GP Innovation Initiative

Tackling Hypertension Right, Unifying Strengthening Trust (Project "THRUST")

Project Closing Report
27 March 2024

MOHT | MOH OFFICE FOR HEALTHCARE TRANSFORMATION

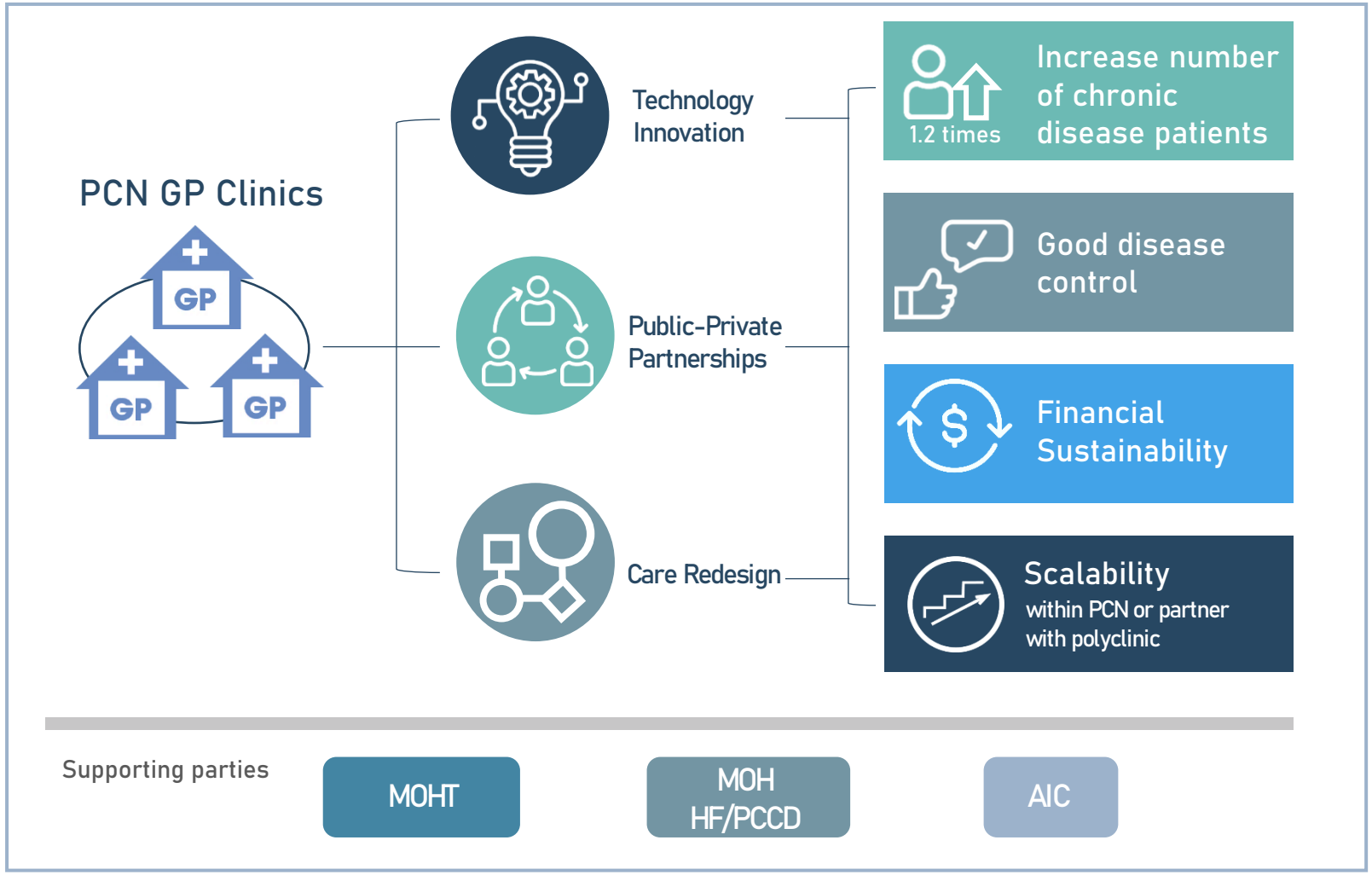
Agenda

1. Overview
2. Project Timeline & Milestones
3. Project Evaluations
4. Learnings & Challenges

1. OVERVIEW

Overall Design of GPII

Ground-up initiative to empower GPs to innovate and care for a significantly larger number of chronic patients and achieve good disease control, to make them the provider-of-choice for more patients in a business sustainable way for them (the GP sector).



