"The role of physician is central to Zhivago's humanity"
See Medical Classics, p 47

We should publish the cost of each piece of research

PERSONAL VIEW **Penelope Hawe**

Recently I reviewed an imaginative proposal for an $A80m funding programme to prevent chronic disease in the community. It had all the right ideas and components: good evidence for the interventions suggested and encouragement of local decision makers and partners to foster adaptation to context and sustainability. What was the evaluation budget? Ten per cent: it's always 10%, isn't it? That is the magic figure that seems to have been passed down through the ages to determine whether or not policies and programmes reach people and whether they work.

The week before, I had reviewed a multimillion dollar protocol for a cluster randomised controlled trial of a health promotion intervention in schools. The evaluation to intervention budget ratio was five to one—almost the reverse. There are no prizes for guessing that the first proposal came from a government agency and the second from a health research agency. Yet the results produced by both are intended to advance the way that we build policies and programmes in disease prevention.

These scenarios potentially lead to two different types of knowledge poverty. One will be heavy on experience but light on data to tell a convincing story about reach, implementation, quality, and impact. The other will be big on research validity, but possibly about an intervention less well thought through from the perspective of delivery.

We have spent the past 20 years in spirited debates about the nature and quality of the evidence needed to revise patterns of morbidity and mortality. But we have spent almost no time documenting the cost of each advance, and this allows the perpetuation of myths about what an appropriate allocation for evaluation of research is.

Indeed, some study designs are seen as positively flamboyant. It is fashionable in some circles to lampoon cluster randomised trials as costly monoliths, for example. Yet there is no reason to believe that alternatives, like replicated case studies or time series analyses, give us cheaper answers, setting aside the argument about whether the answers from alternative designs might be worse or better.

ROB WHITE

Ten per cent: it's always 10%, isn't it? That is the magic figure that seems to have been passed down through the ages to determine whether or not policies and programmes reach people and whether they work

One solution would be for journals to require researchers to disclose their research costs at the time the protocol is published in a peer reviewed journal, and later when the results are published. The recommendation should apply to all study types, whether interventional research or not. But given the urgent need for population level prevention, I'd suggest we target that research first because it seems to have the most arbitrary budget allocations.

Documenting research costs will help other researchers put together their own study designs and grant applications. It will also help to build a truer record of health research and development. Drug companies say that spending 80–90% of their money in development is worth while for the products that their pipeline produces. At present we have no idea whether health service or population health research operates at similar investment to output ratios.

Documenting research costs will advance the discipline of health knowledge economics. We will likely need economists from this discipline to defend investment in health research in the future, as governments become increasingly sceptical about what they gain from researchers.

Of course, economists may be a little unhappy about what we mean by costs. Surely what is funded in a research grant is only a proportion of the real costs, they might well say. So guidance on what might be reasonable assumptions, estimates, and detail for the results represented in any single unit of analysis (a research paper) could come from a consensus among experts, much like we have done already in providing guidance to authors about statistical requirements.

Doing costing well will consume resources. So a set of relatively blunt but acceptable temporary principles to describe current studies could precede better, prospective, in-built procedures for resource monitoring and reporting. Although the costs for each unit may vary among countries (that is, interview transcription costs or the salary of a field survey manager), generalisable patterns are likely to emerge.

If we don't start reporting our costs we are at risk of standing by while possible gaps in our prevention knowledge continue to unfold, like the $80m policy and programme prevention roll-out with scant investment in evaluation that I just saw.

It's just my guess that 10% of the total funds for a programme or policy reserved to evaluate research is not enough to tell an instructive story about process, outcome, and health equity. But the point is that with a legacy of research cost metrics we would (eventually) know.

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REVIEW OF THE WEEK

Growth without greed

Is there a healthier kind of economic growth? **Richard Smith** was inspired by a book that gives a recipe for a more sustainable economy

Plenitude: The New Economics of True Wealth
Juliet B Schor
Penguin Press, $25.95/£16.03, pp 258
ISBN: 9781594202544
Rating: ★★☆☆

Politicians, particularly those in Europe and the United States, are desperate for economic growth, but it's the wrong kind of growth. The kind of growth that we've known recently, driven by debt and consumption, will destroy us. That's the argument of Boston economist Juliet B Schor, who describes a different form of sustainable growth that will be kinder for us, our health, and the planet. She calls it plenitude.

Schor's book is easily understood by non-economists and contains data, evidence, and stories that illustrate a new world. The book reads like a first draft of how we all might live lives that are not austere but environmentally sustainable and fulfilling. There's more thinking and work to be done, particularly about what plenitude might mean for the billions living in poverty in low and middle income countries. And typically Schor is stronger on analysing the problem than describing the detail of the solution.

