

## **Project Title**

Innovative Healthcare Delivery Models in Ang Mo Kio Specialist Centre

## **Project Lead and Members**

**Project Lead:** A/Prof Kwek Tong Kiat

**Project Members:** Adj A/Prof Daniel Chew, Adj A/Prof Lee Keng Thiam, Adj A/Prof Vernon Yong, Dr Timothy Quek, Dr Lim Ming Yann, Adj A/Prof Yeo Seng Beng, Dr How Kwang Yeong, Dr Lee Hwee Ching, Canny Lee, Sr Wendy Ho, Sr Kelly Xie Yuan Chua Jia Xuan, Esther Cho Pao Hui, Christopher Ng, Florence Cheong, Shaun Eric Lopez, See Toh Wei Yann, Dorothy Chen, Kris Leng, Soh Si Lin

## **Organisation(s) Involved**

Tan Tock Seng Hospital

## **Healthcare Family Group Involved in this Project**

Allied Health, Ancillary Health, Pharmacy

## **Applicable Specialty or Discipline**

General Practice, Ophthalmology, Orthopaedics, Audiology, Occupational Therapy, Physiotherapy, Endocrinology, Gastroenterology

## **Project Period**

Start date: 2019 (Not provided)

Completed date: 15 months

## **Aims**

To support Healthier SG, AMKSC brings care closer to patients by building close networks with our GPs and Community Partners.

## **Background**

See poster appended/ below

## **Methods**

See poster appended/ below

## **Results**

See poster appended/ below

## **Lessons Learnt**

See poster appended/ below

## **Conclusion**

See poster appended/ below

## **Additional Information**

NHIP 2023 – Best Practice Medal (Care & Redesign)

## **Project Category**

Care & Process Redesign

Operational Management, Resource Allocation, Value Based Care, Allocative Value, Utilization, Quality Improvement, Workflow Redesign, Access to Care, Waiting Time, Turnaround Time

## **Keywords**

Specialist, Community Health Team, Population Health, Model of Care, Resource Utilization, Social Care, Community Care

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Tan Tock Seng  
HOSPITAL  
National Healthcare Group

# New Innovative Models of Healthcare Delivery in Ang Mo Kio Specialist Centre (AMKSC)

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## BACKGROUND

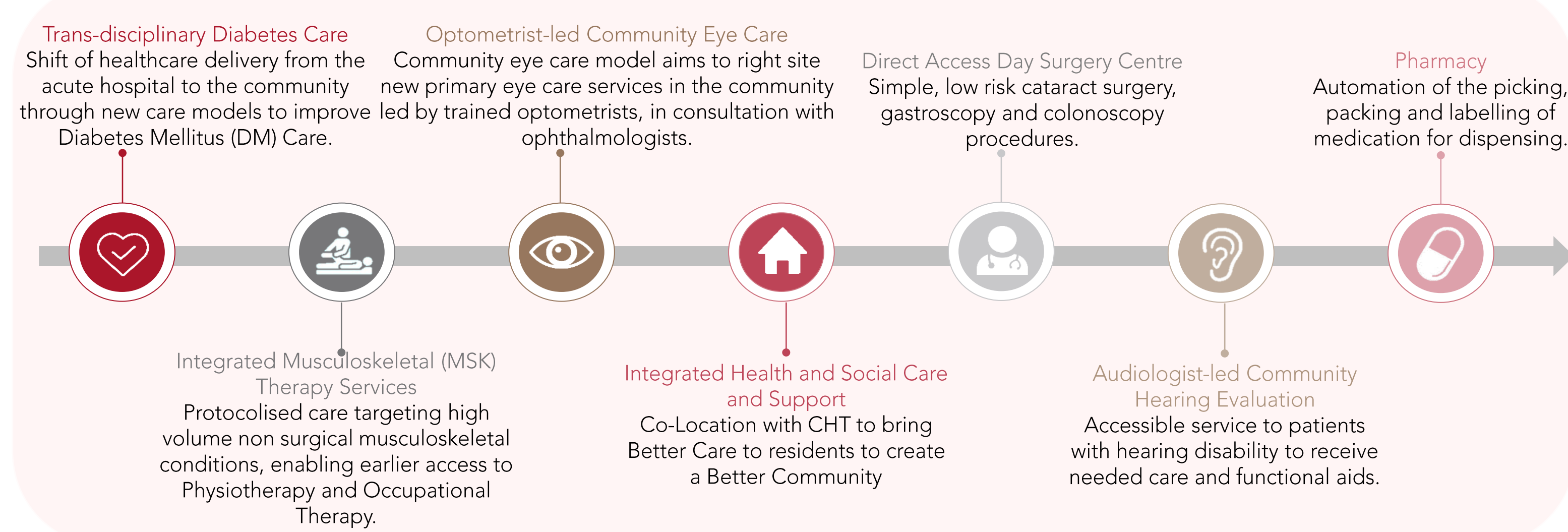
The AMK Specialist Centre (AMKSC) is a strategic project to innovate, test and develop new cost effective models of care for better accessibility and affordability to our patients, while reducing the hospital utilisation. To support Healthier SG, AMKSC brings care closer to patients by building close networks with our GPs and Community Partners. The co-location of TTSH's Community Health Team (CHT) within AMKSC further enables active coordination and collaboration seamlessly to identify residents in need and coordinate health and care plan for them.

