Outcomes before and after the Young Adult Diabetes Clinic restructure at a tertiary hospital in the UK

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Background

Liverpool is home to 2 world class football academies, 3 universities and a bustling social scene. Nearly 2500 people with type 1 diabetes (T1D) live in the city with significant number being young adults (YAD, 19-25 year old). This is the age of growing independence and increasing experimentation. Unfortunately, it is also associated with frequent clinic disengagement and increased hospital admissions.

At the end of 2015, our YAD clinic non-attendance and T1D related hospital admission rates were rising, and no support for YADs outside the hospital setting existed.

Innovation

To improve care and outcomes, a number of changes were made in early 2016:

1. **Structured Clinic Pathway** established;
2. **Joint multidisciplinary clinic** appointments;
3. **Telephone reminders** of appointments;
4. **Pre-clinic questionnaires**;
5. **DIASEND®** use in clinic for data download;
6. **Leaflets for team contact** (email and phone) & **useful websites**;
7. **Database** of all patients in YAD clinic was created;
8. **LIVT1D** – Liverpool's first peer-support group for people with T1D was created.

Aims & Method

The **aim of this study** was to compare outcomes before and after the clinic restructure.

Method: Retrospective, comparative analysis of 24 months data (12 months pre & post restructure) from the online diabetes register, ICE® lab system and YAD database, measuring:

1. **Population demographics**;
2. **Clinic attendance, financial gains**;
3. **Mean HbA1c**;
4. **Percentage of completed annual checks**;
5. **Admission to hospital for diabetic ketoacidosis (DKA) and severe hypoglycaemia (SH).**

Results

Demographics & Annual Screening	2015	2016
Total No. of patients	115	123
Gender	42% M, 58% F	45% M, 55% F
Mean duration of diabetes :	13±6.7 years	
TSH checked	43.4%	67%
ACR checked	35.8%	65.4%
eGFR checked	34%	65%

Fig.1: Demographics and percentage of completed annual checks.

Fig.2: Break down of diabetes type (T1D 92%, T2D 7%, MODY 1%)

Fig.3: Majority had normal BMI, but rise in obesity levels seen in 2016

Fig.4: In 2016, 12.3% (v. 2.6%, p=0.03) of patients had a mean A1c<7% (53mmol/mol). Mean A1c for clinic was 8.9% (v. 9.1%).

	2015	2016	P value
Clinic non-attendance rate	47%	32%	0.03
Financial gain		£3663	

Fig.5: A significant reduction in non-attendance rate was seen in 2016. 65% (v. 42%, p=0.001) attended ≥2 appointments in the year.

% of clinic cohort admitted to hospital with:	2015	2016	P value
DKA	15%	8%	0.12
Severe hypoglycaemia	4%	2%	0.40
11 fewer admissions in 2016 = £11336 saved			

Fig.6: Reduction in hospital admissions in 2016 was seen, resulting in cost savings for the hospital.

Conclusion

Restructuring the young adult clinical service with a more flexible, patient-centered and multi-disciplinary approach has brought about improvements in the clinic attendance rate, people achieving target HbA1c, percentage of measured annual checks and reduction in admission rates of diabetes-related emergencies amongst our clinic cohort. The rising incidence of obesity in this age group is concerning and a sign of a paradigm shift. Feedback for the clinic service and the peer-support group has been very encouraging. Financial gains and savings seen are a testament to cost-effective innovation made possible with no additional funding. Future performance and sustainability will be measured by regular data analysis, assessment of staff and patient satisfaction, and uptake of peer-support to a wider audience.

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