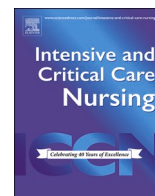




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Review Article

Nursing strategies to mitigate separation between hospitalized acute and critical care patients and families: A scoping review



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ABSTRACT

Objective: To describe the nursing strategies used to mitigate the impact of forced separation between hospitalized acute and critical care patients and their families during the COVID-19 pandemic.

Research methodology/design: A scoping review was performed in accordance with JBI methodology.

Settings: Those acute and critical care areas in which sudden, often unexpected, emergent episodes of illness or injury were treated.

Main outcome measures: Articles written in English and French between March 2020 and September 2023 in Medline, CINAHL Complete, APA PsycInfo, Embase and the Cochrane COVID-19 study register databases that met our inclusion criteria were included. Gray literature included dissertations, theses and Base Bielefeld Academic Search Engines.

Results: Among the 1,357 articles screened, 46 met the criteria for inclusion. Most of the articles were published in North America. Adult critical care units were the most frequently reported settings, followed by neonatal intensive care units. The most frequently reported strategies were virtual telephone or video communications. A majority of the innovative strategies involved interprofessional collaboration at the unit level. Core components included the provision of relational nursing practices, virtual visits, tailored information, fostering relationships between family members, palliative care support regarding end of life, and general information about hospitalization and COVID-19. Pediatric care settings were more likely than adult care settings to accommodate physical visitation.

Conclusion: Nurses used synchronous, episodic, and structured virtual interactions, either alone or as part of an interprofessional team, to mitigate separation between patients and families during the COVID-19 pandemic in acute and critical care settings.

Implications for Clinical Practice: Permanent policy changes are needed across acute and critical care settings to provide support for nurses in mitigating patient and family separation. We recommend that family members be

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considered as caregivers and care receivers, not visitors in patient and family-centered care in acute and critical care settings.

Introduction

Family members often describe the need to be physically close to their ill family member to protect, advise, and support them in acute and critical care settings [1,2]. Families of patients in these settings also need reassurance and information (Dees et al., 2022). Meeting these needs can lead to family involvement in care and positive outcomes for both the patient and their family [3,4]. The COVID-19 pandemic had a profound impact on the experiences of nurses, patients, and families in acute and critical care units around the globe [5]. Nurses described the barriers and distress of caring for complex critically ill patients separated from families while adhering to restrictive COVID-19 protocols. Families of these patients shared their losses and traumatic experiences with social isolation from loved ones and the threat of COVID-19 illness [6].

However, usual nursing practices were interrupted during the pandemic. Health care systems aimed to address multiple unknowns about how to safely care for patients and their families [7]. The COVID-19 global pandemic temporarily and, in some regions, continues to alter family visitation models in acute care settings (e.g., limitations to the number of visitors and changing 24/7 visitation to limited visiting hours), leading to the separation of patients and their loved ones [7,8]. These restrictive social isolation policies meant that families and patients were physically separated from their acute and critically ill loved ones, causing much stress. Nursing practice with families was disrupted, and creating safe spaces to connect patients and their families became a significant challenge for nurses [9].

Families and patients were separated physically, emotionally and psychologically, all of which in turn limited the relational space [10,11]. Strategies to control the spread of the coronavirus had a disruptive effect on relationships within families, and families not being present during an acute illness were considered traumatic [1,12]. COVID-19 visitation restrictions have largely ceased, yet these experiences taught healthcare professionals that the intentional involvement of families in palliative and advance care planning supports the patient's family (Anderson et al., 2024). To date, no review has been published that maps the breadth of strategies used by nurses during COVID-19 to mitigate the impact of forced separation between hospitalized acute/critical care patients and their families. Such knowledge can help nurses and health systems be better prepared in the future.

Methods

This scoping review aimed to describe the nursing strategies used during the COVID-19 pandemic to mitigate the impact of forced separation between patients and their families. We aimed to specifically describe the elements of strategies used by nurses to decrease the impact of separation between patients and families in acute and critical care during the COVID-19 pandemic and to distinguish strategies at the individual nurse level, the unit level, and the organizational level.

Study design

This review to map the relevant literature was conducted in accordance with the JBI methodology for scoping reviews [13]. The study protocol was developed and published in Open Science Framework Protocol registration [7]. The review was conducted by nine nurse researchers from five countries across four continents with doctoral degrees and expertise in family nursing. We were also supported by a reference librarian with expertise in scoping review methodology, who was fluent in the English and French languages.

Identifying research questions

The research questions for this review were “What nursing strategies did nurses use to mitigate the impact of separation between patients in acute and critical care and their families during the COVID-19 pandemic at the individual nurse level, unit level (including interprofessional collaboration), and organizational level?” In addition, we asked “What are the differences between settings (e.g., pediatrics, adult, etc.) in nursing strategies used to decrease separation between patients and families?” Articles were included that reported on participants of any age (pediatric and adult) admitted as inpatients receiving hospital-based acute and critical care and their family members. Families were defined in line with the Wright and Leahey classic definition of “Family is who they say they are” [14]. This allowed for a broad collection of relational terms, encompassing varied forms of relationships, including but not limited to blood relations, relations by marriage, designated significant other/friend/support/caregiver, and any other configuration or combination. Literature was excluded if the focus was on patients and families outside of the hospital, as well as if they focused only on the patient. Further details regarding the study inclusion and exclusion criteria for the types of studies, study participants, study concepts, and study context are presented in Table 1.

