

**tilda**

Staidéar Fadaimeartha na  
hÉireann um Dhul in Aois

The Irish Longitudinal  
Study on Ageing



**High-Risk Categories for COVID-19  
and their Distribution by County in Republic of Ireland**  
Evidence from the TILDA study

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An Roinn Sláinte  
Department of Health



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# High-risk categories for COVID-19 and their distribution by county in Republic of Ireland-evidence from the TILDA study

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On behalf of the TILDA team

**April 2020**

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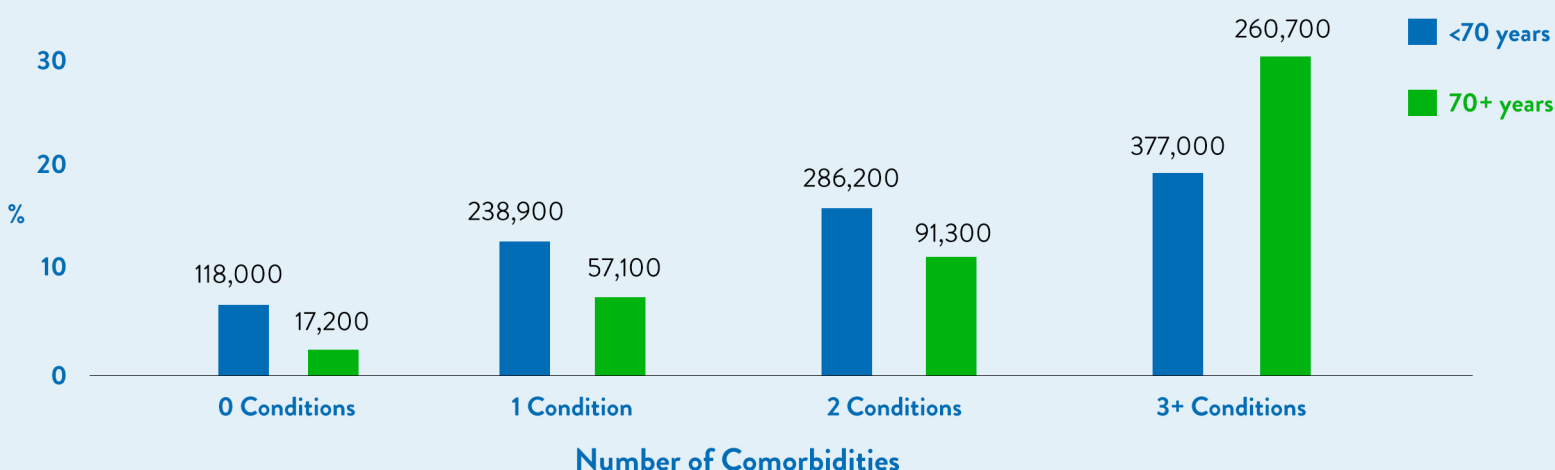
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## MULTIMORBIDITY IN IRELAND

	Hypertension	Diabetes Mellitus	Chronic Kidney Disease	Ischaemic Heart Disease	Chronic Lung Disease or Asthma
>50 years	749,900	182,800	128,600	161,600	265,000
>70 years	260,400	63,400	36,500	70,000	80,000

## COMORBIDITIES (WITH ESTIMATED POPULATION NUMBERS)



## MEDICATION USAGE LINKED TO POSSIBLE HIGH RISK FOR COVID-19

### ADULTS AGED UNDER 70

5,500 take oral steroids  
5,300 take immunosuppressants  
3,500 take antineoplastic agents  
371,000 take anti-hypertensives



### ADULTS AGED OVER 70

2,300 take oral steroids  
2,200 take immunosuppressants  
1,500 take antineoplastic agents  
267,700 take anti-hypertensives



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# Key Message

Older persons and those with pre-existing chronic conditions are most likely to experience severe consequences from COVID-19. Because immune defences decline and chronic diseases rise with age, people aged 70 and older are at particularly high risk. The purpose of the report is to raise awareness of how common these high-risk groups are, nationally and at a county level, and how many people are at highest risk, i.e. have 3 or more chronic conditions.

## Key Findings

- Almost 750,000 adults have hypertension (over 50%)
- Over 308,000 adults have asthma or chronic lung disease (20%)
- 183,000 adults have diabetes mellitus (13%)
- 129,000 adults have chronic kidney disease (10%)
- 167,500 adults have past or present cancer (12%)
- 638,000 adults live with three or more chronic diseases
- Over 30% of over 70s live with three or more chronic diseases

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# 1. Introduction

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This report will expand on a previous report on the estimated number of people in Ireland (by age and sex) who have diseases, poor health behaviours, multi morbidity and take possible at-risk medications [1] for COVID 19.

This report will show the estimated number of people over 50 in Ireland (and also by county and age brackets) who have diabetes, cardiovascular disease, ischaemic heart disease, lung disease or asthma, rheumatoid arthritis, chronic kidney disease and a history of smoking; all of which are medical conditions/behaviours suspected to be risk factors for more severe symptoms of COVID19. We will also provide data for over 70s and population estimates for medication usage linked to underlying conditions related to immune modulation and possible high risk for COVID19.

This data should assist policy makers to prepare for likely numbers of high-risk patients who will require additional community and hospital support. By estimating county-level numbers, we hope to further guide health service projections for need

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## 2. Methods

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### 2.1 Sampling

Sampling for the first wave of TILDA was conducted using the RANSAM random sampling procedure [ 2,3], with the Irish Geodirectory as a sampling frame. The Geodirectory is a complete listing of all residential addresses in the Republic of Ireland recorded by the Irish Postal Service (An Post) [4]. The addresses sampled were selected by first grouping addresses into clusters, based on District Electoral Divisions, then a number of clusters were randomly selected, and finally, 50 addresses were randomly selected from each cluster [2]. The final sample was of 8,174 individuals aged 50 and over, from 6,279 households, as well as 330 partners aged under 50 (young partners) (total = 8,504). This constituted a 62% response rate for households with an eligible participant. Wave 1 interviews were completed between October 2009 and February 2011. Data were collected through three different formats: Computer Assisted Personal Interview (CAPI), Self-Completion Questionnaire (SCQ), and Health Assessment.

All participants at each wave completed a CAPI interview. CAPI interviews were completed in the participant's own home by a trained social interviewer and included items on the participant's health, economic and social circumstances, as well as some cognitive measures. All participants were invited to complete a health assessment at Waves 1 and 3 and forthcoming Wave 6. Detailed health assessments were not carried out at Waves 2, 4 and 5, but the participants completed some objective measures in these waves important for frailty. At Wave 1, participants were invited to attend a dedicated health centre. Participants who preferred not to travel to attend a health assessment due to mobility or other issues were offered a health assessment at home. Home health assessments measured a reduced number of health measures due to the practicalities of completing the assessment at home. All health assessments were carried out by trained research nurses, and included anthropometric measures such as height and weight, physical function measures such as Timed-Up-and-Go and grip strength, detailed cardiovascular, mood and cognitive measures. The in-centre health assessment also collected more detailed measures of cardiovascular, bone, and eye health and other senses (Cronin et al., 2013). During Wave 1, a total of 5,894 over 50s participants completed a health assessment (72.1%), 860 of which completed a health assessment at home.

## 2.2 Disease Prevalence

For estimates of diseases and comorbidity prevalence, all numbers are calculated based on participants having a history of the disease, not just disease incidence at Wave 5 i.e. we counted disease as being present if the participant reported ever having any of the above medical conditions in any of the TILDA waves (2009-2018) not only if they reported it in 2018. To do this, we included data from all five waves of TILDA and counted disease as being present if a participant reported having the disease in any of the five waves and didn't later dispute having the disease at a later wave. The reason for this is that many participants confuse being cured of a disease and having a disease under control (when they are asked if they have ever been diagnosed with the conditions above, many will report no, as their condition is under control, even though they previously reported having the condition). If they report a condition at a given wave, they are asked to confirm it at the next wave and are given the opportunity to dispute the diagnosis. In all cases, our estimates have corrected for disputed/false diagnoses. In all cases population numbers have been rounded to the nearest 100.

