

Communication, Shared Decision-making and Goals of Care in the ICU through Electronic Health Records: A Scoping Review

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ABSTRACT

Introduction: The care of critically ill patients involves communication and shared decision-making with families and determination of goals of care. Analyzing these aspects through electronic health records (EHRs) can support research in ICUs, associating them with outcomes. This review aims to explore studies that examine these topics.

Methods: A scoping review was conducted through a systematic literature search of articles in PubMed, Web of Science, and Embase databases using MESH terms up to 2024, conducted in ICU settings, focusing on communication with families, shared decision-making, goals, and end-of-life care.

Results: A total of 10 articles were included, divided into themes: Records and family, and records in quality improvement projects. Variables based on records with common characteristics were identified. Outcome analysis was performed through questionnaires to family members, healthcare professionals or by analyzing care processes. The studies revealed associations between family members' perceptions and mental health symptoms and documented elements such as communication, therapeutic limitations, social and spiritual support. Studies evaluating quality communication improvement projects did not show significant impact on documented care, except for those that assessed improvements based on palliative care.

Conclusion: The analysis of documented care for critically ill patients can be conducted from various perspectives. Processes amenable to improvement, such as communication with family members, definition of goals of care, limitations, shared decision-making, evaluated through EHRs, are associated with mental health symptoms and perceptions of families of critically ill patients. Documentation-based studies can contribute to improvements in patient- and family-centered care in the ICU.

Keywords: Electronic health record, End of life care, Intensive care unit, Quality indicators, Shared decision making, Scoping review.

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HIGHLIGHTS

Studies based on electronic health records (EHRs) in ICUs are crucial for enhancing patient care. Research into communication, shared decision-making, and end-of-life care underscores their significant impact on critical care patient and family outcomes.

INTRODUCTION

Extensive knowledge and technological advancements in critical illness care can ensure survival, enabling recovery to a life with quality, but they also have the potential to result in prolonged suffering, functional, and psychological difficulties until the end of life. The meaning of intolerable suffering or acceptable quality of life and its nuances is based on personal values, and family members often play an important role as spokespersons for ICU patients.¹ Thus, patient- and family-centered care in intensive care settings involves quality communication, considering these individuals as essential for decisions about therapeutic planning.²⁻⁴

Decision-making in healthcare involves the development of goals of care, characterized by the creation of a comprehensive treatment plan that considers the patients' values and priorities within the clinical context. These goals are used to guide the use or limitation of certain medical interventions.⁵ Therefore, it is recommended that doctors and patients or their families make decisions using shared decision-making processes, especially when there is a risk of treatments considered potentially inappropriate

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or futile, situations closely related to end-of-life and palliative care principles.^{6,7} Shared decision-making is a collaborative process in which patients or their families and healthcare professionals, work together to make choices related to medical care. It incorporates scientific evidence while considering the patient's unique values, goals, and preferences.⁸

Documenting communication in EHRs involving aspects of shared decision-making, therapeutic goals and end-of-life care is considered an important element for adequate patient and

(Decision making[mh] OR Patient care planning[mh] OR Professional-family relations[mh] OR Health communication[mh] OR Terminal care[mh] OR Patient care plan*[tiab] OR Shared decision mak*[tiab] OR Decision mak*[tiab] OR Goals of care[tiab] OR Credit assignment[tiab] OR Health communication[tiab] OR Professional family relation [tiab] OR End of life care[tiab] OR Terminal care[tiab] OR Palliative care[mh] OR Palliative care[tiab] OR Palliative treatment*[tiab] OR Palliative therapy[tiab] OR Palliative supportive care[tiab] OR Palliative surgery[tiab])	And	(Intensive care units[mh] OR Intensive care unit*[tiab] OR ICU[tiab] OR Critical care unit[tiab] OR Intensive care[tiab])	And	(Electronic health records[mh] OR Electronic health record*[tiab] OR Computerized medical record*[tiab] OR Electronic health record*[tiab] OR Electronic health record data*[tiab] OR Electronic medical record*[tiab] OR Quality indicators, health care[mh] OR Quality indicator*[tiab] OR Healthcare quality indicator*[tiab] OR Health metric*[tiab] OR Healthcare global trigger tool[tiab])
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Fig. 1: Search strategy conducted on PubMed
 Source: Developed by the authors

family care.^{4,9-14} Documenting these elements in medical records is essential to facilitate the exchange of information between care teams and maintain continuity of care, potentially generating cognitive alerts to optimize communication between doctors and families of critically ill patients.^{15,16} Electronic health records allow for a longitudinal view of patient care, and this documentation, despite its limitations, can be reviewed and audited to assess the care provided.¹⁷⁻²⁰ The use of strategies involving the study of records and potential improvements in documenting goals of care, shared decision-making, and end-of-life care for patients and their families can lead to a better understanding of these aspects in healthcare and its quality.²¹⁻²³