AMKSC leverages on technologies such as automation, mobile registration and telehealth to reduce problems with medication errors, improve patient care and enhance the overall patient experience. Holistic care is also delivered through a new team-based care model using six new models of care as part of the Central Health strategy.

Figure 1: Central Health Strategy to Drive Population Health in Central Singapore

1. Innovate its specialist services to be more accessible, affordable and consistent so that TTSH can bring care into the community, closer to the residents
2. Build an integrated health and social eco-system with community partners to anchor ageing in place and the health activation of residents
3. Partner GPs and Polyclinics to transform preventive and primary care and strengthen the nation's first line of care for residents

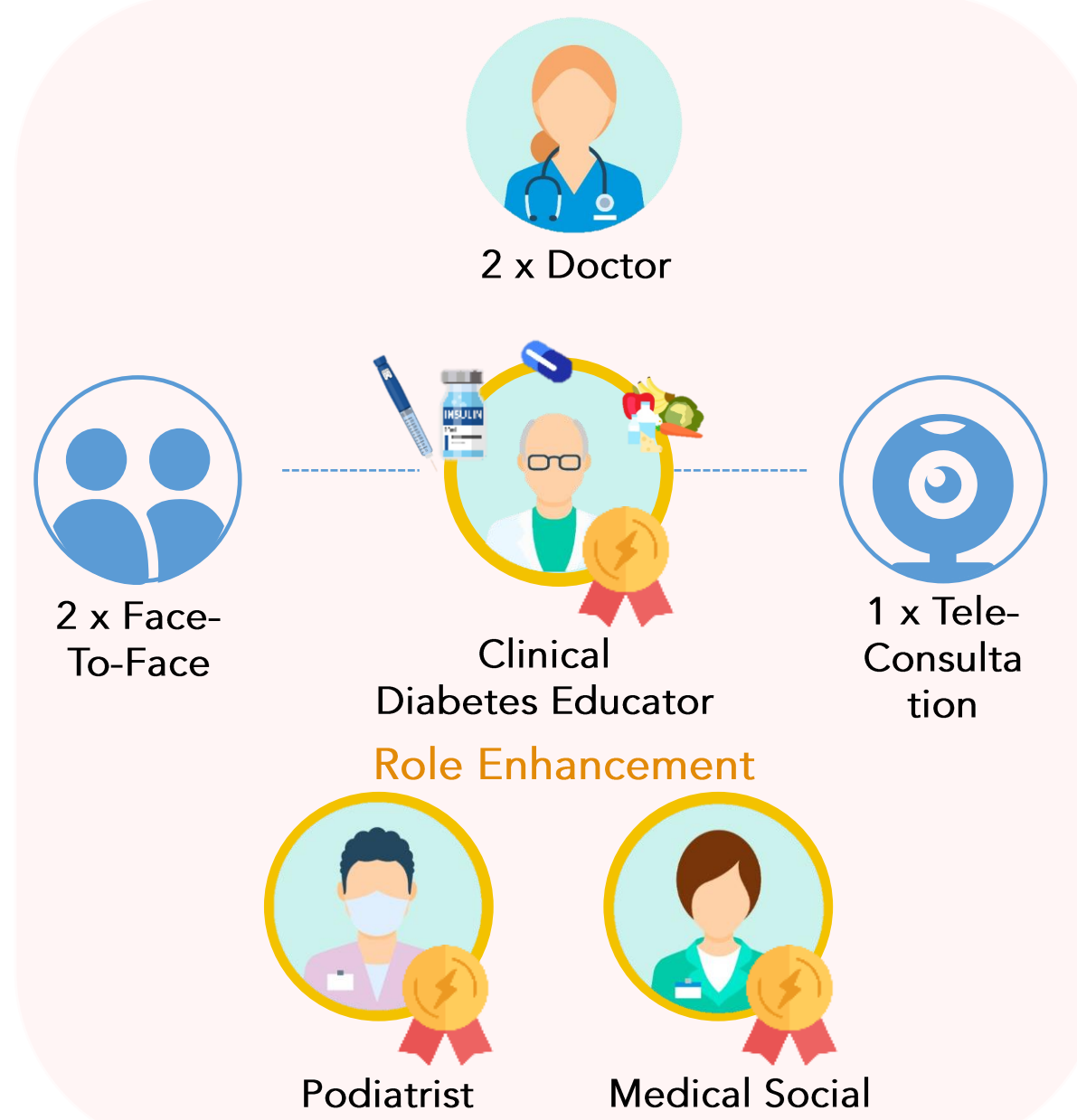
Figure 2: Seven New Models of Care and Automation at AMKSC



