

An Update on Health Services Research in the SingHealth-Duke-NUS Academic Medical Centre

Julian Thumboo

*Director, SingHealth Health Services Research
Centre*

*Co-Director, SingHealth Duke-NUS Health
Services Research Institute*

Overview

What is Health Services Research?

HSR across the SingHealth Duke-NUS AMC

Health Engagement and Action Laboratories (HEALs) Studies

HSR Resource Core

HSR Analytics Core

“a multidisciplinary field of scientific investigation that studies on how social factors, financing systems, organizational structures and processes, health technologies, and personal behaviors affect access to healthcare, the quality and cost of healthcare, and ultimately, our health and well-being”

Agency for Healthcare Research and Quality, Feb 2002

Why is HSR Important?



Public hospitals have been given a new brief to follow, and the Khoo Teck Puat Hospital (KTPH) in Yishun is leading the way.

The change of tack will push public hospitals beyond their traditional role of treating the sick, into public education, health screenings and preventive medicine designed to help people ward off chronic diseases.

They will also help those already stricken with diabetes, high cholesterol and obesity manage their lifestyles so that they do not end up in hospital with the long-term effects of these conditions.

The change, announced by Health Minister Khaw Boon Wan on his blog yesterday, is a "strategic shift" in health-care policy and a new model for the delivery of health care.

Healthcare Issues Facing Singapore – Role of HSR

- Rapidly aging population
- Existing models of care need to evolve to cope with projected healthcare needs
- Primary care: multiple issues
- Escalating healthcare costs and manpower constraints

- Health Services Research integrated into a healthcare system can help address these issues by:
 - providing in depth information on needs and issues
 - identifying and testing possible solutions which can be implemented (potentially systemwide/ nationwide)

Overview

What is Health Services Research?

HSR across the SingHealth Duke-NUS AMC

Health Engagement and Action Laboratories (HEALs) Studies

HSR Resource Core

HSR Analytics Core

HSR Across the AMC

The SingHealth to Duke-NUS Connection

Academic Medicine
improving patients' lives



Partnership



Academic Medicine Partnership



Signature Research Programs

Institutions

Cardiovascular and Metabolic Disorders

National Heart Research Institute (NHRIS)

National Heart Centre Singapore

Neuroscience and Behavioral Disorders

National Neuroscience Research Institute (NNRIS)

National Neuroscience Institute

Cancer and Stem Cell Biology

<to be established> Research Institute

National Cancer Center Singapore

Communicable Disease Center (CDC)

Emerging Infectious Diseases

<to be established> Research Institute

SingHealth Translational, Immunology & Inflammation Center

Health Services & Systems Research

Health Services Research Institute (HSRI)

SingHealth Health Services Research Centre (HSRC)

Eye Diseases (New)

Singapore Eye Research Institute (SERI)

Singapore National Eye Center



Center for Regulatory Excellence (CoRE)



Center for Aging Research & Education (CARE)

VISION

To improve the health of Singapore and the region through health services research driving excellence in population health

Note: Measurable improvements in patient care at a systems and individual level would be the primary focus of the vision, with academic excellence synergising this process.



MISSION

To integrate cutting-edge health services research into SingHealth Duke-NUS AMC to optimise health at individual, systems and population levels now and in the future

Vision, Mission, Strategies and Enablers

• Vision & Mission

- Vision: To improve the health of Singapore and the region through Health Services research driving excellence in population health
- Mission: To integrate cutting edge health services research into the SingHealth Duke-NUS AMC to optimise health at individual, systems and population levels now & in the future

Positive Results

• Strategies

- Health Engagement and Action Labs (“HEALs”)
 - Aging
 - Others in the Future

- SingHealth Institution Specific Projects
 - Hub (HSRC) and Spokes (Hospitals, Centres and ACPs) model

• Enablers

- MOH National HSR Strategy Workgroup
- Guiding Principles
- Resource Core
- Data Analytics Core
- Engaging External Stakeholders : MOH, other RHCs, VWOs, Community partners, patients and caregivers etc

Key Guiding Principles

1. **Engaging senior clinical leadership regularly to:**
 - (i) Identify and prioritize AMC wide HSR research themes and additional Institutional/ SingHealth focus areas to address pressing unmet medical needs
 - (ii) Identify promising HSR researchers to groom
 - (iii) Implement results of research into patient care at a system and individual level
2. **Deploy HSR staff and resources based on where they would fit best and be most effective**
3. **Draw on existing expertise and structures where possible, and modify these structures where needed for synergy**
4. **Foster links and collaborations**
5. **Co-funding of programmes**
6. **Promote a basic HSR capability at each SingHealth institution / Academic Clinical Programme (ACP)**
7. **SingHealth and Duke-NUS would be each other's preferred partners for HSR**
8. **Engage External Stakeholders (MOH, other RHCs, our Community)**

Overview

What is Health Services Research?