Healthcare analyzed from electronic records can support various studies on the care of critically ill patients, including associations between documentation and outcomes for those involved in care, contributing to greater scientific rigor in this form of research. Additionally, records can be integral elements of quality improvement processes, including indicators designed to measure and evaluate the impact of these projects. Therefore, this review aims to explore studies focusing on the analysis of EHRs regarding elements related to communication with families in ICU settings about the determination of goals of care, shared decision-making, end-of-life care, and their associations with different outcomes.

METHODS

Given the stage of this research field, with studies employing methodologically different approaches, a scoping review of the literature was conducted to map, gather, and analyze methods and approaches related to the topic.²⁴ A scoping review is a tool used to assess the extent or breadth of a body of literature on a specific topic and to provide an indication of available studies as well as an overview of their focus. The PCC strategy (P = population, C = concept, C = context) was used.²⁵ For this study, P = patients and their families or care processes; C = electronic records regarding communication with families, shared decision-making, goals of care, and end-of-life; C = Intensive Care Units. The guiding question sought to answer was: What are the possible associations between records related to communication with families in the ICU setting

regarding the determination of goals of care, shared decision-making, end-of-life care, and different outcomes involving critically ill patients and their families?

A search was conducted in the PubMed, Web of Science, and Embase Ovid databases. The terms used were shared decision making, goals of care, end of life care, palliative care, intensive care, EHR, quality indicators, and similar terms. The search strategy used for PubMed is described in Figure 1. The search was also carried out by analyzing the reference lists of the articles selected for this review. Articles compatible with the guiding question, available in Portuguese and English up to March 10, 2024, were included. Studies that did not involve record analysis, did not evaluate associations with outcomes, were outside the ICU setting, had only a qualitative focus, were on pediatric populations, were review or theoretical articles, lacked full-text availability, or did not answer the guiding question were excluded. The Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for Scoping Reviews (PRISMA-ScR) methodology was used.²⁶ Two researchers analyzed the articles selected from the initial search by reading the titles and abstracts. Considering the inclusion and exclusion criteria, pre-selected studies were read in full and those that related to the guiding question were selected. The studies were organized in a spreadsheet containing their main characteristics, summarized in Table 1.

RESULTS

From the database search, 1,423 articles were found. Of these, 267 were duplicates, leaving 1,156 articles to be screened. Based on the reading of titles and abstracts, 1,140 articles were excluded, leaving 16 studies to be pre-selected and read in full. Of these, 8 articles were excluded (two articles did not evaluate EHRs concerning the central themes of this review, five articles did not analyze outcomes, one article was excluded because it did not occur in an ICU but in a post-ICU respiratory care unit), resulting in eight articles selected for this review. From a thorough analysis of the reference lists of these selected articles, two additional studies were included according to the outlined inclusion and exclusion criteria. Therefore, 10 studies were included in this review, whose content relates to the guiding objectives of this review as presented in Figure 2.



The studies were primarily conducted in north American ICUs (8 out of 10 studies),²⁷⁻³⁴ and two studies took place in ICUs in Taiwan.^{35,36} The articles selected in this literature review were identified from the year 2008 onwards. Descriptive analyses for the

studies included in the review and their results are presented in Table 1, which outlines the characteristics of the studies, including the variables related to EHRs used and the different outcomes evaluated. Using a descriptive and qualitative approach, studies

