See related article, pages 2149–2156.

In its landmark publication, “Crossing the Quality Chasm,” published in 2001, the Institute of Medicine defined 6 fundamental dimensions of quality in health care, one of which is equity. Whereas dimensions such as evidence-based methods and safety are subjects of intense research, equity has until recently been less in focus.

Much of the healthcare inequities in low- and middle-income countries are related to insurance status. In the 2 biggest countries in the world, out-of-pocket payments as a portion of total healthcare spending are very high: 50% to 60% in China and approximately 80% in India. An inevitable consequence is that a serious and costly disease like stroke very often has disastrous financial consequences for the patient and his or her family, particularly when combined with loss of household income.

In this issue of Stroke, an important article by Heeley et al reports on how frequent economic disasters after stroke are in China. The authors show that as many as 71% of all patients with stroke in urban China may experience catastrophic healthcare costs, defined as ≥30% of annual income. More than one third of the patients who are above the poverty line before stroke (set at a very modest income of $1 to $2 US per day) fall below it after stroke.

With 1.5 to 2 million strokes occurring annually in China and from the information provided in the article, it can be estimated that stroke makes at least half a million Chinese people fall below the poverty line each year. Because the study was performed in urban settings, the actual number is probably higher considering that poverty is more prevalent and insurance coverage lower in rural China. These numbers are compared with an estimated 76 000 stroke survivors in the United States being unable to pay for their medications, even a high number.

The study by Heeley et al highlights the importance of health insurance in countries where not all citizens are covered by public health insurance. If stroke occurs during working years, people without health insurance are nearly 7 times more likely to experience catastrophic costs than workers with health insurance. This is in accordance with the very idea of equity. Whereas dimensions such as evidence-based methods and safety are subjects of intense research, equity has until recently been less in focus.

In recent years, a considerable number of articles have shown the many consequences of not having health insurance when serious disease strikes. A very high risk of catastrophic economic consequences of serious disease has been reported in 10 of 13 low- and middle-income Asian countries that were covered in a multinational study. The highest incidence of catastrophic payments are in China, India, Bangladesh, Vietnam, and Nepal, whereas Sri Lanka, Thailand, and Malaysia stand out as countries that have constrained the catastrophic impact of direct healthcare payments.

Being uninsured has not only catastrophic economic consequences; it may also seriously impair the quality of stroke services. Information on the consequences for patients with stroke very often has disastrous financial consequences for the patient and his or her family, particularly when combined with loss of household income.

First, primary prevention may be of inferior quality in the uninsured. Lack of health insurance is associated with less awareness and control of cardiovascular risk factors and with increased rates of stroke and death. Previously uninsured adults who enroll in the US Medicare program at the age of 65 years have greater morbidity, requiring costlier care over subsequent years, than insured people. Going from being uninsured to being insured at the age of 65 is associated with improved self-reported health, particularly in people with cardiovascular disease.

Second, uninsured persons seek medical attention later in the course of disease than insured patients. For example, uninsured persons have more advanced carotid disease at the time of treatment compared with insured patients.

Third, uninsured patients often have reduced access to acute stroke care. Accordingly, patients without insurance who are admitted to the hospital for acute stroke have more severe neurological impairment, a longer average length of hospital stay, and higher case fatality than other patients with acute stroke.

Fourth, financial restraints (because of lack of insurance) are the most common limitation in access to stroke rehabili-
tation. It should, however, be pointed out that socioeconomic status to some extent may influence access to rehabilitation services after stroke even in countries with a universal health insurance program, for example, Canada.

Fifth, uninsured patients have less access to outpatient services after stroke and the quality of the secondary prevention is inferior. Data from the US National Health Interview Survey indicate that some 13% of stroke survivors were unable to afford medications for secondary prevention in 2004, an increase from 8% in 1997. Not surprisingly, low income and lack of health insurance were among the main determinants of inability to afford medications.

Thus, lack of insurance operates at many levels to widen the socioeconomic gaps in the risk of first and recurrent stroke and in stroke service quality early and late after stroke.

Returning to the situation in low- and middle-income countries, health sector reforms since the late 1980s have particularly focused on promoting user fees for public sector health services and increasing the role of the private for-profit sector. This has increasingly placed the burden of paying for health care on individuals experiencing poor health and created markets for private health insurance in these countries.

A recent survey of private health insurance in low- and middle-income countries identified 3 broad clusters. Countries in each of these clusters share similar characteristics and policy challenges for the effective integration of private insurance into national healthcare systems. In Latin America and eastern Europe, there are already developed insurance industries, but they are often facing important market and policy failures. In the Middle East/North Africa region and East Asia, including China, there is a projected strong growth of private health insurance that may need to be accompanied by efficient regulation. In South Asia and sub-Saharan Africa, private insurance is likely to play a marginal role in the foreseeable future, whereas the scaling up of small-scale, non-profit insurance schemes appears to be of critical importance.

It is intriguing to recall that private health insurance preceded many modern social insurance systems in western Europe; allowing these countries to develop the mechanisms, institutions, and capacities that subsequently made it possible to provide universal access to health care. Well-regulated private insurance markets may share several features with public insurance systems. Private health insurance can be harnessed to serve the public interest. This requires that governments implement effective regulations and focus public funds on programs for those who are poor and vulnerable. Private health insurance can also be used as a transitional form of health insurance to develop experience with insurance institutions while the public sector increases its own capacity to manage and finance healthcare coverage.

As pointed out by Heely et al in their article, there are now political initiatives in China that could eventually result in a health insurance system for the whole population, including people in rural areas and nonworkers. The quest for health insurance for all their citizens may even become a new arena for the race between China and the United States.

**References**


**Key Words:** China ■ health insurance ■ poverty ■ stroke
Stroke in the Uninsured
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