

Clinical Pathways or Case Management

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Abstract

Clinical pathways are increasingly being used internationally as a mechanism for managing patient care to achieve improved outcomes with more efficient resource use. They are a structured templates guiding multi-professional treatment and care for specific patient groups or procedures, through a sequence of essential treatment and care steps based on the best available evidence. This paper defines clinical pathways, describes their historical context and application, and discusses benefits and concerns about their use.

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Introduction

“Clinical Pathways/Case Management” is an interesting topic for a casemix meeting, because it is perfectly possible to discuss without making any reference at all to casemix concepts and measures. Indeed, many health systems are adopting clinical pathways more and more widely, but making little, if any use, of casemix as a costing and payment mechanism.

What are Clinical Pathways?

A number of terms are used more or less interchangeably to mean “clinical pathway”:

- care track
- care protocol
- collaborative care plan
- care profile
- clinical guideline
- decision path
- collaborative care document
- clinical protocol
- care map
- critical pathway
- integrated care plan
- care package
- algorithm
- expected recovery path
- anticipated recovery path

They all, more or less, define the same construct, with some subtle distinctions around the terms guidelines and algorithms. This discussion uses two complementary definitions of clinical pathways because these most clearly reveal their salient characteristics.

The first defines a clinical pathway as: “...(*determining locally agreed standards based on evidence, where available, for a specific patient/client group. It forms part or all of the clinical record, documents the care given and facilitates the evaluation of continuous quality improve-*

ment”. Within this definition, the pathways’ integral components are interventions, time, and variations (systems, health care professionals, patient).¹

The second definition sees a pathway as: “...*an interdisciplinary plan of care that outlines the optimal sequencing and timing of interventions for patients with a particular condition, procedure or symptom*”.² Within these constructs, steps in critical pathways are described such that a patient is predicted to reach specified outcomes within and by a preset timeframe. This enables clinicians to know the predetermined timeframes for initiation of treatment, generalised treatment protocols and discharge timelines for specific conditions.

The main characteristics of a clinical pathway are that it:

- is a single, integrated record describing the anticipated plan of care provided by a multi-professional team;
- details the tasks, interventions, treatments in sequence over a given timeframe by each professional discipline, accompanied by a checklist of all necessary actions;
- indicates the patient’s expected condition over time;
- is based on the best available evidence and guidelines;
- is freely available to the patient;
- can cross organisational boundaries;
- reveals variances from the planned care which are recorded and systematically analysed;
- is adjusted and fine-tuned following audit of variance, outcome, cost and compliance;
- is in an efficient, structured format for recording important clinical data in the patient record;
- is usually paper-based and needs only minimal free text to complete;

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- achieves almost total compliance when it forms the main component of a real-time Electronic Patient Record; and
- is a teaching tool for newly qualified staff.

What are Guidelines?

Although sometimes used as a synonym for clinical pathways, “guidelines” are distinguishable by the fact that they do not usually comprise a comprehensive sequence of treatment steps. Rather, they tend to be statements of best clinical practice, and may be accompanied by an algorithm or decision tree of the “...if this, then that...” variety. According to the definition used by the US Agency for Healthcare Research and Quality, clinical practice guidelines are “...systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances”.³ They are not fixed protocols that must be followed, but provide evidence about specific courses of interventions or considerations to be taken into account when reaching a diagnosis.

An example of just such a clear and precise statement is the most recent guideline by the US National Institutes of Health⁴ on the routine antimicrobial treatment of *Helicobacter pylori* infection, which says, in summary:

- if a patient is asymptomatic (no ulcer)—provide no antibiotic treatment whether *H. pylori* positive or negative;
- if patient has a non-ulcer dyspepsia—as above;
- if patient has a gastric or duodenal ulcer—antibiotic therapy only if *H. pylori* positive.

As is typical of such types of guidelines, the statements are supported by well-defined evidence, and are accompanied by qualifying statements, benefits and potential harms, and sometimes a cost analysis and a clinical algorithm which may be based on probabilistic rules or numerical weights to further help decision making.

Clinical pathways, guidelines and algorithms can come together in an *integrated* clinical pathway at any one of the essential stages within a pathway sequence.

