INTERDISCIPLINARY BEDSIDE ROUNDS AND ITS IMPACT ON HOSPITAL LENGTH OF STAY

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Abstract

Introduction: Health-care services has developed towards patient-centered care (PCC). Currently, cases of the prolonged length of stay in hospital arises due to the lack of holistic approach. This study aims to analyze the role of IBR (interdisciplinary bedside rounds) implementation and its impact on hospital LOS (length of stay).
Methods: This scoping review was adapting the PICOS framework and reporting guidelines by Prisma. Google scholar, PubMed, Cochrane, and Embase were systematically searched for key IBR words and concepts from 2019. Eligibility of the study uses inclusion and exclusion criteria. Seven articles met inclusion criteria and underwent data abstraction.
Results: IBR implementation was able to decrease LOS as it empowers communication between interprofessional teams and patients/families during rounds and improves patient outcomes. However, it was still debated as IBR's implementatios were found innefective due to multiple confounding factors including elderly patient with acute illness combined with comorbidities of dementia, delirium, and gap of language barrier as the external factors, and the team readiness as the internal factors.
Discussion: This scoping review highlights IBR's impact on reducing the LOS and the need for further studies which considers the confounding factors.

Keywords: Interdisciplinary bedside rounds, length of stay, scoping review

Abstrak

Latar Belakang: *Pelayanan kesehatan telah berkembang menuju pelayanan yang berpusat pada pasien. Saat ini, telah terjadi peningkatan lama rawat inap di rumah sakit akibat kurangnya pendekatan holistik. Studi ini bertujuan untuk menganalisa peran dari penerapan IBR (ronde bedside interdisipliner) dan dampaknya terhadap LOS (lama rawat inap) di rumah sakit.*
Metode: *Reviu cakupan ini mengadaptasi kerangka kerja PICOS dan pedoman pelaporan Prisma. Google scholar, PubMed, Cochrane, dan Embase ditelusuri secara sistematik untuk kata kunci dan konsep IBR sejak 2019. Eligibilitas studi menggunakan kriteria inklusi dan eksklusi. Tujuh artikel memenuhi kriteria inklusi dan ekstraksi data.*
Hasil: *Implementasi IBR mampu menurunkan LOS oleh karena meningkatkan komunikasi antar tim interprofesional dan pasien/keluarga saat ronde dan memaksimalkan hasil perawatan pasien. Namun, efektifitas IBR masih diperdebatkan karena karena adanya faktor penyulit yakni pasien lanjut usia dengan penyakit akut dikombinasikan dengan komorbiditas demensia, delirium, dan keterbatasan Bahasa sebagai faktor eksternal, dan kesiapan tim sebagai faktor internal.*
Diskusi: *Reviu cakupan ini menegaskan dampak IBR dalam menurunkan LOS dan dibutuhkannya studi lanjutan yang mempertimbangkan faktor penyulit.*

Kata kunci*: Lama Rawat Inap, Reviu cakupan, Ronde bediside interdisipliner*

Introduction

Through several decades, health-care services' point of view in a hospital setting throughout the world has changed (Edgman-Levitan and Schoenbaum, 2021a). It was once started from a paternalistic health care models (Hobden *et al.*, 2022), which does not enable the patients' individual needs or choices to be considered for in the decision-making process. Currently, it has turned into a model where the patient becomes the center of the treatment itself and treated by a well-organized health-care provider, called patient-centered care (PCC). It was proposed in the 1950s (Pilnick, 2023), and developed ever since the year of 1988 (Edgman-Levitan and Schoenbaum, 2021b) with the core concept of implementing shared decision making through patient autonomy (Grover *et al.*, 2022). As it was begun to be realized on how it could affect the quality of care, by allowing the patient to take part on how they are willing to be treated (concerning the patient's right). Thus, the mentioned-concept above, through giving the choices and participation, will enhance the patient's compliance which supports the effectiveness of the treatment (Ferla *et al.*, 2023). Moreover, that concept will also provide the patient a holistic treatment approach from multiple health professional's perspectives (Desideri, Montano and Sesti, 2024).

