



Evaluating Case Management Models in Healthcare: A Systematic Review

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Abstract

Objectives: Case management refers to the process of providing care to patients and their families, complexity of problems, professional coordination, and the intervention. This study aimed to describe the models of case management and explain the characteristics of each model. We also discussed their differences and similarities.

Methods: We systematically searched the electronic databases, including Scopus, Embase, Web of Science, and PubMed in March 2021. Two authors evaluated the included articles separately, and the case management models mentioned in the studies were identified and categorized.

Results: A total of 2003 articles were collected from the databases. After removing 1063 duplicates, 940 papers were evaluated using the title, abstract, and full text. After reviewing the articles, the case management models were divided into three categories, including clinical cases, traditional case management models, and social case management models.

Conclusion: A case manager keeps track of resource consumption and manages post-acute services for patients with high-risk illnesses such as asthma, diabetes, heart failure, and renal failure. The variety of categories and subtypes reflects the multiplicity of case management approaches in practice. The classification serves as a visual and organizational framework for illustrating the complexity and diversity of case management approaches.

Trial Registration: PROSPERO (CRD42020176561).

Keywords: Case management, Models, Systematic review

Introduction

Case management has experienced a resurgence in growth and importance within the realm of care services, which might make it an ambiguous term for some (1,2). It is not possible to outline all case management observations. However, expert groups have established criteria and observational standards to guide health care management leaders and a quality mark for every case management specialist. The Case Management Society of America (CMSA) approved an amended definition in 2009, stating that persons' and families' holistic health desires are met through communication and resources to achieve high-quality and cost-effective results (1).

The earliest documented case management article related to the telephone system dates back to 1878. It discusses the management of a patient suffering from cerebral inflammatory illness. In general, case management involves the approach to care provided to patients and their families, addressing complexity, professional collaboration, and taking appropriate action.

Although it alludes to sustained care, there is a bound dispute about whether it is timely or continuous in time (3,4).

Since case management was first introduced for the arrangement and coordination of health and social services, several models have been developed. Over the last 15 to 20 years, numerous demonstration programs and studies have demonstrated the necessity of "targeting" therapies to certain types of patients (5).

On the other hand, the method of case management depends on the system developed to supply it. The characteristics of that system are shaped by the context in which it is intended to work (5,6).

Case management systems have primary goal, beliefs, activities, and structural components. The combination of numerous overlapping case management models, disagreements over repair elements, and uncertainty about group adherence and faithfulness to specific techniques have made it difficult to analyze and rate case management services (7).

Case managers are increasingly under pressure to explain and demonstrate how case management programs increase value. To achieve this purpose, the first step is to identify and describe the case management model employed. This can occur because of case management adopting various forms depending on the scale, profession,

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institution, situation, and basic consumer care needs (8).

Case management models are linked to better utilization of health resources and more efficient health care. It is worth noting that it allows managers and nurses to provide a greater range of community services, as well as higher-quality and private care (9).

Case management and observation models can be defined and used in a variety of ways. Considering the absence of regulation, the terms case management and case management model are frequently used, despite the lack of a precise explanation of what they mean. The failure to appropriately contrast models, activities, results, and performance is one of the most serious consequences of a lack of specificity (1,10). In the absence of specificity, it is impossible to compare models, programs, results, and efficacy accurately (1,10).

Due to the ambiguity and failure to perform a similar assessment of case management models, this systematic review aimed to describe case management models and discuss the characteristics of each model.

Methods

Registration and Eligibility Criteria

This systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) (11). The review protocol was registered on the PROSPERO (identifier: CRD42020176561) (12). The inclusion criteria were as follows: (a) types of case management models in healthcare, (b) published in English, and (c) using a cross-sectional or survey design and systematic review.

