

Medical Nemesis 40 years on: the enduring legacy of Ivan Illich

S O'Mahony

Consultant Physician, Cork University Hospital, Cork, Ireland

ABSTRACT

Ivan Illich's attack on modern medicine, *Medical Nemesis*, appeared in 1974. The book famously opened with the statement: 'The medical establishment has become a major threat to health.' Forty years after its publication, this paper examines the major themes of the book, and asks whether events since its publication have added weight to Illich's thesis.

KEYWORDS Ivan Illich, *Medical Nemesis*, medicalisation

DECLARATION OF INTERESTS No conflict of interest declared

Correspondence to S O'Mahony
Cork University Hospital
Wilton
Cork
Ireland

e-mail seamus.omahony@hse.ie

BIOGRAPHY OF ILLICH

Ivan Illich was born in Vienna in 1926 to a Roman Catholic Croatian aristocrat father and a German mother of Sephardi Jewish origin.¹ His parents included among their friends the poet Rainer Maria Rilke, the theologian Jacques Maritain, and the philosopher Rudolf Steiner. Illich was classified 'half-Aryan' as long as his father was alive but, after his death in 1943, the family fled to Italy. Illich initially studied histology and crystallography at the University of Florence, mainly to obtain an identity card under a false name. After the Second World War, Illich returned to Austria, and enrolled at the University of Salzburg to study history, eventually gaining a PhD. While working on his doctoral research he returned to Italy and began his studies for the priesthood at the Gregorian University in Rome. He was ordained in 1951.

Illich's intellectual gifts were quickly recognised by the church. He was approached by Cardinal Giovanni Montini (later Pope Paul VI) who encouraged him to train as a church diplomat at the Accademia dei Nobili Ecclesiastici. Illich declined and decided instead on an academic career. In 1951 he moved to the USA with the intention of doing post-doctoral study at Princeton. In New York he came into contact with the large new Puerto Rican community and decided to work as a pastor with this group instead. In 1956 he was appointed Vice-Rector at the Catholic University in Ponce, Puerto Rico, but was recalled to New York in 1960 after a series of clashes with the local Catholic hierarchy. He subsequently travelled alone throughout South America, and in 1961 set up the Centre for Intercultural Formation in Cuernavaca, Mexico. This Centre was established with the support of the US Catholic hierarchy to prepare North American missionaries for work in South America, and provided intensive courses in Spanish and Latin American culture and history. Illich came to question

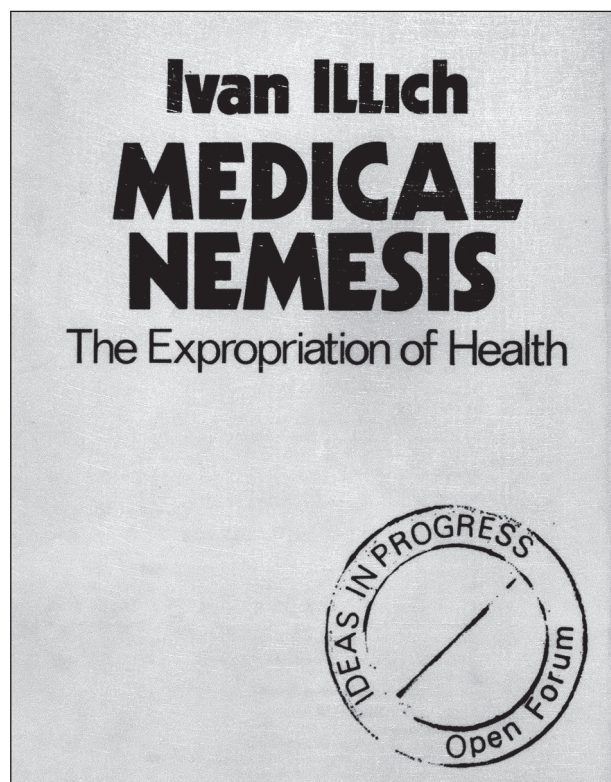


FIGURE 1 *Medical Nemesis*. Image of the copy held in the Sibbald Library, RCPE

the entire missionary enterprise in South America, and eventually effectively sabotaged the programme by openly discouraging would-be missionaries and writing incendiary articles which attacked the American Catholic mission in South America.

