Evaluating diabetes integrated care pathways

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Abstract

The delivery of chronic disease care within new models of integration is an increasing reality. Currently, there is no clear evidence that community or tiered systems of care delivery are superior to existing diabetes services in terms of hard outcomes; however, it is apparent that they offer other potential benefits that can enhance the system of care. Examples include better communication between primary and secondary care, shared IT to enable clearer care planning and greater user satisfaction.

Integrated care pathways (ICPs) are tools designed to ensure that the system of care is functioning and incorporates all the relevant factors necessary for good care, and that evaluation of the system itself can be reviewed – as a form of performance management. This article looks at how in practice we can monitor, measure and learn from ICPs. Copyright © 2014 John Wiley & Sons.

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integrated care; clinical commissioning; chronic care model; community diabetes

Introduction

‘A new drug cannot be introduced without exhaustive scientific trials, but we usually introduce new ways of delivering health services with little or no scientific evaluation. We rationalise, change and formulate new systems, often based upon economic and political imperatives and yet rarely evaluate their impact upon patients. Significant morbidity and mortality may be associated with new models of healthcare delivery. If healthcare system changes were submitted to the same scrutiny as new drug evaluations, they would probably not even be allowed to move from the animal to the human experimentation stage.’

Professor Kenneth Hillman, Australian Institute of Healthcare Innovation

The systematic management of chronic diseases such as diabetes has undergone significant change over recent years, largely due to political and structural changes in methods of care delivery. There has been a paradigm shift away from hospital settings and greater workload taken on by nurse specialists and primary care teams in recognition of a tiered system which stratifies patient care on the basis of complexity and appropriateness of expert care (see Figure 1).

In many areas there has been a move to greater collaboration among health care professionals in order to streamline patient management and avoid duplication within the system. Several locations in the UK have developed ‘integrated care pathways’ (ICPs) in order to help standardise treatment and reduce variation in care – often a major failing when it comes to diabetes outcomes and complication rates. Differences in practice between clinicians and different organisations can lead to variation. In terms of governance and ensuring best care for patients it is imperative that any integrated care pathway is clear, useable and subject to evaluation and improvement. This article takes a look at how best this can be achieved.

Diabetes integrated care

For some time now NHS organisations have been required to examine new approaches to care which:

• Focus on the patient’s journey through the care process.
• Are capable of creating alternatives to existing functional and organisational relationships.
• Are open to testing and validation.
• Are capable of developing process-based performance measures plus clinical outcome measures.
• Integrate care across professional and organisational boundaries.

Currently, no single ‘best practice’ model of integrated care exists and the overall evidence of benefit for community diabetes services is scant, with no truly evidence-based systems of diabetes care within the
NHS. Service effectiveness and evaluation are largely process driven. In the US, the implementation of the ‘chronic care model’ has supposedly been shown to improve diabetes outcomes by providing a system for productive interactions of a prepared proactive practice team and an ‘informed empowered patient’, but there is no comparator for this.

What matters most is clinical and service-level integration that focuses on how care can be tailor-made for specific individual or group needs, especially where care is being given by a number of different professionals and organisations. ICPs are a good way of cementing such initiatives into practice. They are an agreed plan or an outline of anticipated clinical management for a group of patients with a particular medical problem. An ICP should provide a multidisciplinary template of the plan of care, leading each patient through the system of care to a desired outcome. For diabetes per se, this will then include elements such as the nine key processes of care, monitoring of complications, escalation of glycaemic treatments, pre-pregnancy counselling if appropriate, dietary management and identified treatment goals.

Any functional model of diabetes care needs to have an agreed governance framework based on the principles of appropriateness, equity, effectiveness, risk management and patient empowerment, and the practical issues of access, care processes and outcomes. Ideally, but not always, the views of service users need to be included to support patient empowerment. The central tenet of ICPs is to ensure that the most appropriate care is being provided based on the latest evidence and a consensus of best practice. The theory is that patients will automatically have the best care delivered to them by the right practitioner, in a timely manner, in order to reduce unnecessary variation.

