

# An Evaluation of Co-located Outpatient Services in Patient Care Practice Settings: A Systematic Review and Meta-Analysis

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## Abstract

The co-location of specialists in primary care has been suggested as a tactic to lower costs, inefficiencies, and fragmentation of treatment. In order to evaluate the effects of co-located speciality care models in primary care settings, a systematic review and meta-analysis were carried out. Methods: Ovid MEDLINE, Ovid EMBASE, Ovid Cochrane Central Register of Controlled Trials, Ovid Cochrane Database of Systematic Reviews, and Scopus were all searched during the month of February 2015. The bibliographies of the included studies were manually searched. The following outcomes in physically adjacent primary care specialties were included in randomised controlled trials (RCTs) and observational studies: patient satisfaction, provider satisfaction, health care access and use, clinical outcomes, and costs.

**Keywords:** Patient care • Health care • Out-patient service

## Introduction

National healthcare spending is still increasing, mostly as a result of higher costs for older Americans, particularly those with numerous chronic diseases, and ineffective treatment delivery. The typical Medicare recipient sees numerous primary care physicians (PCPs), specialists, and healthcare facilities each year, making it challenging to organize high-quality care. Despite the rise in demand for healthcare, there remain regional differences in physician availability and access for both routine and specialized care. The partnership between primary and specialized care is also undermined by inadequate communication, which results in inefficiencies. Finding healthcare solutions that can solve these issues is crucial as insurers start to move away from traditional fee-for-service payment models and toward value-based reimbursement.

Co-locating specialty care inside primary care settings has been suggested as a solution to the fragmentation of healthcare delivery. In order to accommodate numerous services in the same physical place, co-location must follow a defined model that includes organizational traits, patient care roles, coordination methods, and data systems and policies. Co-location uses the close proximity of the providers to enhance coordination, collaboration, and communication [1].

Contrarily, co-located solutions may vary in terms of the type of provider, the length of time spent on-site, and the degree to which they take use of opportunities for coordination and collaboration through curbside contacts and communication through a shared electronic health record (EHR). The collaborative chronic care model paradigm may include co-location, which is a component of the most popular co-location model, integrated behavioural health. This model has had an advantageous effect. On the other hand, it is unclear what would happen if additional specialties were co-located in primary

care settings. Key stakeholders would have access to knowledge regarding practice redesign strategies that could aid in the achievement of the objectives of high value care delivery if they understood the potential advantages of co-located specialized care models in primary care.

The integration of primary and specialist care is still lacking, which contributes to the fragmented delivery of healthcare in the US. Poor communication and coordination between primary and specialty care leads to discontinuity, ineffective testing, delays in diagnosis and treatment, and greater expenses. Despite being existed for some time, the patient-centered, primary care medical home (PCMH) concept is now widely acknowledged as a crucial part of delivering high-value, population-based care. Specialty care co-location in primary care settings is seen as an advanced functional integration characteristic. The "medical neighborhood" paradigm expands the PCMH model's concepts to include integration of specialty care and auxiliary healthcare services. One efficient method for bridging the gap between primary and specialist care is improved clinical decision support [2].

## Discussion

This review was conducted in accordance with the PRISMA principles and an a priori protocol. RCTs and observational studies that examined physically co-located specialists in primary care evaluated the following outcomes: patient and provider satisfaction, health care access and use, clinical results, and costs. The kind of speciality that might be added was not constrained. Specialists were not required to work full-time in primary care practise settings in order to be included. Non-original studies weren't taken into account. Ovid Medline In-Process & Other Non-Indexed Citations, Ovid MEDLINE, Ovid EMBASE, Ovid Cochrane Central Register of Controlled Trials, Ovid Cochrane Database of Systematic Reviews, and Scopus were among the databases that were searched through February 2015. A manual search of the bibliography was also done.

The screening of abstracts and full-text articles for inclusion eligibility was overseen by two independent reviewers. The chief investigator used arbitration and consensus to settle any disputes. A Kappa level metric was created to evaluate reviewer agreement [3,4]. Two impartial reviewers checked each study for bias. The Cochrane risk of bias and modified Newcastle methods were applied to observational studies and randomised controlled trials (RCTs), respectively. The following variables were extracted using an online reference system (Distiller SR; Evidence Partners, Inc.): research population, setting, interventions, and outcomes.