All estimates (unless otherwise indicated) are based on data from the most recent Wave 5 of TILDA (collected in 2018, n=5,087 participants) and population estimates are based on figures collected from the most recent 2016 Census data (which reported a total of 1,446,460 people over 50 living in Ireland). Whereas the disease count we derived from the CAPI interview, information on chronic kidney disease was estimated from blood samples for creatine and consequently glomerular filtration rates. Hereafter denoted \*. It should be noted that the TILDA sampling frame does not include people with dementia at baseline or people living in nursing homes, and so this data may slightly underestimate prevalence for the total population of older adults living in Ireland.

In many cases, the number of TILDA cases by county for each of the following conditions is very small, and so estimates have very wide confidence intervals and may not be reliable. This is even more true for the county by age estimates which in many cases may be associated with large error. Also, in all cases the estimated population numbers have been rounded to the nearest 100 and so table totals by county may not always tally to the country totals. In some cases, the number of cases sampled by TILDA when separated by age and county were so small that no estimate of the population prevalence could be made; such cases have been marked as NA.

## 2.3 Weights

As stated, weights were used to make estimates relevant to the general population of over 50s in Ireland. In this instance, longitudinal weights which account for participant attrition between Wave 1 and Wave 5 were used. To calculate these weights, the underlying probability of being included in the computer-assisted personal interview (CAPI) was multiplied by the reciprocal of the probability of participating in all five TILDA waves. This probability was calculated using a logistic regression with the following predictors: age, sex, education level, age, marital status, geographic location, smoking status, health insurance, medications, socio-economic stratum, self-rated health, disabilities, depression, employment status, cardiovascular conditions, diabetes, vision, cognitive status and whether a person has wrist or hip fractures.

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## 3. National Disease Prevalence and Comorbidities

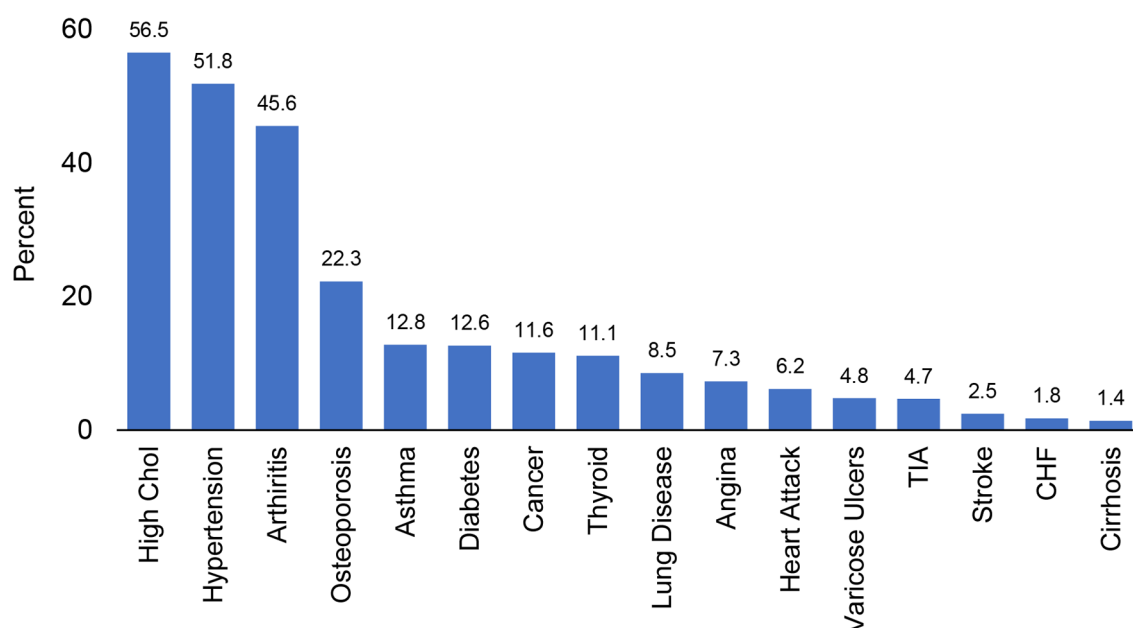
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Figure 1 and table 1 show the prevalence and estimated number in the population with each of the 16 medical conditions mentioned below. Chronic kidney disease was only measured at Wave 1 of TILDA (2009-2010) and so has not been included in the following estimates based on 2018 data. However, the national prevalence of chronic kidney disease (based on 2011 census) was 10.1% or 128,582 people.

The total list of underlying medical conditions from Wave 5 TILDA included life-time prevalence of any of the following 16 conditions:

- High Cholesterol
- Hypertension
- Arthritis (including osteoarthritis, or rheumatism)
- Osteoporosis, sometimes called thin or brittle bones
- Asthma
- Diabetes
- Cancer or a malignant tumour
- Thyroid Problems
- Chronic lung disease such as chronic bronchitis or emphysema
- Angina\*
- A heart attack (incl. myocardial infarction or coronary thrombosis)\*
- Varicose Ulcers (an ulcer due to varicose veins)
- Ministroke/TIA
- Stroke
- Congestive heart failure
- Cirrhosis, or serious liver damage

\*ischaemic heart disease

*Figure 1. Percentage of population with each of the 16 medical conditions**Table 1. Disease prevalence in TILDA and Population of over 50s in Ireland*

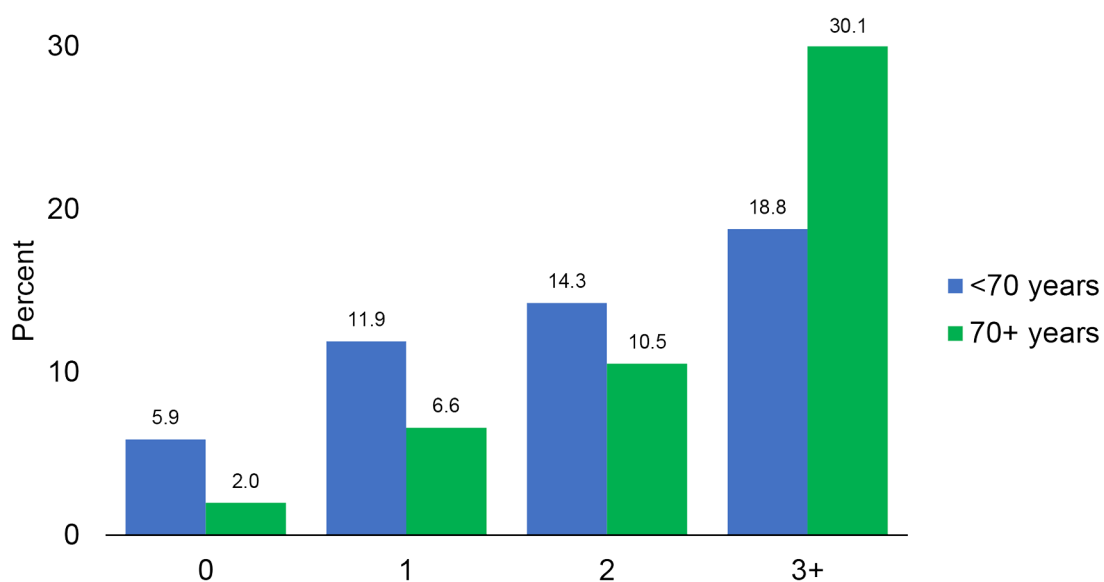
Medical Condition	Number of cases in TILDA	Estimated Population Prevalence %	Estimated Number in Population (n=1,446,460)
Asthma	657	12.79	185002
Chronic lung disease such as chronic bronchitis or emphysema	402	8.53	123383
Hypertension	2589	51.84	749845
Diabetes	612	12.64	182833
Angina	337	7.27	105158
A heart attack (incl. myocardial infarction or coronary thrombosis)	295	6.16	89102
Congestive heart failure	83	1.75	25313
Cancer or a malignant tumour	612	11.58	167500
Arthritis (including osteoarthritis, or rheumatism)	2256	45.55	658863
Osteoporosis, sometimes called thin or brittle bones	1148	22.27	322127
Thyroid Problems	592	11.11	160702
Varicose Ulcers (an ulcer due to varicose veins)	226	4.75	68707
Ministroke/TIA	242	4.66	67405
A stroke (cerebral vascular disease)	143	2.45	35438
Congestive heart failure	83	1.75	25313
High Cholesterol	3037	58.5	846179
Cirrhosis, or serious liver damage	59	1.4	20250
Chronic Kidney Disease*	428	10.1	128582

Table 2 and figure 2 below show the breakdown of those with 0, 1, 2 and 3+ medical conditions for the under and over 70s in the Republic of Ireland.