**Barriers to the development of ICPs**

- The sharing of patient data and IT systems between primary and secondary care.
- Cultural distrust between specialists and generalists.
- Perverse financial incentives created by Payment by Results tariff systems and changes in the Quality and Outcomes Framework.
- Cohesiveness among multiple providers, staffed by different NHS organisations, working together and the need for a shared governance structure.
- The importance of commissioning the whole patient pathway as opposed to juicy components such as insulin starts – this leads to a fragmented patient experience and loss of continuity.

**Considering what and how to measure**

The field of integrated health care is still in its infancy; there exists no consensus on which research methodology or data sources best capture integrated health care delivery. The essential aspect of the evaluation of ICPs is to clarify and document both the objectives for the pathway and the individual elements contained therein.

Examples of outcomes that can be measured include:

- Clinical outcomes.
- Patient education/knowledge about their condition and self-management.
- Patient satisfaction levels.
- Individual clinical staff delivering the care – turnover, satisfaction, morale, staff development.
- Development and use of local protocols and guidelines.
- Implementation of evidence-based practice.
- Increased provision of integrated care and multidisciplinary team working.

ICPs are therefore multi-dimensional tools which are made up of several different components and have the primary purpose of supporting clinical processes. In addition, they should make communication between health care professionals clearer, put evidence into practice, and streamline the care activities.

The type of evaluation method can be of one of many forms. Common approaches are: experimentation/surveys/case studies/participatory action research.

In the literature on ICPs there are a few good randomised controlled trials to evaluate care delivery in diabetes. Examples include the work of Bower et al. who have looked at a large-scale, multi-site study of the implementation, effectiveness, and cost-effectiveness of a ‘whole systems’ model of self-management support using a cluster.
randomised controlled trial in patients with three long-term conditions: diabetes, chronic obstructive pulmonary disease, and irritable bowel syndrome. The outcome measures include health care utilisation and quality of life. Van der Heijden et al. from the Netherlands looked at how managed and protocolised type 2 diabetes management fared in primary care settings and found that secondary referral was less, there was better adherence to national guidelines and that direct health care costs were significantly lower when compared with usual care.

Experimental evaluations tend to take the form of a study group being compared to a control group. This can be difficult to set up and run, especially when you are often getting the same team of health care professionals to use two different management and documentation pathways. Running such a study in two different locations makes things easier but it is important to minimise the inherent differences between different places. It is more common therefore, in ICP analysis, to use a before and after study design in the light of such difficulties, whereby sequential data collection is used to compare the two groups.

Survey approaches can be used to explore several aspects of integrated care pathways. This may include: treatment satisfaction; quality of life outcomes; health care professionals’ opinions on the pathways itself; patient clinical outcomes; and levels of education achieved. Surveys provide information that can be applied over a broad area, from the extent that an individual ICP is actually being used, to semi-structured interviews of staff from a number of different organisations.

Finally, case studies are useful for studying complex interventions in real life. By looking at the process of change as the pathway is created and put in place, it is possible to evaluate the impact in a contextual way. Given that they may be more in-depth and realistic, case studies are often easier to relate to for the audience of any evaluation exercise.

An extension of this format is participatory action research (PAR) which seeks to understand the world by trying to change it, collaboratively and reflectively, and acknowledges the involvement of the individual researcher. This consists of the planning phase of developing the intervention, implementation, and observation of what happens. Adaptations in the pathways are then implemented on the basis of the observations and reflections made during the ongoing process.

A recognised problem of such an approach is the lack of scientific rigour. The same individual is both the pathway facilitator and rapporteur – this is far from objective. However, it is useful in practice because it helps to uncover the issues surrounding the process of change within an organisation and identify the barriers surrounding the implementation of ICPs.

**Evaluation of ICPs**

Kaiser Permanente (KP) has often been highlighted as a successful model of integrated cost-effective care. One study by Feachem et al. contrasted UK NHS performance and costs with those of KP and found that KP provided much better value, mainly through the use of significantly fewer acute hospital beds as a consequence of greater integration, better IT and efficient management. However, such claims were substantially disputed and several serious criticisms were levelled at the methods of analysis used.

