

1-1-2022

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Recommended Citation

Mathias, Edlin Glane Ms (2022) "Economic burden of hospitalization on parents of children inpatient for surgery: A systematic review protocol," *Manipal Journal of Nursing and Health Sciences*: Vol. 8: Iss. 1, . DOI: <https://doi.org/10.55889/2582-7979.1240>

Available at: <https://impressions.manipal.edu/mjnhs/vol8/iss1/10>

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Economic burden of hospitalization on parents of children inpatient for surgery: A systematic review protocol

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Abstract

Introduction: Hospitalization and surgery are stressful periods for the family. Families of children undergoing surgery are facing the financial burden of direct and indirect costs. **Objective:** To systematically analyse the available evidence on the economic burden of hospitalization among parents of children who underwent surgery. **Methods and analysis:** This systematic review protocol is developed based on “The Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols” (PRISMA-P) guidelines. A comprehensive electronic bibliographic search will be conducted in MEDLINE (Medical Literature Analysis and Retrieval System Online), CINAHL (Cumulative Index of Nursing and Allied Health Literature), ProQuest, Web of Science for full-text articles. The outcomes of this review will measure medical, non-medical and indirect costs related to hospitalization and surgery of the child. Consolidated Health Economic Evaluation Reporting Standards (CHEERS) and DRUMMOND checklist for economic evaluation quality assessment will be used. A quantitative synthesis of the data will be done to summarize the findings from the included studies. **Conclusion:** This systematic review protocol will guide in understanding the economic burden of hospitalization on parents of children inpatient for surgery. Escalating healthcare expenditures, knowing the health economics of child surgery is important for developing cost-cutting strategies and introducing beneficiary support programs.

Keywords: children, economic burden, parent, surgery.

Introduction

The hospitalization of the child is a source of anxiety, depression, and stress for the parents (Doupnik et al., 2017). The impact of a child’s illness on the family complicates paediatric treatment, as parents are expected to actively participate in their child’s care while in hospital, and a child’s admission includes the

entire family as parents balance jobs and other care commitments (Ziemba, 2017). Involvement of the family means that in addition to assessing the healthcare system’s resources, evaluating improvements in paediatric treatment must also consider the parents’ and families’ out-of-pocket expenses (Sneha et al., 2017). The medical and nonmedical costs are part of out-of-pocket costs (Sabermahani et al., 2021).

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Manuscript received: 25 September 2021

Revision accepted: 10 February 2022

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Medical out-of-pocket costs include fees for medical services, surgery, and medications (Adrion et al., 2016). Depending on healthcare funding and insurance arrangements, medical out-of-pocket expenditures, such as payments for medical services and drugs, will vary (Rice et al., 2018). Non-medical costs include direct travel and lodging fees, as well as indirect costs related to time away from work (Ibrahim et al., 2015). When a child is admitted to a specialised paediatric hospital that is far away from their family, these costs are amplified (Mumford et al., 2018).

How to cite this article: Mathias, E.G., Pai, M.S., Kumar, V., & Narayanakurup, D. (2022). Economic burden of hospitalization on parents of children inpatient for surgery: A systematic review protocol. *Manipal Journal of Nursing and Health Sciences*, 8 (1), 58-63.

Health insurance helps families to cope with the financial strains that can occur as a result of a family member's illness (Gracia, 2013). Even if the child has health insurance, the family will still be financially strained if the child is admitted to the hospital, because health insurance does not cover all medical expenditures, and the family will still be responsible for other expenses such as food and transportation (Burgdorf *et al.*, 2019).

Most of the studies focus on the economic burden of hospitalization on the family of children with depression (Lynch & Clarke, 2006; Petito *et al.*, 2020; Tanner *et al.*, 2019), autism (Liao & Li, 2019; Lavelle *et al.*, 2014; Roddy & O'Neill, 2018; Taneja *et al.*, 2017), hospitalized children, non-communicable diseases (Abuosi *et al.*, 2016), paediatric cancer (Warner *et al.*, 2015; Cohn *et al.*, 2003). Whereas through preliminary search, authors found that the economic burden of parents of children inpatient for surgery is given less importance and there are not sufficient data available to

understand it. This paper will identify and understand how this economic burden varies across different countries.

Objective

To systematically analyse the available evidence on the economic burden of hospitalization on parents of children who underwent surgery.

Review Question

- What is the economic burden of hospitalization on parents of children who underwent surgery?
- How the cost, associated with hospitalization, varies across different countries?

Methods

“The Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols” (PRISMA-P) guidelines [22] is followed in preparing this review protocol and has been registered in PROSPERO (CRD42021236500).

Criteria for inclusion of studies for this review

Table 1

Inclusion and Exclusion Criteria

Domain	Inclusion criteria	Exclusion criteria
Study design	Observational studies and qualitative studies include an element of cost collection.	Reviews, editorials, comments, and methodological articles.
Population	Parents, caregivers, a family whose child is inpatient for surgery.	Studies that do not include parents and caregivers.
Outcome	The primary outcome of this study is the economic burden of hospitalization on parents of children who underwent surgery. The cost associated with hospitalization are: <ul style="list-style-type: none"> • In-patient visits, physician visits, nursing care, respiratory therapist, medicine charges, drugs, equipment, investigations, procedures (laboratory, imaging) surgery (minor and major), postoperative care. • Out-of-pocket expenses (a cost that is not covered by medical insurance and needs to be paid by the parents). • Indirect costs (Number of hours/days of work lost by the parents due to their child's hospitalization). The secondary objective is to understand how the cost burden associated with hospitalization varies across different countries.	Studies include the parent's economic burden on paediatric outpatient visits, utilities without the costs.
Setting	Published studies in the hospital setting and paediatric surgical units will be considered.	Studies that include clinics and outpatient units.
Time of publication	Full-text articles published between January 2008-May 2021.	Studies that do not include full text will be excluded.
Language	Studies published in the English language.	

