

Review Article

Integrated care programmes for chronically ill patients: a review of systematic reviews

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Abstract

Objective. To investigate effectiveness, definitions, and components of integrated care programmes for chronically ill patients on the basis of systematic reviews.

Design. Literature review from January 1996 to May 2004.

Main measures. Definitions and components of integrated care programmes and all effects reported on the quality of care.

Results. Searches in the Medline and Cochrane databases identified 13 systematic reviews of integrated care programmes for chronically ill patients. Despite considerable heterogeneity in interventions, patient populations, and processes and outcomes of care, integrated care programmes seemed to have positive effects on the quality of patient care. No consistent definitions were present for the management of patients with chronic illnesses. In all the reviews the aims of integrated care programmes were very similar, namely reducing fragmentation and improving continuity and coordination of care, but the focus and content of the programmes differed widely. The most common components of integrated care programmes were self-management support and patient education, often combined with structured clinical follow-up and case management; a multidisciplinary patient care team; multidisciplinary clinical pathways and feedback, reminders, and education for professionals.

Conclusion. Integrated care programmes seemed to have positive effects on the quality of care. However, integrated care programmes have widely varying definitions and components and failure to recognize these variations leads to inappropriate conclusions about the effectiveness of these programmes and to inappropriate application of research results. To compare programmes and better understand the (cost) effectiveness of the programmes, consistent definitions must be used and component interventions must be well described.

Keywords: disease management, health services research, integrated care, quality improvement

Introduction

There are several reasons why it is becoming increasingly complex to provide optimal health care. Fast-growing medical scientific knowledge is leading to more diagnostic procedures and treatment modalities. Furthermore, ageing of the population means larger proportions of people that have illnesses with high impact and a chronic course [1]. As a result, patient care has changed from individual consultation to multi-professional teamwork and this usually involves many health care providers [2]. Consequently, optimal collaboration and coordination between professionals in the delivery of inte-

grated care have become essential requirements for the provision of high-quality care [3,4].

Health care improvement programmes at hospitals usually focus on isolated interventions, such as medication supply or multidisciplinary cooperation, rather than on the total care process of the patient [5]. These programmes offer only partial solutions for improving the continuity and coordination of the total care process. Integrated care programmes or disease management programmes have begun to receive greater support as approaches to reduce fragmentation and to achieve improved results for patients at acceptable cost [6,7]. These programmes may appear effective, but it is less

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evident which components or interventions should be included and how such programmes can be implemented successfully.

In the literature several systematic reviews are published on integrated care or disease management programmes for different chronic patient groups (e.g. patients with diabetes or heart failure). But an overview of similarities in reported effects, definitions, and components of these programmes is missing. The purpose of this study was to investigate effectiveness, definitions, and components of integrated care programmes for chronically ill patients on the basis of systematic reviews.

Methods

There is no unambiguous definition of integrated care and there are a lot of synonyms, such as disease management, care management, managed care, and coordinated care. In this study we use the description of Mur-Veeman and others [8]: integrated care is an organizational process of coordination that seeks to achieve seamless and continuous care, tailored to the patient's needs, and based on a holistic view of the patient. In this overview we searched for systematically performed reviews on integrated care programmes. Interventions in these programmes could be organizational and/or professional and/or patient oriented. We were interested in all effects and components of the programmes mentioned.

To identify publications that reported on systematic reviews of integrated care programmes between January 1996 and May 2004, we conducted literature searches in the Medline and Cochrane databases using medical subject headings and free text searches with the following terms: 'disease management', 'patient care management', 'patient-centred care', 'health planning', and 'delivery of health care integrated'. Reference lists of relevant articles were also searched. Review articles were screened by two reviewers (M.O. and H.W.) and included if they met the following criteria: firstly, the review had been performed as a systematic review; secondly, the scope of the review concerned integrated care programmes; thirdly, the programmes focused on adult patients with all conditions except for AIDS, mental illness, addiction, and the field of midwifery.

