

Delivering 'Results to Patients' builds partnerships and facilitates diabetes care planning

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Abstract

'Results to Patients' was designed to assist people with diabetes to engage in effective care planning. Quality improvement techniques helped create a low-cost, highly automated process capable of sending all patients with diabetes the result of their HbA_{1c} blood test directly. Timeliness means patients have adequate time for personal reflection ahead of care planning. The design and content of the document was shaped by extensive patient involvement. This was piloted in 1,800 diabetes patients and evaluated by questionnaire, with paired patient and healthcare professional responses. Patient satisfaction was high, 73% found this helpful, 76% said this made it easier to talk to their doctor/nurse and 89% wished to receive this in future. Healthcare professionals reported that, in 74% of cases, consultations were facilitated and there were no extra time pressures. Patients reported positive behavioural changes and enhanced engagement. These were verified in the comments received from their healthcare professionals.

The low cost and high utility of the Results to Patients project makes this a high impact technology with evidence that it has the potential to enhance patient-important diabetes outcomes.

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Key words: care planning, diabetes, empowerment, health literacy, HbA_{1c}, monitoring, patient engagement, self-care

Introduction

Effective care planning has the potential to deliver improvements in outcomes for long-term conditions such as diabetes.¹ There is general consensus that all three elements of the Better Outcomes Equation² (Figure 1) need to be working together harmoniously for patients to experience better outcomes.

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Abbreviations and acronyms

DMAIC	Define, Measure, Analyse, Improve, Control
HbA _{1c}	haemoglobin A1c
PCT	Primary Care Trust
VOC	voice of the customer

Figure 1. The Better Outcomes Equation, after Wagner

All elements are required in order to achieve better outcomes in long-term conditions



After Wagner, 1998²

Cycles of redesign continue to shape services, whilst much less attention is given to nurturing partnerships with patients and processes which engage and empower them.

It is estimated that the typical patient with a long-term condition spends at best a few hours with healthcare professionals, with 99.9% of their time spent coping with the challenges of self-care.³

The essence of care planning in long-term conditions is that healthcare professionals support each patient to make informed choices concerning future care. A key component for this is provision of information in advance of the care planning appointment. This must be timely and meaningful if it is to serve its intended purpose.

Background

HbA_{1c} as an indicator of longer-term glucose control has many advantages, yet it is abstract, technical, not easy to explain and in the UK the units of measurement have recently changed.^{4,5} This presents significant challenges for healthcare professionals wishing to share this information with patients in a meaningful way.

Aims and objectives

We believed that designing a process that would deliver HbA_{1c} results to patients in a timely way and in a form that was mean-

ingful to them, would have a positive effect on their engagement with care planning.

Specifically, we wanted to give all our diabetes patients, who wished to receive them, access to their HbA_{1c} results in advance of their care planning review. To achieve this we involved people with diabetes in designing the method and mode of communicating their result. The aims of the project were to: a) improve patient understanding of the implications of the HbA_{1c} test; b) enhance patient engagement and empowerment; and c) achieve greater patient support for care planning: providing a more equal starting point for diabetes care planning between patient and healthcare professional.

Our objectives were to design a process to deliver results to patients within five days of having a blood test; a product with intrinsic qualities that help achieve our aims; a low cost, but highly cost-effective process, to ensure sustainability.

Methods

Methodology

The *Results to Patients* project received support from Lilly UK via a management consultant who facilitated the project and provided on-the-task training in a range of quality improvement tools. A traditional DMAIC roadmap for effective project management was followed.⁶ Whilst not our intention to fully explain the quality improvement techniques we used, we believe that choosing this approach made a significant contribution to project success. A summary of each step is given in Table 1.

DMAIC cycle

Project team – along with the project manager, our team comprised four core members: the project lead and initiator (diabetes consultant), a PCT commissioning manager, a practice nurse with a special interest in diabetes and our laboratory manager.

Non-core team members were co-opted as needed. By keeping the core group small, meetings were short, focused, but relatively frequent and usually through Webex technology with face-to-face meetings occurring when absolutely necessary.

Identifying enablers and resistors, stakeholder engagement

Shared understanding of resistors helped develop our resilience and our approach to engaging and persuading other stakeholders. One example was the realisation that if our chosen solution created extra time pressures for primary care teams, it would not be workable.

The extent of the problem we were trying to solve

Two local health surveys commissioned from the Picker Institute provided a baseline metric for patients who reported receiving their HbA_{1c} test results in writing: 30% in 2006 and 24% in 2009, representative of England as a whole (Figure 2).

