



Chronic Disease Burden in Ireland

Report

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Evidence for Policies to Prevent Chronic
Conditions (EPICC)

SCHOOL OF PUBLIC HEALTH, UNIVERSITY COLLEGE CORK

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Chronic diseases like heart disease and diabetes are the most common causes of death throughout Europe, including Ireland. The rise in chronic disease is increasing demand on health systems worldwide and is extremely costly for governments. In addition to this increasing demand, there is a widening gap between available resources and healthcare costs. The costs will continue to increase unless governments can find a better way to prevent and treat these diseases.

To help to inform policies, the Evidence for Policies to Prevent Chronic Conditions (EPICC) study has been conducted with the support of the Health Research Board. The following report is an example of such evidence and presents the summary of evidence on prevalence estimates for the selected chronic conditions in Ireland (Asthma, Chronic Obstructive Pulmonary Disease, Coronary Heart Disease, Hypertension, Stroke, Diabetes) and multimorbidity. These estimates have been conducted in 2021 and are based on the most reliable, nationally representative, and up to date data (Healthy Ireland – HI survey and The Irish Longitudinal Study on Ageing - TILDA).

One of the EPICC objectives was to provide valid and reliable estimates of the prevalence of individual risk factors, chronic diseases and multimorbidity by age and gender, and to inform the policy about the specified eight chronic conditions. The policy brief and report are the effect of an ongoing cooperation, knowledge translation and integration of the policy requests (The Integrated Care Programme for the Prevention and Management of Chronic Disease and the Chair of The National Clinical Advisor & Group Lead for Chronic Disease), and the responses and analyses provided by the research team based in the School of Public Health, University College Cork, led by Professor Patricia Kearney.

The following document presents estimates for the abovementioned chronic conditions stratified by age group and General Medical Services status (Medical Card or GP Cardholders vs. not under any scheme). The Central Statistics Office (CSO) data from 2016 Census were used to estimate the number of people in the Irish population with the eight conditions and multimorbidity. The initial estimates were based on the TILDA data and the 1st and the 2nd waves of the Healthy Ireland survey. The difference between the estimates provided by TILDA and HI from different datasets is explained, highlighting the importance of a good understanding of the context of nationally available data. Current estimates used the 5th wave of Healthy Ireland data and are stratified by gender, age groups and the level of deprivation.

We would like to thank our Health Service Executive (HSE) partners (Dr Orlaith O'Reilly and Dr Sarah M. O'Brien), the data controllers of TILDA and HI datasets, the EPICC Key Stakeholders (Co-Applicants and knowledge users), and the Health Research Board.

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I. Prevalence estimates of the eight chronic conditions and multimorbidity in the 5th wave of Healthy Ireland dataset

1) Table 1. Prevalence stratified by age groups (95% Confidence Intervals)

Condition	All adults over 18	18-44 years old	45-64 years old	65-69 years old	70-74 years old	75+ years old
Asthma	6.9 (6.1, 7.8)	7.9 (6.5, 9.3)	6.0 (4.7, 7.2)	6.4 (4.0, 8.9)	5.6 (3.1, 8.1)	6.3 (4.2, 8.4)
COPD*	1.8 (1.4, 2.2)	0.3 (0.04, 0.5)	2.4 (1.5, 3.4)	5.6 (2.8, 8.4)	3.0 (1.3, 4.8)	4.6 (3.0, 6.1)
CHD**	3.7 (3.2, 4.2)	0.7 (0.4, 1.0)	4.2 (3.0, 5.4)	5.7 (3.6, 7.8)	8.9 (6.2, 11.6)	14.5 (11.9, 17.2)
Stroke	0.6 (0.4, 0.8)	0.2 (0.01, 0.4)	0.7 (0.3, 1.0)	1.2 (0.1, 2.2)	1.0 (0.2, 1.8)	2.2 (1.2, 3.2)
Diabetes	4.6 (4.1, 5.2)	0.4 (0.2, 0.7)	6.4 (5.0, 7.7)	11.4 (8.4, 14.4)	13.2 (9.9, 16.6)	12.7 (10.3, 15.2)
Heart failure	0.4 (0.2, 0.5)	0.04 (0.01, 0.09)	0.2 (0.04, 0.5)	1.1 (0.2, 2.0)	0.4 (0.01, 1.2)	2.1 (0.9, 3.3)
TIA***	0.8 (0.5, 1.0)	0.02 (0.01, 0.05)	0.7 (0.2, 1.2)	1.7 (0.7, 2.8)	2.2 (0.9, 3.5)	3.7 (2.3, 5.1)
Atrial Fibrillation	1.8 (1.4, 2.2)	0.5 (0.2, 0.8)	1.7 (0.9, 2.5)	3.1 (1.4, 4.8)	5.0 (2.7, 7.4)	7.4 (5.1, 9.8)
Multi-morbidity						
At least 1 condition	13.9 (12.9, 14.9)	9.2 (7.8, 10.6)	14.4 (12.5, 16.2)	23.0 (18.8, 27.2)	22.7 (18.4, 26.9)	28.7 (25.0, 32.4)
At least 2 conditions	2.1 (1.7, 2.5)	0.3 (0.06, 0.6)	2.6 (1.6, 3.7)	4.9 (3, 6.8)	5.1 (3.2, 7)	6.6 (4.9, 8.3)
At least 3 conditions	0.7 (0.5, 0.9)	0.03 (0.01, 0.08)	0.8 (0.2, 1.3)	1.1 (0.01, 2.1)	2.0 (0.5, 3.6)	3.4 (2.1, 4.7)

*COPD = chronic obstructive pulmonary disease

**CHD = coronary heart disease (heart attack or chronic consequences of heart attack or other heart trouble)

***TIA = transient ischemic attack

2) Table 2. Prevalence stratified by gender (95% Confidence Intervals)

Condition	Female	Male
Asthma	7.9 (6.7, 9)	6.0 (4.8, 7.1)
COPD*	1.5 (1.0, 2.1)	2.0 (1.4, 2.6)
CHD**	2.4 (1.9, 2.9)	5.0 (4.1, 5.8)
Stroke	0.6 (0.4, 0.9)	0.6 (0.3, 0.9)
Diabetes	3.4 (2.8, 4.1)	5.9 (4.9, 6.8)
Heart failure	0.3 (0.2, 0.5)	0.4 (0.2, 0.6)
TIA***	0.5 (0.3, 0.8)	1.0 (0.6, 1.3)
Atrial Fibrillation	1.5 (1.0, 2.0)	2.1 (1.5, 2.8)
Multimorbidity		
At least 1 condition	13.2 (11.8, 14.6)	14.7 (13.1, 16.2)
At least 2 conditions	1.7 (1.2, 2.2)	2.5 (1.8, 3.1)
At least 3 conditions	0.4 (0.2, 0.6)	1.0 (0.6, 1.4)

*COPD = chronic obstructive pulmonary disease

**CHD = coronary heart disease (heart attack or chronic consequences of heart attack or other heart trouble)

***TIA = transient ischemic attack

3) Table 3. Prevalence stratified by deprivation status (95% CI)

Chronic Condition	Extremely affluent^a	Very affluent^b	Affluent^c	Marginally above average^d	Marginally below average^e	Disadvantaged^f	Very disadvantaged^g	Extremely disadvantaged^h
Asthma	8.3 (4.2, 12.4)	7.0 (4.4, 9.6)	4.5 (2.6, 6.3)	6.9 (5.2, 8.6)	6.0 (4.5, 7.5)	6.3 (4.1, 8.4)	7.3 (4.9, 9.8)	11.0 (7.2, 14.8)
COPD	1.0 (0.01, 2.4)	0.01 (0.04, 2.4)	1.0 (0.3, 1.7)	1.6 (0.7, 2.5)	1.7 (0.8, 2.6)	1.1 (0.5, 1.7)	2.4 (1.1, 3.7)	3.9 (2.1, 5.7)
CHD	2.1 (0.9, 3.4)	2.7 (1.3, 4.2)	2.3 (1.2, 3.3)	3.1 (2.3, 3.9)	3.9 (2.7, 5.0)	4.4 (3.0, 5.9)	5.2 (3.2, 7.3)	5.1 (2.8, 7.4)
Stroke	0 (0, 0)	0.01 (0.2, 1.0)	0.6 (0.01, 1.2)	0.5 (0.2, 0.9)	0.8 (0.4, 1.2)	0.6 (0.04, 1.1)	1.0 (0.3, 1.7)	0.8 (0.01, 1.6)
Diabetes	2.0 (0.8, 3.1)	4.0 (1.9, 6.1)	4.4 (2.7, 6.2)	4.5 (3.2, 5.7)	4.9 (3.7, 6.2)	4.1 (2.8, 5.5)	5.8 (4.1, 7.5)	6.0 (3.7, 8.4)
Heart failure	0.1 (0.01, 0.4)	0.01 (0.2, 1.0)	0.4 (0.01, 0.9)	0.2 (0.03, 0.4)	0.3 (0.01, 0.6)	0.2 (0.01, 0.4)	0.7 (0.1, 1.3)	0.7 (0.05, 1.3)
TIA	0.1 (0.01, 0.3)	0.01 (0.3, 2.2)	0.8 (0.02, 1.5)	0.4 (0.2, 0.7)	0.9 (0.5, 1.2)	0.5 (0.07, 1.0)	0.8 (0.3, 1.4)	1.6 (0.3, 2.9)
Atrial Fibrillation	1.6 (0.2, 2.9)	2.5 (0.8, 4.2)	1.1 (0.4, 1.7)	1.9 (1.1, 2.6)	2.5 (1.3, 3.7)	2.0 (0.9, 3.0)	1.0 (0.2, 1.7)	1.2 (0.3, 2.1)
Multimorbidity								
At least 1 condition	12.1 (7.6, 16.5)	4.4 (0.7, 18.2)	11.2 (8.5, 13.8)	3.8 (1.7, 15.9)	1.8 (9.9, 3.7)	13.6 (10.9, 16.3)	16.8 (3.4, 20.3)	19.6 (15.2, 24.1)
At least 2 conditions	0.8 (0.01, 1.8)	1.8 (0.4, 3.1)	1.2 (0.5, 1.8)	1.8 (0.9, 2.7)	3.2 (2.1, 4.3)	1.6 (0.8, 2.4)	2.0 (1.0, 2.9)	3.2 (1.4, 5.0)
At least 3 conditions	0.5 (0.01, 1.2)	0.01 (0.2, 1.0)	0.5 (0.01, 1.2)	0.6 (0.2, 0.9)	0.9 (0.3, 1.5)	0.8 (0.2, 1.5)	0.6 (0.09, 1.0)	1.1 (0.2, 2.1)

a) 9th and 10th deciles of HP Probal Index of Deprivation

b) 8th decile of HP Probal Index of Deprivation

c) 7th decile of HP Probal Index of Deprivation

d) 6th decile of HP Probal Index of Deprivation

e) 5th decile of HP Probal Index of Deprivation

f) 4th decile of HP Probal Index of Deprivation

g) 3rd decile of HP Probal Index of Deprivation

h) 1st and 2nd deciles of HP Probal Index of Deprivation

II. Detailed prevalence estimates of the eight chronic conditions and multimorbidity in the 5th wave of Healthy Ireland dataset stratified by the type of reimbursement scheme: eligibility and non-eligibility for General Medical Card/GP card in different age groups.