*Table 2. Estimated number in population of under and over 70s with 0-3+ underlying medical conditions*

Number of Medical Conditions	<70	70+	Total
0	118026	17180	135200
1	238907	57124	296000
2	286240	91313	377600
3+	377029	260682	637700

*Figure 2. Percentage of population with 0-3+ medical conditions (separated by age <70,70+).*



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## 4. COVID-19 High Risk Categories

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The remainder of this report will show the breakdown of lung disease or asthma, diabetes, cardiovascular disease, the co-occurrence of diabetes and cardiovascular disease, rheumatoid arthritis and smoking history at a country level and the distribution at county level (with estimated numbers of cases in the population). Given that recommendations for social isolation have focused on vulnerable cohorts, and instruction from Government on March 27th for 'cocooning' of those aged 70+, estimates have been shown for the under and over 70s.

## 4.1 Chronic Lung Disease or Asthma

The estimated total number of people aged 50+ with either chronic lung disease or asthma in the Republic of Ireland is 264,702 (prevalence 18.3%). Figure 2 shows the distribution of chronic lung disease prevalence by age. Table 2 shows the breakdown of number of cases in TILDA, the estimated prevalence (%) in the population and the estimated number of cases of chronic lung disease in the population.

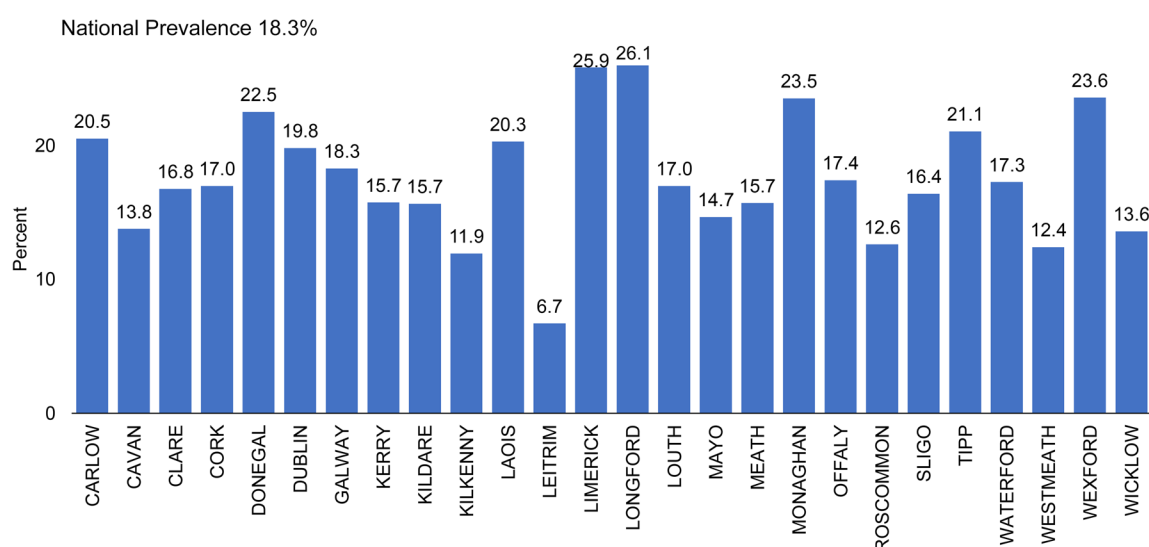
*Table 3: Breakdown of number of cases in TILDA, the estimated prevalence (%) in the population and the estimated number of cases of either lung disease or asthma in the population for under and over 70s.*

Either Lung disease or asthma by Age	50-69	70+	TOTAL
Number Cases in TILDA	8	75	890
Estimated Prevalence in Population	NA	1.98%	18.30%
Estimated Number of Cases in Population	NA	28640	264702

Note: The sum over age ranges may not equal total, due to slight inaccuracies in age estimates and rounding errors within age each age range

### 4.1.1 Chronic Lung Disease or Asthma by County

*Figure 3. Estimated population prevalence of lung disease or asthma within each county*



*Table 4: Breakdown of number of cases with either lung disease or asthma in TILDA, the estimated prevalence (%) within each county and the estimated number of cases either lung disease or asthma in the population by county to nearest 100.*

County	Number of TILDA Cases	County Prevalence	Estimated Number in Population
CARLOW	13	20.52%	3500
CAVAN	10	13.77%	3300
CLARE	22	16.76%	6700
CORK	97	16.98%	28300
DONEGAL	41	22.53%	12000
DUBLIN	225	19.81%	74200
GALWAY	50	18.29%	14400
KERRY	31	15.74%	8500
KILDARE	16	15.65%	9000
KILKENNY	16	11.93%	3800
LAOIS	12	20.30%	4700
LEITRIM	3	6.72%	800
LIMERICK	50	25.85%	15800
LONGFORD	11	26.05%	3400
LOUTH	14	16.99%	6300
MAYO	42	14.66%	7100
MEATH	29	15.70%	8200
MONAGHAN	20	23.54%	4600
OFFALY	16	17.41%	4200
ROSCOMMON	20	12.61%	2900
SLIGO	13	16.40%	3800
TIPPERARY	42	21.07%	11400
WATERFORD	19	17.26%	6600
WESTMEATH	11	12.40%	3300
WEXFORD	49	23.59%	11600
WICKLOW	18	13.58%	6000
<b>Total</b>	<b>890</b>	<b>18.30%</b>	<b>264400</b>

Note: County estimates may not add up exactly to the national total reported in other tables above as in some cases the number sampled within each county are so small that estimates may not be accurate.

## 4.2 Diabetes

The estimated total number of people aged 50+ with diabetes in the Republic of Ireland is 182,833 (prevalence 12.64%). Figure 5 shows the distribution of diabetes prevalence by age. Table 7 shows the breakdown of number of cases in TILDA, the estimated prevalence (%) in the population and the estimated number of cases of diabetes in the population.

*Table 5. Breakdown of number of cases in TILDA, the estimated prevalence (%) in the population and the estimated number of cases of diabetes in the population for under and over 70s.*

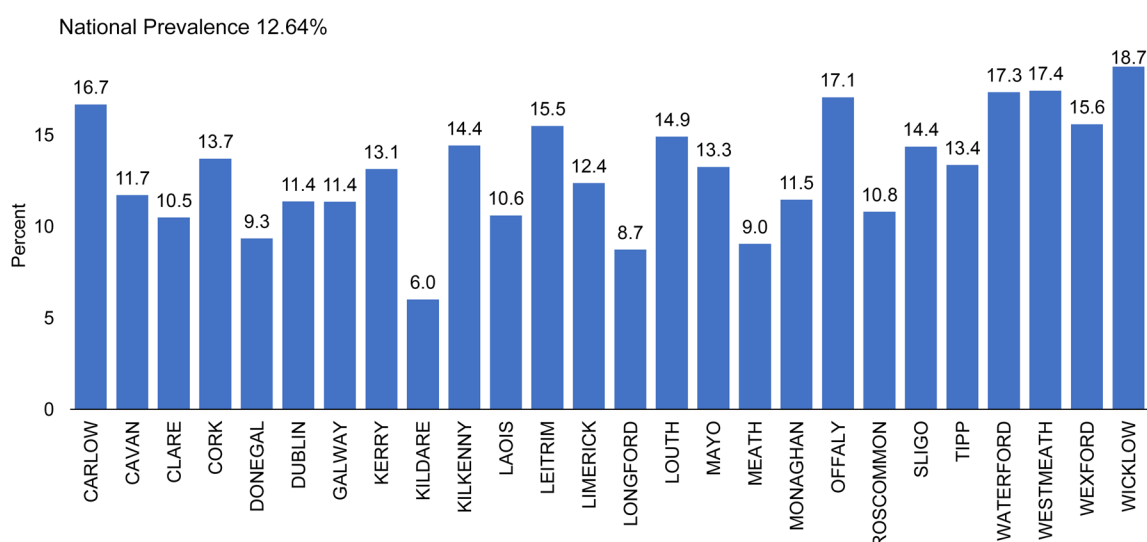
Diabetes by Age	50-69	70+	TOTAL
Number Cases in TILDA	241	239	600
Estimated Prevalence in Population	10.49%	14.86%	12.64%
Estimated Number of Cases in Population	107012	63353	182833