Economists identify two forms of growth: intensive and extensive. Intensive growth is using resources more efficiently; extensive growth is replacing public and household production with the market sector. Extensive growth is not real growth, argues Schor. Rather, it's replacing one economy with another, and depends on using the natural world, like fossil fuels, which have been described as, "a one time gift that underwrote a one time binge of growth."

Population increase plus the emergence of a global middle class has led to a "truly gargantuan scale of consumption." The US has led the way. In 2007, 70% of the US economy was personal consumption, up from 61.5% in 1961. The average US resident spends $32 144 (£20 000, €22 600) a year, when half the world's population lives on under $1000. There has been an orgy of consumption, which Schor illustrates with data that the average US resident in 1991 bought 34 garments (excluding hosiery and underwear) but 67 in 2001: this is a new piece of clothing every 5.4 days. The same has happened with furniture, toys, mobile phones, computers, and much else. In 2001 the US used 132 000 lb (60 000 kg) of oil, sand, grain, iron ore, coal, and wood per person; 362 lb per person a day. It's not sustainable.

People as old as me have heard something like this before. I listened to Paul R Ehrlich, the Stanford ecologist, argue in the 1970s that the population bomb was about to go off and that we wouldn't be able to feed the world. *The Limits to Growth*, published in 1972, selling 30 million copies, argued that by 2015 income would decline, food production would become inadequate, and pollution would begin to overwhelm the planet. In 2011 this looks familiar, but at the time many economists argued that the book was badly wrong, and seemed to win the day. "But," asks Schor, "did economists win the battle over the model and lose the war over whether we are actually facing limits . . . Most economists have practised their craft as if nature did not exist."

This situation is, however, beginning to change, and the 2006 *Stern Review on the Economics of Climate Change* by the UK economist Nicholas Stern was a "game changer." The *Stern Review* argued that ignoring climate change would be much more costly than responding to it. The conventional wisdom is that climate change can be solved with innovative technology and market incentives such as a carbon tax. Schor is sceptical, partly because of the rebound effect whereby more efficient use of energy causes people to buy more—for example, aviation fuel efficiency has increased by 40% since 1975, but overall consumption has increased by 150%. "Either," argues Schor, "we need to grow less or we need to grow differently."

"True wealth," she writes, "can be achieved by mobilizing and transforming the economies of time, creativity, community, and consumption." Americans have put more time into market activity, mainly employment, and used the money they make to buy goods and services. Better, argues Schor, to free time from market activity and use the hours released to develop new skills and activities—like growing and preparing food, making things like clothes, learning (particularly about techniques for environmental sustainability), developing relationships, and contributing to the community. This may sound like the ethos of the characters in the 1970s BBC television series *The Good Life*, but, with advanced technology, so called self provisioning can be liberating and economically substantial rather than a craft movement.

This may sound like the 1970s BBC television series *The Good Life*, but, with advanced technology, so called self provisioning can be liberating and economically substantial rather than a craft movement

Reallocation of time is the first principle of plenitude, and self provisioning the second. The third principle is so called true materialism, recognising the true value of what we consume: we must be more, not less, materialist. The final principle of plenitude is to, "restore investment in one another and our communities."

Plenitude is, argues Schor, emerging, with many people working less, growing more food themselves, installing solar panels and more efficient stoves, teaching and learning about skills for living sustainable lives, recycling, and buying less and making more. I think of some good friends of mine, a doctor and a nurse, who have done all of these things, changing their lives more dramatically than most of us will manage.

Some aspects of plenitude are reminiscent of David Cameron's "big society," something that it is fashionable to scorn, and I don't think that the book fully explains how plenitude would mean that growth would continue. Presumably there would not be growth in the gross domestic product as currently measured, but we would feel richer rather than poorer. Plenitude boils down to "work and spend less; create and connect more," which strikes me as an excellent formula; good for the planet and for us.

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BETWEEN THE LINES **Theodore Dalrymple**

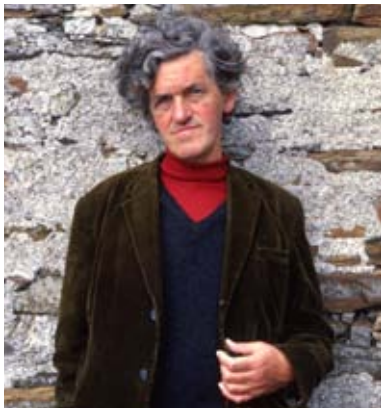
Saved by tuberculosis

It is a startling thought that the population of Renaissance Florence was smaller than that of present day Croydon. I may be mistaken, of course, but I doubt whether tourists, in half a millennium's time, will flock to Croydon in such numbers that it will be difficult to find accommodation there.

In like fashion, small islands are surprisingly productive of literature. Perhaps this is because they are like culture flasks of human nature. Passions run high in small communities, and where little happens small events are examined with minute attention.

