

# PHASE and THE SIGNS Study:

## An overview of two nationally representative surveys of older adults in Singapore

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**Regional workshop on Integrating Policy and Research on Ageing in ASEAN:  
Conversations across the Policy and Research Divide**

**Singapore, 4<sup>th</sup> to 6<sup>th</sup> September 2019**

# Singapore – Demographic Profile

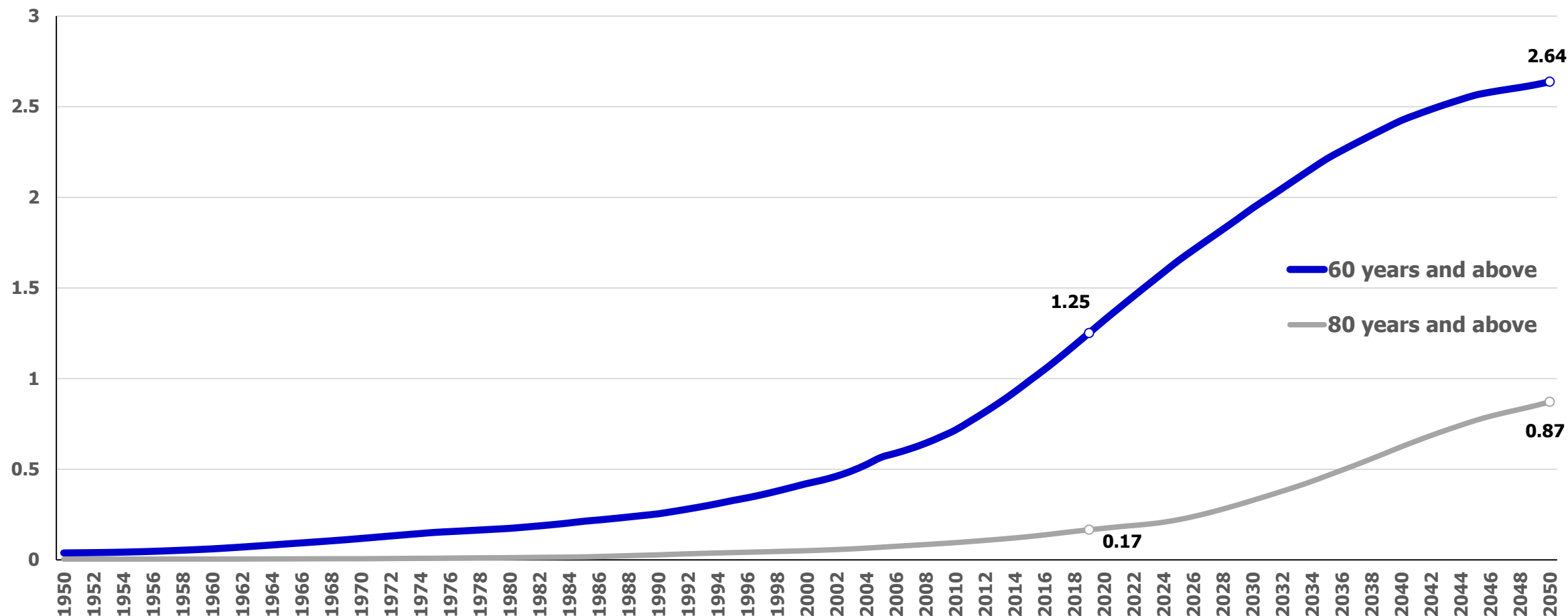


**Population, 2018: 5.64 million**  
*(Resident=3.99 million, Non-resident=1.65 million)*

**Population Density, 2018 ~ 7,804 persons  
per square kilometer**

# Population ageing- Singapore

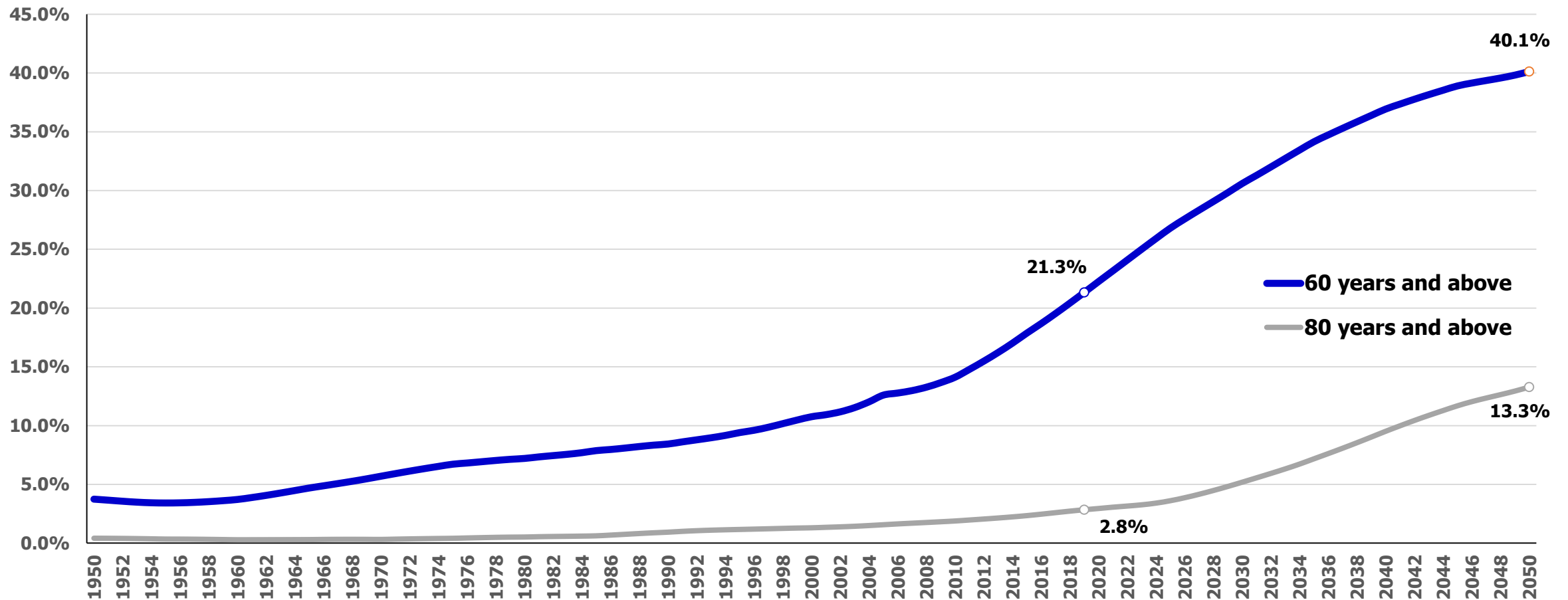
Population aged 60 years and above and 80 years and above (millions) – Singapore



Data Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2017 Revision.

