Advance to Derby: it’s not about the journey, it’s about the destination

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Abstract
The 2017 Mary MacKinnon lecture described how we worked across organisational boundaries to improve diabetes care in Derby, putting the user at the centre of their care. These are principles that were important to Mary McKinnon. The Derby Model of integrated diabetes care resulted in improvements in all six domains of quality improvement, and saved £800 000 a year. Using preconception care and the PROCEED project as an example, the application of the Derby principles to a subspecialist area was considered. PROCEED also improved outcomes and saved £68 000 in its first year. Despite a challenging journey with the changes in commissioning, we are now spreading our integrated diabetes model to the whole of Southern Derbyshire. Copyright © 2017 John Wiley & Sons.

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Key words
the Derby Model; integrated diabetes care; preconception; quality improvement

Introduction
Mary MacKinnon was an inspirational leader, who championed the role of primary care in diabetes services, and was instrumental in setting up Primary Care Diabetes UK. Sadly, she died in 2013, but her teachings – for example emphasising the importance of the person with diabetes being involved in their care – have shaped diabetes services in Derby, which lies 50 miles south of Sheffield, where Mary worked and lived.

Some may regard Derby as an insignificant city, but in 2011 the Good Food Guide described Derby as the ‘first city of beer’, which prompted the Lonely Planet Guide to list the city as a top 10 ‘must see destination’.1 This, by coincidence, was the same year that Destination Derby’s integrated diabetes service became fully operational.

This paper, presented at the 2017 Diabetes UK Annual Professional Conference, describes the Derby integrated diabetes model, and how we applied its principles to a subspecialty area: preconception care.

Background
In 2011, Derby City had a population of 250 000, with 17 500 people with diabetes. Diabetes services were delivered using a traditional model centred around the Acute Trust. The predominant flow of users was from primary to secondary care, rapidly saturating capacity. Secondary care clinicians struggled to discharge patients safely because of variation of expertise in primary care. Users valued the contact with the specialist team, but continuity of care was poor. Meanwhile, primary care clinicians were handling increasingly complex problems in people with type 2 diabetes, and they struggled to access care for these users in a timely manner, sometimes resulting in preventable admissions. All involved in the care of people with diabetes recognised that the model was not meeting user needs, and wanted to deliver a better service. We shared a common vision where we wanted to develop a model in which:
• Pathways were centred around the person rather than location.
• Users saw the right person in the right place at the right time.
• The user experience was improved with improved outcomes, reduced variation, improved safety and financial savings.
• Communication between primary and specialist teams was improved.

To achieve this, primary and secondary care clinicians together with Acute Trust managers and Derby City Primary Care Trust worked collaboratively to develop a whole-system approach to integration which we anticipated would achieve
the King’s Fund definition of integration:
‘An approach that seeks to improve the quality of care for individual patients, service users and carers by ensuring that services are well co-ordinated around their needs.’

We were the first to integrate at clinical, informational technological, organisational and financial levels, all supported by a single clinical governance structure. These have become known as the ‘pillars’ of integration, and have informed nationally-agreed key enablers for successful integrated care.3,4

Method
Organisational integration
Two joint venture organisations were commissioned: First Diabetes and InterCare Health Ltd. These NHS organisations were not for profit and limited by shares. Half the shares were held by the acute trust and half by primary care. First Diabetes started in 2009, supporting five GP practices and 2500 people with diabetes. InterCare Health started a year later initially supporting seven practices, spreading in 2011 to 29 GP practices supporting 15 000 people with diabetes. First Diabetes appointed two directors and InterCare Health Ltd six. The directors were responsible for service quality and ensuring that contractual specifications were met.

Organisational integration allowed us to bring together services under one umbrella for the benefit of patients. For example, clinicians were seconded into the service, and we contracted with the Community Health Trust to deliver structured education for type 2 diabetes.

Information technology integration
We shared a single record with primary care using SystmOne. Access to all information allowed us to provide holistic and safe care, as well as facilitating rapid electronic communication between specialist team members, as well as between the specialist and primary care clinicians.

Financial integration
There was a single budget allowing us to deliver services without the competition and limitations imposed by Payment by Results. It also allowed us to invest savings back into clinical services. For example, the preconception project PROCEED, described later, received 12 months’ funding from InterCare Health until the service became commissioned.

Clinical integration and clinical governance
I had the pleasure of meeting Ewan MacKinnon, Mary’s husband, a few weeks before the lecture. He stated that Mary was an admirer of Florence Nightingale, and we both felt that this quotation summarised our aims of clinical integration:

‘Let whoever is in charge keep this simple question in their head: not how can I always do this right thing myself, but how can I provide for this right thing to be always done?’

