

Bridging the Gap in Diabetes Management

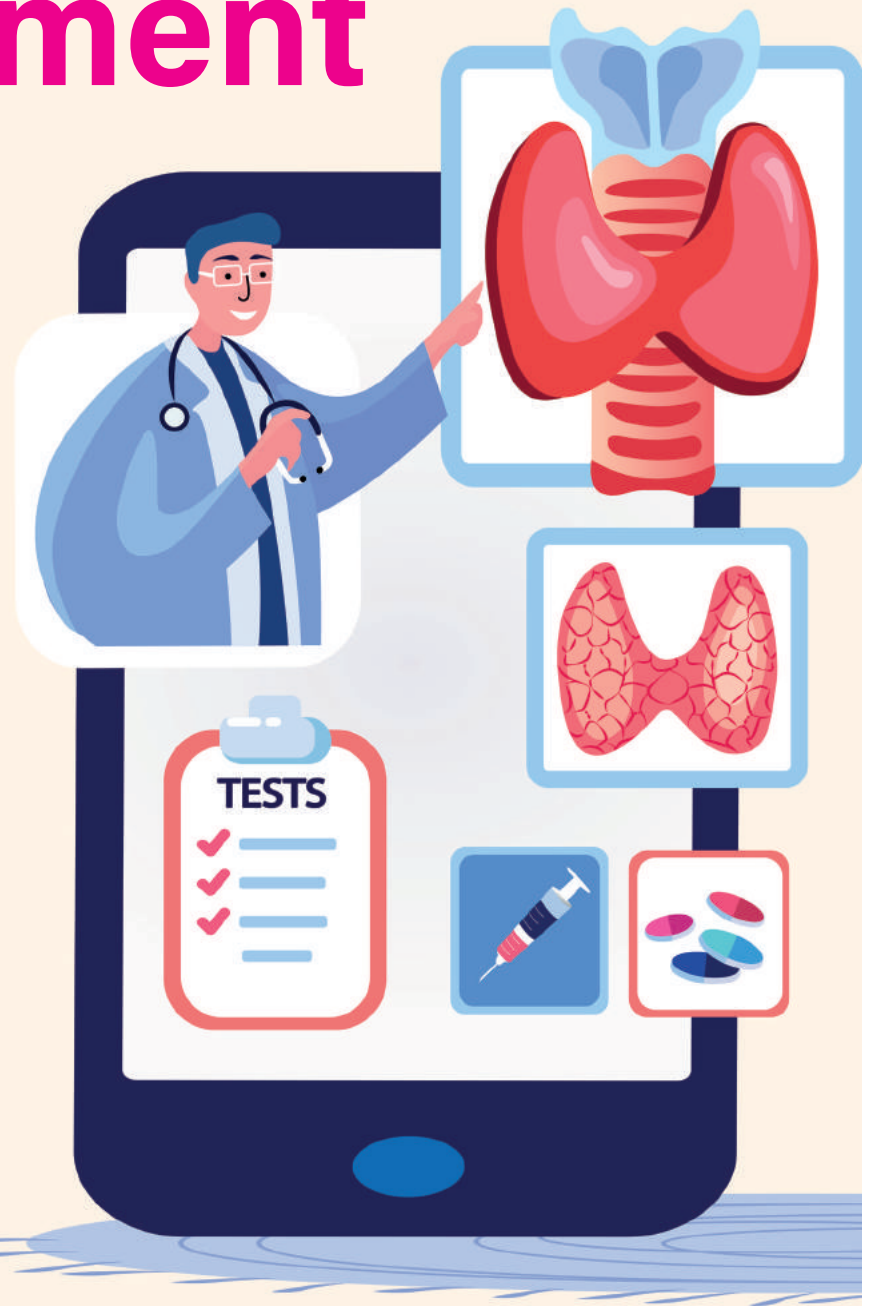
An interview with Dr Ronald Ling, Chief Executive Officer, ConnectedHealth, on how we may utilise technology to better manage diabetes.

1. According to the International Diabetes Federation, Asia accounts for over 50 per cent of the global diabetic population. How prevalent is this in Singapore and why is this the case?

Diabetes is a major health concern in Singapore because :

- **Prevalence is relatively high and still increasing:** In Singapore, diabetes prevalence rose from 8.8 per cent in 2017 to 9.5 per cent in 2020.¹ The majority of cases are Type 2 diabetes in patients more than 40 years of age, although prevalence among younger overweight adults has also been increasing.
- **Long term outcomes still offer much room for improvement:** Two-thirds of cases of end-stage kidney failure in Singapore have diabetes as the primary cause.² This catastrophic complication of poorly-managed diabetes should be largely avoided through better management over the lifetime of the condition.
- **High (and growing) cost to manage:** Over S\$1 billion is already spent yearly in Singapore on managing diabetes.³ This will put significant pressure on healthcare budgets unless addressed.

