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Title: Pediatric ambulatory care service delivery models: A scoping review protocol

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Pediatric Ambulatory Care Service Delivery Models: A Scoping Literature Review Protocol

Abstract

Objective: The objective of this review is to identify and characterize models of ambulatory care for pediatric patients.

Introduction: Ambulatory care services have seen significant growth over the years and an increase in the complexity of outpatients. Collaborative care models are needed to address the complexity of pediatric ambulatory patients and increasing demand on ambulatory care resources. Efforts are needed to better understand the literature on ambulatory care models, including how best to structure and deliver ambulatory care services in an integrated, collaborative approach to promote optimal patient- and family-centred care.

Inclusion criteria: This scoping review will consider studies focused on models of ambulatory care, service delivery models, or staffing models aimed at integrating and delivering ambulatory care for pediatric patients. All illness presentations for the pediatric population will be included. Studies that focus on emergency and perioperative care services and ambulatory care clinics that function in siloes will be excluded.

Methods: A search will be conducted in four databases (CINAHL, MEDLINE, EMBASE, Web of Science) and multiple sources of grey literature. No date limit will be set. Titles and abstracts will be screened by two independent reviewers for assessment against the inclusion criteria. All potentially relevant papers will be retrieved in full and screened against the inclusion criteria. A pre-defined data extraction tool developed by the reviewers will be used. Extracted data will be presented in tabular form with an accompanying graphic and narrative summary.

Keywords

Ambulatory; Care coordination; Collaborative care; Health service delivery; Models of care; Pediatrics

Introduction

A significant proportion of patient care can be managed safely and appropriately on a same day basis without admission to a hospital.[1] These services, known as ambulatory care, include single- or multi-disciplinary diagnostic, therapeutic, and adjunct secondary prevention and educational services for non-admitted patients that are hospital- or community-based, or offered in partnership with other organizations.[2] Ambulatory care services have seen significant growth over the years. In Canada, ambulatory care has grown almost one and a half times as much as inpatient care since 2005, with increases of 25% and 17%, respectively. The continuing shift from inpatient to outpatient care has led to an increase in the average complexity of both inpatients and outpatients.[3]

In the pediatric healthcare context, the ambulatory care philosophy suggests that children should not be admitted to hospital unless absolutely necessary, and ideally, care should be arranged in their own

homes. Care is also provided with a family-centred approach with the family as the child's centre for strength and support throughout the outpatient care that they receive.[4] Pediatric ambulatory care provides a wide range of services, including, but not limited to mental health,[5] palliative care,[6] cystic fibrosis,[7] general pediatrics, dermatology and adolescent medicine.[8] Outpatient services may also comprise diagnostic imaging, blood work and clinics for rehabilitation care, pain, dental services, plastic and reconstructive surgery, gynaecology, diabetes, development, and ophthalmology.[9] In Canada, these services, inclusive of emergency care, see the largest volume of patients of any health service delivery.[10] Research has found that 70% of pediatric care occurs in these settings, internationally.[11]

Pediatric ambulatory care services promote keeping children at home and in their local environment. As a result, these patients do not return to the hospital when they could be cared for by their primary care provider.[12] Ambulatory care services improve patient health outcomes by supporting children to remain at home and reducing secondary complications associated with hospitalization.[1,12] A descriptive study of 10,715 pediatric admissions for various chronic and acute conditions at a children's hospital in Rochester, New York, found decreased length of stay, reduce costs, and reduced number of admissions following the implementation of integrated ambulatory care services.[13] This leads to a significant impact for new pediatric ambulatory patients: Studies have shown that by reducing follow up visits, wait time for new patients decrease as well .[12]

Over the last two decades, the scope of ambulatory care has expanded, as the volume and complexity of care increased.[14] Further, the demand for ambulatory care services is increasing as hospital stays decrease and more patients are followed up in their communities.[15] Despite increasing complexity of pediatric patients and demand on ambulatory care resources, many service delivery models continue to operate in a siloed approach and face challenges related to workflow inefficiencies, role optimization, and resource allocation.[16,17] The focus remains on what is convenient for the providers, not the patients or families. This siloed approach to care makes it challenging for patients to navigate and for clinicians and decision-makers to allocate resources efficiently and effectively.

