Integration of Acute, Primary and Community Care for the Management of Diabetes Mellitus (Sustainability Phase)

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Mission Statement

To increase the percentage of Emergency Department (ED) discharged patients with *non-optimal glycaemic control referred to ^DM care network and actualising the appointment over as sustained period.

*non-optimal glycaemic control: capillary glucose <3.9mmol/L or >12mmol/L

^DM care network: Specialist Outpatient Clinics, Primary Care Providers (Polyclinics and General Practitioners), Community Health Team, Short Stay Unit.

Team Members

	Name	Designation	Department
Team Leader	Dr Chua Mingzhou John	Consultant	Emergency Medicine
Improvement Advisor	Dr Chiu Li Qi	Senior Consultant	
Team Members	Dr Raro Diane Vano	Senior Resident Physician	
	Dr Alizer Gil Doy	Resident Physician	
	Dr Joan Fun Rui Shan	Senior Resident	
	Ms Lim Hui Teng	Nurse Clinician	
	Ms Ho Jia Wei	Assistant Nurse Clinician	
	Ms Cynthia Leow Hui Si	Executive	
	Ms Ong Ee Ling	Assistant Manager	Clinical Standards & Improvement
Endocrinologist	Dr Brenda Lim Su Ping	Senior Consultant	Endocrinology
EPIC Expert	Adj Asst Prof Foo Chik Loon	Senior Consultant	Emergency Medicine
Right Siting Officers	Ms Goh Min Feng	Coordinator	Population Health Group
	Ms Hannah Ong Hui Ping	Coordinator	
	Ms Lynn Lee Mei Mei	Assistant Manager	
	Ms Evelyn Tan Si Miao	Assistant Director	
Other Stakeholders	Dr Low Kang Yih & Dr Louisa Tan (NHG Polyclinics)		
	Dr Darren Chen (NTUC Health Family Medicine Clinic)		

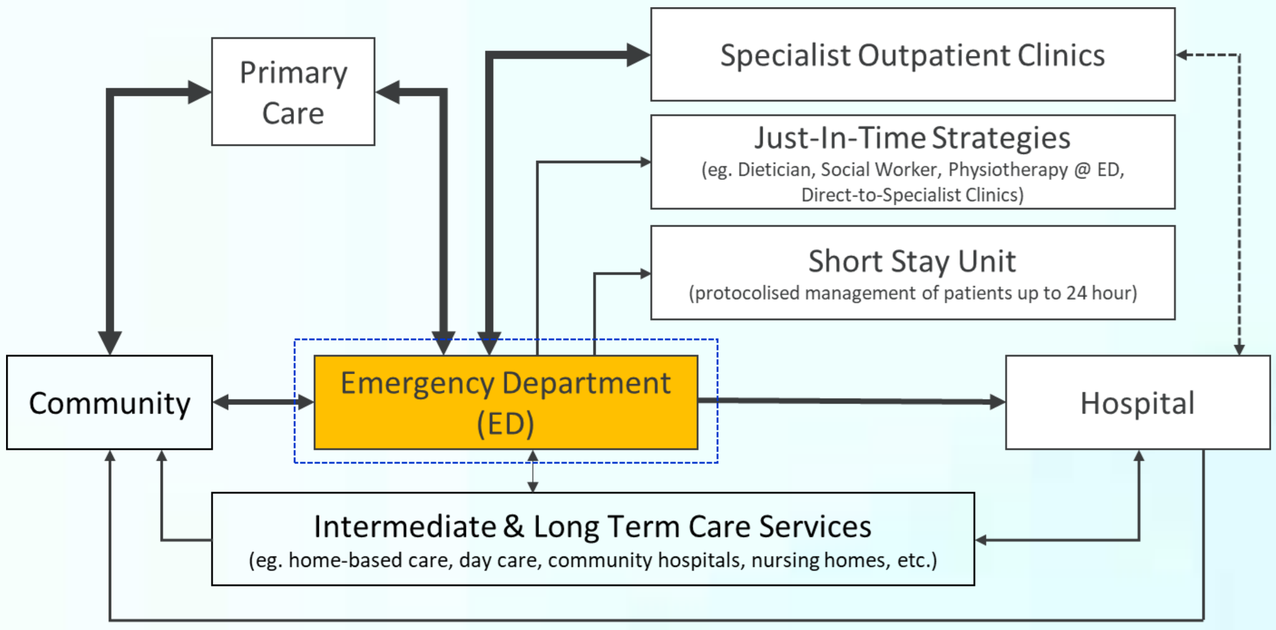
Supportive Leadership:
Adj A/Prof Tan Hui Ling, Adj A/Prof Daniel Chew Ek Kwang, Adj Asst Prof Michael Chia Yih Chong, Adj Asst Prof Ang Hou, Dr Timothy Quek Peng Lim