4) Table 4. Prevalence estimates of the eight chronic conditions and multimorbidity by GMS scheme for population aged 18-44

Aged 18-44	Overall population		GMS†		Non-GMS	
	Proportion % (95% CI)	Population†† n=1,798,793	Proportion % (95% CI)	Population n=480,670	Proportion % (95% CI)	Population n=1,318,123
<i>Any of the 8 conditions or their combination</i>	9.6 (8.1, 11.0)	172,375	11.6 (8.9, 14.4)	55,980	8.8 (7.1, 10.5)	116,395
Asthma	7.9 (6.5, 9.3)	142,015	8.5 (6.0, 10.9)	40,797	7.7 (6.1, 9.3)	101,218
COPD*	0.3 (0.04, 0.5)	4,805	0.3 (0.01, 0.7)	1,305	0.3 (0.01, 0.5)	3,499
CHD**	0.7 (0.4, 1.0)	12,321	1.0 (0.2, 1.8)	4,815	0.6 (0.2, 0.9)	7,505
Stroke	0.2 (0.01, 0.4)	3,665	0.6 (0.01, 1.4)	2,938	0.06 (0.01, 0.1)	727
Diabetes	0.4 (0.2, 0.7)	7,546	1.0 (0.3, 1.7)	4,821	0.2 (0.03, 0.4)	2,725
Heart failure	0.04 (0.01, 0.09)	642	0.1 (0.01, 0.3)	642	0	0
TIA***	0.02 (0.01, 0.05)	295	0	0	0.02 (0.01, 0.07)	295
Atrial Fibrillation	0.5 (0.2, 0.8)	8,213	0.8 (0.02, 1.5)	3,743	0.3 (0.03, 0.6)	4,470
<i>Any unique condition</i>	9.2 (7.8, 10.6)	165,849	11.1 (8.4, 13.8)	53,203	8.5 (6.9, 10.2)	112,646
Asthma only	7.6 (6.3, 9.0)	137,294	8.1 (5.7, 10.5)	39,035	7.5 (5.8, 9.1)	98,259
COPD only	0.3 (0.04, 0.5)	4,805	0.3 (0.01, 0.7)	1,305	0.3 (0.01, 0.5)	3,499
CHD only	0.6 (0.3, 0.9)	10,811	0.8 (0.06, 1.5)	3,801	0.5 (0.2, 0.9)	7,010
Stroke only	0.1 (0.01, 0.2)	1,875	0.3 (0.01, 0.7)	1,443	0.03 (0.01, 0.1)	432
Diabetes only	0.3 (0.1, 0.5)	5,483	0.8 (0.1, 1.5)	3,845	0.1 (0.01, 0.3)	1,638
Heart failure only	0.02 (0.01, 0.06)	336	0.07 (0.01, 0.2)	336	0	0
TIA only	0	0	0	0	0	0
Atrial Fibrillation only	0.3 (0.05, 0.5)	5,245	0.7 (0.01, 1.5)	3,438	0.1 (0.01, 0.3)	1,807
<i>Multi-morbidity</i>						
Two or more of the 8 conditions	0.4 (0.09, 0.6)	6,526	0.6 (0.01, 1.3)	2,777	0.3 (0.01, 0.6)	3,749
Three or more of the 8 conditions	0.03 (0.01, 0.08)	601	0.06 (0.01, 0.2)	306	0.02 (0.01, 0.07)	295
Four or more of the 8 conditions	0	0	0	0	0 (0, 0)	0

*COPD = chronic obstructive pulmonary disease

**CHD = coronary heart disease (heart attack or chronic consequences of heart attack or other heart trouble)

***TIA = transient ischemic attack

†GMS = having a medical card or a GP-visit card

†† Data from Census 2016, CSO

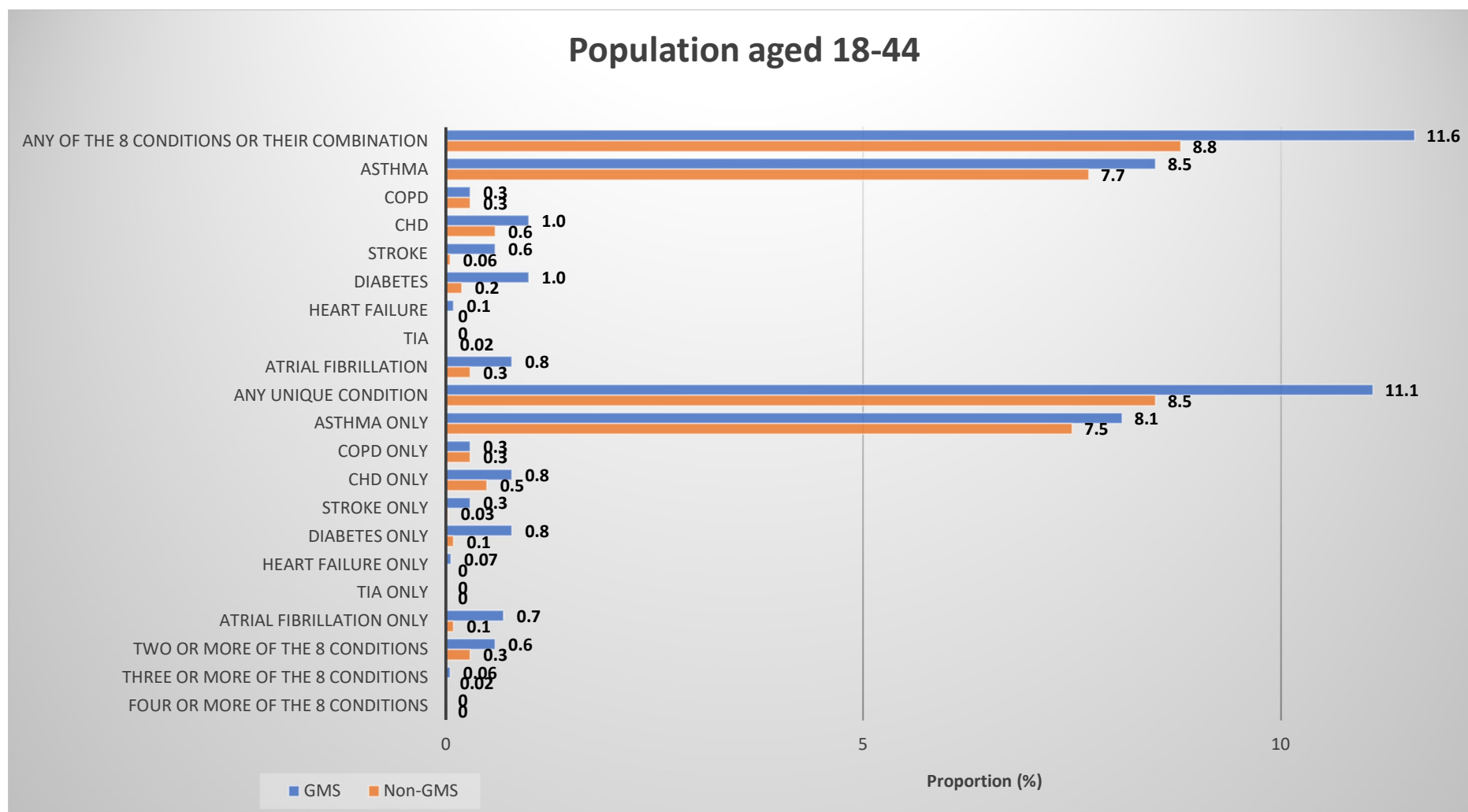


Figure 1: Prevalence of the eight chronic conditions and multimorbidity in the 5th wave of HI dataset – population aged 18-44

5) Table 5. Prevalence estimates of the eight chronic conditions and multimorbidity by GMS scheme for population aged 45-64

Aged 45-64	Overall population		GMS†		Non-GMS	
	Proportion % (95% CI)	Population†† n=1,135,003	Proportion % (95% CI)	Population n=358,839	Proportion % (95% CI)	Population n=776,164
<i>Any of the 8 conditions or their combination</i>	17.8 (15.8, 19.9)	202,303	30.0 (25.6, 34.5)	107,828	12.2 (10.1, 14.3)	94,475
Asthma	6.0 (4.7, 7.2)	67,651	9.6 (6.7, 12.5)	34,406	4.3 (3.0, 5.5)	33,246
COPD*	2.4 (1.5, 3.4)	27,661	5.6 (3.0, 8.1)	19,916	1.0 (0.3, 1.7)	7,745
CHD**	4.2 (3.0, 5.4)	47,846	9.0 (5.9, 12.1)	32,196	2.0 (1.1, 2.9)	15,651
Stroke	0.7 (0.3, 1.0)	7,734	1.6 (0.6, 2.5)	5,592	0.3 (0.02, 0.5)	2,142
Diabetes	6.4 (5.0, 7.7)	72,189	11.3 (8.2, 14.3)	40,450	4.1 (2.7, 5.4)	31,739
Heart failure	0.2 (0.04, 0.5)	2,829	0.3 (0.01, 0.7)	1,228	0.2 (0.01, 0.5)	1,601
TIA***	0.7 (0.2, 1.2)	8,220	1.2 (0.4, 2.1)	4,458	0.5 (0.01, 1.1)	3,762
Atrial Fibrillation	1.7 (0.9, 2.5)	19,013	2.5 (0.7, 4.4)	9,145	1.3 (0.5, 2.1)	9,868
<i>Any unique condition</i>	14.4 (12.5, 16.2)	162,883	21.7 (17.8, 25.5)	77,736	11.0 (9.0, 12.9)	85,148
Asthma only	4.5 (3.5, 5.5)	51,222	5.9 (3.8, 8.0)	21,160	3.9 (2.7, 5.0)	30,062
COPD only	1.2 (0.6, 1.8)	13,110	2.0 (0.7, 3.4)	7,327	0.7 (0.1, 1.4)	5,783
CHD only	2.6 (1.7, 3.5)	29,735	5.3 (2.9, 7.7)	19,038	1.4 (0.7, 2.0)	10,697
Stroke only	0.2 (0.05, 0.4)	2,628	0.3 (0.01, 0.6)	920	0.2 (0.01, 0.4)	1,709
Diabetes only	4.8 (3.7, 6.0)	54,810	7.2 (4.7, 9.7)	25,950	3.7 (2.5, 5.0)	28,860
Heart failure only	0.2 (0.01, 0.4)	2,036	0.1 (0.01, 0.4)	434	0.2 (0.01, 0.5)	1,601
TIA only	0.3 (0.01, 0.6)	3,135	0.4 (0.01, 0.8)	1,315	0.2 (0.01, 0.7)	1,821
Atrial Fibrillation only	0.5 (0.2, 0.9)	6,207	0.4 (0.01, 0.9)	1,592	0.6 (0.2, 1.0)	4,615
<i>Multi-morbidity</i>						
Two or more of the 8 conditions	3.5 (2.3, 4.6)	39,419	8.4 (5.3, 11.5)	30,092	1.2 (0.4, 2.0)	9,327
Three or more of the 8 conditions	0.8 (0.3, 1.4)	9,461	2.1 (0.7, 3.4)	7,510	0.3 (0.01, 0.7)	1,952
Four or more of the 8 conditions	0.07 (0.01, 0.2)	793	0.2 (0.01, 0.5)	793	0	0
*COPD = chronic obstructive pulmonary disease **CHD = coronary heart disease (heart attack or chronic consequences of heart attack or other heart trouble) ***TIA = transient ischemic attack †GMS = having a medical card or a GP-visit card †† Data from Census 2016, CSO						

