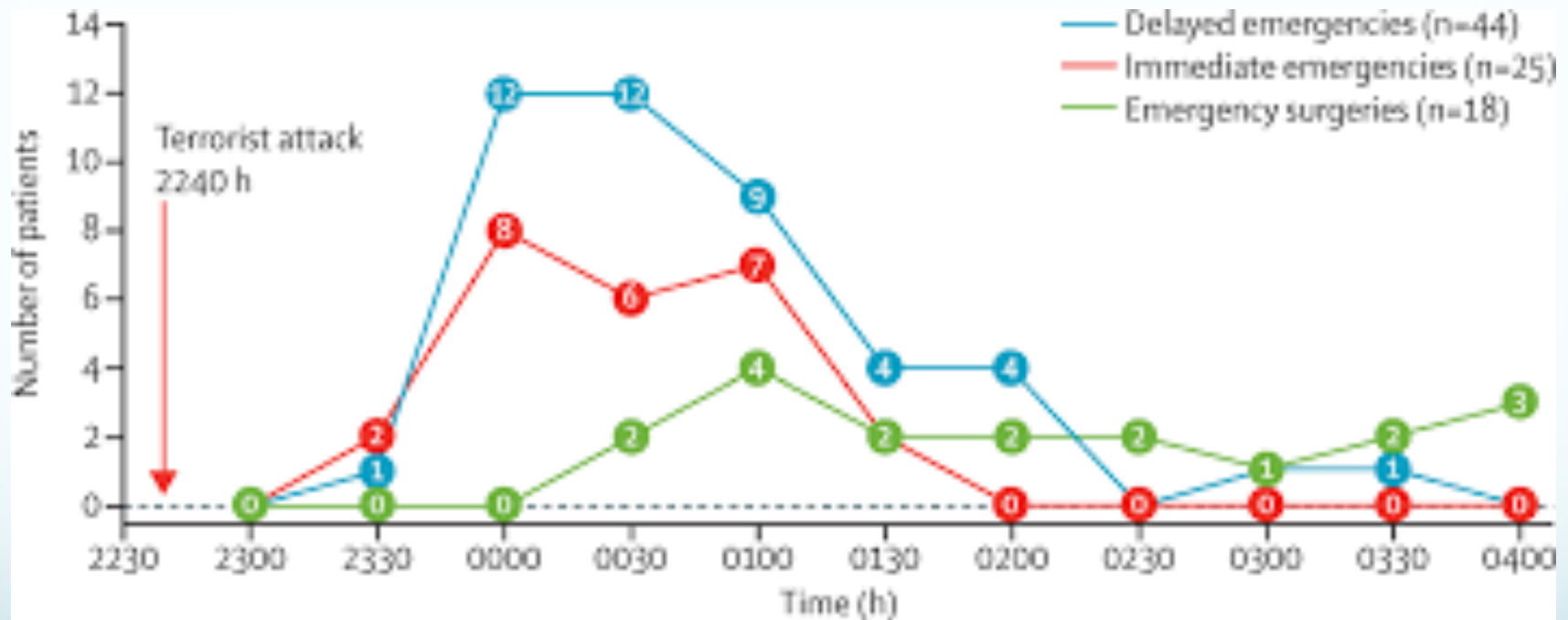
- Dr Penny Burns
 - Primary Healthcare in Disasters
 - ANU (about to submit PhD)
- Dr Ben Ryan
 - Non Communicable Disease in Disasters
 - JCU (completed PhD)