## A. TRANS-DISCIPLINARY DIABETES MELLITUS (DM) CARE MODEL

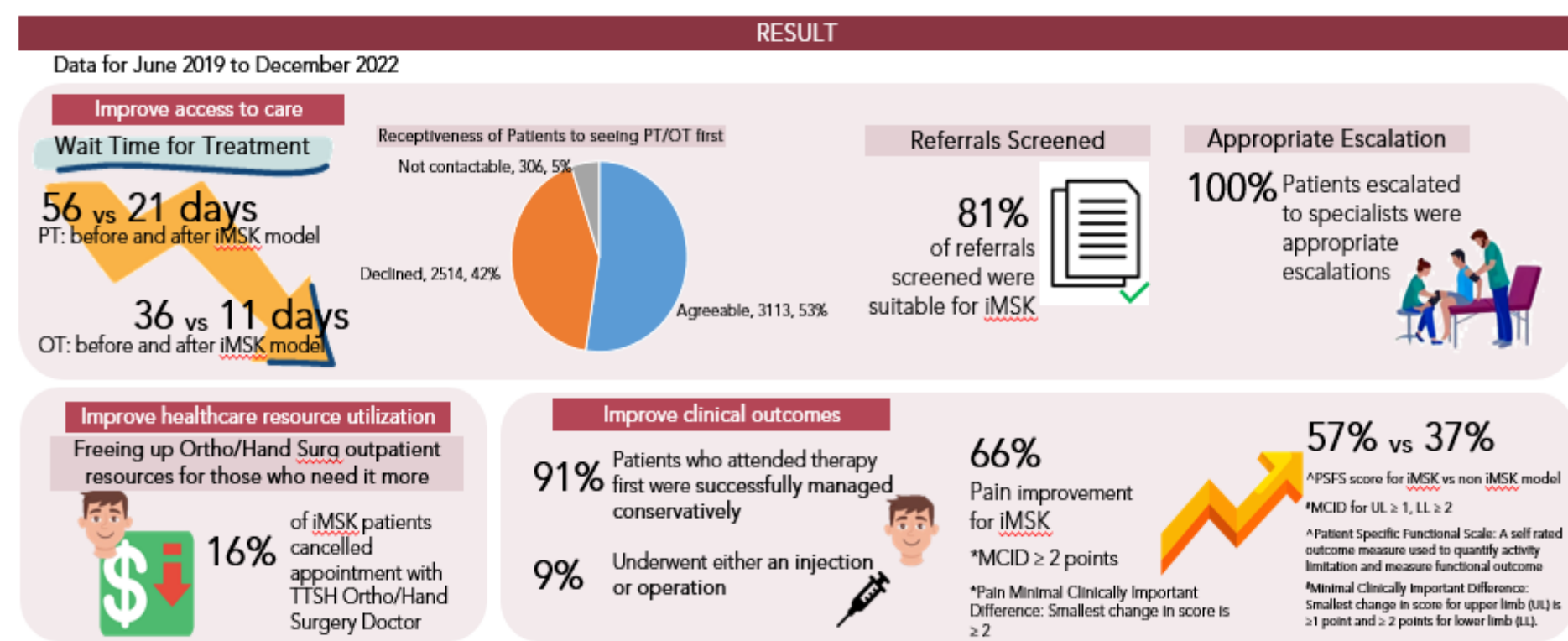
Diabetes Mellitus (DM) is a chronic progressive disease with long term complications. Good care coordination between patients and healthcare professionals is required to reduce the disease burden of DM, often which is not optimal in primary care due to lack of resources or expertise.

AMKSC has set up a trans-disciplinary clinic comprising of Clinical Diabetes Educators (CDEs) for a one-stop holistic medication, nursing, nutrition and foot care education instead of multiple appointments with different specialists at the hospital. This new holistic model of diabetes care with CDEs and GPs makes it easier for patients to understand and self-manage their conditions.

