



PRESS RELEASE

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Neighbourhood Health Service to screen for all chronic illnesses

Student-led initiative morphs into a truly comprehensive health screening programme

Singapore, 6 September 2018 — Singapore's pioneering student-led health screening programme for residents of rental HDB apartments is going big this year, the 12th since the programme began in 2007.

This year, the National University of Singapore (NUS) medical student planners of the Neighbourhood Health Service intend to screen residents in Kampong Glam and Queenstown (Leng Kee) for all chronic illnesses as well as oral, vision and hearing health. They will also follow up on residents in districts screened in previous years, including those residing in Eunos Crescent and Kampong Glam.

The students will conduct this comprehensive exercise with the support and partnership of the respective Regional Health Systems, the Health Promotion Board (HPB) and the Agency for Integrated Care (AIC). Bringing the key players involved in healthcare delivery in Singapore on board NHS 2018 means the event this year is a truly holistic, community-based health screening that is aligned with nationwide screening efforts. It is also the first of its kind in the country, said Associate Professor Gerald Koh of the Saw Swee Hock School of Public Health. He and a team of doctors from the National University Health System (NUHS), SingHealth and National Healthcare Group (NHG) are advising and guiding the NHS' student planners. This flagship community service project by the students of the NUS Yong Loo Lin School of Medicine is the only student-led School project that has nationwide reach and scale, involving all three Regional Health Systems (NUHS, SingHealth, NHG) to serve over 5,000 residents in nine different districts, from Taman Jurong to Eunos Crescent over the years.

This year's screenings bring together five unique screening programmes – SingHealth and the NHG's chronic disease screenings, the National Dental Centre Singapore and Singapore Eye Research Institute's oral health and vision screenings, the SingHealth community falls prevention programme and Singapore Cancer Society's cancer screenings.

Residents will be assessed via multi-level tests in five distinct categories through a "one-stop shop" screening covering:

- Chronic diseases (diabetes mellitus, hyperlipidaemia, hypertension, obesity)
- Functional modalities (vision, oral health, hearing)
- Fall prevention

- Cancer (colorectal, cervical, breast)
- Mental health (dementia, depression)

“The students had decided to expand this year’s screening efforts to cover a wider range of clinical conditions as they found that residents living in HDB rental blocks are four times less likely than the average Singaporean to go for regular health check-ups,” said Assoc Prof Koh. Additionally, the students found that only 11 per cent of rental block residents preferred to approach Western-trained doctors, while 30 per cent preferred alternative medicine. Another 53 per cent indicated a preference for “self-reliance”.

The findings spurred the NHS 2017 planners to expand their follow-up programme. And so, close to 300 residents with abnormal results for chronic disease screenings (i.e. 30 per cent of residents who were screened) were selected for follow-up last year. The aim was not to replace primary care physicians or to prescribe medicines, but to motivate these residents to follow-up with their family doctors on their screening results.

Trained by the NUHS Department of Family Medicine in motivational interview techniques frequently used to counsel patients, NHS student committee members engaged residents in conversation via phone calls and house visits in more complex cases. This was done at regular three-monthly intervals, for up to a year after the residents’ screening. At these sessions, the residents were encouraged to adopt positive health-seeking behaviour.

As of June 2018, 64 per cent of 284 residents, mostly living in rental blocks, were discharged from follow-up, meaning that they had been seeing their doctors for a sustained period of time and taking their medicines regularly. Another nine per cent remain on follow-up, while five per cent withdrew consent for follow-up. “This is a commendable achievement, considering that lower-income rental block residents are less likely than the average Singaporean to seek healthcare support due to their difficult socioeconomic circumstances,” Assoc Prof Koh added.

NHS is also working with its partners to get in touch with about 60 residents (21 per cent) who were uncontactable by phone after the screenings in 2017.

Door-to-door screening is also cost-effective

In addition to door-to-door publicity, screening and follow-up, NHS organisers also partnered the Tzu Chi Foundation to provide blood tests for immobilised residents in the comfort of their homes.