Identifying relevant literature

Studies were included if they took place in a hospital acute care facility; maternity facility, including pre- and postpartum; mental health and psychiatric acute care; emergency departments; medical and surgical inpatients, including all specialties; critical and intensive care units; or palliative care, if it was an acute admission to a facility for short-term treatment. The search strategy identified both published and unpublished studies. A three-step search strategy was utilized in this review. First, an initial limited search of MEDLINE (Ovid) was undertaken to identify articles on the topic. The following MeSH terms were used: *family, caregivers, family health, family care, social isolation, patient isolation, physical distancing, loneliness, quarantine, visitors of patients, COVID-19, SARS-CoV-2, coronavirus infections, and pandemics*. Second, 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 Medline Epub Ahead of Print, In-Process, In-Data-Review & Other Non-Indexed Citations, Daily and Versions 1946 to Week 4 September 2023), CINAHL Complete (EBSCO, 1937 to September 2023), APA PsycInfo (Ovid, 1806 to September Week 4 2023), Embase (Elsevier, 1947 to September 2023), and the Cochrane COVID-19 study register (to September 2023). Search strategies, including all identified keywords and index terms, were adapted for each included database and/or information source. The search for unpublished studies included Dissertations and Thesis (ProQuest, 1743 to September 2023) and Base Bielefeld Academic Search Engine (to September 2023). Third, the reference lists of all included sources of evidence were screened for additional studies. Supplemental Table 1 includes the full search strategy.

Selecting literature

Articles published in English or French from March 2020 to September 2023 were included. Following the search, all identified citations were collated and uploaded into Covidence software for organizing systematic reviews, and duplicates were removed, as shown in Fig. 1. A pilot test of the inclusion and exclusion criteria screening at the title and abstract step was conducted by five reviewers, who each

Table 1
Study inclusion and exclusion criteria.

| | Study Inclusion Criteria | Study Exclusion Criteria |
|------------------------------|---|--|
| Types of sources | experimental and quasi-experimental study designs including randomized controlled trials, non-randomized controlled trials, before and after studies and interrupted time-series studies; analytical observational studies, including prospective and retrospective cohort studies, case-control studies and analytical cross-sectional studies; descriptive observational study designs including case series, individual case reports and descriptive cross-sectional studies; qualitative studies 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 meet the inclusion criteria; text and opinion papers and grey literature (thesis, etc.) | review articles and conference abstracts |
| Participants | | |
| Patients | individuals of any age (that is children and adults) who are admitted in-patients receiving hospital-based acute care | focus is on patient out of the hospital; does not include reference to family |
| Families | individuals who say they are connected to the patient [14] including a broad collection of relational terms, encompassing varied forms of relationship, including but not limited to blood relation, relation by marriage, designated significant other/friend/support/caregiver, and any other configuration or combination | focus is on family of patient outside; hospital and does not include reference to the patient |
| Concept | | |
| Nursing strategies | care that is any type of nursing practice action, support, strategies, approaches, directions to overcome separation in the context of the COVID-19 pandemic, as well as the nursing contribution within interdisciplinary practices and strategies | care where the nursing contribution to practice or strategy development cannot be determined |
| Separation | care describing an experience or state of a patient and family being moved apart with a gap/difference(s) in body, space, time, and relation that may include physical space, emotional space, psychological separation or relational separation Merriam-Webster [15], van Manen [16] | care describing no experience or state of a patient and family being moved apart with a gap/difference(s) in body, space, time, and relation that may include physical space, emotional space, psychological separation or relational separation |
| Context | | |
| Acute care and critical care | care taking place where health services are delivered in a facility that focuses on treating sudden, often unexpected, urgent or emergent episodes of illness or injury [17]; performing diagnostic, surgical or therapeutic procedures; reducing severity of illness, injury, or symptoms; or | care taking place in home-based hospital care, sub-acute or rehabilitation facilities, skilled nursing facility, long-term acute care, alternate level of care, long-term or residential care or aged care facility, long-term rehabilitation, outpatient treatment or services (e.g., |

Table 1 (continued)

| Study Inclusion Criteria | Study Exclusion Criteria |
|---|---|
| managing obstetrical labor and delivery, including pre- and post-partum obstetrical care; mental health and psychiatry acute care; emergency departments; medical and surgical inpatient including all specialties; critical care units; and palliative care if it is an acute admission to a facility for short-term treatment; care characterized by instability, uncertainty, complexity, and variability in management of patient care [18] and typically short-term requiring monitoring by a multidisciplinary healthcare team. | dialysis, cancer treatment where the patient is not admitted to a facility overnight), birthing homes and hospices. |

reviewed 20 articles. The full team clarified the inclusion and exclusion criteria and made the decision to tag all articles at the title and abstract step with the reason for exclusion. Titles and abstracts were then screened by two independent reviewers against the inclusion criteria for the review and tagged for exclusion. If there were conflicts at this step, a third reviewer made the final decision and tagged the reason for exclusion. All potentially relevant sources were retrieved from the full text, and their citation details were imported into Covidence software. Full-text selected citations were assessed in detail against the inclusion criteria by two independent reviewers; a third reviewer resolved the conflicts and tagged the reasons for exclusion. The data extraction template was piloted on 15 articles by three groups of three reviewers. Each group reviewed a different set of five articles compared to the other groups. At least one reviewer in each group completed the first extraction, a second reviewer then checked the extraction for completeness, and a third reviewer formed the consensus for the group. No changes were made in the data extraction template based on this pilot, but the team fully discussed the need to specifically describe elements of the nursing practice or intervention or strategy within the extraction process. The results of the search are presented in the Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for scoping review (PRISMA-ScR) flow diagram in Fig. 1 (Page et al., 2021).

Charting the data

After selecting full-text articles for inclusion, data were extracted from the papers included in the scoping review by two independent reviewers using the data extraction tool developed by the reviewers. Consensus was reached by a third reviewer according to the a priori protocol. The extracted data included specific details about the purpose, design, context, population, sample size, and intervention/action/strategy. The consensus reviewer reviewed the data extracted by the first two reviewers and chose the final data to be extracted for analysis.

Collating, summarizing, and reporting the results

We analyzed elements of the nursing practice or intervention or strategies implemented to mitigate separation between patients and families to provide a representation of the breadth of actions taken by nurses alone, in collaboration with other health professionals, or at the organizational level. The evidence was collated into a synthesis table of aim, design, sample description, sample size, and provider, as shown in Table 2 (Sample Description). In addition, the the context, description, duration, level, and outcomes of the included nursing strategies are displayed in Table 3 (Nursing Strategies). The data were analyzed and represented through graphs to identify the frequency characteristics of the nursing strategies reported by time modality, frequency, intention to

act, modality of action, and type of nursing action (Fig. 2) and the frequencies of the core components of the nursing strategies reported (Fig. 3). A narrative summary was created to provide further detail about the characteristics and core components of the reported nursing actions identified.