In order to determine odds ratios (OR) and 95% confidence intervals, the

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binomial distribution was utilised (CI). Log transformed risk ratios were pooled using the DerSimonian and Laird random-effect models, and heterogeneity was calculated using the Mantel-Haenszel model. When there were less than three studies and the variation among the studies was unstable, we employed the fixed effects model [5]. All statistical analysis was performed using STATA, version (StataCorp LP, College Station, Texas). Based on the type of study design (randomised controlled trial vs. observational studies) and study location, subgroup analysis was intended to lessen heterogeneity (United States [USA] vs. international).

The study's findings on how colocation affects clinical outcomes are contradictory. Many therapeutic outcomes are connected to the treatment of linked diseases and functioning because behavioural health models are prevalent. There was significant heterogeneity in this study's pooled analyses of RCTs, which contradicts a sizable meta-analysis on collaborative chronic care models for mental health disorders even though there was no advantage reported. Similar to the first trial, which discovered that a co-located model enhanced haemoglobin A1C, limitations in the second study<sup>24</sup> about baseline A1C levels among patients probably muddled the results.

1620 references were found in the initial search, and 22 studies—including nine randomised controlled trials and thirteen observational studies—met the inclusion criteria. Five RCTs employed patient randomization, three used practise site randomization, and one used practise firm randomization. Practice characteristics were not controlled in terms of patient randomization. In the included RCTs, the risk of bias was categorised as moderate to high. Eight studies failed to report allocation concealment, five studies failed to describe participant blinding, and two studies failed to report the randomization procedure. In none of the RCTs was there any discussion of outcome blinding. The majority of observational studies lacked information on cohort selection, comparability, outcome evaluation, or adequate follow-up.

A subgroup analysis depending on the kind of outpatient visits was carried out. Two observational studies [6] looked at how collocated speciality care affected how frequently primary care doctors saw outpatient patients. A correlation between co-location and an increase in the number of primary care physician outpatient visits was discovered in one research of geriatric specialist care. On the other hand, a research including a nearby practise for infectious disorders and HIV showed no connection. A substantial correlation between co-located specialist care and an increase in the frequency of primary care physician outpatient visits was found after combining the results of the two studies and using a fixed effect model.

Co-location may only be advantageous in certain contexts, such as big primary care practises connected to integrated healthcare organisations. Furthermore, certain specialties might benefit from co-location the most. Co-locating practitioners from specialties like cardiology or neurology, which rely on highly developed diagnostic clinical exam procedures or have extensive, well-defined care management protocols, may enhance point-of-care delivery in cooperation with PCPs in the PCMH. On the other hand, specialties that may offer knowledge through picture interpretation, like dermatology, may give some enhanced integration benefits through the use of telemedicine modalities without necessarily needing co-location. Despite these drawbacks, this research offers a preliminary evaluation of the potential worth of co-location as an integration tactic. A more detailed examination of co-located speciality care models can be conducted by using the highlighted knowledge gaps and study limitations to guide future research [7].

## Conclusion

Examining and promoting high-value care delivery models is crucial given

the rise in healthcare costs, the rise in demand for primary and specialty care, and insurers' transition to value-based payment. A potential remedy for the current gaps in integrated care is co-located specialised care in primary care settings. The results of this study indicate that not all of the issues related to the primary-specialty care interface may be resolved by co-location. Co-located speciality care in primary care settings may contribute to the objectives of high value care delivery by enhancing clinical outcomes, raising patient and provider satisfaction, decreasing appointment wait times, and cutting costs, according to our systematic review.

The majority of investigations, which encompassed six specialties, were carried out in the United States. According to this study, co-located specialty care in primary care settings was linked to improved outcomes for some diabetes-related conditions, including systolic blood pressure and total cholesterol, as well as higher patient and primary care provider satisfaction, shorter wait times for appointments, and better quality of life. Hospital admission rates or diabetes outcomes like haemoglobin A1C or lipid levels were shown to be unaffected by co-location. Three research findings suggest that co-located speciality care may result in cost savings. Co-location might affect how people use services, leading to a rise in outpatient visits for primary care, for example. The evidence quality is low due to the heterogeneity of included studies and significant likelihood of bias.

## Conflict of interest

None declared.

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