stimulate a surge of research in high-density spinal cord recording and stimulation interfaces, closed-loop control algorithms, implanted wireless systems, and sensory-based training procedures.⁷

Harkema and colleagues achieved a level of functional recovery in a paraplegic patient that remains unprecedented in SCI medicine. Although these results need to be confirmed in a clinical trial with a statistically sound number of participants, the exceptional results bring new hope in a field that has remained unsatisfying—with limited progress despite decades of research throughout the world. We are entering a new era when the time has come for spinal-cord-injured people to move.

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GC and PM have a patent pending for electrode-array stimulator systems. GC has received funds from the European Community's Seventh Framework Programme (CP-IP 258654, project NeuWALK) for related research. RvdB declares that he has no conflicts of interest.

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Higher education and health care in Brazil

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Until the mid-20th century, there was no health-care system in Brazil.¹ Rich patients were treated in private institutions, paying out-of-pocket fees; workers had access to labour-union clinics and hospitals. In urban areas, people who were poor had to seek assistance in overcrowded philanthropic or public institutions that would accept those who were indigent to Brazil. In rural areas, peasants and sharecroppers had to rely on healers or untrained lay caretakers for their health needs. At the peak of the country's redemocratisation, the Constitution of 1988 declared health care as a citizen's right and a duty of the State.² Thereafter the Unified Health System (Sistema Único de Saúde or SUS) was organised with principles of universality, integral care, health promotion, and community participation, with public funds to provide free health care to Brazilian citizens.¹

The SUS has two main lines of operation: the Family Health Programme provides primary health care in 5295 municipalities, and a network of public or

SUS-contracted clinics and hospitals delivers secondary and tertiary care nationwide. Along with public health interventions, which started in the 1970s, and with more recently implemented social policies related to employment and conditional cash-transfer, the impact of the SUS after 20 years has been positive.^{1,3,4} Over the past three decades, infant mortality decreased by about 6.3% a year, and life expectancy increased by 10.6 years.³ Mortality due to infectious disease decreased from 23% of total deaths in 1970 to less than 4% in 2007.⁴ Despite such achievements, serious problems involving equity, quality, and efficiency need to be acknowledged. Insufficient investment, corruption, and poor management because of governmental bureaucracy are among such problems. The main determinant of low-quality care provided by the SUS network is limited human resources; however, this limitation is qualitative not quantitative.

The health-care workforce of Brazil comprises 1.5 million health professionals registered in professional boards

(table). The SUS network is the country's major employer: 52% of nurses, 44% of physicians, 27% of dentists, 11% of pharmacists, and 10% of psychologists are public employees.⁷⁻⁹ Furthermore, 3493 university-level courses for health professions are offered, with 185 medical schools hosting 97 994 students.⁵ The ideal SUS workforce—ie, skilled, evidence-oriented, well-trained professionals who are committed to equity in health—does not match the profile of the professionals who operate the system. This disparity is partly because of self-selection. The private sector promotes an individualistic ideology in which public service is considered as merely underpaid employment, which offers stability, secondary to private entrepreneurship or jobs in for-profit health enterprises, which are allegedly more rewarding. However, increased understanding of this problem might be found in the dissonance between the SUS's mission and the higher education system. Thus the key issue for health care in Brazil might be the deformation of education—humanistic, professional, and academic—of health personnel.

Similar to the situation in the USA before the Gilman-Flexner reform and to that in continental Europe before the Bologna Process, medicine, dentistry, pharmacy, nursing, psychology, and other health-related professions are all undergraduate degrees in Brazil.¹¹ In this system, by going directly into professional courses, young immature students are forced to make crucial career decisions too early in their lives. Several corollaries characterise this system. First, harsh competition for entry to courses of high social prestige (eg, medicine), typically after expensive preparatory courses, makes them monopolies of affluent classes, whose members tend to support individualistic approaches to health care. Second, there is almost no place for other more general studies, which are necessary to promote a broad humanistic view of health–disease care in health professionals. Third, self-contained curricula that are designed for exclusivity tend to be less interdisciplinary and more specialised, thus alienating professional segments from one another and making it difficult to efficiently work in a team.