What Today Is Not About

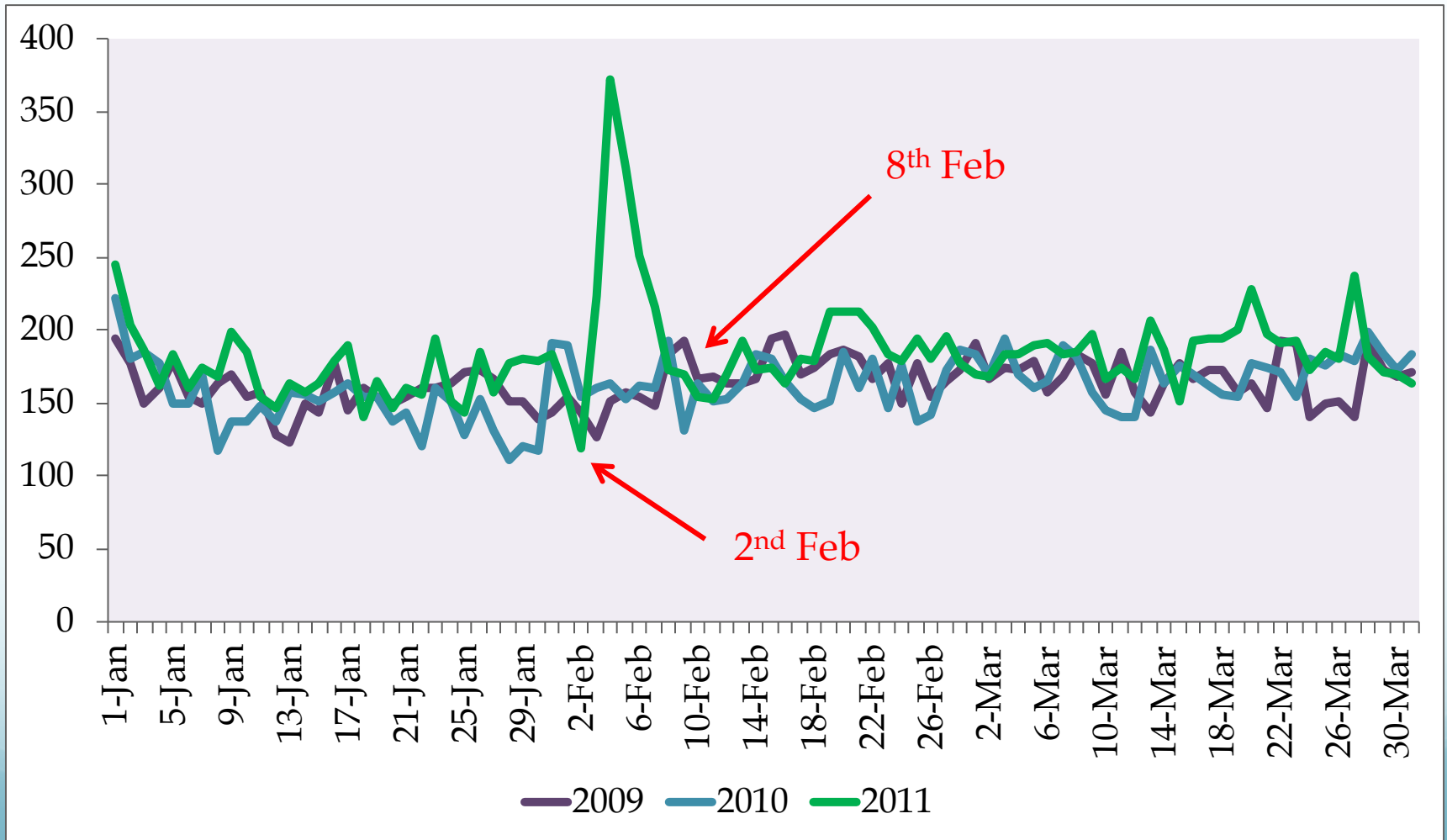


Identifiable event
Localised impact
Identifiable injury
Direct causation
Visible
Measurable
Newsworthy