To establish the cost-effectiveness of such an approach, the NHS organisers worked with a team of NUS Business students, mentored by Associate Professor Albert Teo (Director, Chua Thian Poh Community Leadership Centre).

The team conducted a social return on investment (SROI) analysis in 2015 and found that for every \$1.00 invested in NHS over a five-year cycle, \$2.29 in social returns were generated yearly on average. The study showed the cost-effectiveness of the door-to-door concept. Today, door-to-door healthcare is slowly being implemented across the island.

While NHS remains an initiative led by NUS Medicine students, it now welcomes students from all other medical schools in Singapore – the Lee Kong Chian School of Medicine and Duke-NUS Medical School – as well as social work, nursing, physiotherapy and occupational therapy students from NUS Social Work, NUS Nursing, Nanyang Polytechnic and the Singapore Institute of Technology.

NHS 2018 will take place at Kampong Glam on 8 and 9 September, and in Queenstown (Leng Kee) on 6 and 7 October 2018.

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About the National University of Singapore (NUS)

A leading global university centred in Asia, the National University of Singapore (NUS) is Singapore's flagship university, which offers a global approach to education and research, with a focus on Asian perspectives and expertise.

NUS has 17 faculties and schools across three campuses. Its transformative education includes a broad-based curriculum underscored by multidisciplinary courses and cross-faculty enrichment. Over 38,000 students from 100 countries enrich the community with their diverse social and cultural perspectives. NUS also strives to create a supportive and innovative environment to promote creative enterprise within its community.

NUS takes an integrated and multidisciplinary approach to research, working with partners from industry, government and academia, to address crucial and complex issues relevant to Asia and the world. Researchers in NUS' Schools and Faculties, 30 university-level research institutes and centres, and Research Centres of Excellence cover a wide range of themes including: energy, environmental and urban sustainability; treatment and prevention of diseases common among Asians; active ageing; advanced materials; risk management and resilience of financial systems. The University's latest research focus is to use data science, operations research and cybersecurity to support Singapore's Smart Nation initiative.

For more information on NUS, please visit www.nus.edu.sg.

About the NUS Yong Loo Lin School of Medicine (NUS Medicine)

Established in 1905, the NUS Yong Loo Lin School of Medicine is the first institution of higher learning in Singapore and the genesis of the National University of Singapore.

The School offers one of the finest undergraduate medical programmes in the Asia Pacific region and enjoys international recognition and respect. The Times Higher Education World University Rankings 2018 by subject and Quacquarelli Symonds (QS) World University Rankings by Subject 2017 list NUS Medicine as a leading medical school in Asia.

It admits 300 students to the MBBS degree programme annually and its principal missions are to educate and train the next generation of healthcare professionals, and foster research that will help to advance the practice of medicine.

The 18 NUS Medicine departments in the basic sciences and clinical specialties work closely with the Centre for Medical Education, the Centre for Biomedical Ethics, the Centre for Healthcare Simulation as well as the restructured public hospitals to ensure that teaching and research are aligned and relevant to Singapore's healthcare needs. The School is a founding institutional member of the National University Health System.

For more information about NUS Medicine, please visit <http://nusmedicine.nus.edu.sg>

