The Second Report of the

Structured Chronic Disease Management Treatment Programme

in General Practice

Foreword

I would like to thank the General Practitioners and the Practice Nurses all around the country for their enthusiastic participation in the Structured Chronic Disease Management Programme. The uptake of the programme by patients has been excellent.

I would also like to thank the leadership and support given by the Minister, The Department of Health and the HSE in funding and enhancing this programme. I would like to acknowledge the work done by many services within the HSE to develop, enable, implement and analyse this work which allows the programme to be delivered and reported upon.

The GP Chronic Disease Management Programme is a main plank of the Enhanced Community Care Programme and the excellent and improving clinical results for patients outlined within this report speak for themselves. This demonstrates Sláintecare in action: shifting care to the left by providing timely, patient-centred care, close to home, delivered by the right people, which is now beginning to deliver quality outcomes for patients.

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National Clinical Advisor Chronic Disease

Introduction

The Treatment Programme, as part of the Structured Chronic Disease Management Programme in General Practice 2020 - 2024 (CDM), was launched in January 2020. It is an essential element of the Enhanced Community Care Programme for chronic disease patients. The Treatment Programme was initially rolled out to over 70 year olds, with extension to the over 65 year olds commencing from January 2021 and further extension to all adults over 18 years of age from January 2022. The Treatment Programme is open to all adults who have a General Medical Services /Doctor Visit Card (GMS/DVC) and who have been diagnosed with at least one of the following chronic diseases;

- Type 2 diabetes mellitus
- Ischaemic heart disease
- Atrial fibrillation
- Heart failure
- Cerebrovascular accident (CVA)
- Transient ischaemic attack (TIA)
- Chronic Obstructive Pulmonary Disease (COPD)
- Asthma

Data have been collected since the inception of the Treatment Programme and the first baseline report was published in March 2022. This initial report described demographics, programme uptake and engagement, clinical details, multimorbidity and lifestyle risk factors. It described early indicators of improvement in lifestyle risk factors for patients who had had a number of GP visits. The initial first cut analysis also explored the extent, breadth and quality of the raw data. Following this review, edits to the data collection system were made to improve the quality of the data collected by the CDM, with these changes being rolled out nationally as part of the second phase of the CDM from late January 2022.

This second report again describes the above parameters and builds on the information included in the first report to include all anonymised data returned for Treatment Programme clinical encounters imported into the system between 1st January 2020 and 20th January 2022. This date range was chosen for the second report to include all patients in the first phase of the Treatment Programme, before the changes to the data collection system were rolled out in phase two, in order to ensure comparability of findings across the patient cohort. Hence, this second report refers to patients treated by General Practitioners (GPs) for the first two years of the programme and comprises 186,210 patients in total.

Number of consultations, demographics and Treatment Programme uptake

Of the 186,210 patients seen by GPs for Treatment Programme assessments between 01/01/2020 and 20/01/2022, 38% of patients had one Treatment Programme assessment, 39% had two assessments, 22% had three assessments and the remaining had four assessments, as shown in Table 1.

Number of consultations	Number of patients	% of patients
1	70,638	37.93%
2	71,971	38.65%
3	40,332	21.66%
4	3,268	1.76%
Total	186,209	100%

Table 1: Number of Treatment Programme consultations by patient.
*one patient had five consultations

This report focusses particularly on patients (43,600) who have had at least three reviews to describe trends in outcomes.

Figure 1 displays the age profile of the patients seen between 01/01/2020 and 20/01/2022. In keeping with the staggered age-related introduction of the Treatment Programme, older patients were more likely to have had one or more assessments, with smaller numbers of individuals under 65 years having availed of the service during this time period as this younger cohort only became eligible for the Treatment Programme on 01/01/2022.

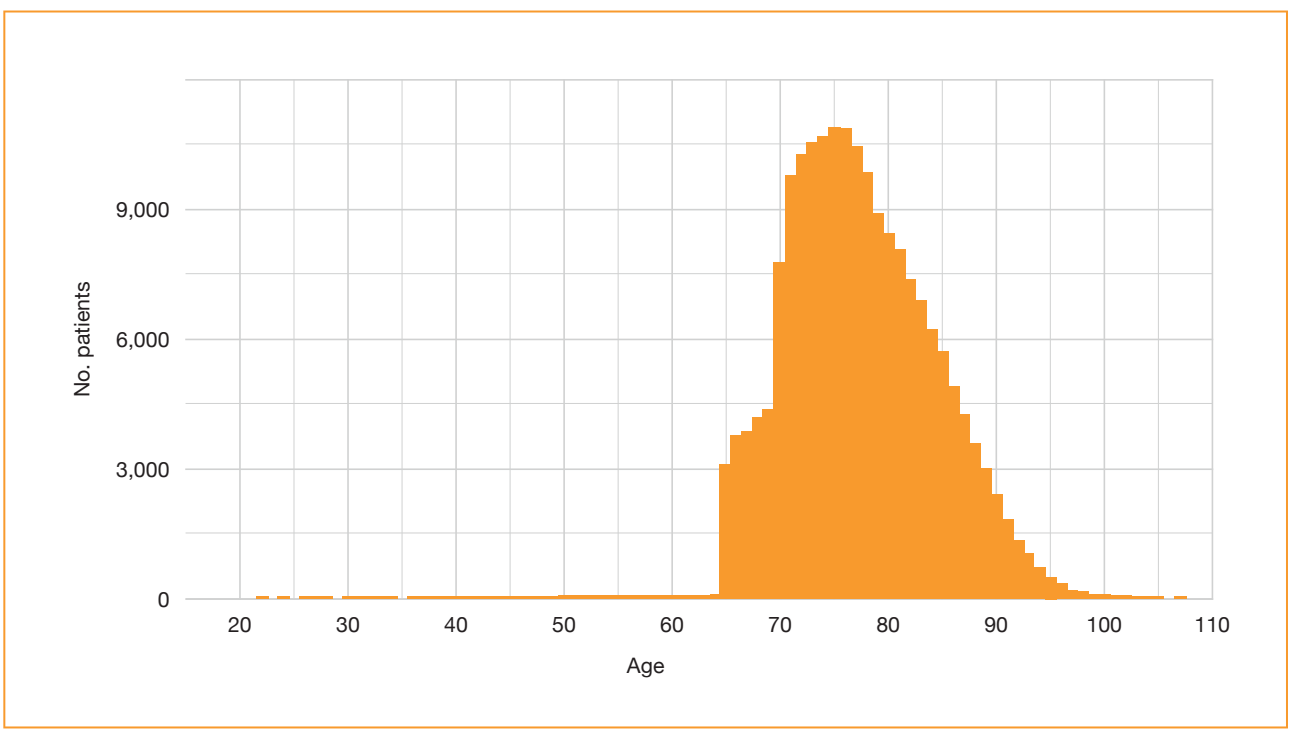

Figure 1: Patient distribution by age.

Age group in years	Number of unique patients	% of patients
18 - 24	<5	0%
25 - 34	11	0.01%
35 - 44	31	0.02%
45 - 54	91	0.05%
55 - 64	287	0.15%
65 - 69	19,124	10.27%
70 - 74	49,067	26.35%
75 - 79	51,002	27.39%
80 – 84	36,947	19.84%
85 - 89	21,326	11.45%
90+	8,322	4.47%
Total	186,210	100%

Table 2: Number and proportion of patients enrolled in the Treatment Programme up to 20/01/2022 by age group.

The above table 2 shows the age group breakdown of patients in the Treatment Programme on 20/01/2022.

Age group	GMS/DVC population	Number enrolled in Treatment Programme by 20th January 2022	% GMS/DVC population enrolled	Estimated number with a chronic disease in GMS/DVC population*	Estimated % uptake of Treatment Programme in eligible population*
65 years +	619,471	185,788	29.99%	222,905	83%
18 years +	1,440,628	186,210	12.93%	337,606	55%

Table 3: Number of patients in the Treatment Programme by age group, percent of GMS/DVC population and uptake estimates (*chronic disease prevalence estimates from TILDA and QNHS surveys)

In January 2022, the majority of patients in the Treatment Programme were over 65 years of age. The uptake rate of the programme among GMS/Doctor Visit Card patients over 65 years estimated to have been diagnosed with one or more of the selected chronic diseases was calculated at 83%. This is almost 30% of the total GMS/DVC population over 65 years. The uptake rate of the programme in the eligible population aged over 18 years who are estimated to have a diagnosis of one or more of the selected chronic diseaseswas estimated at 55% , accounting for almost 13% of the total adult GMS population.

This uptake of 83% for patients over 65 indicates a high level of engagement with the Treatment Programme and has risen from approximately 75% reported in September 2021.

Clinical details

From 01/01/2020 to 20/01/2022 the 186,210 patients seen by GPs as part of the Treatment Programme had 297,071 diagnoses recorded, as shown in Table 4.

Diagnosis	Number diagnosed	% of patients
Ischaemic heart disease	71,302	24%
Type 2 diabetes mellitus	64,873	21.8%
Atrial fibrillation	48,458	16.3%
COPD	35,877	12.1%
Asthma	27,194	9.2%
Heart failure	21,328	7.2%
CVA	14,036	4.7%
TIA	14,003	4.7%
Total	297,071	100%

Table 4: Number and proportion of each chronic disease diagnosis

As the above table demonstrates, the most prevalent diagnosis was ischaemic heart disease at 24% of patients, followed by type 2 diabetes mellitus at approximately 22% of patients.`

Analysis by Age

Diagnosis	Min	IQR Lower	Median	Mean	IQR Upper	Max	Number diagnosed
Heart failure	51	75	80	80.5	86	102	21,328
TIA	38	74	78	78.9	84	103	14,003
Atrial fibrillation	45	75	79	79.5	84	107	48,458
CVA	54	74	78	78.7	83	104	14,036
Ischaemic heart disease	43	73	77	77.9	82	105	71,302
COPD	39	72	76	76.6	81	102	35,877
Asthma	22	71	75	76.1	80	102	27,194
Type 2 diabetes mellitus	31	72	76	76.5	81	103	64,873

Table 5: Age range of patients by disease

This table shows the minimum age, maximum age, interquartile ranges (IQR), together with a median and mean age for the various diagnoses recorded in this cohort. It shows that patients with heart failure tend to be older than patients with other diagnoses.

Chronic disease and multimorbidity

Analysis of the number of patients and number of comorbidities showed that the majority of patients (58.5%) were recorded as having only one of the eight chronic diseases covered in the Treatment Programme, with a decreasing proportion of patients associated with an increasing number of co-morbidities (Table 6).

Overall 41.5% of patients had multimorbidity i.e. 2 or more chronic conditions and 14.1% of this cohort had three or more chronic diseases.