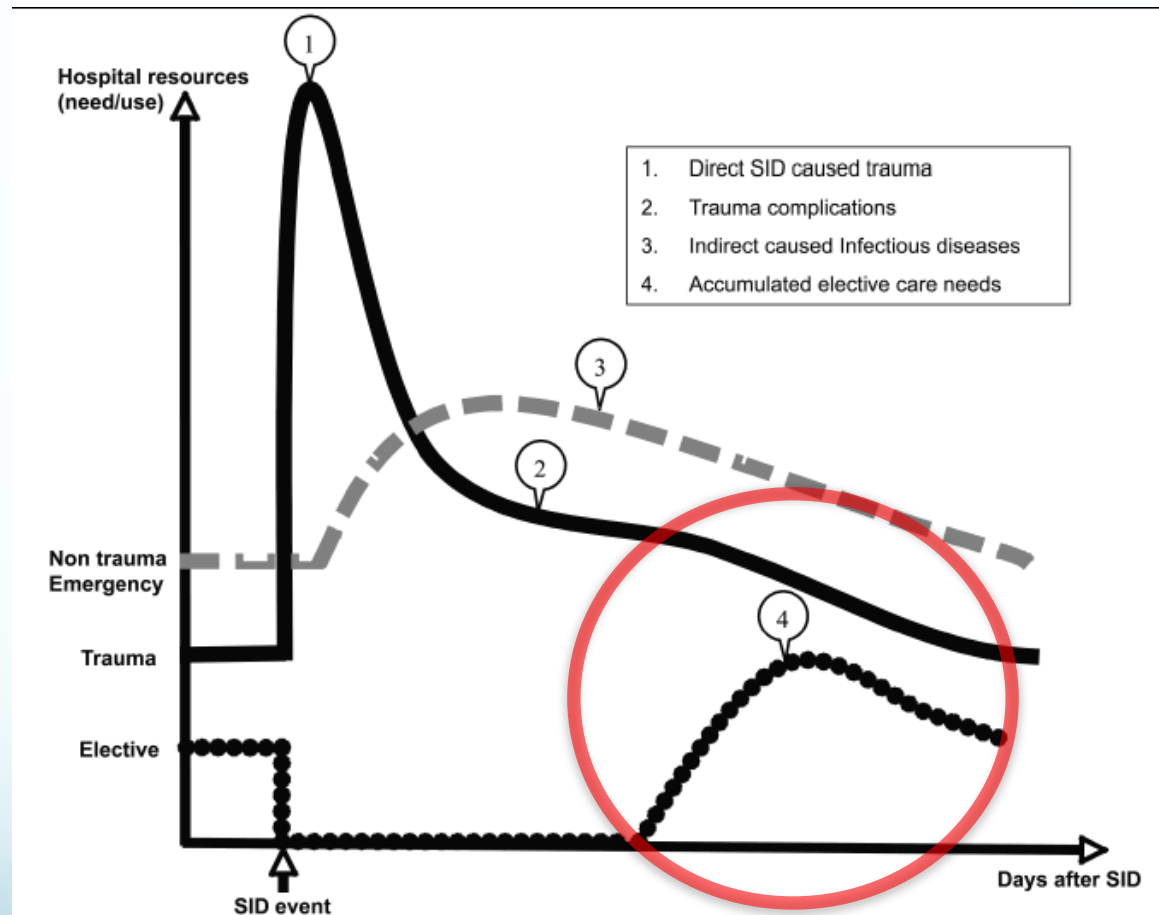
Clinical workload and priorities



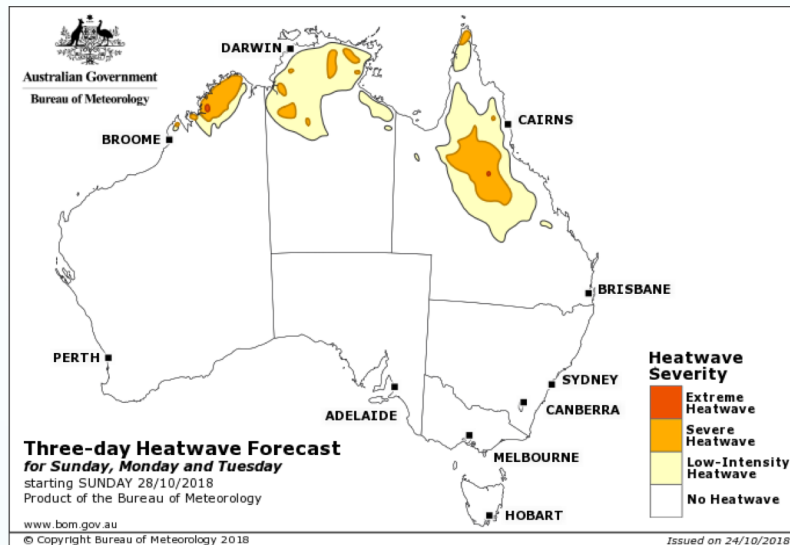
Townsville ED Post TC Yasi



Burden of disease in disaster



What Today Is About



Less identifiable event
Not localised
Illness rather than injury
Indirect causation
Less visible
Hard to measure prospectively
Newsworthy?



