Put down your smartphone and pick up a book

Good clinical decision making requires in-depth knowledge that comes from reading books, writes **Martin J Tobin**

Bertrand Russell grumbled in 1924 that "it is impossible to read in America, except on a train, because of the telephone."[1] He continued, "Everyone has a telephone, and it rings all day and most of the night." Given the ubiquity of distractions today, a landline seems almost Arcadian.

As we ponder a difficult passage while reading online, our mind wanders to check our email, or the news, or to buy something new. Rather than being deeply engaged with the written word, we are seduced by the false promise of multitasking. For the first time, distractions have become an integral part of the experience of reading.

Online reading involves a different form of literacy than that of the printed page. The eyes bounce and flicker as they dart promiscuously, searching for nuggets of information and quick wins. It is almost as if people go online to avoid reading in the traditional sense.[2] The instant presentation of expansive information threatens the more demanding task of the formation of in-depth knowledge.[3] Literacy—the most empowering achievement of our civilisation—is being replaced by screen savviness.

Sustained, deeply engaged reading of a book requires a greater commitment than that demanded by the screen. Deep reading invites the reader to go beyond the text, setting off intellectual vibrations in the mind. In *On Reading*, Marcel Proust emphasises its generative nature: "We feel quite truly that our wisdom begins where that of the author ends."[4] True knowledge can be found only in the solitude of one's own heart and mind: "we can receive the truth from nobody . . . we must create it ourselves," Proust cautions.

Stretching of the young mind is important, and, once stretched, it never retracts to its original size. Deep reading is indistinguishable from deep thinking. Reading stocks the mind with material for thought: we become what we read.[5] "How many a man has dated a new era in his life from the reading of a book," Thoreau declaimed.[6]

The ability of physicians to solve problems is directly related to the amount of specific knowledge stored in their brains.[7] It is not enough to know where to find information; it needs to be internalised. When a reader seeks a comprehensive understanding of a topic, he or she turns to a book, not to a bundle of articles.

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The information presented in articles is fragmentary by design and does not delineate the boundaries of a discipline, leaving readers oblivious of major gaps in their knowledge base. Online resources provide abridged and simplified bits of information—the smallest snippet needed to perform a task—which derail the more difficult and time consuming thought processes that deepen the understanding of complex concepts. Physicians who rely on electronic devices short circuit the arduous procedure of memorisation of intricate physiological processes that is necessary for expert clinical reasoning. This consideration is particularly important in acute medicine, where rapid decisions (often in swift succession) demand instant recall. Electronic devices are a godsend for checking dosages of unfamiliar drugs, but such mundane detail should not be confused with complex biological operations that underpin clinical reasoning.

Neuroscientists have been studying the effects of reading on the brain for decades. The brain is infinitely malleable, and reading plays an important part in shaping neuronal circuits and expanding the ways we think. Media not only serve as passive channels of information, they also shape the process of thought.[8] Investigators have found we don't so much read online as quickly scan short passages, bouncing from one site to the next. Reading has taken on a "staccato" quality, rather than performing the heavy lifting of concentration, analysis, and contemplation.

In a recent randomised trial, Mangen and colleagues found that teenagers who read material on a printed page understood the text significantly better than those who read the same material on a screen.[9] The investigators claim that the ability of print readers to "see as well as tactilely feel the spatial extension and physical dimensions" of the entire text contributed to the superior comprehension. Our eyes tell us that words on a screen are identical to those on a piece of paper. But our eyes lie. Cognitive scientists have discovered that reading is not only a visual activity, but also a bodily activity. A book is a physical object: you see and feel where a book begins and ends; you feel the texture of its pages. Leafing back and forth through different portions of a book provides a mental map of the entire text, aiding comprehension of relationships and context—and recall. These tactile experiences are almost absent when reading on a screen: only a page (or less) is visible at a time. This perceptible, direct experience contributes to the deeper and longer lasting understanding than when the same text is read on a computer.

When faced with a difficult question, physicians often find the answer using electronic resources. But clinical reasoning depends on asking the apposite question among many contenders—that question which segues into selecting the best choice of therapy rather than less effective alternatives. To think that a smartphone can find the best question is putting the cart before the horse. Skill in clinical reasoning depends on a physician's storehouse of knowledge, the foundation for which is established by deep reading of books rather than scrolling online.

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NO HOLDS BARRED Margaret McCartney

Adrenaline and ethics in cardiac arrest

The PARAMEDIC2 trial—a double blind, randomised placebo controlled trial of the use of adrenaline (epinephrine) in cardiac arrest out of hospital—is due to start in parts of England later this year. Such a trial is needed, as studies have shown that such use may be associated with poorer survival in the long term.[1-3] Use of adrenaline in this situation is in equipoise, so a fair test is the ethical thing to do.

