

CLINICAL DECISION-MAKING (PART 2):

INTUITION VS RATIONALITY

Text by Dr Wong Tien Hua

In my column on mentorship published in the September 2016 issue of *SMA News* (<https://goo.gl/55dYkV>), I wrote that medicine is an “uncertain art” because we deal with patients who present as unique individuals – human beings that vary in biological make-up and susceptibility to disease – and each has different perceptions and beliefs about their illnesses. Many external factors alter the narrative of each presenting patient, such as social settings, occupational exposure and community support.

The societal expectations for medicine, however, stand in contrast. Because technological progress offers very precise diagnostic tools and ever-increasing options for treatment of specific diseases, the public often expects medicine to be a precise science. The development of evidence-based medicine (EBM) is an attempt to improve the precision of diagnosis and clinical outcomes.

This is then an uncertain art where each patient is different, versus a precise science where diseases are well defined and treatment pathways are worked out through scientific trails. How then do doctors make clinical decisions in light of these seemingly opposing realities? If medicine was such a precise science, will the time eventually come when machines replace the diagnosis and decision-making process?

In the October 2016 issue of *SMA News* (<https://goo.gl/y9wD5B>), I looked at one part of the decision-making process – the role of intuition. This is a

doctor’s ability to rapidly assess a given situation, identify the problems and come up with a provisional diagnosis in order to make a clinical decision. In clinical settings, doctors use heuristics or mental shortcuts all the time to cope with the different streams of information coming from all directions, process the data and ultimately make some sense of it. Intuition therefore helps doctors to deal with essentially uncertain situations. The problem with intuition is that it requires time and experience to refine, and it is subject to biases, leading the doctor down the wrong path. There is indeed a fine line between “a good call” and “jumping to the wrong conclusion”.

Thinking fast, thinking slow

Nobel Memorial Prize in Economic Sciences laureate Daniel Kahneman, in collaboration with Amos Tversky, proposed that the human mind operates in one of two modes: a fast-thinking System 1 that is intuitive, automatic and operates largely in our subconsciousness, and a slow-thinking System 2 that is deliberative, analytical and requires conscious attention.¹

It is interesting that while we think of ourselves as fully conscious and reasoning individuals who make deliberate choices, and are able to will our bodies to move in directions of our choosing, the surprising fact is that a large part of how we think and act operates entirely on a subconscious level.

Imagine the task of driving a car: a complex undertaking that we perform without effort, which requires us to

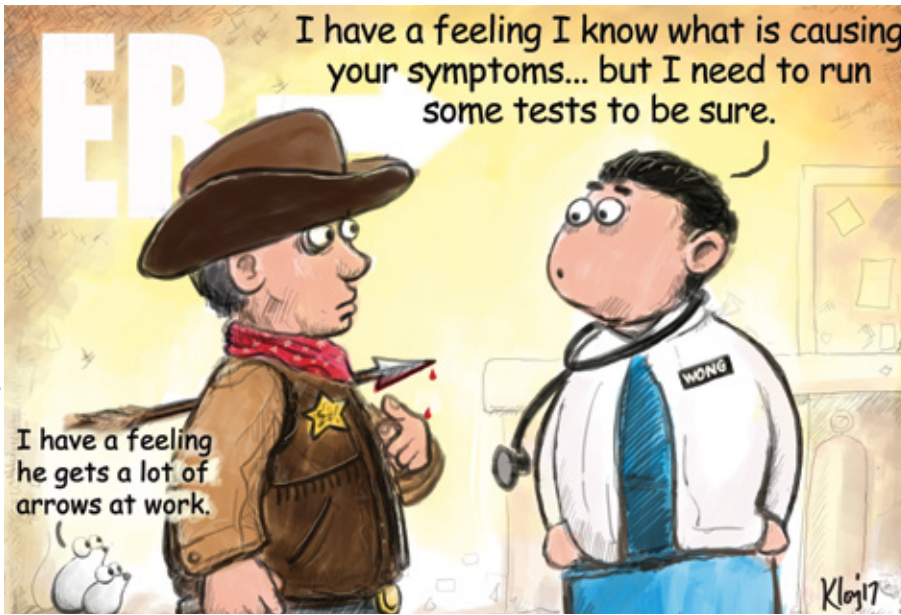
react very rapidly when road conditions change. This is our System 1 at work – our intuitive self, operating effortlessly on reflex and practised skill. Now, think about the time when we first sat behind the steering wheel in driving school: we had to concentrate to remember to adjust the seat position, angle the rear view mirror, check that the gear shift is in the parked position, insert key to start the engine, scan around to assess oncoming traffic, disengage the parking brake, and then step (gently) on the gas pedal. That was our deliberative System 2 at work, requiring effort to control our responses in unfamiliar situations. (On a side note, that was also how I failed my first driving test as I had left out the “fasten seat belt” step as above.)