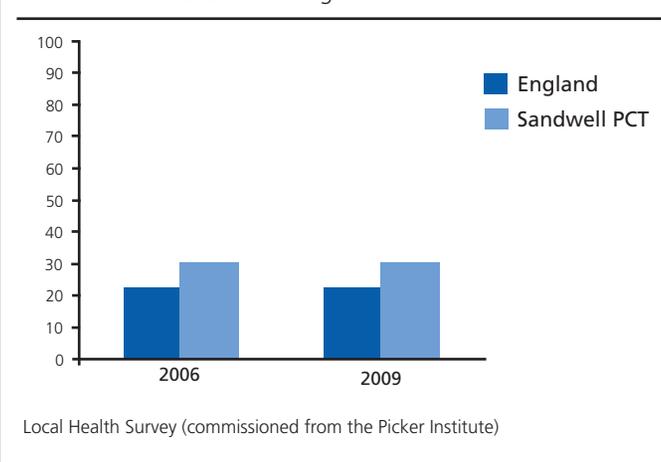
Voice of the customer (VOC) survey

To help us understand the experience of people with diabetes and to assess demand for receiving results, we conducted a VOC

Table 1 Key stages of our DMAIC roadmap

DMAIC Stage	Key elements
D Define	The extent of the problem to be solved The project team membership Stakeholders Enablers and resistors to project success
M Measure	Laboratory process capabilities Patient 'voice of the customer' survey Root cause analysis- why this does not already happen?
A Analyse	Ensure the capability of laboratory processes Customer (patients) demand was confirmed Customers' preferences for mode of delivery Low health literacy identified as key barrier to success Abstract nature of test- need to circumvent Need to involve patients in design of product
I Improve	Low cost, high quality mode of delivery created Product design shaped by patient involvement Elimination of process steps which do not add value Safeguard added to eliminate screening HbA _{1c} requests
C Control	Monitoring of print errors and complaints Online survey tool to provide ongoing feedback

Figure 2. Percentage of patients given their HbA_{1c} blood test result in writing

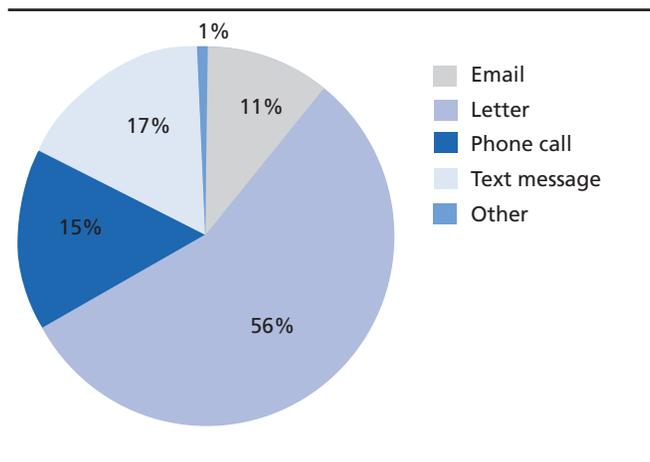


survey across eight local general practices and received 227 patient responses.

Consistent with the local health survey, 27% of patients reported already receiving their HbA_{1c} result ahead of a consultation. Almost a third of patients reported not understanding what the HbA_{1c} result was, nor how this knowledge may have helped them. Overall, demand for receiving diabetes blood test results was high and patients indicated a clear preference for receiving results by post over other options (Figure 3).

Ahead of the VOC survey the project team had considered using the nhs.net functionality allowing text messages to be sent to patients free of charge. The VOC survey results provided evidence that this option would not have been popular with patients. It would also have been challenging to communicate sufficient meaning within the limitations of a text message.