Core care for those with type 2 diabetes was undertaken in primary care. Practices were supported by diabetes nurse specialist visits, with the support tailored to individual needs. In addition, training courses were provided for all practices at a basic level, and at a higher level for those wishing to manage injectable therapies. The latter was linked to an enhanced payment where practices initiating injectable therapies were rewarded for being trained at a higher level, rewarding quality rather than numbers of insulin initiations. These measures were designed to raised standards of care and reduce variation. People with type 1 diabetes retained contact with the specialist team, although many were happy to have the annual review processes undertaken in primary care.

If the primary care team struggled to support patients despite these measures, care could be escalated to the specialist team where they were seen in community-based clinics. Access to the whole electronic patient record from the point of referral meant that the user saw the clinician who was most appropriate in solving the problem, rather than all patients routinely seeing a consultant. The user and clinician identified problems, and, through shared decision making, achievable targets were set. Once these were achieved, care was de-escalated back to the primary care team, although the user retained the service and the clinician’s contact details so that they were able to subsequently access advice in a timely manner in the future. (Figure 1.)

All this was supported by a single Clinical Governance Structure. We met monthly, and, for example, reviewed cases against audit standards, updated risk logs, produced reports for the Board of Directors and updated our clinical knowledge.

Results
I was appointed as the lead and one of the Directors of InterCare Health in 2011. One of my aims was to evaluate the service. I chose to use a care bundled approach where a number of end points were simultaneously assessed to reflect quality.
Initial outcome data for First Diabetes and a service evaluation of InterCare Health are published elsewhere.5•6

Data from InterCare Health are presented here (Table 1), but both services showed improvements in quality improvement across the following six domains:
- Efficiency.
- Timeliness.
- Safety.
- Effectiveness.
- Cost savings.
- User centred.

For example, in 2013, the electronic record facilitated rapid communication. Overall, 99% of referrals were reviewed within 48 hours, and 97% of appointments made within eight weeks. The failure to attend rate was half that of the Acute Trust, a reflection of being able to meet their needs more effectively than a traditional service.

Between 2012 and 2014, there was a progressive improvement in blood pressure and glucose outcome in Derby City. Fifty people with poorly-controlled diabetes (mean HbA1c 9.7% [83mmol/mol]) referred to the specialist team in 2013–14 were evaluated. Their mean HbA1c had not changed in the previous year (9.7% [83mmol/mol] vs 10.1% [87mmol/mol]) irrespective of whether they were under primary or secondary care, but within six months had reduced to 7.9% (63mmol/mol).

The first six months of InterCare Health allowed us to evaluate admissions from the seven practices that had access to integrated care, and found that, for admissions with a diagnosis of diabetes, patients from practices with access to integrated care stayed in hospital 1.8 days less than those who did not, equating to savings of £75 000 in this period. Overall, £800 000 was saved in the first year.

User evaluation was undertaken annually with 85% rating the service as excellent or very good. In addition, we obtained user views through video and open feedback which provided valuable insights into their experiences. Comments included:

‘You can ring up and get an appointment in a timely manner and the service is tantamount to superb,’ (John).

‘They are a great support to me as I can call them any time for a quick call over the telephone or I can come in and see them,’ (Wendy).

‘I am able to Skype, email; they are very friendly, and it is a much more relaxed atmosphere,’ (Davina).

Professional users from practices were surveyed in 2013, with 91% rating the service as excellent or very good. They particularly valued the nurse specialist visits and the rapidity of communication.

Summary and further consideration
Did the Derby Model for integrated diabetes care achieve its aims?
- We developed pathways around the person rather than location.
- Through access to the patient record we were able to identify the right person to see the user at the right place at the right time.
- We improved outcomes, and undertook measures to improve safety and reduce variation.
- We improved communication as well as the user experience.

Our model is internationally acclaimed, and we have shared our experiences with centres as far afield as New Zealand. In addition, we have won a number of awards: First Diabetes won two Quality in Care awards in 2012, and InterCare Health’s achievements include a Health Services Journal Care Integration award in 2013. Our success made us consider whether we could apply the principles to subspecialty areas, in particular preconception care.

PROCEED Background
Many women with diabetes are suboptimally prepared for pregnancy, yet the benefits of preconception care, particularly in reducing congenital abnormalities, have been known for more than 30 years.7•8 Derby Teaching Hospitals Foundation Trust provides maternity services for a population of 600 000, and handles 6000 deliveries a year. Of these, 50–60 have pre-existing diabetes and 350 have gestational diabetes. Preconception care was provided in the antenatal clinic.

