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# Public health risks from human victims of natural disasters

**Can the bodies of victims of natural disasters cause epidemics among survivors? A report from the London School of Hygiene and Tropical Medicine concludes that dead bodies pose only a small danger and suggests risk reduction strategies for workers involved in managing the dead.**

Fear of infection and the unpleasantness of decaying bodies may lead to rapid unplanned disposal of the dead, sometimes before proper identification of the victims. Is this haste justified?

Victims of natural disasters usually die from trauma and are unlikely to have epidemic-causing infections. In addition, infections are unable to survive long in the body after death. However, there may be occupational risks for people dealing with victims of a natural disaster. A large death toll may require a temporary workforce, including military personnel, rescue workers and volunteers with little training in the collection, transportation, storage and disposal of the dead. For them, the highest risk comes from chronic infection hazards, including hepatitis B, hepatitis C, HIV, gut pathogens and tuberculosis (TB).

The report reveals that:

- The risk of infection from blood-borne viruses depends on the infection status of the victim (similar to the general population), likelihood and mode of exposure, and – in the case of hepatitis B – the vaccination status of the worker.
- Because a corpse will commonly leak faeces, people handling dead bodies may be exposed to gut organisms.
- But common gut pathogens do not survive long in the environment and present little risk if the body has been decaying for some time or has been in the water.
- Even when the chest cavity is intact, handling bodies increases the risk of TB. Once in the air, TB particles may be active for some time.
- The risk of TB can be reduced by covering the deceased's mouth when moving the body and ensuring good ventilation of body storage areas.

To reduce their risk, workers should:

- follow universal precautions for blood, body fluids and intestinal materials
- disinfect or dispose of used gloves
- avoid cross-contamination of personal items
- wash their hands after handling bodies and before eating
- wash and disinfect all equipment, clothes and vehicles
- use body bags, especially for badly damaged bodies
- receive hepatitis B vaccination.

The disposal of bodies, should respect local practice and custom where possible. Cremation requires a lot of fuel and is not advised if victims have not been identified. When there are large numbers of victims, burial is likely to be more appropriate. There is little evidence of groundwater contamination from burial. However, when choosing a new burial site, the water table should be at least 2.5 metres deep, allowing a grave depth of 1.8 metres. Depending on soil conditions, the site should be at least 30 metres from springs and watercourses and 250 metres from any well, borehole or source of drinking water.

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'Infectious disease risks from dead bodies following natural disasters', Pan American Journal of Public Health 15(5): 307-312, by O. Morgan, 2004

# Repellents and nets combat malaria in Afghanistan

**In recent years, malaria control programmes have focused on persuading people to use insecticide-treated bed-nets (ITNs). But skin repellents may also give protection where mosquitoes bite before people go to bed. Researchers from HealthNet International and the London School of Hygiene and Tropical Medicine tested the popularity and effectiveness of a repellent soap in Afghanistan.**

They promoted Mosbar, a soap containing DEET, through social marketing in Dobella and Narmasi villages in the east of the country. The study asked:

- Who is likely to buy Mosbar?
- Do they already use other forms of protection against malaria?
- Does Mosbar reduce the risk of malaria?

The researchers compared 96 cases of malaria from 2 clinics with 613 'controls' who visited the clinics with other illnesses. They also recorded the views of 99 people who had bought Mosbar. The research showed that 43 percent of households bought the soap. Of these users, 81 percent also owned ITNs. Other results include:

- Using Mosbar 10 days earlier, near the time the patients would have received an infective mosquito bite, would have reduced the chance of malaria.
- Owning an ITN leads to a 46 percent cut in the chance of getting malaria.
- The biggest drop in the odds of malaria (69 percent) is among people who use both methods.
- Three-quarters of buyers are happy with Mosbar and two-thirds would buy it again, but eight percent say they prefer to use only ITNs.
- Mosbar protects throughout the period when malaria-carrying mosquitoes bite: just after dusk until early morning.

The area around Dobella has one of the highest concentrations of ITNs in Afghanistan – estimated at around 66 percent coverage. But because mosquitoes here bite before people go to bed, there would be a big advantage from also using skin repellents. The number of families buying Mosbar was reasonable, given that this was the first year of sales in Dobella. But this involved door-to-door marketing, rather than the usual way of selling through shopkeepers in the bazaar. Although this study was not big enough to be conclusive, the researchers argue that results are strong enough to justify marketing repellents. They recommend:

- continuing to promote Mosbar door-to-door as well as selling it through shops
- marketing repellents alongside ITNs to reduce costs
- making the repellents more affordable
- giving health information as well as promotional materials to maximise sales.