Information sources

The following electronic databases will be searched to identify the relevant studies: MEDLINE (Medical Literature Analysis and Retrieval System Online), CINAHL (Cumulative Index of Nursing and Allied Health Literature), ProQuest, Web of Science for full-text articles. The search will be conducted by using the combination of Boolean operators “AND” and “OR”.

Search strategy

The search will be carried out in different databases such as MEDLINE, CINAHL, ProQuest, Web of Science for full-text articles. The search terms for identifying relevant study includes parent “OR” mother, father, caregiver, hospitalization, inpatient, surgery, inpatient cost, physician visit, nursing care, respiratory care, medicine charges, drugs, equipment, investigations, procedures, surgery, postoperative care, out-of-pocket expenses, indirect cost, economic burden and children. The search approach (e.g, MeSH) planned is a combination of free text, indexing terms, database-specific limitations, and database-specific subject headings/vocabulary. Experts will independently assess all search strategies developed for this review. The first stage will be to come up with a variety of search phrases for each of the three domains: Parents (Population), hospitalization & surgery (condition) and economic burden (Outcome). Within each domain, these search phrases will then be combined using the “OR” operator. The domains will then be joined together using the “AND” operator. Adjacency operators will also be used to limit the number of irrelevant records. As a final step, database filters will be applied for the country, English language, full-text articles, and year of the study to be included.

Data collection and management

Study selection

One review author (EM) will retrieve the studies from all the databases and import them to the excel sheet. To assist in the removal of duplicates, the results of the database searches will be integrated using an electronic reference manager. Also, the studies will be checked manually by two authors (EM & MSP) for any duplicates. Two review authors (EM & MSP) independently will screen the title and abstracts for checking the eligibility

of the studies. The full-text versions of relevant papers will be obtained and browsed for eligibility. Studies that meet inclusion criteria will be compiled. Any disagreements between the two reviewers will be resolved with discussion. Further discrepancies if any will be resolved by contacting the third reviewer (VK).

Data extraction

The data extraction will be conducted independently by two authors (EM & MSP) by screening titles and abstracts. The data will be entered into Microsoft Excel and will be reviewed by the third reviewer (VK). The data extraction form will be designed based on the “Consolidated Health Economic Evaluation Reporting Standards (CHEERS)” statement. The selected studies will be subject to full-text screening by applying the selection criteria. Reasons for exclusion will be documented in the program. Reference lists of the included studies will be hand-screened for potential. Any disagreements between the two reviewers will be resolved with discussion. Further discrepancies if any will be resolved by contacting the third reviewer (VK).

Assessment of risk of bias

The risk of bias in included studies will be independently assessed by two authors (EM & MSP) and reviewed by a third author (VK). A checklist that combines elements from the Consolidated Health Economic Evaluation Reporting Standards (CHEERS) (Husereau et al., 2013) and DRUMMOND checklist for economic evaluation quality assessment (Drummond et al., 2005) will be used. Each study will be assessed by two reviewers and a score of 0 = not reported, 1 = not clear, or 2 = reported (or NA if not applicable) will be given for each study.

Quality assessment of qualitative studies will be assessed using JBI (Joanna Briggs Institute (JBI) critical appraisal tool.

Data analysis and synthesis

Individual study data will be used and quantitative synthesis is planned. Based on the recommendation of the Cochrane Collaboration when studies provided sufficient methodological information, data related to the cost will be converted to a common currency and year using a cost converter tool provided by the

Campbell and Cochrane Economics Methods Group and the Evidence for Policy and Practice Information and Co-ordinating Centre.

Presentation and reporting of the results

The results of this review will be presented through a PRISMA flow diagram and a table with describes the characteristics of included studies.

Dissemination

The results of this review will be disseminated through conference presentations and publications in peer-reviewed journals.

Discussion

This review will guide in understanding the economic burden of hospitalization on parents of children inpatient for surgery. Children who underwent surgery require an adequate amount of medical and surgical treatments to deliver appropriate care for their illness (Romley *et al.*, 2013). Families of those children who are undergoing surgery are faced with the financial burden of direct and indirect costs (Platt *et al.*, 2021). The cost of treatment differs based on the type of illness and surgery for which the child was operated (Phull *et al.*, 2021). Also, the cost is related to the preoperative condition of the child and the length of hospital stay (Raj *et al.*, 2015).

It is still a struggle in India to provide high-quality care at a price that is affordable to the majority of families (Mohanani *et al.*, 2016). In most cases, the overall financial burden faced by parents of children undergoing surgery is unknown, and it has not been investigated in resource-constrained circumstances (Mohanani *et al.*, 2016). Also, most families with a child undergoing surgery appear to have insufficient financial help from the community (David Vainberg *et al.*, 2019). For all stakeholders involved in paediatric surgery to make comprehensive decisions at the individual, societal, regional, and national levels, evidence from health economics studies is critical. In this era of escalating healthcare expenditures, knowing the health economics of child's surgery is important for developing cost-cutting strategies and introducing beneficiary support programmes. To the best of our knowledge, this is the first review to look into the economic burden faced by

parents of children who are hospitalised for surgery. The limitation of this review is excluding grey literature and non-English language articles.

Conclusion

This review will fill the gap in identifying the economic burden of hospitalization on parents of children who underwent surgery and will also understand how the cost, associated with hospitalization, varies across different countries. Also, this review will guide the stakeholders to identify the financial difficulties faced by the parents hospitalized for surgery.

Source of support: None

Conflict of interest: None declared

Source of support in the form of grants: None

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