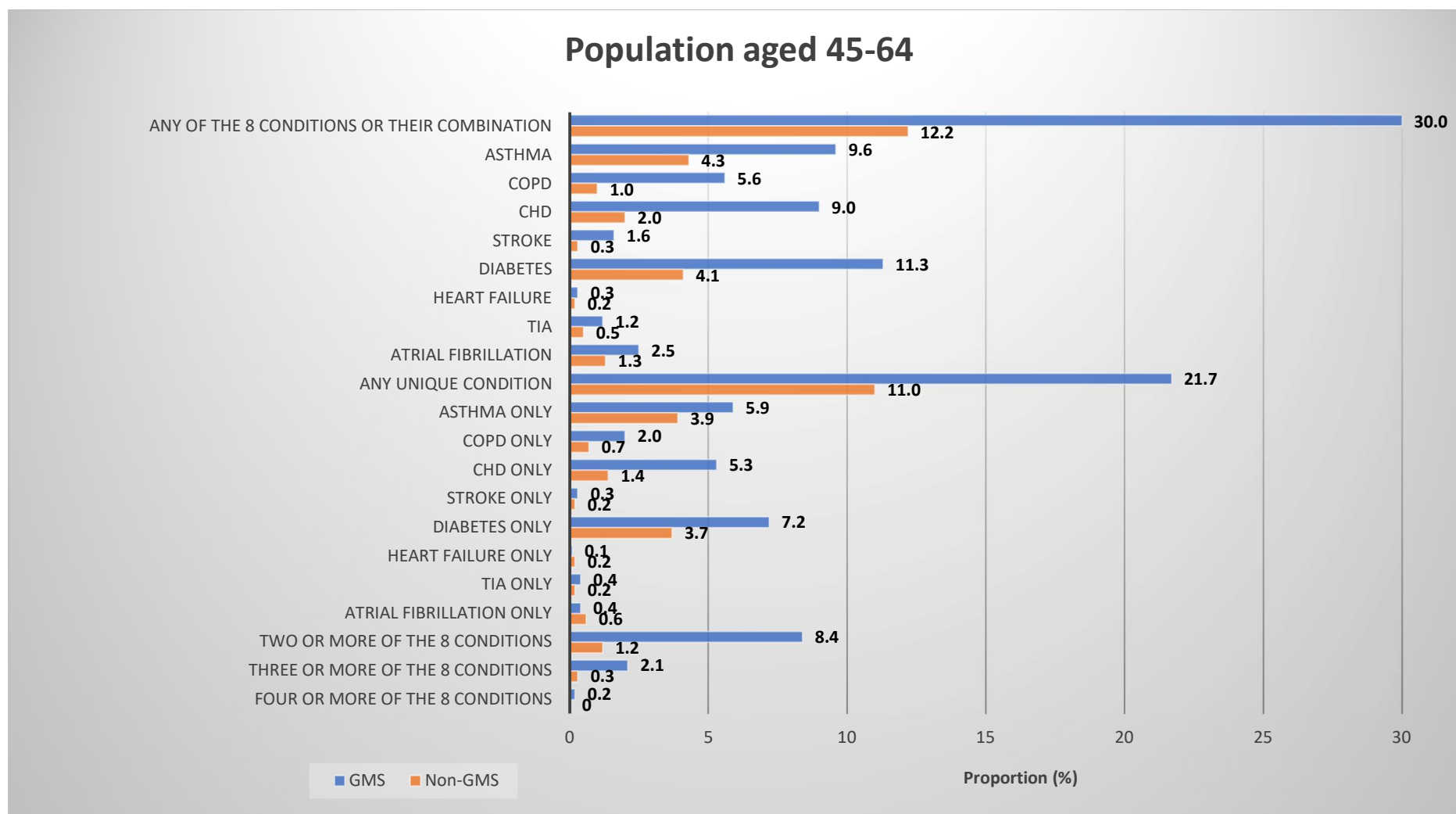


Figure 2: Prevalence of the eight chronic conditions and multimorbidity by GMS status in the 5th wave of HI dataset – population aged 45-64

6) Table 6. Prevalence estimates of the eight chronic conditions and multimorbidity by GMS scheme for population aged 65-74

Aged 65-74	Overall population		GMS†		Non-GMS	
	Proportion % (95% CI)	Population†† n=373,508	Proportion % (95% CI)	Population n=265,296	Proportion % (95% CI)	Population n=108,212
<i>Any of the 8 conditions or their combination</i>	29.5 (26.2, 32.7)	110,028	33.5 (29.5, 37.5)	88,902	19.5 (14.5, 24.5)	21,125
Asthma	6.0 (4.3, 7.8)	22,525	7.2 (4.9, 9.6)	19,219	3.1 (1.3, 4.8)	3,306
COPD*	4.3 (2.7, 6.0)	16,213	5.6 (3.3, 7.8)	14,735	1.4 (0.01, 2.7)	1,479
CHD**	7.3 (5.6, 9.0)	27,221	8.2 (6.0, 10.3)	21,692	5.1 (2.6, 7.6)	5,529
Stroke	1.1 (0.4, 1.8)	4,105	1.3 (0.4, 2.2)	3,512	0.5 (0.01, 1.2)	593
Diabetes	12.3 (10.1, 14.5)	45,986	14.4 (11.5, 17.2)	38,110	7.3 (4.2, 10.3)	7,876
Heart failure	0.8 (0.2, 1.4)	2,877	0.8 (0.01, 1.5)	2,011	0.8 (0.01, 1.7)	866
TIA***	2.0 (1.1, 2.8)	7,303	2.2 (1.2, 3.2)	5,850	1.3 (0.01, 2.7)	1,452
Atrial Fibrillation	4.1 (2.6, 5.5)	15,199	3.6 (2.2, 5.0)	9,559	5.2 (1.6, 8.8)	5,640
<i>Any unique condition</i>	22.8 (19.8, 25.8)	85,311	26.1 (22.4, 29.9)	69,275	14.8 (10.3, 19.3)	16,036
Asthma only	3.9 (2.4, 5.3)	14,541	4.7 (2.7, 6.7)	12,473	1.9 (0.6, 3.2)	2,068
COPD only	2.2 (0.9, 3.5)	8,164	3.0 (1.2, 4.9)	8,028	0.1 (0.01, 0.4)	135
CHD only	3.9 (2.7, 5.1)	14,571	4.4 (2.9, 5.9)	11,620	2.7 (1.2, 4.3)	2,951
Stroke only	0.5 (0.05, 0.9)	1,729	0.6 (0.02, 1.1)	1,523	0.2 (0.01, 0.6)	206
Diabetes only	9.6 (7.6, 11.6)	35,788	11.0 (8.4, 13.6)	29,137	6.1 (3.3, 9.0)	6,650
Heart failure only	0.1 (0.01, 0.4)	528	0.2 (0.01, 0.5)	528	0	0
TIA only	0.7 (0.2, 1.3)	2,749	0.9 (0.2, 1.6)	2,371	0.3 (0.01, 1.0)	378
Atrial Fibrillation only	1.9 (0.8, 3.1)	7,241	1.4 (0.5, 2.2)	3,594	3.4 (0.2, 6.5)	3,647
<i>Multi-morbidity</i>						
Two or more of the 8 conditions	6.6 (5.0, 8.3)	24,717	7.4 (5.4, 9.4)	19,628	4.7 (2.1, 7.3)	5,089
Three or more of the 8 conditions	1.6 (0.7, 2.6)	6,100	2.2 (0.9, 3.5)	5,743	0.3 (0.01, 0.8)	357
Four or more of the 8 conditions	0.1 (0.01, 0.2)	378	0.08 (0.01, 0.2)	207	0.2 (0.01, 0.5)	170
*COPD = chronic obstructive pulmonary disease **CHD = coronary heart disease (heart attack or chronic consequences of heart attack or other heart trouble) ***TIA = transient ischemic attack †GMS = having a medical card or a GP-visit card †† Data from Census 2016, CSO						