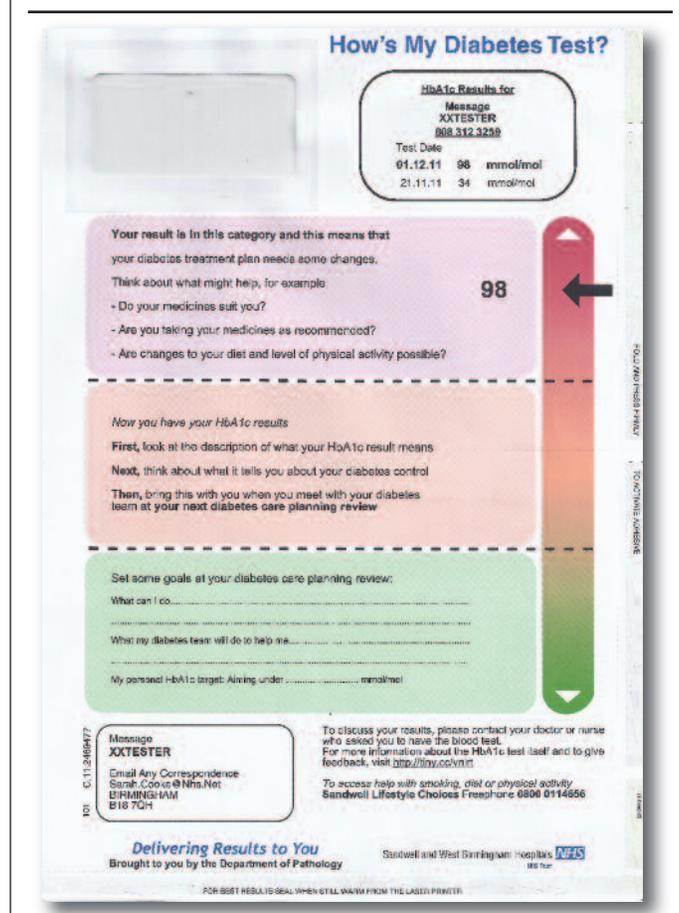
Figure 3. Patient preferences expressed in VOC survey for how to receive the diabetes blood test results



Root cause analysis – why don't patients have this information now?

The low level of health literacy in our population directed us to pay special attention to product design e.g. a suitably low reading age. Since the test itself is abstract, we wished to avoid

Figure 4. Sample personal mailer - Test patient with HbA_{1c} result of 98 mmol/mol



explaining the test itself, instead focussing on giving meaning to each patient.

We understood that if our chosen solution created extra work for primary care teams it would be likely to fail, irrespective of its quality; our solution had to be acceptable to them.

Laboratory process capabilities

A technical analysis of our laboratory capabilities showed that only 0.07% of test results (ie 699 per million) would be expected to take longer than five days, giving a *Process Sigma* of 4.7. This gave us a high degree of confidence that we could guarantee timeliness, i.e. that results would reach patients ahead of their care planning appointment.

Creating a process to deliver Results to Patients

An 'Improve workshop' generated 64 ideas in 55 minutes, with six concepts emerging as potential new processes. These were ranked and a clear preferred option emerged - to use personal mailer technology (Master Mailer UK), similar to printed salary slips, as shown in Figure 4. This offered many advantages being relatively low-cost, allowing for automation and allowing freedom in the design of its content.

Creating a product which gives meaning to HbA_{1c}

Several designs were crowd-sourced with a wide range of patient education and advocacy groups in an iterative fashion. Our chosen design is illustrated in Figure 4.

Key features of product design are shown in Table 2. Calcula-

Table 2 Design features of *Results to Patients* mailer product

Feature	Advantage
Appreciation of result trend	Both present and previous results are provided (it was decided not to include DCCT %-style results in addition to IFCC)
Presentation of result	Both as the numerical value and indicated by an arrow Simple and clear descriptor text with a low reading age
Significance of result	Clearly positioned on a coloured ruler scale Three clear categories, linked to NICE guidance and QoF targets (with potential to alter the thresholds, if guidance changes)
Advice about how to use the result	Patients asked to consider their result, reflect on what it means to them and to bring the result along to their next care planning consultation
Goal-setting	Patients are encouraged to note their own plans and goals and then to ask their doctor or nurse to annotate at the care planning review
Target HbA_{1c}	Allows an individualized target to be set, as per NICE guidelines
Additional utility	Extra space on the mailer was used to signpost patients to lifestyle services and additional online diabetes resources

lated reading age is 6.6 by Flesch-Kincaid grade-level (Microsoft Word readability statistics; easy reading for an 11 year old).

Piloting the new process and product

Patients at eight general practices and the project-lead's specialist practice were included. Posters displayed in clinical areas alerted patients to the initiative. Evaluation was by paired questionnaire, administered at the time of care planning review. Patients were given a range of statements and asked if they agreed or disagreed, responses were on a Likert scale. Patients were encouraged to make free-text comments, in particular to specify changes in their behaviour consequent to receipt of HbA_{1c} result ahead of a care planning appointment.

