Changing pattern of GP referrals: experience from a community diabetes clinic

JYOTI BALANI,[1] SAMSHAD EMMAMBUX,[2] STEVE HYER[3]

Abstract

The management of type 2 diabetes (T2DM) has undergone significant changes in recent years, with a shift away from the hospital setting towards community–based teams. This study aimed to investigate changes in clinical acuity and complexity of patients with T2DM referred to the Sutton Community Diabetes Service.

This retrospective audit of patients with T2DM compared the first hundred patients referred in 2017, when local guidelines for referral were first introduced, with the first hundred patients referred in 2023. Demographic data, treatment modalities, diabetic complications and co-morbidities were retrieved from our EMIS database.

Compared to the 2017 cohort, patients referred in 2023 were more ethnically diverse (35% South Asian vs. 18%; p<0.01), had higher mean (SD) HbA_{1c} levels (mmol/mol at referral 90.8 [20.6] vs. 81.5 [19.9, p <0.01), higher rates of microalbuminuria (47% vs. 28%, p=0.02),and were more likely to have three or more significant co-morbidities such as co-existent cancers or cardiovascular disease.

This study highlights the growing complexity of patients referred to the community diabetes service, which impacts on the entire multidisciplinary team. Commissioners and care planners need to consider the increasing complexity of patients managed in these settings.

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[1] Sutton Community Diabetes Services, Sutton Health & Care, Epsom & St Helier Hospitals NHS Trust, UK
[2] Sutton Health & Care, Epsom and St Helier Hospitals NHS Trust, UK
[3] Epsom & St Helier Hospitals NHS Trust, Carshalton, Surrey, UK

Address for correspondence: Dr Jyoti Balani
Consultant diabetologist, Sutton Health & Care and Epsom & St Helier Hospitals NHS Trust, Dorren Kouba Diabetes Centre, St Helier Hospital, Wrythe Lane, Carshalton, Surrey, SM5 1AA, UK
E-mail: jyoti.balani@nhs.net

Introduction

As reported by the 2024 National Diabetes Audit data, more than 3.6 million people in the UK are living with type 2 diabetes (T2DM).[1,2] The number of people diagnosed with diabetes in the UK has more than doubled in the last 20 years, now affecting 1 in 15 people.[1] Consequently, the healthcare burden of diabetes in the UK is expected to rise substantially in the coming years.[3]

The rapid growth in the number of people living with diabetes together with increased complexity in the management of the disease presents a challenge for the delivery of high-quality patient-centred care across the whole healthcare community.

In 2013, Sutton Community Health Services were commissioned to establish a consultant-led community-based specialist multidisciplinary diabetes team with the aim of managing patients away from the acute setting to improve resources for those who need to be seen in the specialist hospital-based clinics. Referral criteria from primary care were reviewed and updated in 2017.

The aim of this study was to analyse changes in the clinical acuity and complexity of patients referred to our community-based diabetes clinics since the introduction of referral guidelines and to evaluate the potential implications of these changes.

Methods

The Sutton Community Diabetes Service supports people with T2DM to manage their condition through its multidisciplinary community diabetes team, comprising a consultant diabetologist, specialist diabetes nurses and specialist diabetes dietitians. Patients are referred to the community team by their GP or practice nurse.

In 2017, we updated guidelines for referral of patients with a clear diagnosis of T2DM (Table 1).

A retrospective audit of clinical data of patients referred by GPs to our diabetes community service was undertaken. From our EMIS database, we retrieved demographics, duration of diabetes, treatment modalities, diabetic complications (retinopathy, microalbuminuria), co-morbidities and blood results (HbA_{1c}, lipids) in the first 100 consecutive patients referred in 2017 at the time when referral criteria were updated and compared these with the first 100 consecutive patient

Table 1. Referral criteria to the community diabetes service

Inclusion
T2DM not achieving HbA_{1c} targets in primary care
T2DM with recurrent hypoglycaemic episodes
T2DM requiring initiation of insulin or insulin intensification
T2DM for consideration of GLP-1 agonist therapy
Exclusion
Patients with T1DM, except domiciliary patients or those not engaging with the acuteTrust
Patients who are acutely ill
Patients with complications requiring immediate medical attention
Patients who are pregnant
Patients under 18 years of age

Key: T1DM=type 1 diabetes mellitus; T2DM=type 2 diabetes mellitus

referrals in 2023. Referrals for domiciliary visits by diabetes specialist nurses and for women with T2DM planning a pregnancy were excluded. Patients referred for patient education are referred via a different pathway and are not included in this audit.

All data collected in this audit study are part of routine clinical management and, therefore, do not require formal ethics approval.