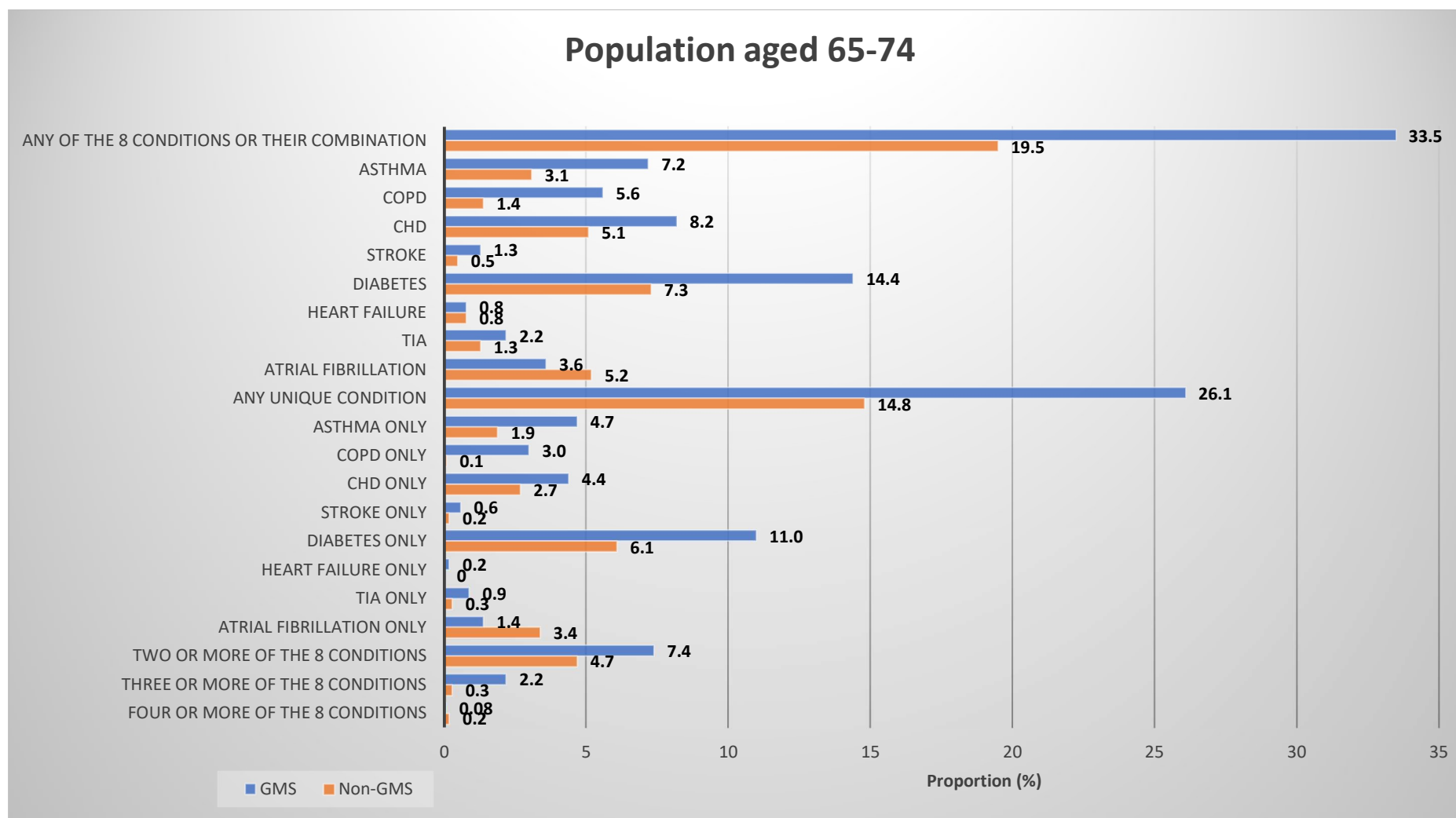


Figure 3: Prevalence of the eight chronic conditions and multimorbidity by GMS status in the 5th wave of HI dataset – population aged 65-74

7) Table 6a. Prevalence estimates of the eight chronic conditions and multimorbidity by GMS scheme for population aged 65-69

Aged 65-69	Overall population		GMS†		Non-GMS	
	Proportion % (95% CI)	Population†† n=211,236	Proportion % (95% CI)	Population n=105,137	Proportion % (95% CI)	Population n=106,099
<i>Any of the 8 conditions or their combination</i>	29.0 (24.5, 33.5)	61,320	40.1 (32.9, 47.2)	42,109	18.1 (13.1, 23.1)	19,211
Asthma	6.4 (4.0, 8.9)	13,620	9.7 (5.3, 14.1)	10,223	3.2 (1.2, 5.2)	3,398
COPD*	5.6 (2.8, 8.4)	11,861	9.7 (4.5, 14.9)	10,208	1.6 (0.01, 3.1)	1,653
CHD**	5.7 (3.6, 7.8)	12,060	6.2 (3.0, 9.3)	6,478	5.3 (2.5, 8.0)	5,582
Stroke	1.2 (0.1, 2.2)	2,477	1.9 (0.01, 3.9)	2,023	0.4 (0.01, 1.0)	454
Diabetes	11.4 (8.4, 14.4)	24,085	16.3 (11.3, 21.2)	17,086	6.6 (3.3, 9.9)	6,999
Heart failure	1.1 (0.2, 2.0)	2,323	1.3 (0.01, 2.7)	1,354	0.9 (0.01, 2.0)	968
TIA***	1.7 (0.7, 2.8)	3,644	1.9 (0.5, 3.4)	2,021	1.5 (0.01, 3.1)	1,624
Atrial Fibrillation	3.1 (1.4, 4.8)	6,607	2.3 (0.6, 4.0)	2,424	3.9 (1.0, 6.8)	4,183
<i>Any unique condition</i>	23.0 (18.8, 27.2)	48,587	33.0 (26.0, 39.9)	34,646	13.1 (8.9, 17.4)	13,941
Asthma only	4.5 (2.3, 6.7)	9,499	7.1 (3.0, 11.2)	7,485	1.9 (0.4, 3.4)	2,014
COPD only	3.4 (0.9, 6)	7,251	6.8 (1.8, 11.7)	7,099	0.1 (0.01, 0.4)	151
CHD only	3.0 (1.7, 4.3)	6,323	3.0 (1.1, 5.0)	3,203	2.9 (1.2, 4.7)	3,120
Stroke only	0.4 (0.01, 0.9)	892	0.6 (0.01, 1.4)	662	0.2 (0.01, 0.6)	230
Diabetes only	9.4 (6.7, 12.1)	19,853	13.3 (8.8, 17.8)	14,013	5.5 (2.4, 8.6)	5,840
Heart failure only	0.2 (0.01, 0.7)	512	0.5 (0.01, 1.4)	512	0	0
TIA only	0.5 (0.01, 1.1)	1,071	0.6 (0.01, 1.5)	648	0.4 (0.01, 1.2)	423
Atrial Fibrillation only	1.5 (0.4, 2.7)	3,187	1.0 (0.01, 2.1)	1,023	2.0 (0.04, 4.0)	2,164
<i>Multi-morbidity</i>						
Two or more of the 8 conditions	6.0 (3.8, 8.2)	12,732	7.1 (3.9, 10.3)	7,463	5 (2, 7.9)	5,269
Three or more of the 8 conditions	1.2 (0.07, 2.2)	2,435	2.1 (0.01, 4.3)	2,245	0.2 (0.01, 0.5)	190
Four or more of the 8 conditions	0.09 (0.01, 0.3)	190	0	0	0.2 (0.01, 0.5)	190
*COPD = chronic obstructive pulmonary disease **CHD = coronary heart disease (heart attack or chronic consequences of heart attack or other heart trouble) ***TIA = transient ischemic attack †GMS = having a medical card or a GP-visit card †† Data from Census 2016, CSO						

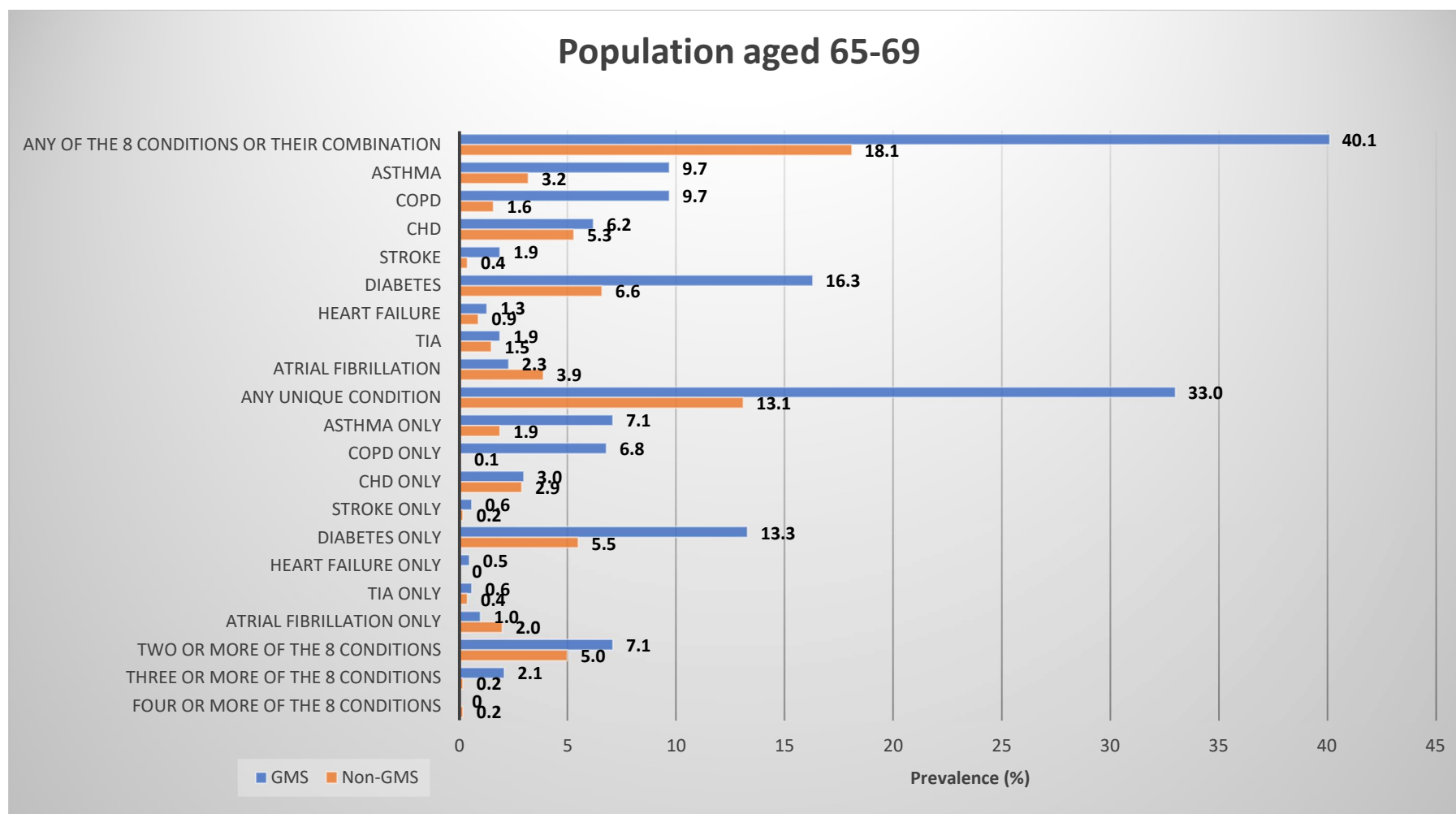


Figure 3a: Prevalence of the eight chronic conditions and multimorbidity in the 5th wave of HI dataset – population aged 65-69

8) Table 6b. Prevalence estimates of the eight chronic conditions and multimorbidity by GMS scheme for population aged 70-74

