

# The role of wearables in patient-centric healthcare

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# Background - behaviour change is the holy grail of healthcare

What are we trying to solve?

*...behaviour  
change is the holy  
grail of  
healthcare...*


Margaret Morris, clinical psychologist,  
Intel, 2012 *Motivating Change with  
Mobile: Seven Guidelines*

DIGITAL HEALTH

## Reaching mHealth's Holy Grail: Behavior change

By Sara Jackson

May 15, 2012 06:25am

Health apps continue to hit the  market in droves, promising your patients faster weight loss, reduced blood pressure, improved cardiac health. But the true Holy Grail of mobile health--getting patients to make healthier choices, stick to health regimens, etc.--remains elusive.

# Background - how wearables are transforming healthcare

Few lifestyle choices have as large of an impact on our health as

## PHYSICAL ACTIVITY



Mental wellbeing



Disease management + prevention



Weight management



Ability to achieve everyday activities

Adults who engage in *any amount* of moderate-to-vigorous physical activity will gain **some level of health benefits.**

## Wearable of Choice in Clinical Research

Used in 1700+ published studies, more than any other wearable device (1)

Most commonly used tracker in biomedical research (2)

Registered in clinical trial studies 10x more than any wearable brand (3)

Used in 95% of NIH-funded research (2)

Fitbit is used extensively in Singapore health programs and studies, including MoHT, SingHealth, NUS, Singapore Airlines, HPB and others