Analysis

We compared mean values in the two cohorts by unpaired t tests and frequency of variables using the chi-squared test. p<0.05 was taken as significant.

Results

The demographic details of the two groups and the mean HbA_{1c} results at referral are shown in Table 2. Patients in the two groups were similar in mean age and duration of diabetes. All younger patients (<40 years) in the 2023 referral group had T2DM whereas four of the five patients under 40 year in the 2017 cohort had T1DM. Sex distribution was similar. Mean BMI was non-significantly increased in the earlier cohort. The proportion of patients of Asian ethnicity increased in the 2023 cohort (35% versus 18%, p<0.01) consistent with increasing ethnic diversity in Sutton's population in recent years.[4]

Indications for referral in the 2017 cohort (n=100) were: (i) dietary advice 35; (ii) not achieving HbA_{1c} target in primary care 33; (iii) insulin initiation or insulin intensification 30; (iv) recurrent hypoglycaemia 1; and (v) GLP-1a therapy 1. By contrast, referrals in the 2023 cohort (n=100) comprised: (i) not achieving HbA_{1c} target in primary care 56; (ii) insulin initiation or insulin intensification 35; (iii) dietary advice 5; (iv) recurrent hypoglycaemia 2; and (v) GLP-1a therapy 2.

Mean HbA_{1c} (mmol/mol) at referral was higher in the 2023 cohort (90.8 + 20.6) compared with the 2017 cohort (81.5 + 19.9); p<0.01; 59% of the 2023 cohort had HbA_{1c} >85 mmol/mol compared with 33% in the 2017 group, p<0.01).

Table 2. Comparison of demographics and HbA_{1c} in patients referred to Sutton Community Diabetes Service in 2017 with those referred in 2023

		Patients referred in 2017 (n=100)	Patients referred in 2023 (n=100)	P value
Age (years)		64.1 ± 14.5	61.2 ± 12.1	NS
Age <40 years		5Φ	5§	NS
Sex	**Male**	62	53	NS
	Female	38	47	
Type of diabetes	**Type 1**	13	1	NS
	Type 2	87	99	**p=0.01**
Ethnicity	**White**	71	62	
	Black	8	3	
	Asian	18	35*	
	Others	3	0	
Duration of diabetes (years)		11.5 ± 8.1	13.2 ± 6.5	NS
BMI (kg/m²)		33 ± 26.4	30.1 ± 7.9	NS
HbA_{1c} (mmol/mol)		81.5 ± 19.9	90.8 ± 20.6**	**p<0.01**
Number with HbA_{1c} ≥85 mmol/mol		33	59**	**p<0.01**

* p<0.05 ** p<0.01 Φ4 patients T1DM, 1 T2DM §All 5 patients T2DM

Co-morbidities and treatment modalities at referral are shown in Table 3a and 3b. Similar numbers of patients were taking triple oral diabetic therapy. The earlier cohort were more frequently taking insulin alone (20 vs. 5, p <0.01) but the 2023 cohort were non-significantly more likely to be taking insulin plus other diabetic medication.

There were significantly more patients in the recent cohort with three or more co-morbidities (see Table 3a).

Nearly half of patients in the 2023 cohort were hypertensive (48%) compared with 41% in the earlier group although this difference did not achieve statistical significance. Various types of cancer were more common in the 2023 cohort (n=12) compared with the 2017 cohort (n=3); p=0.02. In addition, 20 patients of the 2023 cohort had a history of COVID-19 infection, of whom 13 had a positive test.

Blood pressure, lipid profiles and distribution of diabetic complications for the two groups are shown in Table 4. Significantly more patients in the 2023 cohort were found to have microalbuminuria compared with the 2017 group (47% versus 28%; p=0.02).

The distribution of the patient variables in the two cohorts is illustrated in Figure 1.

Discussion

Consistent with other studies, we report an increasing trend in

Table 3a. Comparison of co-morbidities in patients referred to Sutton Community Diabetes Service in 2017 with those referred in 2023

Co-morbidities	Patients referred in 2017 (n=100)	Patients referred in 2023 (n=100)	P value
Patients with 3 or more co-morbidities	13	35**	p<0.01
Hypertension	41	48	NS
Dyslipidaemia	23	16	NS
Fatty liver	2	9	NS
Pancreatitis	1	1	NS
Myocardial infarction/ CAD/heart failure	9	18	NS
Atrial fibrillation/arrhythmias	6	7	NS
COPD/asthma	11	14	NS
Hypothyroidism	1	8*	p<0.05
Anxiety and depression	21	13	NS
Schizophrenia/behavioural disorders	4	4	NS
Gastritis/IBS/colitis	8	10	NS
Peripheral vascular disease	4	4	NS
Chronic kidney disease	4	8	NS
Obstructive sleep apnoea	0	4	NS
Cirrhosis	0	3	NS
Cancer- breast, prostate, renal, bowel, squamous cell carcinoma	3	12*	p<0.05
DVT/PE	0	4	NS