Note: The sum over age ranges may not equal total, due to slight inaccuracies in age estimates and rounding errors within age each age range

### 4.2.1 Diabetes by county

The following plot shows the distribution of diabetes cases across Ireland. NOTE: The percentages shown are the total percent by county not the percentage of cases within each county i.e. if you add up the percentages across all counties in Ireland it adds up to the total country prevalence of 12.64%.

*Figure 4. Diabetes distribution by county*



The table below shows the number of cases with diabetes in Tilda, the estimated population prevalence and estimated number in the population by county.

*Table 6. Breakdown of number of cases with diabetes in TILDA, the estimated prevalence (%) within each county and the estimated number of cases of diabetes in the population by county to nearest 100.*

County	Number of TILDA Cases	County Prevalence	Estimated Number in Population
CARLOW	8	16.68%	2800
CAVAN	6	11.71%	2800
CLARE	10	10.48%	4200
CORK	61	13.71%	22900
DONEGAL	22	9.34%	5000
DUBLIN	138	11.36%	42500
GALWAY	28	11.35%	8900
KERRY	24	13.14%	7100
KILDARE	10	6.01%	3400
KILKENNY	13	14.42%	4600
LAOIS	6	10.60%	2500
LEITRIM	4	15.50%	1800
LIMERICK	25	12.37%	7600
LONGFORD	4	8.73%	1100
LOUTH	13	14.91%	5600
MAYO	33	13.26%	6500
MEATH	19	9.04%	4700
MONAGHAN	8	11.46%	2200
OFFALY	12	17.07%	4100
ROSCOMMON	18	10.80%	2500
SLIGO	12	14.37%	3300
TIPPERARY	25	13.36%	7200
WATERFORD	23	17.34%	6600
WESTMEATH	16	17.43%	4600
WEXFORD	37	15.60%	7700
WICKLOW	25	18.74%	8200
<b>Total</b>	<b>600</b>	<b>12.64%</b>	<b>180600</b>

Note: County estimates may not add up exactly to the national total reported in other tables above as in some cases the number sampled within each county are so small that estimates may not be accurate.

### 4.3 Cardiovascular Disease

Here cardiovascular disease is taken to be at least one of the following: hypertension, heart attack, heart failure or angina. As stated previously, prevalence is calculated based on participants having a history of the disease, not just disease incidence at Wave 5, i.e. we counted disease as being present if the participant reported ever having any of the above medical conditions in any of the TILDA waves (2009-2018) not only if they reported it in 2018. The population prevalence of CVD was 55.49%, an estimated 802,641 people.

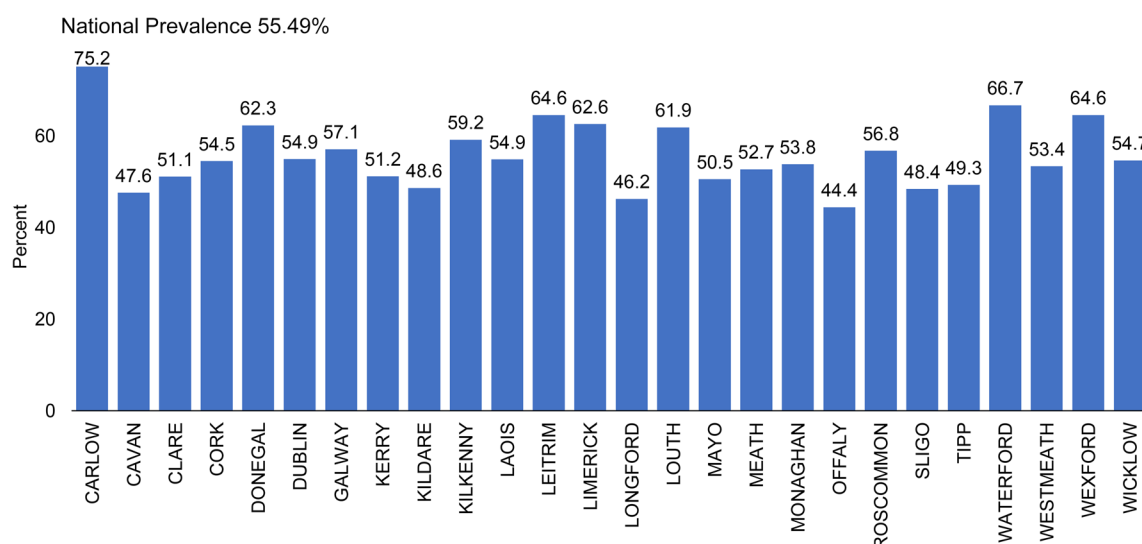
*Table 7. Breakdown of number of cases in TILDA, the estimated prevalence (%) in the population and the estimated number of cases of cardiovascular disease in the population for under and over 70s*

CVD by Age	50-69	70+	TOTAL
Number Cases in TILDA	1,120	1,595	2,715
Estimated Prevalence in Population	44.72%	66.62%	55.49%
Estimated Number of Cases in Population	456202	284022	802641

Note: The sum over age ranges may not equal total, due to slight inaccuracies in age estimates and rounding errors within age each age range

#### 4.3.1 Cardiovascular disease by county

*Figure 5. Estimated population prevalence of cardiovascular disease within each county*



*Table 8. Breakdown of number of cases with cardiovascular disease in TILDA, the estimated prevalence (%) within each county and the estimated number of cases with cardiovascular in the population by county to nearest 100.*

County	Number of TILDA Cases	County Prevalence	Estimated Number in Population
CARLOW	39	75.18%	12800
CAVAN	30	47.60%	11300
CLARE	59	51.11%	20300
CORK	282	54.50%	91000
DONEGAL	120	62.32%	33300
DUBLIN	636	54.94%	205700
GALWAY	153	57.09%	44900
KERRY	110	51.16%	27700
KILDARE	55	48.62%	27900
KILKENNY	57	59.18%	18900
LAOIS	28	45.88%	10700
LEITRIM	23	64.59%	7500
LIMERICK	134	62.59%	38300
LONGFORD	22	46.24%	6000
LOUTH	53	61.86%	23000
MAYO	137	50.54%	24600
MEATH	98	52.73%	27400
MONAGHAN	45	53.82%	10400
OFFALY	38	44.41%	10800
ROSCOMMON	85	56.77%	13200
SLIGO	41	48.41%	11200
TIPPERARY	103	49.30%	26600
WATERFORD	95	66.70%	25600
WESTMEATH	54	53.35%	14200
WEXFORD	139	64.60%	31700
WICKLOW	79	54.68%	24000
<b>Total</b>	<b>2,715</b>	<b>55.49%</b>	<b>799100</b>

Note: County estimates may not add up exactly to the national total reported in other tables above as in some cases the number sampled within each county are so small that estimates may not be accurate.

## 4.4 Diabetes and Cardiovascular Disease

The following shows figures for the co-occurrence of diabetes and cardiovascular disease which has a total prevalence of 9.97% or an estimated 144,212 people.