NHS 2018 Screening & Follow-Up Services

TYPE	SERVICE	SCREENED BY	REFERRALS TO
Chronic Diseases	Triage - Blood Pressure (BP) - Height & Weight (BMI) - Waist/Hip Circumference - Capillary Blood Glucose (for diabetics)	NUS, NTU, Duke-NUS Medicine students NUS, NYP Nursing students SIT Physiotherapy & Occupational Therapy students	CHAS GPs (free 1 st consultation) Polyclinics NHS Follow-Up Programme
	Blood Test (Phlebotomy) - Fasting Blood Glucose - Lipid Profile (Triglycerides, Total Cholesterol, HDL, LDL)	SingHealth National Healthcare Group Tzu Chi Foundation	
Functional Modalities	Basic Vision - Snellens Test	NUS Medicine & Nursing students NYP Nursing students	Optician (spectacles voucher sponsored by Pearl Visioncare)
	Advanced Vision - Slit lamp - Tonometry - Kerato-refractometry - Optical coherence tomography and/or fundus photography	Singapore Eye Research Institute (SERI) ophthalmologists & optometrists	Restructured hospitals (for eligible seniors who are assessed to require specialist review)
	Dental - Dental Examination - Oral Health Impact Profile-14 (OHIP-14)	National Dental Centre Singapore (NDCS) dentists & assistants	CHAS dentists & NDCS (for eligible seniors who are assessed to require specialist review)
	Hearing - Hearing Handicap Inventory for the Elderly-Screening (HHIE-S) - Tinnitus Screening - Otoscopy Examination - Pure Tone Audiometry	Asiamedic Wellness Assessment Centre	Community hearing clinics for follow up of abnormal hearing results

Fall Risk	Fall Risk Assessment - Community Fall Risk Questionnaire - Posture Blood Pressure - Short Physical Performance Battery - Barthel ADL Index, iADL assessment, Clinical Frailty Scale - Fracture Risk Assessment - Specific Falls Assessment	SingHealth Community Nurses NUS Medicine students	Structured exercise programme, Community rehabilitation services, Memo to GP / polyclinic or restructured hospital specialists where necessary
	Fall Risk Education - Healthy Diet for Strong Bones - Home Safety - Proper Footwear		
Mental Health	Dementia (Cognitive Impairment) - Abbreviated Mental Test (AMT)	NUS Medicine students	Senior Cluster Network Operator & Family Service Centre
	Depression - Patient Health Questionnaire (PHQ)-2 & 9		
Cancer	Colorectal Cancer - Faecal Immunochemical Test (FIT) Kits	Singapore Cancer Society	Singapore Cancer Society
	Cervical Cancer - Referral for free pap smear		
	Breast Cancer - Referral for free mammogram		
Social	Evaluation of financial, social & psychological condition of residents	NUS Social Work students	Social Service Office, Family Service Centre & Senior Cluster Network Operator
Other Services	Doctor's Consultation	Certified medical doctors	Doctor's memo to CHAS GP / polyclinic
	Assistance with CHAS Application	NUS Medicine students	Agency for Integrated Care

NHS 2018 Partners

Healthcare Partners	<ul style="list-style-type: none"> • Agency for Integrated Care • Health Promotion Board • National Dental Centre Singapore • National Healthcare Group • National Youth Council • NTUC Health 	<ul style="list-style-type: none"> • PEACE-Connect Cluster Operator • SingHealth • Singapore Cancer Society • Singapore Eye Research Institute • Singapore General Hospital
Social Organisations	Kampong Kapor Family Service Centre (FSC) Social Service Office @ Jalan Besar Social Service Office @ Bukit Merah	
Schools	NUS Medicine, Nursing & Social Work students NTU Medicine students Duke-NUS Medicine students Nanyang Polytechnic Nursing students SIT Physiotherapy & Occupational Therapy students	
Grassroots	Central Singapore Community Development Council (CDC) Kampong Glam Kampong Glam CC Management Committee (CCMC), Youth Executive Committee (YEC) & Residents' Committee (RC) Queenstown Leng Kee CC Management Committee (CCMC), Youth Executive Committee (YEC) & Residents' Committee (RC)	