Evidence for a Problem Worth Solving

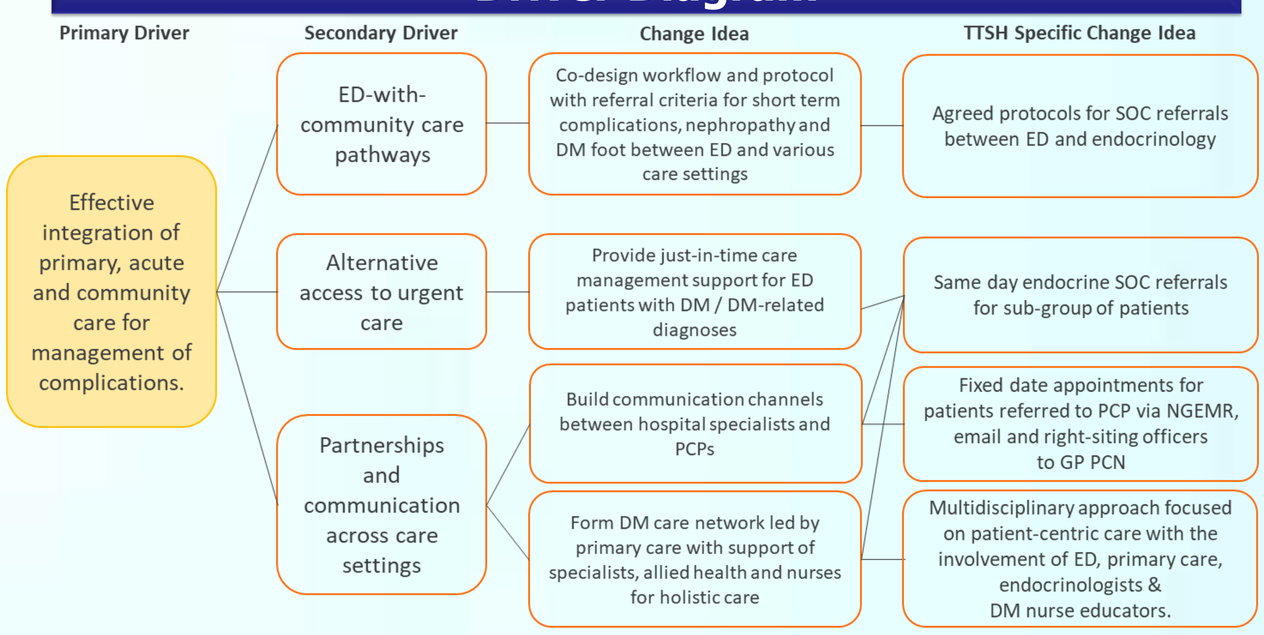
1. The projected **prevalence** of DM in the population above 60 years old is **40% by 2050**; leading to **heavy disease burden** and **healthcare cost**.
2. Singapore's age-sex **standardised DM admission rate is 2.1 times of OECD average**.
3. However, **only 30%** of DM patients have regular follow-up to prevent and reduce complications.

Flow Chart of Process

Important Link between Primary and Tertiary Care



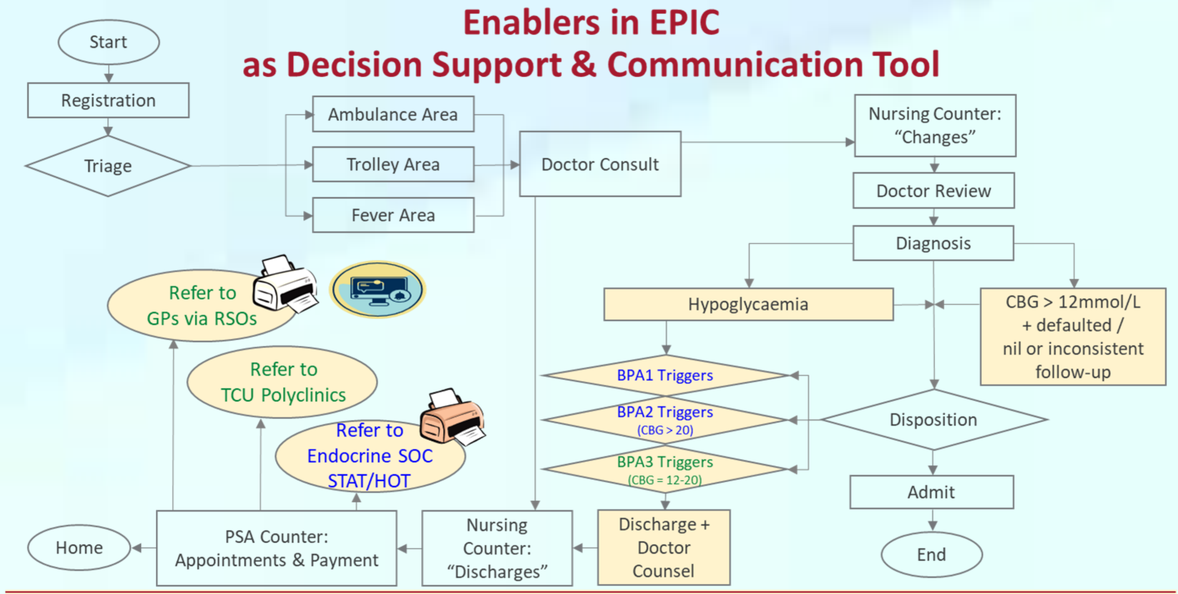
Driver Diagram



Implementation

Just-in-Time Care	Intervention 1 ▪ ED-to-Endocrinology same day referrals for select group of patients
Build ED-to-Community Pathways	Intervention 2 ▪ Collaboration with Endocrinology to establish agreed protocols for SOC referrals ▪ Collaboration with General Practitioners (GPs) in Primary Care Network
Partnerships across care settings	Intervention 3 ▪ Fixed date appointments with polyclinics ▪ Fixed date appointments with GPs via Right-Siting Officers (RSOs)

