L'influenza delle calamità ambientali e dei conflitti sull'epidemiologia delle malattie infettive

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Disasters and Natural Hazards

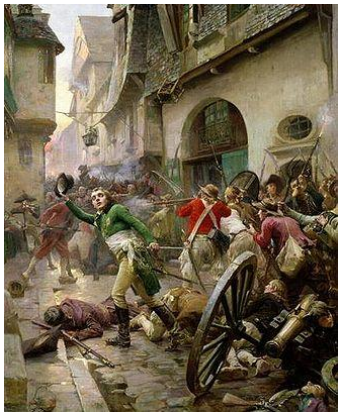
In the 2005 Secretary-General Report "Relief to Development", the expression "natural disasters" was purposedly not used, as it conveys the mistaken assumption that disasters occurring as a result of natural hazards are wholly "natural", and therefore inevitable and outside human control. Instead, it is widely recognized that such disasters are the result of the way individuals and societies relate to threats originating from natural hazards. The nature and scale of threats inherent in hazards vary. The risks and potential for disasters associated with natural hazards are largely shaped by prevailing levels of vulnerability and measures taken to prevent, mitigate and prepare for disasters. Thus, disasters are, to a great extent, determined by human action, or lack thereof. The expression "disasters associated with natural hazards" should therefore be used, in line with the Hyogo Framework for Action adopted at the World Conference on Disaster Reduction held in January 2005 in Kobe (Hyogo, Japan). Natural Hazards comprise phenomena such as earthquakes; volcanic activity; landslides; tsunamis; tropical cyclones and other severe storms; tornadoes and high winds; river floods and coastal flooding; wildfires and associated haze; drought; sand/dust storm; infestations.

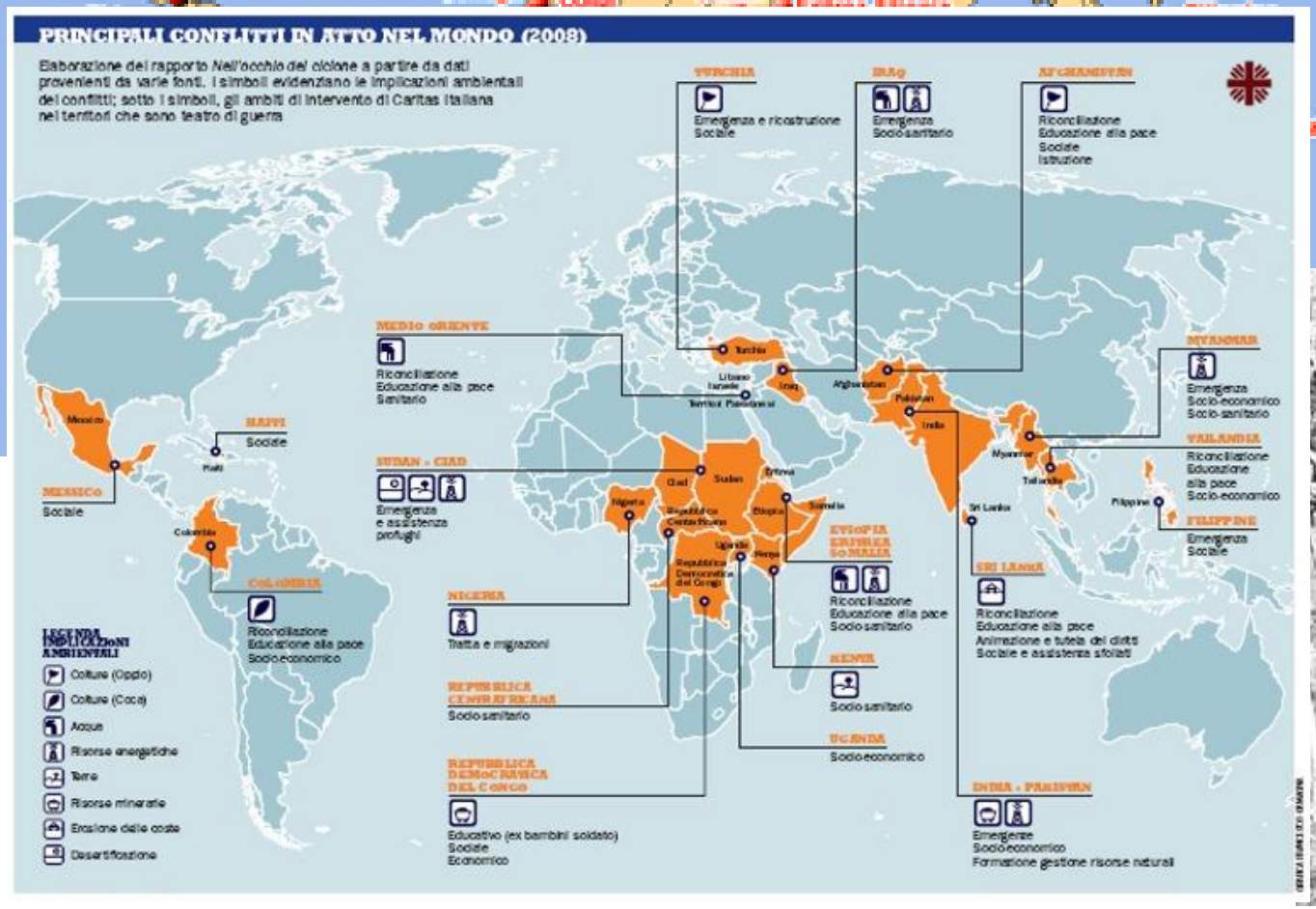
Disaster

1. A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources (ISDR).
2. Situation or event, which overwhelms local capacity, necessitating a request to national or international level for external assistance (CRED).
3. A term describing an event that can be defined spatially and geographically, but that demands observation to produce evidence. It implies the interaction of an external stressor with a human community and it carries the implicit concept of non-manageability. The term is used in the entire range of risk-reduction activities, but it is possibly the least appropriate for response.