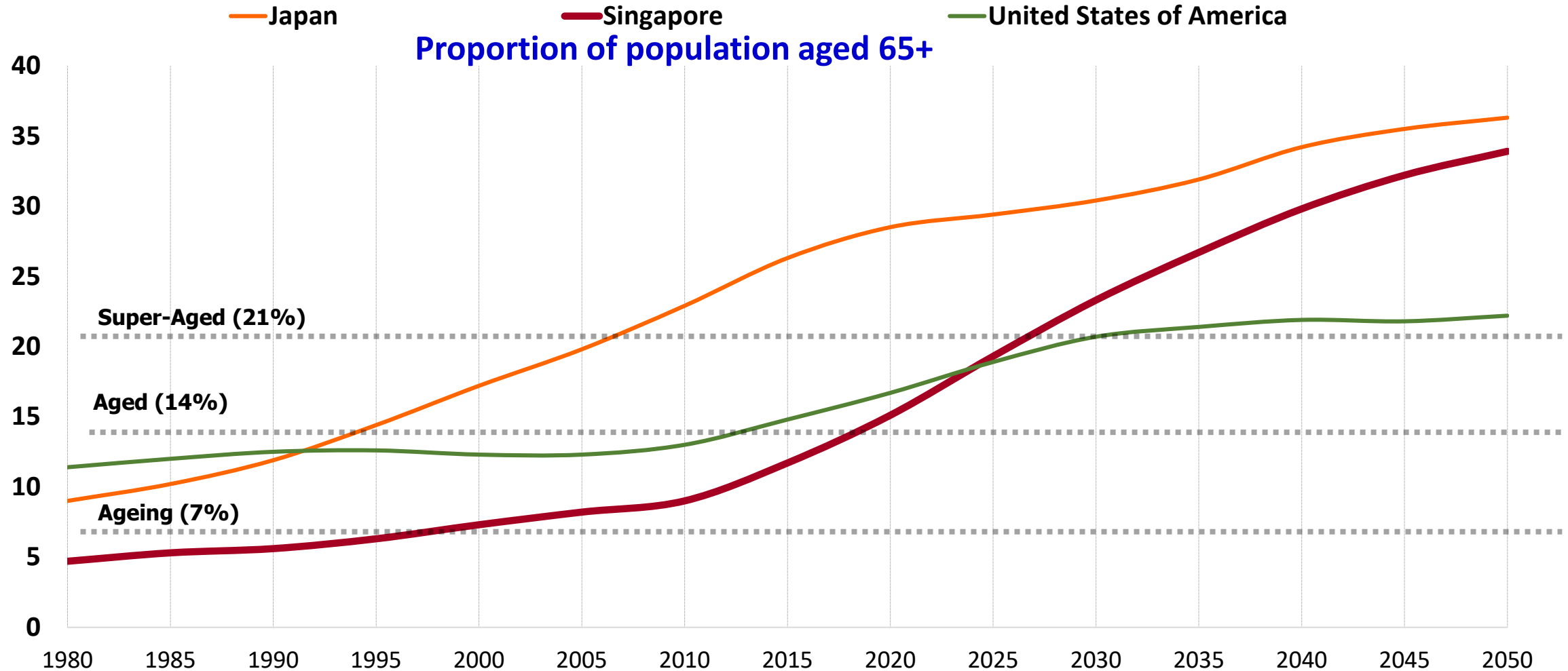
# Population ageing- Singapore

Proportion aged 60 years and above and 80 years and above – Singapore



Data Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2017 Revision.

# Speed of Ageing – Global and Singapore



Source: United Nations, Department of Economic and Social Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, custom data acquired via website.





*The Gerontologist*  
cite as: *Gerontologist*, 2019, Vol. 59, No. 3, 401–410  
doi:10.1093/geront/gny160  
Advance Access publication  
December 4, 2018

## International Spotlight

# The Aging of a Young Nation: Population Aging in Singapore

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<https://academic.oup.com/gerontologist/article-abstract/59/3/401/5230750?redirectedFrom=fulltext>

- **Panel on Health and Ageing of Singaporean Elderly (PHASE)**
- **Transitions in Health, Employment, Social Engagement and Inter-generational Transfers in Singapore Study (THE SIGNS Study)**

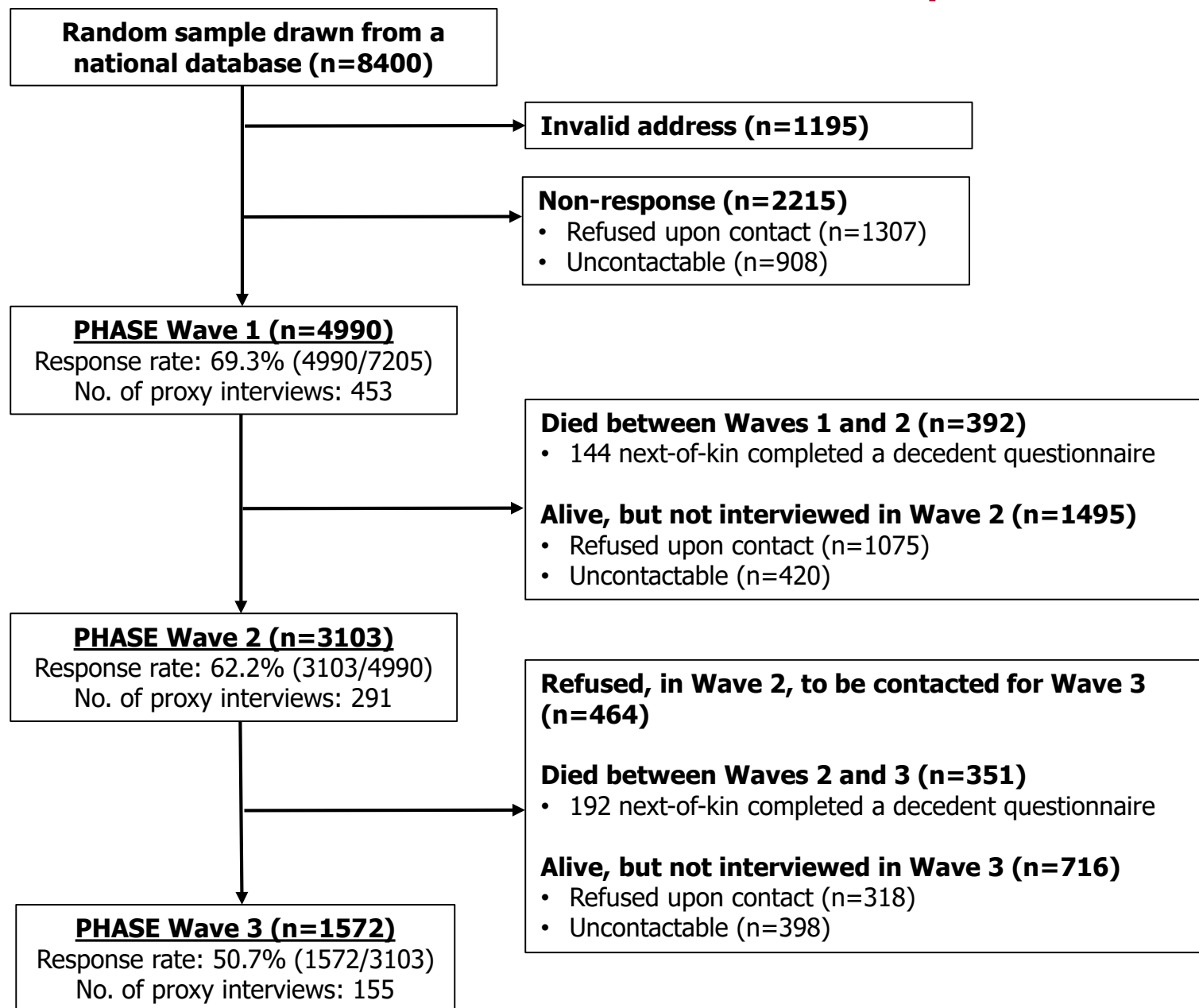
## **Nationally representative longitudinal surveys**