Patients gave the completed questionnaire to their healthcare professional, who added their response after the consultation. This way evaluation responses were paired.

Results

Pilot of 'Results to Patients'

The pilot lasted three months, during which 1,800 personal mailer documents were delivered and 178 questionnaires were returned for analysis (return rate 9.9%). Two patients chose to opt out during the pilot phase.

The results of the evaluation are shown in Tables 3-5.

Patient responses revealed a high level of satisfaction (Table 3), with 73% finding this was helpful and 76% saying that it was easier to talk to their doctor or nurse at their care planning review. Most patients (89%) wanted to receive their results in this way in future.

The utility of *Results to Patients* was confirmed by responses from healthcare professionals (Table 3) who reported that in 74% of cases the consultation was enhanced. Professionals also reported no additional time pressures.

Patients' free-text responses suggested that many had made positive changes in their health behaviours (Table 4) as a direct consequence of this initiative.

Of the 17 healthcare professionals surveyed, comments were received from 12. They noted changes in patients' behaviour indicating a greater patient understanding and engagement and also that partnership with patients was strengthened (Table 5).

Cost effectiveness of personal mailer process

At the time of our pilot, the cost per mailer item was 37p (68% postal charge, 16% printing and 16% for custom mailers), relative to the unit cost for a HbA_{1c} blood test of £1.50.

We are advised by health economists that formal calculation of effectiveness by calculation of quality adjusted life years gained may not be straightforward, however, given the low costs of our initiative and its potential to influence patient behaviour over time, it was likely to be highly cost effective (personal communication).

Discussion and progress beyond the pilot

Our *Results to Patients* project gives people with diabetes the information they need to plan their care and presents it in an

Table 3 Qualitative results from the pilot of *Results to Patients*

	Statement	% Agreeing / Strongly agreeing*
People with diabetes	"Getting my HbA _{1c} result before my appointment helped me"	73%
	"Having my HbA _{1c} result made it easier to talk to my doctor and/or nurse"	76%
	"I would like to receive my HbA _{1c} result in this way in future"	89%
Healthcare professionals	"The fact my patient had their HbA _{1c} result made the consultation easier"	74%

*n=178 questionnaires returned for analysis

Table 4 Qualitative results from the pilot of *Results to Patients*: patient empowerment and behaviour change

	Domain	Patient comment
People with diabetes	Medication adherence (concordance)	"Getting my result made me take my tablets"
	Dietary adherence	"I've been trying hard with my diet, so this really gave me a boost"
	Empowerment	"I will go back to my nurse and ask to go on a diabetes course"
	Confidence	"I can now see that my treatment plan is really working!"

*n=178 questionnaires returned for analysis

Table 5 Qualitative results from the pilot of *Results to Patients*: attitudes and views of healthcare professionals

	Domain	HCP comment*
Healthcare professionals	Understanding diabetes	"They wanted to know more about their result"
	Engagement	"Before this it was difficult to get her to come"
	Partnership working	"After we'd discussed their result, they could see its value and were all for it"
	Did this create time pressures?	"No extra time pressures"

*n=17 professionals across 8 practices

engaging way, giving it meaning. Patients do not need to understand the HbA_{1c} test itself in order to know what their own result means.

The results of our pilot clearly demonstrate that, when provided with personalised information in this way, patients change their behaviours and attitudes which then heightens engagement and partnership with healthcare professionals. As such we have succeeded in assisting patients to become more equal partners in care planning.

Soon after we conducted the pilot, the WHO gave assent for HbA_{1c} to be used as a screening test for diabetes, in addition to its surveillance role.⁷ To avoid patients inadvertently receiving screening results, we created an additional safeguard in Order-comms and healthcare professionals in our area now specify whether the HbA_{1c} test is for diabetes screening or for surveillance of diabetes. This way, only those known to have a diagnosis of diabetes are included.

On the strength of our pilot results this work has been commissioned for our local population of ~18,000 people with diabetes. Control processes now ensure easy patient opt out. On-going patient feedback via a weblink has been positive. Print error rates are low; there have been no major complaints.

Two key reasons for the success of our project are the methodical application of 'lean six-Sigma' quality improvement tools and the depth of our involvement of patients.

Conflict of interest None of the authors have conflicts of interest to declare.

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Key messages

- Personal mailer technology can allow easy automation of processes which support care planning
- This approach is both helpful and highly acceptable to patients and leads to self-reported positive behavioural changes
- Involving patients at each step of the design process contributed to the project's success

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