In 1968 Illich was called to the Vatican to answer charges of heresy. Although no formal conviction was made, Catholic priests were banned from enrolling for courses at the Centre for Intercultural Formation. Later the same year, Illich resigned from the public duties of the

priesthood, but, for the rest of his life, continued to regard himself as a priest, and retained a commitment to celibacy. The Centre for Intercultural Formation evolved into CIDOC (Centro Intercultural de Documentación), an informal university and language school. CIDOC attracted students from all over the world, and its focus shifted from language to social and philosophical issues. Illich evolved his ideas on the corruption of Western institutions during lectures and informal discussions at CIDOC. During the 1970s Illich became known to a wider audience following the publication of a series of polemical books, beginning with *Deschooling Society* in 1971, which argued that educational institutions stifled true learning. His subsequent books had a common theme: namely, that industrialisation and institutionalisation had robbed people of their freedom and handed over fundamental aspects of human life to professions and their institutions. He expanded his ideas in *Tools for Conviviality* (1973) and *Energy and Equity* (1974), in which he argued against mass entertainment, and mass transport, respectively. He brought the same thinking to *Medical Nemesis* in 1974.

Illich's intellectual influence peaked in the mid-1970s. CIDOC closed down in 1976 and he subsequently held visiting professorships at various European and American universities, including Kassel, Oldenburg, Marburg and Bremen. He divided the last decade of his life between Mexico and Bremen, 'aristocratically aloof, austere, absorbed but happy.'² He died of a facial tumour, for which, characteristically, he did not seek medical treatment: 'I am not ill, it's not an illness. It is something completely different – a very complicated relationship.' Illich collapsed suddenly while at work in his study and died immediately.

Illich was a singular, paradoxical and slightly absurd figure. Initially regarded as a quasi-Marxist critic of modern consumer capitalism, he grew to be distrusted by the Left and called Marxism 'inhumane'. The Right dismissed him as a communist crank. The church disowned him, although typically, Illich remarked that it was the church which had left *him*. He had immense intellectual gifts; he was fluent in so many languages that he claimed to have no mother tongue. His scholastic hinterland was vast, drawing from theology, philosophy, history and sociology. He boasted of simple tastes in food and drink, yet a friend wrote after his death that he enjoyed expensive foods and fine wines.³ He railed against modern mass transportation and the damage it caused to the environment, yet crossed the Atlantic by jet on countless occasions. He refused to wear a watch, which he referred to as a 'gauge', yet constantly asked 'gauge bearers' what time it was.³ He preached that educational institutions were a barrier to true learning, yet held many visiting professorships at various universities. A charismatic man with a huge circle of friends and disciples, he could be cutting and

dismissive to those less gifted, and to those who did not share his views.

After his death in 2002, the psychiatrist and writer Anthony Daniels (who also writes as Theodore Dalrymple) wrote:

And yet Illich was deeply conservative, or at least he would have been had he been born in the Middle Ages. The word reactionary fitted him quite well, insofar as he regarded pre-modern forms of existence as being in many ways superior to our own. He was an anti-Enlightenment figure: while he believed in the value of rational argument and of empirical evidence ...he certainly did not believe in a heaven on earth brought about by rational action on the part of benevolent governments and bureaucracies. He was completely unimpressed by supposed evidence of progress such as declining infant mortality rates, rising life expectancies, or increased levels of consumption. Indeed, he thought modern man was living in a hell of his own creation: the revolution of rising expectations was really the institutionalization of permanent disappointment and therefore of existential bitterness.⁴

THEMES OF MEDICAL NEMESIS

There is a degree of confusion around the title of Illich's medical polemic. *Medical Nemesis* was first published in 1974 by Calder and Boyars.⁵ A further version, *Limits to Medicine: Medical Nemesis – The Expropriation of Health*, was published in January 1975 in *Ideas in Progress*, 'a series of working papers dealing with alternatives to industrial society.' A further version of *Limits to Medicine* ('written as a result of the world-wide response which the author received upon publication of the original draft') was published in 1976 by Marion Boyars,⁶ and this is the version which I will refer to throughout this paper.