*Table 9. Breakdown of number of cases in TILDA, the estimated prevalence (%) in the population and the estimated number of cases of diabetes and cardiovascular disease in the population for under and over 70s*

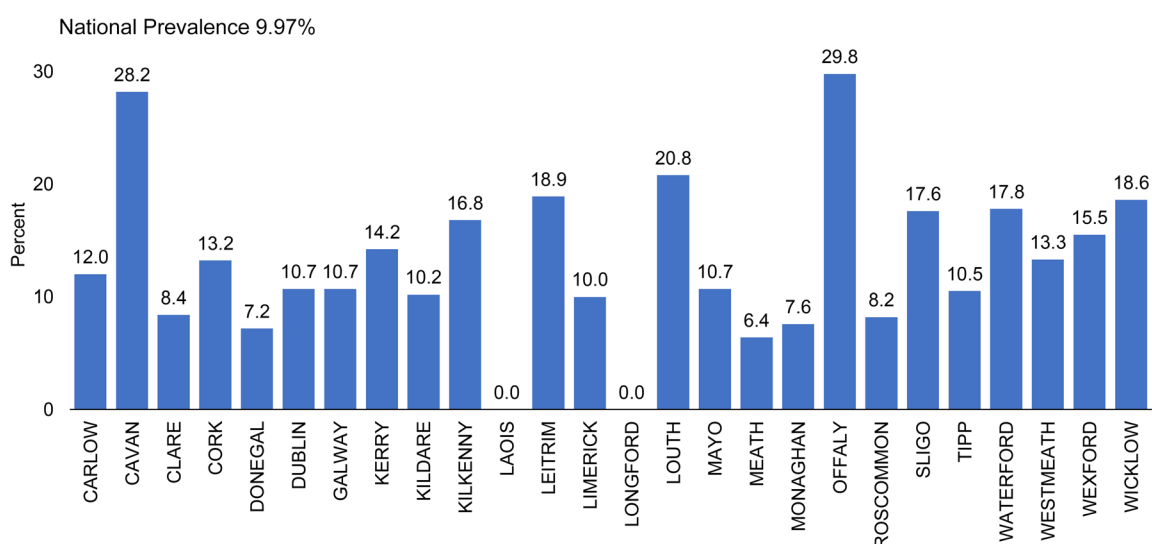
Diabetes and CVD by Age	50-69	70+	TOTAL
Number Cases in TILDA	179	294	473
Estimated Prevalence in Population	0.08	0.1201	0.0997
Estimated Number of Cases in Population	81610	51202	144212

Note: The sum over age ranges may not equal total, due to slight inaccuracies in age estimates and rounding errors within age each age range

### 4.4.1 Diabetes and Cardiovascular disease by county

The following shows the prevalence of having both diabetes and cardiovascular disease by county.

*Figure 6. Estimated population prevalence of diabetes and cardiovascular disease within each county*



*Table 10. Breakdown of number of cases with diabetes and cardiovascular in TILDA, the estimated prevalence (%) within each county and the estimated number of cases of diabetes and cardiovascular in the population by county to nearest 100.*

County	Number of TILDA Cases	County Prevalence	Estimated Number in Population
CARLOW	8	12.00%	2800
CAVAN	6	28.20%	2800
CLARE	6	8.40%	2400
CORK	44	13.20%	16500
DONEGAL	16	7.20%	3400
DUBLIN	108	10.70%	33700
GALWAY	21	10.70%	7200
KERRY	18	14.20%	6200
KILDARE	8	10.20%	2900
KILKENNY	10	16.80%	3300
LAOIS	2	NA	NA
LEITRIM	4	18.90%	1800
LIMERICK	20	10.00%	6000
LONGFORD	1	NA	NA
LOUTH	13	20.80%	5600
MAYO	24	10.70%	4200
MEATH	18	6.40%	4700
MONAGHAN	6	7.60%	1400
OFFALY	11	29.80%	3800
ROSCOMMON	15	8.20%	2000
SLIGO	8	17.60%	2300
TIPPERARY	18	10.50%	5100
WATERFORD	19	17.80%	5400
WESTMEATH	14	13.30%	4100
WEXFORD	34	15.50%	7300
WICKLOW	21	18.60%	6800
<b>Total</b>	<b>473</b>	<b>9.97%</b>	<b>142300</b>

Note: County estimates may not add up exactly to the national total reported in other tables above as in some cases the number sampled within each county are so small that estimates may not be accurate.

## 4.5 Ischaemic Heart Disease (Myocardial Infarction or angina)

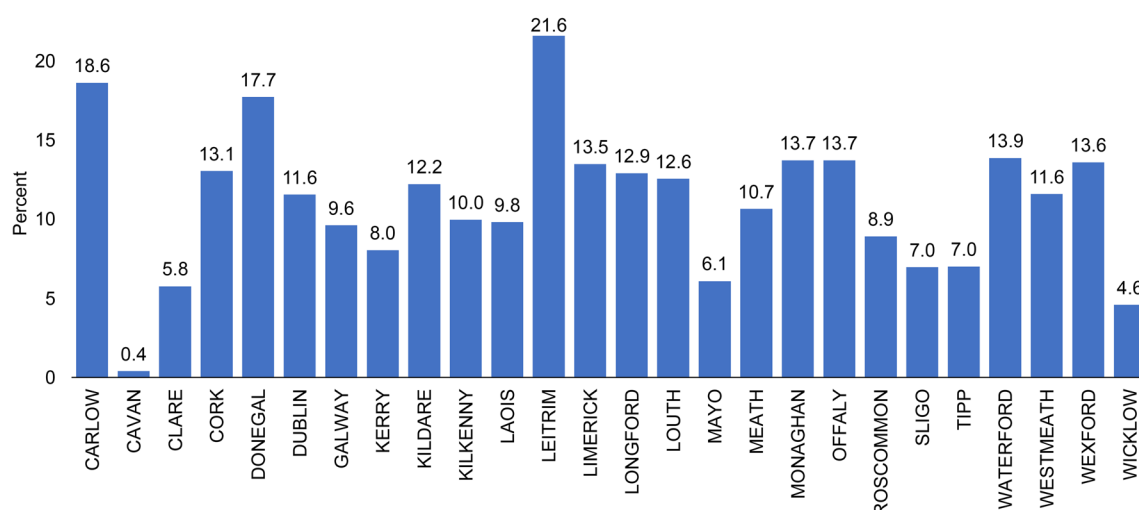
Table 11. Breakdown of number of cases in TILDA, the estimated prevalence (%) in the population and the estimated number of cases of ischaemic heart disease in the population for under and over 70s.

Ischaemic Heart Disease by Age	50-69	70+	TOTAL
Number Cases in TILDA	136	378	514
Estimated Prevalence in Population	6.08%	16.43%	11.17%
Estimated Number of Cases in Population	62024	70046	161570

Note: The sum over age ranges may not equal total, due to slight inaccuracies in age estimates and rounding errors within age each age range

### 4.5.1 Ischaemic heart disease (Myocardial Infarction or angina) disease by county

Figure 7. Estimated population prevalence of ischaemic heart disease (angina or heart attack) within each county



*Table 12. Breakdown of number of cases with either ischaemic heart disease in TILDA, the estimated prevalence (%) within each county and the estimated number of cases of ischaemic heart disease in the population by county to nearest 100*

County	Number of TILDA Cases	County Prevalence	Estimated Number in Population
CARLOW	9	18.64%	3200
CAVAN	5	8.40%	2000
CLARE	7	5.77%	2300
CORK	63	13.05%	21800
DONEGAL	31	17.74%	9500
DUBLIN	125	11.56%	43300
GALWAY	23	9.61%	7600
KERRY	18	8.04%	4400
KILDARE	11	12.22%	7000
KILKENNY	10	9.97%	3200
LAOIS	5	9.81%	2300
LEITRIM	7	21.62%	2500
LIMERICK	23	13.50%	8300
LONGFORD	5	12.91%	1700
LOUTH	11	12.56%	4700
MAYO	22	6.10%	3000
MEATH	19	10.65%	5500
MONAGHAN	11	13.73%	2700
OFFALY	11	13.74%	3300
ROSCOMMON	15	8.91%	2100
SLIGO	5	6.96%	1600
TIPPERARY	15	7.01%	3800
WATERFORD	19	13.88%	5300
WESTMEATH	9	11.59%	3100
WEXFORD	26	13.61%	6700
WICKLOW	9	4.60%	2000
<b>Total</b>	<b>514</b>	<b>11.17%</b>	<b>162600</b>

Note: County estimates may not add up exactly to the national total reported in other tables above as in some cases the number sampled within each county are so small that estimates may not be accurate.