Chronic Care for Hypertensive Patients at GP Clinics

- Currently, GPs only get to assess chronic patients' conditions when they go for follow-up visits at the clinics

- A recent local study surveying patients with hypertension and dyslipidemia found that about half of them do not achieve their BP goals[1]

- It is found that when the measurement is performed correctly, home blood pressure monitoring (HBPM) with a validated device leads to more appropriate targeting of treatment rather than relying on clinic measurements alone[2]

- Looking to bridge this gap, a holistic care model of tele-monitoring, led by Lee & Tan clinic, is developed and trialed at several GP clinics

References:
[1]Koh K, Goh C, Goh S, Koh Y, Tan N. Blood pressure goal attainment in multi-ethnic Asian patients with hypertension and dyslipidaemia in primary care. Singapore Medical Journal. 2020;61(9):469-475
[2]Park S, Buranakitjaroen P, Chen C, Chia Y, Divinagracia R, Hoshide S et al. Expert panel consensus recommendations for home blood pressure monitoring in Asia: the Hope Asia Network. Journal of Human Hypertension. 2018;32(4):249-258.

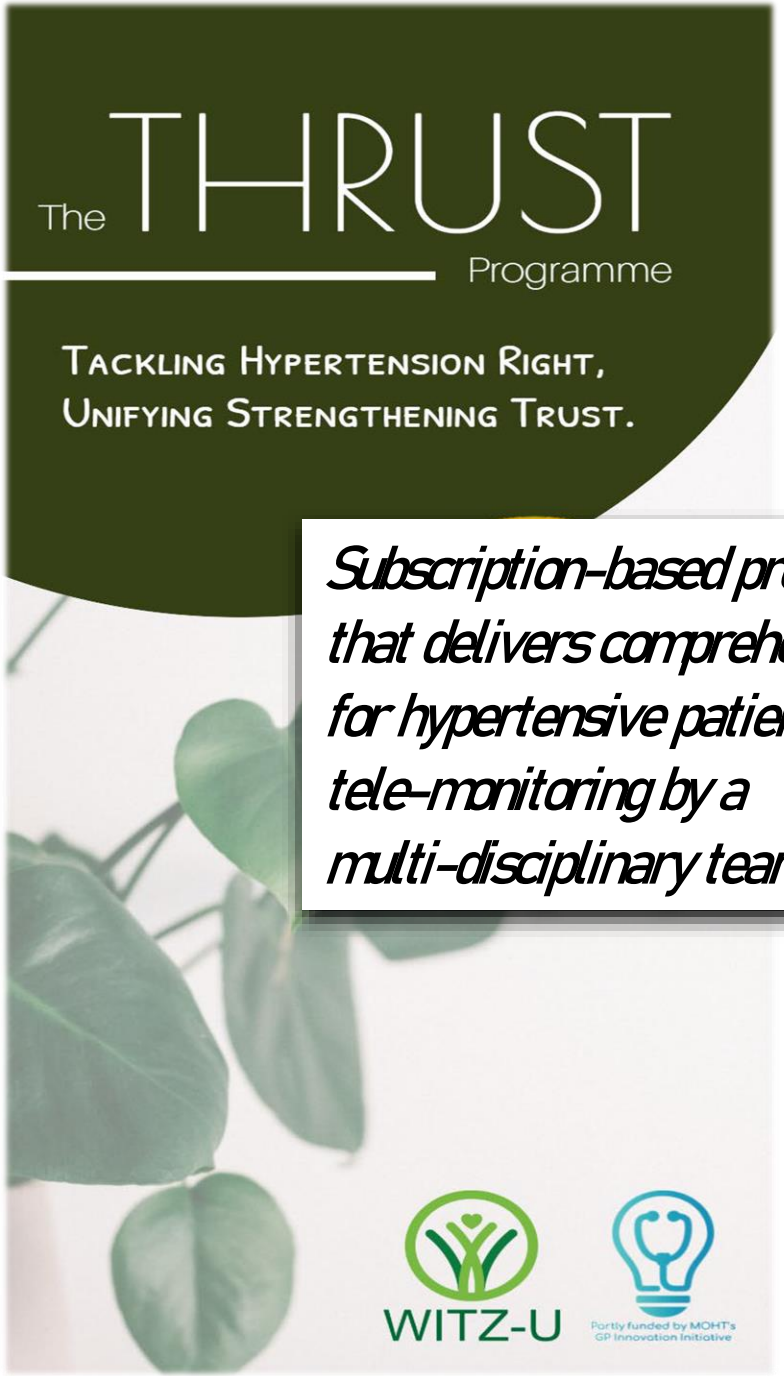
Chronic Care for Hypertensive Patients at GP Clinics

