

Using software to treat medical conditions

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A child with attention-deficit hyperactivity disorder (ADHD) may be able to improve his condition by playing a video game instead of taking medication.

Another person with back pain can be prescribed an app-based treatment in place of a drug to nudge him to do exercises tailored to alleviate his pain or practise muscle relaxation techniques.

While relatively new and still in the early days of commercialisation, the field of digital therapeutics (DTx) could change the way care is delivered, said Professor Dean Ho, director of the Institute for Digital Medicine at the National University of Singapore's (NUS) Yong Loo Lin School of Medicine, in a recent Health Check podcast interview.

Prof Ho, who is also head of the biomedical engineering department at NUS, recently wrote a book on DTx titled *Medicine Without Meds: Transforming Patient Care With Digital Therapies*, with two researchers, Mr Yoann Sapanel and Dr Agata Blasiak, from the institute.

The book was launched on Nov 16.

Q *Is DTx the same as digital health tools?*

A DTx is the use of software as treatment. Unlike most digital health apps, digital therapeutics are backed by clinical evidence.

An example is a prescription-only action video game that delivers treatment to children with ADHD. It was approved by the United States Food and Drug Administration in 2020, after it was shown to improve attention function.

That was the first game-based therapy to be approved by the agency for any type of condition.

DTx solutions that are being trialled can have very strong treatment outcomes, but they are not broadly accessible to the user. You cannot just download them from an online store or website.

That is a part of the stewardship of these kinds of regulated, evidence-backed, evidence-seeking or under-trial types of solutions.

Sometimes, digital therapies can be standalone treatments. At other times, they need to complement traditional therapies.

Q *What's an example of a made-in-Singapore DTx?*

A Aevice Health, a Singapore-based medtech company, has a smart, wearable stethoscope that is worn on the chest to detect abnormal breath sounds, such as wheezing (one of the key signs of respiratory diseases such as asthma), and monitor vital signs such as heart rate and respiratory rate. It has been approved for use in children aged three and above.

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