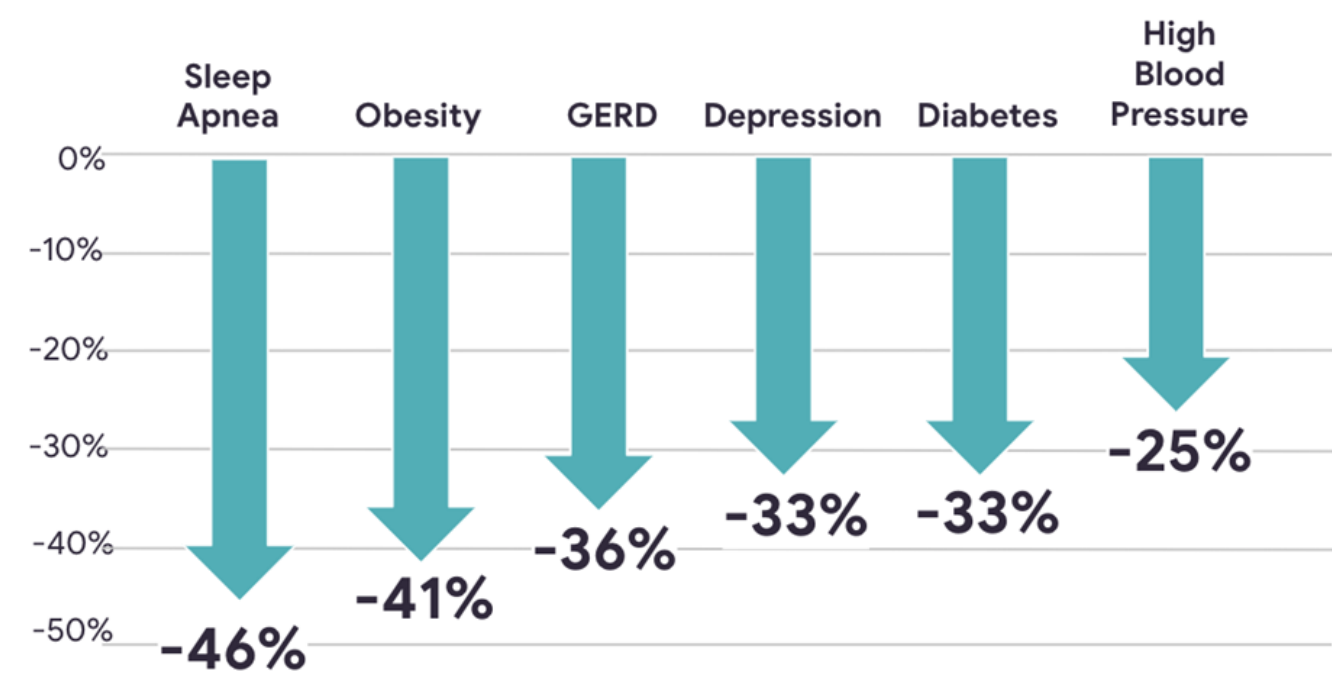


(1): <https://healthsolutions.fitbit.com/research-library/>  
 (2): Stephen P Wright, Scott R Collier, Tyish S Brown, and Kathryn Sandberg. An analysis of how consumer physical activity monitors are used in biomedical research. *FASEB Journal*. [https://faseb.onlinelibrary.wiley.com/doi/abs/10.1096/fasebj.31.1\\_supplement.1020.24](https://faseb.onlinelibrary.wiley.com/doi/abs/10.1096/fasebj.31.1_supplement.1020.24)  
 (3): Using Fitness Trackers and Smartwatches to Measure Physical Activity in Research: Analysis of Consumer Wrist-Worn Wearables. <https://www.imir.org/2018/3/e110/>

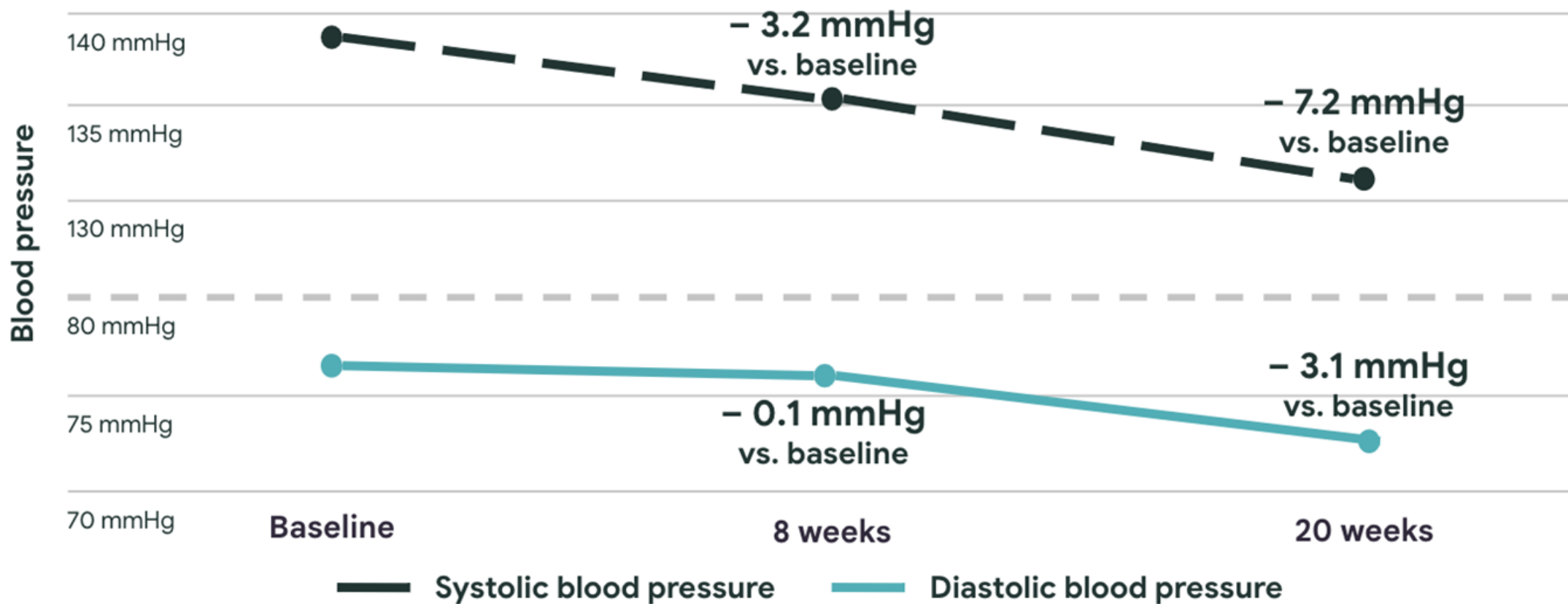
# Background - how wearables are transforming healthcare

## Fitbit users with higher daily step counts had significantly lower risks of developing multiple chronic conditions

People with **10,000+** daily steps had **25-46% lower risks** of chronic disease<sup>1</sup>



## Blood pressure among adults 60 years and older using Fitbit over 20 weeks<sup>1</sup>



<sup>1</sup>Roberts LM, et al. *Clin Interv Aging*. 2019.

