

Community pharmacy type 2 diabetes risk assessment: demographics and risk results

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Abstract

Objectives To determine the demographics and risk results of patients accessing a community pharmacy diabetes risk assessment service.

Method Participating patients underwent an assessment using a validated questionnaire to determine their 10-year risk of developing type 2 diabetes. Patients were given appropriate lifestyle advice or referred to their general practitioner if necessary.

Key findings In total, 21 302 risk assessments were performed. Nearly one-third (29%) of 3427 risk assessments analysed yielded a result of moderate or high chance of developing the condition.

Conclusions Community pharmacies can identify a significant number of patients at risk of developing type 2 diabetes in the next 10 years. Further follow-up work needs to be done to determine the cost-effectiveness of such a service and the consequences of receiving a risk assessment.

Introduction

The frequency with which the general public use the community pharmacy^[1] provides an ideal opportunity to screen patients for undiagnosed conditions. There may be up to 1 million people in the UK with undiagnosed type 2 diabetes,^[2] and many may not know they have the condition, as they may have few or none of the classic symptoms.^[3] Opportunistic screening tests at a random encounter with a health-care professional can be used to identify patients with type 2 diabetes before they start to develop complications. Alternatively, patients can be alerted to potential risk factors to enable lifestyle modification. Diabetes UK, the University of Leicester and the University Hospitals of Leicester NHS Trust have developed a type 2 diabetes risk assessment that uses a short questionnaire designed to highlight a person's risk of developing the condition over 10 years, with a moderate score indicating a 1 in 7 chance and a high score indicating a 1 in 3 chance. Seen as preferable to a random capillary blood test, it avoids false reassurance and potentially over-referral to the general practitioner^[4] and can direct people to make lifestyle changes before the risk develops into the condition. It is a recommended first step to identifying those at risk of developing the condition, and community pharmacists have been

encouraged to use it with their patients and customers.^[5] The aim of this service evaluation was to identify whether a service provided by community pharmacies can identify people at risk of developing type 2 diabetes.

Method

The University of East Anglia's research ethics committee approved this study as a service evaluation. The risk assessment took place in all community pharmacies belonging to one large chain across the UK. The diabetes risk assessment involves seven simple questions along with measurements of waist circumference and body mass index.^[6] Responses to each question are scored and combined to indicate a risk level of developing type 2 diabetes (low, increased, moderate or high). Professional advice is dependent on the final score and ranges from positive feedback (low score) and simple advice (increased risk) to advice to see one's general practitioner for a blood test (moderate and high risk). Further tailored advice was given to all participants to reinforce recommended actions. The assessment and advice were largely provided by pharmacy assistants, who had received some electronic and

face-to-face training. The consultation was designed to last 10 min, and consent was implied when the patient provided information to allow service participation and form completion.

People over 18 years old, not pregnant and not previously diagnosed with any form of diabetes were eligible for inclusion. Leaflets and posters within each pharmacy were used to advertise the service to all patients and customers. Discussion of the service also took place in pharmacy consultations (e.g. medicine use reviews) and within the company's optician stores, where the service was advertised to patients. Pharmacies were not paid for delivering the service.

All completed risk assessments were registered on the pharmacy system, and the paperwork was retained. Pharmacy teams sent a copy of the assessment to their head office for collation. Anonymous data were then transferred to an independent team (M.T. and D.W.) for analysis. No further data collection or analysis is planned. All forms returned up to September 2013 were analysed (note that the difference in numbers is due to not all pharmacies returning the paperwork). Descriptive analysis was performed on the data received in the first 9 months of the service, using the SPSS v. 18 package (IBM, Armonk, USA). Medians and interquartile ranges (IQRs) were used where the data were not normally distributed.

Results

A total of 21 302 risk assessments in 1513 pharmacies were recorded in the pharmacy system between the beginning of January 2013 and the end of September 2013 (median (IQR) 6 (2–14)). A total of 3513 risk assessments were returned, and 3427 with a complete dataset were analysed. Postcode analysis on the pharmacy location demonstrated that this subsample came from the same geographical distribution as the total number of risk assessments performed, which was in itself spread across the UK. The median age was 44.9 years (IQR 30.4–58.2); 30.1% of patients were male, and 86.6% were white European. Nearly one-third (29.8%) of assessments were performed on someone with a family history of diabetes. Table 1 illustrates the results for the other questions on the risk assessment, including the outcome score. Nearly one-third (29.1%) of assessments yielded a result of a moderate or high chance of developing the condition, with 60.4% being conducted on people considered overweight or obese.