The proclaimed PCC concept has not been fully implemented yet (Ernawati and Lusiani, 2019). Several studies have shown, in chronic cases groups, where paternalistic health care models are still used instead of PCC's (Hobden *et al.*, 2022). On the other hand, prolonged length of stay at hospital becomes one of the findings which was highlighted, increased, and was suspected to be caused by the inability to implement the PCC itself (G/egziabher *et al.*, 2022; Belayneh *et al.*, 2023). Furthermore, even though a medical team composed of multiple specialists are working together, it can be fragmented and uncoordinated due to challenges such as imbalance of authority, limited understanding of other's roles and responsibilities (Myrhøj *et al.*, 2023). T They will only explain and elaborate based on their own expertise without trying to make a clear comprehensive plan of care to the patient (Lai *et al.*, 2021). Thus, clearly indicates that it has deviated from its core virtue, as it returns to the previous obsolete style of medical services which based-on physician-induced demand (Yu *et al.*, 2023). Although in certain complex cases, an occasional team meeting can be done to solve things, (Kotsougiani-Fischer *et al.*, 2021) it is still not representing the initial purpose of PCC itself. It is neither creating clear discharge planning nor preventive effort to avoid the prolonged length of stay for the patient as they're the core subject of the treatment in PCC (Kotsougiani-Fischer *et al.*, 2021). Consequently, the patient will often feel uncertain and doubtful as the team itself does not have the leader nor solid team in the very beginning of the treatment (Pilnick, 2023).

On the other hand, IBR's (interdisciplinary bedside rounds) method has already been implemented in the developed country to represent the implementation of PCC itself (Heip *et al.*, 2022). IBR is a rounding method which brings more than one kind of health professions (i.e. physicians, nurses, pharmacists) together with the purposes of which to interact with patients and their

families in order to give thorough information and collaborate with the medical team to ensure the patient plan of care (Blakeney *et al.*, 2021). This study will aim to critically appraise several scientific articles / papers which were done since 2019 with the purpose of becoming the pilot study to analyze the IBR's implementation and its impact on the quality of health services focused on the parameter of hospital average length of stay.

The literature which is used derives from the database of Pubmed, Embase, Cochrane Library, and Google Scholar with the topic of which is IBR. Their eligibility will be determined by inclusion and exclusion criteria. Furthermore, the quality of the paper's used method will be scored with PRISMA (*a preferred reporting item for systematic review and meta-analysis*) method.

Method

This is a scoping literature review study which collects and evaluates the previous studies/literatures on a specific topic (Mak and Thomas, 2022). Starting this study, it needs a clear specific research question or problem as mentioned at the introduction should IBR's implementation be a solution to shorten the LOS, and creates keywords based on it, connecting them with "OR" or "AND" at the advanced search windows on the preferred journals databases to find all of the potential studies which relate to the topic. The following terms, selected from the terminology developed from the Medical Subject Headings (MeSH) of the National Library of Medicine, and the keywords were used: *Interdisciplinary bedside rounds* (IBR), and Hospital length of stay (LOS).

Data Source

An electronic search without language restrictions was carried out in Google Scholar, PubMed, Cochrane, and Embase with a cut-off date in 2019 to avoid the selected-paper to be out of date or not being relevant to the current concern of the topic. Titles and abstracts of all search results were screened in order to exclude duplicates and irrelevant articles. Subsequently, the full texts of all potentially eligible articles were obtained and screened using the eligibility criteria.

Quality Assessment

In order to obtain a good systematic literature review, scooping review, or any primary studies, the quality assessment on this topic using preferred reporting items for systematic review and meta-analysis (PRISMA). The steps of which included identification, screening, eligibility, and the included clinical trials or cohort studies.

Eligibility Criteria

Inclusion criteria are including, 1) All study must be in the form of research paper, 2) Derives from the database (Cochrane, PubMed & Embase), 3) Categorize as open-access journal or the full text is available, and 4) The language which is used in each of the potential research paper are either in Bahasa or English, 5) The study type of participant are hospitals which have been implementing the IBR as part of the PCC and those who have not. Studies or trials that do not follow a systematic methodology, editorials, guidelines, and health technology assessments were not included in this study.