Medical Nemesis was a natural development of Illich's ideas on institutions and professions. He argued that modern medicine had hubristically taken on a mission to eradicate pain, sickness, even death. These were, he argued, eternal human realities, which we must learn to cope with: in fact, coping with these verities is what it means to be 'healthy'. Although Illich did not coin the word 'iatrogenesis' – meaning the harm done by doctors – he certainly popularised it. He described three types of iatrogenesis: clinical, or the direct harm done by various medical treatments; social, or the medicalisation of ordinary life; and cultural, meaning the loss of traditional ways of dealing with suffering.

MEDICINE AND THE HEALTH OF POPULATIONS

Illich argued that scientific medicine had little effect on the overall health of populations; this argument had been

made by others, most notably, the epidemiologist Thomas McKeown.⁷ Like McKeown, Illich believed that sanitation, nutrition and housing were more important determinants of health:

The study of the evolution of disease patterns provides evidence that during the last century doctors have affected epidemics no more profoundly than did priests in earlier times...the combined death rate from scarlet fever, diphtheria, whooping cough, and measles among children up to fifteen shows that nearly 90 per cent of the total decline in mortality between 1860 and 1965 had occurred before the introduction of antibiotics and widespread immunization.

Illich went on to argue that not only did doctors contribute little to the health of populations, they probably did more harm than good: '...only modern malnutrition injures more people than iatrogenic disease in its various manifestations.'

He had a low opinion of doctors ('the medical guild'), who he regarded as more concerned with their income and status than the health of their patients: '...doctors deploy themselves as they like, more so than other professionals, and they tend to gather where the climate is healthy, where the water is clean, and where people are employed and can pay for their services.'

SOCIAL IATROGENESIS

Illich observed how the founders of the NHS naively believed that a free healthcare system would result in a healthier society, and thus less demand for its services. He coined the term 'Sisyphus syndrome', meaning the more healthcare given to a population, the greater its demand for care. He used the phrase 'social iatrogenesis' to describe what he saw as the medicalisation of Western society: '...medical practice sponsors sickness by reinforcing a morbid society that encourages people to become consumers of curative, preventive, industrial, and environmental medicine.'

He described how the pharmaceutical industry, enthusiastically supported by the medical profession, benefited from this medicalisation: 'To promote Valium, Hoff-LaRoche spent \$200 million in ten years and commissioned some two hundred doctors a year to produce scientific articles about its properties.'

CULTURAL IATROGENESIS

Illich went on to argue that 'cultural' iatrogenesis was the most insidious form of iatrogenesis, as it sought to corrupt the essence of what it is to be human. He attacked especially the medicalisation of death: 'The patient's unwillingness to die on his own makes him pathetically dependent. He has now lost his faith in his

ability to die, the terminal shape that health can take, and has made the right to be professionally killed into a major issue.'

Illich believed that there is a profound difference between *pain* and *suffering*. Pain, he argued, is a sensation, but suffering is a *practice*. Pain, in the absence of a cultural and spiritual context, is unendurable. He argued that this cultural iatrogenesis had robbed people in modern industrialised societies of the ability to *suffer*, thus rendering pain meaningless:

Culture makes pain tolerable by integrating it into a meaningful setting; cosmopolitan civilization detaches pain from any subjective or inter-subjective context in order to annihilate it. Culture makes pain tolerable by interpreting its necessity; only pain perceived as curable is intolerable...Duty, love, fascination, routines, prayer, and compassion were some of the means that enabled pain to be borne with dignity.

The greatest human pain is death. Through the medicalisation of death, he wrote, 'healthcare has become a monolithic world religion...The medicalization of society has brought the epoch of natural death to an end. Western man has lost the right to preside at his act of dying.'