* p<0.05 ** p<0.01

Table 3b. Comparison of treatment modalities in patients referred to Sutton Community Diabetes Service in 2017 with those referred in 2023

Treatment	Patients referred in 2017 (n=100)	Patients referred in 2023 (n=100)	P value
Single/dual oral therapy	29	24	NS
Triple therapy	21	27	NS
Oral + GLP-1a	4	6	NS
Insulin alone	20**	6	p<0.01
Insulin + GLP-1a/oral	26	37	NS

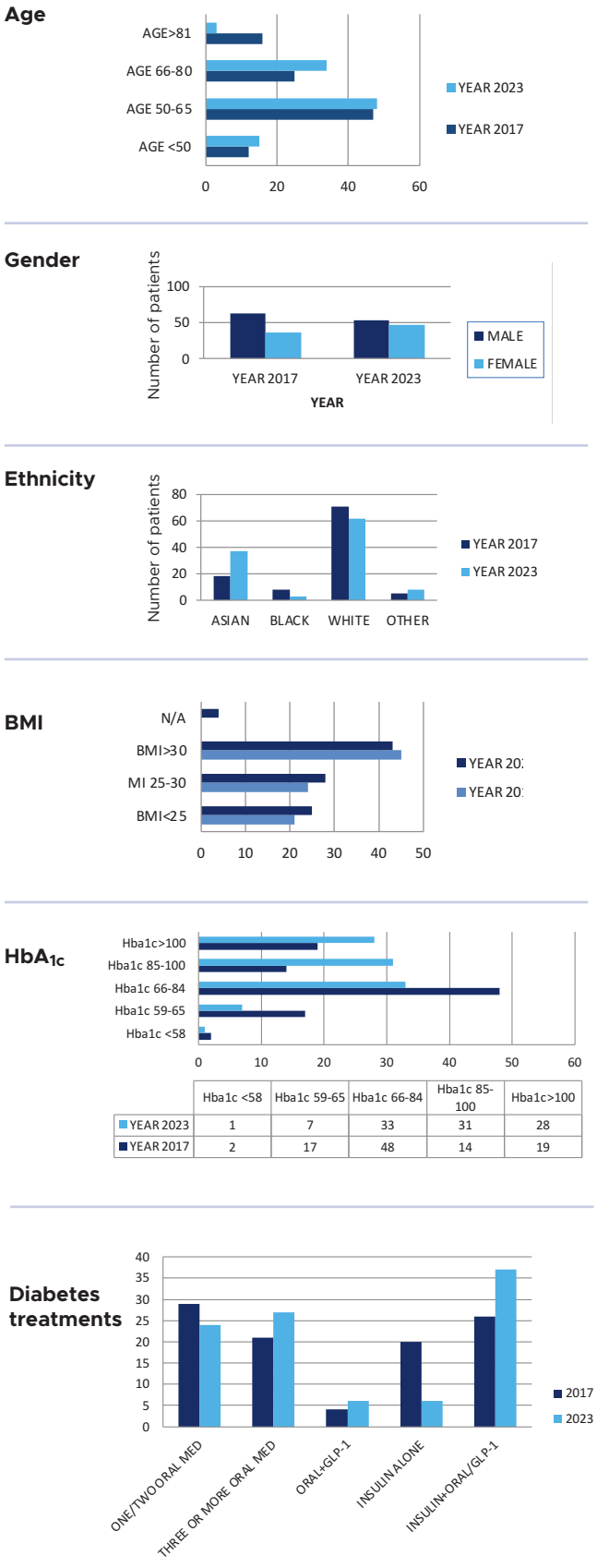
* p<0.05 ** p<0.01 GLP-1a= Glucagon-like peptide analogue

Table 4. Comparison of blood pressure, cholesterol fractions, microalbuminuria and retinopathy at referral in both groups