Results

Descriptive characteristics

The initial search resulted in 1357 articles from databases and 52 articles from the gray literature and reference lists of the included articles. The data from 46 articles published in 20 different countries between March 2020 and September 2023 were extracted, as displayed in Fig. 1.

Most of the articles were published in North America ($n = 24$), as shown in Table 2. Adult critical care units were the most frequent settings for intervention ($n = 22$), followed by neonatal intensive care units ($n = 8$). Qualitative studies ($n = 11$) and quality improvement studies ($n = 9$) were the most common, followed by case reports ($n = 4$) and nonrandomized experimental studies ($n = 4$).

Most strategies were implemented by nurses as part of interprofessional collaboration at the unit level ($n = 17$), as presented in Table 3. Some strategies were implemented at the individual nurse level ($n = 6$), at the nurses level and the unit level combined ($n = 7$), or at the individual nurse level and the unit level and the organizational level combined ($n = 9$). Nurses also implemented strategies as part of an organizational initiative ($n = 6$) or as part of a combined unit and organizational-level initiative ($n = 2$).

Strategies to mitigate the impact of separation between patients and families

Several nursing strategies were used to overcome patient and family separation during COVID-19, primarily focused on communication between family members and patients. The strategies used at the individual nurse, unit, and organizational levels across acute care settings can be found in Table 3. Fig. 2 reveals that the majority of nursing strategies were synchronous ($n = 39$), episodic ($n = 35$), structured ($n = 26$), or virtual ($n = 41$) interactions that involved active nursing strategies ($n = 41$) (Fig. 2).

The core components of the reported nursing strategies are shown in Fig. 3 and included the provision of emotional support ($n = 10$), virtual visit interactions ($n = 11$), tailored information sharing ($n = 14$), fostered relationships between family members ($n = 30$), palliative care measures at the end of life ($n = 4$), general information about hospitalization and specific information about COVID-19 ($n = 10$), and others ($n = 2$), which included material memories of the deceased family member and preparation for discharge. Twenty-six strategies included several core components.

The most frequently reported strategies were virtual telephone or video communication ($n = 32$) held synchronously or asynchronously. In some instances, this communication was included in routines, for example, the use of video calls with family members during daily rounds in ICU [37,52]. In other reports, communication was unstructured and unscheduled and episodic where nurses communicated on demand with family members to update families on the patient's condition or facilitated family members speaking with or seeing the patient [1,29,33,36]. Virtual communication was most often episodic, although some instances of near-constant video links between patients and family members were reported in neonatal intensive care units [39]. Virtual patient-family interactions were focused on decision-making in palliative care situations [20], visitation at the end of life [21], guiding new parents

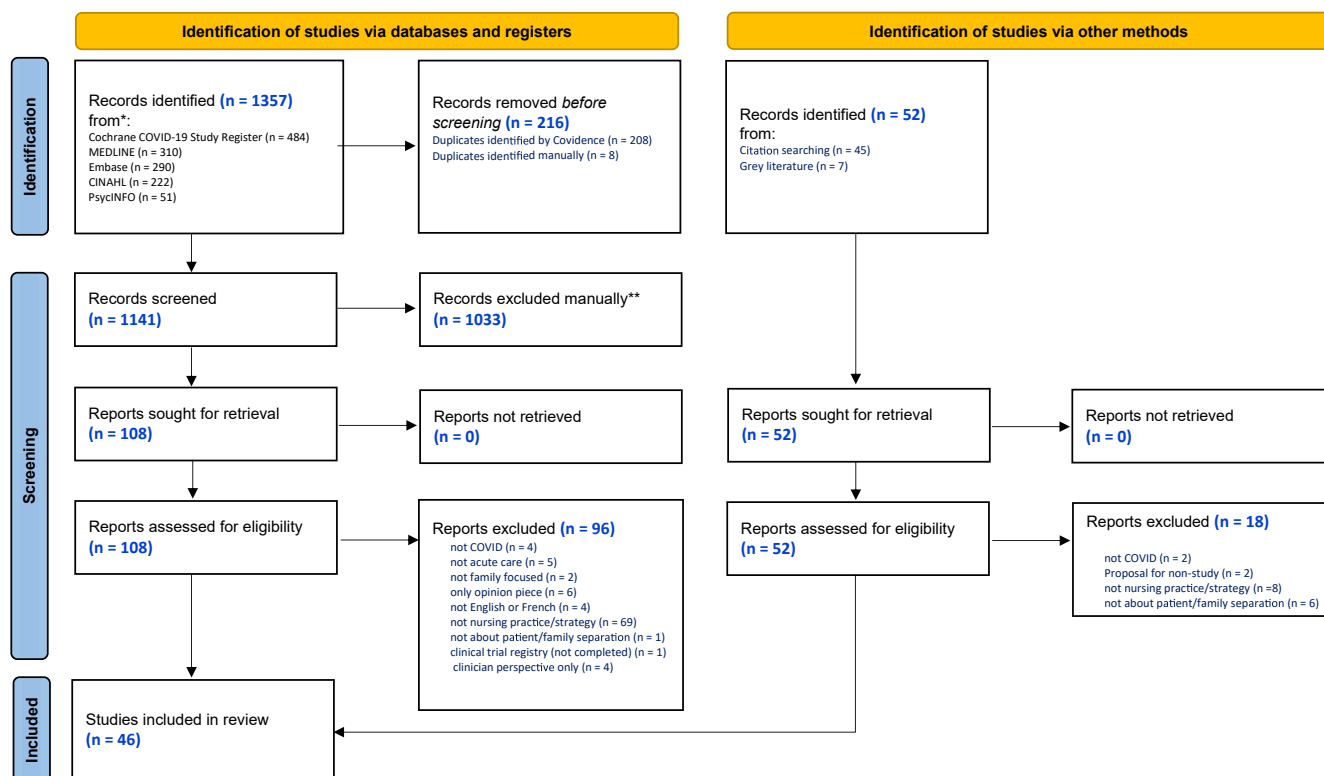


Fig. 1. PRISMA 2020 Flow Diagram Nursing Strategies to Mitigate Separation. *Consider, if feasible to do so, reporting the number of records identified from each database or register searched (rather than the total number across all databases/registers). **If automation tools were used, indicate how many records were excluded by a human and how many were excluded by automation tools. From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. <https://doi.org/10.1136/bmj.n71>. For more information, visit: <http://www.prisma-statement.org/>.