- PHASE: 3 waves – 2009; 2011-12; 2015
- THE SIGNS Study – 2016-17; 2019 (ongoing)

## **Why?**

- Relative **lack of comprehensive data** on the physical, mental and social (and financial) health of older Singaporeans: Strong Policy, Practice and Academic interest
- Age >60 years represents a life period with (rapid) changes in health ~ **Health transitions**
- **Comparison of two cohorts of older Singaporeans**, where the birth year of the youngest cohort members is 7 years apart
  - PHASE represents Singaporeans born between 1908 and 1949 (median birth year: 1937)
  - THE SIGNS Study represents those born between 1910 and 1956 (median birth year: 1946)
  - Singapore's rapid socio-economic development, especially post-independence in 1965, the **life-course** of these two cohorts, in terms of the extent and duration of exposure to education, economic hardships, health risk factors, and health and social care is likely to be **different**

# Flowchart of PHASE – Waves 1, 2 and 3



## ➤ Random sample of 8400

- Stratified by gender, ethnicity, and age (5-year age bands, till 80-84, then 85+)
- Age  $\geq 75$  as well as Malays and Indians were oversampled by a factor of 2.

## ➤ Matching with the Singapore Registry of Births and Deaths for information on mortality (date of death)

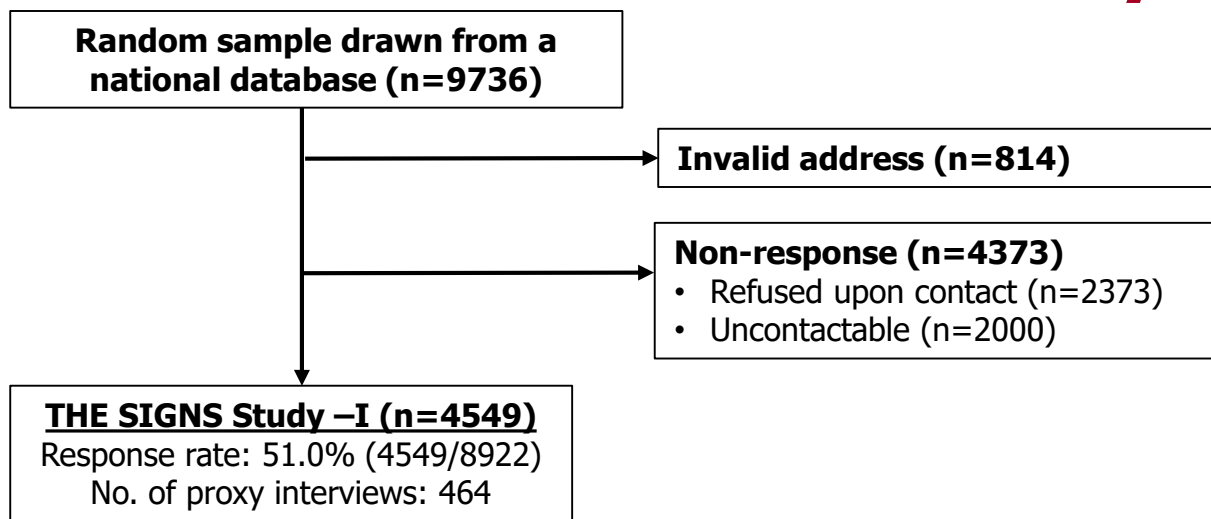
## ➤ Matching with the OMNIBUS dataset at the Ministry of Health, Singapore for information on health and long term care use

## ➤ Each wave has a focal area of policy and practice interest

- Wave 1: Social Isolation
- Wave 2: Dementia
- Wave 3: Frailty



# Flowchart of THE SIGNS Study – Waves 1 and 2 (ongoing)



## ➤ Random sample of 9736

- Stratified by gender, ethnicity, and age (5-year age bands, till 80-84, then 85+)
- Age  $\geq 75$  as well as Malays and Indians were oversampled by a factor of 2.

## ➤ Matching with the Singapore Registry of Births and Deaths for information on mortality (date of death)

## ➤ Matching with the OMNIBUS dataset at the Ministry of Health, Singapore for information on health and long term care use