## 4.6 Hypertension

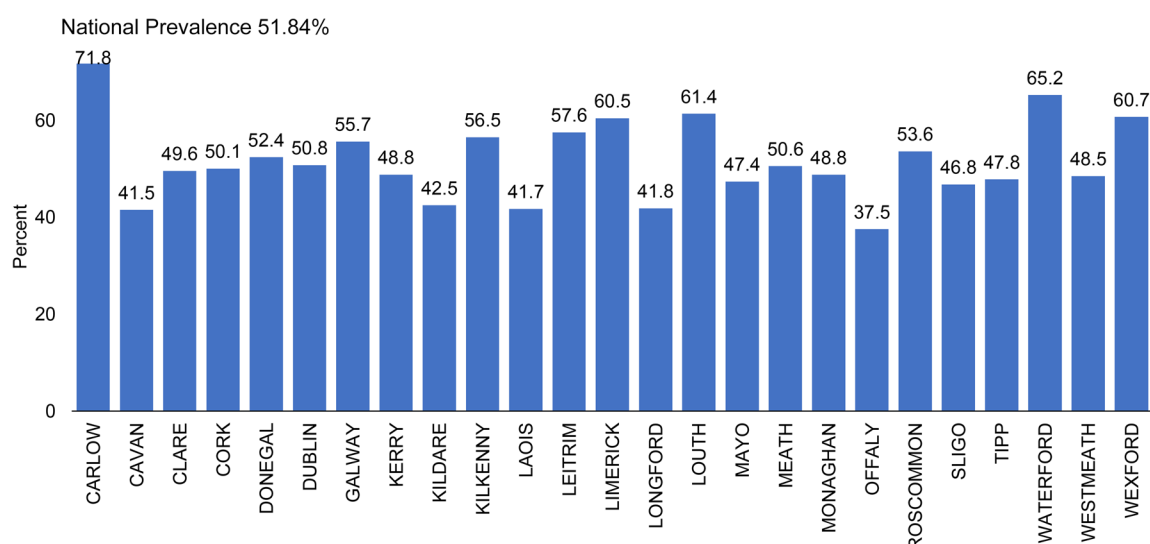
*Table 13. Breakdown of number of cases in TILDA, the estimated prevalence (%) in the population and the estimated number of cases of hypertension in the population for under and over 70s. Note: The sum over age ranges may not equal total, due to slight inaccuracies in age estimates and rounding errors within age each age range*

Hypertension by Age	50-69	70+	TOTAL
Number Cases in TILDA	1,075	1,472	2,547
Estimated Prevalence in Population	42.90%	61.08%	51.84%
Estimated Number of Cases in Population	437635	260403	749845

Note: The sum over age ranges may not equal total, due to slight inaccuracies in age estimates and rounding errors within age each age range

### 4.6.1 Hypertension by county

*Figure 8. Estimated population prevalence of hypertension within each county*



*Table 14. Breakdown of number of cases with hypertension in TILDA, the estimated prevalence (%) within each county and the estimated number of cases of hypertension in the population by county to nearest 100.*

County	Number of TILDA Cases	County Prevalence	Estimated Number in Population
CARLOW	37	71.75%	12300
CAVAN	26	41.52%	9900
CLARE	56	49.59%	19700
CORK	262	50.05%	83600
DONEGAL	105	52.41%	28000
DUBLIN	594	50.76%	190000
GALWAY	150	55.65%	43800
KERRY	104	48.80%	26400
KILDARE	51	42.47%	24400
KILKENNY	54	56.54%	18100
LAOIS	27	41.71%	9700
LEITRIM	22	57.56%	6700
LIMERICK	127	60.47%	37000
LONGFORD	20	41.84%	5400
LOUTH	52	61.39%	22900
MAYO	129	47.63%	23200
MEATH	92	50.56%	26300
MONAGHAN	40	48.77%	9400
OFFALY	33	37.53%	9100
ROSCOMMON	79	53.62%	12500
SLIGO	40	46.77%	10800
TIPPERARY	100	47.81%	25800
WATERFORD	91	65.24%	25000
WESTMEATH	50	48.52%	12900
WEXFORD	131	60.74%	29800
WICKLOW	75	52.74%	23100
<b>Total</b>	<b>2,547</b>	<b>51.84%</b>	<b>745800</b>

Note: County estimates may not add up exactly to the national total reported in other tables above as in some cases the number sampled within each county are so small that estimates may not be accurate.

## 4.7 Rheumatoid Arthritis

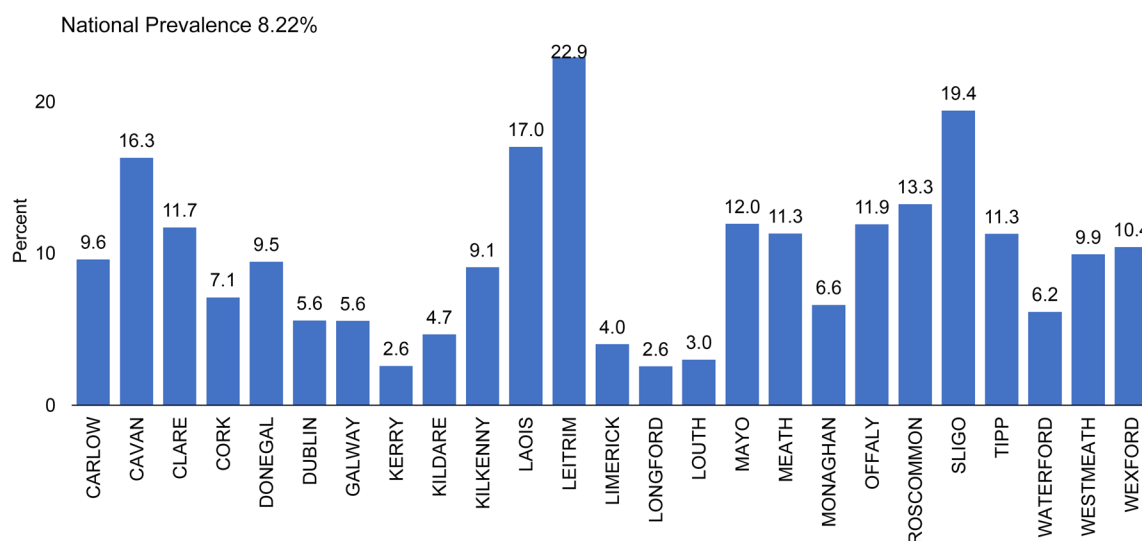
*Table 15. Breakdown of number of cases in TILDA, the estimated prevalence (%) in the population and the estimated number of cases of rheumatoid arthritis in the population for under and over 70s*

Rheumatoid Arthritis by Age	50-69	70+	TOTAL
Number Cases in TILDA	158	230	388
Estimated Prevalence in Population	0.0615	10.35%	8.22%
Estimated Number of Cases in Population	105583	35044	118899

Note: The sum over age ranges may not equal total, due to slight inaccuracies in age estimates and rounding errors within age each age range

### 4.7.1 Rheumatoid Arthritis by county

*Figure 9. Estimated population prevalence of rheumatoid arthritis within each county*



*Table 16. Breakdown of number of cases with rheumatoid arthritis in TILDA, the estimated prevalence (%) within each county and the estimated number of cases of rheumatoid arthritis in the population by county to nearest 100.*

County	Number of TILDA Cases	County Prevalence	Estimated Number in Population
CARLOW	6	9.60%	1600
CAVAN	7	16.31%	3900
CLARE	13	11.72%	4700
CORK	35	7.11%	11900
DONEGAL	18	9.45%	5100
DUBLIN	58	5.59%	20900
GALWAY	19	5.56%	4400
KERRY	4	2.59%	1400
KILDARE	5	4.67%	2700
KILKENNY	9	9.08%	2900
LAOIS	9	17.03%	4000
LEITRIM	7	22.94%	2700
LIMERICK	12	4.03%	2500
LONGFORD	3	2.56%	300
LOUTH	2	3.01%	1100
MAYO	32	11.95%	5800
MEATH	21	11.31%	5900
MONAGHAN	7	6.62%	1300
OFFALY	10	11.93%	2900
ROSCOMMON	16	13.25%	3100
SLIGO	16	19.43%	4500
TIPPERARY	22	11.28%	6100
WATERFORD	9	6.16%	2400
WESTMEATH	9	9.93%	2600
WEXFORD	19	10.42%	5100
WICKLOW	20	14.13%	6200
<b>Total</b>	<b>388</b>	<b>8.22%</b>	<b>115800</b>

Note: County estimates may not add up exactly to the national total reported in other tables above as in some cases the number sampled within each county are so small that estimates may not be accurate.