Based on a randomized controlled trial conducted at the University of Florida; Intervention consisted of Fitbit and prescribed activity goal (N = 40); Study was not powered to detect statistically significant changes

## What can we do to address the problem at hand?

Fitbit and ConnectedLife are now in discussions Ministry of Health and Health Promotion Board to **develop programs** to show how **wearable-based digital health solutions** can **drive and sustain behaviour change** and **improve population health** as part of Healthier SG

Minister Ong Ye Kung, Minister of Health Singapore

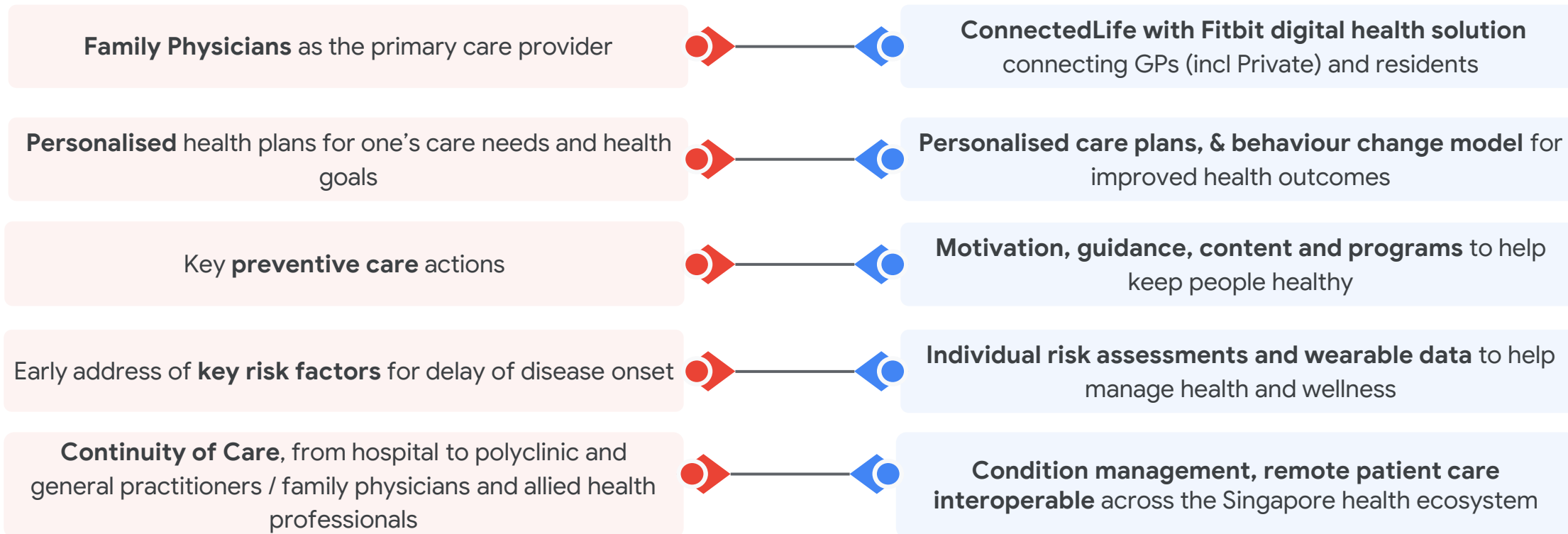
*The digital diagnostic space - **AI, sensors, wearables**—all these technologies are advancing very quickly. So, imagine if we have a Healthier SG system in a few years' time with a working system to embrace all this technology, when the doctor sees you, they prescribe not just social prescriptions[1], they **prescribe you a wearable**. They can track and review your data and tell you how to adjust your lifestyle. It probably won't give a clinical diagnosis, but it can be a **consumer product that can track your trendline and indicate if you are at high risk of chronic illness**, at which point you can get a clinical diagnosis.”*



