

The Role of an Academic Health Center in the Academic Health System: Best Practices in NUHS

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NUS
National University
of Singapore

National University of Singapore

What is the Role of an Academic Medical Center (AMC) and an Academic Health System (AHS)?

- **An AMC sets standards by defining and measuring excellence:**
 - in promoting health and providing accessible, affordable, quality healthcare
 - in training of current and future staff
 - in developing sustainable solutions to the country's health and healthcare challenges
- **An AHS ensures that this excellence impacts a population:**
 - by integration of health and healthcare from prevention to end-of-life
 - by training current and future staff for hospitals and the community
 - by developing and implementing sustainable solutions to the country's health and healthcare challenges

Evolution of the National University Health System, Singapore

NUS Yong Loo Lin School of Medicine



NUS Alice Lee Centre for Nursing Studies



NUS Faculty of Dentistry



NUS Saw Swee Hock School of Public Health



National University Hospital



Ng Teng Fong General Hospital and Jurong Community Hospital



Alexandra Hospital



National University Cancer Institute



National University Heart Centre



National University Centre for Oral Health



National University Polyclinics



Bukit Batok Polyclinic



Choa Chu Kang Polyclinic



Clementi Polyclinic



Jurong Polyclinic



Queenstown Polyclinic



Pioneer Polyclinic



Bukit Panjang Polyclinic (Upcoming)



Tengah Polyclinic (Upcoming)



Yew Tee Polyclinic (Upcoming)

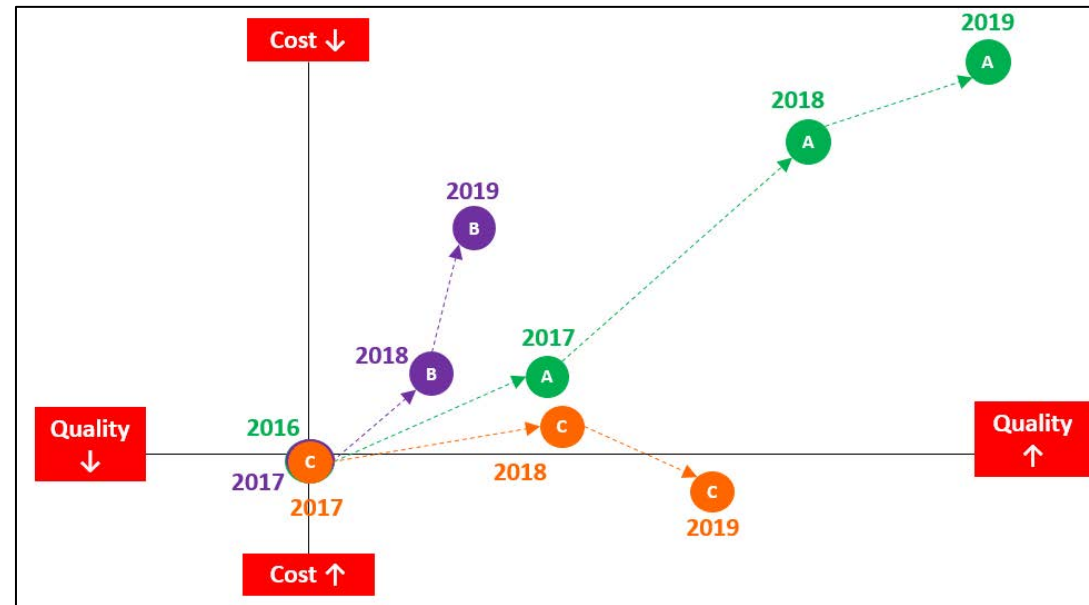
Defining and Measuring Excellence and Value in Patient Care

$$V \text{ (Value)} = \frac{Q \text{ (Quality)}}{C \text{ (Cost)}}$$

Patient Experience Survey (PES)

- Inpatient
- Emergency Department
- Hospital Outpatient
- Primary Care
- Community Hospitals

NUHS Value-Driven Outcomes (2016 – 2019)



Training Current and Future Staff for Hospitals and the Community

NUS Center for Healthcare Simulation



NUS Student's Neighbourhood Health Screening



ACADEMIC MEDICINE |  **AAMC**
Journal of the Association of American Medical Colleges