## ➤ Funded by the Ministry of Health, Singapore

Centre for Ageing Research  
and Education: Special Issue 1



# Health status over time: PHASE-I and THE SIGNS Study-I

## CHANGES IN THE PROFILE OF OLDER SINGAPOREANS: SNAPSHOTS FROM 2009 AND 2016 - 2017

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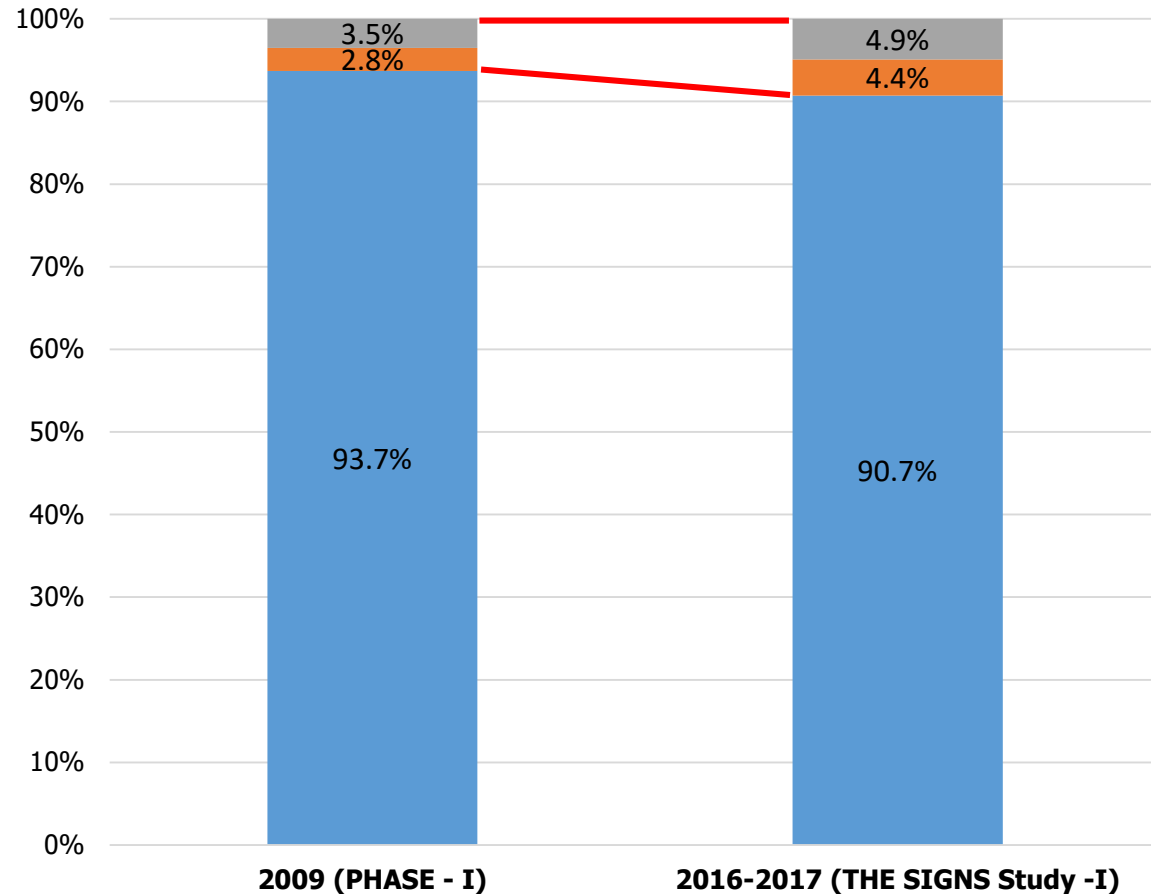
# Basic Demographics: 2009 and 2016-17

## Background Characteristics of Older Singaporeans, weighted %

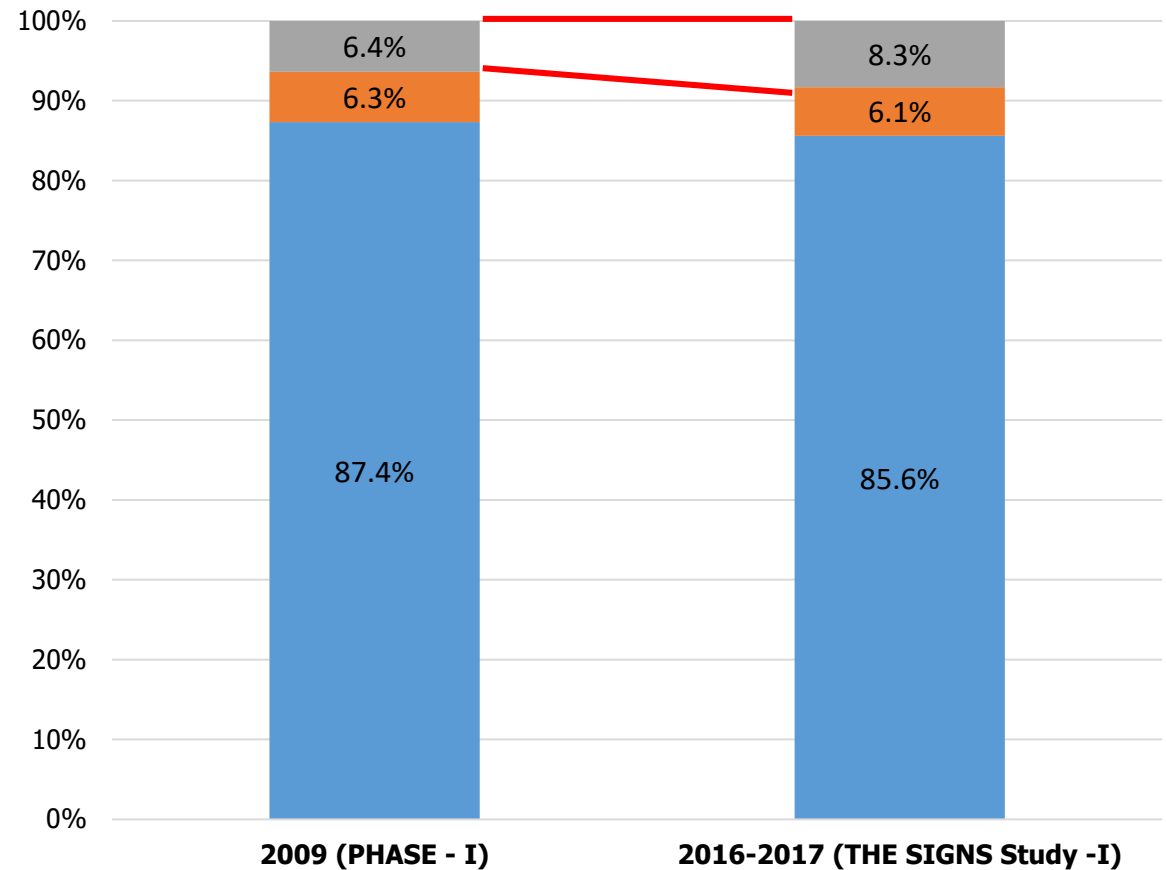
	2009 (PHASE-I)	2016-2017 (THE SIGNS Study-I)
N	4990	4549
<b>Age, in years</b>		
Mean	69.9	71.0
<b>Age group</b>		
60-69 years	57.3	53.0
70-79 years	29.9	30.7
80 years and older	12.8	16.4
<b>Gender</b>		
Male	45.8	46.7
Female	54.2	53.3
<b>Ethnicity</b>		
Chinese	83.0	82.9
Malay	9.5	9.5
Indian	6.2	6.1
Other	1.4	1.4
<b>Highest Educational Attainment</b>		
No formal education	30.8	27.5
Primary	36.4	30.6
Secondary/Vocational/ITE	23.6	29.2
JC / Poly	5.5	7.7
University and above	3.4	4.9