Aged 70-74	Overall population		GMS†		Non-GMS	
	Proportion % (95% CI)	Population†† n=162,272	Proportion % (95% CI)	Population n=149,274	Proportion % (95% CI)	Population n=12,998
<i>Any of the 8 conditions or their combination</i>	29.9 (25.3, 34.5)	48,515	29.9 (25.2, 34.6)	44,661	29.6 (11.4, 47.9)	3,850
Asthma	5.6 (3.1, 8.1)	9,093	5.9 (3.2, 8.5)	8,782	2.0 (0.01, 4.9)	261
COPD*	3.0 (1.3, 4.8)	4,927	3.3 (1.4, 5.1)	4,885	0	0
CHD**	8.9 (6.2, 11.6)	14,449	9.3 (6.4, 12.1)	13,857	4.0 (0.01, 8.6)	524
Stroke	1.0 (0.2, 1.8)	1,661	1.0 (0.1, 1.9)	1,484	1.4 (0.01, 4.2)	182
Diabetes	13.2 (9.9, 16.6)	21,490	13.3 (9.8, 16.8)	19,897	12.1 (3.7, 20.6)	1,578
Heart failure	0.4 (0.01, 1.2)	703	0.5 (0.01, 1.3)	697	0	0
TIA***	2.2 (0.9, 3.5)	3,555	2.4 (1.0, 3.8)	3,524	0	0
Atrial Fibrillation	5.0 (2.7, 7.4)	8,168	4.3 (2.4, 6.3)	6,442	14.3 (0.01, 33.5)	1,855
<i>Any unique condition</i>	22.7 (18.4, 26.9)	36,796	22.4 (18.0, 26.7)	33,371	26.8 (8.4, 45.2)	3,483
Asthma only	3.3 (1.4, 5.2)	5,314	3.4 (1.3, 5.4)	5,036	2.0 (0.01, 4.9)	261
COPD only	0.9 (0.2, 1.6)	1,475	1.0 (0.2, 1.7)	1,463	0	0
CHD only	4.8 (2.9, 6.8)	7,839	5.1 (3.0, 7.2)	7,632	1.2 (0.01, 3.6)	157
Stroke only	0.5 (0.01, 1.2)	818	0.5 (0.01, 1.3)	811	0	0
Diabetes only	9.8 (6.8, 12.8)	15,852	9.7 (6.5, 12.9)	14,472	10.7 (2.7, 18.7)	1,393
Heart failure only	0.04 (0.01, 0.1)	62	0.04 (0.01, 0.1)	61	0	0
TIA only	1.0 (0.08, 1.9)	1,575	1.0 (0.08, 2.0)	1,562	0	0
Atrial Fibrillation only	2.4 (0.5, 4.3)	3,861	1.6 (0.3, 2.8)	2,335	12.9 (0.01, 32.2)	1,672
<i>Multi-morbidity</i>						
Two or more of the 8 conditions	7.2 (4.8, 9.7)	11,718	7.6 (5.0, 10.2)	11,290	2.8 (0.01, 6.7)	367
Three or more of the 8 conditions	2.1 (0.6, 3.7)	3,448	2.2 (0.5, 3.8)	3,256	1.4 (0.01, 4.2)	182
Four or more of the 8 conditions	0.1 (0.01, 0.3)	182	0.1 (0.01, 0.4)	181	0	0
*COPD = chronic obstructive pulmonary disease **CHD = coronary heart disease (heart attack or chronic consequences of heart attack or other heart trouble) ***TIA = transient ischemic attack †GMS = having a medical card or a GP-visit card †† Data from Census 2016, CSO						

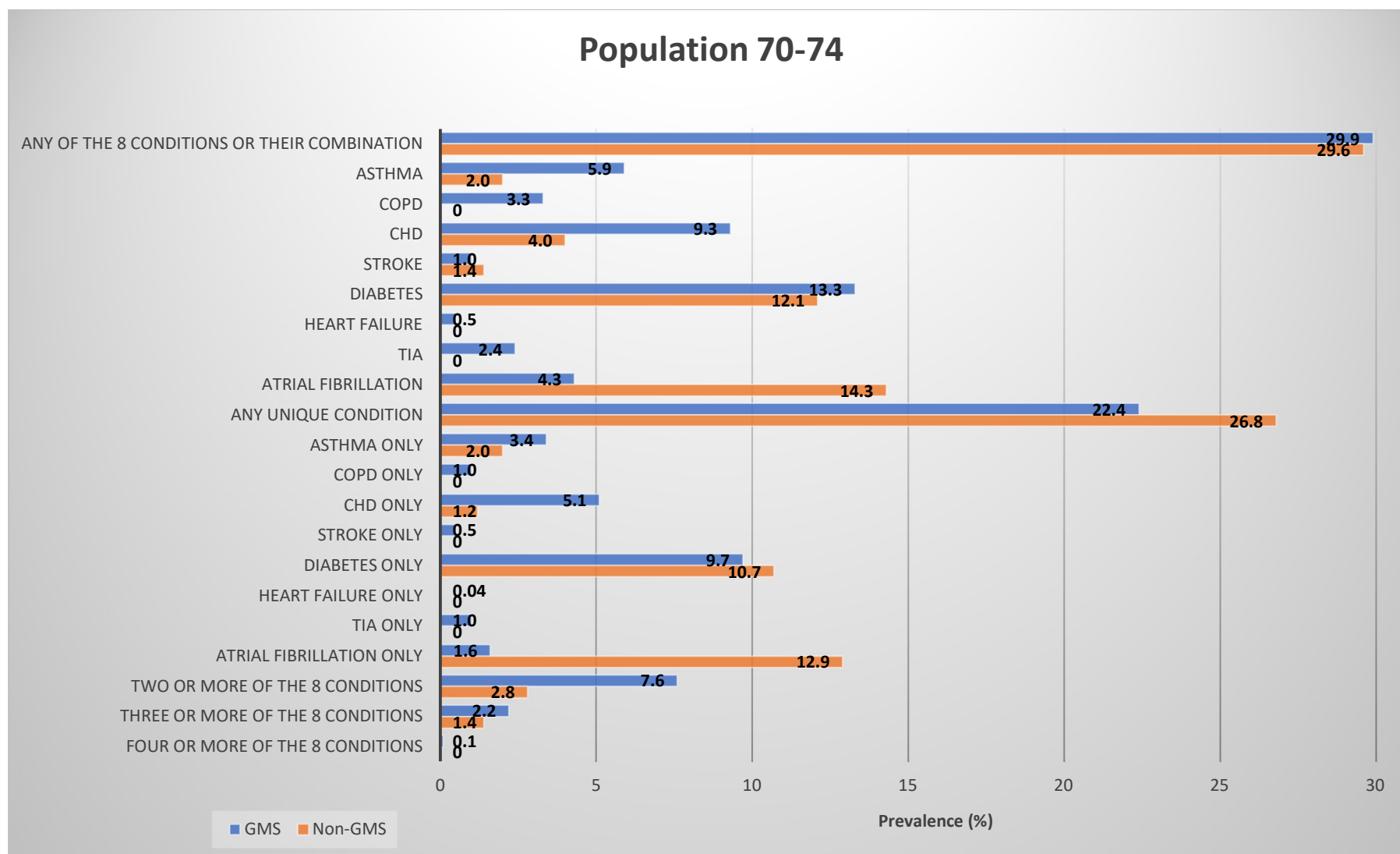


Figure 3b: Prevalence of the eight chronic conditions and multimorbidity in the 5th wave of HI dataset – population aged 70-74

9) Table 7: Prevalence of the eight chronic conditions and multimorbidity in the 5th wave of HI dataset by GMS scheme for population aged 75+

Aged 75+	Overall population		GMS†		Non-GMS	
	Proportion % (95% CI)	Population†† n=264,059	Proportion % (95% CI)	Population n=256,558	Proportion % (95% CI)	Population n=7,501
<i>Any of the 8 conditions or their combination</i>	39.0 (35.2, 42.9)	103,082	39.3 (35.4, 43.3)	100,936	28.6 (12.7, 44.5)	2,146
Asthma	6.3 (4.2, 8.4)	16,678	6.1 (4.0, 8.3)	15,778	12.0 (0.2, 23.8)	900
COPD*	4.6 (3.0, 6.1)	12,035	4.6 (3.0, 6.3)	11,902	1.8 (0.01, 5.2)	133
CHD**	14.5 (11.9, 17.2)	38,419	14.7 (12.0, 17.4)	37,726	9.2 (0.01, 18.7)	693
Stroke	2.2 (1.2, 3.2)	5,797	2.2 (1.2, 3.2)	5,638	2.1 (0.01, 6.3)	159
Diabetes	12.7 (10.3, 15.2)	33,650	12.9 (10.4, 15.5)	33,197	6.0 (0.01, 15.3)	453
Heart failure	2.1 (0.9, 3.3)	5,507	2.1 (0.9, 3.4)	5,507	0	0
TIA***	3.7 (2.3, 5.1)	9,754	3.7 (2.2, 5.1)	9,400	4.7 (0.01, 13.7)	354
Atrial Fibrillation	7.4 (5.1, 9.8)	19,650	7.7 (5.3, 10.1)	19,650	0	0
<i>Any unique condition</i>	28.7 (25.0, 32.4)	75,724	28.9 (25.1, 32.7)	74,124	21.3 (7.4, 35.3)	1,600
Asthma only	3.7 (1.8, 5.6)	9,716	3.5 (1.6, 5.4)	9,009	9.4 (0.01, 20.4)	707
COPD only	1.7 (0.6, 2.7)	4,448	1.7 (0.6, 2.8)	4,315	1.8 (0.01, 5.2)	133
CHD only	8.0 (6.0, 10.1)	21,165	8.1 (6.0, 10.1)	20,664	6.7 (0.01, 14.9)	501
Stroke only	1.0 (0.3, 1.7)	2,656	1.0 (0.3, 1.6)	2,497	2.1 (0.01, 6.3)	159
Diabetes only	7.9 (5.9, 10.0)	20,970	8.1 (6.0, 10.3)	20,870	1.3 (0.01, 3.9)	99
Heart failure only	0.4 (0.01, 0.9)	931	0.4 (0.01, 0.9)	931	0	0
TIA only	2.0 (0.8, 3.1)	5,185	2.0 (0.8, 3.2)	5,185	0	0
Atrial Fibrillation only	4.0 (2.0, 6.1)	10,653	4.2 (2.1, 6.2)	10,653	0	0
<i>Multi-morbidity</i>						
Two or more of the 8 conditions	10.4 (8.2, 12.5)	27,358	10.5 (8.3, 12.6)	26,812	7.3 (0.01, 17.3)	546
Three or more of the 8 conditions	3.7 (2.4, 5.1)	9,884	3.9 (2.4, 5.3)	9,884	0	0
Four or more of the 8 conditions	0.4 (0.01, 0.9)	983	0.4 (0.01, 0.9)	983	0	0
*COPD = chronic obstructive pulmonary disease **CHD = coronary heart disease (heart attack or chronic consequences of heart attack or other heart trouble) ***TIA = transient ischemic attack †GMS = having a medical card or a GP-visit card †† Data from Census 2016, CSO						