Historical Development and Application of Clinical Pathways

Clinical pathways, as we understand them today, emerged from the USA in the late 1970s and 1980s, evolving from a rich 60-year international history of theoretical and practical developments in the measurement and management of industrial and clinical quality and health care costs. Many prominent researchers have played a role in this development.⁵⁻¹⁰ Their most obvious application in the US has been as part of a “kitbag” of management tools for moderating increasing health care utilisation and costs while, at the same time, monitoring clinical quality. They

go hand in glove with other tools such as utilisation review, prospective casemix-adjusted payments and case management.

Because clinical pathways set boundary points around defined episodes of care for selected patient groups, as well as describing in detail the predicted sequence of events and treatments within that episode, they enable better management of both the care and costs of the episode. This is partly achieved by a more efficient use of resources as well as encouraging the use of less costly treatments without compromising quality.

Clinical pathways are now widely used in other health systems, but their use is targeted mainly on improving clinical quality and patient outcomes. Part of the impetus for this emphasis comes from the growing exposure of adverse incident rates in acute hospitals, as demonstrated by the Harvard Medical Practice Study¹¹ and subsequent studies replicating that methodology.

Objectives of Clinical Pathways

These may be summarised as follows:

- improving the quality of clinical care by accelerating the use of evidence-based clinical guidelines, and fostering systematic, continuous audit of clinical practice;
- improving multi-professional communication and care planning and delivery, including across health and social care sectors;
- ensuring continuity of care and that no critical aspects of care are forgotten;
- improving clinician-patient communication, and patient satisfaction and involvement;
- decreasing unwarranted clinical practice and operational process variation;
- identifying research issues and questions; and
- reducing unnecessary paperwork and encourage exception reporting.

The extent to which clinical pathways actually deliver these benefits is discussed below.

Designing and Constructing Clinical Pathways

The design concepts for clinical pathways are quite logical and straightforward.^{12,13} Putting them into effective practice is not always so easy. The most difficult aspects are at the very beginning—identifying the “problem” that needs to be addressed via a pathway, and gaining commitment from staff to get involved; and right at the end—ensuring that the pathway is being used productively and consistently.

Where to Start—Selecting the Target Patient Group/ Practice Area

Typically, selection is based on a patient group, condition

or procedure where there are known practice “problems”, either in terms of large and unwarranted clinical practice variability, unacceptable adverse incident rates or known process bottlenecks and inefficiencies. Because a pathway works on the principle of predictability and relative stability, it is preferable if the pathway’s target patient group is relatively uncomplicated clinically (thereby reducing the probability that patient variability will make application difficult), and is either of high volume or high cost.

Seeking “Buy-in” from Staff and Patients

It is critical that the staff, who will be responsible for constructing and using the clinical pathway day-by-day, are integrally involved in its inception. They need to understand the problems that have generated interest in the clinical pathway as a solution; to be clear about the benefits and limitations of pathways, and be able to discuss any myths or misconceptions about them that may impede successful introduction. Patient views, preferences and insights are a vital ingredient of the design and construction process, and should be quite formally integrated into the process at an early stage. For many years, clinical professions have defined their roles in ways that demonstrate their unique contribution to patient care. One result is that clinical care has tended to be organised around professional and organisational needs, rather than the patient’s. The pathway is a chance to redress this balance, but only if patient views are taken into account.

Harnessing the Multi-professional Team

This team will be at the core of the work programme to design and build the pathway, acting as both a steering and “doing” group. During the development, design and building stages, it has seven main tasks:

- 1) review current practice, with output preferably in the form of a process map identifying the main task components in the sequence of the patient’s existing journey, together with staff and other resource inputs;
- 2) search for, and collate, the most contemporary evidence basis for the treatment and care of the target patient group, in the form of guidelines, protocols, consensus recommendations or other pathways;
- 3) compare this evidence with current practice, identifying differences and the most important areas for redevelopment and revision;
- 4) review these findings with staff and patient representatives to reach a consensus on changes. Preliminary process redesign models for the new sequence of events in the proposed pathway may be useful at this point;
- 5) prepare the pathway documentation detailing new care routines, processes, staffing responsibilities, sequences and timeframes, together with a clear description of expected patient progress over time;

- 6) review the pathway with staff, and agree on pilot arrangements;
- 7) pilot pathway, fine-tune as necessary, and implement.