la guerra, le guerre e le popolazioni
riflettiamo su
guerra giusta - ingiusta
amico - nemico
vicino - lontano
confini - aree di influenza
esistono
blocchi e superpotenze
utilizziamo questi concetti per capire le guerre
la guerra può essere
convenzionale - civile Nucleare Batteriologica Chimica
fredda - calda
guerre taciute - guerre in TV
tipi di guerra
distinguiamo fra
attenzione
guerriglia
resistenza
terrorismo
negli ultimi cento anni siamo di fronte a nuovi
militari
genocidio
eccidio
rappresaglia
morti in guerra in tempo di pace
possono essere
conseguenze sulla popolazione
quali sono le
economiche
civili e politiche
personali
puoi approfondire
puoi orientarti
puoi utilizzre
siti di storia
cronologia
altre idee per lavorare


Irlanda del Nord
Macedonia
Abkhazia
Cecenia
Paese Basco
Kurdistan
Afghanistan
Kashmir
Algeria
Iraq
Nepal
MedioOriente
India
Birmania
Senegal
Costa
Sudan




PRINCIPALI CONFLITTI IN ATTO NEL MONDO (2008)
Elaborazione del rapporto Nell'occhio del ciclone a partire da dati provenienti da varie fonti. I simboli evidenziano le implicazioni ambientali dei conflitti; sotto i simboli, gli ambiti di intervento di Caritas Italiana nei territori che sono teatro di guerra
TURCHIA
Emergenza e ricostruzione
Sociale
IRAQ
Emergenza
Socio-sanitario
AFGHANISTAN
Riconciliazione
Educazione alla pace
Sociale
Istruzione
MEDIO ORIENTE
Riconciliazione
Educazione alla pace
Sanitario
HAITI
Sociale
MESSICO
Sociale
SUDAN - CIAD
Emergenza
e assistenza
profughi
COLOMBIA
Riconciliazione
Educazione alla pace
Socio-economico
NIGERIA
Tratta e migrazioni
REPUBBLICA CENTRAFRICANA
Socio-sanitario
REPUBBLICA DEMOCRATICA DEL CONGO
Educativo (ex bambini soldato)
Sociale
Economico
ETIOPIA ERITREA SOMALIA
Riconciliazione
Educazione alla pace
Socio-sanitario
KENYA
Socio-sanitario
UGANDA
Socio-economico
INDIA - PAKISTAN
Emergenze
Socio-economico
Formazione gestione risorse naturali
SRI LANKA
Riconciliazione
Educazione alla pace
Animazione e tutela dei diritti
Sociale e assistenza sfollati
MYANMAR
Emergenza
Socio-economico
Socio-sanitario
THAILANDIA
Riconciliazione
Educazione
alla pace
Socio-economico
FILIPPINE
Emergenza
Sociale
LEGENDA IMPLICAZIONI AMBIENTALI
Colture (Oppio)
Colture (Coca)
Acque
Risorse energetiche
Terre
Risorse minerarie
Erosione delle coste
Desertificazione

Malattie diffusibili

Acqua: salmonellosi, criptosporidiosi, epatiti A /E, leptospirosi

Sovraffollamento: morbillo, meningite, infezioni respiratorie

Vettori: malaria, dengue, febbri emorragiche (Ebola, Marburg, Chikungunia)

Altro: Tetano

Table 1: Main routes of transmission of infectious diseases, and main diseases of relevance to crises transmitted through each

Transmission route	Main diseases	How transmission occurs
Air droplet (i.e. pathogens are breathed, sneezed or coughed out of the respiratory system of the infected person, and enter the respiratory system of another)	Tuberculosis Measles Whooping cough Most other respiratory diseases, including those caused by: Common flu/cold viruses *Streptococcus pneumoniae* *Haemophilus influenzae B* Pandemic influenza Meningitis Trachoma[W]	Inhalation of or eye contact with droplets containing pathogens as a result of close interaction with infectious person Especially likely if infectious person sneezes or coughs
Faecal-oral (i.e. pathogens are excreted from the gut of an infected person, and enter the gut of another person through his/her mouth)	Diarrhoeal diseases, including: Cholera[W] Shigella[W] (bacterial dysentery) Salmonella[W] *Escherichia coli*[W] Rotavirus[W] Amoebiasis[W] Giardiasis[W] Typhoid[W] Most intestinal worms[W] Hepatitis A[W] Hepatitis E[W] Polio[W]	Ingestion of faecal matter (see Chapter 3: Poor water, sanitation and hygiene conditions)
Sexual (i.e. pathogens are transferred from the blood and fluids of an infected person to his/her sexual partner during intercourse)	HIV Syphilis Chlamydia Gonorrhoea Hepatitis B	Unprotected sex (anal sex particularly hazardous)

Vector-borne (i.e. pathogens undergo a life cycle inside humans as well as inside another 'vector' species, usually insects: they need both life cycles to sustain themselves, and are most commonly transmitted from the vector to the human and back to the vector via insect bites)	Malaria[W] Dengue fever[W] Japanese encephalitis African sleeping sickness Leishmaniasis/kala azar River blindness Schistosomiasis[W] Typhus[W] Relapsing fever	Mosquito bite (night-biting) Mosquito bite (day-biting) Mosquito bite (day-biting) Tsetse fly bite Sand fly bite Black fly bite Fresh-water snail Bites of lice, fleas, mites Bites of lice and ticks
Blood (i.e. pathogens are directly transferred from the infected person's blood to another person's)	HIV Hepatitis C Hepatitis B	Unsafe injections Transfusions with unsafe blood
Unclean wound (i.e. pathogens exist in nature and enter the body through a wound)	Tetanus	Deep cuts Infection of umbilical cord after birth
Mother to child (vertical) (i.e. pathogens are transmitted by the mother to her newborn baby)	HIV Hepatitis B Syphilis	During childbirth Breast milk