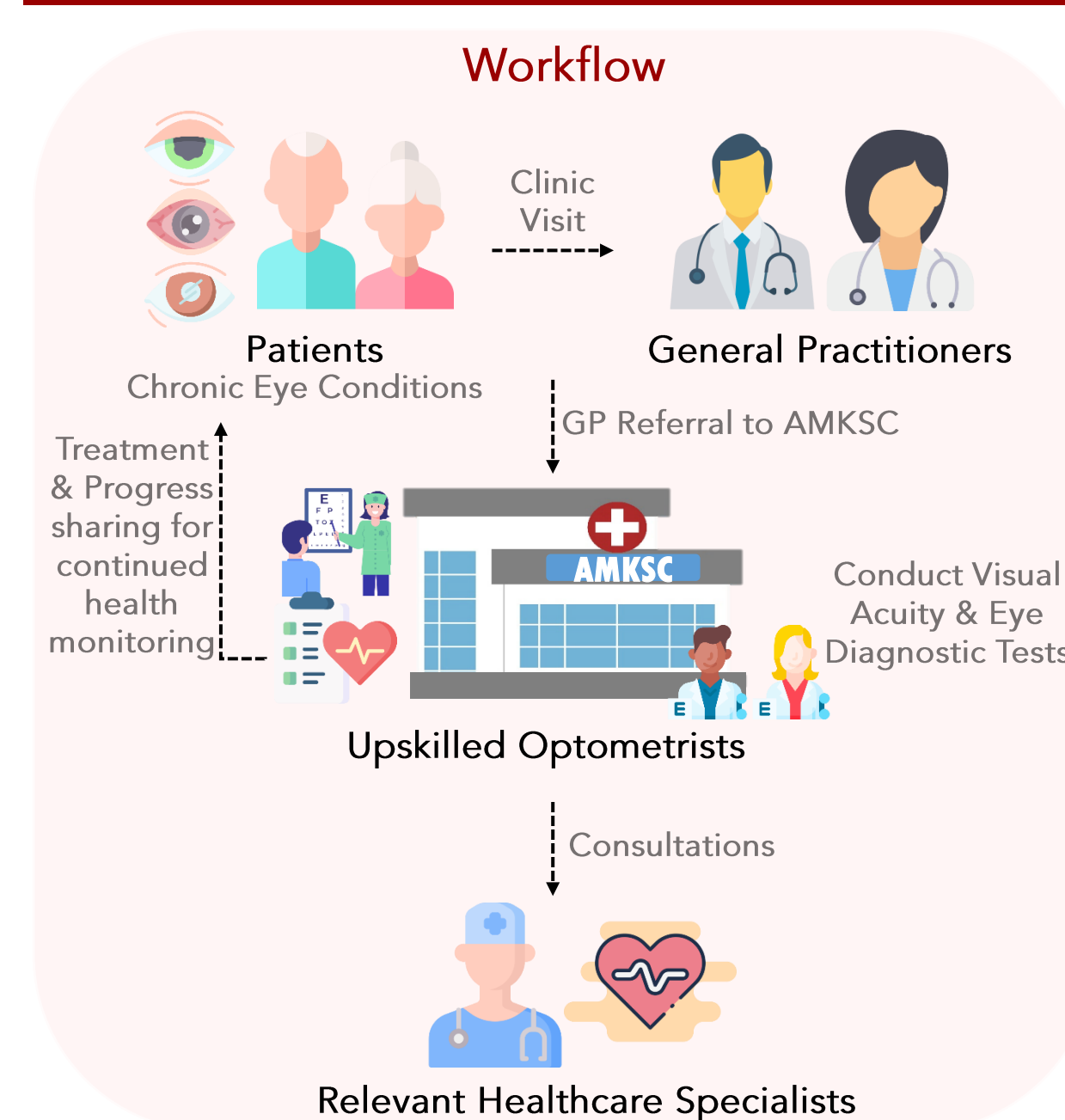


## B. INTEGRATED MUSCOLOSKELETAL (iMSK) THERAPY SERVICES

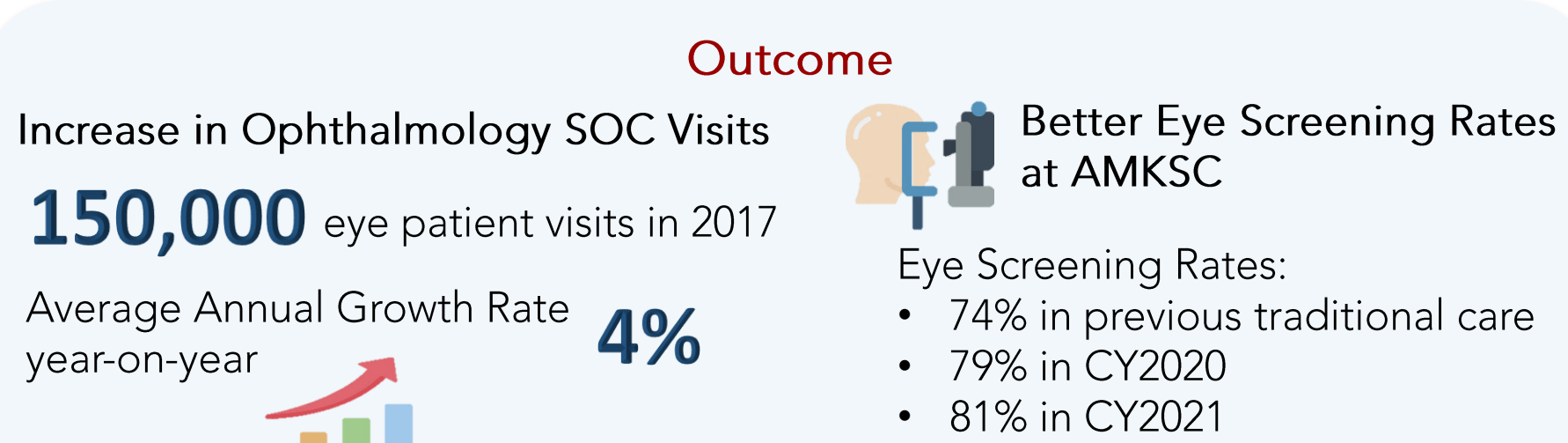
To allow for early treatment for patients to prevent conditions from becoming chronic and complex to treat, TTSH has made it possible for GPs and polyclinics