ILLICH'S REMEDIES

Illich's diagnosis of medicine's woes was astute, but his prescriptions were risible. He argued, for example, for 'more public support for alpha waves, encounter groups and chiropractic.' He advanced rather vague proposals of handing back to lay people responsibility for their health, and limiting the power of doctors, insurance companies and pharmaceutical firms.

Medical Nemesis is resistant to medical remedies. It can be reversed only through a recovery of the will to self-care among the laity, and through the legal, political and institutional recognition of the right to care, which imposes limits upon the professional monopoly of physicians.

Perhaps it is unreasonable to expect Illich to provide practical solutions to what he viewed as a spiritual, rather than an organisational, or societal, malaise.

PROSE STYLE

Medical Nemesis is not an easy read. The prose is dense, and at times, impenetrable. Illich drew not only from the medical literature, but also history, philosophy, sociology and anthropology. His use of footnotes is even greater than the late David Foster Wallace: one 39-word sentence has eight footnotes. He defended this use of footnotes: 'The footnotes reflect the nature of this text. I assert the right to break the monopoly that academia has exercised over all small print at the bottom of the

page.' Illich employed this particular style deliberately: he wanted lay people (who, after all, he argued, should take responsibility for their own health) to have access to an extensive bibliography and he wanted to impress medical readers with as much evidence as possible. I suspect that Illich also simply wished to show off: he did not wear his learning lightly. If *Medical Nemesis* had been stripped of repetition, footnotes and irrelevancies, it might have been a readable long essay. Unreadability, however, is not an insuperable obstacle to success for a book; *Medical Nemesis* was a bestseller and established Illich as a star public intellectual in the Christopher Hitchens mould. Illich was a charismatic and accomplished public speaker; I suspect that many bought the book after hearing him speak, and gave up after the first few pages.

MEDICAL NEMESIS AND ILLICH'S 'APOPHASIS'

A reader unfamiliar with Illich would not guess that the author of *Medical Nemesis* was a Catholic priest. Apophasis may be defined as a kind of theological or philosophical thinking that reveals its true subject by not mentioning this subject.¹ The original Greek word means 'denial' or 'negation'. There is a long tradition of Christian apophatic theology, including Meister Eckhart and St John of the Cross. In later life, Illich told his friends that his personal theology was 'apophatic'. His biographer, Todd Hartch, argues that Illich's books, including *Medical Nemesis*, were really about the corruption of Christianity:

To Illich, the history of the West was thus the tragedy of the institutionalization of Christianity, as the Church, truly the Body of Christ, adopted the false and dangerous guise of an institution... If the Church had not succumbed to institutionalization, those other institutions would not even have come into existence. Illich's apophasis, therefore, had two levels. He denied that mandatory schooling was true learning or teaching, that modern medicine was true healing, and that economic development was true compassion; at the deeper level he denied that the Church was a bureaucracy, that the human body was a machine, and that death and suffering could be avoided.

Many years after the publication of *Medical Nemesis*, Illich told his friend, the historian Barbara Duden, that the subject of the book 'could as easily have been the postal service because the underlying corruption of the West, not medicine itself, was the true object of his study.'¹ Illich, like the Biblical prophets, often spoke in riddles and parables.

CONTEMPORARY REACTION TO MEDICAL NEMESIS

The publication of *Medical Nemesis* prompted the *British Medical Journal* to take the unprecedented decision to publish, in December 1974, three individual reviews of

the book, along with an editorial comment. Philip Rhodes, Dean of the Faculty of Medicine at the University of Adelaide, like many readers, found Illich's prose style less than engaging: 'Such, however, is the obscurity of the language, the imagery, the recourse to mythology, iconography, and selective history that one's interpretation of what the author means could very easily be wrong.'⁸ Rhodes accused Illich of a lack of originality: 'nothing said by Illich has not already been said by some doctor... there is nothing really new to be found here.' George Discombe, Professor of Chemical Pathology at the Ahmadu Bello University, Zaria, Nigeria, was also unimpressed: 'Dr Illich betrays a fondness for exotic words, abstract nouns, and emotive phrases – good and proper signs by which to know a mystagogue... Illich is revealed as a dealer in Utopias – in the line of Bacon, Rousseau, Karl Marx and G.K. Chesterton...'⁹ Alex Paton, a physician at Dudley Road Hospital in Birmingham, was the only reviewer of the three who supported Illich: '...his argument is closely reasoned, sometimes obscure, often exasperating, but never dull, and fully documented.'¹⁰