- Since 2018, Lee & Tan clinic had developed its own model of tele-monitoring for hypertensive patients using technology it made in partnership with a health IT firm, Witz-U[3]. In this model, patients took home BP readings with a Bluetooth-enabled device which transmitted the readings to an app. GPs could view their patients' readings via a dashboard, and would be notified of abnormal readings.

- This model was trialed in Lee & Tan as well as other clinics. Three challenges were identified in their trial:
    i. Changing the mindset of patients and family
    ii. Addressing the cost issue
    iii. GPs adjusting to the routine of this care model while running busy clinics

- In their trial, the project team found that these challenges could be overcome. Subsequently, they applied for GPII with MOHT to extend this pilot to a larger pool of patients and GP clinics.

References:
[3]Lee YV. "War Against Hypertension": Primary Care Facilitated by Technology. Presentation presented at; 2019; 2nd Asia Pacific Conference on Integrated Care. [cited 18 May 2022] Available from: https://www.youtube.com/watch?v=5jTZXm5QokE



THRUST Care Model

It comprises of the following interventions:

1. **Home vital signs monitoring devices** comprising Bluetooth-enabled BP monitor, weight machine and activity tracker are leased to the patient, with an option to purchase

2. **WitzGO, a patient-facing app** which receives the patient's vital signs data from the monitoring devices, food logging and uploads them. Patients may also use the app to chat with their care team as well as access tele-support and tele-treatment.

3. **Multi-disciplinary teams** comprising the GP, a health coach/nutritionist and a care coordinator, will tailor care plans according to his/her conditions/needs. There are monthly reviews by the multi-disciplinary team, and quarterly reviews by the GP.

Project Roles

PARTY	ROLE & RESPONSIBILITIES
MOH Office for Healthcare Transformation	**Funder and Enabler** ▪ Provide grant funding for the Project ▪ Monitor the overall progress of the project ▪ Where necessary and helpful, facilitate the progress of the Project, for example, by connecting the Project team to potential partners and resources
Lee & Tan Family Clinic and Surgery	**GP Lead** ▪ Lead study and provide strategic oversight ▪ Lead implementation of THRUST across participating GP clinics
Witz-U	**Technology and Care Services Partner** ▪ Provide end-to-end telehealth solution for GPs and patients (including devices, patient and clinician apps, coaching and other wellness services) ▪ Track and evaluate Project Outcomes ▪ Ensure care coordination, care planning and delivery of wellness services

POV Business Model

THRUST POV MODEL

12 Months Programme

WELLNESS EXPERTISE

Monthly Cost for patient CC

$A*

Focus care from care coordinator

Monthly cost for patient HC

$B*

Your friendly health coaches will help monitor and provide professional advices

DEVICES

BP Monitor
$100

Weight Machine
$180

Lifestyle Tracker (Fitbit Inspire HR)
$130

$C*
One-time for Programme

Bluetooth-enabled devices which allows seamless data sync

Comes with free 1-year premium account subscription

GP & MDT CONSULTATION

Clinical Consult every 3 months ($35)

$D*
Per month

To provide quality longitudinal care & outcomes

Monthly Clinical Review

$E*

MDT care done to bridge wellness to health

Infrastructure & Platform (Providers & Patients), Training and Marketing $x*/year

*Part of the cost in the THRUST POV model is subsidised by MOHT GPII collaboration.

