Integrated care pathways

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Integrated care pathways are structured multidisciplinary care plans which detail essential steps in the care of patients with a specific clinical problem. They have been proposed as a way of encouraging the translation of national guidelines into local protocols and their subsequent application to clinical practice. They are also a means of improving systematic collection and abstraction of clinical data for audit and of promoting change in practice. The degree to which they succeed in realising this potential for improving patient care is still uncertain, but enough evidence exists in their favour to justify more widespread evaluation of their impact. Here we describe integrated care pathways, show how to create and use them, and review the evidence of their effectiveness.

Summary points

- Integrated care pathways are care plans that detail the essential steps in the care of patients with a specific clinical problem and describe the expected progress of the patient
- They exist for over 45 conditions or procedures, and national users' groups exist to give advice and support in their use
- They aim to facilitate the introduction into clinical practice of clinical guidelines and systematic, continuing audit into clinical practice: they can provide a link between the establishment of clinical guidelines and their use
- They help in communication with patients by giving them access to a clearly written summary of their expected care plan and progress over time.
- Despite the sound principles which underlie integrated care pathways, few evaluations have been done of the cost of developing and implementing them and their effectiveness in changing practice and improving outcomes

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Background

Many initiatives have been introduced in the past two decades to improve clinical effectiveness and thereby patient care. Foremost among these have been clinical guidelines and clinical audit. Concern is regularly expressed, however, that the commitment and enthusiasm of the groups publishing their experience is a major determinant of their success. There are also related concerns about the opportunity costs of audit and guidelines projects.

Guidelines development—literature review, critical appraisal, multidisciplinary consultation, and grading of recommendations by level of evidence—is labour intensive. Support is now available from several sources,[1 2] but less attention and support is given to translating established guidelines into local management protocols and their subsequent implementation.[3] even though the impact of clinical guidelines in improving clinical practice will largely be determined by progress in these areas. Audit projects often fail to realise their potential because the improved practice identified by the audit is not implemented or, if implemented, its effect is not evaluated.

Integrated care pathways—also known as coordinated care pathways, care maps, or anticipated recovery pathways—are task orientated care plans which detail essential steps in the care of patients with a specific clinical problem and describe the patient's expected clinical course.[4 5] They offer a structured means of developing and implementing local protocols of care based on evidence based clinical guidelines. They also provide a means of identifying the reasons why clinical care falls short of adopted standards, the "missing link" in audit projects (see box).[6]

Development of integrated care pathways

Integrated care pathways describe, for a specific clinical condition, the tasks to be carried out together with the timing and sequence of these tasks and the discipline

Integrated care pathways: aims

- Facilitate introduction of guidelines and systematic and continuing audit into clinical practice
- Improve multidisciplinary communication and care planning, including with primary care
- Reach or exceed existing quality standards
- Decrease unwanted practice variation
- Improve clinician-patient communication and patient satisfaction
- Identify research and development questions

MEDICAL ASSESSMENT PRE-DISCHARGE

Date: __ / __ / __

Clinical findings: _____

Results of investigations (if required)

FBC: _____

CXR: _____

ECHO: _____

Other: _____

DISCHARGED Y☐ N☐ Date of discharge __ / __ / __

If No, document reason and information given to family:

Medication:

Doctor's Signature: _____

PRE-DISCHARGE ASSESSMENT DATE __ / __ / __

Nurses to complete	Variance. Reason & Action taken	Signed
Patient taking and tolerating fluids and solids ☐ If child discharged on day of cath wound checked ☐ No haematoma / bleeding ☐ Dressing removed day after catheter by nurse or parent ☐ Limbs well perfused - warm, pink, pulses present ☐ 4 hourly obs within acceptable range ☐ Abnormalities reported to Dr _____ IVT & monitoring discontinued ☐ All requested investigations carried out ☐		

DISCHARGE INFORMATION

Discharged on __ / __ / __ Give post catheter advice sheet to parents ☐ Give TTO and drug advice sheet to parents ☐ Ensure patient / family's understanding of the above ☐ Address any other concerns that family may have ☐ Health vistor / school nurse referral via HISS system ☐ OPA Date given __ / __ / __ (See Dr's info to ward staff)		

This record is for Cardiac Catheterisation only. If the child remains an inpatient for any reason, a full clinical assessment must be carried out and a care plan written.