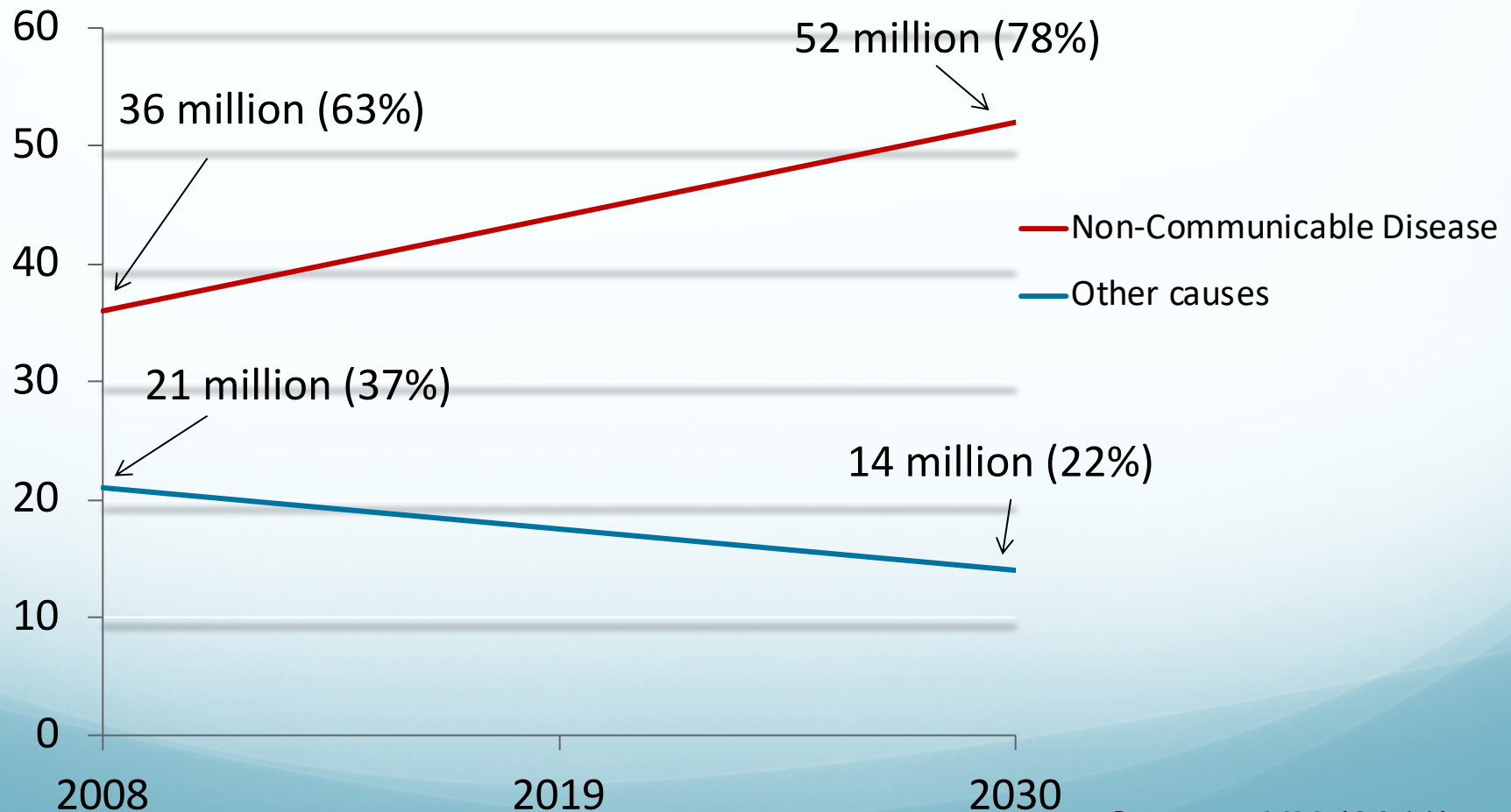
Sendai Framework for Disaster Risk Reduction 2015-2030

30 (k) People with life threatening and chronic disease, due to their particular needs, should be included in the design of policies and plans to manage their risks before, during and after disasters, including having access to life-saving services.