Figure 2

Illustration of incubation period, duration of infection and serial interval

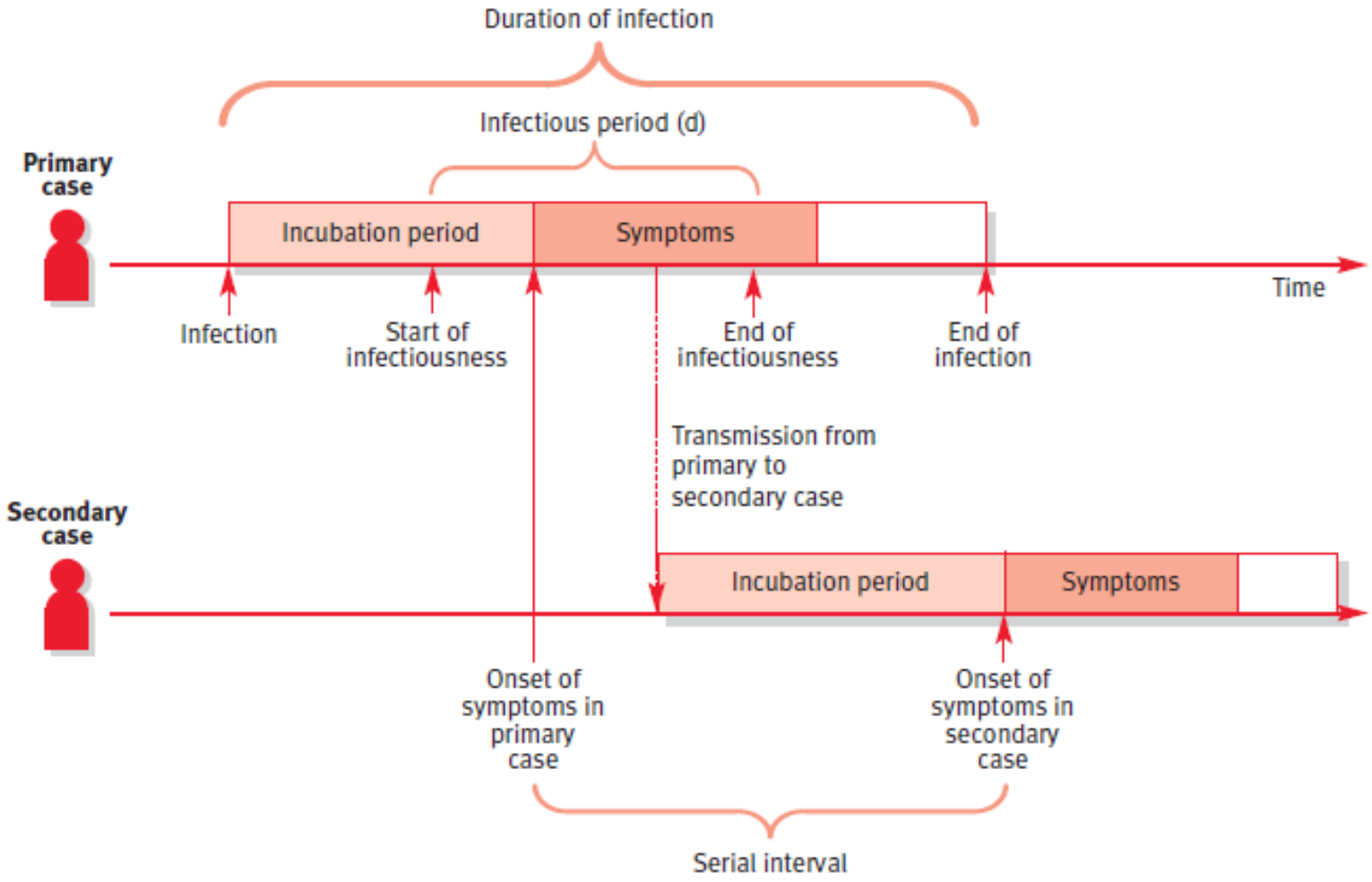


Figure 4

The basic reproductive ratio: an example of vaccination to prevent measles outbreaks