Example of page from an integrated care pathway for cardiac catheterisation. It combines the nursing care plan with the medical notes, providing a checklist of all actions and investigations and indication of patient's expected condition before discharge

Integrated care pathways in use in Britain

Medical conditions	*Surgical conditions or procedures*
Acute myocardial infarction	Abdominal hysterectomy
Chest pain	Total hip joint replacement
Unstable angina	Total knee joint replacement
Deep venous thrombosis	Management of fractured neck of femur
Care of the elderly: acute admission	Colectomy
Depression in the elderly	Prostatectomy
Rehabilitation of multiple sclerosis (acute care)	Carotid endarterectomy
Stroke	Laminectomy
Transient ischaemic attack	Coronary artery bypass graft
Asthma	Open and laparoscopic cholecystectomy
Inflammatory bowel disease	Transurethral resection of the prostate
Varicose veins	Aortic/mitral valve replacement
Acute pneumonia	Mastectomy
Acute exacerbation of chronic obstructive lung disease	Laparoscopic hernia repair

involved in completing the task. They consist of a single multidisciplinary record which is part of the patient's clinical record (see figure) together with a patient summary sheet.[7] Integrated care pathways have been extensively used in America, and enthusiasm for their use is growing in Britain.[8] Published integrated care pathways now exist for over 45 conditions or procedures (see box).[9-15] Experience has so far been greater in surgical services, where care is more easily predictable and set routines of practice were already in place.

The following steps are should be taken to develop integrated care pathways.

Select an important area of practice—Selection criteria could include common or costly clinical conditions, those where there is a high level of interest among local staff, or those where variations in practice occur and affect patient outcome.

Gather support for the project both locally among health care staff and nationally through user groups.

Form a multidisciplinary group to compare current practice with established clinical guidelines.

Identify established guidelines or develop these following national recommendations such as those published by the Scottish Intercollegiate Guidelines Network.[2]

Review practice, both current and past.

Involve local staff from all disciplines providing care for this condition in developing a local protocol focusing on best practice which is feasible to achieve locally.

Identify key areas for service development for that clinical condition and express appropriate goals for the service.

Develop an integrated care pathway which specifies elements of care detailed in local protocol, the sequence of events, and expected patient progress over time .

Prepare documentation for the integrated care pathway.

Educate staff in the use of the integrated care pathway.

Pilot then implement the integrated care pathway. This should include regular review to assess the level of completion of data recording.

Regularly analyse variances from the integrated care pathway. Investigation of the reasons why current practice is different from that recommended in the integrated care pathway can be used to: (*a*) identify common variations from agreed best practice; (*b*) alert staff to patients who are failing to progress as expected; (*c*) update the integrated care pathway by incorporating agreed changes; and (*d*) identify research issues.

Discuss variations from the integrated care pathway (see box) and distinguish avoidable from unavoidable variations; then identify and implement solutions to avoidable variations. An unavoidable variation might be coexisting disease which complicates care for an individual; an avoidable one might be a delay in the reporting of a laboratory test which delays further care and discharge from hospital.

Format and use of integrated care pathways

The limitations of current case notes are well known.[16 17] The integrated care pathway is placed in the patient's clinical record. It records essential clinical information in way that is easy to complete and to

Reasons for variance

Patient's clinical condition
Patient's social circumstances
Associated diagnoses
Changing technology or techniques
Clinician's decision not to follow the integrated care pathway
Internal system: services or consultations from other departments of the hospital
External system: services from social services, primary and community care, or referring hospital

extract data from at a later date for audit—for example, checklists of all necessary activities to tick and boxes for specific results to be recorded. This can result in more legible, succinct, and complete clinical records, all of which contain a minimum essential data set.[17]

The movement towards multidisciplinary patient focused care in recent years has created new clinical teams and directorates but little evidence of record sharing across disciplines within these teams. Ideally, the integrated care pathway should incorporate medical notes together with care plans of nursing staff and of professionals allied to medicine.[5] When this has been achieved successfully it has reduced redundant information and improved understanding of the roles of other disciplines.[7] The multidisciplinary integrated care pathway record thus has the potential to promote teamwork in patient care.