to refer residents directly to AMKSC for therapy treatments. Referring GPs are also kept closely updated on their patients' therapy progression so that they can make better overall care plans for their patients.



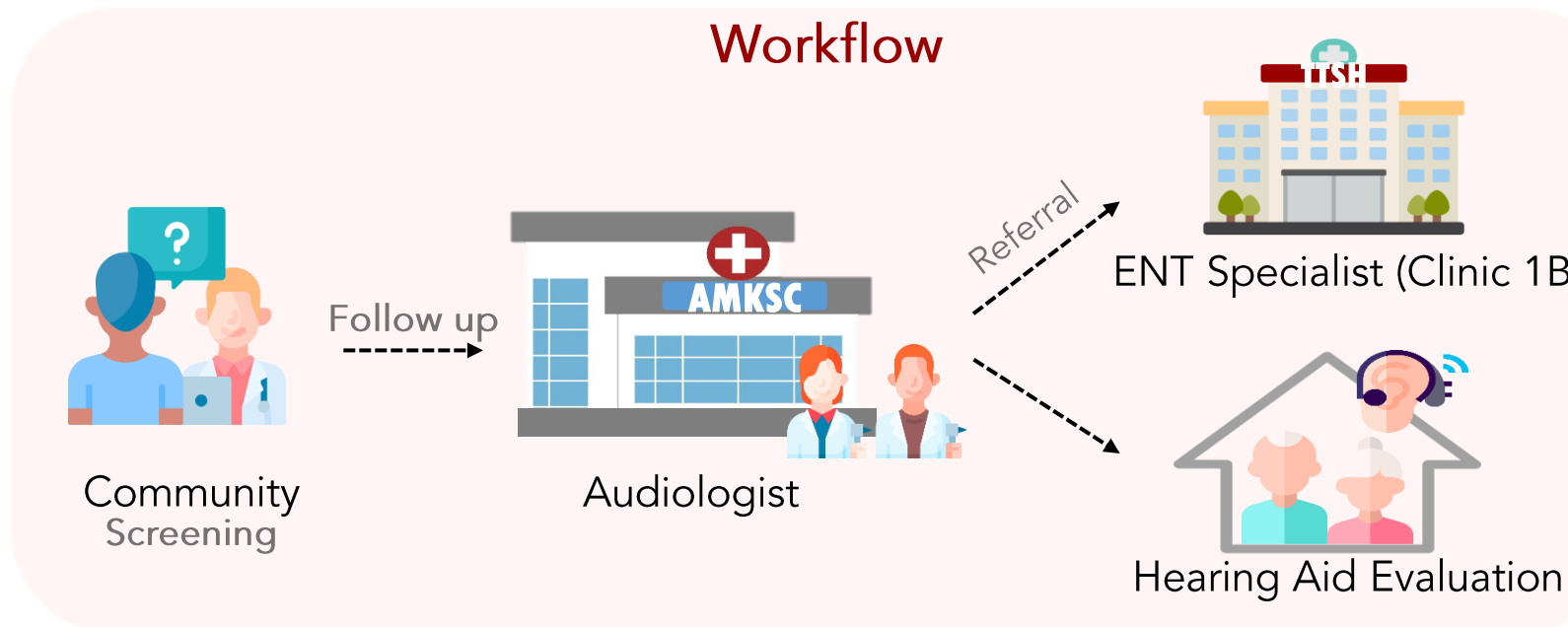
## C. OPTOMETRIST-LED COMMUNITY EYE CARE