Table 1: Characteristics of the included studies

<i>Author, year, Location</i>	<i>Objectives</i>	<i>Electronic health records</i>	<i>Evaluated outcomes</i>
<i>Records and family</i>			
Gries et al. 2008, EUA ²⁷	Identify records associated with greater family satisfaction with decision-making in the ICU. N = 356	Family conference, prognosis discussed, withdrawal of support recommended, family's desire to withdraw support, patient's wishes, spiritual care, family discord, Do not resuscitate (DNR) order, death with life support, withdrawal of support, cardiopulmonary resuscitation, palliative care consultation, social services, spiritual care	Family satisfaction through the subscale of the Family satisfaction ICU questionnaire – Decision Making (FS ICU DM) questionnaire and the question "Did you feel supported during the decision-making process in the ICU?" (FS-Support)
Glavan et al. 2008, EUA ²⁸	Identify quality markers of end-of-life care from records associated with the dying experience in the ICU. N = 340	Living will, healthcare proxy, family's and/or patient's desire to withdraw support, patient's opinions, family present at the time of death, family conference within the first or last 72 hours, prognosis, physician's recommendation and recommendation to withdraw life support, family disagreement, social support, spiritual care, DNR order, comfort care orders, death with full support, presence of pain, shortness of breath, agitation, anxiety, confusion, resuscitation within the last 24 hours and/or last hour, orders to withdraw tube feeding, parenteral nutrition, fluid therapy, and vasopressor	Family perception through the quality of dying and death (QODD-22) questionnaire and the question: "How would you rate the quality of your loved one's death?" (QODD-1)
Kross et al. 2011, EUA ²⁹	Identify patient characteristics and care factors that may be risk factors for post-traumatic stress disorder (PTSD) and depression in family members of patients who died in the ICU. N = 226	Family presence at death, family conferences within the first 72 hours, social support, palliative extubation, DNR order, symptom assessment in the last 24 hours of life, involvement of spiritual care, death following a decision to withdraw or not initiate life-sustaining therapies, death without cardiopulmonary resuscitation, withdrawal of mechanical ventilation, and palliative care consultation	The PTSD symptoms assessed using the PTSD Checklist Civilian Version questionnaire (PCL) and depression assessed using the patient health questionnaire (PHQ)-8
Mularski et al. 2016, EUA ³⁰	Measure the provision of palliative care to ICU patients, assess perspectives of family members and nursing staff on the quality of palliative care provided, analyze associations among the three perspectives. N = 150	Spiritual support offered, medications prescribed for palliative use, dyspnea and pain in the first and last 48 hours, psychosocial support, transfer of key information upon ICU discharge, interdisciplinary conference with the family, physician communication with the family, care goals, presence, and content of advance directives, identification of a responsible family member, assessment of patient's decision-making capacity	Family satisfaction assessed with the family satisfaction ICU questionnaire, nursing perspective assessed with the Nurses' Quantification of Their Contributions to Quality Palliative Care (NQCQPC), and EHRs
Tang et al. 2021, Taiwan ³⁵	Evaluate the course and predictors derived from records on symptoms of post-traumatic stress in family members of patients who died in the ICU. N = 319	Prognosis communication, family meetings, palliative care follow-up, social services, DNR, death without resuscitation, withdrawal of life support, family presence at death	Post-traumatic stress symptoms assessed by the impact of event scale-revised questionnaire (IES-R)
Chou et al. 2022, Taiwan ³⁶	Evaluate associations between family satisfaction and quality care indicators derived from records. N = 278	Prognosis communication, family meetings, palliative care follow-up, social services, DNR, death without resuscitation, withdrawal of life support, family presence at death	Family satisfaction assessed through the family satisfaction ICU 24 questionnaire

(Contd...)

Table 1: (Contd...)

Author, year, Location.	Objectives	Electronic health records	Evaluated outcomes
<i>Records in quality improvement projects</i>			
Kodali et al. 2015, EUA ³¹	Evaluate the implementation of the "Family Communication Pathway" intervention in the ICU, with tools integrated into the medical records to promote best practices and the occurrence of multidisciplinary family conferences	Checklist for the "Family Communication Pathway": Patient decision-making capacity assessment, designated family contact person and contact information, advance care directives, physician communication with the family, daily communication updates, care goals discussion, interdisciplinary conference, psychosocial support, spiritual support for family members, pain, and dyspnea assessment	Family satisfaction measured by the family satisfaction ICU24 questionnaire, family conference completion, checklist compliance
Sona et al. 2020, EUA ³⁴	Describe the implementation of a quality improvement project on family communication, including the introduction of a "Family Discussion Note" for medical records, and analyze its impact on family meeting occurrence and the perception of both families and ICU staff	"Family discussion note": Individuals present at the meeting with family, treatment goals, palliative care team assessment, topics discussed, meeting outcomes, need for follow-up meeting, therapeutic goals update	Family satisfaction measured by the family satisfaction ICU questionnaire, ICU professionals' questionnaire through the patient- and family-centered care self-assessment inventory. Analysis of compliance with the family discussion note
Cralley et al. 2022, EUA ³²	Evaluate the impact of an improvement project involving resident training and the creation of a specific record in the medical chart – Advanced Care Planning Note "ACP Note"	"ACP Note": Desired level of recovery, designated family contact person, legal documentation, and resuscitation preference	Rate of identification of surrogate decision makers, utilization rate of the ACP note, palliative care consultations, and time to identify the designated family contact person after ICU admission
Mehta et al. 2023, EUA ³³	Describe the introduction of an integrated palliative care team in the ICU. Analyze and compare records and outcomes of ICU-admitted patients who received palliative care consultation vs those managed by the integrated team.	Documentation of surrogate decision makers, record, care goals, family meetings, patient values, and preferences.	Medical records documentation, ICU mortality, and post-hospital discharge outcomes.