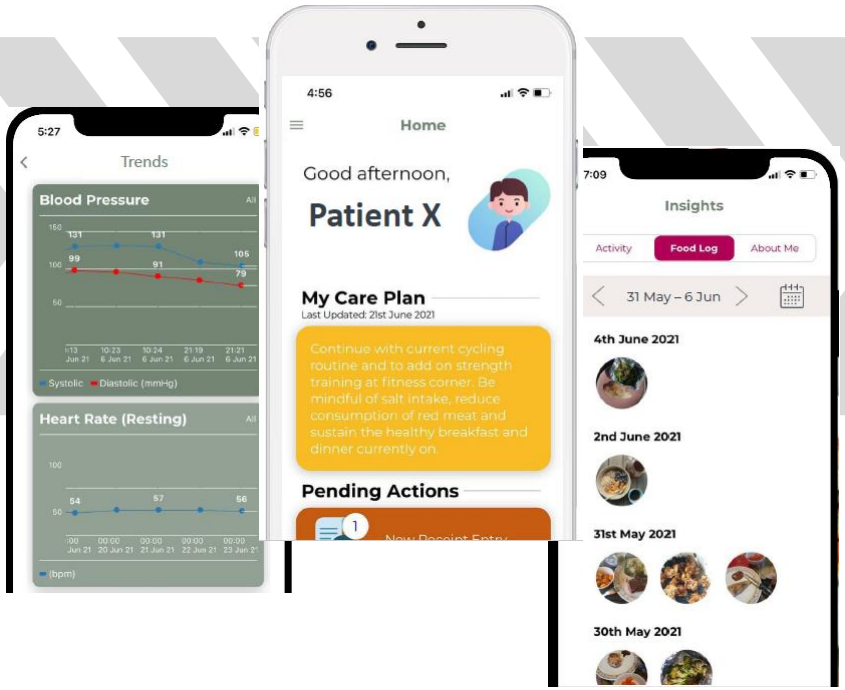
Tele-Monitoring Applications and Platform – Patient

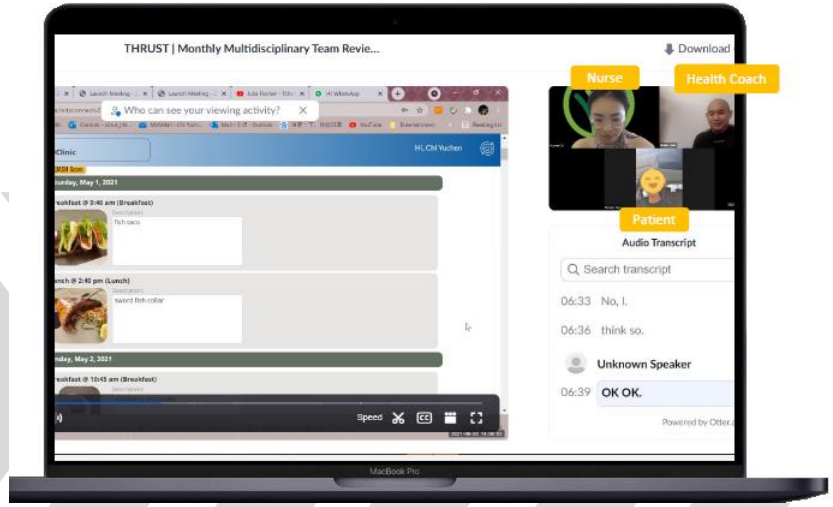
Onboarding

Patients are guided on the technology and the monitoring process

Daily Monitoring

Patients logged their BP/weight/steps/diet in WitzGO app. It also enables them to view their clinical trend, care plan and interact with the care team