An essential component of any integrated care programme is the ability to demonstrate its impact. The Department of Health’s strategy for integrated care should outline how integrated care will be evaluated at a national level and emphasise the importance of appropriate evaluation at a local level. Integrated care working is often ambitious and can be difficult to implement in a context that does not always facilitate collaborative working practices. Once established, it is important for organisations to question the effectiveness of any shared pathway in use. This is important for long-term planning of care and best use of resources. Any assessment or judgement of the value of a care pathway needs to be clear about its aims. This may include terms of reference such as patient satisfaction, cost effectiveness, physiological markers such as blood pressure reduction or longitudinal HbA1c and rates of micro- and macrovascular complications, hospitalisations, patterns of service use and changes in patient experience and outcomes. A more formal interpretation based on a research strategy to assess the effects of the ICP as an intervention can also be used. Ultimately, it is important to be clear about what your evaluation is going to be used for, from service redesign to tailoring treatment for one particular sub-group, to management and deployment of staff and resources or as a performance management tool.

**Evaluation of change**

Any improvement or change strategy needs to ensure that it is properly benchmarked. A baseline or control assessment of the current situation is vital in order to discover the value (or the disadvantages) of any new intervention. This requires time and resources to collate required data as well as recognising what tools are needed to assess what the new ICP is designed to do. Is it simply a matter of waiting times, or number of consultations, or new to follow-up ratio or patient satisfaction?

Following the design and implementation of a new ICP a few other issues need to be borne in mind to ensure rigour such as:

**Adequate sample size**

You may not be statistically confident with a small sample that any improvements seen are a consequence of the changes brought about by the ICP, rather than by the effects of chance. It is important to check that there are a sufficient number of patients passing through the ICP, and contemplate undertaking the analysis on more than one site to boost numbers.

**Validity**

There is a need to ensure the changes being evaluated are directly in response to the ICP and...
Evaluation of an integrated care pathway (ICP) requires multidisciplinary teams to decide on a clear purpose of the exercise, the particular outcomes that need to be measured and the right tools to be used for measurement. The right baseline information needs to be collected to allow a decent comparison, and any data collection during the period of study needs to be valid and have adequate sample size for statistical power. It should be a team agreement as to when the ICP is likely to be fully operational and the same team needs to share in the results of any evaluation.

**Key points**

- Evaluation of an integrated care pathway requires multidisciplinary teams to decide on a clear purpose of the exercise, the particular outcomes that need to be measured and the right tools to be used for measurement.
- The right baseline information needs to be collected to allow a decent comparison, and any data collection during the period of study needs to be valid and have adequate sample size for statistical power.
- It should be a team agreement as to when the ICP is likely to be fully operational and the same team needs to share in the results of any evaluation.

**Patient satisfaction**

One of the basic issues of any ICP is: how does it affect the patient, do they get a better experience? Questionnaires are the most commonly used forms of information collection, but these are not without their problems as the research literature highlights. Alternatives include semi-structured interviews and user discussion or focus groups. Diabetes UK is currently piloting a Patient Experience of Diabetes Services questionnaire (Peds) with a view to incorporating such information into the annual National Diabetes Audit, and this will include a description of the interaction with specific aspects of care. Hopefully, the use of a standardised, widely-used assessment questionnaire will allow for greater comparison of diabetes services in the future.

**The future of ICP evaluation**

Because diabetes care is evolving rapidly, it is important to be able to understand and recognise the value and potential detractors of the entire pathway. ICPs can be complex so, for each individual change, comparison must be made with the baseline score and all elements of the ICP be subject to ongoing review. This has the benefit of enabling continuous quality improvement and performance management.

ICPs are also able to incorporate the latest national clinical guidance for diabetes and the NICE quality standards for diabetes care. By breaking down the ICP into specific components it allows you to link directly the achievement of a particular outcome with the relevant factors within the ICP.

**Summary**

Integrated care pathways enable a holistic overview for chronic disease management. Their nature means that they should be adapted over time following a review of usability for both patients and health care professionals. To understand whether integrated care has been successful, it is first necessary to define the goals of integrated care and to ensure that in-built and ongoing evaluation provides a clear clinical dashboard which allows for the better development of diabetes care. Ultimately, it may not matter which method is being used just so long as there is some form of deeper analysis designed to deliver better diabetes care.

**Declaration of interests**

There are no conflicts of interest declared.

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