Titles and abstracts of articles were reviewed for relevance on the inclusion criteria and if potentially relevant, we retrieved the full-text article. The studies were analysed qualitatively and we extracted the following items: definitions of integrated care, components of the programmes, and all the effects or outcomes.

Results

Search strategy

The initial search strategy identified about 2800 references. We accepted 350 studies for further screening and 13 reviews met all our inclusion criteria. Reviews about integrated care programmes dated mainly from the year 2000 or later (10 of 13). The reviews we included involved the following patient

groups: patients with heart failure [9–13], patients with diabetes mellitus [14,15], patients with rheumatoid arthritis [16], patients with cardiovascular disease [17], stroke patients [18], patients with chronic obstructive pulmonary diseases [19], and patients with chronic illnesses in general [20,21]. Seven of the 13 reviews were only descriptive [10–15,21] and six had also performed meta-analyses [9,17–20].

Programme effectiveness (see Table 1)

Functional health status was the most frequently reported effect outcome of the programmes [10–17,20,21]. There was a positive trend, but only one of two studies that had performed meta-analyses showed a significant positive effect on this outcome [20]. Seven of the 13 reviews had mentioned effects on hospitalization [9–13,17,19]. They all showed a decreasing trend in hospital readmission or length of stay, but this was only significant in three reviews [9,12,17]. Effects on mortality had been assessed in six reviews [9,12,13,17–19], four times in a meta-analysis [9,17–19], but effects remained unclear. The only positive significant pooled effect on mortality had been found in organized in-patient care for stroke [18]: significant positive effects on death and dependency had been recorded at final follow-up and during institutionalized care. The only significant effect on process outcomes, such as provider monitoring, compliance, and adherence to guidelines, was found by Weingarten *et al.* [20]. This was supported by all four descriptive reviews that had also reported on process outcomes [12–15]. Patient satisfaction and quality of life had been mentioned in, respectively, three [10–12] and six reviews [10–14,17]: the trend was positive but no significant effects were stated. In four of the seven reviews that had performed economic analyses, there were suggestions of financial benefit, but these conclusions were based on a small number of studies included in the review and had not been based on a meta-analysis [9,10,12,17].

Definitions and components (see Tables 2 and 3)

The term used most frequently to describe the management of patients with a chronic illness was disease management [9,10,12,14,16,17,19,20]. Other terms were care management [13], case management [21], or the management of, for example, patients with diabetes [15]. Although the aims of the programmes were very similar in all the reviews, namely to reduce fragmentation and improve continuity and coordination, the focus and content of the programmes differed widely. Interventions in the programmes had focused on health care providers and/or the organization of care, while patient education had often been added. Six components had been explicitly mentioned in the form of definitions or as core components of the programmes. The most commonly mentioned component was self-management support and patient education [9–11,13–17,19–21]. This intervention was often combined with structured clinical follow-up [9–11,13–15,19,21] and case management by, for example, a specialized nurse [10,12–15,21]. Nine reviews had explicitly mentioned a multidisciplinary patient care team [9,11–13,15,16,18,20,21].

Table 1 Overview of trends in important outcomes of integrated care programmes

	Hospitalization	Mortality	Process outcomes ¹	Functional status and health outcomes	Patient satisfaction	Quality of life	Costs
Studies with only descriptive analyses							
Ferguson, 1998 [21]				+	+	+	?
Moser 2000 [10]	-			+		+	-
Norris 2002 [14]			+	+			
Philbin 1999 [11]	-			+	+	+	?
Renders 2002 [15]			+	+			
Rich 1999 [12]	-*	?	+	+	+	+	-
Windham 2003 [13]	-	?	+	+		+	?
Studies with also meta-analyses							
Badamgarav 2003 [16]				?			
McAlister 2001 [17]	-*	?		+		+	-
McAlister 2001 [9]	-*	?					-
Sin 2003 [19]	?	?					
SUTC 2001 [18]		-*					
Weingarten 2002 [20]			+	+			

¹Process outcomes as for example provider monitoring, compliance and adherence to guidelines.