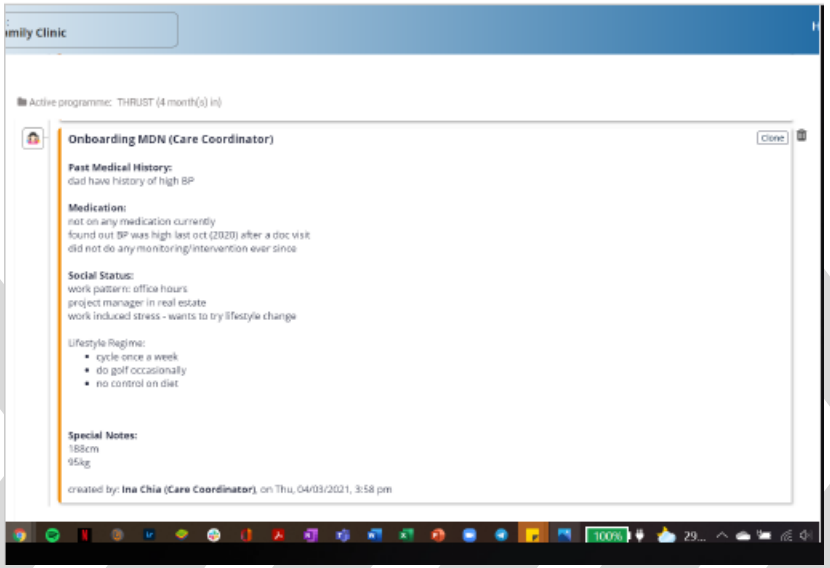




Monthly MDT Session

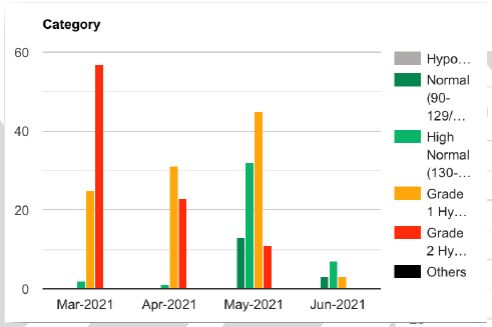
The MDT team reviews patient's readings taken over the past month, educates and encourages patient to meet goals and updates care plan accordingly

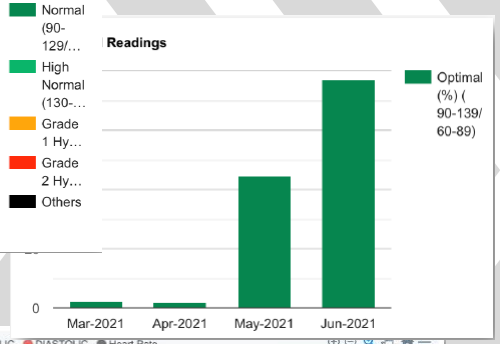
Tele-Monitoring Applications and Platform – GP/Care Team

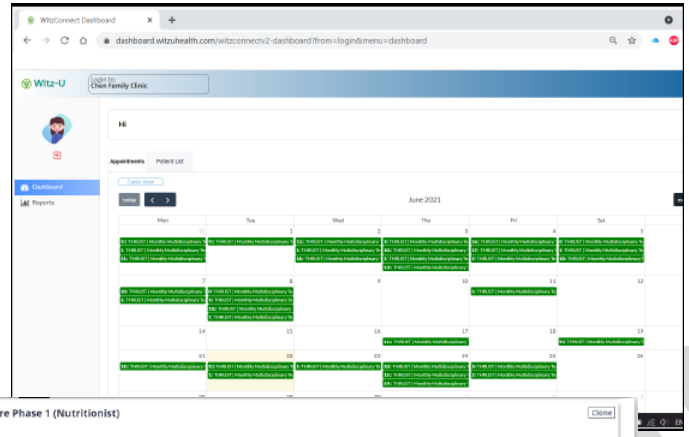


Vital Monitoring

GP/ Care Team monitor patients' BP trends and provide advice/ intervention when necessary