Comorbidities

Number of Conditions	1	2	3	4	5	6	7	8
Number of patients	108845	51114	20299	4842	957	127	22	<5
Proportion of patients enrolled	58.5%	27.4%	10.9%	2.6%	0.5%	0.1%	0%	0%

Table 6: Number of comorbidities by patient.

Age stratified analysis follows the expected trend of increasing numbers of co-morbidities with increasing age, 20% of patients aged over 85 years had three or more chronic conditions compared to 10% in those age 65 to 74 years, as shown in Table 7.

	1 Condition		2 Condition		3 Condition		
	n	%	n	%	n	%	Total
18-49	61	87.14%	9	12.86%	0	0%	70
50-64	242	68.75%	81	23.01%	29	8.24%	352
65-74	43,922	64.41%	17,246	25.29%	7,023	10.3%	68,191
75-79	29,986	58.79%	14,057	27.56%	6,959	13.64%	51,002
80-84	20,031	54.22%	10,662	28.86%	6,254	16.93%	36,947
85+	14,603	49.25%	9,059	30.56%	5,986	20.19%	29,648
Total	108,845	58.45%	51,114	27.45%	26,251	14.1%	186,210

Table 7: Number and % of conditions by age grouping.

The interrelationship between comorbidities is detailed in figure 2, which illustrates the percentage of individuals with a condition who have at least one other of the specified conditions. This pattern has not changed since the first report. Patients with heart failure are more likely to have multiple conditions, with only 13% of them suffering from heart failure alone. Patients with TIA or CVA were next most likely to suffer from multiple conditions.

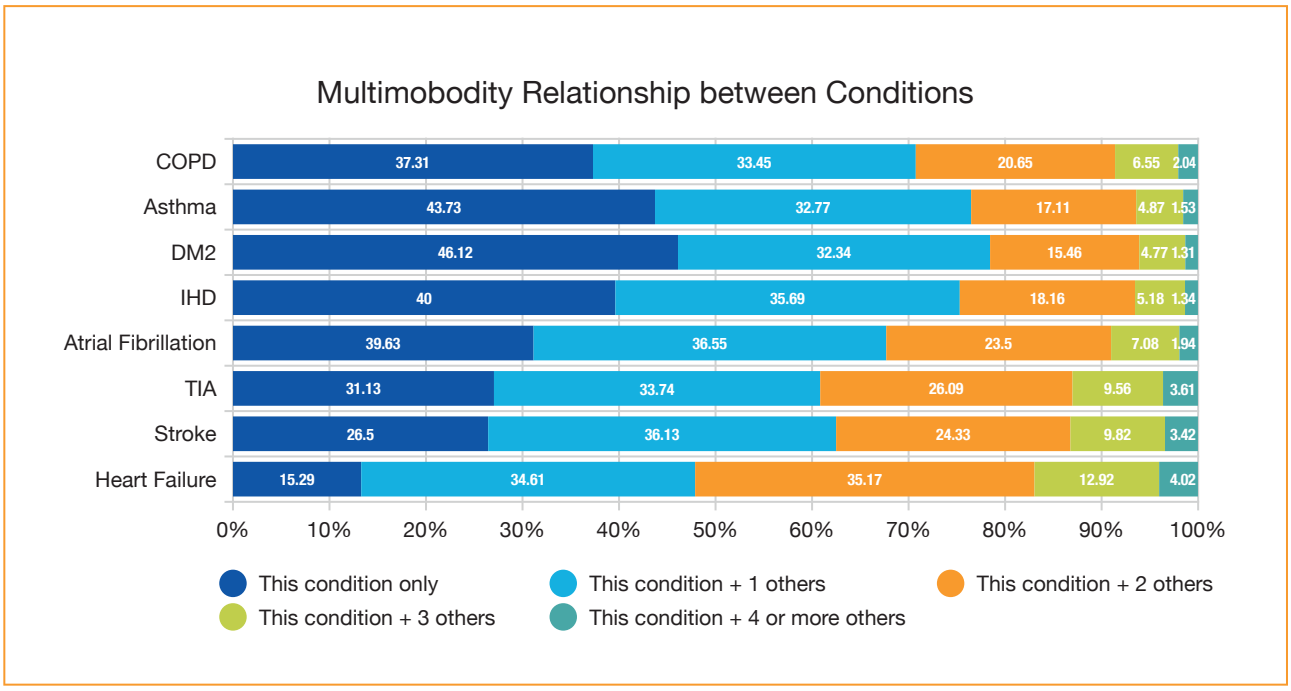

Figure 2: Multimorbidity relationship.

The Treatment Programme dataset allows GPs to record a selection of additional comorbidities that are outside of the eight conditions included in the CDM Programme. Approximately 16% of patients were recorded as having another comorbidity, the most common of these was chronic kidney disease (CKD). This illustrates the importance of including CKD and some less common high-risk cardiovascular conditions in future enhancements of the CDM programme.

Lifestyle Risk Factors

Smoking

Smoking status remained similar to the results reported in the first report, as shown in Table 8.

Smoking status	Number of patients	% of patients
Current smoker	17,312	9.3%
Ex-smoker	70,654	37.94%
Never	94,824	50.92%
Unknown/ not asked	3,420	1.84%
Total	186,210	100%

Table 8: Smoking status of patients enrolled in the Treatment Programme at their most recent review

As at 20th January 2022, over 9% of patients were current smokers, 38% were ex-smokers and approximately 51% of Treatment Programme participants had never smoked. Encouragingly, GPs engaged over 98% of patients concerning their smoking behaviour.

Of the cohort of patients who attended for a Treatment Programme review at least three times (n = 43,600): 7.3% were smokers at the first visit with this decreasing to 7.19% by the third visit.

Table 9 shows the comparison of patients who attended three times and who were smokers at first attendance versus their smoking status at third attendance.

Smoking status at first visit	Smoking status at third visit	Number of patients	% of patients
Current smoker	Current smoker	2,632	86.7%
Current smoker	Ex-smoker	404	13.3%
Total		3,036	100%

Table 9: Comparison of current smokers at first Treatment Programme attendance, versus third attendance.

As shown in Table 9, 13% of smokers gave up smoking between their first and third visits. This is a considerable achievement and shows the importance of clinicians implementing the "Making Every Contact Count Framework" with their patients at repeated clinical encounters.

Weight, BMI and waist circumference

The Body Mass Index (BMI) profile of the cohort reported on in this report is similar to that reported on in the first report, as seen in Figure 3.

Body Mass Index (BMI)

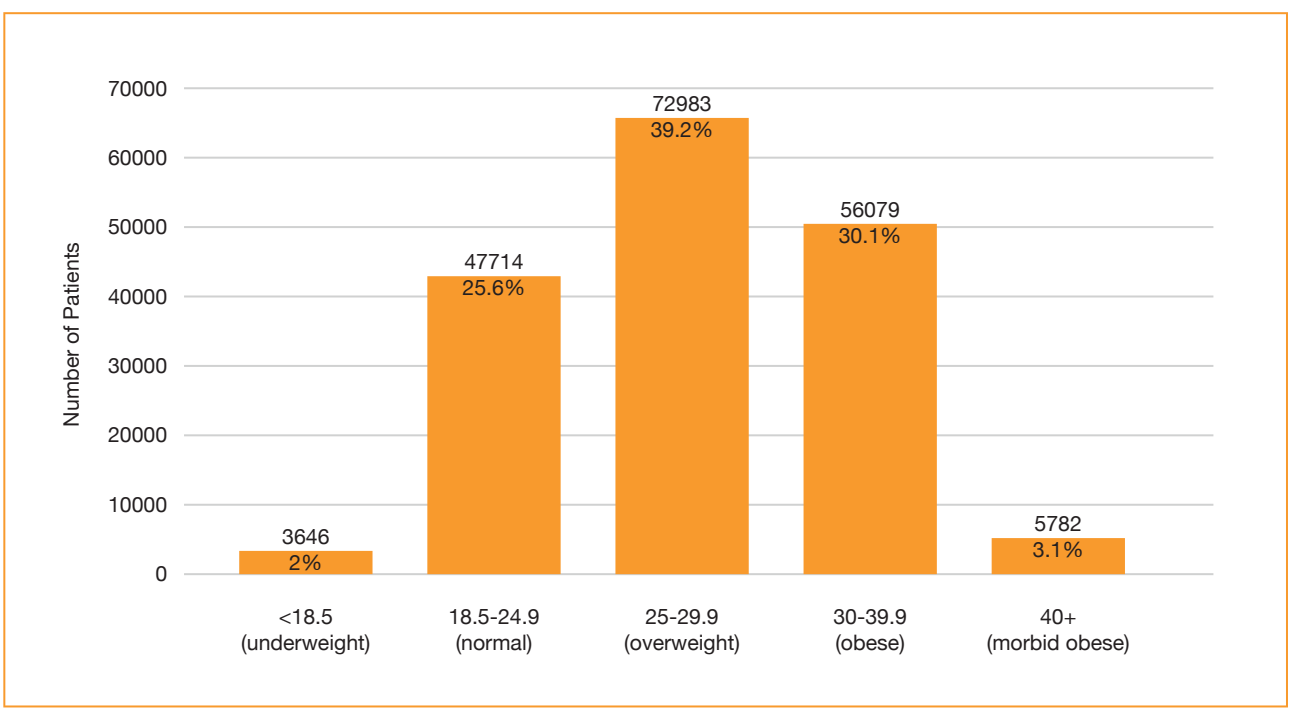

Figure 3: BMI profile of population enrolled in the Treatment Programme

Almost 26% of patients had a normal BMI, 39% were overweight and 30% were obese with 3% being morbidly obese.

A total of 43,600 patients had at least three Treatment Programme visits to their GP during the time interval 01/01/2020 and 20/01/2022. The mean BMI of this cohort was 28.4 kg/m2 at the first visit and this had dropped to 28.1 kg/m2 at their third visit as shown in Table 10.