Alternatively, collaborative care models support multiple health professionals to work together and employ the skills of the most appropriate health care provider for the care required.[18] This requires changes to the way care is traditionally provided to patients and families. Health care providers must establish new lines of collaboration, communication and cooperation to integrate care and address patient and family needs.[18] Growing evidence in the primary health care setting suggests that collaborative care models result in better health outcomes, improved access to services, improved resource use, and greater satisfaction among patients and providers.[19]

In the ambulatory care context, safe, high-quality care requires information sharing and care coordination within and across multiple disciplines and settings.[14] Despite strong evidence for collaborative care models in primary health care, it is unclear what types of collaborative ambulatory

care models exist in the pediatric setting. Research efforts are needed to better understand the literature on ambulatory care models, including how best to structure and deliver ambulatory care services in an integrated, collaborative approach to promote optimal patient- and family-centred care.

Preliminary Search for other Reviews

A preliminary search of PROSPERO, MEDLINE, and CINAHL was conducted on March 4, 2020 and no current or proposed systematic or scoping reviews on the topic of this planned scoping review were identified.

One scoping review exploring models of pediatric ambulatory care was conducted to inform a community health service development in New Zealand.[20] However, this review only focused on models of ambulatory care that are provided outside of the hospital setting.[20] Given that this review is interested in ambulatory care models that operate within pediatric care centres, a scoping review is warranted.

A scoping review of the empirical research and grey literature on models of pediatric ambulatory care will provide researchers and health system leaders a comprehensive understanding of current and emerging models of care. The findings from this scoping review will directly inform future research, program, and policy planning aimed at improving pediatric ambulatory care services. As such, the objective of this review is to identify and characterize models of ambulatory care for pediatric patients.

Review Question

What collaborative care service delivery models exist for pediatric ambulatory care?

Sub-questions:

1. What collaborative care approaches to service delivery are used in pediatric ambulatory care settings?

2. What are the characteristics, outcome measures, reported impact and implications for practice of the models of pediatric ambulatory care identified?

3. What are the reported barriers and enablers to implementing models of pediatric ambulatory care?

Inclusion Criteria

Participants

The review will consider studies that include children and youth (ages 0-25) and their families. It will explore models of ambulatory care targeting pediatric populations with any illness presentation.

Studies targeting pediatric ambulatory care health care providers (physicians, nurses, allied health professionals) will also be included.

Concept

This review will consider studies that explore models of ambulatory care, service delivery models, or staffing models aimed at integrating and delivering pediatric ambulatory care. To be included, these models of ambulatory care must employ a shared and/or collaborative care approach across multiple health disciplines and services. Studies that describe ambulatory care clinics that function in siloes, without any description of collaborative practices, will be excluded. Studies may indicate barriers and/or enablers to implementing models of pediatric ambulatory care.

Context

This review will consider studies that are conducted in the following contexts: any pediatric ambulatory care setting or outpatient setting within a pediatric hospital or children's health program within a hospital setting. Studies that focus on emergency and perioperative care services will be excluded.

Types of Sources

This scoping review will consider both experimental and quasi-experimental study designs including randomized controlled trials, non-randomized controlled trials, before and after studies and interrupted time-series studies. In addition, analytical observational studies including prospective and retrospective cohort studies, case-control studies and analytical cross-sectional studies will be considered for inclusion. This review will also consider descriptive observational study designs including case series, individual case reports and descriptive cross-sectional studies for inclusion.

Qualitative studies will also be considered that focus on qualitative data including, but not limited to designs such as phenomenology, grounded theory, ethnography, qualitative description, action research and feminist research. Systematic reviews that report on aspects of pediatric ambulatory care will be reviewed for primary studies that may meet the eligibility criteria. Further, text and opinion papers, as well as other published materials such as case studies and relevant academic publications, such as theses and dissertations, will also be considered for inclusion. Official websites of pediatric organizations and healthcare provider associations will be used (see Appendix I), together with international strategies on ambulatory care to find relevant published materials including but not limited to, white papers, reports, position papers and policy papers, relevant to governmental guidance.

Studies published in English will be included. No date restriction will be implemented, to allow for the observation of any trends or changes in pediatric ambulatory care services over time to be captured.