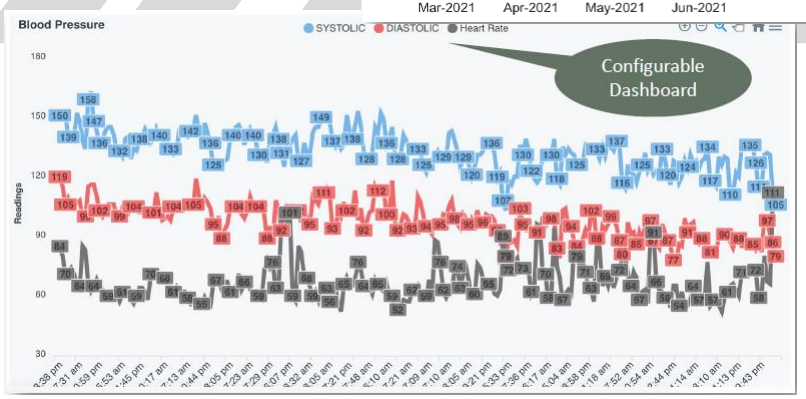






MDT Notes

Patient's details and medical history are logged onto system after programme onboarding. Both GP and care team can update and review notes



Monthly MDT Session

The MDT team schedules patients' monthly sessions via system scheduler and reviews patient's readings to update care plan accordingly

2. PROJECT TIMELINE & MILESTONES

Project Milestones

1st

- Purchase and inventorise 100 blood pressure monitors, 100 weighing machines and 100 lifestyle monitors
- Complete on-boarding of first clinic to offer THRUST programme
- 80 patients successfully signed on to THRUST programme and have undergone their first multi-disciplinary team review
- All THRUST apps and software enhancement ready. First patient enrolled into THRUST software and first clinician on-boarded onto THRUST software
- 10 clinician reports completed and accessible by users on THRUST platform

2nd

- Purchase and inventorise a total of 500 blood pressure monitors, 500 weighing machines and 500 lifestyle monitors
- Complete on boarding of 3 clinics in total to offer THRUST programme
- 150 patients successfully signed on to THRUST programme and have undergone their first multi-disciplinary team review

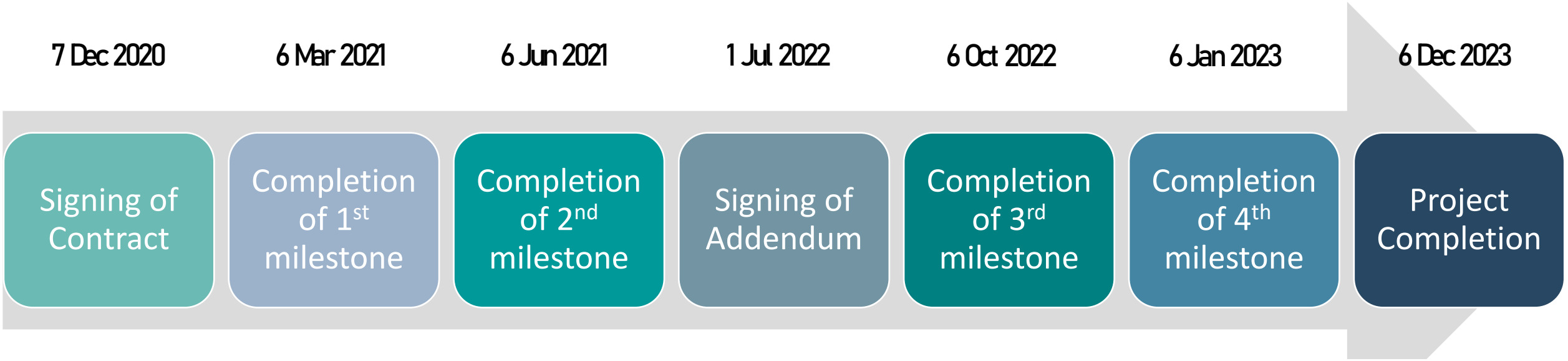
3rd

- Complete on boarding of 5 clinics in total to offer THRUST programme
- 500 patients successfully signed on to THRUST programme and have undergone their first multi-disciplinary team review

4th

- 20% new hypertensive or newly diagnosed hypertensive patients (in addition to current baseline) under the care of the GPs in the programme at end of project
- Submit financial and project milestones audit report
- Submit project evaluation report

Project Timeline



- Extension of project for 1 year due to Covid-19
- Partner GP clinics were extended from the original 5 to >10.
- Completion of project audit
- Completion of final evaluation report

3. PROJECT EVALUATIONS

PICO - Population

POPULATION

INTERVENTION

CONTROL

OUTCOMES

Population: Recruit 500 hypertensive patients for a total duration of up to 12 months, including patients with other concomitant chronic disease(s), such as diabetes, onto the THRUST programme.

