

Simplicity and complexity in health care: what medicine can learn from Google and iPod

‘Everything should be made as simple as possible, but not simpler,’ said Albert Einstein. As health care becomes more complex, Einstein’s words are being lost. Doctors—be they clinicians or journal editors—are in the communication business and the challenge we face is how to create simplicity out of the complexity of information available to us?

Advocates of complexity science argue for the death of Isaac Newton’s ‘clockwork universe’, in which problems are broken down into smaller ones that can be analysed and solved rationally.¹ Complex systems, say these murderers of deduction, have fuzzy, not rigid, boundaries. An insoluble paradox exists between the desire for consistent evidence-based guidelines and the unique requirements of an individual patient. Decision makers are often forced to provide a definitive answer in conditions of high uncertainty, and unthinking adherence to guidelines and protocols can be harmful.²

Does this mean we should stand defeated by complexity? Far from it. Suppliers of information to doctors—and doctors themselves when informing patients—must grapple with complexity to deliver a message of such simplicity that it aids decision making and prevents adverse outcomes. Biologist Edward O Wilson, although unconvinced by complexity theory, suggests that the evolution of complex adaptive systems is based on fundamental simplicities that govern their development.³ In our information-rich and highly complex world, those suppliers of information, and doctors, who succeed will be the ones who make simple sense of our messy world while capturing its fuzziness. But is this some Einsteinian fantasy? How might simplicity defeat complexity?

In *The Adventure of English* Melvyn Bragg argues that it was the simplicity of an alphabet based on twenty-six characters—as well as its ability to absorb other languages—that helped the English language become the lingua franca of the world.⁴ Juan Enriquez, biotechnologist and founding director of the Harvard Business School Life Science Project, takes this a step further by proposing that English may have triumphed over the infinitely more complex Chinese script but it is now losing out to the superior simplicity of binary code, wherein a sequence of noughts and ones can be given infinite meaning. Enriquez turned his championing of simplicity into a product: *The Smallest Ever Guide To Life Sciences (For Busy People)* is 28 small, short, and unusually absorbable pages on genes and genomics.⁵

Technology is one possible answer to medicine’s conundrum, although it has made our lives more complex, says the head of Microsoft’s desktop applications. A survey in the *Economist* argued that new technologies begin complex then become simpler, with electricity and the automobile being prime examples.⁶ Our simpler future is being arranged as you read. British Telecommunications is committing £3bn a year over the next five years to creating a

broadcast quality network for all of the UK population. Prescriptions and government forms, for example, will soon be available online. In 30 years, perhaps sooner, broadcast networks will replace broadcast television. Every single device will be connected to the internet and we will live in the age of the digital home or the e-home. Technological simplicity may not be in abundance but the *Economist* proposes two prime examples: Google and Apple’s iPod. Both are interfaces, metaphorical gateways through which humans enter and navigate around a technology, and they are both perfect examples of simplicity concealing complexity underneath.

Decision support systems are one attempt to impose simplicity upon complexity, providing clinicians with concise, evidence-based, up-to-date, and—crucially—individualized information. Nobody has yet mastered this information technology, although the first company to produce a product of the calibre of Google or iPod will sweep all before it. An initiative already exists to simplify information supply to the world’s low and middle income countries. The basic philosophy of Scientists for Health and Research for Development (SHARED) is that access to information produced by others and the opportunity to publish your own must both be guaranteed—as simply as possible—to ensure equitable information sharing via the internet.⁷ Another example is the recent launch of Google Scholar (<http://scholar.google.com/>), which makes searching academic literature far simpler than the unwelcoming complexity of PubMed. Google Scholar’s simplicity may eventually consume PubMed.

All of this, of course, raises serious questions about the existence of journals, once rated by the inscrutability of their language and the complexity of their subject matter. Those that survive the downturns in advertising revenue, subscriptions, and the threat of open access publishing will be the ones that, in the words of Einstein, make everything as simple as possible, but not simpler. They will be more readable to compete with other entertainment media. And the print and electronic versions, in their different ways, will be metaphoric gateways through which humans enter and navigate around—simplicity concealing layer upon layer of complexity.

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