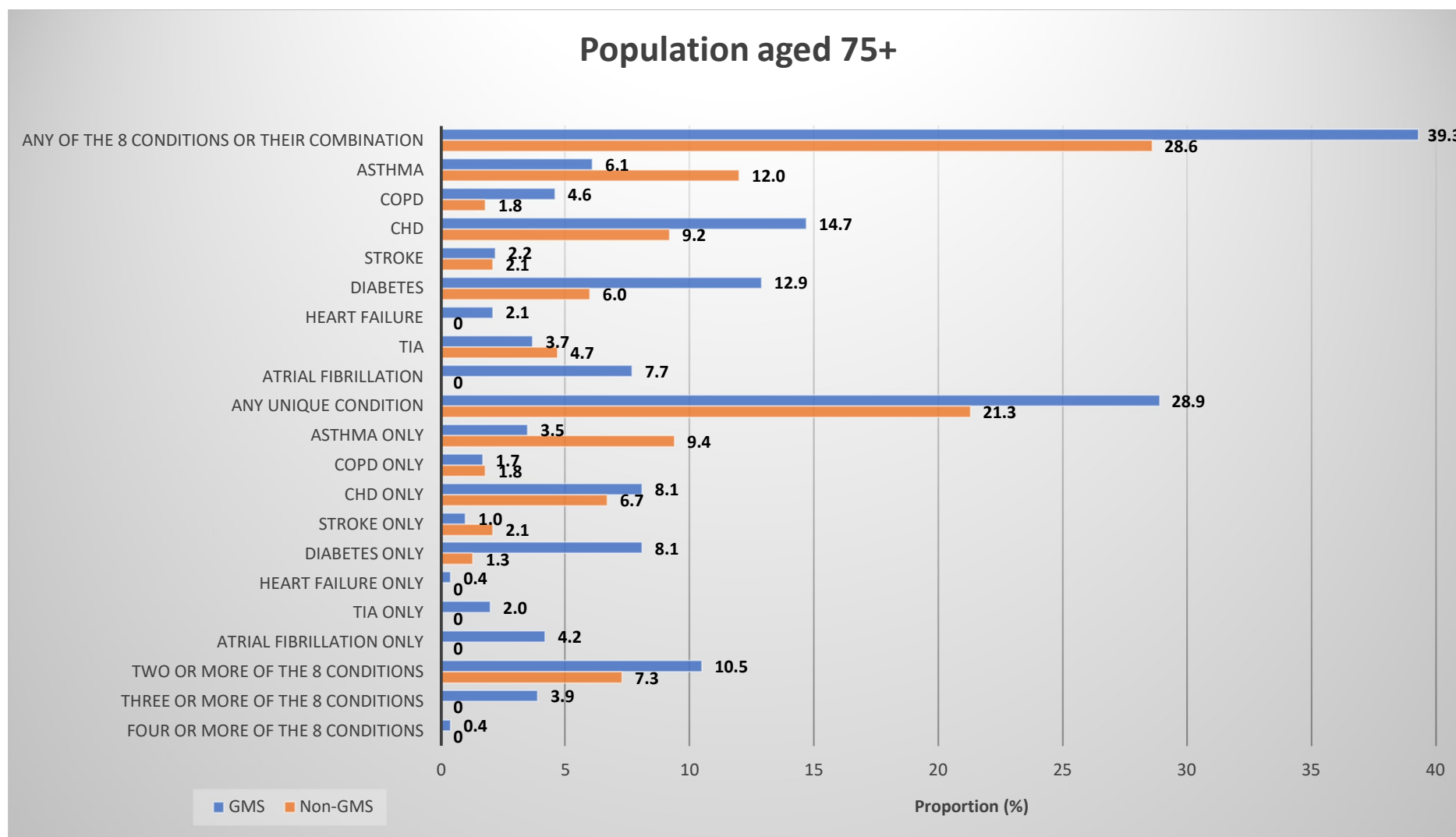


Figure 4: Prevalence of the eight chronic conditions and multi-morbidities by GMS status in the 5th wave of HI dataset – population aged 75+

III. Why Healthy Ireland? Prevalence estimates for chronic conditions and multimorbidity using different data sources

Summary

The following report presents data from the largest population surveys in Ireland (Healthy Ireland – HI and TILDA). Although the final estimates presented in previous sections include eight chronic conditions, to compare the Healthy Ireland (HI) and The Irish Longitudinal Study on Ageing (TILDA) datasets only 6 chronic conditions (Asthma, COPD, CHD, Hypertension, Stroke, Diabetes) were used. There was no information about Heart Failure, TIA and Atrial Fibrillation in the 1st wave of Healthy Ireland. The comparison between the datasets includes hypertension, which is not reported in the estimates provided in Sections I and II. Moreover, the comparisons are based on the older versions of the data sets (1st wave of Healthy Ireland and TILDA) and the prevalence estimates are presented separately for each survey for the overall population and stratified by GMS status. Census data from 2016 is utilized for the population counts.

Context for data interpretation

The two surveys are both large population-based surveys and use the Geodirectory as the sampling frame. However, there are important differences which may have an impact on the estimates and need to be considered when comparing and interpreting the estimates.

The **Healthy Ireland** Survey is an annual interviewer administered face-to-face survey conducted on behalf of the Department of Health by Ipsos MRBI. Its purpose is to provide current and credible data about the wide variety of factors that determine health and wellbeing in the population aged 15 years and older. The topics covered include general health, health service utilization, and key lifestyle factors, such as smoking, alcohol consumption, physical activity, diet, sexual health, and wellbeing to monitor the key trends and policy impacts in those areas. It also offers flexibility for the substitution of further modules to meet particular policy needs, including cross-sectoral/health determinant ‘health in all policies’ issues. Additional information on HI is available on the Irish Social Sciences Data Archive website <https://www.ucd.ie/issda/data/healthyireland/>. There were, in total, 7,333 participants aged 18+ in the first wave of HI data. To enable comparison between the HI and TILDA, data from only the participants of the 1st wave of Healthy Ireland aged ≥50 years were used for the below prevalence estimates.

TILDA is a nationally representative, longitudinal study which collects information on all aspects of health, economic and social circumstances from adults aged 50 years and over resident in Ireland. Waves of data collection take place every two years. TILDA provides a comprehensive and accurate picture of the characteristics, needs and contributions of older persons in Ireland to inform and support improvements in policy and practice; advancements in technology and innovation; tailored education and training through an enhanced ageing research infrastructure; harmonisation with leading international research to ensure adoption of best policy and practice and comparability of results. In the current analysis, after exclusion of those aged under 50 years, data from **8,163** participants of the 1st wave of TILDA were used for prevalence estimates.

Factors to be considered when comparing the estimates from the two surveys include:

- 1) Time frame of data collection (2014/15 1st wave of HI, 2009-11 1st wave of TILDA)

2) The methodology of data collection:

The HI survey is an annual interviewer administered panel survey, with new recruitment each time the data collection takes place (cross-sectional). TILDA is a longitudinal cohort study with repeated observations of the same participants over a period of time.

3) Differences in the way the variables of interest were measured:

3.1 Self-report of suffering from a condition versus self-report of a doctor diagnosis.

- In HI survey, the question stem is '**Have you suffered from any of the following conditions** in the past 12 months?'
- In TILDA, the question stem is '**Has a doctor** ever told you that you **have any of the conditions on this card?**'

3.2 Time frame of the question:

- In HI survey, the question stem is 'Have you suffered from any of the following conditions **in the past 12 months?**'
- In TILDA, the question stem is 'Has a doctor **ever told you** that you have any of the conditions on this card?'

3.3 Definition of chronic condition:

- In HI, the CHD variable is based on self-report of occurrence of **heart attack or chronic consequences of heart attack**.
- In TILDA, the CHD variable is a composite variable of those who self-reported doctor diagnosis of **angina, heart attack or other heart trouble**.

3.4 Definition of disability:

- in Healthy Ireland disability is categorised based on one question: '*For at least the past six months to what extent have you been limited in everyday activities because of health problems, i.e. on an on-going physical or mental health problem, illness or disability* with responses: severely limited, limited but not severely, not limited at all, don't know and refused. Disability is assessed based on the two first answers (severely or limited but not severely).
- In TILDA, disability is categorized based on self-report of limitations in instrumental activity of daily living (IADL) or activity of daily living disability (ADL) or both.

In summary, comparison of the estimates presented in Tables 8-13 needs to be interpreted in the context of differences in the databases, variables and definitions. The relevant questions from the two surveys are included in the appendix.

10) Table 8. Prevalence of chronic conditions and multimorbidity in the first waves of HI and TILDA datasets, GMS and non-GMS population

Aged 50+	##Overall Population (GMS + Non-GMS)			
	Healthy Ireland		TILDA	
	Proportion % (95% CI)	Population n=1,446,460	Proportion % (95% CI)	Population n=1,446,460
Any of the 6 chronic conditions† or their combination	39.7 (38.1, 41.3)	574,275	51.0 (49.8, 52.2)	737,397
Asthma	5.9 (5.2, 6.8)	85,768	9.2 (8.5, 9.9)	133,268
COPD‡	4.0 (3.4, 4.7)	58,008	4.2 (3.7, 4.7)	60,440
CHD**	4.3 (3.7, 5.0)	62,151	10.9 (10.1, 11.7)	157,671
Hypertension	28.0 (26.5, 29.5)	404,810s	37.7 (36.5, 38.9)	545,342
Stroke	2.2 (1.8, 2.7)	31,904	1.7 (1.4, 2.0)	24,263
Diabetes	8.5 (7.7, 9.5)	123,473	8.0 (7.4, 8.6)	115,964
Any one [one only] of the 6 chronic conditions	29.0 (27.5, 30.5)	419,726	34.6 (33.4, 35.7)	499,993
<i>Asthma only</i>	3.0 (2.5, 3.6)	43,506	3.8 (3.4, 4.3)	55,653
<i>COPD only</i>	1.5 (1.2, 2.0)	22,374	1.3 (1.1, 1.6)	19,203
<i>CHD only</i>	1.5 (1.1, 1.9)	21,546	3.3 (2.9, 3.8)	48,398
<i>Hypertension only</i>	19.0 (17.8, 20.4)	275,536	23.5 (22.4, 24.5)	339,369
<i>Stroke only</i>	0.52 (0.33, 0.81)	7,458	0.43 (0.29, 0.58)	6,281
<i>Diabetes only</i>	3.4 (2.9, 4.1)	49,306	2.1 (1.8, 2.5)	31,089
Two of the 6 chronic conditions	8.7 (7.8, 9.7)	126,374	12.7 (12, 13.5)	184,084
Three of the 6 chronic conditions	1.5 (1.2, 2.0)	21,960	3.1 (2.7, 3.5)	45,050
Four of the 6 chronic conditions	0.26 (0.14, 0.49)	3,729	0.53 (0.36, 0.71)	7,713
Five of the 6 chronic conditions	0.14 (0.053, 0.35)	2,072	0.039 (0.008, 0.11)	557
Six of the 6 chronic conditions	0.029 (0.001, 0.19)	414	0	0
<i>Excluding hypertension</i>				
Any of the 5 chronic conditions†† or their combination	20.7 (19.3, 22.0)	298,739	27.5 (26.4, 28.6)	398,029
Any one [one only] of the 5 chronic conditions	17.1 (15.9, 18.4)	247,361	22.0 (21.1, 23)	318,508
Two of the 5 chronic conditions	3.0 (2.5, 3.7)	43,920	4.6 (4.1, 5.1)	66,564
Three of the 5 chronic conditions	0.34 (0.2, 0.6)	4,972	0.82 (0.61, 1.0)	11,856
Four of the 5 chronic conditions	0.086 (0.022, 0.27)	1,243	0.076 (0.015, 0.14)	1,100
Five of the 5 chronic conditions	0.086 (0.022, 0.27)	1,243	0	0