Significance of NCDs

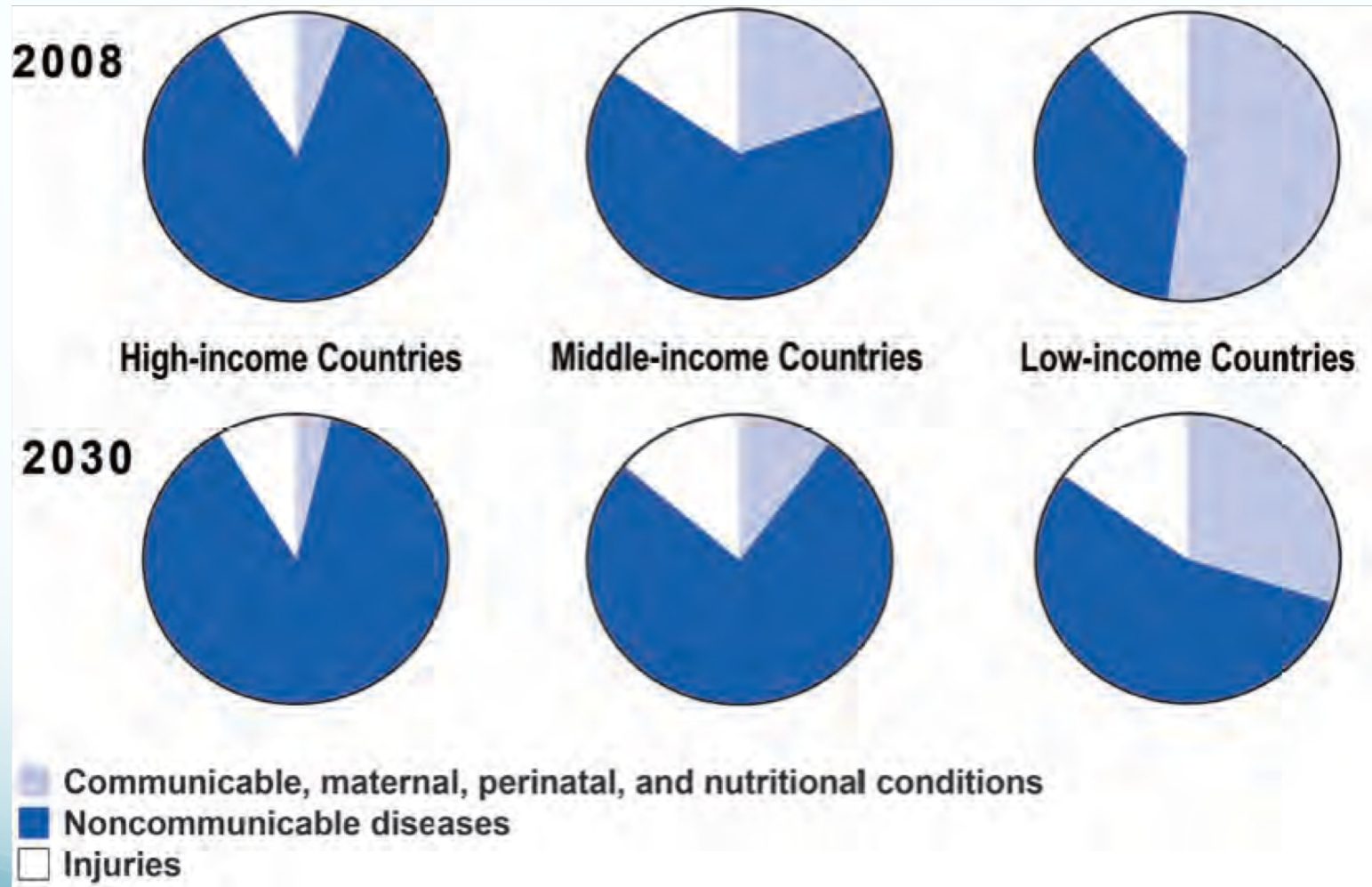
Projected Trends – Global Deaths

Millions



Source: UN (2011)

Burden of NCDs



Source: WHO (2003)

NCDs in Queensland

NCD	Queensland prevalence (Qld Health 2016)
Cancer	4%
Cardiovascular conditions	16%
Diabetes	5%
Mental health	14% (reported in past six months)
Renal diseases	1%
Respiratory conditions	14%

Chronic disease is the leading cause of ill-health and death in Australia, and accounts for almost 85% of the total burden of disease in Australasia in 2010.