# Prevalence of Functional Limitations: 2009 and 2016-17

(Activities of Daily Living [ADLs] and Instrumental Activities of Daily Living [IADLs])



■ No Limitation  
■ Limitation in 1 or 2 activities  
■ Limitation in 3 or more activities



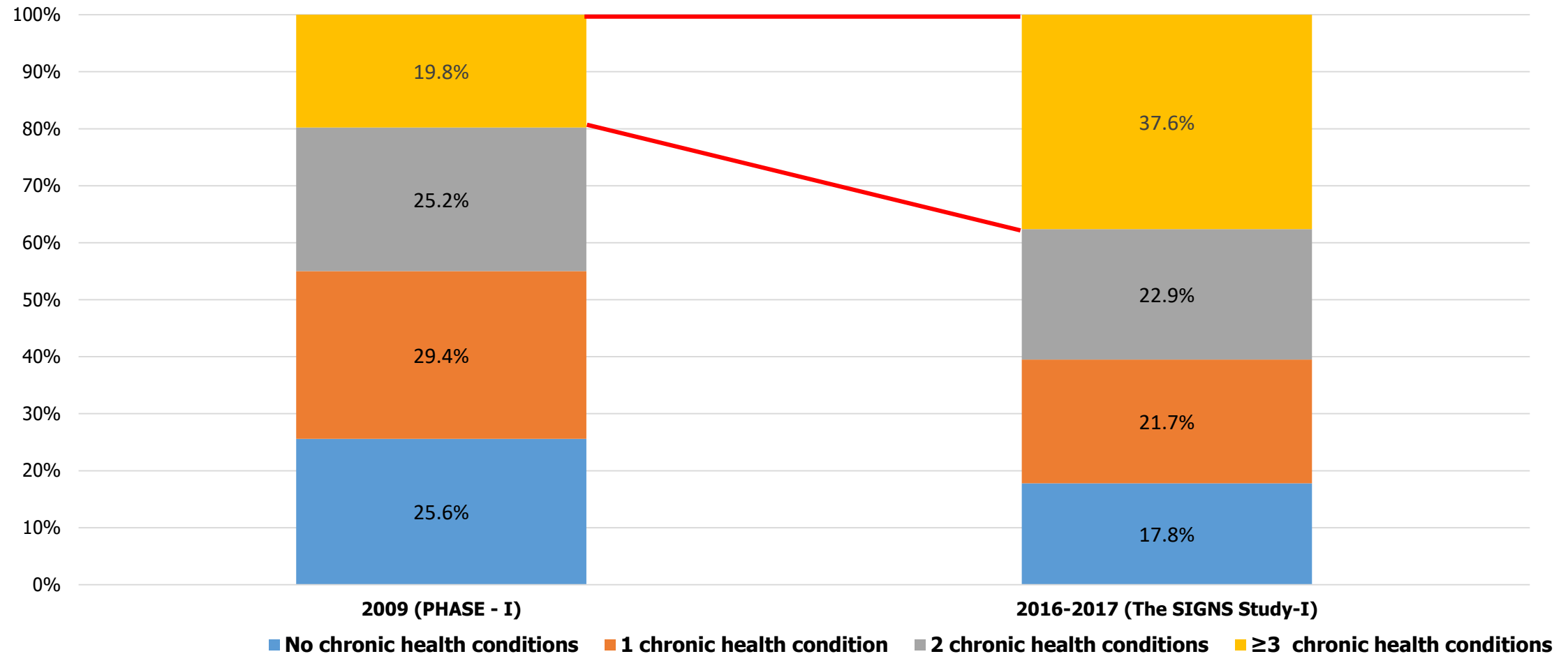
■ No Limitation  
■ Limitation in 1 or 2 activities  
■ Limitation in 3 or more activities