BMI at first visit	BMI at third visit
28.4	28.1

Table 10: Mean Body Mass Index (BMI) of those who attended three times, at first vs third visit. (n = 43,000)

Weight in kilogrammes (KG)

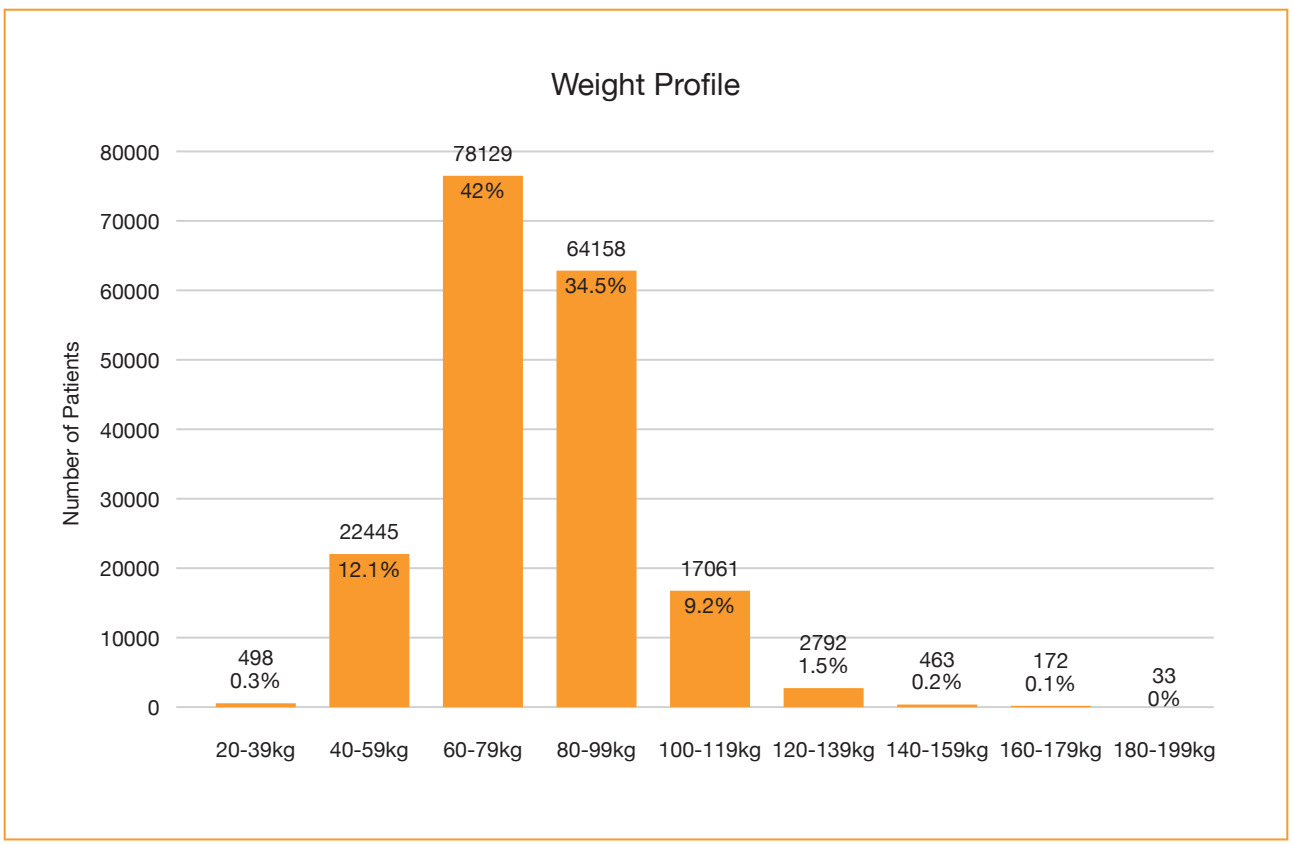

Figure 4: Weight profile of the population enrolled in the Treatment Programme

As demonstrated in Figure 4, the majority of patients weighed between 60 and 79 Kg (42%) with 34.5% weighing between 80 and 99 Kg, 9.2% weighing between 100 and 120 Kg and less than 2% weighing over 120 Kg.

Of those individuals who had at least three Treatment Programme visits (n=43,600), the mean weight had dropped from an average of 78.3 kg at their first visit to 77.9 kg on their third visit.

Waist circumference

Waist circumference measured in centimetres (cm) is categorised in males as low risk if under 93 cm, high risk if between 94 and 102 cm and very high risk if over 102 cm. In females a low risk weight circumference measure is less than 80 cm, high risk is between 80 and 88 cm and very high risk is over 88 cm.

Waist Circumference

Waist circumference risk category	Male	Number of patients	% of patients
Low risk	<94cm	22,551	22.6%
High risk	94-102cm	27,419	27.5%
Very high risk	>102cm	44,516	44.7%
Not recorded	-	5,189	5.2%
Total	-	99,675	100%

Table 11: Waist circumference males. Excluding non-numeric entries and values <50 cm

Waist circumference risk category	Male	Number of patients	% of patients
Low Risk	<80cm	10,609	12%
High Risk	80-88 cm	13,459	16%
Very High Risk	>88 cm	57,379	66%
Not Recorded	-	4,970	6%
Total	-	86,417	100%

Table 12: Waist circumference females. Excluding non-numeric entries and values <50 cm

Some non-numeric values were returned with the dataset, as were some values less than 50, these values were excluded, as it is likely that incorrect units of measurement were used.

Table 11 shows that for men almost 45% of patients were in the very high-risk category. Table 12 shows this was 66% for women. This is of concern, and taken with the other obesity variables demonstrates the importance of addressing this difficult risk factor in all clinical reviews.

Tables 13 and 14 show the BMI profile comparison on those patients who attended three times.

(BMI Ranges; Normal = 18.5 - 24.9, Overweight = 25 - 29.9, Obese = 30 - 39.9, Morbidly Obese = 40+ (but grouped with obese in this table) and Underweight ≤18.49

BMI category	Number of patients	% of patients
Normal	11,221	25.74%
Obese	13,754	31.55%
Overweight	17,933	41.13%
Underweight	686	1.57%
NA	6	0.01%
Total	43,600	100%

Table 13: BMI status for patients who attended three times for Treatment Programme review at their first attendance.

BMI category	No of patients	% of patients
Normal	11,540	26.47%
Obese	13,653	31.31%
Overweight	17,653	40.49%
Underweight	754	1.73%
Total	43,600	100%

Table 14: BMI status for patients who attended three times at their third attendance.

For the cohort of patients who attended three Treatment Programme reviews (n = 43,600), an additional 1% of patients had achieved normal weight between their first and third visits and the number who were overweight and obese at their first visit had reduced by the third Treatment Programme visit.

BMI status at first visit	BMI status at third visit	Number of patients	% of patients
Obese	Normal	107	0.778%
Obese	Obese	11,776	85.619%
Obese	Overweight	1,848	13.436%
Obese	Underweight	23	0.167%
Total		13,754	100%

Table 15: Comparison of patients with a BMI reading classified as obese at first attendance, versus their BMI classification at their third attendance.

Table 15 focusses on patients who were classified as obese at their first Treatment Programme visit versus their BMI at their third visit. This table demonstrates that almost 1% of the patient cohort classified as “obese” at their first visit had achieved a BMI within the “normal” category by their third visit with 13% of the patients having reduced their BMI from the “obese” category to the “overweight category” by their third visit.

Effecting weight loss in overweight and obese individuals is extremely challenging for healthcare professionals and achieving a population cohort weight loss is remarkable. It demonstrates the importance of continually addressing this risk factor in all healthcare encounters by implementing the “Making Every Contact Count Framework”

Physical Activity

Physical activity is recorded in the CDM database in two ways;

The number of days in the week on which 30 minutes or more physical activity is recorded and this is categorised into 4 days or less per week which is inadequate and 5 days or more per week which is adequate. Those with inadequate physical activity are subsequently assessed as to whether they achieved either 150 minutes of moderate activity or 75 minutes of vigorous activity per week. If a patient achieves either of these targets then they are now categorised as having adequate activity per week. The summary table 16 below can be then computed.

Summary	Number of patients	% of patients
Adequate	97,387	52.3%
Inadequate	55,835	30%
Invalid Entry	907	0.5%
No information available	8,899	4.8%
Unable to be physically active	23,182	12.4%
Total	186,210	100%

Table 16: Summary of physical activity adequacy

The findings that 52% of patients reported achieving adequate activity per week and 30% reported inadequate physical activity are similar to the findings in the first report.

Physical activity comparison for those patients who attended three times.

PA at first visit	PA at third visit	Number of patients	% of patients
Inadequate	Inadequate	7,168	51.83%
	Adequate	4,133	29.89%
	Unable to be physically active	2,086	15.08%
	No information available	381	2.76%
	Invalid entry	61	0.44%
Total		13,829	100%

Table 17: Comparison of patients with a report of inadequate physical activity levels at first attendance, versus their reported physical activity level at their third attendance.

Table 17 focusses on the cohort of patients who had three Treatment Programme reviews and who had reported inadequate physical activity levels at their first visit. By their third visit almost 30% of these patients were reporting adequate physical activity levels.

Alcohol

An AUDIT alcohol risk score was computed for patients seen up to 20/01/2022.

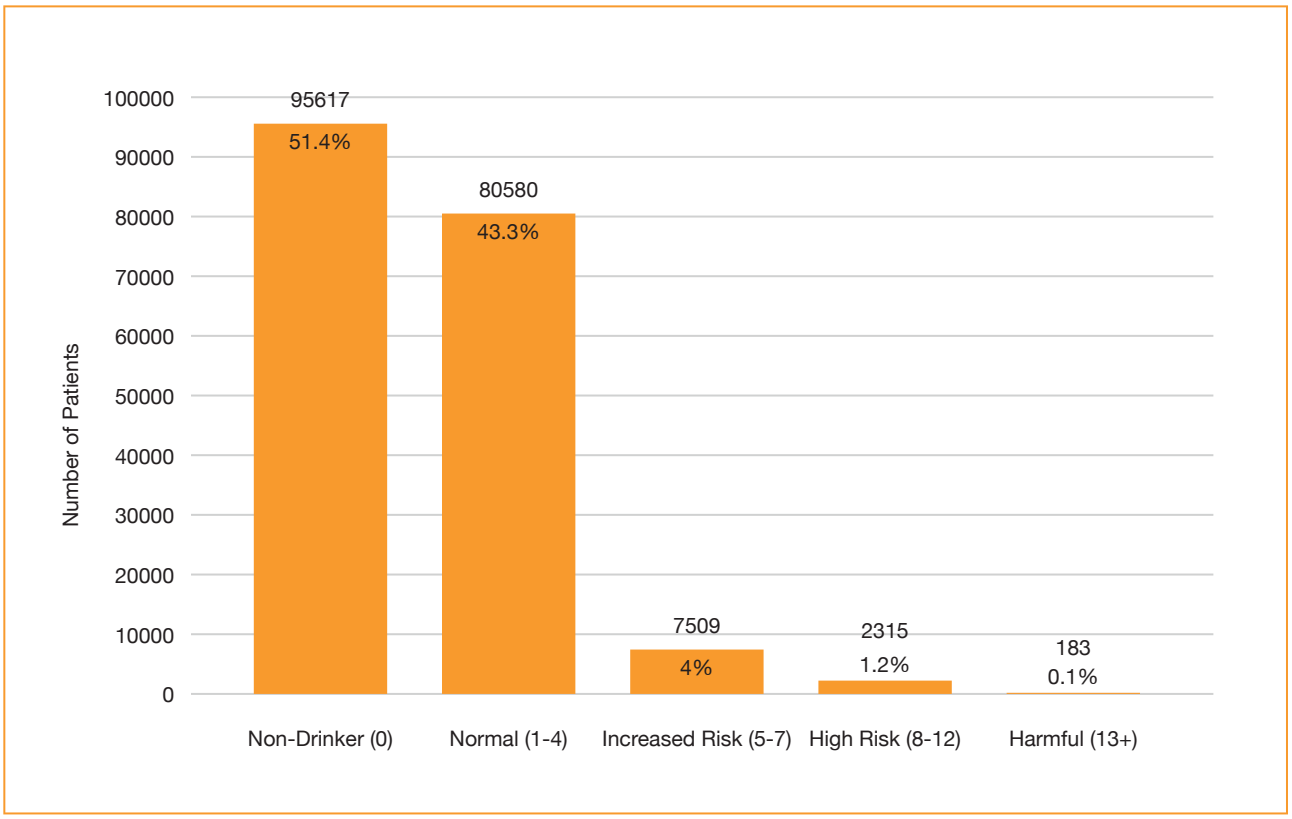

Figure 5: Patient's AUDIT alcohol risk score and level of risk

Figure 5 shows that 43% of patients had normal drinking patterns, 51.4% were non-drinkers and the remaining 5.3% of patients had increased, high risk or harmful drinking patterns. This is very similar to the findings in the first report.

