Integrating Healthcare, Policy, and Technology in Managing NCDs

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Dr Ginsky Chan

Challenges in NCDs Today

Looking Beyond The Obvious

What We All Know

Increasing Prevalence[1]

1. Diabetes: 1 in 6
2. Hypertension: 1 in 3
3. Dyslipidemia: 1 in 3
4. Overweight/Obese: >1 in 2

Despite Increasing Expenditure[2]

Per capita expenditure on health = RM1,636 (2013) → RM2,039 (2018) → RM2,521 (2023)

1. NHMS 2023 Factsheet. Link
2. MNHA 2024. Link

Hidden Burden & Effects

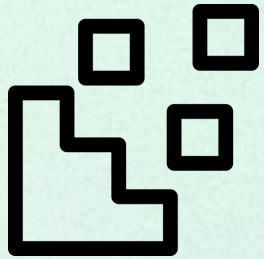
High Rates of Underdiagnosis[1]

1. Diabetes: 2 in 5 don't know.
2. Hypertension: 2 in 5 don't know.
3. Dyslipidemia: 1 in 2 don't know.

NCDs are Emerging Earlier[1]

1. Diabetes: 5.3% of <40 years
2. Hypertension: 13% of <40 years
3. Dyslipidemia: 20% of <40 years

1. NHMS 2023 Report. Link



Incomplete Care Systems

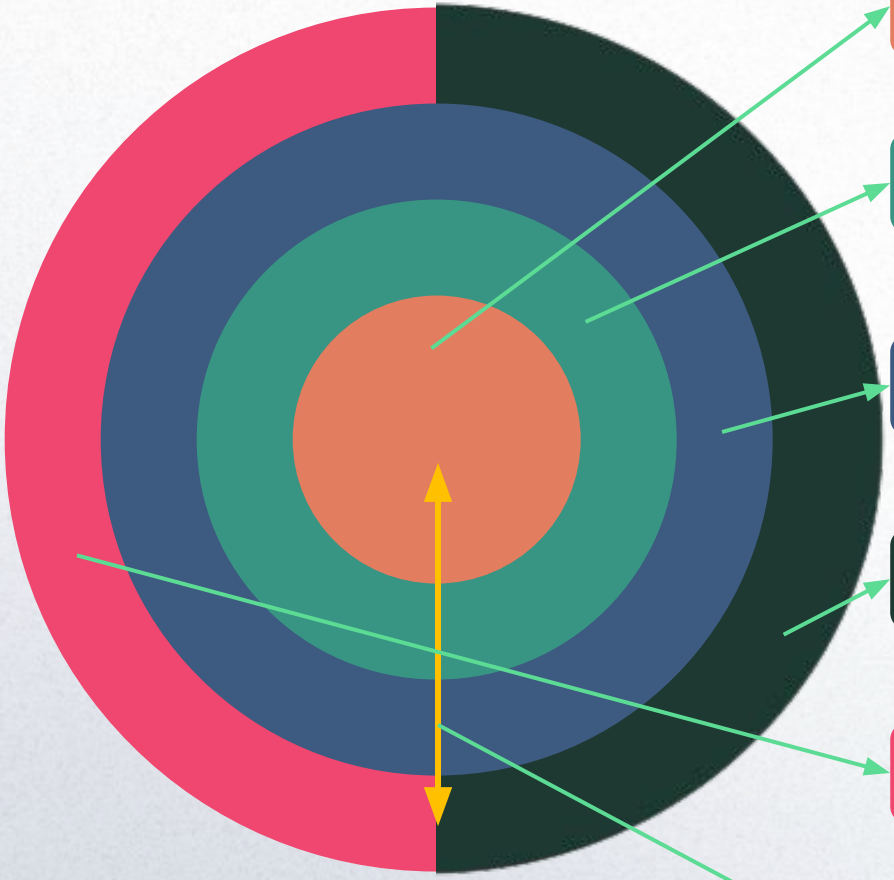
Inpatient-Focused

1. 34.2% of Malaysian T2DM patients have low medication adherence.[1]
2. Malaysian CAD patients adhere to lifestyle modifications only "sometimes" (2.09/4).[2]
3. Only 6% (2023) of the total healthcare expenditure were spent on prevention and public health services.[3]

1. Cheong LT, et al (2022). Link
2. Mulud ZA, et al (2020). Link
3. MNHA 2024. Link

Mapping the Stakeholders

NCD is everyone's business but Allied Health Professionals are the glue



Patients
- Self-management, lifestyle change, adherence
- Family as caregivers and influencers

Primary Health
- Screening, prescribing medications at the clinic
- Escalation and de-escalation of care

Technology
- Digital health innovators (apps, wearables)
- Pharma (therapeutics + digital companions)
- F&B industry (labeling, reformulation)

Policymakers
- Health financing, public health
- Healthy and safe environments, smoke-free policy

Academia/NGO
- Research, workforce training, guidelines/standards
- Awareness, peer support, mental health support.

Allied Health

= The Connector between patient behaviour, clinical practice and system transformation.

Build the Bridge

Integration = Connecting the Silos into One Patient Journey

Bridge Healthcare

Care is fragmented. Patients bounce between providers without continuity.