Source: Developed by the authors

were grouped based on common characteristics aligned with the research questions. A thematic analysis was conducted, resulting in two general themes (Fig. 3): (1) Records and Family: Studies containing analysis of EHRs associated with outcomes in critical care patients' families and (2) Records in Quality Improvement Projects: Studies on the use of EHRs in quality improvement projects in the ICU, including outcome analysis.

Records and Family

In this group, studies that addressed the analysis of medical records and their associations with outcomes in family members, as well as in other related individuals such as healthcare professionals, were included based on their thematic focus. The studies, all of which were cohort studies, were subdivided into those focused on analyzing the perception of family members or symptoms of mental health in family members.

Perception of Family Members or Healthcare Team

These studies analyzed the perception of family members using the family satisfaction ICU (FS ICU) questionnaire and the quality of dying and death (QODD) questionnaire.^{27,28,30,36} The authors sought associations with records indicating elements of communication about goals of care or end-of-life care. The studies used variables from medical records considered elements of quality care as research variables.

Chou et al.,³⁶ among other findings, identified that there was a perception of greater family satisfaction through FS ICU subscales when there was a record of communication with the family about the patient's prognosis, documentation of social service participation, determination of non-resuscitation, and recording of life support withdrawal before death. These authors suggest that discussions between the medical team and families of critical patients, including prognosis, end-of-life care, risk and benefit of

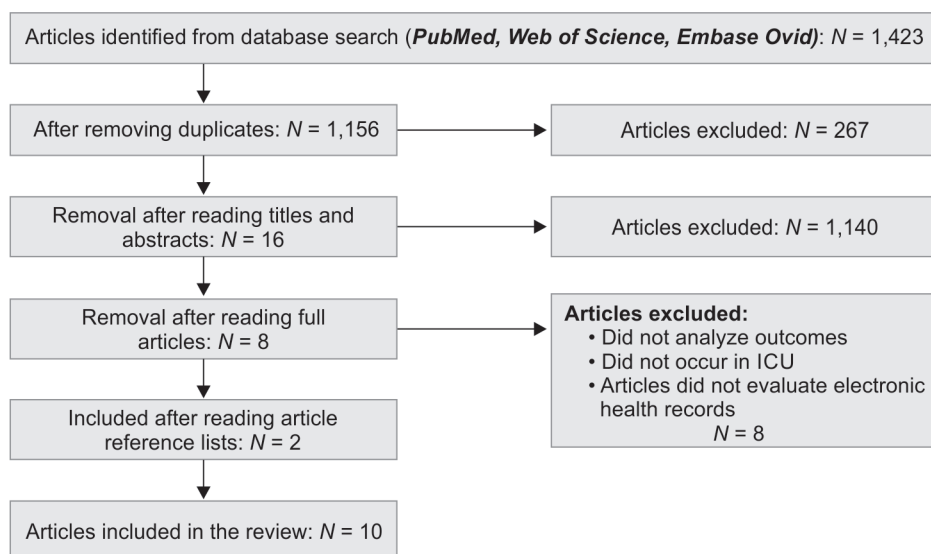


Fig. 2: PRISMA flow diagram
 PRISMA, Preferred Reporting Items for Systematic Reviews and Meta-Analyses
 Source: Developed by the author