PICO – Intervention & Control

POPULATION

INTERVENTION

CONTROL

OUTCOMES

Intervention: To deliver comprehensive care for hypertensive patients via tele-monitoring by a multi-disciplinary team (MDT) comprising the GP, a health coach/nutritionist, a care coordinator and a mindfulness coach. Each patient will be monitored and coached on various aspects of his or her behavior and lifestyle, including medication, blood pressure monitoring, diet, exercise and mindfulness

Control: No recruitment of a control group of patients. Outcomes are measured against the recruited patients' baseline results. The outcomes may also be compared against the control group of patients from the MOHT's Primary Tech Enhanced Care - Hypertension (PTEC-HT) pilot at the polyclinics.

PICO – Intervention & Control

POPULATION

INTERVENTION

CONTROL

OUTCOMES

Outcomes:

1) Patient Volume:
   - Recruit 500 patients with hypertension onto the THRUST programme
   - 20% increase in hypertensive patients seen by GP clinics in the programme
2) Health Outcomes:
   - At least 35% of patients with improved BP control
   - At least 60% of patients achieve lifestyle target
3) Patient Compliance:
   - At least 80% of patients achieve compliance in BP data submission rate
   - At least 80% of patients achieve compliance in medication
4) User Satisfaction:
   - At least 80% positive feedback for GP satisfaction rate
   - At least 80% positive feedback for patient satisfaction rate

Final Evaluation Outcomes

1) Patient Volume:
   - A total of 508 patients were enrolled into the THRUST programme
   - >20% increase in hypertensive patients managed at the member clinics

2) Health Outcomes:
   - 54.9% of patients showed BP improvement between 1 to 6 month, and 59.7% of patients showed BP improvement between 7 to 12 month.
   - 63.9% of patients showed lifestyle optimisation for diet after 12 months. 100% of patients showed lifestyle optimisation for physical activity at 12 month.

3) Patient Compliance:
   - 86.8% of patients displayed compliance to submitting BP readings at 12 month.
   - 75%[4] of patients displayed compliance to medication at 12 month.

4) User Satisfaction:
   - 96% of patients and 100% of GPs expressed satisfaction with the programme and system at 12 month.

[4]Slightly lower compliance to medication could be due to low number of patients responding to patient survey.

Health Outcomes (compared to PTEC HT)

Item		THRUST	PTEC HT
Average Systolic BP reading	1 month	126.5 mmHg	128.26 mmHg
	6 month	122 mmHg	125.1 mmHg
	12 month	125.4 mmHg	124.64 mmHg
Average Diastolic BP reading	1 month	81.4 mmHg	79.39 mmHg
	6 month	78.6 mmHg	77.48 mmHg
	12 month	78.6 mmHg	77.08 mmHg
Proportion of patients with controlled BP	12 month	79.9%[5]	92.8%[6]
Proportion of patients with improved BP control	1-6 month	54.9%	49.7%
	7-12 month	59.7%	35.95%
Average number of monthly BP readings	1 month	72[7]	10
	6 month	48[7]	8
	12 month	28[7]	7

[5]BP target for patients <80yo with controlled hypertension (without diabetes) is <140/90 mmHg; BP target for patients ≥80yo with controlled hypertension (without diabetes) is <150/90 mmHg; BP target for patients with controlled hypertension (with diabetes) is <140/80 mmHg.
[6]BP target for all patients is <140/90 mmHg.
[7]Average number of BP readings per week multiplied by 4 weeks to obtain average number of BP readings per month. Higher average monthly readings in THRUST could be attributed to the high-touch contributed by MDT sessions and that patients could be more compliant due to a closer relationship with their GPs.