Information resources and search for studies

The electronic databases, including Scopus, Embase, Web of Science, and PubMed were searched up to April 2020 using the following search terms (Table 1): “Case management*” (CM), “Case manager*”, “Case manager model*”, “Case management model*”, “Case manager

type*”, “Case management type*”, “Intensive case management*” (ICM), “Outreach case management*”, “Case managed”, “Case management approach”, “Case management protocol”, “Patient case management*”, and “Case management nurses”. Google Scholar was also used to conduct manual searches in the reference lists. The Endnote software was used to enter all the identified articles, and duplicates were deleted. Two authors (AK and SM) screened the retrieved literature for titles and abstracts, and any disagreements were resolved by discussion and a third author (AJ).

Results

A total of 2003 articles were collected from the databases. After removing 1063 similar articles, 940 articles were assessed through the title, abstract, and full text. Finally, 18 studies (5-7,10,14-27) met the inclusion criteria (Figure 1).

Study Characteristics

According to the results of our research, the case management models were discussed between 1989 and 2014. As Table 2 shows, the studies were initially screened based on the author’s name, year of publication, study period, study position, and the model used in case management. Finally, we described each of the case management models.

Based on the findings presented in Table 2, it is evident that out of the total 18 studies encompassed within this systematic review, a majority 13 studies originated from the United States. The remaining five studies were conducted in other geographical locations, including the United Kingdom, New Zealand.

After reviewing the case management models and analyzing the models in line with Table 3, the case management models were classified into 4 classes: case management models, clinical cases, ancient case management models, and social case management models.

Table 1. The Systematic Review Search Strategies

PubMed Search	
Step 1	((“Case management*”[Title] OR “Case manager*”[Title] OR “Case managed”[Title] OR “Patient case management*”[Title] OR “Case management nurses”[Title] OR “Intensive Case management*”[Title] OR “Outreach case management*”[Title])) AND (Model*[Title] OR type*[Title] OR approach[Title] OR Protocol[Title])
Scopus Search	
Step 2	(TITLE (“Case management*” OR “Case manager*” OR “Case managed” OR “Patient case management*” OR “Case management nurses” OR “Intensive Case management*” OR “Outreach case management*”) AND TITLE (model* OR type* OR approach OR protocol))
Embase Search	
Step 3	('case management*':ti OR 'case manager*':ti OR 'case managed':ti OR 'patient case management*':ti OR 'case management nurses':ti OR 'intensive case management*':ti OR 'outreach case management*':ti) AND (model*:ti OR type*:ti OR approach:ti OR protocol:ti)
ProQuest	
Step 4	All (capitation adjustment OR "per capita adjustment" OR "capitation fee adjustment" OR adjustment capitation OR "adjustment per capita" OR "adjustment capitation fee") AND all (risk adjustment OR risk factor)