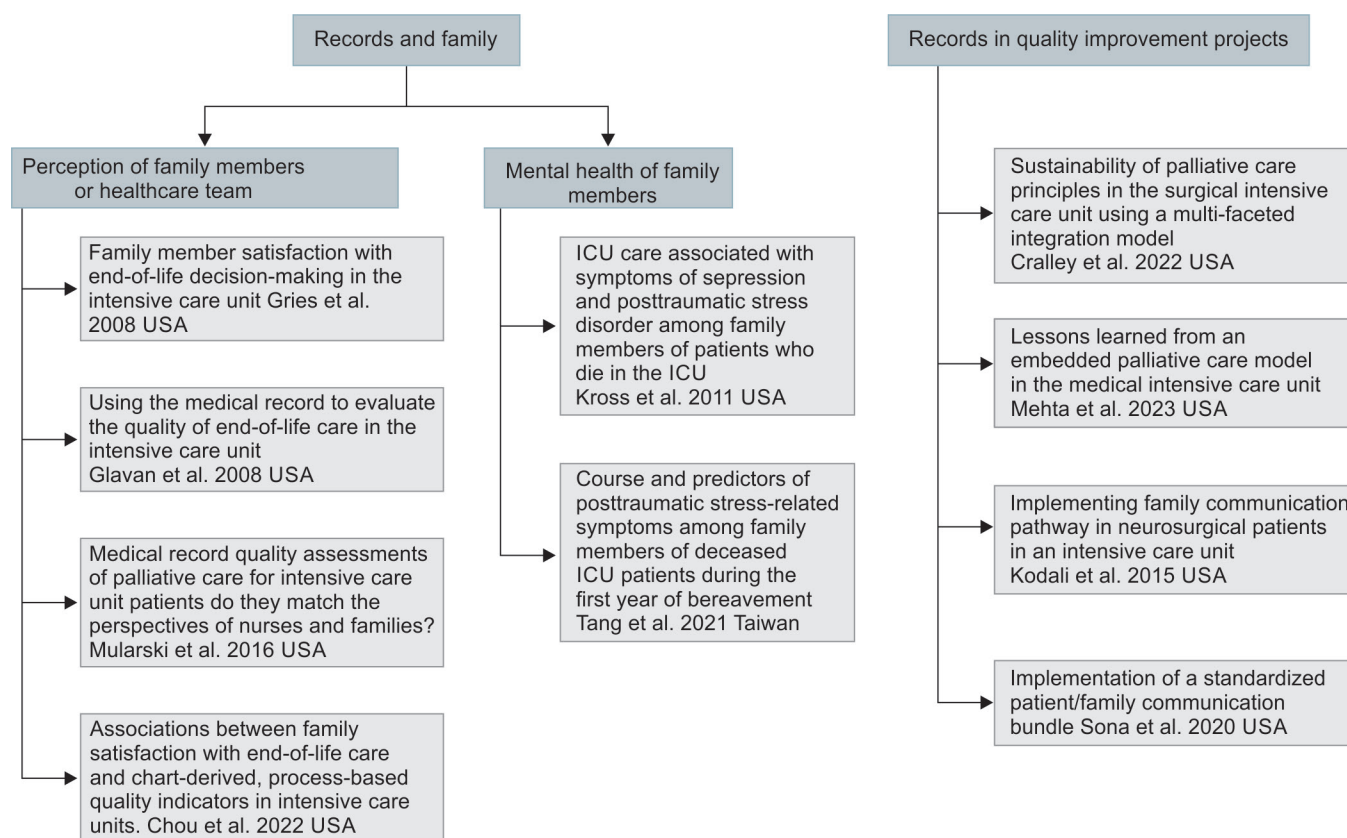


Fig. 3: Selected studies divided into themes
 Source: Developed by the authors

interventions, respect for patient wishes, among others, may be related to this perception, and that social service support may maximize family satisfaction.

Based on end-of-life care markers derived from medical record reviews, associations with family perception through FS ICU and

QODD were evaluated.^{27,28} Each of these studies, conducted in the same centers – ICUs of 10 north American hospitals – analyzed more than 300 medical records primarily of patients who died and subsequently administered questionnaires to their families. Gries et al. found associations between family satisfaction and

documentation of elements of communication between the medical team and family, including medical recommendations regarding withdrawal of life support, discussion of patient end-of-life wishes during family conference, and spiritual needs of family members.²⁷ These findings signal that improving communication strategies may be related to greater family satisfaction. Glavan et al. on the other hand, when analyzing medical record documentation and relating it to family members' impressions of the dying experience, identified that documentation of patient wishes is associated with better perceived quality through higher scores on the QODD questionnaire.²⁸ These findings suggest positive effects of end-of-life care planning among these patients, their families, and the ICU team.