The *British Medical Journal* letters page was equally busy. John Bradshaw, doctor, polemicist and disciple of Illich's, wrote:

The gist of your leading article on Ivan Illich's *Medical Nemesis* is that, while clearly much is wrong with medicine, there is nothing that doctors and other citizens cannot set to rights, that Illich is a somewhat wild man, if interesting, and that one cannot put the clock back... I think Illich is not a prophet of industrial (or medical) nemesis: like the rest of us, he is now a witness of its occurrence.'¹¹

David Horrobin, the controversial doctor, pharmaceutical entrepreneur and publisher, wrote an entire book, *Medical Hubris: A Reply to Ivan Illich*, refuting Illich's thesis.¹² He mocked Illich as a 'classic Old-Testament spellbinder' and 'extremely dangerous for people of moderate intelligence'. 'In almost every situation', wrote Horrobin, 'Illich overstates his case and in some he presents a view which to the uninformed must be frankly misleading.' He conceded, however, that Illich was 'brilliantly eloquent' and 'seductively convincing'.

HAVE ILLICH'S PROPHECIES COME TRUE?

After the high-water mark of the 1970s, Illich went out of fashion: the medical establishment dismissed him as a crank and moved on. His argument was weakened by the obscurity of his prose, his dismissal of technology, and the impracticality and vagueness of his suggested solutions. It is tempting to regard him as just another historical footnote to the counter-culture of the 1960s and 1970s, yet, 40 years on, much of what he warned against has come to pass. Indeed, there was more than a touch of the Old Testament prophet in Illich's public

persona: he was frequently dismissed by critics in ad hominem attacks as a 'Jeremiah'. When *Medical Nemesis* was published in 1974, US spending on healthcare was 8% of the GDP; it is now 18%. Healthcare makes up 10% of the entire global economy. Medicine has indeed become, in Illich's phrase, 'a vast monolithic world religion'. Even meliorists such as Atul Gawande admit that the growth of health care as a percentage of the global economy is threatening other aspects of human life, such as transport, housing and education.¹³ Medicalisation has continued unchecked, and Illich would have been wryly amused by the invention of new diseases, such as social anxiety disorder (shyness), male-pattern alopecia (baldness), testosterone-deficiency syndrome (old age), and erectile dysfunction (impotence).

Illich, along with the French historian Philippe Ariès,¹⁴ railed against the medicalisation of death. In the 40 years since 1975, death has moved from the home to the hospital. And hospitals have become a dustbin for all sorts of societal problems, not just dying. Illich assumed that this medicalisation was something doctors actively sought, to enhance their power, but doctors and hospitals did not ask for these problems – society was quite happy to hand them over, as long as the problems could be given a medical gloss. In 2002, Leibovici and Lièvre corrected the Illichian view in the *British Medical Journal*:

These aspects of medicalization make doctors miserable. The bad things of life: old age, death, pain and handicap are thrust on doctors to keep families and society from facing them. Some of them are an integral part of medicine, and accepted as such. But there is a boundary beyond which medicine has only a small role. When doctors are forced to go beyond that role they do not gain power or control: they suffer.¹⁵

Illich's prediction of ever-increasing medicalisation has come true, but doctors are as much victims as their patients.