Table 1. Study Domain with PICOS

Components	Note
Problem	Prolonged Length of Stay (LOS)
Intervention	IBR
Comparison	Regular Ward Round
Outcomes	Length of stay (LOS)
Statistical analysis	Systematic Literature Review, Scooping Reviews, Any Primary Studies

Synthesis and Data Extraction

The following items were extracted from the included systematic literature review, scooping review, or any primary studies: author's name, year of publication, characteristics of the research's subject, types of intervention, comparators, outcomes, design of primary studies, main results, and conclusions.

Result and Discussion

A total of 49 potentially relevant articles were initially found by searching the online databases. After removing the duplicates, and screening of the titles and abstract, 9 papers were reviewed as full texts and passed the eligibility criteria. The PRISMA flow diagram is shown below. The main general characteristics, results, and conclusion of the included systematic literature review, scooping review, or any primary studies are all reported in the table below. The 49 papers decreased into 7 papers due to the exclusion criteria including the type of the research like systematic reviews, book chapters, and animal-based experiment type research.

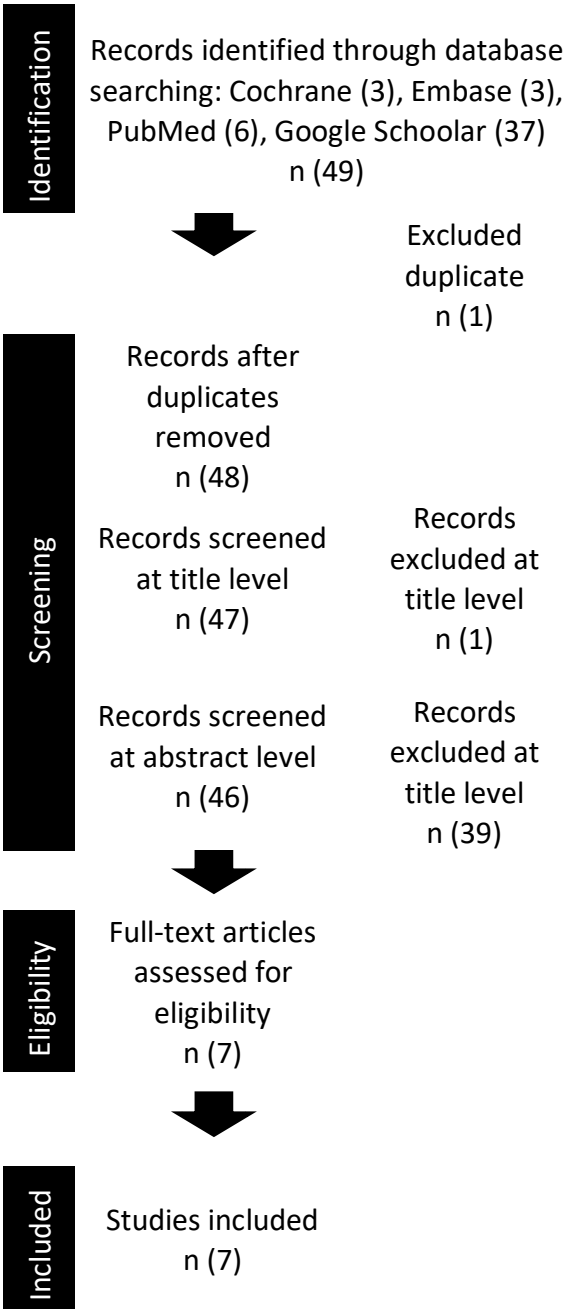

Figure 1. Study search and selection flow

There are 3 primary studies which consist of 1 cohort prospective study, 1 case control study, and 1 controlled-trials. There is no limitation on the research date which was purposely done by the writer to gain more data and prospectively see the development of the research regarding the current-researched topic. The other

studies used are 2 systematic reviews, 1 scooping reviews, and 1 literature review.