In 2002, the Confidential Enquiry into Maternal and Child Health9 undertook a national enquiry into the outcomes of pregnancies in women with diabetes. Our preconception care rates were comparable to national data at that time, with a third of women accessing preconception care. Our congenital abnormality rate was 10% and the stillbirth rate 6%. We were also aware that there was an 18% failure to attend rate for follow-up appointments, with women reporting that the antenatal clinic environment was stressful particularly if they had experienced a miscarriage or had infertility. We considered whether the principles of the Derby Model for integration could be applied to developing a preconception service that would meet the needs of our users.
**PROCEED: methods**

In 2012, with the support of a Health Foundation Shine award, we piloted the first community-based integrated model for preconception care, PROCEED: Preconception Care for Diabetes in Derby and Derbyshire. PROCEED had two components: raising awareness of the need for preconception care, and undertaking the care itself. When raising awareness, we approached all professionals in contact with women with diabetes (Figure 2a) and the women themselves through leaflets and group education sessions. We reminded professionals to use every opportunity to discuss pregnancy plans with women with diabetes of childbearing age. If the woman was considering pregnancy, she was referred to the PROCEED service, and, if she was not, clinicians were asked to counsel her as to the importance of using effective contraception.

The model of care is described elsewhere10–12 and can be summarised by six Cs (see Figure 2b). We worked across boundaries using all competent resources irrespective of location, for example using former antenatal clinic team members who were now working in primary care. Women were offered a choice of community or hospital based clinics, and as far as possible flexibility in the time of their appointment. Consistency in the way risks were discussed was essential, and was achieved through close team working. A member of the antenatal team worked in each of the preconception clinics, enabling continuity of care from the preconception to the antenatal period. Finally, we changed the role of the consultant physician from seeing every patient to concentrating on those at the highest risk, and providing mentorship and through case note review maximising the safe and efficient delivery of the service.

**PROCEED: results**

PROCEED was also evaluated utilising a care bundle using end points to reflect the six domains of quality improvement. After 12 months, improvements in all domains were demonstrated (Table 2).10–12

- We doubled the numbers seen.
- Failure to attend rates reduced from 18% to 5%.
- Women attending PROCEED were better prepared for pregnancy compared with those who did not; their mean HbA1c at presentation of pregnancy was 7.1% (54mmol/mol) compared with 9.1% (76mmol/mol).
- The congenital abnormality rate reduced from 10% to 4% and no stillbirths were seen.
- We received excellent feedback from our users who described the service as ‘first class’ and ‘excellent’. A video of some of our users’ experiences can be accessed via www.health.org.uk/programmes/shine-2011/projects/pre-pregnancy-care-diabetes.

At the end of the 12 months’ funding from the Health Foundation, we were funded for a second year by InterCare Health. This allowed time to submit a successful business case, and we became the first commissioned preconception service. Figure 3 demonstrates the sustainability of the model. We continue to see two-thirds of women before pregnancy, and have sustained the reduction in congenital abnormality rates. In the last four years there have been two stillbirths.

**PROCEED: summary**

PROCEED built on the principles of the Derby Model for integrated care, and successfully integrated a subspecialty area demonstrating quality improvement and financial savings. It is nationally recognised as an example of innovative practice that has improved patient safety.11

**Recent developments**

In 2013, PROCEED and the Derby Model for integrated diabetes flew...
the flag for Destination Derby, but the clouds of change gathered as commissioning structures changed from primary care trusts to clinical commissioning groups (CCGs). Our new commissioners had to commission services for Southern Derbyshire as well as Derby City, and therefore decommissioned InterCare Health and First Diabetes in 2014. Initially, this did not concern us excessively, as change was inevitable and we had an international reputation and one of the few models that demonstrated quality improvement and financial savings. We anticipated spreading the model to a wider area, and extended our links with primary care to facilitate this.

However, following two unsuccessful tendering processes, diabetes services in our area were left floundering, surviving on a series of interim contracts. Our commissioners were concerned that they followed process correctly, but this meant that we struggled to communicate with them on a meaningful level either clinically or strategically, and so they did not understand the gains from the model and perhaps we did not appreciate the pressures they were under. This was a dark and frustrating journey where sometimes it seemed that external advisors had more influence than local experts.

As I prepared for the presentation, I realised there were some positive aspects to this part of the journey. It is easy to take these matters personally and, as the lead of the service, I inevitably questioned my leadership skills. However, I was delighted at the high level of support from the senior management of our Trust, from the Chief Executives of Diabetes UK as well as the Chair of the Association of British Clinical Diabetologists. Sadly, their letters and visits were not able to change the situation, but this level of support, and the individuals in particular, gave me the strength to believe in myself and support my team through these difficult times, as all around me, particularly in primary care, morale was low and disengagement high.

Thomas Edison said: ‘Our greatest weakness lies in giving up. The most certain way to success is to try just one more time.’

I am very glad I did not give up, as an opportunity came in the form of a new chair of the CCG. I had the opportunity to meet him and present the model. Fortunately, he understood the benefits of our way of working. Since April 2017, we have had a contract to deliver an integrated service and work directly with primary care colleagues to meet the needs of people with diabetes throughout Southern Derbyshire.

Having slipped off the summit of our mountain, we are now rapidly climbing back up. The summit is in sight, and I am confident that in years to come Destination Derby will once again be the first city of integrated diabetes care.

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References
12. PROCEED website www.derbyproceed.co.uk/ [last accessed 13 May 2017].

Figure 3. PROCEED: sustainability of outcomes