4. LEARNINGS & CHALLENGES

Program Experience – Patients

- Patient satisfaction rate was high at >80%
- Patients generally feel more disciplined, have higher awareness and self-consciousness over their health, especially with the regular blood pressure monitoring
- They feel more motivated to make changes on their diet and exercise especially when they saw the improvements on their BP, together with encouragement from the care team
- For patients with diabetes or weight problem, they had noticed the improvement on blood sugar level or weight loss, which is a bonus other than their blood pressure control
- Patients feel their care journey had become more 'seamless' as GPs are able to know their BP pattern at home when they go back to their clinics for physical review

Program Experience – GPs

- GP satisfaction rate was high at 100%
- The THRUST program has been successful to emphasize the need to manage not only the medical needs but also the whole person needs with emphasis on lifestyle and mental wellness
- Having visibility on the patients self-monitoring parameters was very useful especially when the patients came back for the clinic visit or were absent on their planned visits
- The Multi-Disciplinary Team (MDT) notes were also useful on allowing GPs to appreciate the plans and interventions done by the Witz-U team

Project Learnings – Health Benefits

- Majority of patients show improvements in BP trends, DASH scores and increased physical activities in 2 months. However, the THRUST team observed that usually a 6-month period is required to maintain good behaviour.

- Besides targeting hypertension, the approach and care model developed for THRUST is also beneficial to patients with concomitant chronic disease/s such as diabetes and hyperlipidemia

- 25% of the patients on the program, who have diabetes, have successfully controlled their blood sugar level through lifestyle changes such as exercise strategies and better diet choices

- Lifestyle optimization was observed in many patients. Some patients even managed to extend diet optimization for their entire families.

Project Learnings – Patient Care

- GPs, usually faced with limited resources such as manpower, are able to provide more well-rounded care for their chronic patients by co-managing with care coordinators, health coaches via a common platform.

- Ability to customize care to patient's medical condition and preferences with the addition of lifestyle coaching tools, personalized care plan, medication compliance to the telemonitoring protocol etc.

- Lifestyle changes which require a more customer centric approach are enhanced by easy access to care coordinator/health coach via in-app chat function and monthly Multi-Disciplinary Team (comprising the GP, health coach/nutritionist, care coordinator) reviews

Project Learnings – Business Model

- Through collaboration with a technology and care services partner, such as Witz-U, enables the GP sector to explore business models comprising of:
    - External pool of resources (including manpower, technology and marketing)
    - Device leasing model
    - Customised subscription plans for different patient groups/institutions to meet their needs

- Partnerships with NUHCS (National University Heart Centre Singapore), St. Luke's Hospital, NTUC Income etc. allowed the THRUST team to:
    - Focus on specific patient segments to further finetune protocols and care e.g. post AMI patients, elderly patients, insurance policy holders with significant inpatient recent events
    - Understand how to extend team base care model
    - Increase relevance and role of the programme for the various patient groups

Project Learnings – Challenges

- Covid-19 pandemic generated a lot of mental and physical strains on both the patients and the GPs. THRUST programme had to be stalled during critical periods during the pandemic
- Commitment and buy-in from GPs to the benefits of the program takes time and effort, particularly in clinics with high patient loads
- Program onboarding process (orientation/training/consent) is carried out at the clinics by the Witz-U team. Clinic assistants/nurses usually have competing clinic work needs and unable to take on this task.
- There are patients who feel that BP monitoring, food logging, weight and physical activity tracking with devices require too much commitment and prefer to do at own leisure
- Patients who have showed improvements in BP control, diet or exercise might not see the need to continue on the program

Project Learnings – Challenges

- Many patients had diets that were not balanced and/or with high calorie percentage and load as well. This made diet optimisation even more challenging. Many MDT review sessions could stretch to an hour because of the diet component

- Nowadays, patients are more price sensitive and reluctant to commit to a program more than 6 months

- Sufficient funding to sustain scaling cost such as additional manpower, technical and marketing cost