The 7 papers examined in the present study are all according to the requirement of participants, intervention, comparators, and outcomes of interest (PICO) approach for organizing research questions and inclusion criteria. Those 7 papers' samples are all patients who were admitted at the ward of hospital, treated with IBR method and the efficacy of which was determined by several parameters including the length of stay. The researcher limited the date of the study with 2019 as the least year to avoid any bias to the current needs and correlation with the topic.

IBR (Interdisciplinary Bedside Rounds) Design and Concept

From those 7 articles, IBR's definition is the rounds which are conducted by a nurse, physician, and at least one other discipline (e.g., pharmacist, social worker, dietician, etc) depends on the patient's/family's needs or requests (Heip *et al.*, 2022). IBR implementation can be done twice weekly, as proposed by Basic 2021, which will bring a rounding checklist to aid in structured patient presentation by the IBR's team (Basic *et al.*, 2021).

IBR implementation allows the medical staff involved to communicate efficiently to other professionals, the patient, and the patient's family as they will not repeat/double the visits as it will cause redundancy hence decreasing the patient's satisfaction. Moreover, with IBR's implementation, the medical team will become proactive on delivering the plan of care, hence will relieve anxiety and reduce the patient's efforts to seek for elaborated information (Heip *et al.*, 2022).

IBR also empowers the patient and their family by being well informed and able to express anxiety, to discuss the medicine/treatment, and to use a shared decision-making approach, contributing to patient participation and empowerment. Thus, patient-centered care is achieved, as they're also more satisfied with treatment coordination and updates, and also the discharge planning (Heip *et al.*, 2022). Other things which needs to be noted was the IBR implementation is also a way to show empathy and caring as an important element to address the emotional needs of patients as it will affect the clinical outcomes (Blakeney *et al.*, 2021).

IBR's Impact on Hospital Length of Stay

The intervention aspect of PICO at those 7 papers were clearly defining the IBR implementation than those who were not treated with the method. The outcome aspect of PICO was also shown in all of those 7 papers which showed the length of stay impact by doing the IBR. From 7 studies, the 3 primary studies and 1 systematic review, which were done in 2019 and 2022, stated that IBR implementation did not affect the length of stay. However, the latest reviews or studies which were done in 2022 – 2024 were all supporting the notion that IBR was able to shorten the LOS in the hospital's wards. There are several reasons why IBR able to decrease the hospital length of stay, includes 1) it encouraged patients and families to make fast decisions on home-care/treatment placement earlier than they would have without IBR as the medical team becoming the proactive agent of information, 2) IBR provides clarity as it

enhances and fosters the team understanding about the patient plan of care, the ability to address patient's anxiety, staff efficiency and patient safety, and staff perceptions of care quality (Heip *et al.*, 2022).

IBR implementation, as mentioned above, was able to decrease LOS as it empowers communication between interprofessional teams and patients/families during rounds and improves patient outcomes, however, it was still debated as LOS itself is determined by multiple factors which include organizational culture, bed availability, numbers and mix of staff, accessibility of subacute services, an individual patient's needs and cultures of the local population, not just IBR's alone (Ratelle *et al.*, 2019). A controlled trial study by Dunn in 2017, which was mentioned by Heip in 2022, stated that IBR did not has significant statistic value on reducing the LOS nor preventing the deterioration's process because at that time, during the research was done, there was lack of accountable care unit to implement IBR (Heip *et al.*, 2022). A Case controlled study by Hyunn in 2017 which was also mentioned by Heip in 2022, also stated that IBR did not has significant difference on reducing the LOS for the elderly with acute illness as dementia and delirium becoming the factors which made IBR failed to be delivered effectively (Heip *et al.*, 2022). Other study using prospective cohort design by Clay in 2018, which was mentioned by Heip in 2022, was also supporting those two's results as IBR could not affect the LOS due to the complexity/comorbidities of the elderly (Heip *et al.*, 2022). Other glitches which may inhibit the IBR implementation and also the limitation for the current issues are including, 1) inconsistency in the attendance by healthcare providers, and 2) hierarchical barriers, as these hierarchies often diminish effective and safe communication by the term of seniority in medical practices and degree or discrimination over the other professions (Heip *et al.*, 2022).