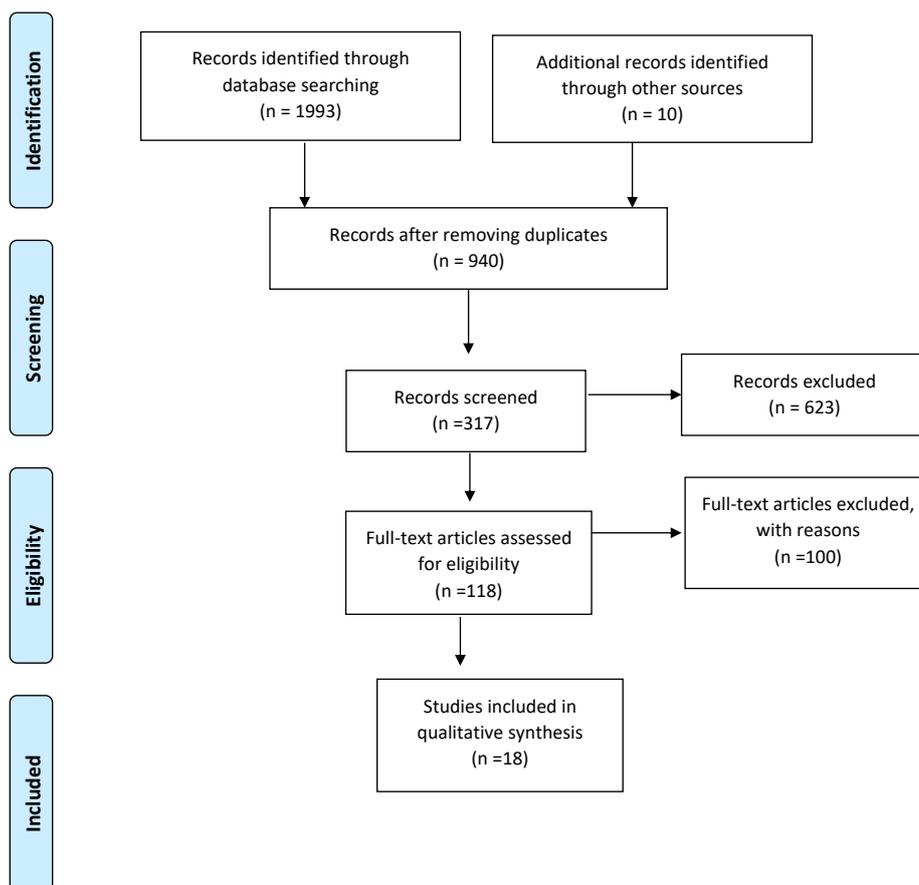


Figure 1. Flow Diagram for Study Selection.

In this method, similar to prior studies, the primary objective is to ascertain the prevailing management model employed in various management scenarios.

Discussion

Case management has been made public among the relevant target teams and is widely known and used in the United States. As defined by the Case Management Method Model, a case management structure forms an acceptable strategy for identifying patients who might benefit from this service in the palliative care profession (27). It also aids in confirming their placement in appropriate healthcare services.

The evidence-based observation measures established by case management may result in positive changes in patient outcomes. Most case management approaches have been disease-specific interventions delivered by nurse case managers outside of primary care settings. One issue with this strategy is that therapies are usually disease-specific rather than patient-specific. As a result, over half of the individuals with chronic illnesses have several illnesses. Disease-specific programs may not fully meet their needs, raising the risk of disjointed and inadequate care. Once established outside of the primary care context, case management programs may help with fragmented care by avoiding the patient-provider interaction.

Case Management Models

AIDS risk reduction education is combined with a revised version of the standard broker-of-services approach in the “mixed” case management paradigm. The case management component of the strategy is intended to identify and handle those urgent requirements that may divert attention away from the AIDS risk control messaging. The tutorial portion of the approach will make it easier for people to become interested in case management services.

As a result, the developed model will have a larger influence on paper than each portion alone. The model’s benefits include its adaptability, ability to swiftly analyze and respond to clients’ issues, and short length, which increases the possibility of drug users completing the method.

The Chronic Care Model outlines the system-wide principles for providing ambulant care to people with chronic illnesses.

Case management is an effective technique for delivering good chronic care. However, alternative implementation options should be examined to meet the needs of all chronically ill patients with the available resources. A condition-neutral case management paradigm that can be applied to a variety of conditions and risk factors could potentially be beneficial.

For patients with many chronic diseases, chronic care management refers to worry coordination outside of the normal workplace visit. It is still being used within the chronic care paradigm, and it could be the means by which numerous key elements of that framework are enforced. Chronic care management could be a critical component of a larger chronic care improvement plan, allowing providers to break through barriers to better patient care and results.

Nursing and care models usually manage a person's or population's healthcare, disease, and treatment needs. Some of the words used to characterize the models are medical models, medical-social models, and sickness management models. There has been substantial debate in the nursing literature about whether case management is a healthcare delivery paradigm or an auxiliary intervention with a technique.

Models in Social Work

Recent resource events, connections to current service agencies, care coordination, advocacy, and teaching are all critical parts of social welfare work. Individual self-sufficiency and independence and coordinative and desegregation care are all examples of welfare work (21). The focus of welfare work is on assisting disadvantaged people (7). There are six standard models in social work: 1) broker, 2) primary expert, 3) knowledge base team, 4) comprehensive, 5) personal strengths, and 6) rehabilitation.

