

Understanding new models of integrated care in developed countries: a systematic review

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Scientific summary

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Background

In order to support the development and introduction of new care models in the NHS, a rigorous and systematic review of the international evidence is needed. A diverse range of models that are rooted in local communities have been developed, and there is now a need to understand the complex pathways from new models of care to longer-term impacts, and how models might work in different contexts.

Objectives

The study had the following objectives:

- to carry out a systematic review of the international literature on new models of integrated care
- to use a logic model method to outline interventions, mechanisms, outcomes and impacts from new models of integrated care
- to develop a framework that details factors that may have an impact on the generalisability or applicability of the research literature, and to use this framework to evaluate models of care reported.

Methods

The study combined established systematic reviewing methods for the identification of literature with innovative methods of analysis and synthesis to examine mechanisms of change and the applicability of international evidence to local contexts.

Search strategy and data sources

A systematic search of health, medical and social care databases was undertaken between September 2016 and May 2017 to identify UK and international studies published from 2006 onwards. We searched from 2006 as a previous review is available that included studies published up to this year. Search terms included a combination of medical subject heading and free-text terms, with the search strategy led by the information specialist on the team. Electronic databases that were searched included MEDLINE, EMBASE, The Cochrane Library, PsycINFO, Science Citation Index, Social Sciences Citation Index, and Cumulative Index to Nursing and Allied Health Literature. Other iterative searching techniques were also employed, including citation searches of a key review and hand-searching of the reference lists of primary studies and other reviews.

Study selection

The following inclusion and exclusion criteria were used to set the parameters of the review:

- Target population – patients receiving a health-care service and staff delivering services.
- Target interventions – we defined new models of care as changes to service delivery that aim to increase integration and co-ordination.
- Control/comparators – the review examined interventions with comparator groups (such as care networks) and those with no comparator.

- Outcome measures – we included studies with any outcome related to the delivery of services (effectiveness or efficiency) or that reported an impact on the delivery of patient care or on staff delivering services.
- Study design – we included systematic reviews, randomised and non-randomised controlled trials, observational studies and qualitative work reporting the views of service users or staff delivering services.
- Other criteria – we included studies from any country that is a member of the Organisation for Economic Co-operation and Development, as these developed countries are of most relevance to UK health systems. We examined studies published in English; however, we considered translation if any key international papers were identified.

Data extraction

Studies that met the inclusion criteria were read in full and a data extraction was completed for each. We particularly aimed to extract data relating to factors that might influence the applicability of study findings and reported associations to inform the development of the logic model.

Assessment of quality

Our approach to the consideration of individual study quality and risk of bias in individual studies was based on the established hierarchy of study design, together with the use of a range of checklists designed for each study type.

Strength of evidence

Our evaluation of the strength of evidence used comparator labels for rating (stronger vs. weaker); therefore, the strength of each element was relative. Owing to the nature of the interventions, there were few examples of studies that were able to achieve the 'gold standards' of blinding and randomisation and, therefore, provide the highest level of evidence. By adopting a relative evaluation, however, we were able to provide information regarding areas in which there were stronger rather than weaker signals in the data 'noise'.

Data synthesis

We used several methods to synthesise the findings from the included studies. These included narrative synthesis, tabulation, use of a logic model framework, and considering the findings in terms of strength of evidence and applicability.

Results

Our systematic review of new models of integrated care identified 267 documents that met the inclusion criteria, which were examined and synthesised. The literature included studies from the UK, other European countries and North America, and encompassed empirical work with designs including quantitative evaluations of interventions/initiatives, and qualitative data related to staff or patient perceptions of barriers and enablers.

We identified a diverse range of elements, which we grouped into (1) those relating directly to patient care, (2) those with a focus on intervening at an organisational or system level, (3) those with a focus on changing the way that staff are employed or work together and (4) those that have a focus on reconfiguring financial, commissioning or governance aspects of health service provision. Within this typology, different types of intervention elements were described: joint assessment; integrated care pathways (ICPs); agreed referral criteria; care/case co-ordination; joint review/discharge; integrated information technology (IT) systems and patient record sharing; new services, care groupings or units; transferring services from hospitals to the community; multidisciplinary teams (MDTs) and team meetings; relocating staff; changing employment conditions; joint commissioning; financial integration; and organisational integration. Many studies examined multicomponent, highly complex initiatives that were only described briefly by authors. Few studies identified

cause–effect or associational linkages between individual elements of new models of care and service outcomes and system impacts.

The introduction of ICPs was the most commonly occurring element, either as a ‘stand-alone’ intervention or as part of a more complex package. This was closely followed by the MDT element, which was also a frequently described component of UK and international studies. The greatest number of elements described by authors was nine, and the least was only one; interventions typically included four–six elements. In general, the UK interventions contained more elements than those reported from non-UK countries. There were more examples of interventions described as including a case manager/case co-ordinator in the international literature than in the UK literature, and the UK literature had more studies in which authors described integrated care pathways/plans as an element.

Target areas for change that were described in the studies encompassed changing the model of care to one that was more holistic and/or patient centred; changing the organisational culture; developing shared values, beliefs and priorities among staff and organisations; changing relationships between staff; changing relationships between organisations; developing trust; developing mutual understanding; and improving communication between staff. Although these areas were commonly described as targets/aims, few quantitative evaluations measured any change in these target areas. Qualitative data similarly provided evidence of the perceived importance of these changes for improved working practice and service delivery, but provided limited and equivocal findings regarding whether or not interventions had led to improvements in these areas.

The elements of new models of integrated care offered the potential to effect change at multiple levels: at a process level (changing the way services were delivered), at a service outcomes level (changing resource usage, quality of care or staff satisfaction) or at a system impact level (changing use of hospital-based services, use of primary care and community services, overall use of health-care services and cost of delivering health care). We therefore adopted a systems approach, using a logic model to analyse the data related to these elements of the pathway from the interventions reported, through process changes, to service outcomes and then system-wide impacts.

