INTRODUCTION

Other than age, diabetes is the largest contributor to overall health care costs and reduced life expectancy in Europe. People with T1DM and T2DM require higher levels of hospital support than their non-diabetes counterparts. Health care provision in hospital can be broken down into four main areas: 1) planned/elective 2)emergency/non-elective 3)Accident & Emergency and 4)Outpatient attendances. The National Diabetes Inpatient Audit has shown that 18% of all hospital beds are occupied by people who have a diagnosis of diabetes compared to a 7% prevalence of diabetes in the population. This oversrates the impact of the condition as over 90% of people with diabetes have T2DM and so older than the general population so their healthcare requirements would be higher. NHS England publishes significant amount of data at GP practice level and we have previously described the impact a variety of population, service and prescribing factors on outcomes. It was felt that this approach could be used to quantify and adjust for the effect of age on different services that are provided in hospital to T2DM individuals and therefore achieve a much more accurate evaluation of the actual net cost of diabetes, including all associated comorbidities to the health service. The National Diabetes Inpatient Audit has also reported on glycaemic control which showed 70% of T1DM and 34% of T2DM patients have HbA1c results >58mmol/mol and so are at increased risk of adverse health impacts. We initially included this glycaemic control as a factor within this analysis but was shown to be strongly affected by the historic nature and increased mortality the data for which was not captured see figure 1.

Our objective was to more exactly quantify the net impact of diabetes on the different aspects of healthcare provision within hospitals in England. We wished to use this analysis to provide a clearer focus for local diabetes services to determine which elements of care they can focus on in order to improve outcomes. We initially included this glycaemic control as a factor within this analysis but was shown to be strongly affected by the historic nature and increased mortality the data for which was not captured see figure 1.

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METHOD

The total annual activity in each GP Practice for emergency, elective, A&E and outpatient care, for patients with diagnosis of T1DM and T2DM and the non-D population was extracted from NHS digital Hospital Episode Statistics for 2016_17 and 2017_18. The population of T1DM and T2DM individuals and their age groups at GP practice level was taken from NHS Digital National Diabetes Audit (4). Public Health England has published the patient numbers and age profile of each GP practice. The demographic and locational data for each practice including social deprivation, population density (urban/rural), Latitude (Northerliness) were taken from the Office of National Statistic (ONS). The % minority ethnicity was also determined.

RESULTS

The study captured 90% of the hospital activity and £36 billion/year of hospital spend. The NDA Register showed that out of a total reported population of 58 million, 2.9 million (6.5%) had T2DM and 240 thousand (0.6%) had T1DM. Bed day availability showed 17% of beds were occupied by T2DM and 3% by T1DM. Overall cost of hospital care for people with diabetes is £5.2 billion/year. Once the normal expected costs including the older age of T2DM hospital attenders are allowed for this fell to £3.0 billion/year or 8% of the total captured secondary care costs. This equates to £560 non-diabetes person compared to £3280/person with T1DM and £1680/person with T2DM. Figure 2: Highlight the variances in population age between non diabetes, T1DM and T2DM. It also shows how the costs/person in practices vary with % age >75 and the correlation coefficient that can be used to reflect that.

Table 1 show the detailed outcomes. The net healthcare annual cost impact for people with diabetes on non-elective/ emergency work is £1.24 billion, elective work is £0.86 billion, outpatient charges £0.87 billion and A&E attendances £0.70 billion. T1DM individuals required five times more T2DM individuals, even allowing for the age, require twice as much secondary care support than non-diabetes individuals. If these additional costs are restricted onto the smaller group that have not controlled their glycaemia then these costs/head rise to 7.5 higher for T1DM and 5 times for T2DM compared to non-D.

CONCLUSION

Investment in diabetes medication and services ensure that 62% of people tested have controlled their glycaemia during the previous 3 months, however the lack of glycaemic control in the residual number of patients and long amounts of time, impact in increased mortality and hospital costs. These increased hospital costs, 40% of which come from non elective/emergency spend, are three times higher than the current diabetes medication spend and could be seen as accruing to the non controlled cohort which would be around 700,000 in number. There are still opportunities to reduce potential future additional costs through increased investment in local services and medication for diabetes treatment. Supporting patients in diabetes management could significantly reduce hospital activity including emergency bed occupancy of people with T1DM. The next major stage in this project is to include longer term historic patient level glycaemic control and current mortality to quantify the impact of these on the healthcare resources.

REFERENCES