Alcohol risk status comparison in those patients who attended three times.

Alcohol status	Number of patients	% of patients
Harmful	45	0.103%
High risk	538	1.234%
Increased risk	1,923	4.411%
Non-drinker	21,553	49.433%
Normal	19,535	44.805%
NA	6	0.014%
Total	43,600	100%

Table 18: Alcohol AUDIT risk level status for patients who attended three times at first attendance.

Alcohol status	Number of patients	% of patients
Harmful	13	0.03%
High risk	321	0.74%
Increased risk	1,251	2.87%
Non-drinker	22,877	52.47%
Normal	19,138	43.89%
Total	43,600	100%

Table 19: Alcohol AUDIT risk level status for patients who attended three times at third attendance.

Tables 18 and 19 show that for the 43,600 patients who had three Treatment Programme visits, the number and proportion of patients who had harmful or high risk alcohol consumption patterns reduced from 583 patients (1.37%) to 336 patients (0.77%) from first to third visits.

Alcohol status at first visit	Alcohol status at third visit	Number of patients	% of patients
Increased/high risk/harmful	Increased/high risk/harmful	825	32.921%
Increased/high risk/harmful	Non- drinker	209	8.34%
Increased/high risk/harmful	Normal	1,472	58.739%
Total	-	2,506	100%

Table 20: Combined comparison of patients classified as increased risk, high risk and harmful as per the AUDIT score at first attendance, versus third attendance.

Table 20 focusses on patients who had three visits who at their first visit had increased, high risk or harmful consumption patterns. It was found that 33% of these remained in this category at their third visit but 8.3% of them had now become non-drinkers and importantly 58.7% of them had now normal drinking patterns. This is a clinically important outcome and emphasises the need to continue to engage with patients with alcohol issues regarding this behaviour.

Physical examination

Blood Pressure

The Treatment Programme requires GPs to carry out a number of specified physical examinations and clinical measurements at each visit.

The following section describes the baseline measurements for this cohort of patients seen between 01/01/2020 and 20/01/2022 i.e. the first two years of the programme. As previously mentioned, the vast majority of these patients were over 65 years of age.

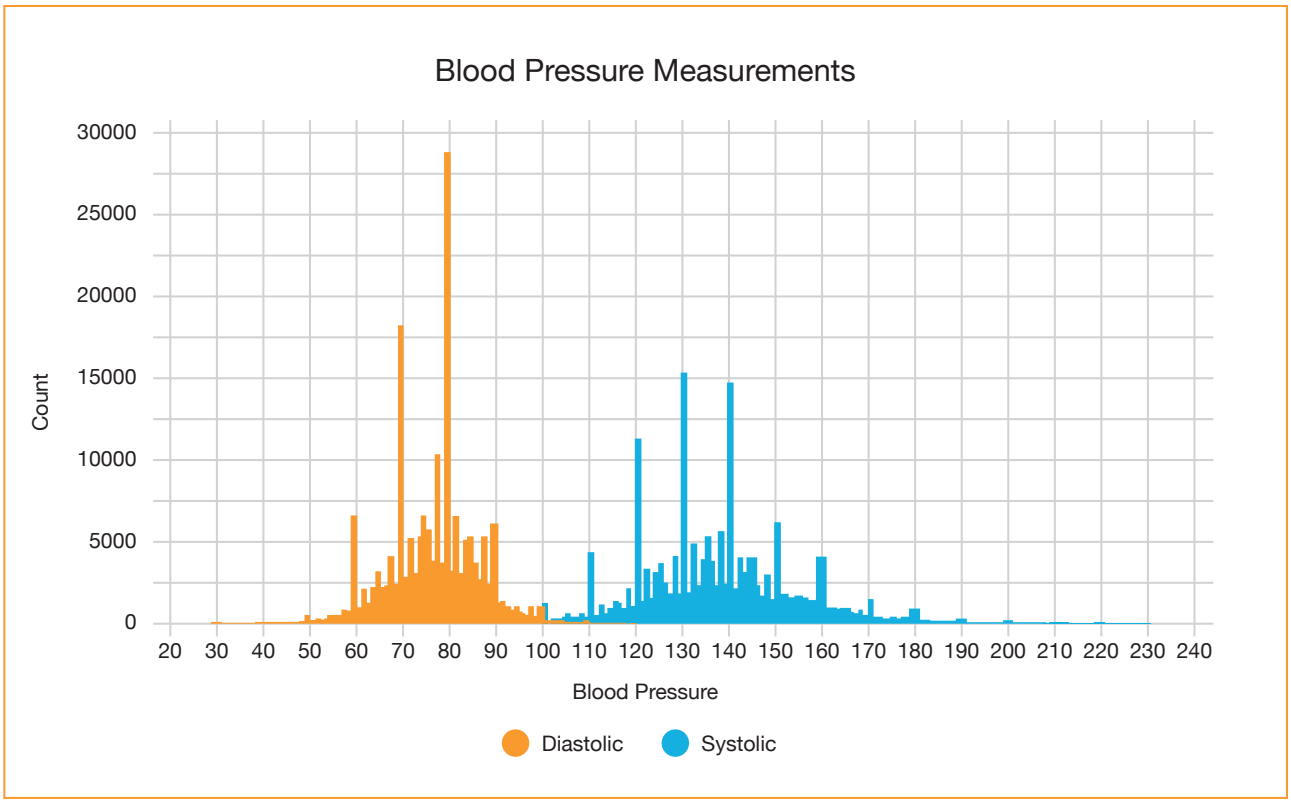

Figure 6: Most recent blood pressure measurement (mm Hg) for patients attending the Treatment Programme 01/01/2020 – 20/01/2022.

The above Figure 6 depicts the systolic and diastolic measurements for individuals attending the Treatment Programme between 01/01/2020 and 20/01/2022. For individuals who had more than one visit, their most recent blood pressure reading is presented here.

	Summary				Systolic/Diasolic by Gender				
Type	Min	Max	Mean	Median	Gender	Min	Max	Mean	Median
Diastoic	30	176	77	76	Female	30	171	77.3	78
					Male	30	176	76.8	78
					Other	51	113	76.4	77
Systoic	50	250	136.7	136	Female	50	239	137.4	136
					Male	58	250	136.2	135
					Other	103	191	136.5	135

Table 21: Summary distribution of diastolic & systolic blood pressure reading at most recent attendance presented by gender (mm Hg)

The above Table 21 shows the range of systolic and diastolic blood pressure measurements by gender for the cohort of the 186,210 patients who attended the Treatment Programme up to 20/01/2022. Where patients had more than one Treatment Programme blood pressure reading returned, the most recent reading was used in this summary table. Mean systolic pressure for the cohort patients was 136.7 mm Hg with mean diastolic pressure at 77 mm Hg.

All patients had their blood pressure checked at each Treatment Programme review.

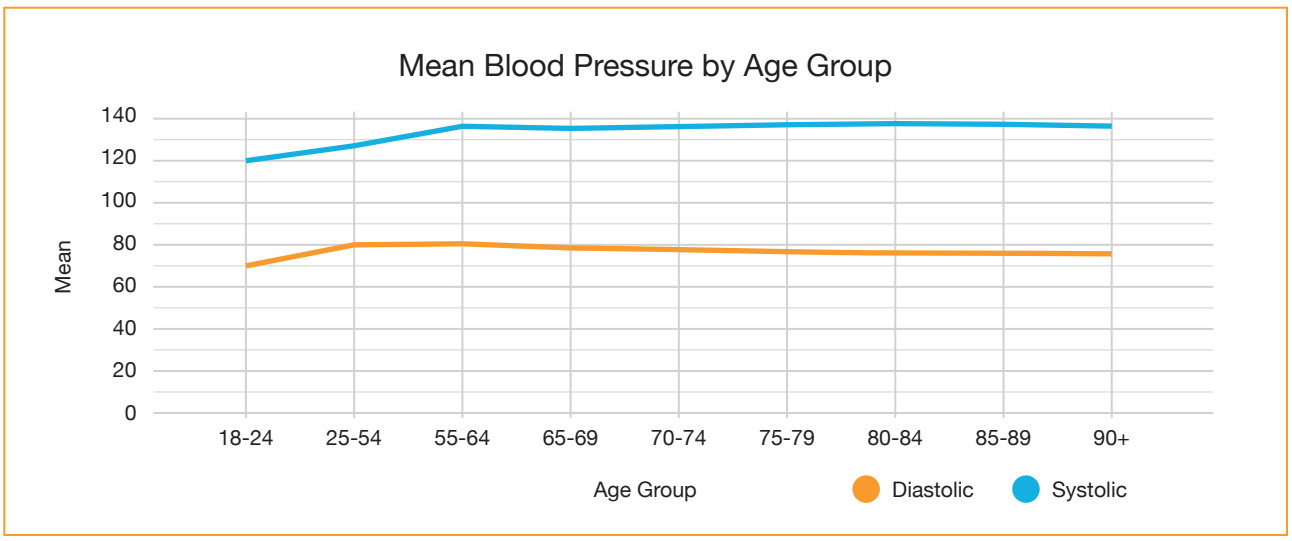

Figure 7: Mean blood pressure by age group (mm Hg)

The above Figure 7 shows the average blood pressure readings broken down by age group with the average systolic pressures rising with age up until the age of 60 years approximately and the diastolic readings plateauing at an earlier age.

Type	Min	Mean	Median	Max
Systolic at first visit	80	137.5	136	250
Systolic at third visit	50	136.5	135	245
Diastolic at first visit	30	77.2	78	169
Diastolic at third visit	30	76.4	78	170

Table 22: Summary blood pressure for patients with three visits (n= 43,600): a comparison of mean blood pressure at first visit vs. third.