Traditional Models

The case manager's archaic linkage operation is highlighted in this model. Customers are connected to a network of suppliers and services, and they engage in programs such as evaluation, counseling, and monitoring service delivery (7). A scholarly person is often used to describe the broker method. A case manager is a professional in charge of a single client or a group of clients. All case management activities are performed by the researcher, who also provides direct assistance, leadership, and support for all told case management initiatives (2). The first aim is to raise the chances of customers receiving the right services in the right order and on time. To do this, the case manager develops a complete service package and works to remove roadblocks that hinder customers from receiving the needed help. Deep discounts may or may not be a specific target, but they can be expected. The case manager enhances collaboration and removes duplication of services among organizations, limiting the use of more valuable and ineffective places of care or services, and expensive hospitalizations.

Intensive Model

The intense model's independence from the case management provider allows case managers to tailor treatment according to the best interests of the customer

rather than the case management organization's bottom line.

There are some limited knowledge-based models. We found two such models in the included papers as follows:

1. Critical care case management for nurses and social workers: this might be a system that integrates consumption control duties with discharge planning while also separating social work observation from discharge planning activities. There are two types of discharge design tasks: basic and difficult. Simple discharge design cases were handled by case help nurses, while the advanced class was handled by social workers.
2. Nurse-social employee interaction in managed care is developed from a combination of structural and body-level knowledge-based collaboration models and a case management intervention technique for individuals and small groups. Nurses and social workers should engage as equal partners in a trans-disciplinary knowledge-based team case management model.

Conclusions

The range of case management models in observation can be noticed within the groups and subtypes defined during this classification. The categorization is intended to propose the diversity and variety that classify the progress of case management models by providing a display and structural framework. When assessing specific case management models, the framework can be utilized as a reference point.

A decision of similarity, variations, and degree of current order or development can be made by connecting a personal model to the organizing guidelines provided here.

Case management models are predicted to continue to evolve. The models can respond to changing desires and the environment by growing and developing. Case managers' larger perspective is stimulated by a grasp of case management models' history, current state, and organic process patterns, which helps them avoid the challenge known as "reinventing the wheel".

The case management model involves the supervision of resource allocation and the administration of post-acute care for individuals afflicted with persistent medical conditions, including respiratory disease, diabetes, coronary artery disease, and nephritis. They also promote awareness, community involvement, and treatment adherence to improve post-hospitalization management and prevent readmissions. The term case management may be limited. Depending on the seriousness of the illness, its steadiness, and the patient's outlook, it may be given for a shorter or longer period of time. As a result, case management activities are part of the patient's primary informal caregiver's learning ability.

Ethics Issues

This study was approved by the Clinical Analysis Committee of Tabriz University of Medical Sciences, Iran (Ethical code: IR.TBZMED.REC.1397.512).

Authors' Contribution

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Conflict of Interests

Authors have no conflict of interest.

