

Epilepsy

Fact

sheet

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Key facts

- Epilepsy is a chronic noncommunicable disorder of the brain that affects people of all ages.
 - Approximately 50 million people worldwide have epilepsy, making it one of the most common neurological diseases globally.
 - Nearly 80% of the people with epilepsy live in low- and middle-income countries.
 - People with epilepsy respond to treatment approximately 70% of the time.
 - About three fourths of people with epilepsy living in low- and middle- income countries do not get the treatment they need.
 - In many parts of the world, people with epilepsy and their families suffer from stigma and discrimination.
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Epilepsy is a chronic disorder of the brain that affects people worldwide. It is characterized by recurrent seizures, which are brief episodes of involuntary movement that may involve a part of the body (partial) or the entire body (generalized), and are sometimes accompanied by loss of consciousness and control of bowel or bladder function.

Seizure episodes are a result of excessive electrical discharges in a group of brain cells. Different parts of the brain can be the site of such discharges. Seizures can vary from the briefest lapses of attention or muscle jerks to severe and prolonged convulsions. Seizures can also vary in frequency, from less than 1 per year to several per day.

One seizure does not signify epilepsy (up to 10% of people worldwide have one seizure during their lifetime). Epilepsy is defined as having 2 or more unprovoked seizures. Epilepsy is one of the world's oldest recognized conditions, with written records dating back to 4000 BC. Fear, misunderstanding, discrimination and social stigma have surrounded epilepsy for centuries. This stigma continues in many countries today and can impact on the quality of life for people with the disorder and their families.

Signs and symptoms

Characteristics of seizures vary and depend on where in the brain the disturbance first starts, and how far it spreads. Temporary symptoms occur, such as loss of awareness or consciousness, and disturbances of movement, sensation (including vision, hearing and taste), mood, or other cognitive functions.

People with seizures tend to have more physical problems (such as fractures and bruising from injuries related to seizures), as well as higher rates of psychological conditions, including anxiety and depression. Similarly, the risk of premature death in people with epilepsy is up to 3 times higher than the general population, with the highest rates found in low- and middle-income countries and rural versus urban areas.

A great proportion of the causes of death related to epilepsy in low- and middle-income countries are potentially preventable, such as falls, drowning, burns and prolonged seizures.

Rates of disease

Approximately 50 million people currently live with epilepsy worldwide. The estimated proportion of the general population with active epilepsy (i.e. continuing seizures or with the need for treatment) at a given time is between 4 and 10 per 1000 people. However, some studies in low- and

middle-income countries suggest that the proportion is much higher, between 7 and 14 per 1000 people.

Globally, an estimated 2.4 million people are diagnosed with epilepsy each year. In high-income countries, annual new cases are between 30 and 50 per 100 000 people in the general population. In low- and middle-income countries, this figure can be up to two times higher.

This is likely due to the increased risk of endemic conditions such as malaria or neurocysticercosis; the higher incidence of road traffic injuries; birth-related injuries; and variations in medical infrastructure, availability of preventative health programmes and accessible care. Close to 80% of people with epilepsy live in low- and middle-income countries.

Causes

Epilepsy is not contagious. The most common type of epilepsy, which affects 6 out of 10 people with the disorder, is called idiopathic epilepsy and has no identifiable cause.

Epilepsy with a known cause is called secondary epilepsy, or symptomatic epilepsy. The causes of secondary (or symptomatic) epilepsy could be:

- brain damage from prenatal or perinatal injuries (e.g. a loss of oxygen or trauma during birth, low birth weight),
- congenital abnormalities or genetic conditions with associated brain malformations,
- a severe head injury,
- a stroke that restricts the amount of oxygen to the brain,
- an infection of the brain such as meningitis, encephalitis, neurocysticercosis,
- certain genetic syndromes,
- a brain tumor.

Treatment

Epilepsy can be treated easily and affordably with inexpensive daily medication that costs as little as US\$ 5 per year. Recent studies in both low- and middle-income countries have shown that up to 70% of children and adults with epilepsy can be successfully treated (i.e. their seizures completely controlled) with anti-epileptic drugs (AEDs). Furthermore, after 2 to 5 years of successful treatment and being seizure-free, drugs can be withdrawn in about 70% of children and 60% of adults without subsequent relapse.