Table 2
Sample Description.

| Author, Year, Country | Aim of Study | Study Design | Sample Description | Sample Size | Providers Involved |
|---|--|---|--|-------------|--|
| Anderson et al. 2020 [1] United Kingdom | To describe patient and family-centered care for parents and their babies | Review | Parents and babies in NICU | N/A | Other: Champion Volunteers |
| Antinora et al. 2023 [19] Canada | To design, implement, and evaluate a technology-based program to connect NICU babies with their families during the COVID-19 pandemic | Other: single-center program design, implementation, and evaluation | NICU staff and parents | 68 | Advanced practice nurse; Direct care/bedside nurse; Nurse as part of interprofessional team |
| Bettini et al. 2020 [20] United States | To present a case where technology was utilized in order to facilitate goals-of-care discussions at the end of life for an infant | Case report | Infant and family in acute care setting | N/A | Advanced practice nurse; Other: nurses not mentioned specifically. Other team members are mentioned such as social work and palliative care team |
| Board 2021 [21] Italy; Multiple countries; United States | To identify practical approaches to hospital visitation for patients in palliative or end-of-life care circumstances. | Other: Literature review | Nurses, physicians and families experiencing end of life care during the pandemic | N/A | Direct care/bedside nurse; Nurse liaison; Other: ICU providers and anesthesiologists |
| Camicia et al. 2021 [22] United States | To synthesize insights learned from the COVID-19 responses at three inpatient rehabilitation facilities | Review | Patient and families on rehabilitation COVID-19 unit | NA | Direct care/bedside nurse; Nurse managers |
| Campbell-Yeo et al. 2021 [23] Canada | To develop clinical care pathways to ensure optimal neonatal care to support families in response to parental presence restrictions imposed during the COVID-19 pandemic. | Qualitative research | Parents of previous NICU patients | 20 | Advanced practice nurse; Direct care/bedside nurse; Nurse as part of interprofessional team |
| Collier and Josef 2021 [24] United States | To describe weekly videoconferences for the couple using facility's tele-health program | Case report | Patient in acute care setting | N/A | Nurse as part of interprofessional team |
| Connor et al. 2021 [25] United States | | Other: Quality improvement | Parents of children undergoing congenital heart surgery admitted to the inpatient cardiac unit | | Direct care/bedside nurse; Nurse as part of interprofessional team |
| Critoph & Smith 2020 [26] United Kingdom | To report on the initiative to reunite bereaved relatives with their loved one's personal effects. | Case report | Relatives of family member who had died in hospital during lockdown | N/A | Other: redeployed nurse clinical communication skills tutors |
| Donahue-Ryan 2021 [27] United States | To determine if a family-focused communication program would help soften the impact of the mandatory hospital lockdown and improve patient engagement during the COVID-19 pandemic. | Quality improvement | Patients in acute care hospital | N/A | Direct care/bedside nurse; Nurse managers; Nurse as part of interprofessional team |
| Durst et al. 2022 [28] Switzerland and Italy | To evaluate the acceptance of video calls in hospitalized older patients and in their relatives during the ban on visits due to the COVID-19 pandemic | Other: Observational/acceptability | Admitted patients over 65 years | 64 | Other: Not stated |
| Elma et al. 2022 [29] Canada | To understand clinicians' perspectives on using videoconferencing technology to adapt to pandemic policies when caring for dying patients. | Qualitative research | Clinicians who provided end-of-life care. | 45 | Direct care/bedside nurse; Nurse as part of interprofessional team; Other |
| Ersek et al. 2021 [30] United States | To evaluate what impact remote communication had on Veteran's families' evaluations of care in the last month of during the COVID-19 pandemic | Other: retrospective, mixed-methods | Relatives of Veterans who die in VA inpatient settings | 328 | Nurse as part of interprofessional team |
| Feder et al. 2021 [31] United States | To understand bereaved families' perceptions of the quality of end-of-life communication among Veterans, families and staff in Veterans Affairs medical centers during the COVID-19 pandemic | Qualitative research | Bereaved family members | 324 | Nurse as part of interprofessional team |
| Haakma et al. 2022 [32] Other: Netherlands | To explore the experiences of ICU nurses with the implementation process and application of the Post-ICU diary. | Qualitative research | ICU nurses | 14 | Direct care/bedside nurse |
| Hochendoner et al. 2022 [33] United States | To understand the experiences of family members of critically ill patients with COVID-19 when physically distanced from their loved ones | Other: Qualitative study of an observational cohort study | Family members of ICU patients | 74 | Nurse as part of interprofessional team |