Trial participants cannot give consent because the intervention is given in cardiac arrest, so the researchers make do with "opt-out consent." The circumstances are similar to those of the CRASH trial (corticosteroid randomisation after significant head injury): steroids that had for years been given in head injury were actually doing harm.[4]

Several ethicists, including Ruth Stirton and Lindsay Stirton, object to the current trial, and Ruth went on the BBC's *Newsnight* to explain why.[5] [6] They claim that, for people to be able to opt out, "there needs to be an information storm" so that all potential participants will see "some information about the trial." They add, "[Only] then is it legitimate to say that anyone who has not opted out has consented to participate." But where is the consent from the thousands of other people who have cardiac arrests but do not know that the adrenaline that they receive may harm them?

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Paradoxically, it seems easier to continue giving drugs that may not work, and might do harm, than to test them fairly. Atropine was dropped from use in cardiac arrest in 2010 because of a lack of evidence of its benefit.[7] It would have been simple to stop using adrenaline too, but its equipoise means that this might not be in patients' best interests.

Stirton and Stirton suggest that all patients and their families should be told retrospectively that they were included in the trial. But shouldn't every patient who experiences cardiac arrest outside the trial, and their families, be told that they have received treatment of uncertain benefit, which might have done more harm than good?

Furthermore, Stirton and Stirton propose an observational study that would not require such consent, instead of the PARAMEDIC2 experimental trial, because "there must be a body of paramedics who are not supportive of giving adrenaline, as well as a body of paramedics who are." But the justification for a poorer quality study is weak—the suggestion being that it's better for patients to be subject to treatments based merely on paramedics' personal biases.

What of the ethical duty to identify and reduce uncertainty? Many treatments currently in use have uncertain benefits and require decent trials to reduce uncertainty.[8] We need ethicists to explain that to patients.

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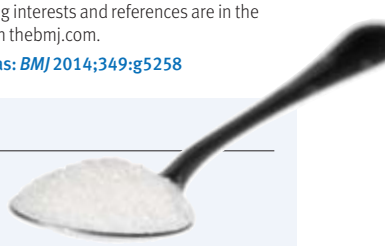
Sally Norton is a NHS consultant, specialising in weight loss and upper gastrointestinal surgery, on a crusade to put herself out of work by promoting healthier behaviour

BMJ BLOG OF THE WEEK Sally Norton

NHS hospitals—does a spoonful of sugar help the medicine go down?



At last, with health secretary Jeremy Hunt's announcement of new measures being introduced to improve the standard of food in English hospitals, we may finally see better quality food in our hospitals.

These changes will see hospitals ranked according to the quality and choice of the food they serve. They will hopefully provide some sanity, and not before time, because I was beginning to think I was going mad.

We read every week of research detailing the perils of sugar and fizzy drinks. And we frequently hear laments about the cost to the NHS of the epidemics of obesity and type 2 diabetes, which are threatening to engulf us. And yet, the NHS—which I understood to be an organisation that promotes and supports health (rather than just treating disease)—is actually contributing to the problem.

As a weight loss surgeon, I find it frustrating and, frankly, embarrassing to spend time in clinic, explaining to my patients how sugary drinks and snacks are one of the biggest drivers of obesity, when I know that just outside in our hospital foyer are not one but two Costa coffee shops, as well as vending machines stocked full of coke and chocolate.

If I need a snack, I would be hard pushed to find much that you could describe as healthy—there is very little fresh, nutrient-rich food and next to nothing that doesn't involve a load of refined carbs.

The old chestnut that it is all down to the individual, and that people should be able to control their cravings, just doesn't wash. With two thirds of the English population classed as being overweight, we would be tarring a lot of people with the same "weak willed" brush. The problem is as much the food environment that we are constantly subjected to, as it is an individual issue.

"The government seems unable to take a significant stand against the pervasiveness of the food industry, but the NHS can and should make a stand."

The government seems unable to take a significant stand against the pervasiveness of the food industry, but the NHS can and should make a stand. If we can't be the leading light in promoting healthy eating, then who can?

How can we have allowed hospitals to get tied up in contracts with these providers—playing willing hosts to the fast food outlets that are contributing to our health crisis?

The NHS has made it clear to our patients and visitors that hospitals don't condone smoking on or around our premises. When I was a trainee, I remember patients smoking on the vascular ward. Why is that different to my bariatric patients being offered chocolate and crisps from the hospital trolley while waiting for their weight loss surgery?

We can set a similar example to our anti-smoking policy with a focus on healthy eating. Enough is enough—let's face up to our responsibilities as a health promotion service and a role model, and actually practice what we preach.