

TCM

Made in China

Although modern medicine is established in Asia, traditional medicine also plays a big role in people's healthcare — and is gaining in popularity in other countries too.

BY FELIX CHEUNG

Traditional medicine — a system of ancient medical practice that differs in substance, methodology and philosophy to modern medicine — plays an important role in health maintenance for the peoples of Asia, and is becoming more frequently used in countries in the West. Despite their growing popularity, there are misunderstandings about what these traditional medicines comprise and the standards they conform to. Here we aim to clear up some of the common misconceptions.

Within Asia, traditional Chinese medicine (TCM) is the system with the longest history. TCM was developed through thousands of years of empirical testing and refinement. It was the only medical practice in China before the early nineteenth century, when English missionaries arrived, bringing with them the drugs, devices and practices of modern medicine.

Outside China, in other Asian countries including Japan, South Korea, Malaysia and Vietnam, traditional medicine has formed its own distinct culture. In Japan, the traditional

medicine is commonly called *Kampo*. In these countries, different traditional medicines might use different prescriptions or methods of diagnosis, but the underlying philosophy and principles are similar because they all originate in China.

TCM encompasses a wide range of practices, including some that are familiar to the West, such as herbal medicine and acupuncture, plus others that remain peculiar to most Westerners, such as cupping (heated cup therapy), *tuina* (massage), *qigong* (movement and breathing exercises) and *moxibustion* (burnt mugwort therapy). Investigating whether these therapies have underlying mechanisms of action is now a central task in TCM research. This *Nature Outlook* will focus mainly on herbal medicines, which are the most comparable to modern pharmaceuticals.

TCM TREATMENT

A visit to a TCM practitioner involves four examinations. First, the patient's skin complexion, physique and tongue condition are inspected. The TCM doctor then listens to the patient's voice to see if there are any breathing

problems, cough or phlegm, and sniffs to detect any body odours that might indicate ill health.

Next, the practitioner questions how the patient feels overall: if they are hot or cold; whether they are sweating; how their stools look; if the patient is thirsty, and so forth. Finally, the TCM practitioner palpates the patient's wrist to feel the quality of the pulse and so assess overall health.

It is the pattern of all these signs and symptoms that determines the diagnosis, and the practitioner would then prescribe a treatment regimen consisting of any or all of the above-mentioned therapies to resolve the problem. Within TCM, the healthy human body is viewed as an entity in equilibrium — the ultimate goal of treatment is to restore the *qi* (energy) and *yin-yang* (balance) of this complex system. Although the concept might seem strange to Western perceptions, many TCM practitioners draw a parallel with the well-understood scientific concepts of metabolism (roughly equivalent to energy), and immunity and homeostasis (balance) (see 'All systems go', page S87).

Most people who visit a TCM practitioner

ANCIENT CHINA

The system of traditional Chinese medicine has developed over thousands of years and features many classic texts that are still read today.

Huangdi's Internal Classic, one of the earliest collections of TCM, was probably completed during the Warring States period. It is still regarded as a must-read for all TCM students and practitioners.

The Yellow Emperor, Huangdi, is shown presenting books containing medical knowledge to Lei Gong, the Thunder Duke (right).



Two important books were written in the Han dynasty: Shennong's *Classic of Materia Medica*, — the first book to cover medicinal herbs, minerals and animal parts in the first century AD, and Zhang Zhongjing's *Treatise on Cold Damage and Miscellaneous Diseases* in 200 AD.



Clockwise from top left: Wang Shuhe and an excerpt from his *Pulse Classic*; Shennong Yandi (Red Emperor); Huangfu Mi.

In the Jin dynasty, Huangfu Mi compiled *The A-B Classic of Acupuncture and Moxibustion* (259 AD) and Wang Shuhe compiled the *Pulse Classic* (300 AD).



do so because they are feeling unwell. However, others visit a TCM practitioner while perfectly healthy. The reason is that TCM stresses the importance of preventive treatment — that is, its practitioners claim to determine a patient's state of *qi* and, if it is thought to be weak, attempt to strengthen it before a problem surfaces.

TCM PREVALENCE

Millions of patients around the world use TCM or a related practice. In Hong Kong and mainland China, approximately 60% of the population has consulted traditional medicine practitioners at least once. According to the latest national survey data, anywhere from 60% to 75% of the populations of Taiwan, Japan, South Korea and Singapore use traditional medicine at least once a year.