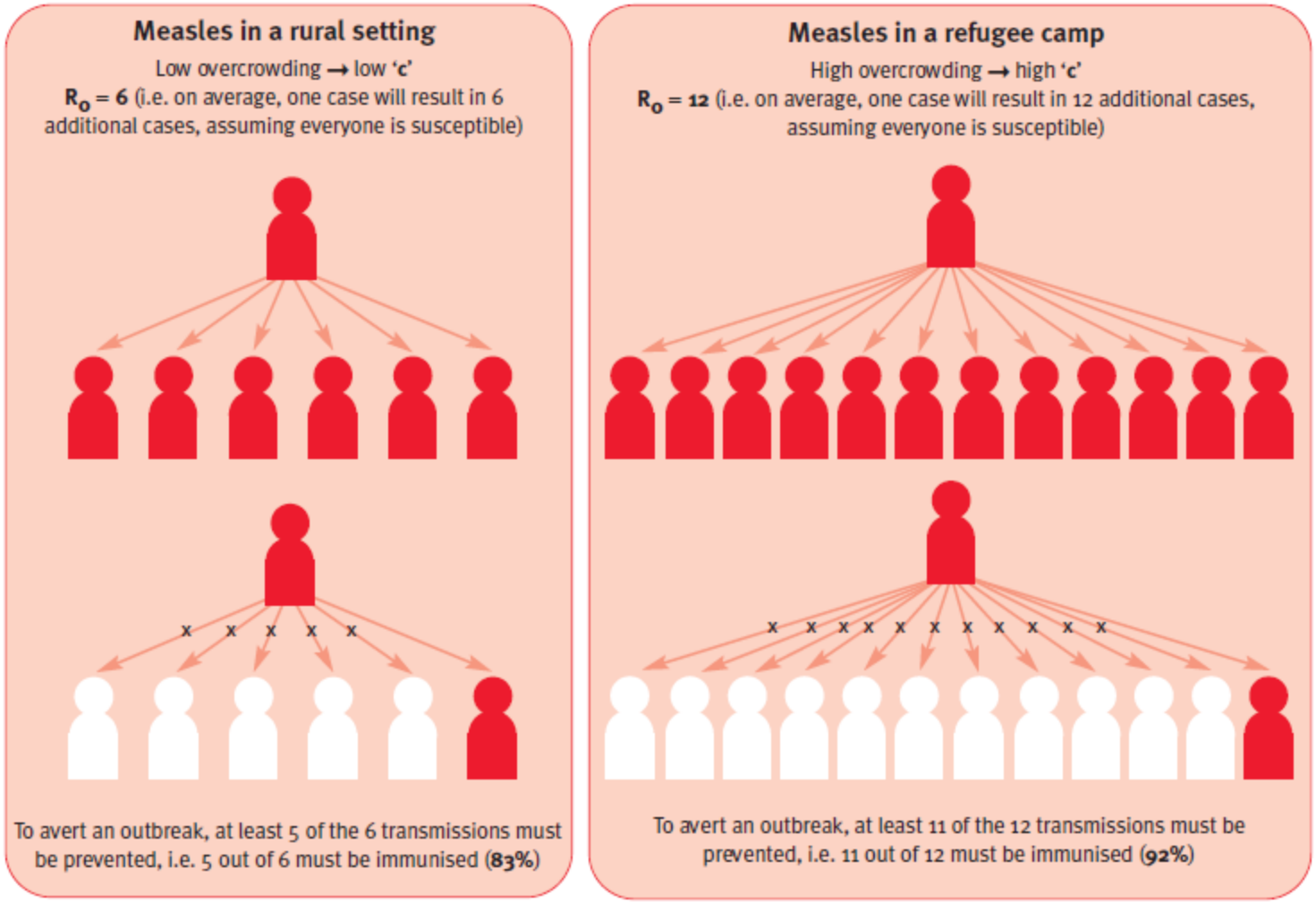


Figure 9

Predicted progression of a measles epidemic, in the absence of interventions, according