Although the government launched a pro-active fight to contain the disease in 2017 with its War on Diabetes



campaign, there has so far been a gradual rather than transformative change in how diabetes is managed.

The high prevalence can be attributed to several reasons such as a sedentary lifestyle, especially during the pandemic-induced lockdown, and poor diet. While the reason for Type 1 diabetes – where the body produces little or no insulin – is unknown, researchers say obesity is the single largest contributor to developing Type 2 diabetes, where the body develops a resistance to insulin.⁴

Another factor is limited resources to deliver the care and education needed to help patients with diabetes to better self-manage. Patients' understanding, education, and motivation to manage their lifestyles are major determinants of long-term outcomes.

2. **Many individuals see diabetes as merely having a high amount of sugar in the blood and fail to consider the long-term complications of this chronic disease. Could you elaborate on what some of these complications are and how we can better manage diabetes to avoid these complications?**

Diabetes is a condition that affects many parts of the body in different ways at different times. In the long-term, poorly managed Type 2 diabetes can lead to severe complications including heart, blood vessel, nerve, and kidney diseases. People with diabetes are also at higher risk of developing severe illness from COVID-19.

The aim of diabetes management at earlier stages is to maintain good blood glucose control which, if sustained, will significantly reduce the risk of long-term complications. A holistic view of diabetes management may require patients to modify their lifestyles in a variety of ways to achieve treatment goals, such as making dietary changes to achieve a healthy balanced diet while increasing activity through adding daily steps and starting an exercise routine. The exact changes will vary from patient to patient and there is certainly no one-size-fits-all approach.

Patients with diabetes also need to be careful under certain situations – during periods of sickness, fasting, travel, and when starting an exercise programme. This is to avoid problems of hyper- or hypo-glycaemia (too high or too low blood sugar), which may be more likely at these times.

3. **Given how integral technology is to healthcare, how has technology transformed diabetic care? What are some pros and cons of the different approaches to technology for diabetes?**

Technology can bridge some key gaps in diabetes management such as limited interaction with doctors, difficulties with self-management, and problems with regularity and accuracy of blood glucose monitoring. The main opportunity is to design a patient application that provides support and feedback as well as other functions to improve self-management.

While there are many diabetes apps on the market, few have achieved significant penetration and sustained usage in Asia. This is because they are often “piecemeal”, tracking one or two aspects of diabetes but failing to monitor the condition holistically.

Other diabetes apps usually fail to involve the doctor, sometimes resulting in questionable clinical validity and a missed opportunity to build in remote monitoring capabilities.



Standalone patient apps also often suffer from a drop-off in patient usage after a few months since it can be hard to maintain the motivation needed for good lifestyle management. This can be improved if health coaching from a diabetic nurse educator is delivered in association with the app, however, this is rare in Asia (in contrast to the US where similar health coaching services have proven to be successful).

ConnectedHealth believes that the realisation of the full potential of technologically-driven transformation of diabetes care will require a carefully and holistically designed product that addresses these gaps. Together with innovative business models, we can better align financial and behavioural incentives for patients and doctors, which will lead to the much needed fundamental transformation in diabetes care delivery.

4. To aid diabetic care, ConnectedHealth has recently launched SugoSure, a digital health system for Type 2 diabetic patients. Could you tell us more about this service and how is it better than incorporating lifestyle changes on our own?

SugoSure aims to fundamentally transform care delivery and outcomes for diabetes in a way that contrasts with previous incremental, piecemeal approaches. It reflects four years of design, testing, and refinement where ConnectedHealth has worked with top clinical advisors in Singapore to develop a product that is uniquely comprehensive and clinically relevant.⁵

SugoSure tracks all key diabetes indicators⁶ by having the patient log relevant data into the app. Its Clinical Data Platform connects patient, physician, and health coach to provide algorithm-driven feedback based on this data to each user.

As recommended by the American Diabetes Association and the United Kingdom’s National Institute for Health and Care Excellence, these five essential functions are included in SugoSure:

- **Blood glucose control** is tracked from blood glucose readings, which a patient reads from their glucometer and keys into the app;
- **Activity** is tracked through Google Fit or Apple Health integrations and exercises done, which are logged by the patient into the app;
- **Diet** is tracked by food logs, which are created by the patient for a representative sample of food that they eat. This is through a search function with a database of more than 3,000 international and local food items;
- **Medication** changes are logged by the physician and communicated directly to the patient through the app with clear instructions; and

- **Weight** is entered by the patient into the app when they measure their weight.