## 4.8 Chronic Kidney Disease\*

Data for chronic kidney disease (CKD) were only available for Wave 1 (data collected 2009-2010) and so estimates for CKD are based on the 2011 Census\*.

*Table 17. Breakdown of number of cases in TILDA, the estimated prevalence (%) in the population and the estimated number of cases of chronic kidney disease\* in the population for under and over 70s*

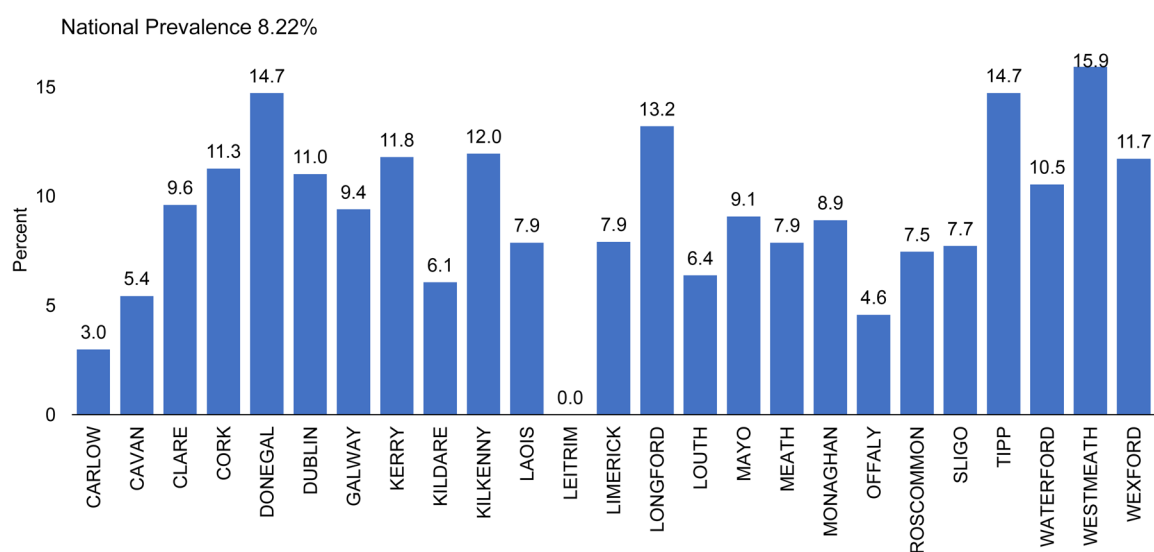
CKD by Age	50-69	70+	TOTAL
Number Cases in TILDA	212	216	428
Estimated Prevalence in Population	5.74%	28.03%	10.10%
Estimated Number of Cases in Population	255446	36537	128582

Note: The sum over age ranges may not equal total, due to slight inaccuracies in age estimates and rounding errors within age each age range

\*Chronic kidney disease was estimated from blood samples for creatine and consequently glomerular filtration rates

### 4.8.1 Chronic Kidney Disease by county

*Figure 10: Estimated population prevalence of chronic kidney disease within each county*



*Table 18. Breakdown of number of cases with chronic kidney disease in TILDA, the estimated prevalence (%) within each county and the estimated number of chronic kidney disease or asthma in the population by county to nearest 100.*

County	Number of TILDA Cases	County Prevalence	Estimated Number in Population
CARLOW	1	2.99%	400
CAVAN	3	5.44%	1100
CLARE	9	9.60%	3400
CORK	56	11.27%	16500
DONEGAL	15	14.72%	7100
DUBLIN	134	11.02%	36300
GALWAY	21	9.40%	6500
KERRY	24	11.79%	5700
KILDARE	6	6.05%	2900
KILKENNY	10	11.95%	3300
LAOIS	3	7.87%	1600
LEITRIM	0	0.00%	0
LIMERICK	15	7.91%	4400
LONGFORD	3	13.20%	1500
LOUTH	4	6.37%	2100
MAYO	16	9.08%	4000
MEATH	14	7.87%	3400
MONAGHAN	5	8.90%	1600
OFFALY	3	4.58%	1000
ROSCOMMON	7	7.45%	1600
SLIGO	7	7.72%	1600
TIPPERARY	22	14.73%	7200
WATERFORD	13	10.54%	3600
WESTMEATH	12	15.93%	3700
WEXFORD	18	11.72%	5000
WICKLOW	7	5.94%	2200
<b>Total</b>	<b>428</b>	<b>10.10%</b>	<b>127800</b>

Note: County estimates may not add up exactly to the national total reported in other tables above as in some cases the number sampled within each county are so small that estimates may not be accurate.

## 4.9 Smoking History

Table 19. Estimated number of population by county who have never smoked, are former smokers or are current smokers (as of 2018) to the nearest 100

County	Never	Former	Current	Total
CARLOW	7200	7300	2500	17100
CAVAN	9700	11500	2600	23800
CLARE	22500	15500	1700	39800
CORK	76100	68800	22000	167000
DONEGAL	21400	24700	7400	53500
DUBLIN	156000	176000	42300	374400
GALWAY	38000	32800	7800	78700
KERRY	22000	22300	9800	54100
KILDARE	20100	30100	7200	57400
KILKENNY	11200	16900	3800	31900
LAOIS	11500	11100	800	23400
LEITRIM	4500	5900	1300	11700
LIMERICK	28600	25600	7000	61200
LONGFORD	4900	5200	2800	12900
LOUTH	17600	15800	3900	37200
MAYO	20100	23600	5100	48700
MEATH	22700	24300	4900	51900
MONAGHAN	11200	5800	2300	19300
OFFALY	9800	9900	4700	24300
ROSCOMMON	13800	5300	4200	23300
SLIGO	9000	11600	2500	23100
TIPPERARY	23200	23700	7100	53900
WATERFORD	15300	17700	5300	38300
WESTMEATH	13700	10400	2500	26600
WEXFORD	20200	20600	8200	49000
WICKLOW	21300	19200	3400	43900
<b>Total</b>	<b>631600</b>	<b>641800</b>	<b>173000</b>	<b>1446400</b>

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## 5. Medications Data

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This section will show the breakdown of numbers of over 50s at Wave 5 (2018) using the following medications (identified using WHO Anatomical Therapeutic Chemical (ATC) codes [https://www.whocc.no/atc\\_ddd\\_index/](https://www.whocc.no/atc_ddd_index/)):

- Any blood glucose lowering drug<sup>1</sup>
- Thiazolidinediones
- Antihypertensives<sup>2</sup>
- ACE Inhibitors<sup>3</sup>
- Angiotensin II Antagonists<sup>3</sup>
- Oral Ibuprofen
- Inhaled corticosteroid
- Topical corticosteroid
- Immunosuppressants
- Antineoplastic agents

These estimates are based on participants reporting of medications that they take at the time of Wave 5 data collection on a regular basis, live every day or every week. They are asked to report not just prescription medications, but also over-the-counter medications and supplements. The data may underestimate exposure to medications used intermittently, such as ibuprofen in this case, where participant may only have reported this if they use it regularly.