Modern medicine has been called 'a culture of excess'. In 2011, the Lancet Oncology Commission produced a lengthy report called *Delivering Affordable Cancer Care in High-Income Countries*.¹⁶ The authors, a gathering of the great and the good of modern oncology, concluded (in a passage that could have been written by Illich) that cancer care is in crisis, driven by overuse and futility:

In developed countries, cancer treatment is becoming a culture of excess. We over-diagnose, overtreat and overpromise. This extends from use of complex technology, surgery and drugs to events related to the acceptance of treatment side-effects. Second, we are a society that focuses almost exclusively on benefit, and such benefit is often small. For example, a 20% improvement in survival for a patient with a non-resectable metastatic solid tumour translates

into a benefit of 4-6 weeks at best. Perspective is almost exclusively absent as we focus solely on what is perceived as benefit.

The medical profession and their patients may not be exercised about social and cultural iatrogenesis, but *clinical* iatrogenesis is now recognised as a major societal issue, one in urgent need of fixing. Atul Gawande, in his book *Complications*, summarised the problem:

In 1991, the *New England Journal of Medicine* published a series of landmark papers from a project known as the Harvard Medical Practice Study – a review of more than thirty thousand hospital admissions in New York State. The study found that nearly 4 percent of hospital patients suffered complications from treatment which either prolonged their hospital stay or resulted in disability or death, and that two-thirds of such complications were due to errors in care. One in four, or 1 percent of admissions, involved actual negligence. It was estimated that, nationwide, upward of forty-four thousand patients die each year at least partly as a result of errors in care.¹⁷

Many within medicine view with alarm the direction modern healthcare has taken. Denis McCullough, an American gerontologist, wrote: 'Economic interests, as well as cultural and social pressures, encourages both an excessive use of health services and an expansion of people's expectations beyond what is realistic, what the health service is able to deliver.'¹⁸ The economist Alan Enthoven has argued that increasing spending on medicine will reach a tipping point, beyond which more spending causes more harm than good.¹⁹ We have seen the rise in the concept of disease 'awareness', promoted, not infrequently, by pharmaceutical companies. Genetics has the potential to turn us all into 'patients' by identifying our predisposition to various diseases. Guidelines from the European Society of Cardiology on treatment of hypertension and hypercholesterolaemia identified 76% of the adult population of Norway as being at 'increased risk'.²⁰ This 'disease mongering' (driven mainly by the pharmaceutical industry) has, wrote Iona Heath, 'meant a shift of attention from the sick to the well and from the poor to the rich.'²¹ Illich wrote: '...a culture can become prey of a pharmaceutical invasion. Each culture has its poisons, its remedies, its placebos, and its ritual settings for their administration. Most of these are destined for the healthy rather than the sick.'

INFLUENCE OF ILLICH

Anthony Daniels spoke for many when he wrote: 'My attitude to Illich was composed half of admiration, half of irritation.' Illich was a hugely influential intellectual figure in the 1970s and had many disciples, including John Bradshaw, who wrote *Doctors on Trial* in 1978, which

reached the Illichian conclusion that ‘western doctors today are certainly more productive, directly or indirectly, of ill-health, in every sense, than of health.’²² Illich, naturally, wrote the foreword for Bradshaw’s polemic. Richard Smith, then editor of the *British Medical Journal*, wrote this in 2002:

The closest I ever came to a religious experience was listening to Ivan Illich. A charismatic and passionate man, surrounded by the fossils of the academic hierarchy in Edinburgh. He argued that ‘the major threat to health in the world is modern medicine.’ This was 1974. He convinced me, not least because I felt that what I saw on the wards of the Royal Infirmary of Edinburgh was more for the benefit of doctors than patients.²³

Illich’s marginalisation may have been a defensive response on the part of doctors. Since the 1970s, the dominant ethos in the medical profession has been anti-Illichian. Doctors, patients, politicians and the pharmaceutical industry formed a broad consensus that more medicine, more healthcare, could only be a good

thing. Academic medicine, so powerful in shaping opinion, has developed a relationship with ‘industrial partners’ that is unhealthily close and uncritical. But a new generation has been influenced by Illich’s ideas. A growing resistance is developing within medicine: this movement has various strands, such as the Slow Medicine Movement, founded in Italy in 1989, inspired by the Slow Food Movement. At a meeting of the Slow Medicine Movement in Bologna in 2013, Gianfranco Domenighetti listed the characteristics of health systems as follows: ‘complexity, uncertainty, opacity, poor measurement, variability in decision-making, asymmetry of information, conflict of interest, and corruption.’²⁴ The British Medical Association has backed a ‘Too Much Medicine’ campaign²⁵ which shares some of the aims of the Slow Medicine Movement.