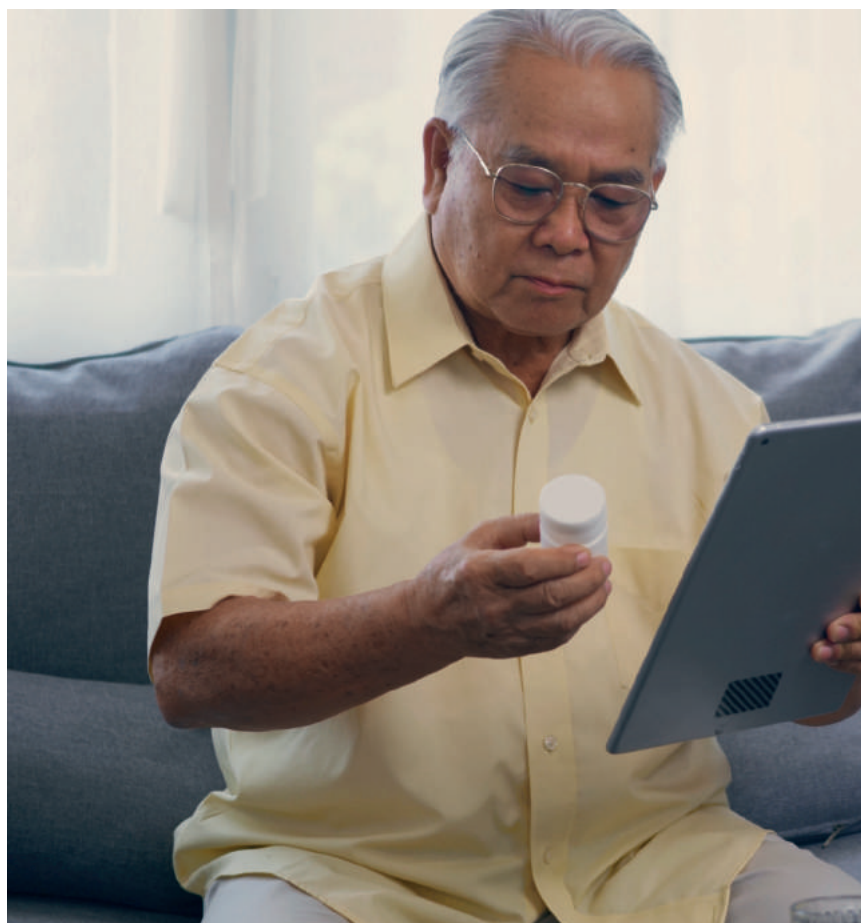
SugoSure then analyses trends in the data through its internal algorithms, providing graphs and indicators to highlight trends and patterns to the patient, physician, and health coach.

SugoSure is bundled with health coaching by registered nurses with deep diabetes experience and includes remote monitoring of patient clinical data by health coaches and physicians. This enables closer supervision of patient progress, earlier problem detection, and resolution.

SugoSure health coaches help develop individual **Lifestyle Plans** based on the patient’s clinical needs and ability to comply. These plans include targets for four of the five areas (excluding medication) e.g. HbA1c targets for blood glucose control, steps and exercise minutes targets for activity, calorie limits for diet, and targets for weight.

Targets are used by the system’s algorithms to highlight trends and generate alerts if the patient is trending off-target. The patient can then adjust lifestyle with health coach support to try to get back on track.

This coordinated, comprehensive and data-driven approach is a first for diabetes management – SugoSure is, in fact, a **system for diabetes management** – not just an app.



5. With the launch of SugoSure, what else can we look forward to from ConnectedHealth in the coming years?

Our way ahead is to progressively roll out SugoSure to different segments in Singapore, starting with the self-pay patient segment. We are also in discussion with several go-to-market partners from healthcare providers, pharma, medical devices, and insurance sectors about B2B partnerships to extend the reach of SugoSure through marketing or care delivery partnerships. We will announce details of such partnerships as and when they are confirmed.

Once we have data to demonstrate the efficacy of SugoSure, we aim to engage the government in discussions for the subvention of SugoSure to roll this out more broadly at a lower price point around end 2022.

In the longer term, ConnectedHealth plans to build a range of products similar to SugoSure based on its Clinical Data Platform. These products will apply clinical data to improve disease outcomes, broaden access to care, and reduce cost, catalysing the much-needed transformation of chronic disease management through technology. **APBN**

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About the Interviewee



Dr Ronald Ling, Chief Executive Officer

Ronald is a medically qualified senior business executive with more than 25 years' experience in healthcare management, investment, and consulting.

He has deep knowledge of healthcare systems across a range of Asian markets and extensive

operational experience in enhancing productivity, access, and cost-effectiveness in healthcare.

Ronald's prior work experience includes positions as Leader of Pricewaterhouse Coopers' Healthcare practice across Asia, Partner at Symphony Capital Partners (an Asian private equity firm), Board of Director at Parkway Holdings (a large pan-Asian private healthcare provider) and as a consultant with McKinsey and Company.