Discussion

In this particular subsample, the community pharmacy-based risk assessment helped to identify nearly a thousand people for whom the risk of developing type 2 diabetes was either moderate or high, as well as a further thousand at an increased risk of developing the condition in the next 10

Table 1 Profile of patients identified as a result of the diabetes risk assessment

Parameter	<i>n</i>	Measure	Result
Waist measurement	2570	Mean (SD)	88.9 cm (14.7)
Waist category	3427	%	<90 cm: 55.8% 90–99.9 cm: 23.2% 100–109.9 cm: 13.0% >110 cm: 7.9%
Body mass index	3084	Median (IQR)	26.3 (23.3–30.0)
Body mass index range	3427	%	<25: 39.6% 25–29.9: 35.4% 30–24.9: 16.7% >35: 8.3%
Diagnosed hypertension ^a	3427	%	15.1%
Risk level	3427	%	Low: 34.8% Increased: 36.2% Moderate: 20.0% High: 9.1%

SD, standard deviation; IQR, interquartile range. ^aInformation obtained from patient report.

years. This service demonstrates that pharmacists may be a useful resource for many patients who do not routinely access health services, as evidenced by the range of ages seen.

One limitation is a lack of follow-up of patients to determine their actions as a result of the assessment. Further work should be undertaken to determine whether lifestyle, diet and referral advice provided to this group of people by the community pharmacy to reduce their level of risk is actually followed by patients. Another limitation centres on the relatively small number of assessments conducted in each pharmacy every month and the low numbers of forms returned to be input electronically. The return of the forms was not a priority for pharmacists, as it was not essential for service delivery, although the company highly encouraged it. Recent research has supported the view that risk assessment followed by a blood test for those patients at a high risk is the most cost-effective approach to identification.^[7] However, the cost-effectiveness of such a service in community pharmacies as compared with screening within the medical practice (on a population basis) remains to be established and should be the focus of future work.

Conclusion

This evaluation has shown that pharmacists are able to identify patients who are at an increased risk of developing diabetes, something that has not been demonstrated in the literature thus far. However, it does not indicate whether this is a cost-effective approach to risk assessment or whether patients follow the advice provided. This should be explored in future work.

Declarations

Conflict of interest

The Author(s) declare(s) that they have no conflicts of interest to disclose.

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Authors' contributions

Tracey Thornley and Lisa Haynes designed the study, collated the data and assisted with drafting the manuscript. David Wright and Michael Twigg analysed the data and drafted the manuscript. All Authors state that they had complete access to the study data that support the publication.

References

1. Department of Health. *Pharmacy in England: Building on Strengths – Delivering the Future*. London: The Stationery Office, 2008.
2. Diabetes UK (2010). *One Million People in UK Unaware They Have Type 2 Diabetes*. http://www.diabetes.org.uk/About_us/News_Landing_Page/One-million-people-in-UK-unaware-they-have-Type-2-diabetes/ (accessed 15 July 2014).
3. Cantrill J, Wood J. Diabetes mellitus. In: Walker R, Edwards C, eds. *Clinical Pharmacy & Therapeutics*. London: Churchill Livingstone, 2003; 659.
4. Diabetes UK (2012). *Diabetes Risk Score Assessment Tool*. www.diabetes.org.uk/Professionals/Diabetes-Risk-Score-assessment-tool/ (accessed 18 November 2013).
5. National Institute for Health and Care Excellence. PH38: preventing type 2 diabetes: risk identification and interventions for individuals at high risk. London: National Institute for Health and Care Excellence, 2012.
6. Gray LJ *et al*. The Leicester Risk Assessment score for detecting undiagnosed Type 2 diabetes and impaired glucose regulation for use in a multiethnic UK setting. *Diabet Med* 2010; 27: 887–895.
7. National Pharmacy Association. *Community pharmacy: our prospectus for better health*. London: National Pharmacy Association, 2012.