to different population densities (m^2 per person)

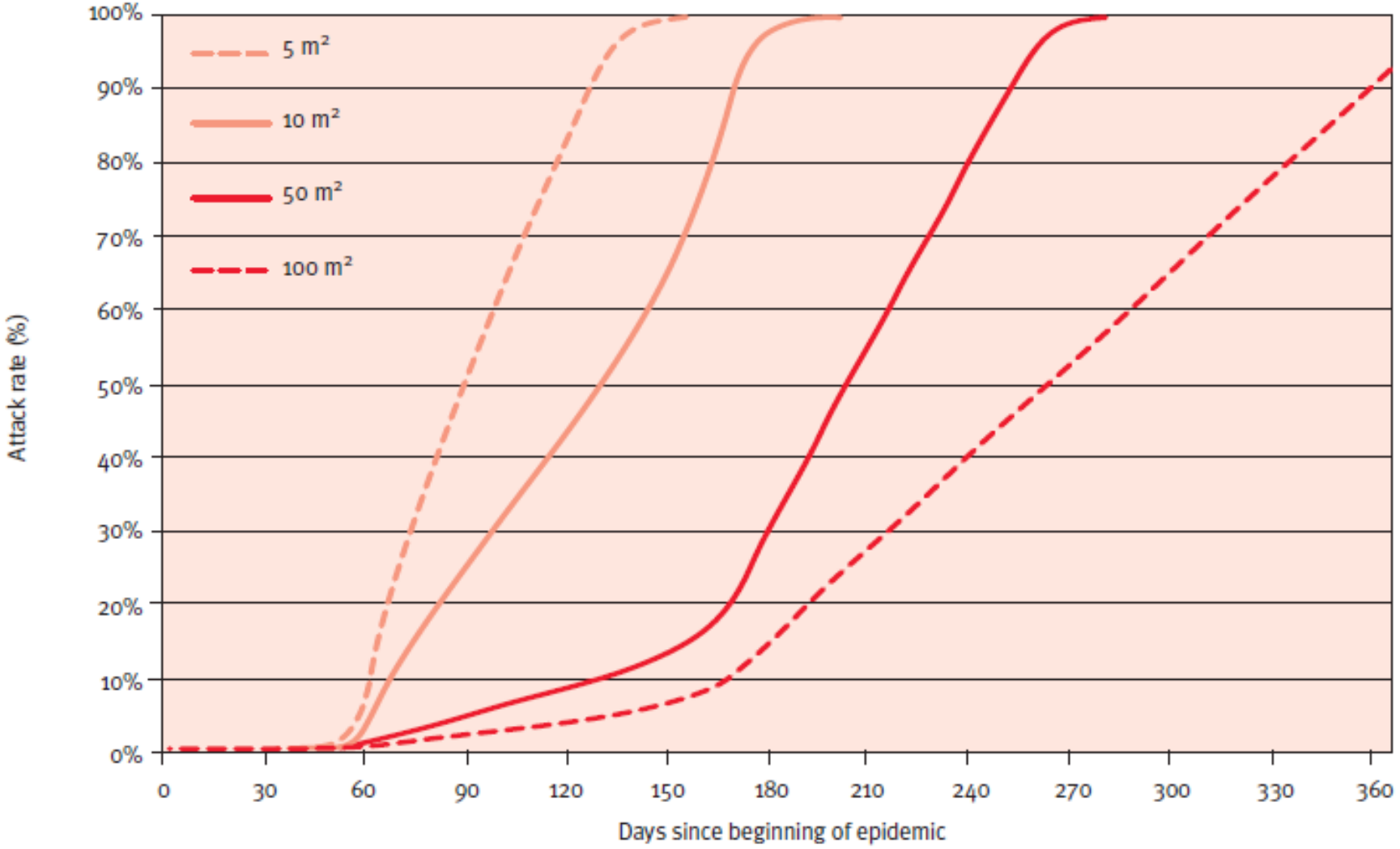
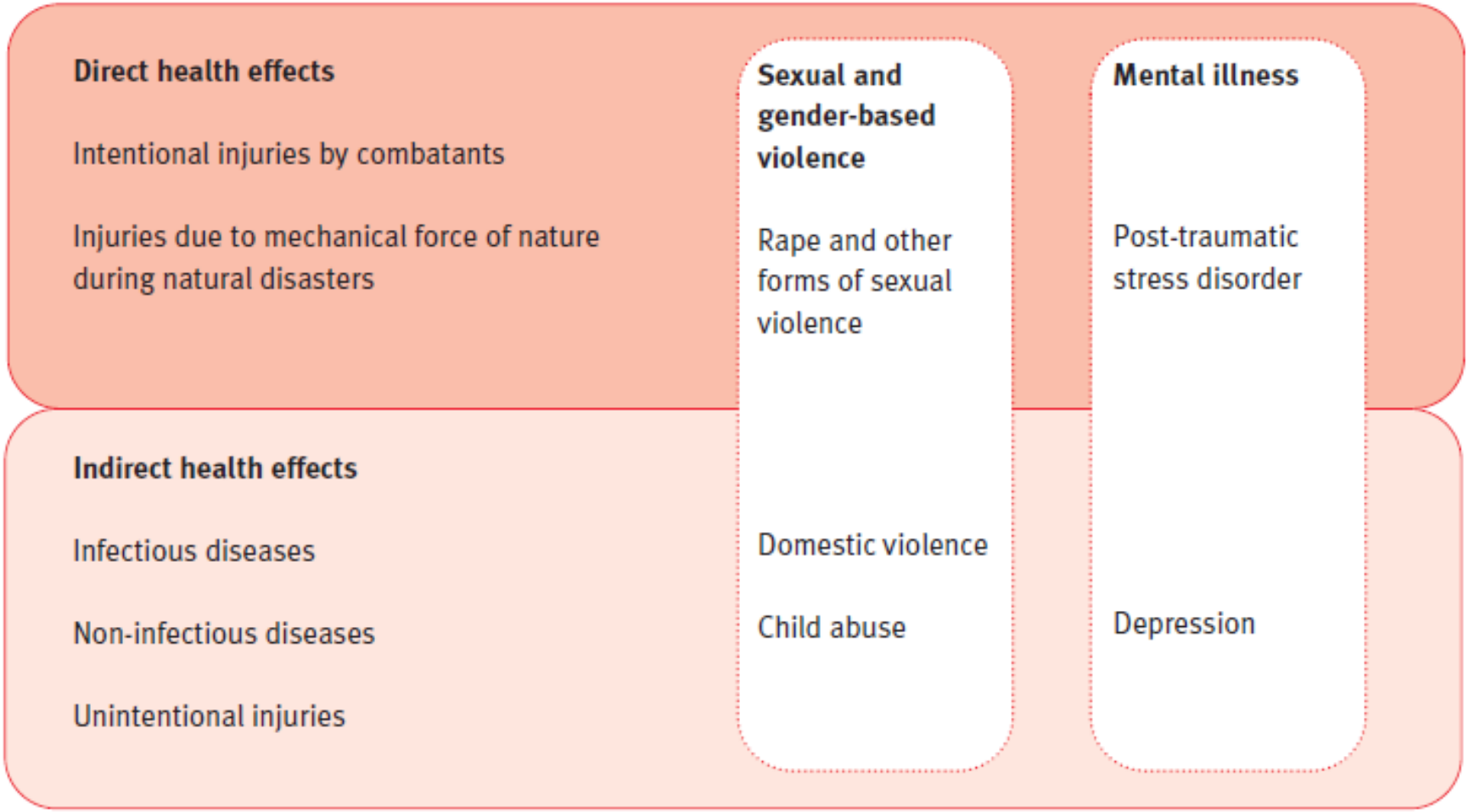