Table 22 shows an analysis of blood pressure measurements for patients who had three visits (n = 43,600). It shows that the cohort mean systolic blood pressure (SBP) at the first visit was 137.5 mm Hg and this had dropped by 1mm Hg to 136.5 at the third visit. Also the cohort mean diastolic blood pressure at the first visit was 77.2 mm Hg and this had dropped to 76.4 mm Hg, a drop of 0.8 mm Hg by the third visit.

Reduction in mean population SBP has important benefits for population health, for example, using data from the Atherosclerosis Risk in Communities Study, investigators in the US estimated that a population wide decrease of 1mmHg of SBP could result in 13.3 fewer heart failure events, 9.0 fewer coronary heart disease events and 4.8 fewer cerebrovascular accident (CVA) per 100,000 person-years among white US populations respectively*

* Hardy ST, Loehr LR, Butler KR, Chakladar S, Chang PP, Folsom AR, et al. Reducing the Blood Pressure-Related Burden of Cardiovascular Disease: Impact of Achievable Improvements in Blood Pressure Prevention and Control. J Am Heart Assoc Cardiovasc Cerebrovasc Dis. 2015 Oct 27: 4 (10): e002276.

SBP reading at first visit	SBP reading at third visit	Number of patients	% of patients
≥ 140	≥ 140	10,457	55.74%
≥ 140	Below 140	8,302	44.26%
Total	-	18,759	100%

Table 23: Patients that had a systolic blood pressure of ≥ 140 mm Hg at first visit versus their SBP reading at third visit

Table 23 focusses on patients who had systolic hypertension (i.e. SBP ≥ 140 mm Hg) at their first visit. The above table shows that 55.7% of these patients remained hypertensive at the third visit but 44.26% had subsequently become normotensive by their third visit.

At first Visit	At third Visit	No. Patients	%
Abnormal BP	Abnormal BP	10,984	56.51%
Abnormal BP	Normal BP	8,452	43.49%
Total	-	19,436	100%

Table 24: patients that had systolic BP ≥ 140 or diastolic BP ≥ 90 at first visit versus third visit n = (43,600).

Table 24 focusses on patients who had an “abnormal blood pressure” reading (i.e. systolic blood pressure ≥ 140 mm Hg or diastolic blood pressure ≥ 90 mm Hg at the first visit). The table shows that 56.5% of these patients continued to have abnormal blood pressure by the third visit but 43.4% of them had a normal blood pressure by the third visit. This improvement in blood pressure seen between first and third visits, in patients who have hypertension, is very important achieving a normal blood pressure by the third visit for 43% of patients who were previously hypertensive is clinically significant.

Diabetic foot examination

Diagnosis	Status	Number of patients	Percentage of patients
Diabetes mellitus	Abnormal Result	13,806	21%
	Normal Result	49,762	77%
	Not Recorded	1,305	2%
Total	-	64,873	100%

Table 25: Foot physical examination results for diabetes patients

The above Table 25 shows the results for foot examinations carried out on diabetes patients. The Treatment Programme requires the GP or the Practice Nurse to carry out a number of tests on diabetes patients’ feet to identify foot complications. Up until 20/01/2022, ninety-eight percent of diabetic patients had their feet examined and the result recorded. This is a very good result. Audits of previous schemes e.g. Diabetes Watch showed that this is a difficult area to achieve high rates of examination. The examination in the Treatment Programme is very comprehensive and 77% of examinations showed no abnormality present in this cohort.

Foot examination results

Normal/abnormal	Physical exam	Number of patients
Abnormal	10g monofilament test abnormal	5,500
	Dorsalis pedis absent	3,178
	Foot deformity present	5,449
	Foot ulceration present	4,648
	Posterior tibial absent	3,800
	Vibration sense abnormal	7,023
Normal	10g monofilament test normal	56,658
	Dorsalis pedis present	58,995
	Foot deformity absent	56,781
	Foot ulceration absent	57,590
	Posterior tibial present	58,381
	Vibration sense normal	55,137

Table 26: Foot examination results.

The above Table 26 provides a detailed description of the actual components of the foot examinations carried out on individuals with diabetes. For example, 5,500 diabetic patients had an abnormal monofilament test, 3,178 patients had an absent dorsalis pedis pulse etc. If any one of the six foot examination tests have an abnormal result (as presented in Table 25), then the overall foot examination result was categorised as abnormal.

Clinical measurements

Electrocardiogram (ECG)

ECG recorded	Number of patients	% of patients
Yes	110,576	59.4%
No	75,634	40.6%
Total	186,210	100%

Table 27: Treatment Programme patients with ECG recorded

Table 27 shows that 110,576 of the patients in the Treatment Programme had an ECG recorded. This corresponded to 59% of patients in this cohort.

ECG findings	Number of patients	% of patients
Sinus rhythm	79,302	72.2%
Atrial fibrillation	23,745	21.6%
Other abnormal rhythm	5,005	4.6%
Pacemaker	1,722	1.6%
Total	109,774	100%

Table 28: ECG result for the Treatment Programme patients with ECG recorded. (Free text results excluded).

Of those who had an ECG result recorded, 72% had sinus rhythm and 21.6% had atrial fibrillation.

ECG recorded	Number of patients	% of patients
Yes	16,474	77.2%
No	4,854	22.8%
Total	21,328	100%

Table 29: Treatment Programme patients with a diagnosis of heart failure who had an ECG recorded.

Table 29 shows that of Treatment Programme participants with a diagnosis of heart failure (n=21,328), 77% had an ECG recorded, of these 16,474 patients, 55% had a sinus rhythm and 36% had atrial fibrillation.

Echocardiography recorded	Number of patients	% of patients
No	174,123	93.5%
Yes	12,087	6.5%
Total	186,210	100%

Table 30: Treatment Programme patients with an echo result recorded.

Only 6.5% of the patients enrolled in the Treatment Programme had an echocardiogram recorded.

Echo result	Number of patients	% of patients
(EF>50%) normal	6,646	55.8%
(EF 40-49%) mildly reduced	2,864	24%
(EF 30-39%) moderately reduced	1,430	12%
(EF<30%) severely reduced	712	6%
(EF>70%) hyperdynamic	257	2.2%
Total	11,909	100%

Table 31: Patients enrolled in the Treatment Programme who had an echo result recorded (Excluding invalid entries and free text descriptions)

Of the patients with an echocardiogram result recorded, almost 56% had a normal ejection fraction.

Echocardiography recorded	Number of patients	% of patients
No	16,576	77.7%
Yes	4,752	22.3%
Total	21,328	100%

Table 32: Heart failure patients with echo recorded.

Table 32 shows that of those patients with a diagnosis of heart failure, only 22.3% had an echocardiogram recorded. This is an area which can be improved, and the Enhanced Community Care programme is working to improve direct and timely access to echocardiography services for GPs.

Echo result	Number of patients	% of patients
(EF >50%) normal	1,543	32.9419%
(EF 40-49%) mildly reduced	1,503	32.088%
(EF 30-39%) moderately reduced	990	21.1358%
(EF < 30%) severely reduced	583	12.4466%
(EF > 70%) hyperdynamic	65	1.3877%
Total	4,684	100%

Table 33: Echo findings recorded for Treatment Programme patients with a diagnosis of heart failure.

Table 33 shows that of the echocardiography examinations recorded for patients with heart failure, 33% were recorded as having a normal ejection fraction.

Echocardiography recorded	Number of patients	% of patients
No	39,040	80.6%
Yes	9,418	19.4%
Total	48,458	100%

Table 34: Proportion of patients with a diagnosis of atrial fibrillation with an echo recorded

Table 34 shows that of the 48,458 patients with diagnosed atrial fibrillation in the Treatment Programme, 19% had an echocardiogram recorded.

Echo result	Number of patients	% of patients
(EF>50%) normal	5,701	61.41%
(EF 40-49%) mildly reduced	2,030	21.87%
(EF 30-39%) moderately reduced	909	9.79%
(EF < 30%) severely reduced	422	4.55%
(EF > 70%) hyperdynamic	221	2.38%
Total	9,283	100%

Table 35: Echo findings recorded for Treatment Programme patients with a diagnosis of atrial fibrillation

Table 35 shows that of these patients with atrial fibrillation, 61% had a normal ejection fraction on echocardiography.

Spirometry recorded COPD	Number of patients	% of patients
No	29,305	81.7%
Yes	6,572	18.3%
Total	35,877	100%

Table 36: Proportion of patients who have a diagnosis of COPD who had a spirometry result recorded

Table 36 shows that of the 35,877 patients with a diagnosis of COPD in this cohort, 6,572 patients i.e. 18.3% had a spirometry performed. This is an area for improvement, as spirometry is being made more widely available directly on GP referral through the Enhanced Community Care programme.

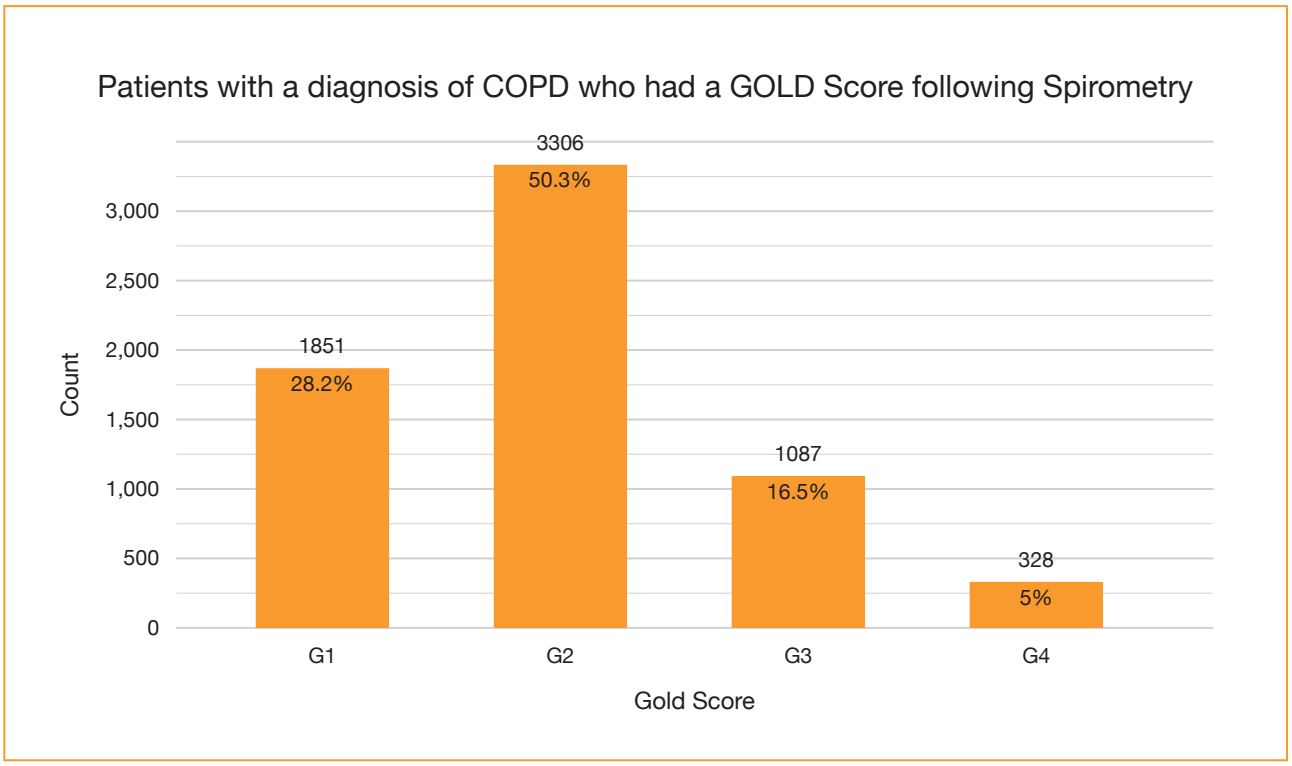

Figure 8: Patients with a diagnosis of COPD who had a GOLD score following spirometry.

