Sreenivasan Oration

Population Health: An Opportunity for Family Medicine

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- Dedicated general practitioner who spent >40 years in clinical practice
- First President of the College of General Practitioners Singapore
- Founding President of Singapore Medical Association
- First Singaporean Vice-Chancellor of University of Singapore
- Founding member of Singapore Anti-Tuberculosis Association
Singapore’s Healthcare Challenges

Healthcare Challenges

LONGER Life Expectancy
83 Y E A R S
10% up from 75 years in 1990
Source: Department of Statistics

1 in 7 Singaporeans aged ≥ 65 years
Source: Department of Statistics

Disease Burden By 2030 (Estimated)

1 in 7 Adults aged 18-69 years to have DIABETES
1 in 220 Residents to have a HEART ATTACK
1 in 180 Residents to be diagnosed with a CANCER
1 in 230 Residents to have a STROKE
Source: Ministry of Health, Singapore

9,000 more Healthcare workers needed in public healthcare & community care over next 3 years
Source: COE debate: MOH 13/3/17

Rising Healthcare costs
Annual healthcare spending ($ billion)

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Source: Ministry of Finance
Note: *Revised FY16 total expenditure **Projected figure Figures rounded to nearest $10 mil

SingHealth COI: Internet surfing separation an ‘additional burden’ for healthcare professionals, says MOH advisor
“The operational challenges ... will inevitably translate into tangible manpower and financial costs, and reduced employee and patient satisfaction. Ultimately, healthcare costs for the general Singapore public will rise.”
- MOH Chief data advisor, Dr James Yip in a report to COI 12/11/18
Ministry of Health’s 3 Beyonds

- Beyond HOSPITAL to COMMUNITY
- Beyond QUALITY to VALUE
- Beyond HEALTHCARE to HEALTH
**Definitions**

**Population Health**

The health outcomes of a group of individuals\(^1\) in a defined population.

Underpinned by 3 foundational concepts:
- **Health and well-being** develop over a lifetime
- **Social determinants** drive health and well-being outcomes throughout the life course
- **Place** (i.e., where they live, learn, play, work and pray) is a determinant of health, well-being and equity


It adopts scientific approach of preventive, therapeutic, and diagnostic service in proffering medical treatment to the health problem of people.

It is geared towards equal health care delivery to an anticipated group of people in a particular geographical location.

Population health is an art, process, science and a product of enhancing the health condition of a specific number of people within a given geographical area. **Akarowhe (2018)**

Health is directed toward overall health performance of people through health satisfaction within the said geographical area.

It entails effective and efficient running of a population health management system to cater for the health needs of the people.
“The good physician treats the disease; the great physician treats the patient who has the disease.”

- William Osler
Challenges in Population Health

- Complex Nature of Healthcare
- Health & Social Divide
- Less Coordinated Approach
- Limited Capabilities & Resources
- Unreached Population

The 3 Don’ts:
- Don’t Know
- Don’t Want
- Don’t Care
The Health Impact Triangle

Increasing population impact

Counseling and education

Clinical interventions

Long-lasting protective interventions

Changing the context to make individuals’ default decisions healthy

Socioeconomic factors

Increasing individual effort needed

Frieden TR; New England Journal of Medicine 373: 1748
From Individual to Family as the Unit of Health
Asthma Improvement Collaborative

- Pediatric Asthma
  - Complex chronic condition
  - 14.2 M office visits/yr (US)
  - $USD50B/yr (US)
  - Major impact of socioeconomic factors

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**Outcomes Strategic goal**

**Smart aim:** Reduce the number of asthma-related emergency department visits and admissions by 20% for Hamilton County, Ohio, patients aged 2-17 years by June 30, 2015

1. Decrease the rolling 12-month average number of admissions per 10,000 Hamilton County Medicaid patients aged 2-17 years by June 30, 2015
2. Decrease the rolling 12-month mean number of emergency department visits per 10,000 Hamilton County Medicaid patients aged 2-17 years from 20.9 to 16.7 by June 30, 2015

**Global aim:** Reduce asthma care utilization in Hamilton County in pediatric patients aged 2-17 years

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**Key drivers (high-prioritized processes and system elements)**

- Reliable preventive services
- Effective management and comanagement of active Cincinnati Children's Hospital Medical Center patients during and after asthma-related visits
- Effective patient and family engagement in self-management
  - Effective, continuous, and appropriate use of prescribed medications by patient
  - Mitigation of socioeconomic and psychosocial, home environmental barriers to optimal asthma care
- Effective partnerships with community agencies (schools and school-based health centers, clinics, and pharmacies)
- Reliable contact and communication with patient and family
- Reliable access to medication in the patient’s home
- Community engagement and awareness about asthma

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Kercsmar et al. *JAMA Pediatrics* 171:1073, 2017
Integrated, multi-level approach using quality improvement methods improved asthma outcomes and reduced costs

Phase I: Inpatient processes
Phase II: Outpatient care processes
Phase III: Community-based social determinants of health

Kercsmar et al. JAMA Pediatrics 171:1073, 2017
SingHealth’s Whole of Life Approach to preventative health care for different life stages

Maternal and Child Health Clinic
Pilot @ Punggol Polyclinic

- Newborns

Millennia Kids Programme
Primary schools
10 – 12 years

Empowering the young as health ambassadors

Gestational Diabetes Screening
Expectant mothers

Detection and management of gestational diabetes

Community Health Screening

- ≥ 40 years old

Early detection of chronic disease conditions for early intervention

Falls Prevention/Frailty Screening
≥ 55 years old

- Identification and proactive management of frailty syndromes through systematic screening

Functional Screening (Level 1 & 2)
≥ 60 years old

Earlier intervention on women’s and children’s health

Newborns

Primary schools
10 – 12 years

Expectant mothers

Community Health Screening

≥ 40 years old

Early detection of chronic disease conditions for early intervention

Falls Prevention/Frailty Screening
≥ 55 years old

- Identification and proactive management of frailty syndromes through systematic screening

Functional Screening (Level 1 & 2)
≥ 60 years old

Early detection of functional impairment in the community to provide timely follow-up and affordable assistive devices
A Mobile Lifestyle Management Program (GlycoLeap) for People with Type 2 Diabetes

Objective
Assess the potential effectiveness and feasibility of GlycoLeap, a mobile lifestyle management program for people with T2DM, as an add-on to standard care.

Study subject
100 patients with T2DM and HbA1c levels of ≥7.5% from one of the SingHealth Polyclinics

Intervention
• Single arm feasibility study
• 6-month mobile lifestyle management program, GlycoLeap, comprising online lessons and the Glyco mobile phone app with a health coaching feature

Evaluation using RE-AIM Framework

REACH
• 13.2% consented to participate out of 785 patients approached

EFFECTIVENESS
• Statistically significant improvement in HbA1c
• 2.3% reduction in baseline weight

IMPLEMENTATION
• High participant engagement in all intervention components for the 1st week
• Decreased gradually over time

MAINTANENCE
• High user satisfaction – over 70% rated the app good or very good
“It is better to ask some of the questions than to know all of the answers”

James Thurber
Thank you!