30% of people with NCDs indicated they require support to manage their condition in a disaster

Understanding This

Never buy a border collie when your drunk.



Hurricanes and NCDs

All Cause Mortality

- 47% increase in mortality and morbidity one year after after Hurricane Katrina (Burkle 2010)

Diabetes

- Diabetes related deaths accounted for 5% of excess deaths - Florida, 2004 (four hurricanes) (Brown 2008)
- Increased risk for people reliant on insulin (Ng, 2011)

Asthma

- Admissions were three times higher in the two weeks after Hurricane Iniki, 1992 (Hendrickson 1997)

Cardiac

- In 30 days following Hurricane Sandy, incidence increased by 22% and mortality by 31% (Swerdel 2014)
- After four hurricanes in Florida during 2004, accounted for 34% of excess deaths (Brown 2008)
- Three-fold increase for six years after Hurricane Katrina (Guatum 2009)

Cancer

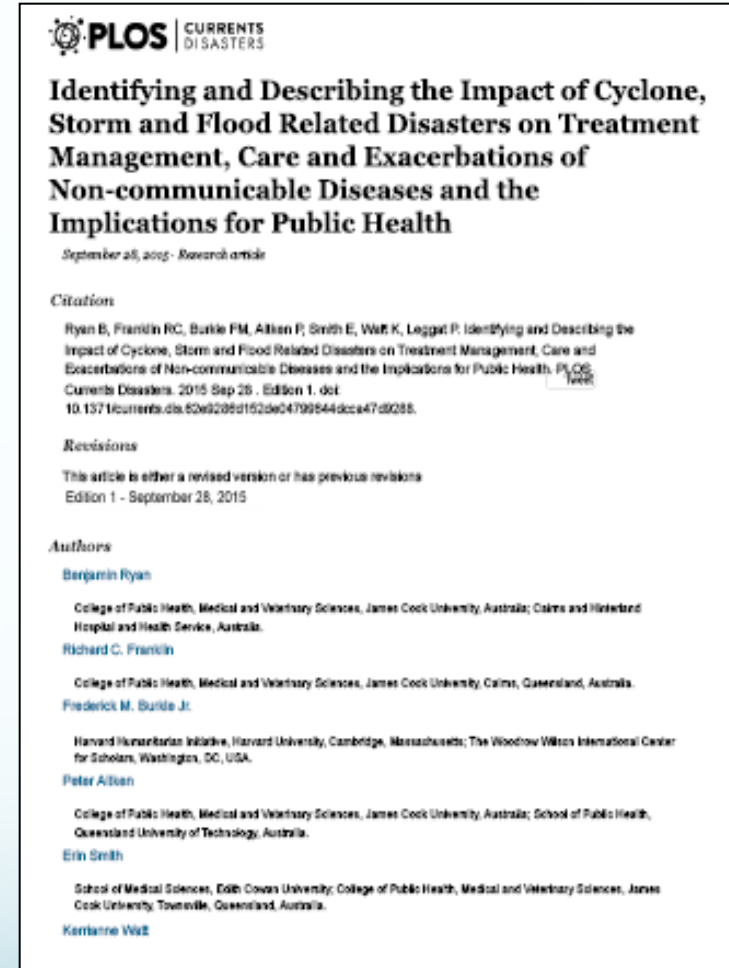
- Cancer related deaths 19% increase in 12 months post Hurricane Iniki (1992) (Hendrickson 1997)
- Cancer treatment services decreased by 33% one year after Hurricane Katrina (2005) (Brown 2008)

Why Is It So ?



Impact of cyclone, storm and flood related disasters on NCDs

- Systematic review literature
- Disasters interrupt treatment and care for people with NCDs including access to medications
- Damaged transport routes, reduced health services, loss of power and evacuations
- Increasing the risk of exacerbation of illness or even death
- People at greatest risk are those:
 - with underlying cardiovascular and respiratory diseases
 - undergoing cancer treatment
 - with unstable diabetes
 - with renal diseases, especially if receiving dialysis.