Mularski et al. triangulated the occurrence of 14 elements of quality care based on records through retrospective analysis, family perceptions from the FS ICU questionnaire, and impressions of care provided from the perspective of nurses directly involved in patient care in the ICU.³⁰ Significant differences were identified regarding records and perceptions of the different actors involved, with both family and nurse perspectives resulting in higher care ratings than medical record review and not being associated with recorded medical care. This study concludes that the lack of correlation between the perspectives suggests that comprehensive care assessments require data from both objective medical record audits and external observers, such as the family of the ICU patient and healthcare professionals and play a fundamental role in quality improvement.

Mental Health of Family Members

In this group, two studies were identified that analyzed medical record documentation and associated it with mental health symptoms family members of patients who were in the ICU. The scales used for post-traumatic stress were the Impact of Event Scale-Revised (IES-R) and the PTSD Checklist Civilian Version (PCL), while symptoms of depression were assessed using The Patient Health Questionnaire (PHQ-8).^{29,35} In their study, Tang et al. observed that the occurrence "do not resuscitate" order was associated with a lower incidence of post-traumatic stress symptoms in family members.³⁵ From this finding, they propose that communication with families about avoiding futile therapies and subsequent documentation in medical records may protect family members from mental health symptoms after a potentially traumatic loss.

In addition to evaluating post-traumatic stress symptoms, Kross et al. sought to identify symptoms of depression and post-traumatic stress through interviews conducted with family members months after their death.²⁹ This study found an association between documentation of life support withdrawal and a lower incidence of depression symptoms in family members. On the other hand, higher rates of post-traumatic stress symptoms were found when there was documentation of a family conference within the first 72 hours of ICU admission. Despite early communication being proposed as a quality element for end-of-life care, the authors suppose that this finding may be related to events that are particularly unexpected and traumatic for family members, such as acute illnesses, poor prognoses, and other situations where communication with doctors occurs early in the ICU.

Records in Quality Improvement Projects

In this group, studies whose main theme was to analyze the impact of implementing projects about communication strategies with

families were included. Among the four articles found, three were retrospective analyses, pre- and post-implementation of improvement projects, and one was considered quasi-experimental, albeit a pilot study.^{31,32,34}

To improve communication with families of patients hospitalized in the neurosurgical ICU, Kodali et al. described, in addition to training the teams involved, the inclusion in the electronic medical record of checklist items and an effective panel of elements considered quality-related to communication with families.³¹ The goal was to evaluate the impact of this protocol on conducting conferences with families within the first 72 hours of ICU admission through asking family members about their occurrence and to measure differences before and after implementation in satisfaction using the FS ICU questionnaire. The authors also analyzed the compliance of checklist items in medical records. In this study, no significant differences were found in family perceptions or changes in conference rates, and documentation failures were observed even after efforts to implement the protocol. The authors highlight the limitations in instituting improvement projects based on structured electronic tools to increase the reliability of communication with families. This difficulty was also reported in the study by Sona et al. which found low compliance with documentation specifically created in the electronic medical record for documenting meetings with families.³⁴

On the other hand, the other authors dedicated themselves to analyzing the influence of implementing palliative care principles or an integrated palliative care team in the care of critically ill patients.^{32,33} They retrospectively analyzed the impact on records, before and after project implementation, on information related to communication with families about decision-making, goals of care, patient values, and preferences, among others. Cralley et al. showed an increase in documentation of surrogate decision-maker related to the project, which was based on team training and the creation of a note specifically for documentation in the electronic medical record of data related to communication with families.³² Similarly, Mehta et al. identified a significant increase in records of family members identified as essential for contributing to decision-making and in the documentation of family meetings regarding goals of care when an integrated palliative care team (as opposed to the reference team format) was implemented in the day-to-day care in the ICU.³³

Records as Variables

It was identified that the studies recurrently analyzed some EHRs regarding the documentation of certain themes, including: holding family meetings (all – 10 out of 10 studies), psychosocial support (7/10), palliative care team support (6/10), patient's wishes and values discussed (6/10), spiritual support (5/10), do-not-resuscitate order (5/10), withdrawal of life support (5/10), identification of surrogate decision maker (5/10), communication about prognosis (4/10), patient's symptoms (3/10). [Figure 4](#) presents an analysis of the selected studies based on records that share common characteristics.