? = effect remains unclear; - = trend shows decrease (in more than half of the included studies); + = trend shows increase (in more than half of the included studies); * = trend is significant.

A systematic, evidence-based approach to care, for example, by using multidisciplinary clinical pathways, had been seen as part of the programmes in eight of the 13 reviews [9,12–14,16,17,20,21]. Feedback, reminders, and education that provided health care professionals with information regarding appropriate care for patients, had been reported in three reviews [14,15,20].

In addition to the six components mentioned above, several requirements or operational needs had been referred to as important for the successful implementation of care programmes: a supportive clinical information system; specialized clinics or centres; a shared mission on integrated care between the professionals involved; leaders with a clear vision of the importance of integrated care; finances for implementation and maintenance; management commitment and support; patients capable of and motivated for self-management; and a culture of quality improvement.

Discussion

Despite considerable heterogeneity in the reviews regarding the interventions used, patient populations, provider populations, and processes and outcomes of care, positive trends in effects were reported. This concerned: hospital utilization, quality of life, functional health, patient satisfaction, and process outcomes, such as adherence to guidelines and compliance with medication. Effects on mortality remained unclear and little systematic analysis was performed on the cost-effectiveness of integrated care programmes. Only 15% of the effects

reported in the reviews were significant and these came mainly from short-term evaluations.

This overview underlines the findings of Norris [22] that there is a broad range of definitions used to date for the management of patients with a chronic illness. However, the aims of the programmes were always very similar, namely to reduce fragmentation and improve the continuity and coordination of care by placing the patient in a central position in the process of health care delivery. Although disease management was the term found most frequently in this review, we prefer to use the term integrated care instead, as this puts the patient, not the disease, in the centre.

We found in this review a core set of components in the integrated care programmes. This is in line with the theory of Wagner [23–28]. Wagner identified six essential elements for good chronic care: community resources and policies, health care organization, self-management support, delivery system design, decision support, and clinical information systems. He states that improvements in those interrelated components can produce system reform in which informed, activated patients interact with prepared, proactive practice teams. On the basis of the theory of Wagner and the core set of components found in this review, we recommend that integrated care programmes should consist of at least a professional-directed intervention, an organizational intervention, and a patient-related intervention to support self-management.

In this study we performed a review of reviews. The main limitation of this method is that, by using reviews, it is not possible to draw conclusions from the results of the original

Table 2 Overview of included reviews and their definitions of integrated care programmes