Methods

The proposed systematic review will be conducted in accordance with the Joanna Briggs Institute methodology for scoping reviews.[21]

Search Strategy

The search strategy has been developed with a JBI-trained medical research librarian and aims to locate both published and unpublished studies. The proposed scoping review will follow the three-step process accordance with the JBI Scoping Review Methodology.[21] First, an initial limited search of CINAHL and MEDLINE (Ovid) was undertaken to identify articles on the topic. The text words contained in the titles and abstracts of relevant articles, and the index terms used to describe the articles, were used to develop a full search strategy for MEDLINE (Ovid) (see Appendix II). No limits were applied. Second, the search strategy, including all identified keywords and index terms, will be adapted for each included database. An iterative approach will be used and further search terms may be revealed and utilized within the search strategy. Third, the reference list of all included articles in the review will be screened for any additional relevant articles.

Information Sources

The following electronic databases will be searched: CINAHL, MEDLINE, Embase, and Web of Science. Sources of unpublished studies and grey literature to be search include ProQuest Dissertations and Theses Global and the first 50 pages of Google Scholar. Relevant organizational, governmental and health care association websites will be reviewed including, but not limited to Children's Healthcare Canada, the Canadian Medical Association, the American Academy of Pediatrics, Children First Canada, the Canadian Paediatric Society, Pediatric Chairs of Canada and the Government of Canada (Appendix I).

Study Selection

Following the search, all identified citations will be collated and uploaded into Covidence,[22] a citation management software, and duplicates will be removed. Titles and abstracts will then be screened by two independent reviewers for assessment against the inclusion criteria for the review. Potentially relevant studies will be retrieved in full and their citation details imported into the Covidence[22] software. The full texts of selected citations will be assessed in detail against the inclusion criteria by two independent reviewers. Reasons for exclusion of full text studies that do not meet the inclusion criteria will be recorded and reported in the systematic review. Any disagreements that arise between the reviewers at each stage of the study's selection process will be resolved through discussion, or with a third reviewer. The results of the search will be reported in full in the final systematic review and presented in a Preferred Reporting Items for Systematic Reviews and Meta-analyses- Scoping Review (PRISMA-ScR) flow diagram.[23]

Data Extraction

Data will be extracted from papers included in the scoping review by two independent reviewers using a data extraction tool developed by the research team. The data extracted will include specific details about the population, concept, context, study methods and key findings relevant to the scoping review objective. A draft data extraction table has been created for this scoping review (see Appendix III) that includes study information to be extracted, including: author(s), year of publication, country of origin, study aim/purpose, study population, study setting, study design, model of care/service delivery definition, characteristics of model of care/service delivery, outcome measures, reported impact, implications, and barriers and enables to implementation. Barriers and enablers will be extracted as reported by the study authors and then categorized within the Theoretical Domains Framework (TDF). The TDF is a synthesized framework of theoretical constructs used to systematically identify key behavioural determinants of implementation.[24] The framework is comprised of 14 domains and has been widely used in studies across diverse health care settings to identify inform and evaluate implementation efforts.[25] The draft data extraction tool will be modified and revised as necessary during the process of extracting data from each included study. Modifications will be detailed in the full scoping review report. Any disagreements that arise between the reviewers will be resolved through discussion, or with a third reviewer. Authors of papers will be contacted to request missing or additional data, where required.

Data Presentation

The PRISMA-ScR[23] reporting guidelines will be followed for this scoping review. The extracted data will be presented in a tabular form that aligns with the study's objective to identify and characterize models of ambulatory care for pediatric patients (Appendix IV). In addition to the tables presented in Appendix IV, a graphic image will be created of the different types of models found in the included studies.[21] A narrative summary will accompany these presentations and will describe how the findings relate to the review's objective and sub-questions.

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Conflicts of Interest

There is no conflict of interest in this project.

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Appendices

Appendix I: Official Websites of Pediatric Organizations and Healthcare Provider Associations

Name	Website
American Academy of Pediatrics	https://www.aap.org/en-us/Pages/Default.aspx
Canadian Medical Association	https://www.cma.ca/
Children First Canada	https://childrenfirstcanada.org/
Children's Healthcare Canada	https://www.childrenshealthcarecanada.ca/
Canadian Pediatric Society	https://www.cps.ca/
Government of Canada	https://www.canada.ca/en.html
Pediatric Chairs of Canada	http://www.pediatricchairs.ca/
American Academy of Ambulatory Care Nursing	https://www.aaacn.org/
Canadian Nurses Association	https://www.cna-aiic.ca/
Canadian Association of Paediatric Nurses	https://paednurse.ca/

Appendix II: Search Strategy

MEDLINE (Ovid)