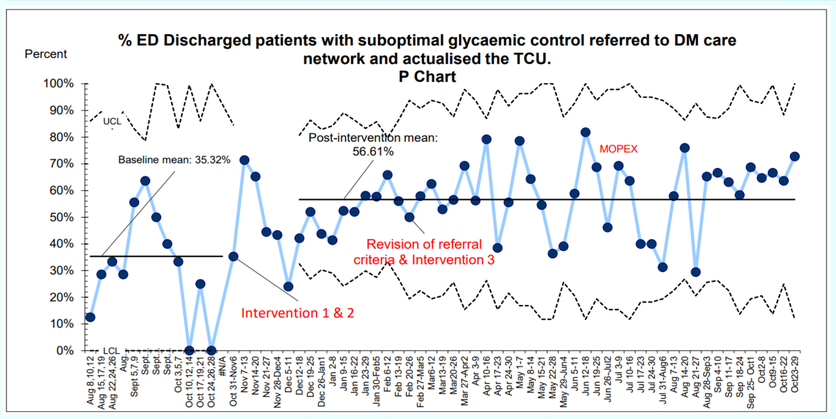
Enablers in EPIC as Decision Support & Communication Tool

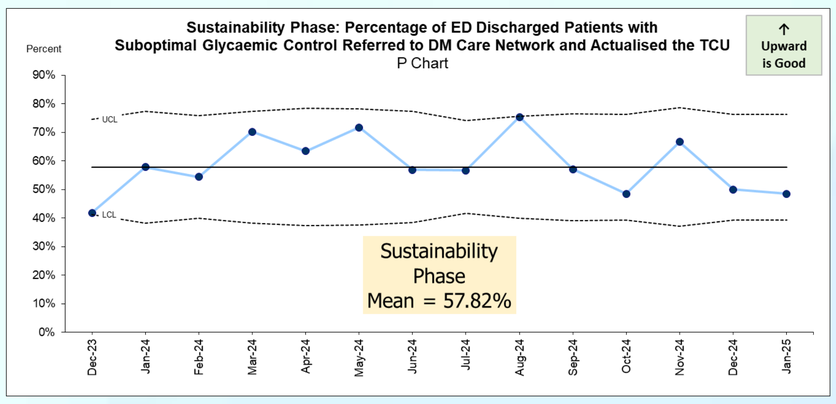


For all 3 referrals, ED Doctor needs to counsel patient on the importance of early/earlier TCU, adherence to medications and appointments. For BPA3 and referral to RSO-GP, advisory with information leaflet will also be provided.

Legend: STAT Endocrine Referral Auto Printout; Patient Advisory Auto Printout; Trigger Auto-Notification to the RSO In-Basket

Results





Overall Process Measure: Increased percentage of patients referred to DM care network from **16% to 55%**

Overall Outcome Measure: Increased percentage of patients referred to and actualised appointment with DM care network from **35% to 57.8%**

Balance Measures: There is no increased rate of unplanned 72 hours or 30 days ED re-attendances or re-admissions and no increase in ED P2 consult wait time

Cost Avoidance

Cost avoidance related to Intervention 1:
An average of 3 patients are referred to the Endocrinology SOC on the same day.
- Estimated reduction in transport cost for a separate visit ($20 x 2 x 3 x 12): $1,440 per annum.
- Estimated bed days saved by admission avoidance for a conservative estimate of half of this group of patients (50% x 3 x 12 x ALOS 10 days based on MOH data for NHG) = 180 days per annum

Cost avoidance related to Intervention 2:
- Estimated reduction in transport cost for a separate visit ($20 x 2 x 3 x 12): $1,440 per annum.
- Estimated reduction in wait time for appointments (Intervention 1 & Intervention 2): (baseline 20 days - 5 days) x 4 (average no. of patients with STAT/HOT referrals per month) x 12 = 720 days

Cost avoidance related to Intervention 3:
Savings based on Intervention 3 are difficult to quantify in the short term as these are related to future DM-related hospital admissions and complication rates.

Lessons Learnt

- Plan-Do-Study-Act (PDSA) cycles allow rapid feedback and testing of changes.
- Understanding the patient's story will help with engagement and change management.
- Designing an effective and efficient counselling script to best engage patients.
- Leveraging upon EPIC to drive sustainability and change.