Elsewhere around the world, the use of TCM is also common. The United States is the biggest importer of TCM products from China, having spent US\$7.6 billion in 2010. According to the Centers for Disease Control and Prevention in Atlanta, Georgia, four out of ten US adults use complementary and alternative medicine (CAM) in a given year. The CAM category includes TCM and other herbal medicines, as well as non-traditional medicines such as homeopathy — so using CAM as a proxy for TCM might overestimate its use, but it does indicate a general willingness to seek alternative forms of therapy.

Europe, too, is experiencing a growth in the use of TCM. In 2010, exports of TCM products from China to European countries amounted to nearly US\$2 billion, and that figure is rising at 10% per year. National surveys have found

that, in the United Kingdom, approximately one in ten people had used CAM in the past year, whereas in Switzerland and the Scandinavian countries, the equivalent figures were between three and five out of ten.

Australia has even higher figures: a national survey found that two-thirds of the population had used CAM in the past year and, at 69 million, the number of visits by Australian adults to CAM practitioners was almost identical to the number of visits made to medical doctors.

PROSPECTS OF TCM RESEARCH

Modern medicine often clashes with traditional medicine such as TCM because of the inherent difficulties both sides have of appreciating the others' principles and concepts. In an effort to promote integration of traditional medicine

Investigating whether these therapies have underlying mechanisms of action is now a central task in TCM research.

with modern medicine, the World Health Organization (WHO) endorsed an international agreement drawn up in Beijing in November 2008 to support the safe and effective use of traditional medicine within the modern healthcare systems of member states.

Countries are pursuing this type of integration in various ways. For instance, between 2006 and 2010, Malaysia opened 12 hospitals that practice both modern and traditional medicine. In addition, the WHO has established 25

collaborating centres for traditional medicine: 7 in China, 5 in Africa, 3 in Europe, 2 in each of Japan, South Korea, India and the United States, and 1 in both North Korea and Vietnam. These centres aim to encourage research into traditional medicine, provide professional advice to support the development of WHO guidelines and, if necessary, provide training.

Pharmaceutical companies are also taking an active interest in TCM research. For instance, London-based GlaxoSmithKline has established a research and development base in Shanghai, China, and is actively seeking to expand its operations in traditional medicine. Most of these companies are hoping to find the next 'miracle' drug like artemisinin, an antimalarial drug extracted from the medicinal plant sweet wormwood, which has saved millions of lives.

Ensuring the safety, efficacy and quality of TCM requires a great deal of research and development. Investment from the central Chinese government is substantial. The total funding allocated to TCM research was 4.9 billion yuan (US\$770.5 million) in 2010 — more than quadruple its 2001 level. In 2010, according to the State Administration of Traditional Chinese Medicine, 6,093 Chinese scientists were employed in TCM research — a 53% increase since 2001.

As of May 2011, China has signed 91 TCM partnership agreements with more than 70 countries, which aim to promote greater recognition of TCM around the world. ■

Felix Cheung is editor of *Nature China* in Hong Kong.

During the peaceful Tang Dynasty, TCM spread to other countries and continued to evolve. In 659, the Chinese government issued the *Newly Revised Materia Medica*, officially replacing Shennong's *Classic*.

In 1578, Li Shizhen compiled *The Compendium of Materia Medica*, the most comprehensive documentation of the use of medicinal herbs, minerals and animal parts.



Protestant missionaries (below) arrive in 1807, bringing Western doctors and medical knowledge. The rise of Western medicine accelerated after the Opium Wars in 1839–1842 and 1856–1860 (left).

MODERN CHINA

In 1967, Mao Zedong initiated Project 523 that led to the development of artemisinin to combat malaria, which reinvigorated TCM development. In 2003, when severe acute respiratory syndrome (SARS) hit China, TCM was used to fend off SARS, giving further encouragement.

Below: A patient receives moxibustion in modern-day China.



The Qing dynasty collapsed in 1911 and the Republic of China was founded. Foreign powers had a big influence in China, and favoured a Western school of thought over TCM.

Two pages from Li Shizhen's TCM encyclopaedia.