AMKSC's Community Eye Clinics (CECs) is led by a team of upskilled optometrists who provide accessible eye care and management of chronic eye conditions. CECs reduce the long waiting time and provides early intervention for eye conditions to reduce the growing burden on the healthcare system and improves patient outcomes. The care model also maintains a high level of concordance between CEC optometrists and ophthalmologists in patient management.



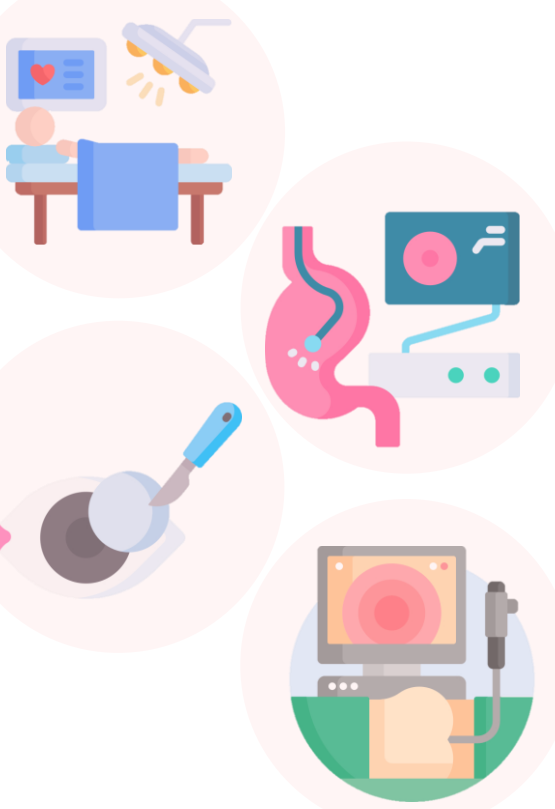
## D. AUDIOLOGIST-LED COMMUNITY HEARING EVALUATION



TTSH has also been trialling a portable audiometry system without the need for a soundproof setting. This allows more residents in different settings to gain access to testing, enabling faster intervention to hearing issues.

## E. DIRECT ACCESS DAY SURGERY CENTRE

AMKSC manages patients with stable, non-urgent and intermediate complexities in the community. The operating theatre and endoscopy suites focus on low-risk cataract surgeries, gastroscopy and colonoscopy procedures to reduce the volume of patients visiting TTSH, allowing TTSH to focus on patients with complex conditions. GPs are now able to arrange endoscopic procedures for their residents, shifting away from the traditional method where such services are performed only in hospital settings on a specialist's request. The access to such specialist diagnostics in the community also empowers GPs to better look after residents.



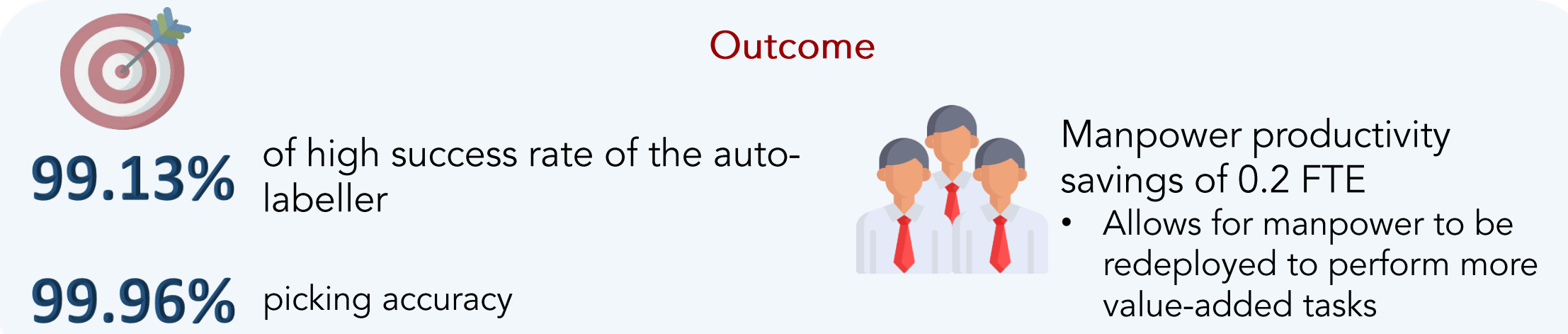
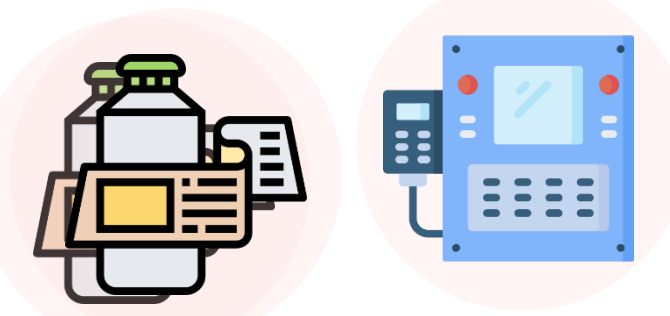
## F. INTEGRATED HEALTH AND SOCIAL CARE AND SUPPORT