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'DEET mosquito repellent sold through social marketing provides personal protection against malaria in an area of all-night mosquito biting and partial coverage of insecticide-treated nets', Tropical Medicine and International Health 9(3): 343-350, by M. Rowland et al, 2004

# Private sector sales of anti-malarial drugs in rural Tanzania

**Malaria treatment policy in Africa has focused mainly on government-run health systems. But many episodes of fever are treated at home using shop-bought drugs. Does the private sector threaten effective malaria treatment? Research involving the London School of Hygiene and Tropical Medicine looked at retailers selling drugs in Tanzania.**

Good quality treatment practices at retail outlets are essential because:

- Malaria can progress very quickly to severe illness and death.
- Uncontrolled drug use can increase the spread of anti-malarial drug resistance.
- Policy-makers are considering the use of combination therapy (using two or more drugs) to improve malaria treatment and slow the development of drug resistance, but effective implementation may depend on retail sector treatment practices.

Researchers interviewed staff at 808 retail outlets, covering nearly all of the private drug retailers in the area. 718 had drugs in stock – 43 drug shops and 675 general stores. The study took place in 2000 when chloroquine was the first line anti-malarial treatment. The researchers found that:

- Almost all drug shops stock anti-malarials. Nearly all have chloroquine, 42 percent stocked quinine, 37 percent sulphadoxine-pyrimethamine (SP) and 30 percent amodiaquine. Only a third of general retailers stocked anti-malarials.
- Chloroquine products include nine brands of tablets, three of syrup and one injectable, plus unbranded versions of each. There were five brands each of SP and amodiaquine tablets. Many shops stocked several brands of each drug.
- Drug shops tended to use dedicated drug suppliers, mostly in Dar es Salaam – several hundred kilometres away. Most general retailers used more local general wholesalers. A few wholesalers supply a high proportion of all shops.

This study shows that private retailers are an important source of anti-malarial drugs in these poor rural areas, despite relatively good coverage of health facilities. This poses several potential problems:

- Chloroquine was widely available despite high levels of drug resistance; so many patients received an ineffective drug.
- SP and amodiaquine are potential components of combination therapy, but were sold as single tablets. If this promotes resistance to these drugs, the benefit of combination therapy may be lost.
- Many drug stores had illegal stocks of drugs, suggesting that regulation is weak. This may reduce the ability of the government to work openly with the private sector.
- Many brand names confuse customers.

But the private sector offers opportunities for improving malaria treatment and distributing drugs to remote rural areas. Shops often have faster service, better drug availability and more convenient opening times than the public sector. Interventions targeting all retailers are likely to be costly and difficult to deliver due to the large number, diversity and high turnover of shops. The researchers recommend some more cost-effective approaches including:

- shaping demand through consumer education
- improving the quality, packaging and price of products entering the distribution chain
- focusing on drug stores as there are relatively few and their staff are primary educated and have some health-related training
- targeting the most popular general wholesalers through training, information and regulation.

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'Retail supply of malaria-related drugs in rural Tanzania: risks and opportunities', Tropical Medicine and International Health 9(6): 655-663, by C. Goodman et al, 2004

# Aiding recovery after stroke in The Gambia

**What happens to people in The Gambia after they've had a stroke? A study by a group of UK researchers looked at rates and causes of death or survival following strokes in a Banjul hospital. They suggest low-cost strategies to help improve recovery.**

The study involved patients coming to the Royal Victoria Hospital with a diagnosis of stroke or having a stroke as an impatient during a one year period. Researchers followed the progress of patients in the community at one month, six months and three to four years. If a patient died, they noted the date and the likely cause of death. Of 106 patients, 70 (66 percent) were men. The average age when the stroke occurred was 58 years.

Key findings include:

- Stroke patients make up 5 percent of adult medical admissions. With a mean hospital stay of 19 days, they occupy 10 percent of medical bed time.
- By 1 and 6 months, 27 percent and 44 percent, respectively, die. Only 25 percent survive for 3 to 4 years. Causes of death include the initial stroke (61 percent), further stroke (7 percent) and infection (12 percent).
- Death is more likely if the patient is incontinent in the first 24 hours, has sensory inattention or has impaired gag reflex on admission. However, the likelihood of death is unrelated to factors such as age, sex, previous stroke, smoking and alcohol use.
- After one month, 8.5 percent of patients have fully recovered. At 6 months, a third are on medication for high blood pressure, 18 percent have made a full recovery, and another third are left with a severe impairment.
- At three or four years, only 18 percent are still alive and living with stroke-related disability in the community.

The study shows that the death rate from stroke is higher in The Gambia than in many wealthier countries. This supports previous reports that there are quite low numbers of people living with stroke-related disability in sub-Saharan Africa. Stroke patients in The Gambia stay in hospital for about the same length of time as in developed countries, but there is no institutional care available afterwards if they have major disability.

The most common cause of death after stroke in developed countries is ischaemic heart disease (obstruction of the arterial blood supply), but this is virtually non-existent here. Instead, two thirds of deaths are due to the initial or subsequent stroke, so strategies that increase recovery from the stroke itself could have a big impact on death rates. However, many countries lack facilities and staff for approaches such as physiotherapy and occupational therapy. The researchers suggest:

- training health workers, relatives and caregivers to carry out therapy
- educating patients and caregivers about preventing a second stroke
- providing aspirin and drugs to control high blood pressure in stroke survivors.

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'Mortality and recovery after stroke in The Gambia', Stroke 34: 1604-1609, by R. Walker et al, 2004

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