Despite that headache is felt at some time by nearly everybody, and almost half the world’s adults at any one time have recent personal experience of one or more of the three very common headache disorders, much is unknown about the public-health impact of these conditions. It is not known how, or how much, they affect many of the populations of the world, or how health-care and other resources are utilized to mitigate their effects. This first global enquiry into these matters illuminates the worldwide neglect of a major public-health problem, and reveals the inadequacies of responses to it in countries throughout the world.

**METHODS**

The Atlas of Headache Disorders presents data acquired by WHO in collaboration with Lifting The Burden: the Global Campaign against Headache. Most of the information was collected in a questionnaire survey of neurologists, general practitioners and patients’ representatives from 101 countries, performed from October 2006 until March 2009. Epidemiological data were compiled from published studies through a systematic review, and supplemented by data gathered in population-based studies undertaken within the Global Campaign.

**KEY MESSAGES**

- Headache disorders are ubiquitous, prevalent and disabling. Yet they are under-recognized, under-diagnosed and under-treated worldwide;
- a minority of people with headache disorders are professionally diagnosed;
- management guidelines are used routinely in 55% of responding countries, but much less commonly in low-income countries;
- despite there being a range of drugs with efficacy against headache, countries in all income categories identify non-availability of appropriate medication as a barrier to best management;
- worldwide, only four hours are committed to headache disorders in formal undergraduate medical training, and lack of education is seen as the key issue impeding good management of headache;
- illness that could be relieved is not, and burdens, both individual and societal, persist unnecessarily;
- financial costs to society through lost productivity are enormous.

Among proposals for change:

- better professional education ranks far above all others;
- a third of responding countries also recommend improved organization and delivery of health care for headache.

Given the very high indirect costs of headache, greater investment in health care that treats headache effectively may well be cost-saving overall.
KEY FINDINGS

The burden of headache
- Headache disorders, including migraine and tension-type headache, are among the most prevalent disorders of mankind.
- The prevalence studies estimate that half to three quarters of adults aged 18–65 years in the world have had headache in the last year.
- According to these studies, over 10% have migraine, and 1.7–4% of the adult population are affected by headache on 15 or more days every month.
- Information on the societal impact of headache exists in only 18% of countries that responded.
- Headache disorders are included in an annual health reporting system in only 12% and in national expenditure surveys in only 7% of countries that responded.

Diagnosis of headache
- A minority of people with headache disorders worldwide are professionally diagnosed.
- The rates for migraine and tension-type headache are about 40% for medication-overuse headache only 10%.
- Specialists use International Headache Society diagnostic criteria to support diagnosis in 56% of countries that responded. Usage is lower in Africa, the Eastern Mediterranean and South-East Asia and very low in low-income countries generally. Little is done to encourage their use in low-income countries.
- Investigation rates, mainly for diagnostic purposes, are high, despite that investigations are usually not needed to support diagnosis.
- Instruments to assess impact of headache are used routinely in only 24% of countries that responded, and very little in lower middle- or low-income countries.

Management of headache
- Worldwide, about 50% of people with headache are estimated to be primarily self-treating, without contact with health professionals.
- Up to 10% are treated by neurologists, although fewer in Africa and South-East Asia.
- The top three causes of consultation for headache, in both primary and specialist care, are migraine, tension-type headache and the combination of these.
- Medication-overuse headache as a cause of specialist consultation (1–10%) is inversely related to country income.
- Other secondary headaches as a cause of specialist consultation (5–12%) are inversely related to country income.
- Management guidelines are in routine use in 55% of responding countries worldwide. Usage is much less common in low-income countries.
- There are many widely available drugs for use against headache, generally reflecting their efficacy. They offer an adequate range, but with some obvious limitations.
- Among specific anti-migraine drugs, ergotamine is more widely available than triptans. The latter are more efficacious and less toxic, but more expensive.
- Drugs for use against headache are fully reimbursed in fewer than half of countries, with partial reimbursement for most in up to two thirds of countries.
- Countries in all income categories identify non-availability of appropriate medication as a barrier to best management. This probably refers to limited reimbursement.
- Among alternative and complementary therapies, physical therapy, acupuncture and naturopathy are clear preferences, at least one of these being in the top three such therapies in all regions and all income categories.

Organization of headache services
- A third of responding countries recommend, as a proposal for change, improved organization and delivery of health care for headache.

Education in headache
- Worldwide, just four hours are committed to headache disorders in formal undergraduate medical training, and 10 hours in specialist training.
- Better professional education ranks far above all other proposals for change (75% of countries that responded), and lack of education is seen as the key issue impeding good management of headache.

National professional headache organizations
- A national professional organization for headache disorders (or headache chapter in another organization) exists in two thirds of countries that responded. There is a very marked difference between high- and upper middle-income (71–76%) and low-income countries (16%).
- The true figures may be much lower, as respondents were much more readily identified in countries where such organizations exist.
- Over one third of professional headache organizations arrange conferences, raise awareness of headache-related issues or are involved in setting guidelines in the management of headache disorders.
- These are the top three activities in all regions and income categories.
- Fewer professional headache organizations (20%) participate in the construction of postgraduate training curricula, and only 10% do so in the development of undergraduate curricula on headache.

CONCLUSIONS
Headache disorders are ubiquitous, prevalent, disabling and largely treatable, but under-recognized, under-diagnosed and under-treated. Illness that could be relieved is not, and burdens, both individual and societal, persist. Financial costs to society through lost productivity are enormous – far greater than the health-care expenditure on headache in any country.

Health care for headache must be improved, and education is required at multiple levels to achieve this. Most importantly, health-care providers need better knowledge of how to diagnose and treat the small number of headache disorders that contribute substantially to public ill-health. Given the very high indirect costs of headache, greater investment in health care that treats headache effectively, through well-organized health services and supported by education, may well be cost-saving overall.