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References

- Moreo K, Lamb G. Providing relevant guidelines for case management practice: revised CMSA standards of practice for case management. *Lippincott's Case Manag.* 2003;8(3):122-124. doi:10.1097/00129234-200305000-00005
- Weil M, Karls JM. *Case Management in Human Service Practice: A Systematic Approach to Mobilizing Resources for Clients.* San Francisco: Jossey-Bass; 1985.
- Ross S, Curry N, Goodwin N. *Case Management: What is it and How it Can Best be Implemented.* London: The King's Fund; 2011.
- Hutt R, Rosen R, McCauley J. Case-Managing Long-Term Conditions: What Impact Does it Have on the Treatment of Older People? *The King's Fund;* 2004:1-28.
- Eggert GM, Friedman B, Zimmer JG. Models of intensive case management. *J Gerontol Soc Work.* 1990;15(3-4):75-101. doi:10.1300/J083v15n03_05
- Knollmueller RN. Case management: what's in a name? *Nurs Manage.* 1989;20(10):38-42.
- MacNeil Vroomen J, Van Mierlo LD, van de Ven PM, et al. Comparing Dutch case management care models for people with dementia and their caregivers: the design of the COMPAS study. *BMC Health Serv Res.* 2012;12:132. doi:10.1186/1472-6963-12-132
- Huber DL. The diversity of case management models. *Lippincott's Case Manag.* 2002;7(6):212-220. doi:10.1097/00129234-200211000-00002
- Duncan J. Clinical observations on a failure in the antiseptic management of a case of empyema. *Br Med J.* 1878;1(901):476-478. doi:10.1136/bmj.1.901.476
- Simpson A, Miller C, Bowers L. Case management models and the care programme approach: how to make the CPA effective and credible. *J Psychiatr Ment Health Nurs.* 2003;10(4):472-483. doi:10.1046/j.1365-2850.2003.00640.x
- Moher D, Liberati A, Tetzlaff J, Altman DG. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS Med.* 2009;6(7):e1000097. doi:10.1371/journal.pmed.1000097
- https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=176561.
- von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP. The Strengthening of Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. *PLoS Med.* 2007;4(10):e296. doi:10.1371/journal.pmed.0040296
- Beilman JP, Sowell RL, Knox M, Phillips KD. Case management at what expense? A case study of the emotional costs of case management. *Nurs Case Manag.* 1998;3(2):89-95.
- Benjamin AE. Perspectives on a continuum of care for persons with HIV illnesses. *Med Care Rev.* 1989;46(4):411-437. doi:10.1177/107755878904600404
- Cline BG. Case management organizational models & administrative methods. *Caring.* 1990;9(7):14-18.
- Daniels S. Introducing HCM v3.0: a standard model for hospital case management practice. *Prof Case Manag.* 2011;16(3):109-125. doi:10.1097/NCM.0b013e318212b5c1
- Guo KL, Company JD. Leaders in hospital-based social work: the roles and functions of directors of social work in the case management model. *Leadersh Health Serv (Bradf Engl).* 2007;20(2):124-133. doi:10.1108/17511870710745448
- Korr WS, Cloninger L. Assessing models of case management. *J Soc Serv Res.* 1991;14(1-2):129-146. doi:10.1300/J079v14n01_07
- Lamb HR. Therapist-case managers: more than brokers of services. *Hosp Community Psychiatry.* 1980;31(11):762-764. doi:10.1176/ps.31.11.762
- Lynn-McHale DJ, Fitzpatrick ER, Shaffer RB. Case management: development of a model. *Clin Nurse Spec.* 1993;7(6):299-307. doi:10.1097/00002800-199311000-00005
- Ridgely MS, Willenbring ML. Application of case management to drug abuse treatment: overview of models and research issues. *NIDA Res Monogr.* 1992;127:12-33.
- Schaefer J, Davis C. Case management and the chronic care model: a multidisciplinary role. *Lippincott's Case Manag.* 2004;9(2):96-103. doi:10.1097/00129234-200403000-00007
- Stempel J, Van Wie K, Mahn V, Combs J. Nurse case management. In: Case B, ed. *Career Planning for Nurses.* Albany, NY: Delmar; 1997:133-160.
- Van Mierlo LD, Meiland FJ, Van Hout HP, Dröes RM. Towards personalized integrated dementia care: a qualitative study into the implementation of different models of case management. *BMC Geriatr.* 2014;14:84. doi:10.1186/1471-2318-14-84
- Williams A, Hanchett M. Evolving models of case management in home infusion. *J Assoc Vasc Access.* 2004;9(4):207-213. doi:10.2309/1552-8855-9.4.207.
- Kuhn U, Düsterdiek A, Galushko M, et al. Identifying patients suitable for palliative care--a descriptive analysis of enquiries using a Case Management Process Model approach. *BMC Res Notes.* 2012;5:611.

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