HSR across the SingHealth Duke-NUS AMC

Health Engagement and Action Laboratories (HEALs) Studies

HSR Resource Core

HSR Analytics Core

Aging Subtheme on Elderly: “Familiar Faces” to Healthcare Providers

CY2013 SGH DEM Attendances by Planning Area

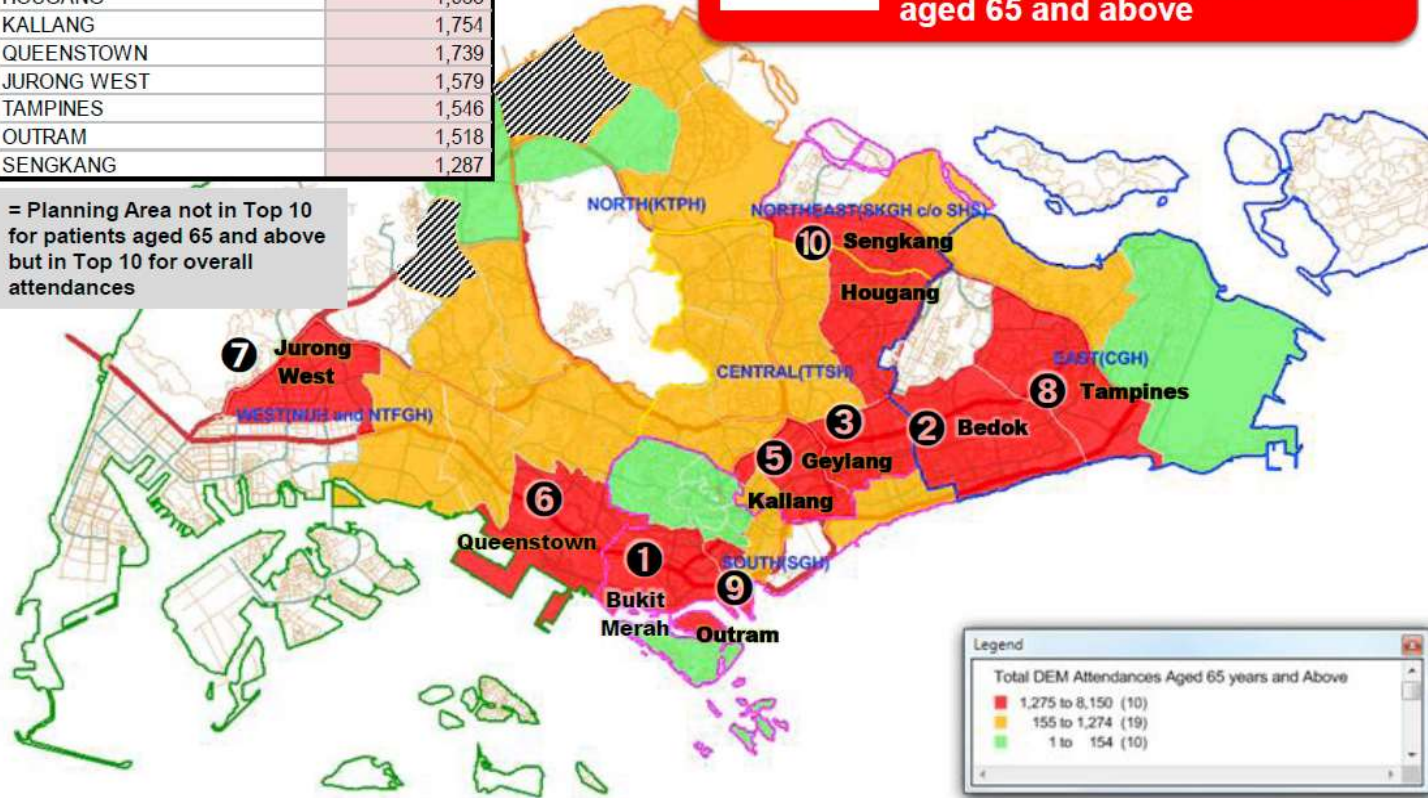
Patients aged 65 and above – Outram and Queenstown are in the Top 10