11) Table 9. Prevalence of chronic conditions and multimorbidity in the first waves of HI and TILDA datasets, GMS population only

Aged 50+	GMS Population			
	Proportion in the first wave of HI: 55.5 %		Proportion in the first wave of TILDA: 49.5 %	
	Proportion % (95% CI)	Population n=802,990	Proportion % (95% CI)	Population n=715,692
Any of the 6 chronic conditions† or their combination	48.4 (46.2, 50.6)	388,651	61.1 (59.5, 62.7)	437,226
Asthma	7.1 (6.0, 8.3)	56,765	10.4 (9.4, 11.4)	74,348
COPD‡	6.1 (5.2, 7.3)	49,306	5.8 (5.1, 6.6)	41,751
CHD**	6.6 (5.6, 7.8)	53,035	15.5 (14.3, 16.8)	111,118
Hypertension	34.3 (32.2, 36.5)	275,536	45.7 (44, 47.4)	326,954
Stroke	3.4 (2.7, 4.3)	27,346	2.7 (2.2, 3.3)	19,595
Diabetes	11.0 (9.7, 12.5)	88,669	10.6 (9.6, 11.5)	75,538
Any one [one only] of the 6 chronic conditions	32.7 (30.6, 34.8)	262,277	38.1 (36.4, 39.7)	272,536
<i>Asthma only</i>	2.7 (2.1, 3.5)	21,546	3.4 (2.8, 4.0)	24,386
<i>COPD only</i>	2.3 (1.7, 3.1)	18,645	1.7 (1.3, 2.1)	11,956
<i>CHD only</i>	2.1 (1.6, 2.9)	16,988	4.2 (3.6, 4.9)	30,287
<i>Hypertension only</i>	21.2 (19.4, 23.1)	170,294	25.6 (24.1, 27.1)	183,445
<i>Stroke only</i>	0.72 (0.43, 1.2)	5,801	0.71 (0.45, 0.97)	5,100
<i>Diabetes only</i>	3.6 (2.9, 4.5)	29,004	2.4 (1.9, 2.9)	17,361
Two of the 6 chronic conditions	12.4 (11.0, 14.0)	99,856	17.3 (16.2, 18.5)	124,113
Three of the 6 chronic conditions	2.5 (1.9, 3.3)	20,303	4.8 (4.1, 5.5)	34,295
Four of the 6 chronic conditions	0.46 (0.24, 0.88)	3,729	0.8 (0.51, 1.1)	5,756
Five of the 6 chronic conditions	0.26 (0.1, 0.64)	2,072	0.074 (0.015, 0.22)	527
Six of the 6 chronic conditions	0.052 (0.003, 0.33)	414	0	0
<i>Excluding hypertension</i>				
Any of the 5 chronic conditions†† or their combination	27.2 (25.3, 29.2)	218,357	35.5 (33.9, 37.0)	253,782
Any one [one only] of the 5 chronic conditions	21.5 (19.7, 23.4)	172,780	27.4 (26.0, 28.8)	195,839
Two of the 5 chronic conditions	4.7 (3.9, 5.8)	38,119	6.8 (5.9, 7.6)	48,356
Three of the 5 chronic conditions	0.62 (0.35, 1.1)	4,972	1.2 (0.84, 1.5)	8,547
Four of the 5 chronic conditions	0.15 (0.04, 0.49)	1,243	0.15 (0.028, 0.26)	1,040
Five of the 5 chronic conditions	0.15 (0.04, 0.49)	1,243	0	0

12) Table 10. Prevalence of chronic conditions and multimorbidity in the first waves of HI and TILDA datasets, non-GMS population only

Aged 50+	Non-GMS Population			
	Healthy Ireland		TILDA	
	Proportion % (95% CI)	Population n=643,470	Proportion % (95% CI)	Population n=730,768
Any of the 6 chronic conditions† or their combination	28.8 (26.6, 31.2)	185,624	39.8 (38.3, 41.4)	291,105
Asthma	4.5 (3.6, 5.7)	29,004	7.9 (7.1, 8.8)	58,016
COPD‡	1.4 (0.89, 2.1)	8,701	2.4 (1.9, 2.9)	17,281
CHD**	1.4 (0.94, 2.1)	9,115	5.8 (5.0, 6.6)	42,280
Hypertension	20.1 (18.2, 22.2)	129,274	28.9 (27.4, 30.4)	211,247
Stroke	0.71 (0.37, 1.3)	4,558	0.51 (0.29, 0.73)	3,750
Diabetes	5.4 (4.4, 6.6)	34,805	5.2 (4.5, 5.9)	38,059
Any one [one only] of the 6 chronic conditions	24.5 (22.4, 26.7)	157,449	30.7 (29.2, 32.2)	224,335
<i>Asthma only</i>	3.4 (2.6, 4.4)	21,960	4.3 (3.7, 5.0)	31,717
<i>COPD only</i>	0.58 (0.31, 1.1)	3,729	0.95 (0.65, 1.3)	6,962
<i>CHD only</i>	0.71 (0.4, 1.3)	4,558	2.4 (1.9, 2.9)	17,374
<i>Hypertension only</i>	16.4 (14.6, 18.3)	105,242	21.0 (19.7, 22.4)	153,826
<i>Stroke only</i>	0.26 (0.1, 0.66)	1,657	0.13 (0.02, 0.24)	940
<i>Diabetes only</i>	3.2 (2.4, 4.1)	20,303	1.8 (1.4, 2.3)	13,515
Two of the 6 chronic conditions	4.1 (3.2, 5.2)	26,518	7.6 (6.8, 8.4)	55,735
Three of the 6 chronic conditions	0.26 (0.083, 0.71)	1,657	1.3 (0.91, 1.6)	9,312
Four of the 6 chronic conditions	0	0	0.24 (0.079, 0.39)	1,723
Five of the 6 chronic conditions	0	0	0	0
Six of the 6 chronic conditions	0	0	0	0
<i>Excluding hypertension</i>				
Any of the 5 chronic conditions†† or their combination	12.5 (10.9, 14.2)	80,382	18.8 (17.5, 20.0)	137,279
Any one [one only] of the 5 chronic conditions	11.6 (10.1, 13.3)	74,581	16.2 (15.0, 17.3)	118,160
Two of the 5 chronic conditions	0.9 (0.54, 1.5)	5,801	2.2 (1.8, 2.7)	16,130
Three of the 5 chronic conditions	0	0	0.41 (0.2, 0.62)	2,989
Four of the 5 chronic conditions	0	0	0	0
Five of the 5 chronic conditions	0	0	0	0

13) Table 11. Prevalence of chronic conditions and multimorbidity in the first waves of HI and TILDA datasets, participants with disability

Aged 50+	‡Overall Population (GMS + Non-GMS)			
	Proportion with disability in the first wave of HI: 33.3 %		Proportion with disability in the first wave of TILDA: 12.0 %	
	Proportion % (95% CI)	Population n=481,048	Proportion % (95% CI)	Population n=174,008
Any of the 6 chronic conditions† or their combination	58.1 (55.3, 60.9)	310,004	70.7 (67.5, 73.9)	123,035
Asthma	10.3 (8.7, 12.2)	55,112	13.9 (11.5, 16.2)	24,126
COPD‡	9.6 (8.1, 11.5)	51,438	9.1 (7.2, 11.1)	15,921
CHD**	10.4 (8.8, 12.3)	55,571	22.0 (19.1, 25.0)	38,328
Hypertension	38.5 (35.7, 41.3)	205,292	52.9 (49.7, 56.2)	92,125
Stroke	5.5 (4.3, 7.0)	29,393	5.9 (4.3, 7.4)	10,180
Diabetes	14.4 (12.5, 16.5)	76,697	14.1 (11.9, 16.4)	24,616
Any one [one only] of the 6 chronic conditions	34.5 (31.8, 37.2)	183,706	36.2 (33.0, 39.4)	62,983
<i>Asthma only</i>	4.0 (3.0, 5.2)	21,126	3.0 (1.9, 4.1)	5,220
<i>COPD only</i>	3.4 (2.5, 4.7)	18,371	2.3 (1.3, 3.3)	3,963
<i>CHD only</i>	3.0 (2.2, 4.2)	16,074	4.9 (3.4, 6.3)	8,476
<i>Hypertension only</i>	19.2 (17.0, 21.6)	102,416	23.0 (20.1, 25.8)	39,964
<i>Stroke only</i>	1.1 (0.66, 1.9)	5,970	1.4 (0.67, 2.1)	2,431
<i>Diabetes only</i>	3.7 (2.8, 5.0)	19,748	1.7 (0.86, 2.5)	2,929
Two of the 6 chronic conditions	18.5 (16.4, 20.9)	98,742	24.1 (21.2, 26.9)	41,876
Three of the 6 chronic conditions	4.0 (3.0, 5.2)	21,126	8.3 (6.5, 10.1)	14,463
Four of the 6 chronic conditions	0.69 (0.35, 1.4)	3,674	1.9 (1.0, 2.9)	3,392
Five of the 6 chronic conditions	0.43 (0.16, 1.1)	2,296	0.2 (0.025, 0.73)	354
Six of the 6 chronic conditions	0.086 (0.004, 0.56)	459	0	0
<i>Excluding hypertension</i>				
Any of the 5 chronic conditions†† or their combination	38.9 (36.2, 41.8)	207,588	47.7 (44.2, 51.3)	83,071
Any one [one only] of the 5 chronic conditions	29.7 (27.2, 32.4)	158,447	33.7 (30.5, 36.9)	58,613
Two of the 5 chronic conditions	7.8 (6.4, 9.5)	41,793	11.2 (9.2, 13.2)	19,458
Three of the 5 chronic conditions	0.86 (0.47, 1.6)	4,593	2.5 (1.4, 3.6)	4,359
Four of the 5 chronic conditions	0.26 (0.067, 0.82)	1,378	0.37 (0.004, 0.73)	642
Five of the 5 chronic conditions	0.26 (0.067, 0.82)	1,378	0	0

14) Table 12. Prevalence of chronic conditions and multimorbidity in the first waves of HI and TILDA datasets, participants with disability, GMS population only.