Review	Definition
Badamgarav 2003 [16]	Disease management is a systematic and multidisciplinary approach to care for chronic conditions including a patient education component.
Ferguson 1998 [21]	Case management is a specialized treatment programme that targets high-risk and high-use patients. These programmes provide comprehensive management activities including some or all of the following: prevention and detection of acute events through continuous monitoring and assessment; patient education and behaviour modification through the use of highly trained multidisciplinary personnel; specialized treatment plans coordinated by disease experts; and preserved continuity of care across diverse patient care settings.
McAlister 2001 [17]	Disease management is a combination of patient education, provider use of practice guidelines, appropriate consultation, and supplies of drugs and ancillary services.
McAlister 2001 [9]	Disease management programmes generally involve multidisciplinary teams that employ system approaches (such as guidelines or care paths) and specialized clinics dedicated to comprehensive management.
Moser 2000 [10]	Disease management is an approach to patient care that emphasizes coordinated, comprehensive care along the continuum of disease and across health care systems. Disease management programmes are designed to improve the structure of care delivery for a group of patients with a common chronic disease that has associated high cost and complex management needs.
Norris 2002 [14]	Disease management is an organized, proactive, multi-component approach to health care delivery that involves all members of a population with a specific disease entity; care is focused on and integrated across (i) the entire spectrum of the disease and its complications, (ii) the prevention of comorbid conditions, and (iii) the relevant aspects of the delivery system; the goal is to improve short- and long-term health and/or economic outcomes.
Philbin 1999 [11]	Comprehensive multidisciplinary programmes for the management of patients with congestive heart failure.
Renders 2002 [15]	Interventions to improve the management of patients with diabetes, targeted at health professionals or the structure in which they deliver care.
Rich 1999 [12]	Disease management is a multifaceted approach to heart failure management, to address all the patient's needs (medical and non-medical), maximizing the patient's functional capacity and quality of life, while reducing hospital admissions and overall cost of care; an important secondary goal is to improve physician prescribing patterns and promote greater adherence to treatment guidelines.
Sin 2003 [19]	Disease management is an approach to coordinate resources across the health care system with the aim of fostering continuity of care and increasing patients' knowledge and control over their chronic disease.
Stroke Unit Trialists' Collaboration 2001 [18]	Multidisciplinary teams that exclusively manage stroke patients on a dedicated ward with a mobile stroke team provide organized stroke unit care.
Weingarten 2002 [20]	Disease management is a multidisciplinary approach to care for chronic diseases that coordinates comprehensive care along the disease continuum across health care delivery systems. A disease management intervention is an intervention designed to manage or prevent a chronic condition using a systematic approach to care and with multiple treatment modalities.
Windham 2003 [13]	A care management programme consists of interventions designed to improve care for patients with congestive heart failure.

Table 3 Description of components of integrated care programmes

Component	Description
Self-management support and patient education	Self-management support involves collaboratively helping patients and their families acquire the skills and knowledge to manage their own illness, providing self-management tools and routinely assessing problems and accomplishments. Education is giving the patients information (materials and/or instructions) regarding their condition and possible management.
Clinical follow-up	Follow-up is monitoring the patient after or during treatment on a close regular base. This is often done by a nurse case manager who uses a phone, mailings, or visits. Clinical follow-up can be seen as part of self-management support.
Case management	Case management is explicit allocation of coordination tasks to an appointed individual (a case manager) or a small team who may or may not be responsible for the direct provision of care. The case manager or team takes responsibility for guiding the patient through the complex care process in the most efficient, effective, and acceptable way.
Multidisciplinary patient care team	A multidisciplinary patient care team is composed of a group of professionals who communicate with each other regularly about the care of a defined group of patients and participate in that care.
Multidisciplinary clinical pathway	Clinical pathways or integrated care pathways are structured multidisciplinary care plans which detail essential steps in the care of patients with a specific clinical problem and describe the patient's expected clinical course. Clinical pathways should be derived from evidence-based guidelines translated into practice.
Feedback, reminders, and education for professionals	The aim of feedback, reminders, and education is to provide health care providers with information regarding appropriate care for patients. This information can come from clinical pathways, medical records, computerized databases, patients, or audits by colleagues. Feedback is given after the consultation; education is given before consultation; reminders are given before or during consultation.
Additional requirements	(i) Supportive clinical information system; (ii) specialized clinics or centres; (iii) shared mission on integrated care; (iv) leaders with a clear vision on integrated care; (v) finances for implementation and maintenance; (vi) management commitment and support; (vii) patients capable and motivated for self-management; (viii) culture of quality improvement.

studies, and that details of the individual studies are washed out. Furthermore, there was a risk of publication bias, because of the tendency for Journals to publish positive results and suppress negative results.

In conclusion, this review showed that integrated care programmes seemed to have positive effects on the quality of care. However, integrated care programmes have widely varying definitions and components. Failure to recognize these differences leads to inappropriate conclusions about the effectiveness of these programmes and to inappropriate application of research results. To compare and better understand the (cost) effectiveness of integrated care programmes, consistent definitions must be used and component interventions must be well described [29,30].

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