We grouped the process changes described in the literature into four categories: (1) patient role change, (2) change in care provision, (3) change in information and (4) organisational change. We examined data from the UK and international intervention studies for evidence of effect on processes and examined the qualitative literature for data related to perceptions of change. We also examined the literature for reports of relationships or associations between particular intervention elements and specific outcomes.

There was surprisingly little UK or international evidence regarding the effect of integrated care initiatives on service user roles or relationships. The very limited evidence available provided inconsistent findings regarding whether or not service users perceived any change or had greater knowledge or involvement in services.

Regarding our second grouping, ‘change in care provision’, there was weaker evidence that discharge planning may be improved (possibly associated with elements of case conferences and/or joint/streamlined assessment), and also weaker evidence that there may be an improvement in the timeliness/flow of care provided (possibly associated with elements of ICPs and/or joint/streamlined assessment). There was also weaker evidence regarding interventions leading to reduced variance in practice and a negative impact in terms of adding to the practitioner time burden.

There was inconsistent evidence regarding any effect on information sharing and the accuracy/completeness of record keeping. There was a weaker indication of increased knowledge sharing between staff. The evidence regarding change in organisational processes as a result of new models of care was also inconsistent, with reporting of considerable challenges in achieving system change beyond the improvement of organisational relationships.

We identified four types of factors that were reported to influence the implementation and outcomes of new models of integrated care: (1) patient related, (2) workforce related, (3) organisation and system related and (4) management/leadership related. The factors that appeared to have a stronger potential influence were the perceived focus of the initiative (patient focused vs. organisationally or financially motivated), the level of patient engagement, staff professional identity, staff professional role boundaries, power and hierarchies within staff groups, the stability of the workforce, the provision of training to staff, levels of engagement among staff [particularly general practitioners (GPs)], having local leaders/champions and effective leadership, the resources available, the compatibility of IT systems, the clarity of the vision for change, the prevailing organisational culture, the policy context in which the initiative was sited, and the commissioning and governance policies and procedures.

Studies evaluated new models of care through an extensive variety of outcomes. We categorised these outcomes into those related to use of resources, those related to quality of care, and the outcomes for staff work experience. We identified three outcomes in which there appeared to be stronger evidence of effect: (1) that new models of integrated care may lead to increased patient satisfaction, (2) that new models are perceived to increase the quality of care and (3) that new models of care may increase patient access to services. There was some indication in the UK studies that patient waiting times and outpatient appointments may be reduced, and that patient wishes at the end of life are met. The evidence was inconsistent overall regarding the effect on the number of clinician contacts, number of GP appointments, length of stay in hospital, unscheduled admissions, scheduled admissions, readmissions, attendance at an accident and emergency (A&E) department, outpatient appointments, and staff working experience. There was very limited evidence available regarding prescribing, access to resources across services, time spent in A&E departments, numbers of incidents or complaints or the identification of unmet need. The evidence was inconsistent regarding system-wide impacts on hospital services, primary care and community services, overall health-care usage and the cost of health-care provision.

Conclusions

The review confirms the high level of complexity that is inherent in implementing and evaluating new models of integrated care. A systems perspective is needed to best understand elements of implementation, and how these individual elements may lead to outcomes and impacts. The review identified a multitude of factors that may influence implementation and outcomes. The evidence indicates that new models of care may increase patient satisfaction and perceived quality of care and improve access to services. There is also some indication of a positive effect on waiting times and achieving patient preferences. The evidence for other outcomes and impacts is inconsistent or limited in quantity.

Recommendations for health care

- There is stronger evidence that new models of integrated care may increase patient satisfaction, and may lead to improvements in the accessibility of services and the perceived quality of care.
- The evidence is currently unclear regarding other outcomes for services, or for the health-care system as a whole, including the impact on service usage and costs.
- An extensive number of factors are reported to influence the implementation and outcomes from new models of integrated care, which need to be considered and addressed, when possible, at all stages of the introduction of new models.
- New models of integrated care act at a whole-system level, with a need to consider incentives and outcomes across the whole system.
- There is currently little evidence regarding the impact of new models of care on patients beyond the evaluation of patient satisfaction, and there is some suggestion that outcomes for carers may differ from those for patients.

- New models of integrated care may offer more potential in certain patient populations such as those described as having 'complex needs', although there is limited evidence related to differential effects in specific clinical conditions.
- There is some evidence that interventions such as ICPs, MDTs and case management implemented in isolation may achieve change in processes, but they should form part of multicomponent initiatives in order to improve service delivery outcomes.

Recommendations for research

- There is a need for research to more clearly link particular elements of new models of care to outcomes.
- There is a need for further research to examine outcomes at a process level to add to the knowledge regarding intervention–outcome links; in particular, greater examination regarding process change outcomes in terms of patients (such as understanding of treatment), practice (flow of care and duplication), exchange of information (extent and accuracy), time spent engaged in tasks, and organisational changes (commissioning, governance and budgetary).
- Much of the current research evidence comes from studies of older adults. There is a need for further research to explore the potential for new models of care to have an impact on the care for other patient groups.
- In the UK, in particular literature focuses on outcomes and influences related to the workforce, whereas the potential effect on patient and carer experiences (beyond levels of satisfaction) is under-researched.
- There is a need to further explore particular challenges of new models of care in rural areas, and potential differential effects in varying subgroups such as those from socioeconomically deprived communities.
- We have developed and used an applicability framework to guide analysis of the findings of the review. This framework has the potential to be a useful tool for other studies to guide the analysis of results.

Study registration

This study is registered as PROSPERO CRD37725.

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