Figure 1

Schematic of direct and indirect health consequences of crises



Box 1

How to compute incidence rates

Step 1. Decide on a **time unit**: should one monitor incidence on a daily, weekly, or monthly basis? In a fast-evolving epidemic, daily or weekly calculations are needed; for endemic diseases, monthly incidence is sufficient.

Step 2. Decide **who is at risk** for the disease in question: is it the entire population or only a sub-group (e.g. children)?

Step 3. Find the best **population estimates** available for the group at risk. Consider whether they could be over- or under-estimates.

Step 4. Find the most comprehensive **data on number of new cases** among the group at risk, broken up by the chosen time unit. Usually, these data will only be available from health facilities. Consider the limitations of these data: health facilities will usually reflect only a fraction of total cases occurring in the community. However, the main function of incidence rates is to monitor trends: health facility data are usually sufficient for this. Also be aware of data quality issues, and how cases were diagnosed: if different facilities use different diagnoses, it is best to analyse them separately. If a data source seems very unreliable, exclude it.

Step 5. Divide the number of new cases by the population estimate, for each time unit.

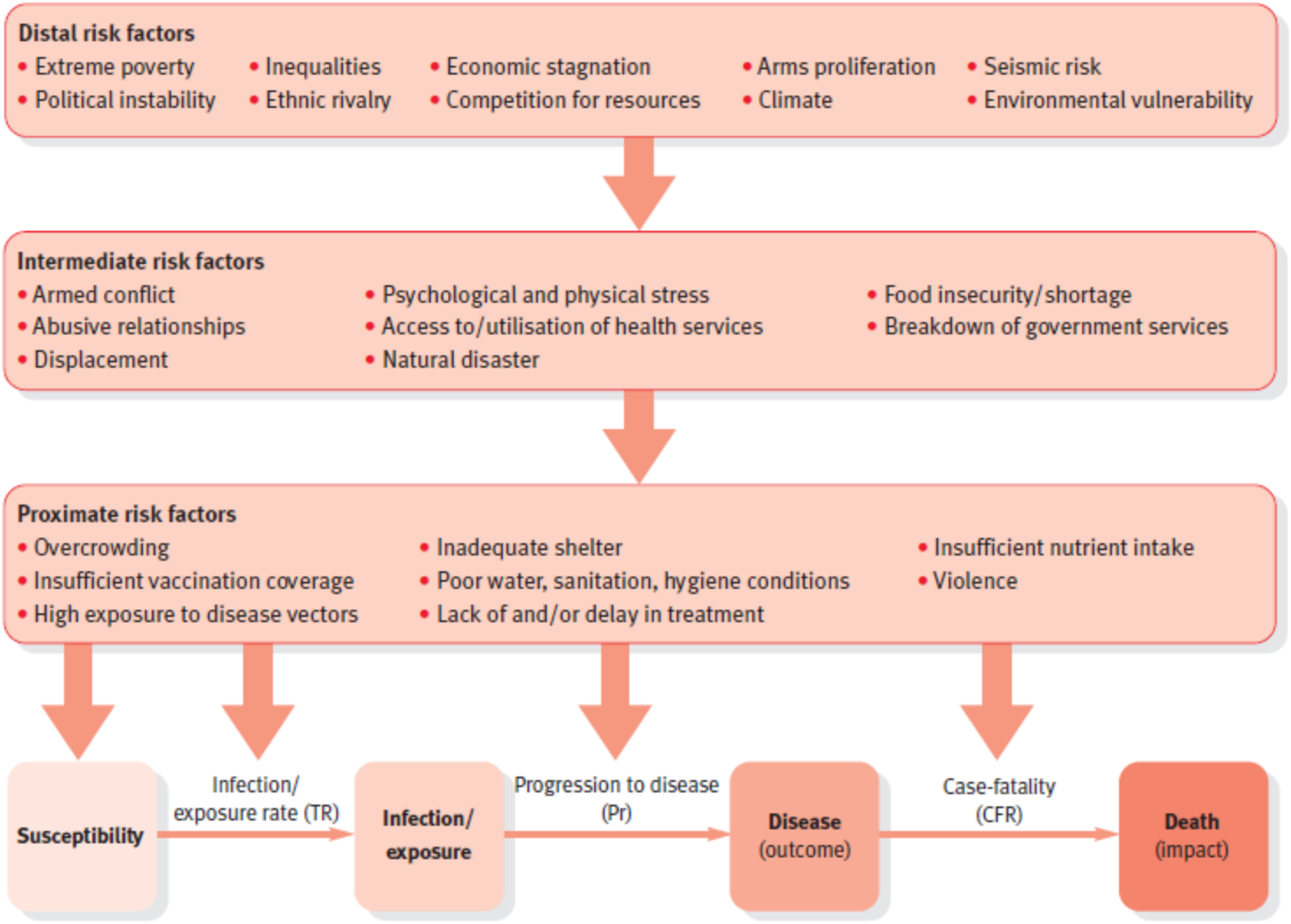
Step 6. Decide on a **multiplier** (ex. per 100/1000/100 000 people), based on the data themselves (avoid unwieldy decimals: see example below).