In 2008, a new university reform was launched in Brazil. Among other measures, a massive investment plan called REUNI is doubling the federal university network in size, allowing for the implementation of interdisciplinary undergraduate courses compatible

Health profession	Schools and courses ⁵	Students ⁵	Registered professionals*	Ratio per population ⁶	At the public service (SUS) (%) ⁷	Working for the FHP (%) ⁸⁻¹⁰
Medicine	185	97 994	341 562	1:558	44.3	4.9
Nursing	752	234 070	271 809	1:701	52.5	10.9
Dentistry	196	53 586	219 575	1:868	26.9	8.8
Pharmacy	444	99 896	133 762	1:1424	10.6	2.2
Psychology	495	124 593	236 100	1:807	10.4	2.8
Other allied health professions	1421	172 807	295 499	1:645	N/A	N/A

SUS=Sistema Único de Saúde. FHP=Family Health Program. N/A=not available. *Updated 2010. Sources: Brazil Federal Boards (Conselhos Federais) of health professions (medicine, nursing, dentistry, pharmacy, psychology, nutrition, physiotherapy, phonaudiology).

Table: Indicators of human resources for health care: Brazil, 2009–10

with the US college system and the European Bologna model.¹¹ As a result, tension has emerged among Brazilian universities. The academic establishment, led by traditional faculties, is against reshuffling the ideological basis of higher education and, therefore, tends to refuse innovative course designs. However, for education of the health workforce, the SUS has provoked a strong political demand to replace the reductionist, disease-oriented, hospital-centred, specialisation-driven pattern of professional education by one that is more humanistic, health-oriented, focused on primary health care, and socially committed. In this context, the State, pushed by social movements, has taken the lead over the universities with initiatives such as REUNI and, particularly, the Pro-Saúde—a SUS-based programme to reform higher education for the health workforce.¹²

Although conservative and elitist, universities are not the main source of the problem because the health-education system reflects the health-care model that still prevails in contemporary Brazil, ruled by market-oriented forces and based on medical technology, rather than on solidarity and humane social relations.

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Oxford University should stop investing in arms companies

It will surprise nobody to learn that the wars in Afghanistan and Iraq—so deadly to those who have suffered in them—have reaped enormous profits for arms companies.¹ What may come as a surprise is that many of the UK's most respected universities—including ours, Oxford—have also cashed in on these wars, by investing (either directly or indirectly) large amounts of their endowment capital in shares in major global arms companies.² Oxford University provides a revealing—but by no means unique—example: requests under the Freedom of Information Act made by Campaign Against the Arms Trade³ and our student group^{4,5} have revealed

that, between 2008 and 2010, Oxford's endowment and capital funds were investing on average £4.5 million of their assets (through third-party funds) in BAE Systems, Raytheon, Lockheed Martin, and other UK and US arms manufacturers. For Oxford, as for other universities, the lure of large returns appears to have been too lucrative to resist. Yet at a time when there is an increasing public awareness about the conduct of these and other wars, helped in large part by the WikiLeaks release last year of thousands of US military files, with their evidence of what many would consider to be promiscuous rules of engagement⁶ and indiscriminate killings,^{7,9} universities like Oxford can no longer ignore the ethical implications of their investments.

Take Oxford's holding in Lockheed Martin. In April, 2010, the University held £1.4 million worth of shares in this US-based company⁵ that makes the Hellfire missile.¹⁰ The WikiLeaks release records the killing of an Iraqi boy by a Hellfire missile fired at him by a US helicopter while he was collecting firewood.⁸ A Hellfire missile is also seen killing a passer-by as it is launched at a civilian structure at the end of the infamous *Collateral murder* video released by WikiLeaks, which shows footage from a US helicopter cockpit of innocent civilians gunned down in Baghdad, accompanied by the crew's mocking commentary: "Oh, yeah, look at those dead bastards. Nice."⁹ In both cases the helicopters were Apaches, manufactured by Boeing, another company