UNDERSERVED POPULATIONS

Caring for Underserved Patients Through Neighborhood Health Screening: Outcomes of a Longitudinal, Interprofessional, Student-Run Home Visit Program in Singapore

Liang En, Wee; Koh, Gerald Choon-Huat MMed FM, GDGM, FCFP, MGer; Lim, Vivien Kim Geok PhD
Author Information ©

Academic Medicine: July 2011 - Volume 86 - Issue 7 - p 829-839
doi: 10.1097/ACM.0b013e31821d841d

Selected Singapore COVID-19 Response

National COVID-19 Statistics

Case Summary in Singapore
as at 21 Feb 2021, 1200h

(<https://www.moh.gov.sg/covid-19>)

TOTAL CASES	59,869
Active cases	109
In hospitals (1 critical)	22
In community facilities	87
Deaths	29
Patients with COVID-19 who died of other causes	15

Research & Development

MoHT-NCID-NUHS: Singapore COVID-19 symptom checker
(<https://www.sgcovidcheck.gov.sg/>)

Design & production:

- Nasopharyngeal swabs (NUS): Singapore now self-sufficient
- DART - Droplet and Aerosol Reducing Tent (NUS-NUHS)

Diagnostics – Health Science Authority, Singapore approved:

- Biolidics 2019-nCoV IgG/IgM Antibody Detection Kit - Colloidal Gold (NUS/SMART MIT spin-off)
- Fortitude Kit 2019-nCoV RT-PCR Test (A*STAR, TTSH)
- RESOLUTE 2.0 SARS-COV-2 Detection Kit (A*STAR, DSO)

Diagnostics – Health Science Authority, Singapore pending:

- Rapid 2019-nCoV detection kit based on enVision technology platform (NUS spin-off)

Diagnostics – Food & Drug Administration, United States approved:

- cPass SARS-CoV-2 Neutralization Antibody Detection Kit (Duke-NUS, GenScript, A*STAR)

Therapeutics – in development:

- Human monoclonal antibodies against SARS-CoV-2 (DSO, NUS)
- LUNAR-COV19 vaccine (Duke-NUS, Arcturus)



Education

NUS-NUHS-GOARN: COVID-19 Updates from Singapore Webinar Series
(<https://medicine.nus.edu.sg/cet/covid-19-updates-from-singapore/>)

- April 2020 to present (27 episodes)
- >1000 log-ins per session, from 73 countries, across all 6 continents
- National and international speakers including leadership of World Health Organization, Lancet, Nigeria Centre for Disease Control, Wellcome Trust, London School of Hygiene and Tropical Medicine

NUS Saw Swee Hock School of Public Health COVID-19 Science Reports
(<https://sph.nus.edu.sg/covid-19/research/#sciencereports>)