Medical Nemesis is a paradox: it is bombastic, barely readable, and over-stated, but at its core, is a powerful argument. Forty years after its publication, Illich’s thesis has only grown in strength.

REFERENCES

- Hartch T. *The Prophet of Cuernavaca: Ivan Illich and the Crisis of the West*. Oxford: Oxford University Press, 2015.
- Obituary. Ivan Illich. *J Epidemiol Community Health* 2003; 57: 923–4.
- Levin L. Ivan Illich. *J Epidemiol Community Health* 2003; 57: 925.
- Daniels A. Ivan Illich, 1926–2002. *The New Criterion* January 2003; 21: 78–81.
- Illich I. *Medical Nemesis*. London: Calder & Boyars, 1974.
- Illich I. *Limits to Medicine. Medical Nemesis: The Expropriation of Health*. London: Marion Boyars, 1976.
- Bynum B. The McKeown thesis. *Lancet* 2008; 371: 644–5.
- Rhodes P. Indictment of Medical Care. *BMJ* 1974; 4: 576–7.
- Discombe G. A Romantic Enthusiast. *BMJ* 1974; 4: 574–6.
- Paton A. ‘Medicalization’ of Health. *BMJ* 1974; 4: 573–4.
- Bradshaw JS. Medical Nemesis. *BMJ* 1975; 1: 94.
- Horrobin D. *Medical Hubris. A Reply to Ivan Illich*. Montreal: Eden Press, 1977.
- Gawande A. *Complications*. London: Profile Books, 2002.
- Ariès P. (Translated by Helen Weaver) *The Hour of our Death*. New York: Alfred A. Knopf, 1981.
- Leibovici L, Lièvre M. Medicalisation: peering from inside medicine. *BMJ* 2002; 324: 866.
- Sullivan R, Peppercorn J, Sikora K et al. Delivering affordable cancer care in high-income countries. *Lancet Oncol* 2011; 12: 933–80. [http://dx.doi.org/10.1016/S1470-2045\(11\)70141-3](http://dx.doi.org/10.1016/S1470-2045(11)70141-3)
- Gawande A. The Cost Conundrum. *The New Yorker* 1 June 2009. <http://www.newyorker.com/magazine/2009/06/01/the-cost-conundrum> (accessed 4/4/16).
- Zuger A. For the Very Old, a Dose of ‘Slow Medicine’. *The New York Times* 26 February 2008. http://www.nytimes.com/2008/02/26/health/views/26books.html?_r=0 (accessed 4/4/16).
- Moynihan R, Smith R. Too much medicine? Almost certainly. *BMJ* 2002; 324: 859. <http://dx.doi.org/10.1136/bmj.324.7342.859>
- Getz L, Kirkengen AL, Hetlevik I et al. Ethical dilemmas arising from implementation of the European guidelines on cardiovascular disease prevention in clinical practice. *Scand J Prim Health Care* 2004; 22: 202–8.
- Heath I. Combating disease mongering: daunting but nonetheless essential. *PLoS Medicine* 2006; 3: e146. <http://dx.doi.org/10.1371/journal.pmed.0030146>
- Bradshaw JS. *Doctors on Trial*. London: Wildwood House, 1978.
- Smith R. Limits to medicine. Medical nemesis: the expropriation of health. *J Epidemiol Community Health* 2003; 57: 928.
- Smith R. The case for slow medicine. *BMJ blogs*. <http://blogs.bmj.com/bmj/2012/12/17/richard-smith-the-case-for-slow-medicine> (accessed 4/4/16).
- Godlee F. Too much medicine. *BMJ* 2015; 350: h1217. <http://dx.doi.org/10.1136/bmj.h1217>