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Table 2 (continued)

| Author, Year, Country | Aim of Study | Study Design | Sample Description | Sample Size | Providers Involved |
|--|---|--|--|-------------|--|
| Hoffmann et al. 2022 [34] Other: Denmark | To explore how relatives of older people acutely admitted to hospital with COVID-19 experienced visitor restrictions preventing their physical presence in the ward | Qualitative research | Relatives of admitted patients. | 18 | Direct care/bedside nurse; Other: general health care providers |
| Hwang et al. 2021 [35] United States; Other: South Korea | To describe the impact of COVID-19 disease on family engagement among ICUs participating in a multicenter collaborative promoting implementation of family-centered care projects | Cross sectional study | Site leaders in academic and community ICUs | 22 | Nurse as part of interprofessional team; Other: site leaders |
| Jensen 2022 [36] Multiple countries; Other: Denmark, Norway & Sweden | To examine strategies to meet the challenges imposed by the COVID-19-related visiting restrictions | Cross sectional study | Adult ICU patients | 74,242,030 | Advanced practice nurse; Direct care/bedside nurse |
| Jones 2021 [37] United States | To leverage digital technology to improve clinician and family communication during the COVID-19 pandemic | Quality improvement | ICU nurses and staff including administrators, patients and families | 586,274,348 | Nurse as part of interprofessional team |
| Jungstrand et al. 2022 [38] Sweden | To explore the experience of in-person visiting restrictions imposed during the pandemic on family members of patients with COVID-19 | Qualitative research | Family members of adult patients admitted with COVID-19 | 21 | Advanced practice nurse; Direct care/bedside nurse; Nurse liaison; Nurse managers; Nurse as part of interprofessional team |
| Kalaniti et al. 2021 [39] Canada | To evaluate parents' perception and satisfaction using a web-based camera in a tertiary care NICU during the COVID-19 pandemic | Review | Parents and siblings of newborns | 180 | Nurse as part of interprofessional team |
| Kebapci and Turkmen 2021 [40] Other: Turkey | To determine the effect of structured Virtual Patient Visits on the anxiety, satisfaction, and depression levels of COVID-19 patients and their relatives. | Non-randomised experimental study | Adult ICU patients with a COVID-19 diagnosis and their relatives | 50 | Direct care/bedside nurse; Other: nurse researcher who was an ICU RN |
| Kennedy et al. 2021 [41] United States | To explore experiences, perspectives, and attitudes of family members and ICU clinicians about phone and video interactions during COVID-19 hospital visitor restrictions | Qualitative research | Patients, families and clinicians | N/A | Nurse as part of interprofessional team |
| Kirolos et al. 2021 [42] United Kingdom | To evaluate the parent and staff experience of a secure video messaging service as a component of neonatal care | Other: Multi-centre evaluation incorporating quantitative and qualitative items. | Families of neonatal inpatients and neonatal staff. | 4142 | Direct care/bedside nurse |
| Kuntz et al. 2020 [43] United States | To implement and evaluate the use of telemedicine on the palliative care family meeting | Quality improvement | Clinicians and family members | 67 | Nurse as part of interprofessional team |
| LopezSoto et al. 2020 [44] United Kingdom | | Other: | | 12,000 | Other: senior nurses |
| Makwana et al. 2022 [45] India | To determine the effect of standardised virtual communication on anxiety levels in relatives of COVID-19 intubated patients | Non-randomised experimental study | Immediate adult relatives of COVID-19 intubated ICU patients | 283 | Advanced practice nurse; Direct care/bedside nurse; Nurse as part of interprofessional team |
| Mendiola et al. 2021 [46] United States | To present a virtual visitation program implemented in critical care units to replicate visitation by video chat to ease stress on patients and family members to improve communication | Quality improvement | Patients in ICU and their families | 193 | Direct care/bedside nurse; Other: Stroke coordinator |
| Munsey et al. 2021 [47] United States | To enable hospitalised patients and their families to connect in a safe manner during the pandemic | Quality improvement | Patients and families | 1,0901,010 | Nurse as part of interprofessional team |
| Rasheed 2021 [48] Other: Saudi Arabia | To describe the strategies used to maintain family integration in the ICU during the COVID-19 pandemic | Case report | ICU patients and their families | N/A | Nurse managers; Other: Senior nurse specialist CNO, assistant CNO |
| Rose 2021 [49] United Kingdom; Other: England, Wales, Scotland, and Northern Ireland | To understand how communication among families, patients, and the ICU team was enabled during the pandemic. | Cross sectional study | Hospitals with at least one ICU | 117 | Nurse liaison; Nurse as part of interprofessional team |
| Rose et al. 2022 [50] United Kingdom | To gain perspectives from family members about barriers to virtual visit set up | Qualitative research | Family members of adult ICU patients | 41 | Advanced practice nurse; Direct care nurse/bedside nurse; Nurse liaison; Nurse as part of interprofessional team |
| Ross 2021 [51] United States | To review what is known about the benefits and challenges of live-stream VVS for parents and nursing staff | Review | Parents of infants in the NICU | N/A | Direct care/bedside nurse |

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Table 2 (continued)