Variance Analysis and Recalibration of Pathway

There are a number of reasons leading to detours or deviations from elements of the pathway. They range from unforeseen clinical complications, the patient’s social circumstances, co-morbidities, technology and treatment changes, clinicians’ personal preferences, and process or system bottlenecks outside the control of the pathway. Where they occur, they need to be documented so that they can be analysed to identify patterns of avoidable and non-avoidable variance.

Where variance is avoidable, remedies need to be brought to bear to reduce these. An example might be unpredictable delays of up to three days in taking elderly patients with fractured neck of femur to theatre, because theatre inefficiencies and availability lead to repeated theatre cancellations. Where variance is unavoidable, then either the pathway needs to be re-examined and if necessary recalibrated to take account of these, or other rectification plans need to be put in train. An example of unavoidable variance to an acute hospital pathway might be the limited availability of nursing home beds provided by the local social service department, which leads in turn to delays in acute hospital discharge of some elderly patients. In such an example, either the acute hospital pathway needs to adjust for these obstacles, in which case, it will not be based on best clinical practice, or the pathway itself needs to be expanded to include both the acute hospital as well as social services elements to encourage ownership, agreement, consistency and efficiency across both sectors. Doing nothing will lead to routine and repeated variance, and to rejection of the pathway as being irrelevant to real life.

The Effectiveness of Clinical Pathways

The vast and rapidly expanding international literature on clinical pathways and guidelines in their many shapes and forms, attests to not only health system interest, but also to the strength of the pathways production “industry”. Pathways and guidelines now number in the many thousands. Fortunately, there are organisations which provide a valuable service to health care providers by establishing libraries of published pathways and guidelines. One such organisation is the US Government Agency for Healthcare Research and Quality (AHRQ), which publishes for health care professionals a National Guidelines Clearinghouse containing individual pathways and comparisons between them. In particular, the AHRQ’s guidelines synthesis facility allows for direct comparisons among common pathways in terms of objectives and scope, methodologies adopted, robustness of the evidence

base and areas of agreement and disagreement.

This is highly useful to health service providers because, although there are many published pathways, few have been subjected to rigorously controlled evaluation, or been through scientific psychometric validation. Most published studies describe the experience of building and implementing pathways, or report uncontrolled and frequently confounded evaluations of benefit.

That said, the overwhelming impression from published evaluations is that well-designed pathways, implemented for a variety of patient groups and procedures with strong staff support, deliver a range of benefits including:

- reduced lengths of stay and costs;
- improved patient outcomes (measured as quality of life, reductions in complications and increased satisfaction);
- increased and welcomed patient and carer involvement in the care process and treatment;
- improved communication between staff within and between professional and managerial disciplines;
- improved integration of care; and
- reduced paperwork.¹⁴⁻¹⁸

Concerns about Clinical Pathways and Obstacles to Implementation

These studies have also identified a number of potential and actual concerns about the application and use of pathways, and common obstacles to their introduction. Pathways take time and energy to construct and build, particularly if templates are constructed *de novo*. Clinicians sometimes argue that the use of pathways downgrades the importance of their clinical judgement, authority, flexibility and expert knowledge in ways that are detrimental to patient care, particularly if innovation and experimentation are stifled. But the most stringent criticism is levelled against clinical pathways when their sole objective is seen to be cost containment at the expense of clinical quality.

Each of these concerns has validity. But the fact remains that pathways and related clinical decision supports, if constructed appropriately, and targeted carefully, have the capacity to reduce the uncertainties, biases, errors and differences of opinion, motives and values that weaken every link in the chain that connects a patient's actual condition to the selection of the most beneficial diagnostic test and treatment.¹⁹ Convincing staff from a range of disciplines involved in clinical care of these benefits, is the most difficult challenge for pathway advocates, particularly if the cultural and financial incentives to pursue quality are weak, the evidence basis for particular treatments is lacking, and the experience of pathway application is negative.

Conclusion

Clinical pathways, as a tool for improving clinical quality

and the management of care, are a valuable tool for clinicians and managers. They help practitioners to focus on the essential elements of care, and on the patient's view about these. Although clinicians have concerns, and some misconceptions, about their validity and application, they have a demonstrable and laudable track record in achieving significant benefit for many patient groups.

The performance of hospitals, in particular, is the subject of increasing scrutiny within health care systems, much of which is being conducted in the public domain, and they are under pressure to continually explore new ways of working in collaboration with patients, to improve the planning, delivery, documentation and outcomes of care. Clinical pathways have a valuable role to play in helping clinicians meet these expectations.

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