Figure 8 shows that of the 6,572 COPD patients who had spirometry testing done, 28% had a GOLD score of G1, 50% had a GOLD score of G2, 16.5% had a GOLD score of G3 and 5% had a GOLD score of G4.

Spirometry recorded asthma	Number of patients	% of patients
No	26,007	95.6%
Yes	1,187	4.4%
Total	27,194	100%

Table 37: Patients with a diagnosis of asthma who had spirometry.

Table 37 shows that of the 27,194 patients who are enrolled in the Treatment Programme and have a diagnosis of asthma, only 4.4% had a spirometry test recorded. This is a very low figure, which should be improved with greater GP access to spirometry through the Enhanced Community Care programme.

Blood test results

LDL cholesterol

The Treatment Programme requires a series of blood tests to be carried out at specified intervals, some in common across all conditions and some specific to the condition concerned.

min	Q1	median	Q3	max	mean
0	1.6	2.1	2.75	10	2.242923

Table 38: Summary LDL cholesterol, mmol/L (n=186,210)

The above Table 38 shows the distribution of LDL cholesterol results for the cohort of 186,210 patients who are the subject of this report. The mean LDL of cholesterol of the cohort was 2.2 mmol/L

The target for LDL cholesterol depends on the condition concerned, whether there is evidence of target organ damage and also varies between guidelines. A pragmatic approach was taken for this analysis which reports on LDL cholesterol levels in individuals with a diagnosis of diabetes who also either have or don't have, a concomitant diagnosis of ischaemic heart disease.

LDL range for patients with diabetes mellitus type 2	Number of patients	% of patients
≥2.6 ldl	13,949	25.2%
<2.6 ldl	41,404	74.8%
Total	55,353	100%

Table 39: LDL cholesterol range for patients diagnosed with type 2 diabetes mellitus (mmol/L)

Table 39 shows that for patients with diabetes mellitus 75% have an LDL cholesterol of < 2.6 mmol/L.

LDL at first visit	LDL at third visit	Number of patients	% of patients
≥ 2.6	≥ 2.6	2,194	65.5%
≥ 2.6	< 2.6	1,128	33.7%
≥ 2.6	Not Recorded/invalid entry	27	0.8%
Total	-	3,349	100%

Table 40: Patients with type 2 diabetes mellitus who had three Treatment Programme visits who also had an LDL cholesterol of ≥ 2.6 mmol/L at first visit.

Table 40 focusses on patients with type two diabetes mellitus, who have attended for three Treatment Programme reviews and who also have an LDL cholesterol of ≥ 2.6 mmol/L at their first visit. Almost 66% of these patients still had an LDL of 2.6 mmol/L or over at their third visit. However, 34% of them had now reduced their LDL to under 2.6 mmol/L. This is a significant achievement.

LDL range in individuals with a diagnosis of type 2 diabetes mellitus without co-morbid diagnosis of ischaemic heart disease	Number of patients	% of patients
LDL ≥2.6	11,165	27.7%
LDL <2.6	29,107	72.3%
Total	40,272	100%

Table 41: LDL cholesterol range for individuals with a diagnosis of type 2 diabetes mellitus but excluding those with co-morbid diagnosed ischaemic heart disease (mmol/L)

Table 41 shows that for patients who have diabetes but do not have ischaemic heart disease, 72% of the cohort had an LDL Cholesterol below 2.6 mmol/L

LDL at first visit	LDL at third visit	Number of patients	% of patients
≥ 2.6	≥ 2.6	1,714	67.06%
≥ 2.6	< 2.6	825	32.28%
≥ 2.6	Not recorded/invalid entry	17	0.67%
Total	-	2,556	100%

Table 42: Patients with type 2 diabetes mellitus excluding those with comorbid ischaemic heart disase who had 3 treatment programme visits who also had an LDL cholesterol of ≥2.6 mmol/L at first visit.

Table 42 focusses on patients with type 2 diabetes mellitus, who did not have ischaemic heart disease, who had attended for three Treatment Programme reviews and who also have an LDL cholesterol of ≥2.6 mmol/L at their first visit. Over 67% of these patients still had an LDL of 2.6 mmol/L or over at their third visit. However, 32% of them now had reduced their LDL to under 2.6 mmol/L.

LDL range in individuals with a diagnosis of type 2 diabetes mellitus without co-morbid diagnosis of ischaemic heart disease	Number of patients	% of patients
LDL ≥1.8	7,685	51%
LDL < 1.8	7,396	49%
Total	15,081	100%

Table 43: LDL cholesterol range for patients with type two diabetes mellitus and ischaemic heart disease (mmol/L)

Table 43 shows results for patients with diabetes and ischaemic heart disease who also have an LDL above or below a tighter target of 1.8 mmol/L. The table shows that for this cohort of patients, 49% are reaching this target and 51% are not.

LDL at first visit	LDL at third visit	Number of patients	% of patients
≥ 1.8	≥ 1.8	1,820	76.3%
≥ 1.8	< 1.8	545	22.9%
≥ 1.8	Not recorded/invalid entry	19	0.8%
Total	-	2,384	100%

Table 44: Patients diagnosed with both type 2 diabetes mellitus and ischaemic heart disease who have also had three visits and had an LDL cholesterol ≥1.8 mmol/L at first visit.

Table 44 focusses on the cohort of patients who have both Diabetes Type 2 and Ischaemic Heart Disease who did not meet the target of less than 1.8 mmol/L at their first visit: 76% of them continue not to meet the target at their third visit. However 23% of the cohort met the target of under 1.8 mmol/L LDL cholesterol by their third visit.

LDL range in individuals with a diagnosis of both type 2 diabetes mellitus and ischaemic heart disease	Number of patients	% of patients
LDL ≥1.4	10,300	68.3%
LDL < 1.4	4,781	31.7%
Total	15,081	100%

Table 45: LDL cholesterol range for patients who have a diagnosis of both type 2 diabetes mellitus and ischaemic heart disease. (mmol/L)

Table 45 shows the proportion of patients with a diagnosis of both diabetes and ischaemic heart disease who are meeting the more rigorous target of an LDL cholesterol less than 1.4 mmol/L . As the above table demonstrates, 68% of patients in this cohort do not meet this target.

LDL at first visit	LDL at third visit	Number of patients	% of patients
≥ 1.4	≥ 1.4	3,018	87%
≥ 1.4	< 1.4	422	12.2%
≥ 1.4	Not recorded/invalid entry	27	0.8%
Total	-	3,467	100%

Table 46: Patients with a diagnosis of both type 2 diabetes mellitus and ischaemic heart disease, who have had three Treatment Programme visits and who had an LDL cholesterol ≥ 1.4 mmol/L at first visit versus their LDL at third visit.

Table 46 focusses on patients with both type 2 diabetes mellitus and ischaemic heart disease, who did not meet the target of less than 1.4 LDL cholesterol mmol/L at their first visit and have had three Treatment Programme visits. The above table shows that 87% of patients still did not meet the target at the third visit but very encouragingly, 12% of patients meet this more stringent target by visit three.

LDL range in individuals with a diagnosis of ischaemic heart disease but not type 2 diabetes mellitus	Number of patients	% of patients
LDL ≥2.6	9,038	28.52%
LDL between 1.8 – 2.5	11,611	36.64%
LDL between 1.5 – 1.7	6,225	19.65%
LDL ≤ 1.4	4,812	15.19%
Total	31,686	100%

Table 47: LDL cholesterol range for patients who have a diagnosis of ischaemic heart disease but not type 2 diabetes mellitus (mmol/L)

Table 47 shows the cohort of patients who have ischaemic heart disease but do not have diabetes and gives a range of results: 65% of this cohort had a result of over ≥ 1.8 mmol/L LDL cholesterol.

LDL at first visit	LDL at third visit	Number of patients	% of patients
≥ 1.8	≥ 1.8	6,542	83.13%
≥ 1.8	< 1.8	1,245	15.82%
≥ 1.8	Not recorded/Invalid entry	83	1.05%
Total	-	7,870	100%

Table 48: IHD patients excluding diabetics who had three visits, ≥1.8 mmol/L LDL cholesterol at first attendance vs third.

Table 48 focusses on this patient cohort which had an LDL result of ≥ 1.8 mmol/L at their first visit, and who had three Treatment Programme visits: 83% of them continued to have this level of elevated LDL cholesterol, but encouragingly 16% had reduced their cholesterol to under this level at the third visit.

Overall the results for LDL Cholesterol show important improvements for many patients between the first and third visit to their doctor, indicating a raised awareness and tighter control.

HbA1c in patients with a diagnosis of diabetes

The Treatment Programme requires that all patients with type 2 diabetes mellitus have their HbA1c checked twice per year.