Aged 50+	Total population with Disability			
	Proportion of GMS population in the first wave of HI: 75.2 %		Proportion of GMS population in the first wave of TILDA: 75.3 %	
	Proportion % (95% CI)	Population n=361,719	Proportion % (95% CI)	Population n=131,032
Any of the 6 chronic conditions† or their combination	63.0 (59.7, 66.1)	252,596	73.9 (70.2, 77.6)	96,892
Asthma	10.3 (8.5, 12.5)	41,334	14.4 (11.8, 17.1)	18,889
COPD‡	11.0 (9.1, 13.2)	44,090	10.0 (7.7, 12.3)	13,152
CHD**	12.8 (10.8, 15.2)	51,438	23.9 (20.4, 27.3)	31,298
Hypertension	42.4 (39.1, 45.7)	169,928	54.9 (51.1, 58.8)	72,020
Stroke	6.6 (5.2, 8.5)	26,637	6.6 (4.7, 8.6)	8,714
Diabetes	16.3 (14, 18.9)	65,216	15.0 (12.5, 17.6)	19,715
Any one [one only] of the 6 chronic conditions	35.6 (32.5, 38.9)	142,832	36.6 (32.9, 40.4)	48,028
<i>Asthma only</i>	3.1 (2.1, 4.5)	12,400	2.9 (1.6, 4.1)	3,772
<i>COPD only</i>	3.9 (2.8, 5.4)	15,615	2.1 (1.0, 3.2)	2,764
<i>CHD only</i>	3.8 (2.7, 5.3)	15,156	4.9 (3.3, 6.5)	6,445
<i>Hypertension only</i>	19.8 (17.3, 22.6)	79,453	23.1 (19.9, 26.3)	30,279
<i>Stroke only</i>	1.3 (0.71, 2.2)	5,052	1.8 (0.85, 2.7)	2,333
<i>Diabetes only</i>	3.8 (2.7, 5.3)	15,156	1.9 (0.86, 2.9)	2,436
Two of the 6 chronic conditions	20.7 (18.2, 23.5)	83,127	25.9 (22.6, 29.3)	33,986
Three of the 6 chronic conditions	5.0 (3.8, 6.7)	20,208	9.2 (7.1, 11.3)	12,033
Four of the 6 chronic conditions	0.92 (0.47, 1.8)	3,674	1.9 (0.92, 3.0)	2,537
Five of the 6 chronic conditions	0.57 (0.21, 1.4)	2,296	0.27 (0.033, 0.97)	355
Six of the 6 chronic conditions	0.11 (0.006, 0.74)	459	0	0
<i>Excluding hypertension</i>				
Any of the 5 chronic conditions†† or their combination	21.0 (19.7, 22.4)	173,143	50.8 (46.8, 54.9)	66,613
Any one [one only] of the 5 chronic conditions	17.3 (16.1, 18.6)	129,054	34.9 (31.3, 38.6)	45,800
Two of the 5 chronic conditions	3.2 (2.7, 3.8)	36,741	13.0 (10.6, 15.5)	17,087
Three of the 5 chronic conditions	0.35 (0.2, 0.61)	4,593	2.4 (1.2, 3.5)	3,110
Four of the 5 chronic conditions	0.087 (0.022, 0.28)	1,378	0.47 (0.006, 0.93)	616
Five of the 5 chronic conditions	0.087 (0.022, 0.28)	1,378	0	0

15) Table 13. Prevalence of chronic conditions and multimorbidity in the first waves of HI and TILDA datasets, participants with disability, non-GMS population only.

Aged 50+	Total population with Disability			
	Proportion of non-GMS population in the first wave of HI: 24.8 %		Proportion of non-GMS population in the first wave of TILDA: 24.7 %	
	Proportion % (95% CI)	Population n=119,330	Proportion % (95% CI)	Population n=42,925
Any of the 6 chronic conditions† or their combination	43.4 (37.8, 49.2)	57,408	58.8 (52.7, 64.8)	25,231
Asthma	10.4 (7.4, 14.5)	13,778	11.9 (7.5, 16.3)	5,121
COPD‡	5.6 (3.4, 8.8)	7,348	5.9 (2.8, 9.1)	2,554
CHD**	3.1 (1.7, 5.8)	4,133	15.3 (10.6, 20.1)	6,586
Hypertension	26.7 (22.0, 32.1)	35,363	45.4 (38.9, 51.9)	19,478
Stroke	2.1 (0.85, 4.7)	2,756	3.0 (0.76, 5.1)	1,267
Diabetes	8.7 (5.9, 12.5)	11,482	10.9 (6.8, 15.0)	4,694
Any one [one only] of the 6 chronic conditions	30.9 (25.8, 36.5)	40,874	34.3 (28.4, 40.1)	14,704
<i>Asthma only</i>	6.6 (4.3, 10.1)	8,726	3.5 (1.0, 5.9)	1,487
<i>COPD only</i>	2.1 (0.96, 4.5)	2,756	2.9 (0.62, 5.2)	1,249
<i>CHD only</i>	0.69 (0.12, 2.8)	919	4.7 (1.9, 7.6)	2,029
<i>Hypertension only</i>	17.4 (13.4, 22.2)	22,963	22.1 (16.7, 27.5)	9,490
<i>Stroke only</i>	0.69 (0.12, 2.8)	919	0	0
<i>Diabetes only</i>	3.5 (1.9, 6.3)	4,593	1.2 (0.26, 3.6)	532
Two of the 6 chronic conditions	11.8 (8.6, 16.0)	15,615	17.3 (12.2, 22.5)	7,447
Three of the 6 chronic conditions	0.69 (0.12, 2.8)	919	5.2 (2.3, 8.0)	2,217
Four of the 6 chronic conditions	0	0	2.0 (0.055, 4.0)	862
Five of the 6 chronic conditions	0	0	0	0
Six of the 6 chronic conditions	0	0	0	0
<i>Excluding hypertension</i>				
Any of the 5 chronic conditions†† or their combination	26.0 (21.3, 31.4)	34,445	36.7 (30.3, 43.0)	15,741
Any one [one only] of the 5 chronic conditions	22.2 (17.8, 27.4)	29,393	29.2 (23.0, 35.5)	12,549
Two of the 5 chronic conditions	3.8 (2.1, 6.7)	5,052	4.4 (1.8, 7.0)	1,903
Three of the 5 chronic conditions	0	0	3.0 (0.65, 5.4)	1,289
Four of the 5 chronic conditions	0	0	0	0
Five of the 5 chronic conditions	0	0	0	0

*Disability = (i) presence of Daily Living limitations (severely limited or limited but not severely) in HI dataset, (ii) having either a Activity of Daily Living or Instrumental Activity of Daily Living disability in TILDA dataset

†GMS = having a medical card or a GP-visit card

‡6 chronic conditions = asthma, COPD, CHD, hypertension, stroke and diabetes

**COPD = chronic obstructive pulmonary disease

††CHD = coronary heart disease (heart attack or chronic consequences of heart attack)

‡‡5 chronic conditions = asthma, COPD, CHD, stroke, diabetes

*** Data from Census 2016, CSO

IV. Appendices

1. Definition of 6 chronic conditions in the 1st wave of TILDA data:

Heart disease section

INTRO: READ OUT We are interested in finding out more information about heart problems people may suffer from.

IWER: SHOW CARD PH1

PH201: Please look at card PH1. Has a doctor ever told you that you have any of the conditions on this card?

INTERVIEWER: PROBE - 'WHAT OTHERS?' CODE ALL THAT APPLY.

- | | | |
|---|--------------------|-------------------|
| 1. High blood pressure or hypertension | GO TO PH202 | [ph201_1] |
| 2. Angina | GO TO PH203 | [ph201_2] |
| 3. A heart attack
(including myocardial infarction or coronary thrombosis) | GO TO PH205 | [ph201_3] |
| 4. Congestive heart failure | GO TO PH212 | [ph201_4] |
| 5. Diabetes or high blood sugar | GO TO PH213 | [ph201_5] |
| 6. A stroke (cerebral vascular disease) | GO TO PH218 | [ph201_6] |
| 7. Ministroke or TIA | GO TO PH221 | [ph201_7] |
| 8. High cholesterol | GO TO PH225 | [ph201_8] |
| 9. A heart murmur | GO TO PH301 | [ph201_9] |
| 10. An abnormal heart rhythm | GO TO PH301 | [ph201_10] |
| 95. Any other heart trouble (specify) [ph201a] | GO TO PH224 | [ph201_11] |
| 96. None of these | GO TO PH301 | [ph201_14] |
| 98. DK | GO TO PH301 | [ph201_12] |
| 99. RF | GO TO PH301 | [ph201_13] |
- (ELSA/ similar questions in HRS/ SHARE)

Note: CHD = combined variable from Angina = YES or Heart Attack = YES or Any other Heart Trouble = YES

Other chronic conditions

IWER: SHOW CARD PH2

PH301: Please look at card PH2. Has a doctor ever told you that you have any of the following conditions?

IWER: PROBE - 'WHAT OTHERS?' CODE ALL THAT APPLY.

- | | | |
|---|--------------------|------------------|
| 1. Chronic lung disease such as chronic bronchitis
or emphysema | GO TO PH302 | [ph301_1] |
| 2. Asthma | | [ph301_2] |
| 3. Arthritis (including osteoarthritis, or rheumatism) | GO TO PH304 | [ph301_3] |
| 4. Osteoporosis, sometimes called thin or brittle bones | | [ph301_4] |
| 5. Cancer or a malignant tumour
(including leukaemia or lymphoma but excluding minor skin cancers) | GO TO PH309 | [ph301_5] |
| 6. Parkinson's disease | GO TO PH314 | [ph301_6] |
| 7. Any emotional, nervous or psychiatric problems, | | |

such as depression or anxiety	GO TO PH315 [ph301_7]
8. Alcohol or substance abuse	GO TO PH320 [ph301_8]
9. Alzheimer's disease	GO TO PH318 [ph301_9]
10. Dementia, organic brain syndrome, senility	GO TO PH319 [ph301_10]
11. Serious memory impairment	GO TO PH319a [ph301_11]
12. Stomach ulcers	[ph301_12]
13. Varicose Ulcers (an ulcer due to varicose veins)	[ph301_13]
14. Cirrhosis, or serious liver damage	[ph301_14]
96. None of these	[ph301_17]
98. DK	[ph301_16]
99. RF	[ph301_15]
(ELSA/ similar question HRS/NSHAP)	

2. Definition of 6 chronic conditions in the 1st wave of HI data

MULTI CODE

Q.4 Have you suffered from any of the following conditions in the past 12 months?
SHOW CARD Q.4

	YES
Asthma (allergic asthma included)	Q4sp_1
Chronic bronchitis, chronic obstructive pulmonary disease (COPD), emphysema	Q4sp_2
Heart Attack or chronic consequences of heart attack	Q4sp_3
High blood pressure	Q4sp_4
A stroke or the chronic consequences of stroke (cerebral hemorrhage or cerebral thrombosis)	Q4sp_5
Arthrosis (excluding arthritis)	Q4sp_6
Arthritis	Q4sp_7
Lower back disorder or other chronic back defects	Q4sp_8
Neck disorder or other chronic neck defects	Q4sp_9
Diabetes	Q4sp_10
Allergy, such as rhinitis, hay fever, eye inflammation, dermatitis, food allergy or other (allergic asthma excluded)	Q4sp_11
Cirrhosis of the liver	Q4sp_12
Urinary incontinence or problems in controlling the bladder	Q4sp_13
Kidney problems	Q4sp_14
Depression	Q4sp_15
None of these	Q4sp_16

Note: CHD = Heart Attack or chronic consequences of heart attack = YES