Total

No.	Planning Area	Total DEM Attd
1	BUKIT MERAH	8,126
2	BEDOK	3,379
3	GEYLANG	2,017
4	HOUGANG	1,938
5	KALLANG	1,754
6	QUEENSTOWN	1,739
7	JURONG WEST	1,579
8	TAMPINES	1,546
9	OUTRAM	1,518
10	SENGKANG	1,287

63% Top 10 planning areas for Total DEM Attendances by Patients aged 65 and above

 = Planning Area not in Top 10 for patients aged 65 and above but in Top 10 for overall attendances



Overview

What is Health Services Research?

HSR across the SingHealth Duke-NUS AMC

Health Engagement and Action Laboratories (HEALs) Studies

HSR Resource Core

HSR Analytics Core

HSR Resource Core

Head: Prof Ecosse Lamoureux

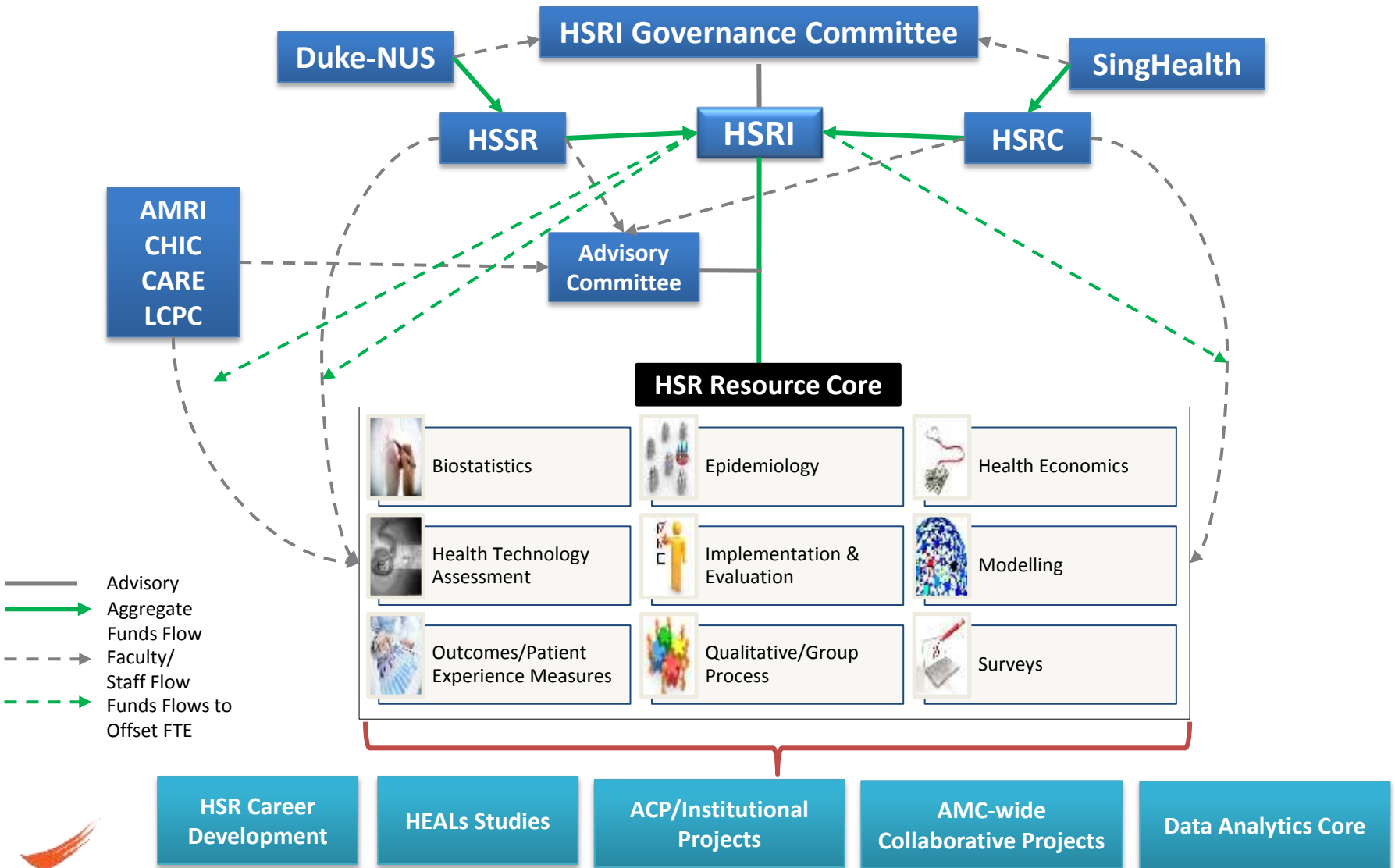
HSR Resource Core brings together HSR expertise from SingHealth and Duke-NUS to provide resources and scientific support for selected HSR-related initiatives across SingHealth