Ryan B, Franklin R, Burkle F, Aitken P, Smith E, Watt K & Leggat P (2015a). Identifying and describing the impact of cyclone, storm and flood related disasters on treatment management, care and exacerbations of noncommunicable diseases and the implications for public health. *PLOS Currents Disasters*. 2015(7)

Chronic Condition	Issues impacting Condition in disaster or emergency	Potential Outcomes
Diabetes	Serious impact on blood glucose levels (BGL's) due to: • Incorrect, damaged or no availability of insulin. • Physical and mental stress. • Physical activity. • Emotional responses – stress, fear, anxiety. • Hormonal responses – adrenaline, cortisol. • Inaccessibility to appropriate food & water supplies.	• Hypoglycaemia (hypos). • Hyperglycaemia (DKA). • Unconsciousness. • Coma. • Death.
Cancer	Serious risk of contracting communicable disease due to compromised immunity: • Poor sanitation. • Unsafe drinking water. • Evacuation to a population dense setting. • Spoiled food.	• Infection.
Cardiovascular disease	Serious risk of severe worsening or complications of condition due to: • Limited access to medication. • Disruption to health care services. • Physical workload associated with clean-up and reconstruction.	• Increased blood pressure. • Unstable angina. • Palpitations (arrhythmia). • Heart attack.
Chronic respiratory disease	Serious risk of sudden worsening of condition due to: • Disruption to equipment (e.g. oxygen & nebulisers) and medications. • Overcrowding in shelters or temporary accommodation which increases exposure to airborne diseases and allergens. • Poor sanitation which can increase exposure to airborne mould spores. • Air pollution can also be a major concern, as can exposed asbestos if considerable damage to buildings.	• Exacerbations of condition. • Becoming oxygen dependent. • Pulmonary embolism (a blockage of the lungs main artery). • Pneumothorax (the presence of air or gas in the cavity between the lungs and the chest wall, resulting in a collapse of the lung). • Increased risk of death within 90 days after a natural disaster.
Kidney (renal) disease	Serious risk of condition worsening due to: • Damage to equipment required to manage condition. • Lost medications. • Reduction in health care services. • Compromised water quality. • Poor sanitation.	• Reliance on dialysis interrupted/ discontinued. • Essential for transplant recipients (kidney or other organs) to continue anti-rejection medication.

Source: Ryan B, Franklin R, Burkle F & Aitken P– Expert Advisors, ADEA (2015). THE NEEDS OF PEOPLE WITH DIABETES AND OTHER CHRONIC CONDITIONS IN NATURAL DISASTERS: A Guide for Emergency Services, Local Councils and the Not-for-Profit Sector. Diabetes Australia and the Australian Diabetes Educators Association, Canberra, Australia.

What Can We Do About This?