**INCREASE in the proportion of older Singaporeans with limitations in 1-2 or 3 or more ADLs**

**INCREASE in the proportion of older Singaporeans with limitations in 3 or more IADLs**

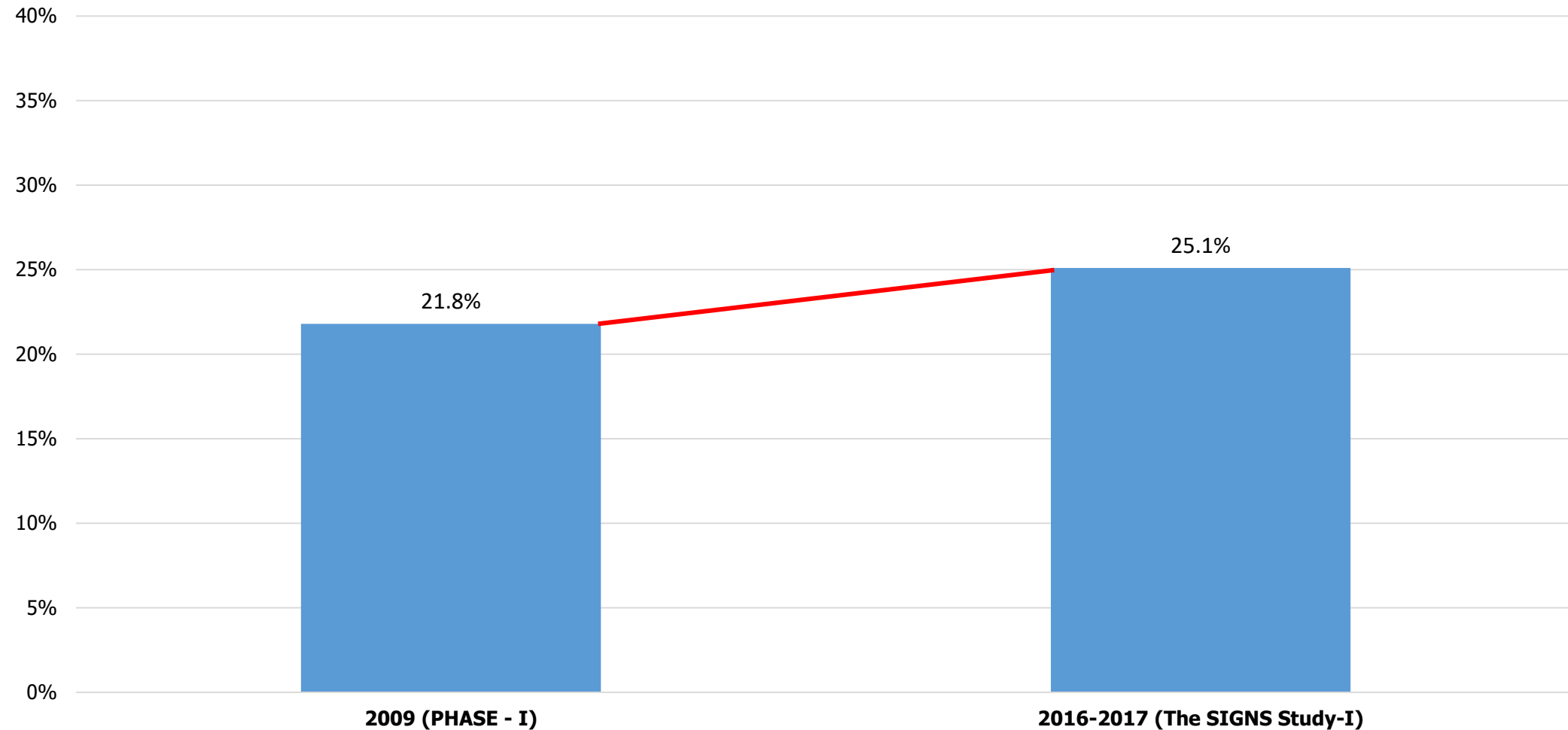


# Prevalence of Chronic Health Conditions : 2009 and 2016-17



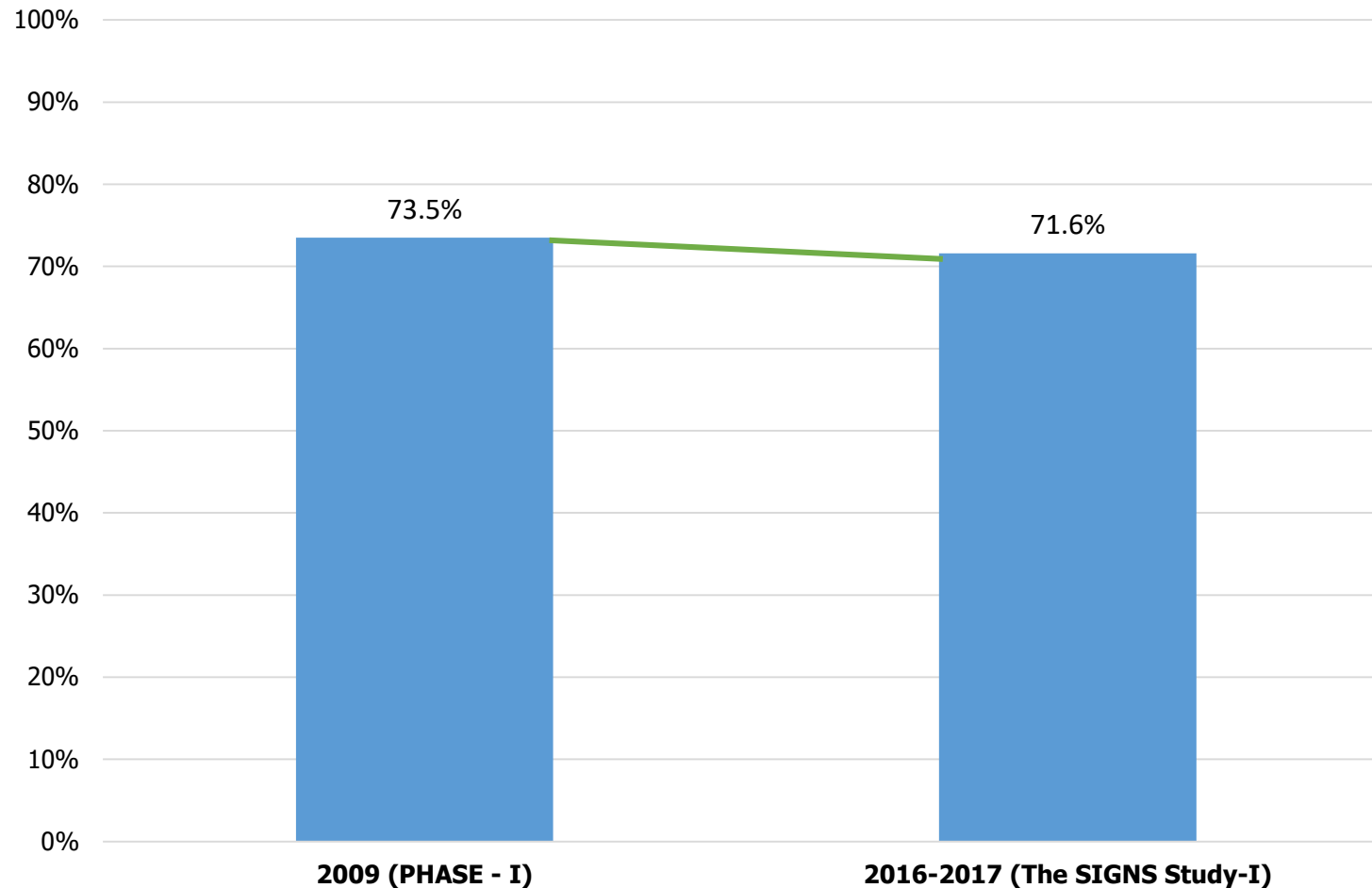
**INCREASE in the proportion of older Singaporeans reporting 3 or more chronic health conditions**

