

**Draft revised definitions from the ILO ([www.ilo.org/public/english/bureau/stat/isco/draftdoc.htm](http://www.ilo.org/public/english/bureau/stat/isco/draftdoc.htm))**

Medical doctors diagnose and treat human physical and mental illnesses, disorders and injuries, and recommend preventive action, based on the scientific principles of modern medicine. They may specialise in certain disease categories or methods of treatment, or assume responsibility for the provision of continuing and comprehensive medical care to individuals, families and communities.

Nursing professionals . . . treat and care for the physically or mentally ill, [and] the elderly. They assume responsibility for the planning and management of the care of patients, including the supervision of other health care workers, working in teams with medical doctors and others in the practical application of preventive and curative measures, and dealing with emergencies as appropriate.

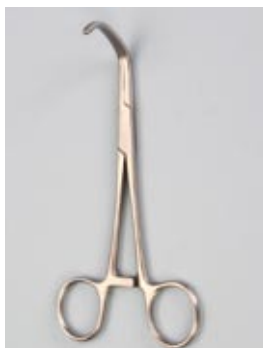
and they must be indivisibly combined with empathy, compassion, and integrity. Where individual doctors fall short of achieving or maintaining this highly demanding combination, the profession needs to have effective ways of taking action in the interests of patients and society.

This consensus statement is an important document, not least because of the united voice it has achieved from the leaders of the profession across the UK. It is unlikely to be the last word, however. As the statement itself says, “the role of the doctor is changing and will continue to change alongside the needs and expectations of patients.”

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## Left-right discrimination in medicine

Are left handed people the last great neglected minority?



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**Competing interests:** I am a right hander, the son of a left hander, the father of a left hander, and the onlie begetter of *Right Hand, Left Hand*. If this editorial encouraged anyone to buy this book I would also have a financial interest, albeit pretty small.

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Right and left are so very confusing. Perceptually, distinguishing right and left is surprisingly difficult, as Gormley and colleagues’ linked article shows (doi:10.1136/bmj.a2826).<sup>1</sup> Scientifically the origins of a brain polymorphism that makes 90% of people use their right hand for skilled activities but the other 10% use their left hand are unclear.<sup>2</sup> And socially, ethically, and educationally, there is confusion over the needs and rights of those people whom I sometimes describe as the last great neglected minority—left handers.

Right handedness is so obvious a fact of life that few people realise how unusual it is. All other species, except perhaps chimpanzees,<sup>3</sup> are made up half and half of right handers and left handers. Nor is it coincidence that humans alone have language, and that language is mostly located in the left hemisphere, which controls the right hand. The left hemisphere processes information more quickly than the right hemisphere. This speed is required both for online processing of grammar and the rapid movements needed in speech and fine motor skills.

It is less surprising that left and right are confused than that they can be distinguished at all, and that ability also seems to be unique to humans.<sup>4</sup> The physicist Ernst Mach showed that true right-left discrimination, the association of arbitrary stimuli to right or left sides, requires a system that is itself asymmetric. Because men’s brains are somewhat more asymmetric than women’s brains, and right handed people’s brains are more asymmetric than left handed people’s brains, right-left confusion is more prevalent in women and left-handed people.<sup>2</sup>

Right-left discrimination is learnt surprisingly late in life. The core problem is that, when facing me, your right hand is actually on my left side. This provides immense scope for disastrous confusion in surgery. Fortunately,

marking the operation side with a permanent felt tip marker when the patient is fully conscious provides a ready solution. Interpreting radiographs and brain scans, with their opposite left-right conventions, is another matter, so the words “right” and “left” need to be readily visible on all images (this is especially important for images from the 1/10 000 patients with situs inversus).

The technological world in which we live was designed and built mainly by right handed people, with little heed of the needs of left handers. The result is that, despite a 10th of people being left handed, digital cameras with buttons on the left seem non-existent. Although health and safety regulations are often invoked for seemingly trivial reasons, the needs of left handers remain mostly ignored, so that when a badly designed electric saw cuts off the fingers of a left handed person, the person is likely to be blamed rather than the design of the equipment. Most complex equipment in medicine is also designed mainly for right handed people (although it is said, albeit with some dissent,<sup>5</sup> that Boyle’s anaesthetic machine was better suited for left handed people because Boyle himself was left handed<sup>6</sup>).