DISCUSSION

From this literature review, it became evident that the selected studies used EHRs in ICU settings regarding communication with families, determination of goals of care, shared decision-making and end-of-life care in different approaches but with common

Electronic Health Records in the ICU

Article. Author/year, Country	Family meetings	Communication about prognosis	Patient's wishes and values discussed	Patient's symptoms	Palliative care team support	Psychosocial support	Spiritual support	Do-not-resuscitate orders	Withdrawal of life support	Surrogate decision maker
Family member satisfaction with end-of-life decision-making in the intensive care unit Gries et al. 2008 USA	✓	✓	✓		✓	✓	✓	✓	✓	
Using the medical record to evaluate the quality of end-of-life care in the intensive care unit Glavan et al. 2008 USA	✓	✓	✓	✓		✓	✓	✓	✓	✓
ICU care associated with symptoms of sapsulation and posttraumatic stress disorder among family members of patients who die in the ICU Kross et al. 2011 EUA	✓				✓	✓	✓	✓	✓	
Implementing family communication pathway in neurosurgical patients in an intensive care unit Kodali et al. 2015 USA	✓		✓	✓		✓	✓			✓
Medical record quality assessments of palliative care for intensive care unit patients do they match the perspectives of nurses and families? Mularaki et al. 2016 USA	✓		✓	✓		✓	✓			✓
Implementation of a standardized patient family communication Bundle Sona et al. 2020 USA	✓				✓					
Course and predictors of post-traumatic stress-related symptoms among family members of deceased ICU patients during the first year of bereavement Tang et al. 2021 Taiwan	✓	✓	✓		✓	✓		✓	✓	
Sustainability of Palliative Care Principles in the Surgical intensive care unit using and multi-faceted Integration Model Cralley et al. 2022 USA	✓		✓		✓					✓
Associations between family satisfaction with end-of-life care and chart-derived, process-based quality indicators in intensive care units Chou et al. 2022 Taiwan	✓	✓			✓	✓		✓	✓	
Lessons learned from an embedded palliative care model in the medical intensive care unit Mehta et al. 2023 USA	✓	✓								✓

Fig. 4: Recurring records in selected studies

Source: Developed by the author

characteristics. They were dedicated to evaluating these topics directly embedded in the care of critically ill patients, suggested as an interesting model for integrating palliative care principles in

the ICU.³⁷ They were identified from 2008 onwards, reflecting the popularization of electronic medical records in recent years, with a focus on increasing safety and effectiveness in healthcare delivery,

stimulated by efforts to increase the use of documentation-based quality care indicators.^{4,9,10,38}

Studies that assessed associations with outcomes in family members used validated questionnaires to evaluate the quality of care provided from the family's perspective.^{27-30,35,36,39} They analyzed documented markers in medical records, including communication records regarding prognosis, patient's wishes and values, conducting meetings or conferences with family members, decisions regarding non-initiation or withdrawal of life support, support and assistance to patients and families (including palliative care team follow-up, psychosocial support, spiritual support), among others. The documentation assessed in these studies encompassed that performed by various professionals involved critically ill patient's care, not only the one provided by palliative care specialists. From this point onwards, the application of palliative care principles in the care of critically ill patients, promoted by ICU professionals, whether integrated or not with specialized palliative care teams, is widely recommended as essential for the quality care of patients and families.^{4,6-10,37}

By focusing on evaluating the impact of implementing improvement projects in the ICU and basing their outcome analysis on electronic records, the studies also included documentation of physician communication with the family, patient preferences, as well as the identification of essential family members for shared decision-making with the medical team, among others.^{32,33} These elements were considered indicators of quality of care, proposed by the authors based on previously existing recommendations or according to the specific needs of the involved ICUs. These are heterogeneous studies focused on implementing improvements based on team training regarding communication with families and patients, emphasizing the importance of documentation, with records considered potential indicators of the quality of care provided.⁴⁰⁻⁴²

In the selected studies, important deficiencies were identified in the quantity and quality of records of elements of communication with families, goals of care, shared decision-making.^{27,28,30,35,36} The lack of these records may signal the existence of difficulties and barriers related to communication with families and end-of-life care among intensivists and other professionals caring for critically ill patients, which should be explored to improve patient- and family centered care. On the other hand, research based on records may not reflect the daily practice of professionals but rather failures in documenting the care provided. In addition to this limitation, difficulties in determining standardized records generating imprecise variables, bias in records according to patient severity, risks related to user privacy and their personal data are highlighted, and these issues should be considered when using EHRs as a data source for studies.