Through all of those gaps which were found, it could be divided into external and internal factors. The internal factors will be the patients itself as IBR's implementation could not effectively done due to language barrier gap, acute illness of the elderly with great case complexity or comorbidities, and the external factors of which was the team readiness itself to run the IBR's. Hence, further elaborated primary research needs to be done but with great consideration to those factors mentioned above.

Table 2. Included research

First Author, Year	Participant	Intervention & Comparison	Outcomes	Study Design
Huynh et al inside Heip 2022	3644 hospitalization patients in 12 months	Twice weekly SIBR implementation and compared to the other ward which contains	There was no significant difference in the median (interquartile	Case Control

		1682 patients whom were not treated with SIBR.	range) LOS before and during SIBR (8 (5–15) compared to the control group 8 (4–15) days respectively; **P = 0.51).** The multivariate analysis, implementation of SIBR had no significant effect on Length of Stay. The effect of SIBR on LOS was not modified by dementia, delirium or the ability to speak English hence there was no language-barrier.	
Clay inside Heip 2022	11.007 hospitalization patients in 12 months	SIBR implementation and compared to the other ward which was not treated with SIBR	There was no statistically significant difference **(p value 0.31)** between the intervention and control wards in the change in LOS over time	Prospective Cohort
Dunn inside Heipp 2022	2005 hospitalization patient in 12 months	A bedside model (mobile interdisciplinary care rounds [MICRO]) was developed. MICRO featured a defined structure, scripting, patient engagement, and	Bedside IDR did not reduce overall LOS or clinical deterioration **(p value 0.17)**.	Controlled-Trial

		a patient safety checklist.		
Ratelle inside Heip, 2022	29 articles used (8 RCT & 21 Cohort)	IBR compared to non-IBR based treatment at the ward	BR have demonstrated limited effect on patient-centred outcomes, able to reduce LOS.	Systematic Review
Blakeney, 2021	79 articles used (53 Quantitative non randomized, 6 mixed method, qualitative 5, RCT 3, quantitative descriptive 2, Uncategorized 10)	IBR compared to non-IBR based treatment at the ward	majority of studies reported positive impacts of IBR implementation across an array of team, patient, and care quality/delivery outcomes.	Scoping Review
Srinivas, 2024	5 articles used (3 prospective cohort, 1 retrospective cohort, and 1 qualitative)	MDR compared to non-IBR based treatment at the ward	MDRs have evolved to reduce patient mortality, complications, length of stay, and readmissions, and they enhance patient satisfaction and utilization of ancillary services.	Literature Review
Heip, 2022	32 articles used (4 cross sectional, 3 RCT, 1 controlled trial, 1 Prospective quasi-experimental controlled study, 7	IBR implementation at ward	IBR reduced the length of stay and cost of care.	Systematic Review

	descriptive, 2 pre-post study, 2 prospective cohort, 1 prospective-retrospective study, 2 retrospective study, 1 systematic review, 5 observational studies, 1 mix method, 1 case study, 1 case-controlled)	

Conclusion

This scoping review highlights the impact of IBR on reducing the LOS and the need for further studies of IBR's implementation which focused on decreasing the LOS. Although the impact on LOS was still being debated, it needs more elaborated primary study which hopefully considers the confounding factors as mentioned by this review, to prove on whether IBR has the ability to decrease LOS as part of the PCC in healthcare delivery system.

Abbreviations

PCC: Patient-centered care; IBR: Interdisciplinary Bedside Rounds; LOS: Length of Stay; PICOS: Problem, Intervention, Comparison, Outcomes, and Statistical analysis.

Declarations

Ethics Approval and Consent Participant

Not applicable.

Conflict of Interest

The authors declare that there is no significant competing financial, professional, or personal interests that might have affected the review's result.

Availability of Data and Materials

Data and material research can be provided at Cochrane, Google Scholar, PubMed & Embase.

Authors' Contribution

Developed study's concept and methodology (IYY, AN, DA); review and evaluate (AN, DA); wrote and created original manuscript draft (IYY).

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