The co-location of TTSH's CHT and AIC's SGO within AMKSC enables active coordination and collaboration. SGO reaches out to residents in the area and refers potential cases of concern to TTSH through its CHTs, and this co-location allows both teams to work seamlessly together to identify residents in need, plan community-based programmes, and coordinate health and social care plans with other partners in the community.

## G. PHARMACY

TTSH's pharmacy is the first institution in Singapore to pilot the auto-labeller with Rowa and e-Prolog automation machines.



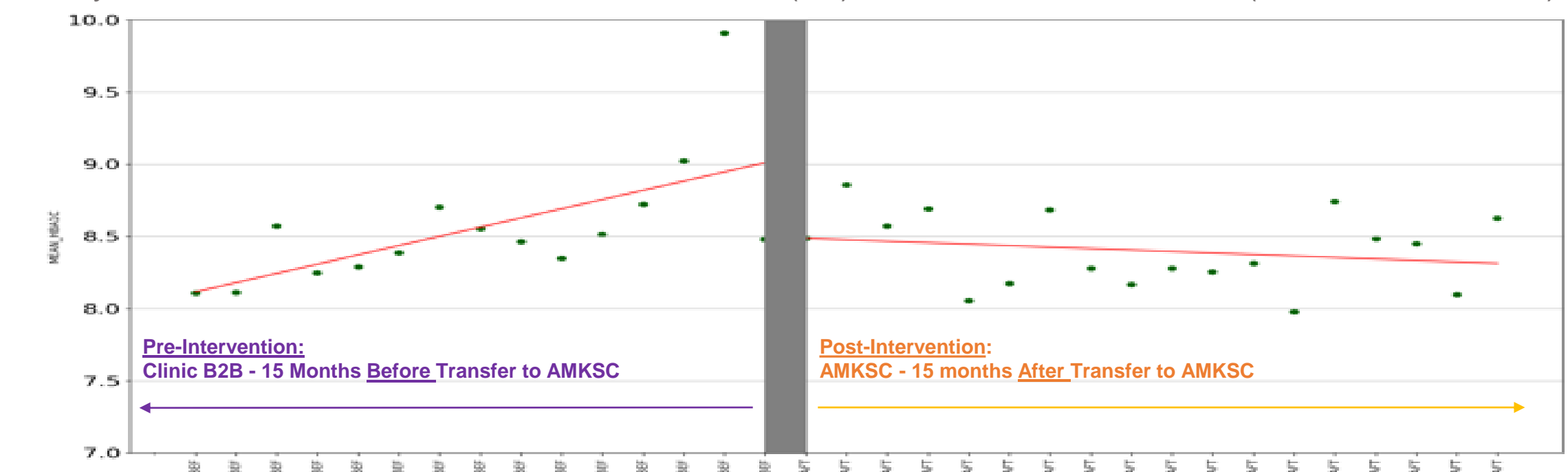
## OUTCOME

The CEC model in AMKSC had successfully reduced the waiting time for a First Visit (FV) appointment for patients with stable eye conditions, achieving an average of 83% of patients getting an FV appointment within 60 days of their referral.