Step 7. Multiply the result of Step 5 by the chosen multiplier.

Example. The rainy season began one month ago. To detect a possible malaria outbreak as early as possible, any rising trends in the malaria incidence rate need to be observed. Malaria epidemics evolve rapidly: weekly incidence calculations are needed. The community consists of IDPs from a non-malarious region, so everyone can be assumed to be non-immune and thus at risk. The best estimate of the population is 23 000. There is one hospital, where all malaria cases are confirmed via rapid blood test: this seems a good data source. This week, 112 new malaria cases were recorded at the hospital outpatient department. 112/23 000 = 0.0049. Choosing a multiplier of 1000 (i.e. 'per 1000 people'), incidence rate = **4.9 cases per 1000 people per week.**

Figure 8

Examples of distal, intermediate and proximate risk factors of excess morbidity (disease) and mortality (death) in a crisis



Box 4

Host-agent-environment framework of disease

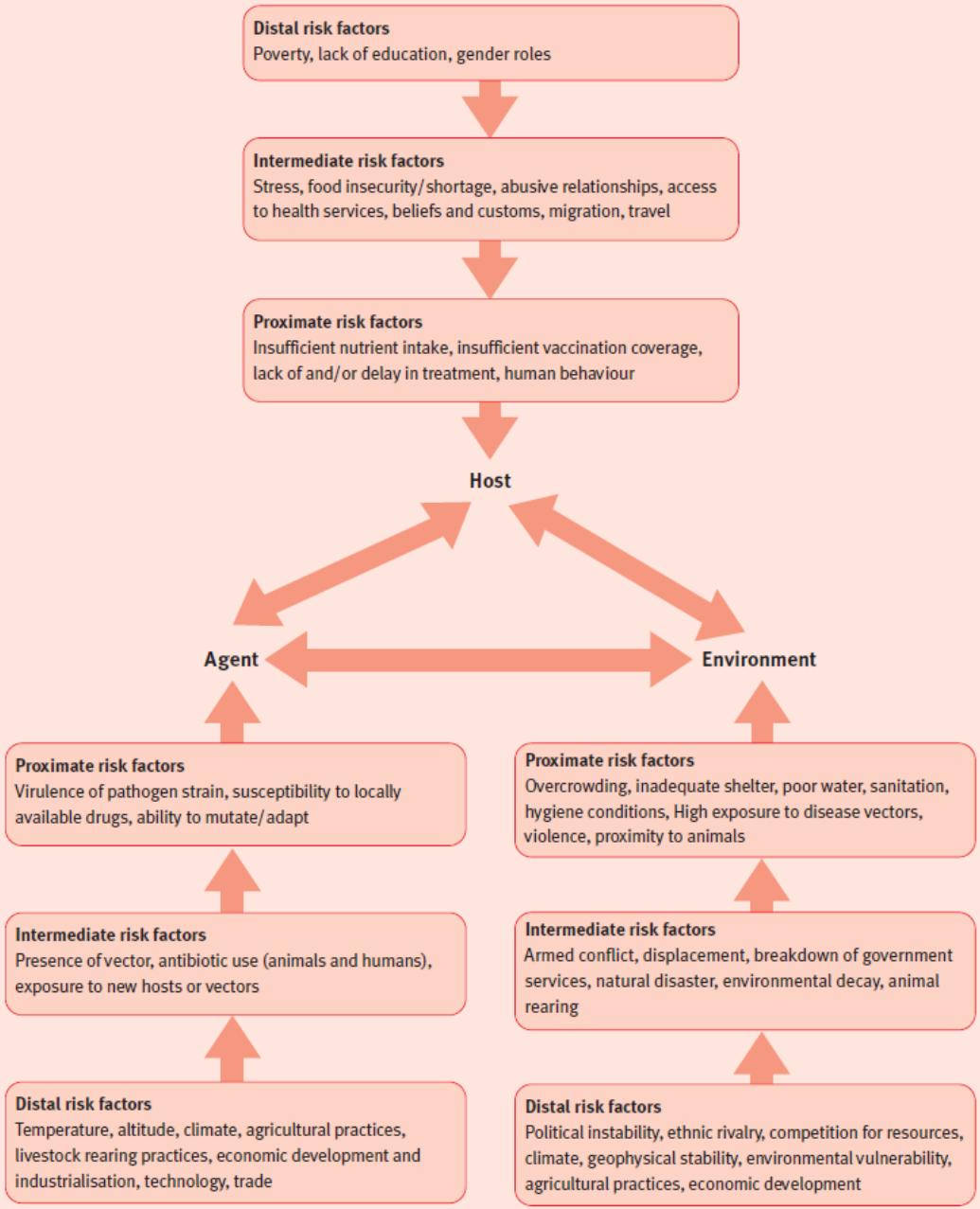
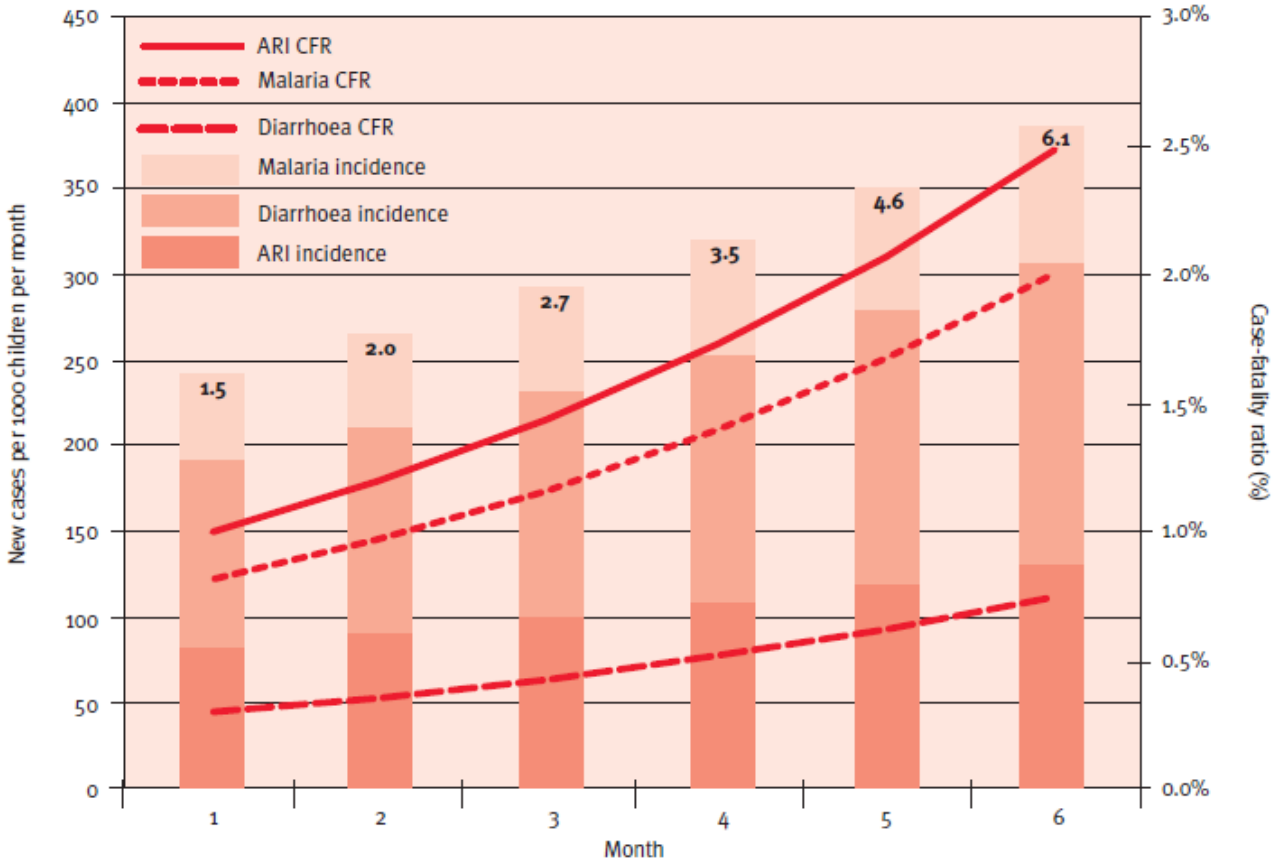


Figure 12

Illustration of the greater incidence and lethality (CFR) of endemic diseases as a result of crisis



The graph shows a hypothetical, slowly unfolding crisis.
Month 1 shows the pre-crisis baseline. As conditions progressively deteriorate starting in month 2, the incidence of common, endemic childhood diseases such as ARI, diarrhoea and malaria increases due to a variety of proximate risk factors.

The CFR of all three diseases also gradually increases. The two effects combined (higher incidence and higher CFR) will result in considerable excess mortality, even in the absence of an epidemic. Numbers in bold show the mortality rate due to ARI, malaria and diarrhoea combined (as deaths per 1,000 children per month) obtained by multiplying incidence x CFR for each disease, and summing the three products. By month 6, the relative risk of dying compared to month 1 is about four-fold (=6.1/1.5).

Steps in ensuring communicable disease control in emergencies

Conduct rapid health assessment
- Identify main disease threats, including potential epidemic diseases
- Obtain data on the host country, on the country of origin of displaced persons and on the areas through which they may have passed
- Identify priority public health interventions
- Identify the lead health agency
- Establish health coordination mechanisms

↓

Prevent communicable diseases
- Select and plan sites
- Ensure adequate water and sanitation facilities
- Ensure availability of food
- Control vectors
- Implement vaccination campaigns (e.g. measles)
- Provide essential clinical services
- Provide basic laboratory facilities

↓

Set up surveillance/early warning system
- Detect outbreaks early
- Report diseases of epidemic potential immediately
- Monitor disease trends

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Control outbreaks

Preparation	– outbreak response team – stockpiles – laboratory support – standard treatment protocols
Detection	– surveillance/early warning system
Confirmation	– laboratory tests
Response	– investigation – control measures
Evaluation	

Table 1.1 Key activities in rapid assessment

1. Planning the mission	Composition of the health assessment team Collection of background geopolitical data Collection of background health data on host country and country of origin
2. Field visit	Data: demography, environment, health data, resource needs Methods: aerial inspection; direct observation; interviews with agencies, the ministry of health and local authorities; collection of health data from medical facilities; rapid estimation of population size by mapping, review of records and rapid surveys
3. Analysis	Demographic pyramids Priority health interventions Identification of high-risk groups
4. Report writing	
5. Dissemination	

The Libyan Arab Jamahiriya: Civil unrest

March 2011

2.1 Wounds, injuries and emergency surgical care

Wounds and injuries. Surgical services are critically important both for urgent and for non-urgent conditions to save lives and prevent disability. This is of particular importance for serious injuries and obstetrics emergencies. The majority of the injured are likely to have minor cuts and bruises; however, a significant percentage, particularly among those caught up in the unrest, will suffer from penetrating injuries from gun shots and shrapnel, requiring surgery, blood transfusion and other intensive treatment. The extent of serious injuries is likely to overwhelm existing treatment capacities, especially as access to some areas to provide supplies is restricted.