A separate sheet should be used to record all variations from the integrated care pathway so that it can be easily extracted for audit purposes. Staff should be free to use their best clinical judgment in giving care to individual patients but must record all variations and justify doing so.

Integrated care pathways dealing with inpatient care should be made readily available to the patient by keeping the record at the patient's bed.[7] A patient summary sheet should be an integral part of the record and should be expressed in a way that can be understood by the patient. A section should be left for patients' comments. The records themselves should be printed cheaply and locally to encourage regular change and development.

Future developments—Current trends suggest that integrated care pathways, so far largely hospital based, will continue to develop and be extended into primary care and community settings.[8] The principle of free patient access to the care plan may be developed by promoting patient held integrated care pathways in outpatient or primary care services. With increasing access to information technology it may soon be possible to produce forms that can be read by optical character recognition or an on screen facsimile of the integrated care pathway form with touch screen data entry. These developments would encourage the introduction of systematic prospective audit of clinical services and the identification of research and development issues within a particular clinical service. Several companies have already developed and piloted software packages for multidisciplinary care planning (contact national user groups for details).

How to use integrated care pathways

Ideally, all health staff who provide care for patients with the chosen condition should be encouraged to:
(1) Follow the integrated care pathway for every patient with the chosen condition.
(2) Complete integrated care pathway documentation, signing for key elements of care provided as they are carried out.
(3) Be free to deviate from the care specified in the integrated care pathway provided they justify the deviation and enter this in the variance sheet.
(4) Take appropriate action when the integrated care pathway identifies patients whose progress is less good than expected or faster than expected.
(5) Ensure that patients understand the care pathway as it relates to them, and allow them access to the integrated care pathway.

Variance sheets should be inspected regularly to identify common reasons why the integrated care pathway was not followed. This should lead to discussion within the team and regular updating of the integrated care pathway when appropriate.

Are integrated care pathways effective in improving patient care?

Publications which have evaluated integrated care pathways were identified from several sources: Medline, the National Pathways Users' Group, and from a comprehensive review of computer and King's Fund library databases carried out by the National Health Service in Wales in 1996.[8] Of the estimated 4000 references to integrated care pathways and related topics published worldwide, most describe experience and record perceived benefits or concerns associated with their use or practical barriers to implementation (see box). We identified no randomised controlled trials.[18] Many of the reports in nursing and health management journals, in particular, are descriptions of experience in developing and using integrated care pathways or simple uncontrolled before and after studies.[7 9 13 19 20] In summary, these reports do not provide reliable evidence and publication bias is highly likely, favouring publications reporting favourable experience. Published evaluations have also failed to detail the level of input of staff time and resources invested to achieve the published outcome.

Summary of main features

- Unitary, multidisciplinary plan for and record of care
- Details tasks, sequence, timescale, and discipline and contains a checklist of all necessary actions
- Incorporates an indication of the patient's expected condition over time
- Is paper based and requires minimal free text to complete
- Is freely available to the patient
- Efficient, structured format for recording key clinical data in case notes
- Variances from planned care noted and analysed
- Plan and practice adjusted following audit

Benefits, concerns, and barriers

Benefits of integrated care pathways

Facilitate the introduction of local protocols based on research evidence into clinical practice

Result in more complete and accessible data collection for audit and encourage changes in practice

Encourage multidisciplinary communication and care planning

Promote more patient focused care and improve patient information by letting the patient see what is planned and what progress is expected

Reduce the size of case notes; less staff time spent on paperwork

Enable new staff to learn quickly the key interventions for specific conditions and to appreciate likely variations

Facilitate multidisciplinary audit and prompt incorporation of improvements in care into routine practice

Concerns about integrated care pathways

Investment of time which could be spent in other clinical activities

May discourage appropriate clinical judgment being applied to individual cases

Difficult to develop in circumstances where there are often multiple pathologies or where clinical management is very variable

May stifle innovation and progress

Need leadership, energy, good communication and time to be implemented successfully

Have the potential to be misused if factional health care interests have undue influence; in particular, health management may misuse them to reduce patient care costs inappropriately

Barriers to implementation

Reluctance to change: this is understandable at times and should be anticipated

Lack of suitable existing evidence based guidelines and inadequate time and resources to develop these locally.

Obstructive interpersonal politics

Lack of credit given for improvements in quality of care.