Search conducted on March 18, 2020

Search Query Records retrieved

Search	Query	Records retrieved
2020-05-26 4:17:00 PM #1	("Delivery of Health Care, Integrated"/) OR (Cooperative Behavior/) OR (exp Patient Care Team/) OR (exp Interprofessional Relations/) OR (integrat* or collaborat* or cooperat* or "co operat*" or comprehensive or shared or intersect* or seamless or multidisciplinary or "multi disciplinary" or interdisciplinary or "inter disciplinary")	1413531
#2	(exp Models, Theoretical/) OR (model* or vision or theory or theories or approach*)	5475759
#3	(adolescent medicine/ or exp pediatrics/) OR (adolescent/ or exp child/ or child, preschool/ or infant/ or infant, newborn/) OR (child* or baby or infan* or babies or adolescen* or teenage* or kids or "young adult*" or pediatric* or paediatric*)	4445639
#4	(ambulatory or outpatient*) OR (exp Ambulatory Care/) OR (exp Ambulatory Care Information Systems/) OR (exp Ambulatory Care Facilities/) OR (exp Outpatients/)	320225
#5	#1 AND #2 AND # AND #4	2682
No limits applied.		

Appendix III: Data Extraction Instrument

Author	Year	Country of origin	Aim/ Purpose	Population	Setting	Method	Model of care/ Service delivery definition	Characteristics of model of care/Service delivery	Outcome measures	Key findings	Implications	Barriers and enablers

Appendix IV: Examples of How the Results Will be Presented

Table 1. Characteristics of the Study[21]

Parameter	Results
Numbers of publications	Total number of sources of evidence by year
Country of origin	Total number of publications per country of origin
Type of studies	1. Randomized controlled trials 2. Non-randomized controlled trials 3. Quasi-experimental studies 4. Before-and-after studies 5. Prospective cohort studies 6. Retrospective cohort studies 7. Case-control studies 8. Cross-sectional studies 9. Other quantitative studies 10. Qualitative studies
Population/s identified	1. Studies concerning children will be characterized by illness presentation 2.Parent/s and/or caregivers 3. Health care professionals 4. Not applicable 5. Services 6. Others (not classified in any of the above)
Setting	Sorted by settings described in the included studies
Model of care/Service delivery definition	Sorted by model of care/service delivery defined in the included studies

Table 2. Barriers/Enablers of Ambulatory Care – Mapped Based on Theoretical Domains Framework[24–26]

1. Knowledge	Knowledge (including knowledge of condition/scientific rationale)
	Procedural knowledge
	Knowledge of task environment
2. Skills	Skills
	Skills development
	Competence
	Ability
	Interpersonal skills
	Practice
	Skill assessment
3. Social/professional role and identity	Professional identity
	Professional role
	Social identity
	Identity
	Professional boundaries
	Professional confidence
	Group identity
	Leadership
	Organisational commitment
4. Beliefs about capabilities	Self-confidence
	Perceived competence
	Self-efficacy
	Perceived behavioural control
	Beliefs
	Self-esteem

	Empowerment
	Professional confidence
5. Optimism	Optimism
	Pessimism
	Unrealistic optimism
	Identity
6. Beliefs about consequences	Beliefs
	Outcome expectancies
	Characteristics of outcome expectancies
	Anticipated regret
	Consequences
7. Reinforcement	Rewards (proximal/distal, valued/not valued, probable/improbable)
	Incentives
	Punishment
	Consequents
	Reinforcement
	Contingencies
	Sanctions
8. Intentions	Stability of intentions
	Stages of change model
	Transtheoretical model and stages of change
9. Goals	Goals (distal/proximal)
	Goal priority
	Goal/target setting
	Goals (autonomous/controlled)
	Action planning
	Implementation intention
10. Memory, attention and decision processes	Memory
	Attention
	Attention control
	Decision making
	Cognitive overload/tiredness
11. Environmental context and resources	Environmental stressors
	Resources/material resources
	Organisational culture/climate
	Salient events/critical incidents
	Person x environment interaction
	Barriers and facilitators
12. Social influences	Social pressure
	Social norms
	Group conformity
	Social comparisons
	Group norms
	Social support
	Power
	Intergroup conflict
	Alienation
	Group identity
	Modeling
13. Emotion	Fear
	Anxiety
	Affect
	Stress
	Depression
	Positive/negative affect

	Burn-out
14. Behavioural regulation	Self-monitoring
	Breaking habit
	Action planning