Risk of **wound infection** and **tetanus** may be a problem if access to health facilities is difficult and the presentation of acute injuries is delayed. **Gangrene** is a complication of wound contamination, and prompt wound treatment is critical for its prevention. Gangrenous wounds should be managed aggressively, with surgical removal of gangrenous tissue. There is no risk of transmission of gangrene to unaffected persons.

Waning tetanus immunity in adults increases the likelihood of morbidity and mortality from **tetanus**.

2.2 Water/sanitation/hygiene-related and foodborne diseases

Populations within the Libyan Arab Jamahiriya, as well as migrant populations that have fled the country, are at potential risk from outbreaks of diseases related to reduced access to safe water, sanitation, hygiene facilities and safe food. There is a risk of *Salmonella typhi* (causing **typhoid fever**), **hepatitis A** and **hepatitis E**. Cholera is not endemic in the Libyan Arab Jamahiriya. Diarrhoea is already a major contributor to under-five mortality; WHO estimates that diarrhoea accounts for 8% of under-five deaths in the Libyan Arab Jamahiriya.

2.3 Diseases associated with crowding

If displaced populations are housed in large (>1000), crowded transit camps or locations for extended periods, the risk may increase of transmission of certain communicable diseases that are spread from person to person through respiratory droplets, such as **measles**, **diphtheria, influenza** and **pertussis** (see section below on vaccine-preventable diseases), and **acute respiratory infections (ARI).** If ventilation is inadequate, this risk is increased. Overcrowding can also increase the likelihood of transmission of water-borne and vector-borne diseases.

Acute respiratory infections. ARIs include any infection of the upper or lower respiratory tracts. Acute lower respiratory tract infection (ALRI) (pneumonia, bronchiolitis and bronchitis) is a major concern in children under five. WHO estimated in 2000–2003 that 9% of under-five deaths in the Libyan Arab Jamahiriya were caused by pneumonia. Low birth weight, malnourished and non-breastfed children and those living in overcrowded conditions are at higher risk of acquiring pneumonia. Infants of less than six months of age, who are not breastfed, have a risk of dying from pneumonia that is five times higher than in infants who are exclusively breastfed for the first six months.

Influenza. Influenza and influenza-like illnesses (ILI) including Severe Acute Respiratory Illness (SARI) will remain a moderate risk, as low to moderate levels of influenza activities may be present in the Libyan Arab Jamahiriya and in the neighbouring countries during the current winter season. Influenza caused by pandemic (H1N1) 2009 virus may be circulating with the possibility of co-circulation with influenza A (H3N2) and influenza B viruses. Pandemic (H1N1) influenza is transmitted from person to person as easily as normal seasonal influenza, by exposure to infected droplets expelled by coughing or sneezing or via contaminated hands or surfaces.

Meningococcal disease is spread from person to person through respiratory droplets from infected people. Transmission is facilitated by close contact and crowded living conditions. The Libyan Arab Jamahiriya is located north of the meningitis belt, and therefore at lower risk than neighbouring countries to the south, such as Chad and the Niger.

Tuberculosis (TB) is an important cause of morbidity and mortality in the Libyan Arab Jamahiriya. In 2009, the estimated number of new TB cases was 2600 with an incidence of 40 cases per 100 000 population.

Mortality rate from all forms of TB was 4.1/100 000 population in 2009. The estimated prevalence of multi-drug resistant TB (MDR) among all new cases was 2.6% *(WHO, TB country profile)*. These numbers include TB patients among foreign workers.

The Libyan Arab Jamahiriya has adopted the DOTS strategy, with services extended to 100% of the districts. WHO global targets of at least 70% TB case detection rate have been met (detection rate 82% in 2008), however, targets for treatment success rates of at least 85% are yet to be achieved (treatment success rate 69% in 2008).

2.4 Vaccine-preventable diseases and routine immunization coverage

The risk of outbreaks of vaccine-preventable diseases is currently low. However, a prolonged crisis with overcrowded conditions could disrupt immunization services, resulting in increased risk of outbreaks of measles, pertussis and diphtheria in the country.

Measles, diphtheria, **pertussis** and **polio.** Reports from the Libyan national authorities, WHO and UNICEF indicate 98% measles, diphtheria-tetanus-pertussis, and polio immunization coverage* among one-year-old children (2009) (see Table 1.). Over 2700 cases of measles were reported in 2004, this has decreased to 329 in 2009 with strengthened EPI. However the fact that cases are still occurring indicates that measles transmission in the Libyan Arab Jamahiriya is still ongoing despite very high reported immunization coverage. Polio has been eliminated in the Libyan Arab Jamahiriya (WHO EMRO, *VPI Unit*).

Tetanus, without medical treatment, has a high case-fatality rate of 70–100% and is under-reported globally. Even though reports from the national authorities, WHO and UNICEF indicate a 98% coverage of 3rd dose diphtheria-tetanus-pertussis (DTP3), in 2009, among one-year-old children in the Libyan Arab Jamahiriya. Nevertheless, isolated cases are to be expected as has been seen in other crises.

Appropriate management of injuries should be implemented as soon as possible to minimize future disability and to avert avoidable deaths in the ongoing civil strife. All wounds and injuries should be scrutinized as *Clostridium tetani* spores that are present in the soil can infect trivial, unnoticed wounds and lacerations. The incubation period of tetanus is usually three to 21 days.