Many management supported initiatives have been cost driven. Many of the potential benefits of implementing integrated care pathways are quality based, though cost savings have been reported

Attempting to change practice with partial information and no guidance or support. The person responsible for coordinating any care planning initiative must be sufficiently well informed and of high enough standing within the organisation

Nevertheless, there are reports of a number of benefits associated with the introduction of integrated care pathways into clinical practice. As well as those listed in the box, these include a reduction in the length of stay in hospital,[4 9 13 21-31] reduction of costs of patient care,[22 28 29 32] improved patient outcomes (improved quality of life, reduced complications),[9 33] increased patient satisfaction with the service,[34 35] improved communication between doctors and nurses,[27 33 34] increased participation of patient or carer in patient care,[36] and reduction in the time health staff spent carrying out paperwork.[22]

Despite the lack of robust evidence of the effectiveness of integrated care pathways, some evidence exists in support of specific elements which make up the integrated care pathway approach and which have the potential for integrated care pathways to improve patient care. Firstly, the implementation of evidence based clinical guidelines has been shown to improve patient care.[18] Secondly, the formation of a development group comprising all major disciplines concerned in patient care results in guidelines with greater validity and which are more likely to be implemented.[37 38] Thirdly, systematic capture of patient information using structured clinical records can result in more succinct and complete records, facilitate audit, and improve patient care,[17 38] and structured flowcharts or checklists are welcomed by clinicians.[39] Finally, strategies which involve staff developing their own guidelines and incorporate an implementation plan which is closely related to clinical decision making are more likely to be adopted and to change clinical practice.[37 40]

Conclusions

As the evidence grows that evidence that evidence based guidelines can be effective in improving patient care, the focus is increasingly shifting towards how to encourage the use of guidelines throughout clinical practice. Integrated care pathways represent one such mechanism. The integrated care pathway approach is based on sound principles. Nevertheless, evaluations of integrated care pathway programmes are needed to refine the approach further and measure their

Common questions and concerns

Will this result in increased litigation?

There has been no evidence of an increase in litigation in America, where there has been longer experience in the use of integrated care pathways. Anecdotal evidence exists that giving people more information reduces the likelihood of them taking legal action.

Will this result in lack of individualised care for each patient?

The use of integrated care pathways never precludes individual clinical judgment. Pathways act to identify rapidly patients whose clinical course is unexpected and may therefore require specific additional care.

Patients don't need or want that level of information

Patients are increasingly aware of their right to know and ask questions about their care. Patients claim that knowing more reduces anxiety. They should not be forced to read the integrated care pathway but simply have free access to it.

Surely pathways will be difficult or impossible to develop for unusual or unpredictable cases?

It is certainly more difficult to develop integrated care pathways for complex or unusual conditions. It has been suggested that 25% of all hospital inpatients will not be able to be cared for with integrated care pathways.[9] Arguably some unusual cases have more to gain from a group of experts agreeing on and devising a written plan for care.

effectiveness in improving patient care. Given the fact that many published pathways exist across a wide range of medical practice and that hundreds of hospitals, particularly in America and Britain, have adopted them, it is remarkable how little critical discussion and rigorous evaluation there has been.

Perhaps the most serious concerns about integrated care pathways relate to the opportunity costs of committing financial and manpower resources to the development, implementation, and updating of the pathways. Evaluations should carefully identify and quantify these costs and consider these together with the measured benefits. Finally, research that explores the effectiveness of different approaches to implementating clinical guidelines should include the assessment of integrated care pathways as one promising approach.

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Compromises

A light anecdote

Flexible fibreoptic nasendoscopy is the gold standard for awake laryngeal examination. A less sophisticated alternative is indirect laryngoscopy. I tried to perform the latter procedure in an outlying hospital when I realised a battery driven headlight was missing. Fortunately the mid-morning sun was just shining through a window next to the patient. The nurse held a dressing mirror over my forehead to deflect a perfectly parallel light beam into the patient's pharynx and the indirect laryngoscopy showed a paralysed left vocal cord. Natural light has been a major light source for operative procedures in the past and can still be useful clinically.

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We welcome articles up to 600 words on topics such as *A memorable patient, A paper that changed my practice, My most unfortunate mistake,* or any other piece conveying instruction, pathos, or humour. If possible the article should be supplied on a disk.