1. **Take ownership of continuity:** Follow patients beyond one-off encounters (e.g., post-discharge calls, follow-up tracking).
2. **Close the gaps between providers:** Share progress notes, standardised care plans with doctors, nurses, specialists.
3. **Be the "translator":** Turn medical prescriptions into daily routines patients can realistically follow.

Bridge Technology

Tech exists (apps, wearables), but adoption is patchy and not integrated into workflows.

1. **Coach patients:** Show them how to use apps, glucometers, wearables; troubleshoot barriers.
2. **Integrate into your practice:** Use digital records, remote monitoring, tele-consults to extend your reach.
3. **Curate tools:** Recommend only credible, evidence-based apps or platforms. Become the trusted filter for patients overwhelmed by choices.

Bridge Policy

Policies are often "top-down" and not felt in the clinic or community.

1. **Feedback upward:** Document where policies don't match reality (e.g., limited diet options for low-income patients) and channel back through associations.
2. **Advocate locally:** Support sugar reduction, smoke-free zones, healthier cafeteria policies in your hospital or community.
3. **Lead pilot programs:** Run small-scale initiatives that can be scaled by MOH if successful.

Case Study: Early Detection & Prevention

From Reactive to Proactive Primary Care

AVEST ®

(Autism Virtual Early Screening Tool)

Virtual screening for autism in children aged 1-5 years, using validated questionnaires and uploaded videos reviewed by psychologists experienced in autism spectrum disorder.

Developed with the National Autism Society of Malaysia, supported by the CIP Spark grant by Cradle Fund, an agency of the Ministry of Science, Technology and Innovation, Malaysia. The clinical protocol of AVEST® was developed with the advice from four senior clinicians: Dato Dr Amar Singh, Dr Rajini Sarvananthan, Prof Dr Toh Teck Hock and Dr Wong Woan Yiing.

Memory Assessment

Virtual assessment for dementia using clinically validated tools, including Picture-Based Memory Impairment Screen, IDEA Cognitive Screen, and Clinical Dementia Rating ®.

Developed with ACT4Health, a spin-off company of Universiti Malaya and the business arm of the business arm of the Ageing and Age-associated Disorder Research Group, Faculty of Medicine, Universiti Malaya.

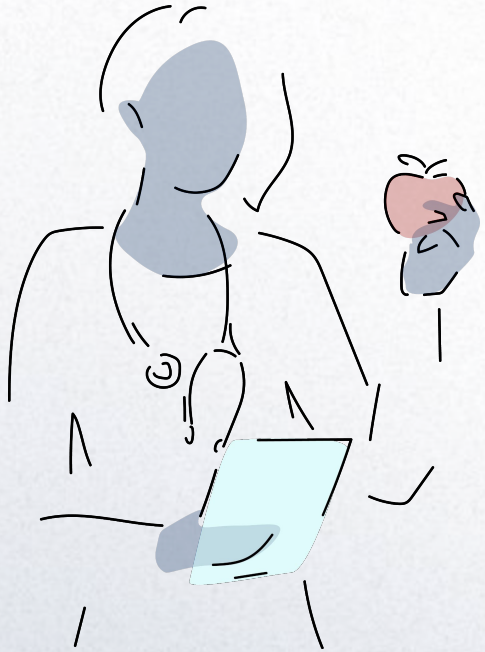
ACT4Health

Spin-off company of: UNIVERSITY OF MALAYA

Business arm of: AGEING AND AGE-ASSOCIATED DISORDERS RESEARCH

Case Study: AI-enabled Chronic Disease Management

From Fragmented to Connected Primary Care



IMU UNIVERSITY

Digital Diet Assessment

Virtual dietitian consult to assess diet intake, and provide a Medical Nutrition Therapy with personalized meal plan.

FIT-10

3-months virtual weight loss program, with a RM50 reward if weight loss targets are met.

Diabetes Treat-to-Target

6-months hybrid care by a multi-disciplinary team led by a diabetes nurse for diabetes, hypertension and dyslipidemia, with a reward of up to RM180 if HbA1c, BP and LDL-C targets are met.

powered by aida:i

As dietitians input patient assessment data, AIDA (AI-Dietitian Assistant):

1. Generates evidence-based nutrition diagnoses.
2. Suggests appropriate interventions including culturally appropriate meal plans.
3. AIDA also features a dietary analysis chatbot to support dietitians in estimating nutrient intake and dietary requirements.

Built with the Department of Nutrition and Dietetics, School of Health Sciences, IMU University. Ongoing pilot.

To Conclude

Integration is Not a Project. It is a Mindset.

From Silos to Synergy

Patients don't live in silos, neither should we.

1. NCDs cut across lifestyle, clinical care, policy, and technology.
2. Integration means seeing the whole patient journey and working as a team, not in isolation. This can be led by Allied Health Professionals, not only doctors.

From Policy to Practice

Every policy lives or dies in how we deliver it.

1. Good policies exist, but they only matter if they translate into patient behaviour change.
2. Allied Health Professionals are the ones who turn national strategy into daily routines.

From Tools to Transformation

Technology is only powerful when humanised.

1. Apps, devices, and systems are enablers, not solutions by themselves.
2. Integration happens when we embed technology into care and make it usable, personal, and meaningful for patients.

Dr Ginsky Chan
ginsky@angsanahealth.com