# Prevalence of Diabetes (Self-reported): 2009 and 2016-17



**INCREASE** in the proportion of older Singaporeans reporting Diabetes

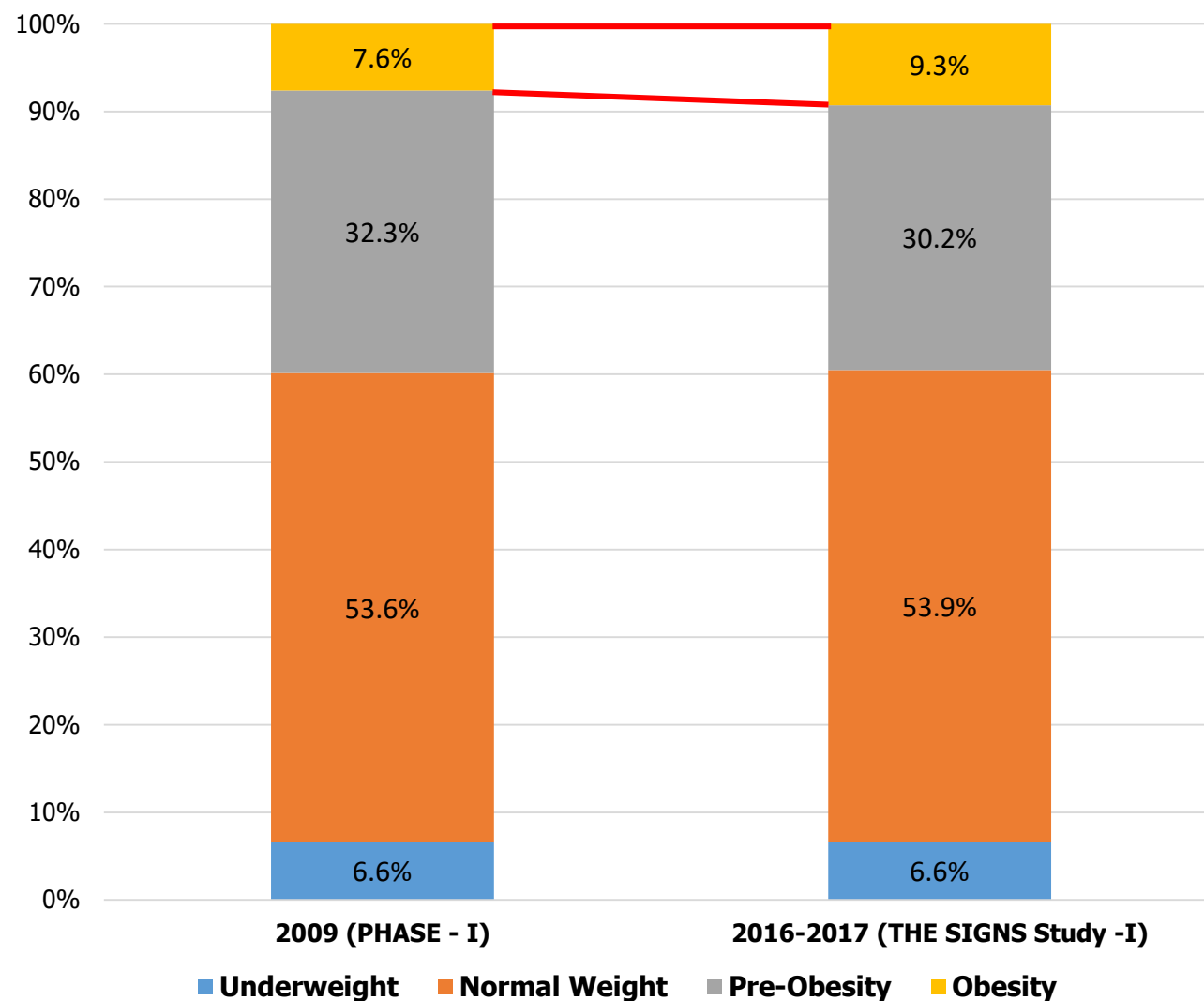
# Prevalence of Hypertension (measured) : 2009 and 2016-17



**DECREASE in the proportion of older  
Singaporeans who have Hypertension\***

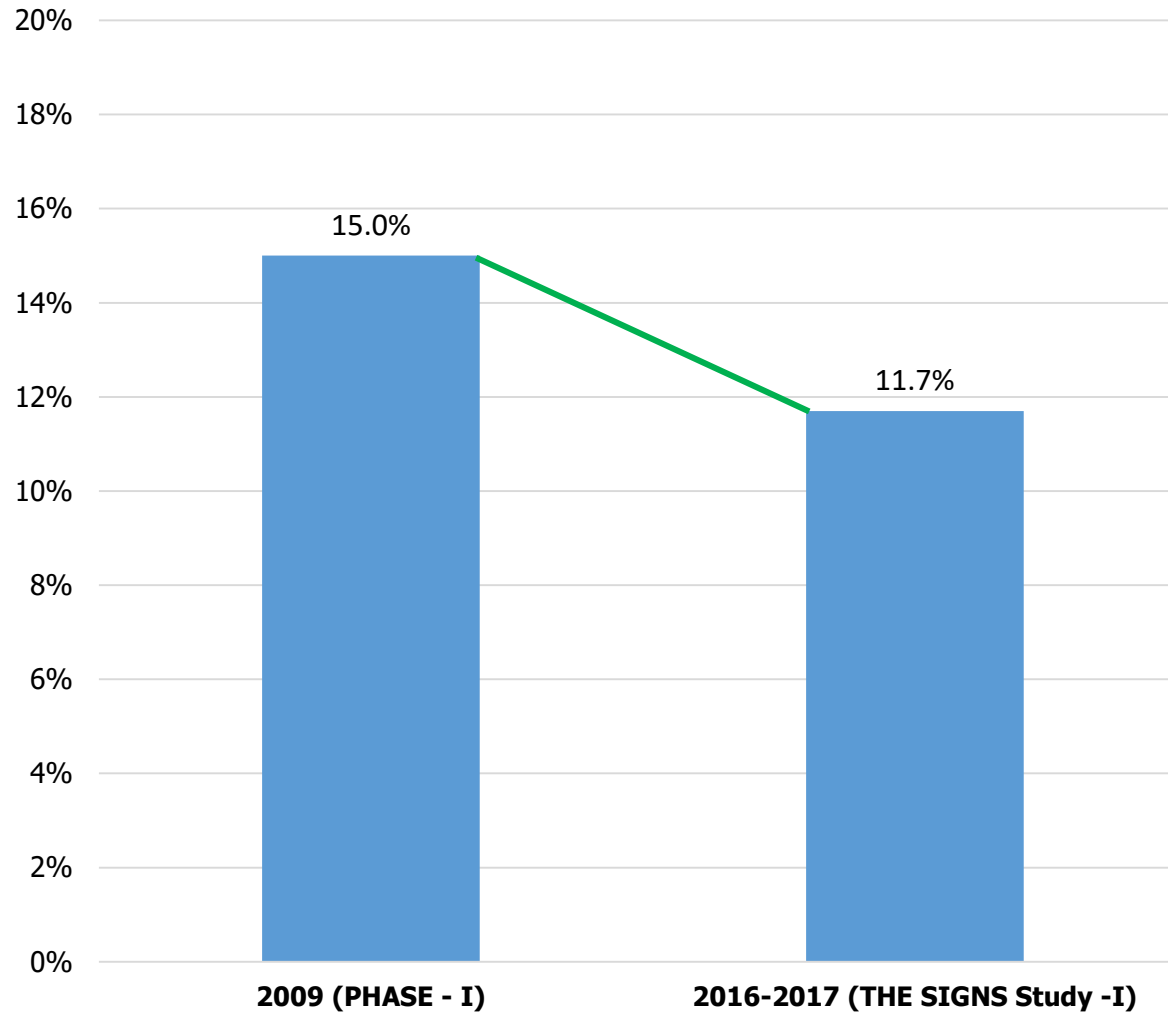
\*Systolic blood pressure greater than 140 mm Hg *or* Diastolic blood pressure readings greater than 90 mm Hg *or* currently on antihypertension medication