| Author, Year, Country | Aim of Study | Study Design | Sample Description | Sample Size | Providers Involved |
|--|--|--|---|-------------|---|
| Sasangohar et al. 2021 [52] United States | To document findings from interviews conducted with family members on experience of virtual visit | Qualitative research | Family members of patients in ICU | 230 | Direct care/bedside nurse; Nurse liaison; Other: Virtual ICU staff; the operations centre (OC), the bedside team and the audio-visual (A/V) communication infra-structure |
| Shariati et al. 2021 [53] Other: Iran | To identify the effect of web-based communication between a nurse and a family member on the perceived stress of a family member of a patient with suspected or confirmed COVID-19 | Randomised controlled trial | Family members of ICU patients with COVID-19 | 67 | Direct care/bedside nurse; Other: The family members who were in close relationship and living with or were the main caregivers the patients with suspected or confirmed COVID-19 |
| Tallent et al. 2021 [54] United States | To design a virtual rounding videoconferencing program that used a teleconferencing device to offer a remote option for caregiver involvement in daily medical rounds | Quality improvement | Caregivers of patients admitted to the ICU, medical staff | 53,449 | Advanced practice nurse; Direct care/bedside nurse; Nurse as part of interprofessional team |
| Taylor et al. 2020 [55] United States | To conduct an evaluation of barriers to design implementation strategies to support a program using medical students to facilitate family-centered care in the ICU. | Quality improvement | Physician, nurse, or medical students | 20 | Nurse as part of interprofessional team |
| Turkmen and Kebapci 2022 [56] Other: Turkey | To reveal the experiences of healthcare professionals regarding a structured Virtual Patient Visit program implemented in an ICU during the COVID-19 pandemic | Other: qualitative, exploratory study was conducted using a semi-structured, in-depth interview method | Nurses and physicians, one clerk | 35 | Direct care/bedside nurse; Nurse as part of interprofessional team; Other: ICU physicians and ICU clerk |
| Vetcho et al. 2022 [57] Other: Thailand | To evaluate whether practice innovations improved parents' and interdisciplinary professionals' perceptions of respect, collaboration and support during COVID-19 | Non-randomised experimental study | Parents of neonates who visited the NICU | 83 | Advanced practice nurse; Direct care/bedside nurse; Nurse managers; Nurse as part of interprofessional team |
| Wang 2021 [58] United States | To enhance RN initiated family updates during the Covid pandemic. | Quality improvement | PACU patients and their family members | 120 | Direct care/bedside nurse |
| Webb et al. 2021 [59] United Kingdom | To report the experience of relatives and patients connected via video Facetime on I-Pads | Review and QI | Patients and relatives in ICU | 350 | Direct care/bedside nurse; Nurse as part of interprofessional team; Other: NO Nursing Authors |
| Yang et al. 2022 [60] China | To construct a family-centred moderate restrictive visitation program | Other: Editorial | Members of the ICU team, ICU patients and families | N/A | Nurse managers; Other: identifies role of Charge Nurse, implies role for bedside nurses |
| Yi et al. 2021 [61] China | To evaluate the effects of new strategies and aim to share our results and experience with other NICUs during the COVID-19 pandemic. | Other: Descriptive, comparison study | Admitted infants | 252 | Direct care/bedside nurse; Nurse managers |
| Yuan et al. 2023 [62] China | To examine the effect of video visitation on patients' anxiety, depression, incidence of delirium, and family's anxiety and satisfaction with visitation | Randomised controlled trial | Conscious adults in ICU able to communicate verbally | 121 | Advanced practice nurse; Direct care/bedside nurse |
| Zante et al. 2022 [63] Switzerland | To investigate the effect of video calls on symptoms of post-traumatic stress disorder in relatives of ICU patients. | Non-randomised experimental study | Relatives of patients hospitalized in the ICU | 52 | Nurse as part of interprofessional team; Other: Specially assigned nurses |

separated from their infant [23], and conducting E-family meetings [43].

Physical visitation occurred most often in pediatric settings [25,57] but also in adult and critical care settings with specific COVID-19 precautions for face-to-face visits [36] or family visits to a room with virtual connection to the patient [60]. One physical connection was reported between nurses and surviving family members after the patient's death where the patient's personal belongings were exchanged [26]. Decisions on whether or not to allow physical visitation were typically made by the provider and the bedside nurse, but sometimes by either the bedside nurse, provider, or management [36].

In the majority of reports, the individual bedside nurse played an active role in facilitating communication; however, in some instances, designated nurses or other employees were responsible for communication with family. For example, Lopez Soto & Metaxa [44] developed a system in which redeployed unit staff collected information from bedside nurses after rounds and arranged appointments at a convenient time with the family to convey the information [44].

Many of these interactions were synchronous (i.e., communicating

directly on the phone or other video device). However, some studies reported asynchronous communication using prerecorded video or audio messages or emails that would then be shared with the patient. Some nurses coached relatives to write short messages or longer stories about the patient in ICU diaries. In some instances, nurses were also invited to contribute content to these digital diaries [32]. Other examples of asynchronously reported separation strategies included family members emailing photos and messages to the patients' nurses, which the nurses printed off, hung up in the room, or read out for the patient [33].

Several unique strategies using electronic devices have been described. For instance, a unit-level strategy occurred in the United Kingdom (UK) supported by a Life Lines Philanthropic rapid response team through fourth-generation Android tablets with preinstalled aTouchAway software (Aetonix) in 182 intensive care units in 217 UK-based hospitals [50]. The Life Lines virtual visiting solution enabled a secure cloud-based, one-way initiation of bidirectional video and audio calling, initiated from the intensive care unit-based tablet. The intensive care unit or a family liaison team member invited a family connection

Table 3
Nursing Strategies: Context, Description, Duration, Level, and Outcomes.

| Author, Year, Country | Context | Description of the Strategy | Duration of Strategy | Level of Strategy | Outcomes |
|--|---|--|--|--|---|
| Anderson et al. 2020 [1] United Kingdom | Neonatal intensive care | Babies' time on NICU may be relatively brief – days, weeks and, insome cases, months – but the effect of their care will be long-lasting, which is why it is so important that they are able to have their parents by their side during their difficult early days. | Not provided | Unit level (including interprofessional collaboration) | N/A |
| Antinora et al. 2023 [19] Canada | Neonatal intensive care | NeoConnect: To better connect families with their babies in the NICU through the use of technology-based initiatives including voice recording of parental voice played in NICU patients' incubators when families could not be present, and a video chat program for parents to engage in virtual visitation when they could not be at the bedside | During nursing care sessions, used What's App to schedule Neo-connect configured tablet video chat with bedside nurse 3 times per week per family. | Individual nurse; Unit level (including interprofessional collaboration) | The majority of respondents reported a stronger bond to their baby (n = 4, 66.7 %) and to the NICU team (n = 5, 83.3 %) and gain- ing a better understanding of their baby's care plan (n = 5, 83.3 %) following video chats. |
| Bettini et al. 2020 [20] United States | Pediatric intensive care | Pediatric palliative care team providing palliative care through Zoom conversations – medical updates, time for parents to ask questions and voice concerns, psychosocial support offered. Once the decision to withdraw treatment – legacy-making activities and then withdrawal. The primary palliative care provider was with the family intermittently throughout the day. | Throughout stay in ICU – part of palliative care team | Individual nurse; Unit level (including interprofessional collaboration) | Parents and family communicated that they were at peace with the decision to extubate and that they were grateful that technology allowed them all to be together at their child's end of life |
| Board 2021 [21] Italy; Multiple countries; United States | Emergency department; Adult intensive care; Medical/surgical; Other | "Support companion" was created to guide families and patients with COVID-19 at the end of life. The support companion acts as a designated person available to guide visitation. | Not stated | Organizational level | N/A |
| Camicia et al. 2021 [22] United States | Inpatient rehabilitation [intense monitoring COVID-19] | Inpatient rehabilitation care – facilities approach family caregiver engagement amidst visitation restrictions. Technology solutions can be utilized to reduce the patient and their family's feelings of isolation and support caregiver preparation for discharge. | During rehabilitation | Individual nurse; Unit level (including interprofessional collaboration); Organizational level | Covid-19 Inpatient Rehabilitation Nursing Care |
| Campbell-Yeo et al. 2021 [23] Canada | Neonatal intensive care | Development of virtual care pathway: multidisciplinary team described as including neonatal nurse practitioners, nurses, clinical nurse specialist. Pathways identified as being step-by-step process to ensure standardized care is offered to families, with the primary users likely to be families and bedside nurses. | Ongoing | Unit level (including interprofessional collaboration) | Not measured |
| Collier and Josef et al 2021 [24] United States | Other: Spinal cord injury center, skilled living facility | The nurse contacted the skilled living facility director and social worker. Together, they scheduled weekly video-conferences for the couple using our facility's telehealth program. Every Wednesday afternoon, staff from both facilities collaborated to set up video-capable devices, allowing the couple to meet virtually. | 23 weekly visits | Unit level (including interprofessional collaboration) | Technological support and interfacility coordination permitted weekly videoconferences using our tele-health program that connected Mr. P and his wife. Mr. P expressed reduced feelings of social isolation from his wife as a result of the virtual communication |