	Patients referred in 2017	Patients referred in 2023	P value
Hypertension			
Normal BP	71	76	NS
Grade 1	21	16	
Grade 2	4	5	
Grade 3	0	0	
NA	4	8	
Total cholesterol <4 mmol/L			
Yes	40	35	NS
No	58	65	
NA	2	0	
LDL cholesterol <4 mmol/L			
Yes	32	37	NS
No	58	62	
NA	10	1	
Triglycerides <1.7 mmol/L			
Yes	54	53	NS
No	43	47	
NA	3		
Statin therapy			
Yes	68	77	NS
No	31	23	
NA	1		
Microalbuminuria			
Yes	28	47*	p<0.05
No	60	50	
NA	12	3	
Retinopathy Any grade (R1+R2+R3)	35	55	NS
R0	35	36	
R1	27	49	
R2	5	5	
R3	3	1	
NA	3	8	
Maculopathy			
M0	55	76	NS
M1	15	16	
NA	30	8	

the scale and complexity of diabetes referrals to the community teams.[5,6,7] There were 687 referrals to the Sutton Community Diabetes team in 2017 and 803 referrals in 2023. This increase reflects the rising incidence of T2DM and the high prevalence of other medical conditions associated with diabetes. In its 2023 report, the Sutton Strategic Needs Assessment stated that the prevalence of diabetes, principally T2DM, had been steadily increasing from 5.7% to 6.9%, with a worrying increase in younger people.[4] The proportion of the population diagnosed with diabetes in Sutton was the second highest in South West London and the proportion of Sutton's residents from non-

Figure 1. Distribution of patient variables in the two cohorts



	Hba1c <58	Hba1c 59-65	Hba1c 66-84	Hba1c 85-100	Hba1c>100
YEAR 2023	1	7	33	31	28
YEAR 2017	2	17	48	14	19

British ethnic backgrounds had increased to 43%.[4]

Local referral guidelines to Sutton Community Diabetes Service were established in line with the toolkit for London commissioning groups (*Improving the management of diabetes care*).[8] The guidelines were designed to promote referral of T2DM patients at higher risk of complications and to initiate early interventions for better outcomes. These referral pathways have further added to the complexity of the workload faced by the community diabetes team.

The majority of referrals in 2023 were due to patients not achieving HbA_{1c} targets in primary care or for insulin initiation or intensification, which together comprised 91% of indications. Previously only 63% of indications were in these categories and more than a third were for dietary advice only.

Patients referred in the most recent cohort were usually on multiple antidiabetic therapies in addition to insulin and they often had multiple co-morbidities including thyroid disease, cardiovascular disorders and various types of cancer. Diabetic retinopathy across all grades was also more common but only the prevalence of diabetic microalbuminuria reached statistical significance. The COVID-19 pandemic disproportionally affected people with diabetes and further increased the burden on healthcare professionals.[9]

Similar findings of multiple morbidity in patients with T2DM attending general practice have been reported previously.[10,11,12] In our study, the cohort of patients in 2017 included 13 patients referred with T1DM for education in carbohydrate counting, which is likely to account for the larger proportion of patients in that cohort on insulin alone.

The broad range of co-morbidities highlights the complexity of managing this group of patients and emphasises the need for a multidisciplinary approach. Specialist teams in the community help to bridge the gap between primary and secondary care, reducing the burden on hospital diabetes services.[13] Community-based specialist care allows the management of complex patients with T2DM to continue in the community. This model of care addresses the challenge of accessing specialist care by offering specialist services within the community.[14]

Our results have implications for the whole multidisciplinary team. The increasing complexity of the caseload referred to the community diabetes service places considerable pressure on the specialist diabetes nurses, dieticians, district nurses and diabetologist in the community teams. The increased complexity of diabetes management needs to be considered when designing future care services for people with diabetes.

We acknowledge the limitations of this study. The relatively small cohorts of patients reduce the generalisability of the results to the wider population. We chose consecutive patients referred to our service instead of using random selection but do not believe this significantly impacted on the results.

Conclusions

This study highlights the increasing complexity of patients referred to the community diabetes service, which impacts the entire multidisciplinary team. With the current emphasis on

Key messages

- In recent years, the complexity of the caseload referred to the community diabetes service has increased
- People living with diabetes who are managed by the community diabetes team have a high prevalence of diabetes-related and -unrelated co-morbidities
- People living with diabetes who are managed in the community often have complex needs which necessitate a multidisciplinary team approach
- Commissioners and care planners should take into account the growing complexity of people with diabetes managed in the community when designing services.

shifting diabetes care from hospitals to community-based services, commissioners and care planners need to take into account the increased complexity of patients managed in community settings.

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Ethical approval The study is a retrospective audit of all patients with T2DM attending the Specialist Community Diabetes Service at Jubilee Health Clinic, and therefore did not require ethical approval. The study was approved and registered by the Epsom and St Helier Audit department.
Contributorship JB: Completion of audit form, data collection, analysis of results, initial draft manuscript, discussion, final version of manuscript; SE: Data collection, analysis of results and final version of manuscript; SH: Supervision of project, revising manuscript, discussion, final version of manuscript.

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