George Mackay Brown (1921-96) was born in the Orkney Islands and, except for a few years of belated studies in Edinburgh, spent his whole life there. It is said that tuberculosis saved him for literature—Brown discovered he had the disease when he underwent medical examination to join the army during the second world war. Instead of serving, he spent six months in hospital, where he began to write. He was to spend another year in a sanatorium: such establishments existed as late as 1960.

If tuberculosis saved him for literature, medical progress saved him for life; but he was far from an unequivocal admirer of progress as a concept: "There is a new religion, Progress, in which we all devoutly believe, and it is concerned only with material things in the present and in a vague golden-handed future. It is a rootless, utilitarian faith, without beauty or mystery; a kind blind unquestioning belief that men and their material circumstances will go on improving until some kind of nirvana is reached and everyone will be rich, free, fulfilled, well-informed, masterful."



GORDON WRIGHT/NLS

Brown discovered he had the disease when he underwent examination to join the army

Perhaps it is mainly as a writer of short stories that he will be remembered, though he was also a famed lyric poet. One of his stories might usefully be given to medical students or junior doctors (and no doubt to some seniors too) to teach them the necessity of seeing things from other than their own point of view.

In *A Winter's Tale*, published in 1976, a young doctor called Clifton goes to practise on the island of Njalsay. Though the island is now free of its ancient poverty, it is dying because all the young people leave for brighter lights elsewhere.

The first third of the story is the doctor's account of a dinner at the manse to which a schoolteacher, Prinn, a lawyer visiting from Glasgow, McCracken, and he are invited. The minister, the schoolteacher, and the doctor are the intellectual cream of the island.

According to the doctor's account, the host and other guests are concerned only to display their wit and sophistication, the minister revealing thereby his lack of real faith in the religion that he preaches. The doctor says that if he were a minister and could not accept the literal truth of certain tenets of the religion, he would resign and find another job.

But then the narrative's point of view shifts from the doctor to the teacher and finally to the minister. Each recalls the same events at the dinner differently. The teacher dislikes the doctor for his taciturnity and angularity, which he interprets as inverted snobbery. The minister sees himself as having defended his faith in a straightforward manner.

What happens in a consultation between doctor and patient is a matter of fact. What the doctor or patient thinks happened is also a matter of fact. And yet no completely unequivocal account of what actually happened can ever be given. As social beings, we live permanently in a world of ambiguity.

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MEDICAL CLASSICS

Doctor Zhivago

A film directed by David Lean, based on the novel by Boris Pasternak

Released in 1965

Moscow: a city of snow covered streets crowded with horse drawn sleighs carrying aristocrats, and mounted Cossacks wielding sabres against the peasantry. This is tsarist Russia before the first world war, as conveyed through David Lean's compelling visuals and the rippling flow of Maurice Jarre's Oscar winning score.

A bespectacled socialist leads an ill fated protest march. A cigar smoking bourgeois scorns his victim: "Don't delude yourself this was rape: that would flatter us both." The stole wrapped 17 year old girl hides a pistol in her muff and goes in search of her assailant. And Yuri Zhivago (Omar Sharif) is scoffed at for his determination to pursue a career in general practice: "Life! He wants to see life! Well, you'll find that pretty creatures do ugly things to people."

Life and all its ugliness are soon apparent. "That 900 mile front and our cursed capacity for suffering" are glimpsed in muddied, frost bitten figures as they desert waterlogged trenches and bludgeon to death a ruddy faced, moustachioed, and monocled general. This is the "beginning of the revolution," the narrator, Alec Guinness, informs us.

Amid this tumult, Zhivago toils in a makeshift field hospital tending to wounded soldiers alongside Lara (a sumptuous Julie Christie), a volunteer nurse he recognises from her days as the vengeful, pistol packing teenager. Zhivago has encountered Lara's mother too, years earlier, after she, tormented by the same depraved and lustful defiler who would corrupt her daughter, had attempted to poison herself and been saved by Zhivago and his professor. The stomach pumping is deftly alluded to with a shot of the shadow of rubber hosing cast on the wall. Zhivago's professor watches over the rescued woman, who is lying face down, panting and sweating, and tells him, "That's not how poets see them; it's how general practitioners see them."

But Zhivago's achievement is in sustaining both his poetic vision and his clinical gaze in the face of unfolding events. Strelnikov, the archetypal post-revolutionary Bolshevik, tells him, "Feelings, insights, affections . . . The personal life is dead in Russia: history has killed it." Zhivago does not believe him; nor do we believe it is true of Zhivago. Whether Omar Sharif's eyes are moistening at the sight of Cossacks slaughtering unarmed demonstrators, or at seeing off Nurse Lara and the many wounded soldiers that they have cared for, or at witnessing the senseless machine gunning of schoolboys in his enforced role as medical officer to a unit of Red Army partisans, Zhivago not only bears witness but also brings to bear a resolute determination to ease the suffering he sees. The role of physician is central to Zhivago's humanity. That he manages to retain that humanity—his feelings, insights, and affections—is symbolised by his ultimately finding within himself the heartfelt poetry that will survive him.