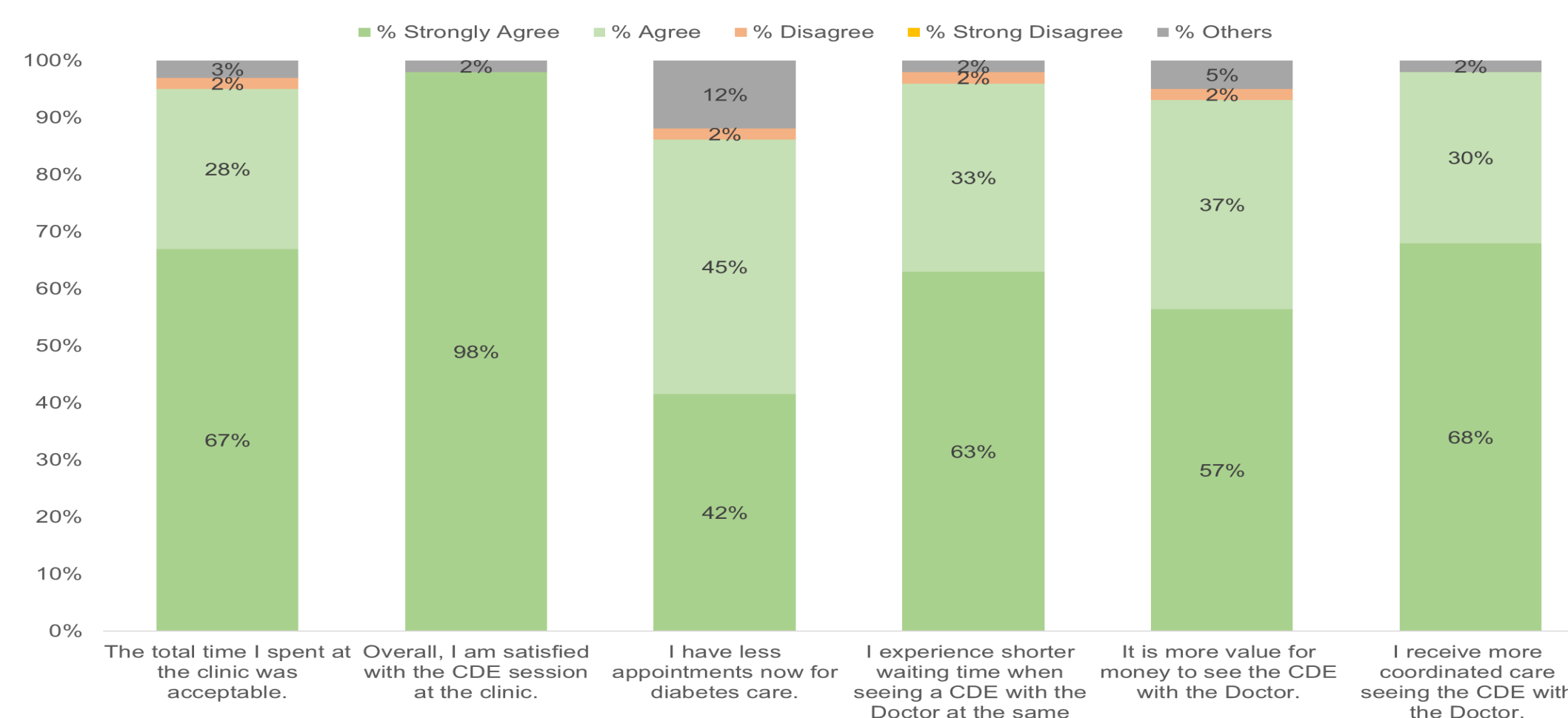
The HbA1c reading, extracted from 712 patients with diabetes whose care was transferred from B2B to AMKSC after Dec 2019. Across a lengthening period of AMKSC follow-up, HbA1c improved in this group of patients.

Mean latest HbA1c

Study Cohort: \*Selected DM Patients with First Visit (FV) in Clinic B2B Before 2019 (No. of Patients: 712)



Parameter	Interpretation	Estimate	Standard Error	P-value
$\beta_2$	Post-Level Change	-0.5130	0.236	0.038
$\beta_3$	Post-Trend Change	-0.0740	0.019	0.001



**98%** expressed strong agreement with the statement that they were "satisfied with the CDE session"

**≥85%** of patients surveyed agreed or strongly agreed that they had fewer diabetes clinic appointments, shorter waiting times, better "value for money," and more coordinated care.

## SUSTAINABILITY EFFORTS

### Long-term Continuity

- Innovative programmes were further streamlined for GPs to refer patients to AMKSC for Diabetes, Eye, iMSK, CHT and Endoscopy services, while minimizing wait time.
- GPs are also given periodic updates, reports and feedback through a common communication channel, ensuring the continuum of patient care between TTSH and GPs that allow GPs to better manage their patients when they are discharged from the acute hospital.

### Improves Patients' Access to Care and Allow for Better Utilisation of Resources

- Under the Diabetes' care model, patients will undergo an initial clinic evaluation to determine their suitability for telephone consults. Collaborations with community optical shops allow patients to visit partnering optical shops for their refraction tests and allow for lower cost of future spectacle purchase. AMKSC's manpower can also be kept lean.