Draws from research faculty & staff across the AMC

Provides initial review (or referral to appropriate consultant)

Coordinates development of research support teams

HSR Resource Core



Overview

What is Health Services Research?

HSR across the SingHealth Duke-NUS AMC

Health Engagement and Action Laboratories (HEALs) Studies

HSR Resource Core

HSR Analytics Core

HSRC will work with Duke-NUS and IT/IHIS colleagues and other stakeholders.

Core technical capabilities include:



Big data analytics for healthcare



Fusion of health information across databases



Data anonymisation and management services for research



Scanning and harnessing of emerging technologies for healthcare analytics

Analytics Focus – Potential Research Areas

1. **Translational Bioinformatics:** Transform biomedical and genomic data, into proactive, predictive, preventive and participatory health (links with PRISM)
2. **Clinical/Operational Analytics:** Evaluate and refine clinical processes; develop, implement, and refine medical decision support systems
3. **Public Health Informatics:** Apply informatics in areas of public health, including surveillance, prevention, preparedness & health promotion
4. **Specific capabilities to develop:** Text/Unstructured data mining, geospatial / location analytics, prediction modeling/forecasting, optimization and implementation science

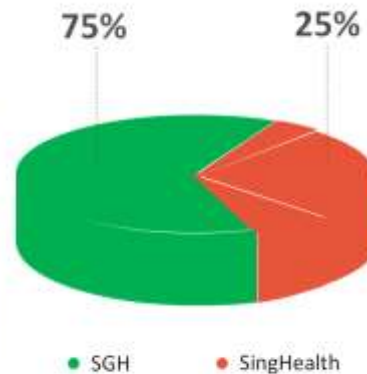
Data Management

Internet-enabled REDCap Electronic Data Collection platform



Result

	FY12	FY13-14	FY15
SGH Records	13,328	122,378	393,807
SingHealth Records	NA	106,091	129,583
SGH Projects	29	141	177
SingHealth Projects	NA	145	186



Database management and healthcare analytics services



Indicators	FY2014
No. of departments	7
No. of OBIEE projects supported	10
Abstracts	3
Papers/ Manuscripts	2

Call for Proposals

*Analytics and Research
Technologies for SingHealth
(ARTS)*

To promote the practically useful application of electronic data and analytics to solve health services challenges

Data Management Infrastructure - eHINTS

ARTS Focus

Future Phase

Reporting and Analytics Services



Dashboard / Scorecards



Adhoc Reports



Location Analytics



Predictive Analytics



Text Mining

Data Management Services



IHIS Support Here

Integration Services



Data Sources



Future Phase

Information Security

Data Quality

Metadata Management

Data Governance

Vision, Mission, Strategies and Enablers

• Vision & Mission

- Vision: To improve the health of Singapore and the region through Health Services research driving excellence in population health
- Mission: To integrate cutting edge health services research into the SingHealth Duke-NUS AMC to optimise health at individual, systems and population levels now & in the future

Positive Results

• Strategies

- Health Engagement and Action Labs (“HEALs”)
 - Aging
 - Others in the Future

- SingHealth Institution Specific Projects
 - Hub (HSRC) and Spokes (Hospitals, Centres and ACPs) model

• Enablers

- MOH National HSR Strategy Workgroup
- Guiding Principles
- Resource Core
- Data Analytics Core
- Engaging External Stakeholders : MOH, other RHCs, VWOs, Community partners, patients and caregivers etc