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Table 3 (continued)

| Author, Year, Country | Context | Description of the Strategy | Duration of Strategy | Level of Strategy | Outcomes |
|---|---|---|--|--|--|
| Connor et al. 2021 [25] United States | Pediatric cardiac inpatient unit [post-ICU unit] | Room redoubling to maintain care/intensive care staff caring for children. Newly developed guidelines and masking /distancing protocols & self-COVID testing for parents | 2 weeks | Unit level (including interprofessional collaboration) | To understand the family perspective regarding the safety for utilization of double rooms during the COVID-19 pandemic. |
| Critoph & Smith 2020 [26] United Kingdom | Hospital wide initiative [including intensive and critical care] | Two re-deployed nurse clinical communication skills tutors coordinated sewing of belongings bags through social media, and then placed the deceased person's belongings in these bags (instead of in plastic garbage bags or specimen bags). They then called the relatives to offer condolences and arranged to meet with the patient's family to return the belongings. These meetings occurred either in the hospital in a non-clinical meeting room, or outside if the family preferred. If the family was not able to meet, they were mailed the belongings, in the bag, with a note of condolence. | On-going, has now become established practice and will continue going forward. | Organizational level | Not reported |
| Donahue-Ryan 2021 [27] United States | Hospital wide initiative [including intensive and critical care] | Clinical experts constructed the communication document that informed the units about the Family In Touch Program (FITP), including its location, hours of operation, and contact information. Additionally, the clinical nurses created a daily tracking tool to identify each patient, their diagnosis (es), and concerns expressed by their designated family member(s). This information was shared with the patient's healthcare team, with oversight provided by the patient experience manager. | Unclear but through the pandemic and still being used | Organizational level | Press-Ganey patient engagement scores rose significantly with the introduction of the FITP, from 69.3 % to 75.9 %. Once the FITP ended, the scores abruptly declined to 69.7 %; elements have been reinstated. |
| Durst et al. 2022 [28] Italy and Switzerland | Acute [including intensive care] and post acute geriatric units | Patients and relatives were asked to select their preferred communication support (video or phone calls). Patients who selected video calls were provided with a tablet available in each unit whereas their relatives were asked to use their own device for the calls. At least two video calls of a maximum of 15' were organized over a single week considered as the study period. Patients were allowed to perform additional video calls alone or with the staff's help over the study period and thereafter. Phone calls were allowed without any restriction in both groups over the study period. | One week | Unit level (including interprofessional collaboration) | Video calls were preferred rather than telephone calls to decrease anxiety; Anxiety was specifically related to the fear of death included scores examining the fear of death of other and fear of dying of others |
| Elma et al. 2022 [29] Canada | Adult intensive care; Other: ICU, medical step-down unit, and the COVID-19 unit | Facilitating a brief video connection between families and patients dying from COVID prior to death. | Clinicians used videoconferencing technology to try to bridge gaps in end-of-life care by facilitating connections conversations between patients and their families | Unit level (including interprofessional collaboration); Organizational level | Clinicians reported numerous opportunities and challenges when using videoconferencing technology to adapt to visitor restrictions: (1) facilitating patient-family virtual connections to provide family-centered care; (2) ensuring equitable access to technology to facilitate these interactions; (3) having consistently authentic interactions with the |

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Table 3 (continued)