NHS 2018 Sponsors

Monetary	<ul style="list-style-type: none"> • Association of Women Doctors (Singapore) • Lee Foundation • National Youth Council • NUS Office of Student Affairs 	<ul style="list-style-type: none"> • NUS Yong Loo Lin School of Medicine • Singapore Medical Association Charity Fund • Tote Board Community Healthcare Fund
In-Kind	<ul style="list-style-type: none"> • Archer Marketing & Development (S) Pte Ltd • BRAND'S® • First Aid Supplies Pte Ltd • Hisamitsu Pharmaceutical Co. Inc. 	<ul style="list-style-type: none"> • Leung Kai Fook Medical Company • Lion Corporation (S) Pte Ltd • Pearl's VisionCare • Sunshine Bakeries® • Tzu Chi Foundation

Key Statistics

A. Follow-up statistics (from 2017 cohort)

Districts screened: Kampong Glam, Eunos Crescent

Resident Status		
Category	Number of Residents	Percentage of Total Number (%)
Total Residents	284	100
Discharge	183	64.4
Remain under follow-up care	25	8.8
Uncontactable	61	21.5
Withdrew from the programme	15	5.3

- **Discharge = reconnected back to healthcare system** = visiting doctor AND taking medicines regularly
- **Remain under follow-up care** = residents who have complex cases (e.g. seeing doctor but forget to take medicines, in the midst of receiving financial aid to see the doctor) and are hence kept on our follow-up programme beyond one year on a goodwill basis
- **Uncontactable** = resident cannot be contacted by phone call over multiple follow-up cycles (where each cycle comprises at least attempted three phone calls on different days, at different times)
- **Withdrew from the programme** = resident no longer wishes to be contacted as part of our follow-up programme

B. SROI ANALYSIS FOR NHS

Type of SROI analysis conducted

- SROI analyses are usually either done retrospectively as an evaluation of returns, or prospectively as a forecast of returns.
- In case of this SROI analysis conducted for NHS, an evaluative SROI mixed with some elements of a forecast SROI was conducted (hence the ability of this SROI study to generate five-year data for NHS)

Objectives

1. Evaluate economic and social efficiency of NHS as a Community Health Screening Project (CHSP)
2. Show the viability of SROI analysis in evaluating a CHSP

Considerations

The SROI analysis considered the following factors in establishing NHS' impact in the community:

1. Deadweight – outcomes that would have happened even without intervention by NHS
2. Displacement – activities forgone due to execution of NHS
3. Attribution bias – other factors that could have contributed to the outcomes
4. Drop-off – impacts of NHS that are not long-lasting

Key Findings

1. Overall SROI ratio
 - Calculated based on $\frac{\text{Net Present Value (NPV)}}{\text{Initial Investment Amount}}$
 - Ratio yielded represents the value generated with every \$1 invested into the NHS.
 - Hence, **for every \$1 invested into the NHS over a five-year cycle, a value of \$2.29 in social returns was generated from the NHS' activities.**
 - This value includes both tangible and less tangible outcomes.

Year	SROI (Baseline)
1	2.34
2	2.34
3	1.63
4	1.63
5	2.21
Over 5 years	2.29

SROI ratios over a five-year cycle based on NHS 2015 figures

2. Actual NPV values
 - Refer to the following for NPV calculation formula

$$\frac{FV_t}{(1 + \text{Discount Rate})^n}$$

Where “FV” is the projected cash flow for each year and “n” is the number of periods out the cash flow is from the present.

- NPV and SROI value estimates for NHS

Year	NPV (Baseline)	SROI (Baseline)
1	\$56,948.59	2.34
2	\$55,022.79	2.34
3	\$917.34	1.63
4	\$1,181.36	1.63
5	\$39,405.53	2.21
Over 5 years	\$153,475.29	2.29

Summary of NPV and SROI ratios over a five-year cycle per estate in NHS 2015

3. SROI by NHS activity segment
 - The follow-up SROI ratio is almost **twice** of the SROI ratio compared to health screening only.
 - This supports the value proposition of NHS – that its niche feature of following-up after health screening, does indeed have significant social value.

Segment	SROI (Baseline)
Health Screening Only	1.69
Follow-up	3.26
Total Annual	2.34

SROI ratios by Segment in NHS 2015