- In low- and middle-income countries, about three fourths of people with epilepsy may not receive the treatment they need. This is called the “treatment gap”.
- In many low- and middle-income countries, there is low availability of AEDs. A recent study found the average availability of generic antiepileptic medicines in the public sector of low- and middle-income countries to be less than 50%. This may act as a barrier to accessing treatment.
- It is possible to diagnose and treat most people with epilepsy at the primary health-care level without the use of sophisticated equipment.
- WHO demonstration projects have indicated that training primary health-care providers to diagnose and treat epilepsy can effectively reduce the epilepsy treatment gap. However, the lack of trained health-care providers can act as a barrier to treatment for people with epilepsy.
- Surgical therapy might be beneficial to patients who respond poorly to drug treatments.

Prevention

Idiopathic epilepsy is not preventable. However, preventive measures can be applied to the known causes of secondary epilepsy.

- Preventing head injury is the most effective way to prevent post-traumatic epilepsy.
- Adequate perinatal care can reduce new cases of epilepsy caused by birth injury.
- The use of drugs and other methods to lower the body temperature of a feverish child can reduce the chance of febrile seizures.

- Central nervous system infections are common causes of epilepsy in tropical areas, where many low- and middle-income countries are concentrated.
- Elimination of parasites in these environments and education on how to avoid infections can be effective ways to reduce epilepsy worldwide, for example those cases due to neurocysticercosis.

Social and economic impacts

Epilepsy accounts for 0.6% of the global burden of disease, a time-based measure that combines years of life lost due to premature mortality and time lived in less than full health. Epilepsy has significant economic implications in terms of health care needs, premature death and lost work productivity.

An Indian study conducted in 1998 calculated that the cost per patient of epilepsy treatment was as high as 88.2% of the country's per capita Gross National Product (GNP), and epilepsy-related costs, which included medical costs, travel, and lost work time, exceeded \$2.6 billion/year (2013 USD).⁽¹⁾

Although the social effects vary from country to country, the discrimination and social stigma that surround epilepsy worldwide are often more difficult to overcome than the seizures themselves. People living with epilepsy can be targets of prejudice. The stigma of the disorder can discourage people from seeking treatment for symptoms, so as to avoid becoming identified with the disorder.

Human rights

People with epilepsy can experience reduced access to health and life insurance, a withholding of the opportunity to obtain a driving license, and barriers to enter particular occupations, among other limitations. In many countries legislation reflects centuries of misunderstanding about epilepsy. For example:

- In both China and India, epilepsy is commonly viewed as a reason for prohibiting or annulling marriages.
- In the United Kingdom, laws which permitted the annulment of a marriage on the grounds of epilepsy were not amended until 1971.
- In the United States of America, until the 1970s, it was legal to deny people with seizures access to restaurants, theatres, recreational centres and other public buildings.

Legislation based on internationally accepted human rights standards can prevent discrimination and rights violations, improve access to health-care services, and raise the quality of life for people with epilepsy.

WHO response

WHO and its partners recognize that epilepsy is a major public health concern. As an initiative established in 1997, WHO, the International League Against Epilepsy (ILAE) and the International Bureau for Epilepsy (IBE) are carrying out a global campaign – “Out of the Shadows” – to provide better information and raise awareness about epilepsy and strengthen public and private efforts to improve care and reduce the disorder's impact.

This, as well as other WHO projects on epilepsy, have shown that there are simple, cost-effective ways to treat epilepsy in resource-poor settings, thereby significantly reducing treatment gaps. For example, a project carried out in China resulted in treatment gap reductions of 13% over 1 year and significant improvements in access to care for people with epilepsy.

Projects which aim to reduce the treatment gap and morbidity of people with epilepsy, to train and educate health professionals, to dispel stigma, to identify potential prevention strategies, and to develop models integrating epilepsy control into local health systems are ongoing in many countries.

In particular, the WHO Programme on Reducing the Epilepsy Treatment Gap and the Mental Health Gap Action Programme (mhGAP) currently seek to achieve these goals in Ghana,

Mozambique, Myanmar and Viet Nam. These projects combine several innovative strategies. They focus on expanding the skills of primary care and non-specialist health professionals at the community level to diagnose, treat and follow up people with epilepsy. It will mobilize the community to better support people with epilepsy and their families.

(1) Megiddo I, Colson A, Chisholm D, Dua T, Nandi A, and Laxminarayan R (2016). [Health and economic benefits of public financing of epilepsy treatment in India: An agent-based simulation model](#). *Epilepsia Official Journal of the International League Against Epilepsy* doi: 10.1111/epi.13294.