# Prevalence of Body Mass Index Categories: 2009 and 2016-17



**INCREASE in the proportion of older  
Singaporeans who have Obesity**

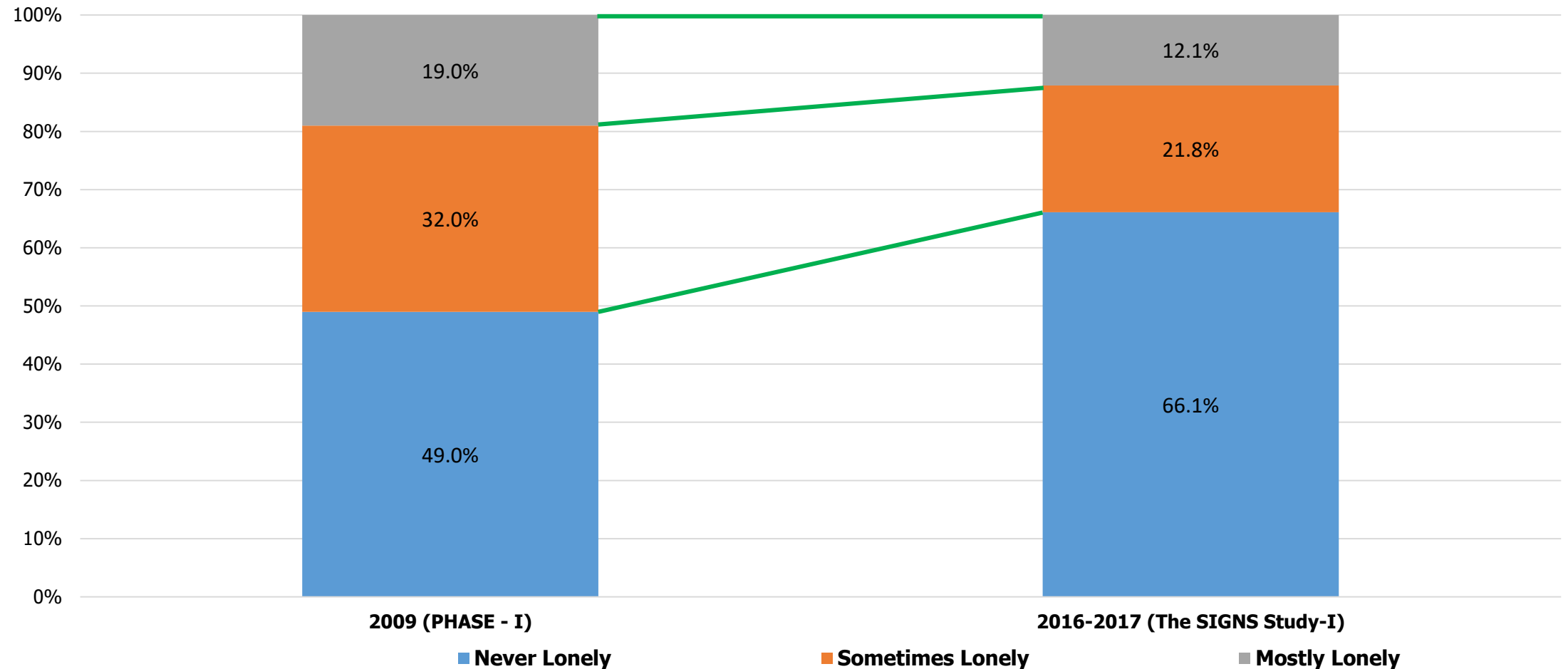
# Prevalence of Clinically Relevant Depressive Symptoms: 2009 and 2016-17



**DECREASE in the proportion of older  
Singaporeans who have Clinically Relevant  
Depressive Symptoms**



# Prevalence of Loneliness: 2009 and 2016-17



**DECREASE** in the proportion of older Singaporeans who feel Sometimes Lonely or Mostly Lonely

# Health status of older Singaporeans over time

- Physical Health: Worsened
  - Caveat: Self-report of chronic health conditions
- Psychological Health: Improved
- Loneliness: Improved
- Strongly highlights the need for continued collection of data on health of older Singaporeans at regular intervals

# Academic and Policy achievements of PHASE

- More than **30 publications** in peer-reviewed scientific journals
- More than **50 presentations** at local and international academic forums/ meetings / conferences
- **Frailty Assessment Measure** (FAM)
- **Health expectancy** estimates for older Singaporeans
- Utility of **bilingual** prescription medication labels for older Singaporeans
- **Projections** of functional limitations, persons with dementia, cost of hospitalization
- **Simulation models** for testing **health and social care policies**
- Base for cohort study of older person-family caregiver dyads (TRACE)

# PHASE



*International Journal of Epidemiology*, 2019, 1–8

doi: 10.1093/ije/dyz172

Cohort Profile

Cohort Profile

## Cohort profile: Panel on Health and Ageing of Singaporean Elderly (PHASE)

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Rahul Malhotra <sup>1,2\*</sup>

<https://academic.oup.com/ije/advance-article-abstract/doi/10.1093/ije/dyz172/5543461?redirectedFrom=fulltext>

# THE SIGNS Study (Wave 1)



Centre for  
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Research &  
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<https://www.duke-nus.edu.sg/docs/librariesprovider3/research-policy-brief-docs/the-signs-study---i-report.pdf>



# Funding

**Waves 1, 2 and 3 of the Panel on Health and Ageing of Singaporean Elderly (PHASE) have been funded or supported by the following sources:** Ministry of Social and Family Development, Singapore; Singapore Ministry of Health's National Medical Research Council under its Singapore Translational Research Investigator Award 'Establishing a Practical and Theoretical Foundation for Comprehensive and Integrated Community, Policy and Academic Efforts to Improve Dementia Care in Singapore' (NMRC-STAR-0005–2009), and its Clinician Scientist – Individual Research Grant - New Investigator Grant 'Singapore Assessment for Frailty in Elderly-Building upon the Panel on Health and Aging of Singaporean Elderly' (NMRC-CNIG-1124–2014); and Duke-NUS Geriatric Research Fund. Funding for dynamometers and electronic blood pressure monitors was through a grant obtained by the Nihon University Population Research Institute from the 'Academic Frontier' Project for Private Universities: matching fund subsidy from MEXT (Ministry of Education, Culture, Sports, Science and Technology), 2006–2010.

**Transitions in Health, Employment, Social Engagement and Inter-generational Transfers in Singapore Study (THE SIGNS Study) Study** is funded by Singapore's Ministry of Health (MOH) under agreement number MOH-NUS RL2015-053. We also acknowledge funding for dynamometers and electronic blood pressure monitors used in THE SIGNS Study through a grant obtained by the Nihon University Population Research Institute from the "Academic Frontier" Project for Private Universities: matching fund subsidy from Japan's Ministry of Education, Culture, Sports, Science and Technology (MEXT), 2006-2010.



# THANK YOU

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