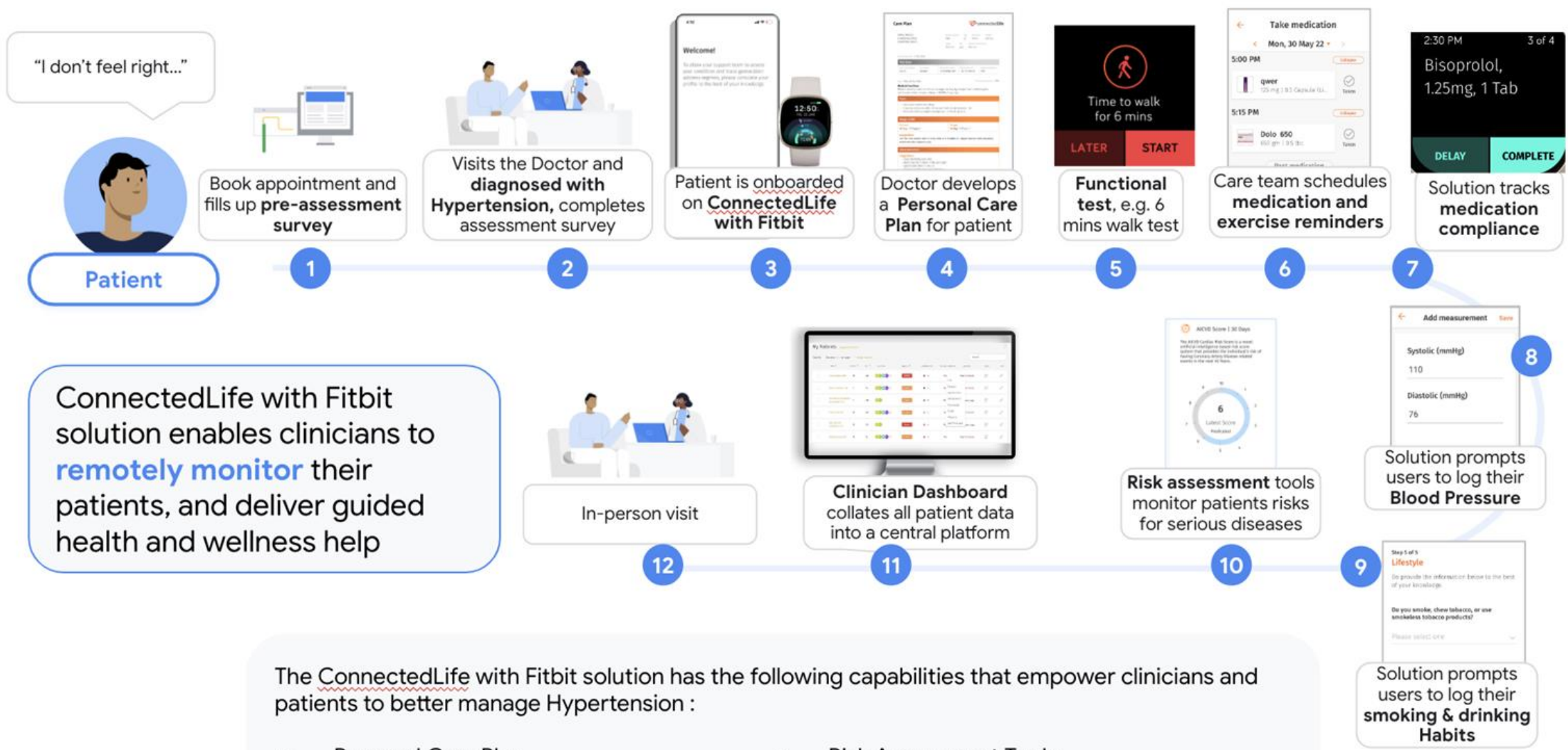
# How We Are Planning to Drive Outcomes



## Changes leading to improvement: Healthier SG goals alignment with Google, Fitbit & ConnectedLife



# Our Plan for Impact - connecting clinicians & citizens to better manage hypertension



- The ConnectedLife with Fitbit solution has the following capabilities that empower clinicians and patients to better manage Hypertension :
- Personal Care Plan
  - Functional Tests
  - Medication and exercise reminders
  - Blood Pressure Logging
  - Risk Assessment Tools
  - Lifestyle behavior tracking
  - Alerts and notifications
  - Wellness Score





## Questions: Google and Fitbit collaborating to deliver Healthier SG

- Getting clinicians on board with wearables and digital therapeutics for preventative care and condition management?
- Challenges engaging older Singaporeans who are more likely to have hypertension?
- Other opportunities in healthcare across Singapore to integrate wearables?