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1 This includes insulin and its analogues, and other oral and non-oral blood glucose lowering drugs. This corresponds to ATC code A10.

2 This includes diuretics, beta blockers, calcium channel blockers, ACE inhibitors, Angiotensin II Antagonists, other Renin-Angiotensin System agents, and other antihypertensives. This corresponds to ATC codes C02, C03, C0, C08, and C09.

3 This includes both single ingredient and fixed-dose combination medications.

## 5.1 Blood Glucose Lowering Drug

*Table 20. Breakdown of number of cases in TILDA, the estimated prevalence (%) in the population and the estimated number of cases taking any blood glucose lowering drug in the population for under and over 70s*

Any blood glucose lowering drug	50-69	70+	TOTAL
Number Cases in TILDA	179	269	448
Estimated Prevalence in Population	3.78%	5.38%	9.16%
Estimated Number of Cases in Population	38561	22937	132496

Note: The sum over age ranges may not equal total, due to slight inaccuracies in age estimates and rounding errors within age each age range

## 5.2 Thiazolidinedione

*Table 21. Breakdown of number of cases in TILDA, the estimated prevalence (%) in the population and the estimated number of cases taking thiazolidinediones in the population for under and over 70s*

Thiazolidinedione	50-69	70+	TOTAL
Number Cases in TILDA	4	5	9
Estimated Prevalence in Population	0.23%	0.17%	0.20%
Estimated Number of Cases in Population	2346	725	2893

Note: The sum over age ranges may not equal total, due to slight inaccuracies in age estimates and rounding errors within age each age range

## 5.3 Antihypertensives

*Table 22. Breakdown of number of cases in TILDA, the estimated prevalence (%) in the population and the estimated number of cases taking any antihypertensives in the population for under and over 70s*

Taking any antihypertensives	50-69	70+	TOTAL
Number Cases in TILDA	920	1,482	2,402
Estimated Prevalence in Population	36.37%	62.8%	49.35%
Estimated Number of Cases in Population	371021	267736	713828

Note: The sum over age ranges may not equal total, due to slight inaccuracies in age estimates and rounding errors within age each age range

## 5.5 Angiotensin II Antagonist

*Table 23. Breakdown of number of cases in TILDA, the estimated prevalence (%) in the population and the estimated number of cases taking any angiotensin II antagonists in the population for under and over 70s*

Any Angiotensin II Antagonist	50-69	70+	TOTAL
Number Cases in TILDA	279	465	744
Estimated Prevalence in Population	11.04%	19.26%	15.08%
Estimated Number of Cases in Population	112622	82111	218126

Note: The sum over age ranges may not equal total, due to slight inaccuracies in age estimates and rounding errors within age each age range

## 5.6 Oral Ibuprofen

*Table 24. Breakdown of number of cases in TILDA, the estimated prevalence (%) in the population and the estimated number of cases taking any oral ibuprofen in the population for under and over 70s*

Any Angiotensin II Antagonist	50-69	70+	TOTAL
Number Cases in TILDA	32	16	48
Estimated Prevalence in Population	1.47%	0.62%	1.05%
Estimated Number of Cases in Population	14996	2643	15188

Note: The sum over age ranges may not equal total, due to slight inaccuracies in age estimates and rounding errors within age each age range

## 5.7 Oral or Inhaled Corticosteroid

*Table 25. Breakdown of number of cases in TILDA, the estimated prevalence (%) in the population and the estimated number of cases of taking any oral corticosteroid in the population for under and over 70s*

Any Oral Corticosteroid	50-69	70+	TOTAL
Number Cases in TILDA	14	12	26
Estimated Prevalence in Population	0.54%	0.49%	0.51%
Estimated Number of Cases in Population	5509	2302	7088

Note: The sum over age ranges may not equal total, due to slight inaccuracies in age estimates and rounding errors within age each age range

*Table 26. Breakdown of number of cases in TILDA, the estimated prevalence (%) in the population and the estimated number of cases taking any inhaled corticosteroid in the population for under and over 70s*

Any Inhaled Corticosteroid	50-69	70+	TOTAL
Number Cases in TILDA	79	46	125
Estimated Prevalence in Population	2.96%	2.20%	2.59%
Estimated Number of Cases in Population	30196	12619	31822

Note: The sum over age ranges may not equal total, due to slight inaccuracies in age estimates and rounding errors within age each age range

## 5.8 Immunosuppressant

*Table 27. Breakdown of number of cases in TILDA, the estimated prevalence (%) in the population and the estimated number of cases taking any immunosuppressant in the population for under and over 70s*

Any Immunosuppressant	50-69	70+	TOTAL
Number Cases in TILDA	27	13	40
Estimated Prevalence in Population	0.91%	0.52%	0.72%
Estimated Number of Cases in Population	5305	2217	10415

Note: The sum over age ranges may not equal total, due to slight inaccuracies in age estimates and rounding errors within age each age range

## 5.9 Antineoplastic Agent

*Table 28. Breakdown of number of cases in TILDA, the estimated prevalence (%) in the population and the estimated number of cases taking any antineoplastic agent in the population for under and over 70s*

Taking any Antineoplastic Agent	50-69	70+	TOTAL
Number Cases in TILDA	12	8	20
Estimated Prevalence in Population	0.49%	0.34%	0.42%
Estimated Number of Cases in Population	3468	1450	6075

Note: The sum over age ranges may not equal total, due to slight inaccuracies in age estimates and rounding errors within age each age range

## 5.10 Topical Corticosteroid

*Table 29. Breakdown of number of cases in TILDA, the estimated prevalence (%) in the population and the estimated number of cases using any topical corticosteroid in the population for under and over 70s*

Using any Topical Corticosteroid	50-69	70+	TOTAL
Number Cases in TILDA	12	8	20
Estimated Prevalence in Population	0.49%	0.34%	0.42%
Estimated Number of Cases in Population	3468	1450	6075

Note: The sum over age ranges may not equal total, due to slight inaccuracies in age estimates and rounding errors within age each age range

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## 6. Conclusions

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High-risk categories for COVID-19 and their distribution by county in Republic of Ireland-evidence from the TILDA study ", gives the estimated number of people over 50 in Ireland and by county who have diabetes, cardiovascular disease, ischaemic heart disease, lung disease or asthma, rheumatoid arthritis, chronic kidney disease and a history of smoking; all of which are medical conditions/behaviours suspected to be risk factors for more severe symptoms of COVID-19. It also looks at comorbidities, or the presence of two or more chronic conditions.

Among its findings are:

- Almost 750,000 adults over 50, and 260,000 adults over 70 have hypertension
- 182,000 adults over 50, and 80,000 adults over 70 have asthma
- 183,000 adults over 50, and 63,000 adults over 70 have diabetes mellitus
- 129,000 adults over 50, and 36,000 adults over 70 have chronic kidney disease
- 167,500 adults over 50, and 99,000 adults over 70 have past or present cancer
- 123,000 Adults over 50, and 65,000 adults over 70 have chronic lung disease
- Over 377,000 adults over 50, and 91,000 adults over 70 live with two comorbidities
- 637,000 adults over 50, and 260,000 adults over 70 live with three or more comorbidities

An unprecedented crisis like the COVID-19 pandemic can pose serious health risks for older populations. This report aims to inform Government, the HSE and public about the prevalence in Ireland, nationally and by county, of a range of conditions and of medication usage which have been identified as possible risk factors associated with COVID-19. The challenges the pandemic poses to our health system and society are apparent; this is one of a suite of TILDA reports detailing the prevalence of risk factors and rates of use of health and community services among the older population in Ireland, which will assist in the planning and delivery of supports and services.

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## 7. References

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1. Kenny RA, Hernández B, O'Halloran A, Moriarty F, McGarrigle C. TILDA Report to inform demographics for over 50s in Ireland for covid19 crisis <https://www.doi.org/10.38018/TildaRe.2020-00>
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