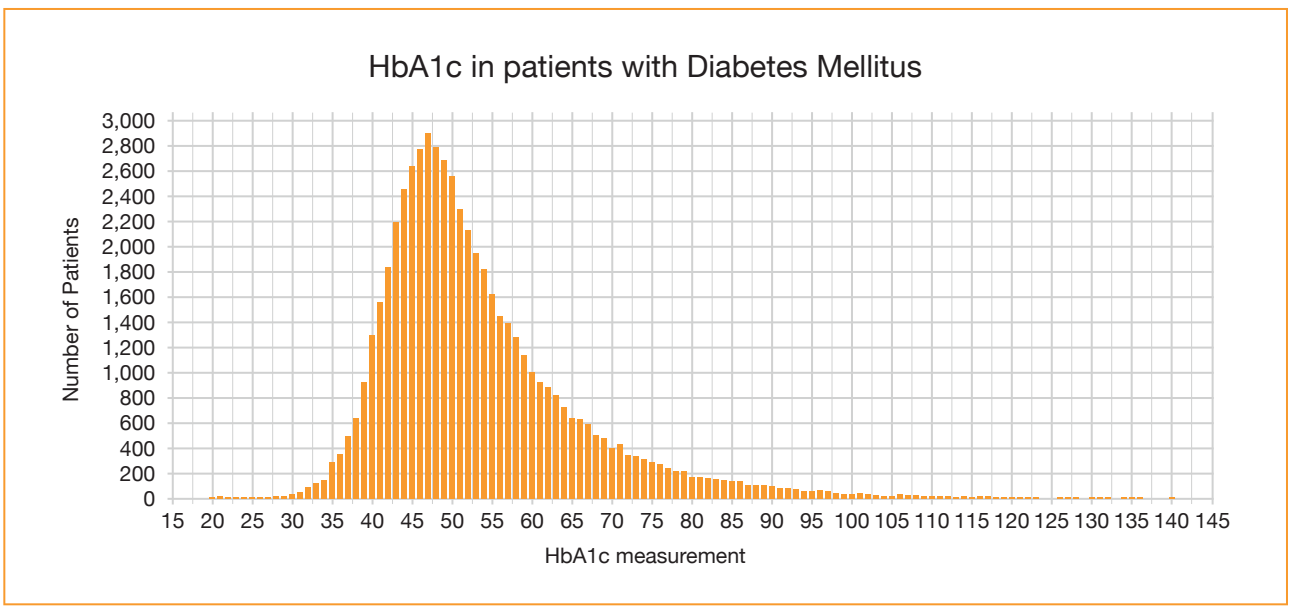

Figure 9: HbA1c measurement, for patients with diabetes mellitus (mmol/mol).

The above Figure 9 describes the range of HbA1c results for patients with a diagnosis of type 2 diabetes mellitus who are enrolled in the Treatment Programme. These results are given in mmol/mol. Results less than 20 (n = 4633) were excluded from the histogram and tables as it is likely that this relates to differing result formats in the data returns. This is something which will be addressed in the next iteration of the Treatment Programme dataset.

min	Q1	median	Q3	max	mean
20	45	50	58	140	53.49154

Table 49: Summary HbA1c for patients with a diagnosis of type 2 diabetes mellitus who are enrolled in the Treatment Programme

Table 49 shows the range of HbA1c results for enrolled patients with a diagnosis of type 2 diabetes mellitus with the mean HbA1c result at 53.5 mmol/mol.

HbA1c range for individuals with a diagnosis of type 2 diabetes mellitus	Number of patients	% of patients
≤ 53	35,500	54.72%
54 - 63	12,370	19.07%
≥ 64	9,534	14.7%
Not recorded	7,469	11.51%
Total	64,873	100%

Table 50: HbA1c results ranges (mmol/mol) for enrolled patients with a diagnosis of type 2 diabetes mellitus

Table 50 shows categorisation of the range of results, 55% of diabetes patients in the Treatment Programme cohort had a HbA1c ≤ 53 mmol/mol and 15% had a HbA1c ≥ 64 mmol/mol.

HbA1c at first visit	HbA1c at third visit	Number of patients	% of patients
≥ 64	≥ 64	1,107	55.38%
≥ 64	54 – 63	491	24.56%
≥ 64	≤ 53	295	14.76%
≥ 64	Not recorded	106	5.3%
Total	-	1,999	100%

Table 51: Patients with a diagnosis of type 2 diabetes mellitus who had three Treatment Programme visits and who had a HbA1C ≥ 64 mmol/mol at first visit versus their HbA1c result at the third visit

Table 51 focusses on patients who had HbA1c ≥ to 64 mmol/mol at their first visit and who had a third visit. The table shows that 55% of patients continued to have a HbA1c level of ≥ 64 mmol/mol by their third visit. However 25% had reduced their level to between 54 and 63 mmol/mol and 15% managed to reduce their HBA1c ≤ 53 mmol/mol by visit three.

Vaccination

The Treatment Programme requires General Practitioners to check the vaccine status of their patients for both flu and pneumococcal diseases annually and to update their immunisation in line with national guidelines for this at-risk cohort.

Ever had a flu vaccination recorded	Number of patients	% of patients
Yes	150,967	81.1%
No	27,754	14.9%
Given elsewhere	7,483	4%
NA (Not recorded)	6	0%
Total	186,210	100%

Table 52: Proportion of patients enrolled in the Treatment Programme who reported ever having a flu vaccination.

All patients registered on the Treatment Programme are recommended to have an annual flu vaccination. In this cohort, 81% of patients had been vaccinated by their GP, 4% had been vaccinated elsewhere and 15% had never been vaccinated against flu as shown in Table 52.

Flu vaccination status at most recent observation date	Number of patients	% of patients
Had flu vaccine within 12 months	99,133	53.2%
Not recorded at last review	83,331	44.8%
No flu vaccine within 12 months	3,745	2%
Total	186,209	100%

Table 53: Percentage patients who had flu vaccine within the previous year as recorded at their last review.

Table 53 describes the proportion of patients who had a flu vaccination recorded within the previous 12 months at their most recent review, in order to give an indication of the proportion of patients attending for a regular flu vaccination. Of those with a flu vaccination date recorded at their most recent review, 53 % had an up to date flu vaccine, 2% were recorded as having no flu vaccination within the last 12 months and 49% did not have their flu vaccine status recorded at the most recent view.

Ever had a pneumococcal vaccination recorded	Number of patients	% of patients
Yes	131,579	70.7%
No	45,652	24.5%
Given elsewhere	7,703	4.1%
Declined by patient	1,261	0.7%
NA (Not recorded)	15	0%
Total	186,210	100%

Table 54: Proportion of Treatment Programme patients who ever had pneumococcal vaccination.

The above Table 54 shows that 71% of Treatment Programme patients, all of whom are recommended to have pneumococcal vaccine, had received a pneumococcal vaccine in the past from their GP. Another 4% were recorded as been given elsewhere, and 26% were recorded as never having had a pneumococcal vaccine. This is an area that should be targeted.

Dyspnoea Score

GPs are asked to carry out the mMRC dyspnoea score with patients diagnosed with COPD. Almost all of the 35,877 patients with a diagnosis of COPD in this current cohort had the score recorded, which is excellent.

mMRC recorded COPD	Number of patients	% of patients
Yes	35,869	99.98%
No	8	0.02%
Total	35,877	100%

Table 55: Patients with COPD with mMRC recorded.

The bar chart below gives the range of dyspnoea scores for the patients concerned.

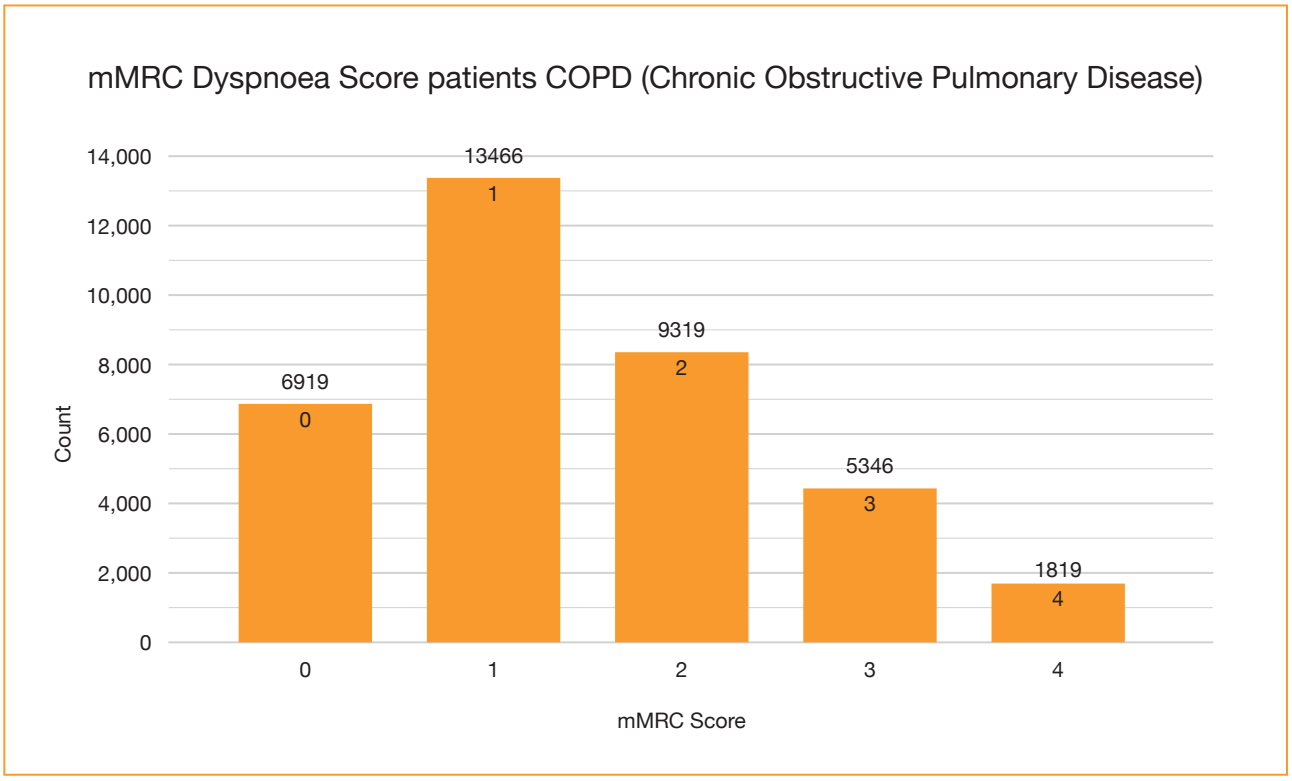

Figure 10: mMRC dyspnoea score for patients with a diagnosis of COPD

Care Plan

The CDM programme requires that General Practitioners develop, discuss and record a care plan with each of their patients and that this plan is updated at each visit. The care plan includes anticipatory care, recommended actions for when the patient deteriorates and facilitates the development of patient-centred goals for treatment and behaviour change to be agreed and documented between patient and their GP. In this cohort of patients, 53% of patients had completed a care plan i.e. 98,494 patients as shown in Table 56.

Care plan recorded	Number of patients	% of patients
No	87,715	47.1%
Yes	98,494	52.9%
Total	186,210	100%

Table 56: Proportion of patients enrolled in the Treatment Programme who have a care plan recorded.

The table below examines those patients who did not have a care plan at their first visit.