- January to July 2020

NUHS Industry Collaborations: At least 179 Industry Partners

AB science	Biovalence Sdn. Bhd.	Halden United Investment Pte Ltd	MorphoSys AG	Sanofi Pasteur SA
Abbott Laboratories	Boehringer Ingelheim	HealthSeq Asia	MSD pharma	SCRI
AbbVie Pte. Ltd.	Boston Scientific	HISTOINDEX	MUNDIPHARMA	Sengenics International Pte Ltd
Abscience S.A	Bristol Meyer Squibb	HOPE Technik Pte. Ltd.	NAMSA	SHENZHEN NEW INDUSTRIES BIOMEDICAL ENGINEERING (SNIBE) CO., LTD
Advanced Ophthalmic Innovations Pte Ltd	Celgene	HUMMINGBIRD BIOSCIENCE PTE LTD	Nestec Ltd	Shire Human Genetic Therapies (Shire ViroPharma)
Advent Access	Cell Research Corporation	ICON Clinical Research	Nestle	Siemens Healthcare
Agilent Technologies Singapore Pte Ltd	Cerebos Pacific Limited	Ignyta	Novartis	Sime Darby Technology Centre Sdn. Bhd.
AgResearch Limited	Chengdu Kanghong Biotechnology Co., Ltd	IMS Health Asia Pte Ltd	Novartis Institute for Tropical Diseases Pte Ltd (NITD)	Sirtex Technology Pte Ltd
AHPL	Clinnovate	INC Research	Novira Therapeutics	Sony Electronics (Singapore) Pte Ltd
AITBiotech	Clovis Oncology, Inc.	Innoheart Pte. Ltd.	Novo Nordisk Pharma	Sunstar
Alcon Pte Ltd	CMIC ASIA-PACIFIC	INSTITUT DE RECHERCHES INTERNATIONALES SERVIER	Novotech	Sysmex Asia Pacific Pte Ltd.
Alexion Pharmaceuticals	CMS Dental ApS	Integrated Health Information Systems Pte. Ltd.	NPLASTY PTE. LTD.	Taiho Pharma
Algae Enviro-Engineering Pte Ltd	Covance Inc	Intuitive Creations Pte Ltd	Odonate Therapeutics, Inc.	Takeda
Allergan Singapore	CTI Biopharma Corp	inVentiv Health Clinical UK Limited	Oncotherapy Science Inc	TauRx Therapeutics Ltd
Allium Medical Solutions Ltd.	Daiichi Sankyo	Inviragen Inc	OrbusNeich Medical Pte Ltd	Tekmira
Alloksys Life Sciences	Danone Asia Pacific Holdings Pte Ltd	Invitrocue	Orient Europharma	Tetrahedron
Ambit Biosciences Corporation	DePuy International	Jana Care	Otsuka Pharmaceuticals	Teva Pharmaceutical Industries Ltd
Amgen Asia Holding Limited	DePuy Spine, Inc	Janssen Pharmaceuticals Inc.	Pacific Clinical Research Group	The Procter & Gamble Company
Annexin Pharmaceuticals AB	Detalytics	Janssen-Cilag	PANASONIC INDUSTRY DEVICES SINGAPORE	Toshiba Corporation
Anthera Pharmaceuticals	Dicerna Pharmaceuticals	Karyopharm Therapeutics	Parexel International	Turning Point Therapeutics, Inc.,
Arbutus Biopharma Corporation	Eisai	Kips Bay Medical	PCI Limited	UCB Biopharma SPRL
ARIAD Pharmaceuticals	EMD Serono	Konica Minolta	Pfizer	United Italian Trading
ASLAN Pharmaceuticals Pte Ltd	Endofotonics Pte Ltd	KOWA company	Pharmaceutical Research Associates Singapore	United therapeutics
Astellas Pharma	Exelis	Life Health Consulting Company	Pharmacyclics LLC	Ushio Electronics
AstraZeneca	F. Hoffman-la Roche Ltd	Life Technologies Corporation	PPD Development	Vela Research Singapore Pte. Ltd.
Axovant Life Sciences Ltd	FibroGen, Inc	Lifeskills and Physiotherapy Consultancy	PRAHEALTHSCIENCES	Verum Diagnostica GmbH
B.R.A.H.M.S GmbH	FrieslandCampina Nederland BV	Lundbeck	PRECISION BIOSERVICES	Vifor Pharma
Baker IDI Heart and Diabetes Institute Holdings Limited	Fujitsu Asia Pte Ltd	MedImmune	ProstaCare Singapore	VITUS Health
Baxalta Innovations GmbH	GALGO MEDICAL	Medivation	PTSH Holdings	Vivid Frontier Pte Ltd
Baxter Healthcare Corporation	Gamida Cell Ltd.	Medtronic International Ltd	Quintiles East Asia Pte Ltd	Wise Health Pte Ltd
Bayer Pharma AG	Genentech	Merck Pte Ltd	Regeneron Pharmaceuticals Inc	Worldwide Clinical Trials
Bayer South East Asia	Genomax Technologies Pte Ltd	Merck Sharp & Dohme Corp. (MSD)	Renew Pte Ltd	Worldwide Clinical Trials Limited
Belgian Volition SPRL	Gilead Sciences	Millenium Phamaceuticals Inc	Research2Trials Clinical Solutions	XentiQ Pte Ltd
Biocompatibles UK Ltd	Glaxo Wellcome Manufacturing Pte Ltd	MiNA Alpha Limited	Restalyst Pte Ltd	Zeria Pharmaceutical
Biomarin	GlaxoSmithKline	MiRXES	Revance Therapeutics	ZHONGSHAN OPHTHALMIC CENTRE
BIOTRONIK SE & Co	Gynuity Health Projects	Moleac Pte Ltd	Roche Diagnostics International Ltd (f.k.a. Roche Diagnostics Ltd)	

THANK YOU

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