The engagement of System 2 is slow, hard work, and very stressful. The good news is that once you start driving regularly, your motor skills become more practised and habitual. Eventually, the undertaking becomes effortless.

Once we become skilled at a particular task, the demand for mental activity and energy decreases. Because slow System 2 requires so much effort and concentration, something neither easy nor enjoyable, people are more inclined to operate predominantly on the fast System 1. As with physical labour, cognitive exertion follows the “law of least effort” and, according to Kahneman, laziness is built deep in our nature. Doctors are no different.

Rational thinking is hard

In clinical decision-making, doctors engage System 2 when they are in an



unfamiliar situation, when they cannot tap on any previous experience, or when they feel that a case is either too complex or critical to simply rely on intuition. Medical students and residents toil long and hard to memorise textbooks, learn theories and understand the research behind the science of medicine. This slow and excruciating process is necessary to build up the body of knowledge that allows the mind to recognise a disease when it is clinically presented.

In 2005, David M Eddy coined the term “evidence-based medicine”, offering a unifying definition for it.² In EBM, knowledge derived from epidemiological research and clinical trials are incorporated into guidelines and protocols. Clinical guidelines provide a formal analysis of best available evidence, presenting an objective and *rational* approach to clinical decision-making. EBM has been shown to promote consistent treatment and better clinical outcomes, setting expected standards for patient care and safety. For doctors in training, EBM fills the gap where there is lack of clinical experience. Applying EBM may not be intuitive at first and doctors need to overcome the initial tedious process of understanding and absorbing clinical guidelines – a slow System 2 process.

However, there are limitations to the use of guidelines. Individuals presenting with symptoms of disease do not always fit neatly into categories

based solely on diagnostic criteria; the population samples may not be alike and guidelines do not take into consideration the context of the patient’s illness.

Decision-making trees and algorithms are still not able to override the intuition of an experienced clinician. Machines are not yet able to make decisions based on ethical considerations, such as social justice and the respect for patient autonomy.

Improving clinical decision-making

Now that we know most of our decisions are based on a fast-thinking System 1 process, the task at hand is then to improve our clinical intuition to reduce bias and increase accuracy.

We can improve intuition by being open to new ideas and learning experiences. Having a broad clinical exposure in the early stages of our careers is very important. There is no substitute for clinical experience; learning from seniors and having a good mentor will help to make up for the shortfall. Do not be afraid to take on busy postings or clinics; treat them as opportunities to gain maximum exposure to clinical cases.

EBM needs to be incorporated into daily clinical practice in order for it to have an impact. Education and knowledge is the fast-track to insight. The more EBM is practised, the sharper

one’s intuition becomes. During a code blue crash in the ward, there is no time to pull out the advanced cardiac life support chart to guide one on the use of intravenous adrenaline, or to leisurely read the instructions on the use of the defibrillator; these need to be part of one’s intuitive response.

Take time to reflect. Intuition is a feedback loop where positive outcomes are reinforced and mistakes become lessons learnt. Case studies and morbidity and mortality rounds provide important feedback on what went well and what did not. Connect the outcomes of these cases with your initial impressions to see how accurate your intuition was and how they could have been improved. Always be prepared to adjust your first impressions when new data become available as the illness progresses.

Finally, a good doctor-patient relationship is critical in making the right clinical decisions. Intuition is knowing what your patients need and what is in their best interest, without having to launch into lengthy technical explanations and trying to second-guess their intentions. Patients must be engaged in open discussion and allowed an opportunity to share their ideas and values. They should also collaborate with the doctor in the management of their illness. Shared decision-making is about journeying with the patient, navigating through the data and information, and facing uncertainties together. ♦

References

1. Kahneman D. *Thinking, fast and slow*. New York: Farrar, Straus and Giroux, 2011.
2. Eddy DM. *Evidence-based medicine: a unified approach*. *Health Aff (Millwood)*. 2005; 24(1):9-17.

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