Care plan at first visit	Care plan at third visit	Number of patients	% of patients
No	No	12,609	59.17%
No	Yes	8,700	40.83%
Total	-	21,309	100%

Table 57: Patients who had three visits who didn't have a care plan recorded at their first visit, versus their care plan development status at third visit

Table 57 shows that of the patients who did not have a care plan recorded at their first visit and who had three Treatment Programme visits (n = 21,309), an additional 41% (n= 8,700) had a care plan agreed and documented by their GP by their third visit. This shows real progress in patient engagement.

Diagnosis	Care plan yes	Care plan no	Total	% Yes on Care plan
Atrial fibrillation	25,386	23,072	48,458	52.4%
Asthma	14,897	12,297	27,194	54.8%
COPD	18,561	17,315	35,876	51.7%
Cerebrovascular accident	7,280	6,756	14,036	51.9%
Diabetes mellitus type 2	35,100	29,773	64,873	54.1%
Heart failure	11,381	9,947	21,328	53.4%
Ischaemic heart disease	37,966	33,335	71,301	53.2%
Transient ischaemic attack	7,703	6,300	14,003	55%
Total	158,274	138,795	297,069	53.3%

Table 58: Status of care plan by diagnosis.

An analysis was undertaken of care plan status by diagnosis as shown in Table 58. As patients can have multiple diagnoses, the figures presented total more than the individual patients in this cohort. Overall as stated previously, 53% of patients had a care plan and as the above table shows, this did not vary very much by diagnosis.

Hospital attendance

GPs participating in the Treatment Programme are asked to indicate whether their patients are also attending hospital for the care of each of the chronic conditions included in the Treatment Programme. A major objective of the Chronic Disease Management Programme and the Enhanced Community Care programme is to enable patients to be managed in primary care as much as possible.

Attending hospital	Number of patients	% of patients
Attending hospital	17,122	9%
Not attending hospital	169,088	91%
Total	186,210	100%

Table 59: Number of patients attending hospital for one diagnosis or more

Table 59 shows that only 9% of the cohort included in this report were reported as also attending hospital for the chronic conditions for which they were enrolled in the Treatment Programme.

Age group	Number of patients	Number of patients attending hospital	% of patients attending hospital
18-24	<5	0	0%
25-54	133	8	6.02%
55-64	287	18	6.27%
65-69	19,124	1,297	6.78%
70-74	49,067	4,417	9%
75-79	51,002	4,965	9.73%
80-84	36,947	3,642	9.86%
85-89	21,326	2,092	9.81%
90+	8,322	683	8.21%
Total	186,210	17,122	9.19%

Table 60: Attending hospital services for their chronic condition (s) by age

As the above Table 60 shows patients under 70 years had lower proportions attending hospital, as would be expected.

Diagnosis	Attending hospital yes	Attending hospital no	Total	% attending hospital yes
Asthma	1,161	26,033	27,194	4.3%
Atrial fibrillation	4,847	43,611	48,458	10%
Cerebrovascular accident	1,189	12,847	14,036	8.5%
Transient ischaemic attack	998	13,005	14,003	7.1%
COPD	2,335	33,542	35,877	6.5%
Diabetes type 2	3,502	61,371	64,873	5.4%
Heart failure	2,622	18,706	21,328	12.3%
Ischaemic heart disease	7,563	63,739	71,302	10.6%
Total	24,217	272,854	297,071	8.2%

Table 61: Attending hospital services for their chronic condition (s) by diagnosis

When attending hospital was analysed by diagnosis (more than one diagnosis per patient, as shown in Table 61, heart failure had the highest proportion of patients attending hospital i.e. 12% of enrolled patients with a diagnosis of heart failure were also attending hospital services for this condition. This was followed by ischaemic heart disease (10.6%) and atrial fibrillation (10%).

Patients attending the Treatment Programme who only had one condition had lower rates of attending the hospital services for chronic disease management with 7% of this cohort reported to also be attending hospital services.

The proportion of enrolled Treatment Programme patients who had two diagnosed chronic conditions who also attended hospital rose to 11%.

Just over 13% of patients who have three chronic conditions also attend hospital services for the care of at least one of their diagnosed chronic diseases. It is extremely encouraging to note that the vast majority of multimorbid patients did not attend hospital for the routine management of their chronic conditions and their conditions were reported as being fully managed routinely in Primary Care.

Discussion

The second report of the GP Chronic Disease Management Treatment Programme includes data on patients registered in the first two years of the programme i.e. from 01/01/2020 to 20/01/2022, and largely describes a population aged 65 years and over due to the age-based phased introduction of the programme. As well as describing the demographics of participants and the wide-ranging chronic disease prevention and management activities undertaken by GPs and Practice Nurses as part of the Treatment Programme in its first two years, it provides valuable clinical data on risk factors, chronic disease and multimorbidity prevalence across the participants (n=186,210). Furthermore, it provides rich information on the prevalence of medical risk factors and chronic disease complications in this population. This second report has taken an in-depth look at the modifiable risk factors for chronic disease, both lifestyle and biometric, and the trend in these risk factors between the first and third Treatment Programme visits. It is apparent that there is an improving trend in both the self-reported lifestyle risk factors as well as in biometric measurements such as blood pressure, LDL cholesterol and HbA1c, over time in this cohort.

Similar patterns of diagnoses and multimorbidity were found as described in the first report. For example, multimorbidity increases with age. The definition of multimorbidity is two or more chronic conditions: in this cohort 51% of patients over 85 years were multimorbid compared to 42% overall. In the case of three or more chronic conditions: 20% of those over 85 years had three or more chronic conditions, compared to 14% overall. As in the first report patients with heart failure tended to have more co-morbidities than individuals with one of the other specified diagnoses, with 87% of patients with heart failure having two or more chronic conditions.

The lifestyle risk factor behaviour patterns were similar to that reported in the first report e.g. approximately 9% were current smokers, approximately 39% were overweight, approximately 30% were obese, 52% had adequate physical activity levels, 51% were non-drinkers and 43% had normal drinking patterns. However, this report takes a particular focus on patients who had three visits to their GP between 01/01/2020 and 20/01/2022. This analysis has shown improvements in all the modifiable risk factors concerned between the first and third visit, including patients who had higher risk profiles at the first visit. For example, 13% of patients

had given up smoking between first and third visit; of patients who were obese at their first visit, 1% of these had achieved normal weight and a further 13% of them had reduced weight and would now be in the overweight category rather than obese. Furthermore, of those that had inadequate physical activity on their first visit, 30% of them had achieved adequate levels by their third visit. Of those who had risky alcohol behaviour on their first visit, two thirds of them had become either normal drinkers or non-drinkers by their third visit. These improvements in modifiable risk factors also held true for findings that were not self-reported, namely biometric risk factors such as blood pressure, LDL cholesterol and HbA1c (in patients with a diagnosis of diabetes). For example, both systolic and diastolic blood pressure had dropped by 1 mm mercury for the whole cohort of patients who had had three visits to their GP. This population scale reduction in blood pressure is extremely important and is linked to very significant reductions in future cardiovascular disease events in this population i.e. a reduction in heart failure of 13.3 in CHD of 9 and stroke of 4.8 per 100,000 person years.

Specifically of patients who were hypertensive (blood pressure ≥ 140/90) at their first visit, 43% of them had now become normotensive. This is in keeping with the weight reductions, and improvements in physical activity which have been described, and with regular medication management and increased awareness of blood pressure. It emphasises the importance of blood pressure control in the prevention and management of chronic disease and validates the inclusion of blood pressure as a modifiable risk factor in the CDM Prevention Programme for the prevention of further chronic diseases occurring in patients. Fortunately, the CDM Prevention Programme has now been extended to include patients with all hypertension aged over 18 years, to commence in the second half of 2023.

LDL cholesterol measurements were carried out on all participants in the Treatment Programme and specific analyses based on diagnosis and associated international guideline LDL ranges are presented in this report to identify the proportions of this population with particular conditions who have LDL results within the recommended ranges. All of these patient groups had reduced their LDL cholesterol levels and clinically significant proportions of patients who did not meet the target at the first visit were now meeting the target by the third visit e.g. among patients with a diagnosis of diabetes, 40% of those who were above target for their HbA1c level at the first visit had reached that target level by their third visit.

GPs are asked to complete a patient-focussed care plan with each of their chronic disease patients: this requires significant patient and clinician engagement. Encouragingly, over 50% of patients had a care plan in place and of those who did not at their first visit, an additional 40% had a care plan in place by their third visit. This demonstrates active patient engagement by clinicians and the delivery of patient-centered care.

A major objective of the CDM Programme is to enable General Practice to manage patients with chronic disease in Primary Care as much as is appropriate. The Enhanced Community Care programme (ECC), of which the CDM Programme is a main plank, aims to support General Practice to manage the vast majority of patients in Primary Care for their routine care, providing specialist supports at the ambulatory care hubs. It is appropriate that patients with complex or acute conditions would be referred to hospital, both for diagnostic services or deterioration of their condition. This report, which includes mostly patients over 65 years, shows that only 9% of patients were attending hospital for ongoing care of any of the conditions for which they were attending the GP under the CDM Programme. This is a demonstration of Sláintecare in action as it shows 91% of patients with chronic disease were not attending hospital for the ongoing management of their chronic condition, which was now fully managed routinely in Primary Care.

Conclusion

The implementation of the CDM Treatment Programme for its first two years, which included mostly patients over 65 years, should be considered highly successful. The programme was implemented during the worst covid period, when people with chronic disease had difficulties accessing other services.

The uptake rate in those over 65 years was 83%, as the younger cohorts of patients are registered in the programme, the uptake rates and the patterns of disease and behaviours may change: this will be the focus of future reports. The Opportunistic Case Finding and Prevention Programmes commenced in 2022 and the initial reports of these services will be developed during 2023.

Feedback from General Practitioners, Consultants and patients groups has highlighted a number of cardiovascular conditions which were not included in the initial version of the CDM Contract agreed in 2019. E.g. hypertension over 18 years, pre diabetes 18 - 44 years, chronic kidney disease, familial hypercholesterolemia, gestational diabetes and pre-eclampsia, vascular heart disease and peripheral arterial disease. Many of these conditions affect relatively small numbers of patients but are high-risk cardiovascular conditions for serious clinical events such as myocardial infarction or stroke, with a significant proportion of these events largely preventable with a structured, preventative and proactive approach. This, together with the evidence that the Programme is effective over the last two years, requires that these conditions now be included in the CDM Programme. Two of these conditions (hypertension in patients over 18 years and patients who have had gestational diabetes/pre-eclampsia in pregnancy) have been funded for inclusion in 2023. This is to be greatly welcomed, as the results of this report show very significant population health improvements due to better blood pressure control through the programme. Work will continue for inclusion of these other cardiovascular conditions in 2024, so that the CDM Programme treats all of cardiovascular disease.

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