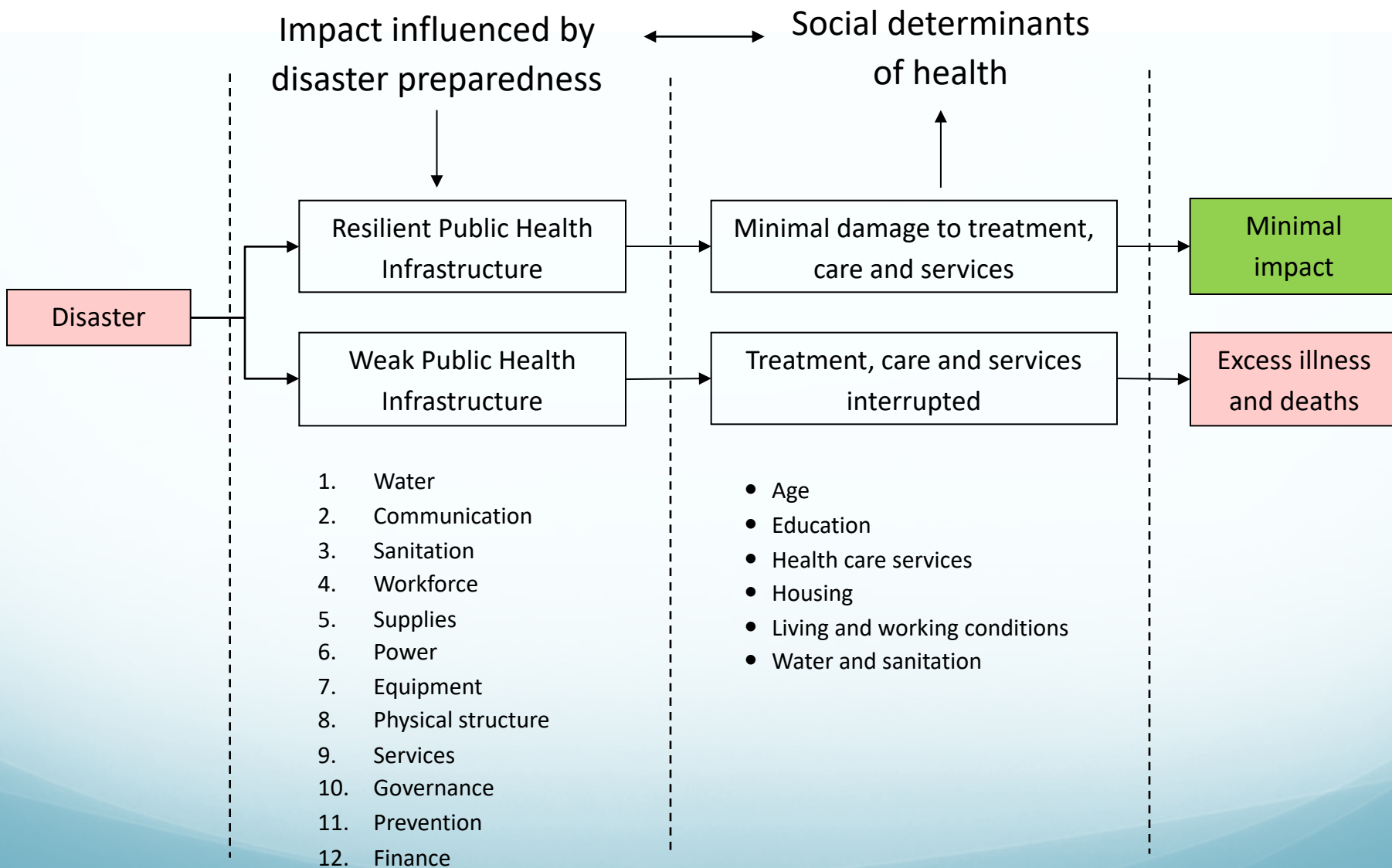


Public Health Infrastructure

- Defined, described and categorised PHI for cyclone, flood, storm, tornado and tsunami related disasters
- PHI defined as “the workforce, equipment, supplies, and services required to maintain the health and well-being of individuals and the community.”
- The highest priority PHI identified was workforce followed by:
 - Water, sanitation, equipment, communication, physical structure, power, governance, prevention, supplies, service, transport and surveillance.
- If workforce fails, it has the greatest impact on health service performance



Conceptual framework and theoretical approach



Vulnerability Indicators (Framework)

Indicators	Can include (not exhaustive list)
Proximity to an event, lack of warning of an event	People living, working in and travelling through the affected area
Made a decision not to help themselves	People have received warning but chose to not take safety advice
Lack of understanding risk to an event	People living, working in and travelling through the affected area
Insecure housing or homelessness	Insecure housing e.g. caravans and boarding houses, rough sleepers and homelessness
Lack of financial resources	Pension and benefit recipients, low income workers (including casual and part time)
Personal safety; reduced health and/or wellbeing	Some older people, children and young people, those experiencing domestic and family violence. People impacted by loss or injury related to a disaster
Disruption to, or lack of available services, supports/ carers medication, aids and equipment	Some older persons, frail, aged, people with health conditions including mental illness, people with disability
Lack of access to, or disruption to transport, supplies and communication	People without private transport or reliant on public transport, people reliant on medical equipment and medication People with languages other than English or low literacy levels
Visitors or new arrivals, low risk understanding or knowledge	Migrants, refugees, overseas/temporary workers, students and tourists
Social, physical, geographic isolation	Some older people, people with health conditions, e.g. mental illness, disability, people experiencing homelessness People living and working in remote locations

Protective Factors





Questions