Ancient commentators emphasised the need for surgeons to be skilled with both hands. The Roman physician Celsus said that surgeons should be “ready to use the left hand as well as the right,” which echoed the ideas of Hippocrates, who said surgeons should, “Practise all the operations . . . with each hand . . . to attain ability, grace, speed, painlessness, elegance, and readiness.” Of course this is a counsel of perfection—most people have one hand that limps along without the eloquent movements of the other. However dextrous and practised, most surgeons are probably little different, although the exigencies of living in a right handed world probably mean that left

handed surgeons are a little more bilateral than their right handed colleagues.

Few surgeons work alone—they have assistants who mop, swab, suck, cut, and hand them instruments when needed. The 19th century surgeon, Sir Benjamin Brodie, recognised the problem when he wrote, “How much inconvenience would arise were it necessary for different individuals to co-operate in manual operations, if some were to use one hand and some the other?”<sup>7</sup> It is a good point because left handed people may be disadvantaged when collaborating. Despite one study suggesting a scarcity of left handed surgeons,<sup>8</sup> Lieske’s linked article (doi:10.1136/bmj.a2883)<sup>9</sup> and my own data<sup>10</sup> indicate that left handed surgeons are as prevalent as in the general population. Of course, as Lieske notes, left handed surgeons (and left handed endoscopists and radiologists<sup>11</sup>) may still have problems—for example, left handed instruments not being available or needles being mounted the wrong way round (even if asymmetric abdominal anatomy and the mechanics of laparoscopes do sometimes work in left handed people’s favour). Whether the hand-

edness of surgeons really matters—for surgeon, patient, or hospital—should be easy to discover. To be left in confusion surely isn’t right.

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## Learning from emergencies

The lessons are often forgotten before the next crisis comes along



VIVEK PRAKESH/REUTERS

From time to time the media report a major emergency in a developing country, the risks of starvation and disease, and the urgent need for international assistance. In many cases this is followed by public appeals from charities and the announcement of millions of pounds in government aid. In most cases the emergency then fades from view, perhaps leaving the viewer with a sense of unease about the effectiveness of the international response. Large sums of public money are spent on relief; in 2006, \$8bn (£5.4bn; €6.3bn) was provided by the countries that belong to the Organisation for Economic Cooperation and Development.<sup>1</sup> It is therefore reasonable to ask what happens between emergencies. Specifically, what is being done to improve the international response?

The human impact of different types of disasters is now well understood, and steady progress has been made with relief techniques and technologies. But deep and possibly insuperable problems with relief management remain. The international humanitarian “system” is little more than a loosely connected core of United Nations technical agencies and larger non-governmental organisations, with a periphery of smaller non-governmental organisations, businesses, individuals, and military organisations. The system is inconsistently funded and cannot enforce coordination or consistently maintain technical and professional standards.

In the 1970s, Western coined the term “disaster epidemiology” to describe the study of the human impact of natural disasters (earthquakes, floods, and destructive winds) with the aim of identifying patterns that might help predict relief needs (Western KA. The epidemiology of natural and man-made disasters: the present state of the art [dissertation]. Diploma in Tropical Medicine

and Hygiene, London School of Hygiene and Tropical Medicine, 1972). Some findings were unsurprising—for instance, that mortality and injury associated with earthquake are related to types and standards of building construction. Violent floods, such as the recent Asian tsunami, may cause massive numbers of deaths but leave comparatively few seriously injured survivors. Less obviously, it was found that even in very cold locations the risk of environmental exposure was low because survivors build temporary shelters. In addition, no reliable accounts were found of epidemic disease, except where populations moved and concentrated in new locations—for example, people escaping to higher ground after floods.<sup>2</sup>

It was also found that, in general, international relief was not crucial to the emergency response. Search and rescue and the care of the injured are conducted by survivors and local health services and are often substantially completed within two to three days. Distant international organisations cannot deploy quickly enough to provide effective health care, and international search and rescue teams have had little success.<sup>3</sup> The main role of international relief is in later reconstruction.

Patterns of epidemic disease, malnutrition, and other health problems that follow population displacement are similarly well documented, and approaches to health relief that emphasise immunisation, disease surveillance, the interruption of disease transmission, and the standardisation of case management are well developed. The aetiology of famine has a sound theoretical basis,<sup>4</sup> and effective methods have been developed for early warning and the prevention of famine.<sup>5</sup> Techniques for the assessment and management of malnutrition have improved.<sup>6</sup>

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**Competing interests:** Evidence for Development’s income comes from consultancy and grants. The organisation has developed methods of economic measurement and analysis that are used for national economic management and famine prevention. They are also used to inform development policy and to improve the design of development programmes. The organisation has no operational interest in emergency relief.

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