Despite the limitations, the studies explored in this review not only assessed the presence or absence of documentation but also sought to make associations with other elements related to care provided, enriching the findings. They included family perceptions, long-term mental health symptoms of family members, perceptions of professionals and families concurrently with recorded assistance, highlighting discrepancies between the quality of documented care and perceived care.^{27-30,35,36} Thus, they present associations between these dimensions, directing attention to the importance of involving different perspectives for the analysis of care provided

and providing more information about elements of patient- and family centered care in the ICU.^{43,44}

The fact that majority of the studies were conducted in the North American population implies that cultural issues should be considered in interpreting the results and their application, especially regarding family perceptions and the practices of critical care professionals. Notably, the views of families and patients regarding their contribution to end-of-life decision-making vary among different cultures, influenced by educational level on health and legal rights, the role of the family, access to the healthcare system, social support, perceptions of illness and quality of life, religiosity, among others.⁴⁵⁻⁴⁸ Similarly, healthcare professionals have different approaches to communication with families, decision-making, and end-of-life care, including aspects related to medical paternalism, use of advance directives, withdrawal of life support, legal issues, and patient record documentation.^{41,49,50} Therefore, there is a need for more studies on these topics to analyze different realities and expand specific knowledge in culturally diverse contexts.

Although some studies have empirically and methodologically proposed quality indicators for palliative care based on medical records, the use of terms such as goals of care, shared decision-making, and end-of-life care is quite diverse and broad due to their multidimensional essence in critical care settings.^{9,11,51} Generally, the use of these terms by healthcare professionals and researchers is not consistent, with a wide variability in definitions between studies. In this sense, attempting to find unique concepts on these topics from medical record reviews can be challenging. Similarly, exploring the literature based on specific keywords may lead to imprecision, due to the inability to gather articles that uniformly use these concepts.^{5,17,52,53} Despite these limitations, this review sought to gather, analyze, and synthesize studies on patient- and family centered care in the ICU (2), contributing to underpin research involving outcomes associated with EHRs on communication with families, end-of-life care, shared decision-making processes, and determination of goals of care. Intensive care encompassing these concepts can not only reduce mental health symptoms in patients and families, but also contribute to reducing the use of futile or inappropriate life support therapies, ICU length of stay, and healthcare costs.^{54,55} New perspectives aimed at establishing quality indicators based on medical records through rigorous methodological development, expanding the use of other forms of EHR assessment such as natural language processing, improvements in health informatics, and greater integration between these sectors can enrich this field of study.^{12,13,18,22,52,56}

CONCLUSION

This review focused on the use of EHRs in critical care settings concerning communication with family members about the determination of goals of care, shared decision-making, and end-of-life care. It was found that satisfaction and perceptions regarding end-of-life care from the family members' perspective, as well as mental health symptoms in relatives of critically ill patients, are associated with documented aspects such as communication practices, psychosocial and spiritual support, and therapeutic limitations, among others. Studies on the implementation of quality improvement projects in ICUs that included electronic records of key elements showed various metrics and outcomes, highlighting challenges in documenting communication between

doctors and family members of patients. The impact of projects based on offering palliative care in ICUs was also explored through documentation, with promising results. The analyzed studies represent directed efforts toward expanding the discussion on these crucial topics for quality care and their impact on patients, families, and the care process itself. Research addressing health records, accessible and monitorable elements, associated with different outcomes, can provide valuable insights for healthcare professionals and managers, allowing a deeper understanding of the needs of those involved in care. Emphasizing the importance of expanding the study and discussion of these topics in various contexts contributes to improvements in committed, humane, and comprehensive care for critically ill patients and their families.

Authors' Contributions

All authors made substantial contributions to the conception and design of the work and revised it critically for important intellectual content, made final approval of the version to be published and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy and integrity of any part of the work are appropriately investigated and resolved.

Here are the contribution of each author in accordance with the CRediT (Contributor Roles Taxonomy):

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