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The error of our ways

FROM THE FRONTLINE

Des Spence

Medicine is a family. Not a nuclear family, in a framed photograph with scrubbed school uniforms and beaming white smiles. Medicine is a chipped tooth dysfunctional family of 15 children living in a small terraced house up north. The older ones despair of how spoilt the younger ones are, while the younger ones say the older ones never listen. There is notional parental control, but the reality is self regulated anarchy. There is perpetual feuding, kicking, scratching, hair pulling, ganging up, and name calling, but rarely punching. The boys are almost as bad as the girls. Only with time do we realise that we are bound by common professional experiences and that we can never escape our medical upbringing.

The most challenging aspect of this medical life is clinical responsibility. Doctors are chosen for their academic ability, with no preparation for the real world. Medicine is the great leveller. Even the most spotty faced, bow tie wearing, pseudointellectual type will make mistakes. Our errors cause harm to patients and can even kill. We may come to regret clinical decisions that were made in good faith. The anger and resentment directed at doctors is sometimes palpable.

Clinical errors crowd our thinking, short circuit our reasoning, and wake us sweating at 3 am. They affect our moods and have an impact on our families and friends. There is cold comfort in thinking that other doctors might have acted in the same way, for we are the ones who made the call. Time does heal, but scars struck in the right way bleed easily. We doctors are captive to these negative clinical experiences, and they guide our practice much more than education. The associated regret and guilt slowly burn out our hearts, and some people leave medicine because of it.

Generally we don't talk about these errors because we fear the loss of professional standing, and indeed because some experiences are just too painful to discuss. Many doctors reason that this is the job; it will never change—this is what we get paid for, and so we must simply accept the burden of errors. Emotional repression and alcohol are long serving and effective crutches. But we need to talk through these experiences. Not in formal counselling, but within our medical family, for outsiders simply do not understand what it is like. Regrettably, changes in our work patterns mean that we are losing many informal opportunities to communicate.

Importantly, we also have a duty to anyone considering joining the medical family to be honest about these negative experiences. Medicine needs applicants who are both intelligent and emotionally robust. We may be a dysfunctional family, but we are family, and we need to help each other.

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Death of the silent witness

DRUG TALES AND OTHER STORIES

Ike Iheanacho

There's been no wrongdoing, just a nasty accident, with the injured party being the only observer at the scene. Someone else is involved, of course—the unwitting initiator of the whole sorry business. Boasting extensive analytical skills, this professional is well placed, you'd think, to offer the relevant authorities key information about what's gone wrong.

But through guilt, fear, indifference, or embarrassment, he's saying nothing, declining to report what's happened even when the hurt person turns up to complain. Still, there's always that latter individual's testimony: surely that will be central in any investigation?

This prospect is all very well until the general so called accident morphs into a specific adverse drug reaction. In the European Union, for example, it's taken years for the argument to be won that patients must have the power and, crucially, the means to directly notify drug regulators about suspected unwanted effects. Not long ago, it was commonplace for regulators to maintain that this so called raw information wouldn't help. It was far better, so the line went, if the raw information about suspected unwanted effects was sifted first by prescribers, who could decide whether the alleged problems were worth relaying.

This patronising view prevailed, despite the tendency of doctors to under-report adverse events, despite the potential for distortion of patients' descriptions, and despite the understandable reluctance among some patients to report to a prescriber whom they blame for the mishap.

Thankfully, this unbenign paternalism has been blown away. For instance, in the United Kingdom, national systems for direct patient reporting were launched in 2005. And although some EU countries do not yet have such arrangements in place, all are now required to do so by legislation passed at the end of 2010 and in effect in a year's time.

Those doubting the value of this intelligence gathering should look at recently published research on the UK's Yellow Card Scheme experience by Avery and colleagues (*Health Technol Assess* 2011;15:1-234). They show how patients and healthcare professionals differ in the types of drugs and events they report, and how signals of some drug related reactions might not emerge unless evidence from patients is integrated with that from professionals. And then there's the detail that patients often supply on how unwanted reactions affect their lives; colour largely absent from the pictures painted by professionals.

So the development of direct patient reporting can't just be dismissed as pandering to some soggy patients' rights agenda, or as merely compensating for deficiencies of healthcare professionals. When it comes to suspected adverse drug reactions, there's simply no justification for the expert, but silenced, witness.

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