| Author, Year, Country | Context | Description of the Strategy | Duration of Strategy | Level of Strategy | Outcomes |
|---|---|--|---|--|---|
| Ersek et al. 2021 [30] United States | Adult intensive care; Other: acute care units, intensive care units, community living centers (i.e., VA nursing homes), and hospice units, most of which are located in a nursing home unit. | The effectiveness of the primary remote communication tool used with the Veteran (e.g., telephone in the Veteran's room, personal iPad/tablet, VA-provided iPad/tablet) and with the staff | During pandemic (study restricted to March – June 2020) | Organizational level | patients and their families; and accordingly, (4) making recommendations for future use of videoconferencing technology in end-of-life care Bereaved families' evaluation of care (BFS-PM) with 2 additional items related to communication |
| Feder et al. 2021 [31] United States | Adult intensive care; Medical/surgical; Other: hospice and palliative care unit | Remote communication at end of Life between staff and families or patient during COVID-19 | No information | Individual nurse | Qualitative data about communication |
| Haakma et al. 2022 [32] Other: Netherlands | Adult intensive care | The patient's primary contact person was invited to start the Post-ICU diary. The PostICU diary was made available on any connected device with a display. Relatives could contribute short messages similar to WhatsApp functionality or write longer stories about what happened in the personal situation of the patient. | Along hospitalization in ICU | Unit level (including interprofessional collaboration) | Qualitative data on the feasibility of the post- diaries |
| Hochendoner et al. 2022 [33] United States | Adult intensive care | Nursing and interprofessional care provided in the context of visitor restriction | Restrictions during pandemic | Unit level (including interprofessional collaboration) | Experiences of family members of critically ill patients with COVID-19 when physically distanced from their loved ones and to explore ways clinicians may support them |
| Hoffmann et al. 2022 [34] Denmark | Emergency department; Other: wards for COVID-19; EDs of three different regional hospitals in Denmark | Health care provider care and family member involvement in decision-making involvement in the context of visitor restriction | Unclear (pandemic, visitor restrictions) | Individual nurse | The study provides insight and knowledge relating to how relatives experience the fear of death of the patient during hospitalization of older patients admitted to hospitals with a COVID-19 infection, particularly a fear of death and lack of presence during end of life. |
| Hwang et al. 2021 [35] United States; Other: South Korea | Adult intensive care; Pediatric intensive care | A multicenter collaborative promoting implementation of family-centered care projects. The purpose of the FEC was to encourage ICUs to identify and implement a local quality improvement project in 2020 that would be likely to have a positive impact on family-centered care | Not described | Unit level (including interprofessional collaboration) | There were no documented outcomes from an intervention/strategy with patients and families |
| Jensen 2022 [36] Multiple countries; Other: Denmark, Norway & Sweden | Adult intensive care | Survey of conditions and strategies to meet challenges of COVID 19 visiting restrictions | Visitation restrictions compromised the quality of family care and entailed dilemmas for healthcare professionals but also spurred initiatives to developing new ways of providing family care. | Individual nurse; Unit level (including interprofessional collaboration); Organizational level | Six areas: capacity and staffing, visiting policies and access to the unit, information and conferences with relatives, written information, children as relatives, and follow-up initiatives. |
| Jones 2021 [37] United States | Intermediate Cardiac Surgical Care Unit | Nurses were trained on using tablets that enabled video conference calls. All were trained in the new bedside rounding process to include family members, the technological devices, and applications. Intervention team included the director of critical care services | Not specified | Unit level (including interprofessional collaboration) | a) daily total unit census, (b) daily unit census of cardiac surgical patients, (c) family participation in rounding, (d) method of technology used to participate, (e) family contact information captured on the care board, (f) and nurse participation in rounding, and (g) HCAHPS survey results |

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Table 3 (continued)

| Author, Year, Country | Context | Description of the Strategy | Duration of Strategy | Level of Strategy | Outcomes |
|--|---|---|--|--|---|
| Jungstrand et al. 2022 [38] Sweden | Adult intensive care | | Not described | Individual nurse; Unit level (including interprofessional collaboration); Organizational level | |
| Kalaniti et al. 2021 [39] Canada | Neonatal intensive care | Service level practice, designed to minimise impact on nursing: Concerns of web-cameras increasing nursing workload were alleviated by the high-quality technical support offered by the service provider. The bedside nurse paused the cameras during care and clinical procedures. An accepting attitude from healthcare professionals, especially the nursing staff, towards the camera use played an essential part in the successful implementation of NICVIEW® in our NICU. | Ongoing | Unit level (including interprofessional collaboration) | A feedback form was given to parents that included a couple of open-ended questions to express their opinions on the service provided. |
| Kebapci and Turkmen 2021 [40] Other: Turkey | Adult intensive care | We implemented daily sVPVs between all patients and their relatives. Structured sVPVs were conducted in order to maintain patient- and family-centred care. Each sVPV session lasted 5–10 min. Patients' relatives were asked to select their preferred mode of communication for daily sVPVs. | Each sVPV session lasted 5–10 min and occurred between 2 pm and 5 pm | Individual nurse | There was a significant difference between daily anxiety levels before and after sVPVs in both patients and their relatives. Whereas the anxiety levels of patients with basic face or high flow nasal cannula and non-invasive mechanical ventilation decreased statistically significantly more than those with IMV after a sVPV ($p < 0.001$), there was not a significant difference in decreased anxiety levels of patients' relatives according to the type of respiratory support provided to the patient ($p > 0.05$). The overall ICU satisfaction rates were statistically significantly lower in relatives of patients who died than those who did not die ($p < 0.05$). |
| Kennedy et al. 2021 [41] United States | Other: Cardio-thoracic and neurologic ICU | To understand the experience of video or phone communication between family and patients during COVID 19 | One time interview | Individual nurse | Family experiences using video and/or phone for communication |
| Kirolos et al. 2021 [42] United Kingdom | Neonatal intensive care | Use of a secure, cloud-based asynchronous video messaging service to send short messages from neonatal staff to families. | July–November 2019 | Unit level (including interprofessional collaboration) | Parental experience, including anxiety, involvement in care, relationships between parents and staff, and breastmilk expression |
| Kuntz et al. 2020 [43] United States | Other: ICU palliative care | E-Family Meeting Procedure via Zoom: 1. Identify a single point of contact for the family and schedule the meeting, 2. Provide meeting link and instructions in email to family, 3. Plan entry, "donning" and positioning of the tablet device, 4. Start the E-Family Meeting, 5. Conducting the e-family meeting, 6. Offer a virtual visit, 7. Ending the meeting, 8. Recover, "doff," and clean the tablet and stand. | Duration of e-family meeting | Unit level (including interprofessional collaboration) | Developed a Web-based survey for clinicians to complete at the end of each e-family meeting. The survey captured information regarding the process of the e-family meeting, such as the reason for the meeting, the number and types of individuals included in the meeting, and any technical impediments. Clinical participants were asked what went well, what could be improved, and how they felt the technology impacted the interaction using Likert-type scales and free-text boxes. We invited family members to participate in a brief, one- |

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Table 3 (continued)

| Author, Year, Country | Context | Description of the Strategy | Duration of Strategy | Level of Strategy | Outcomes |
|--|---|---|---|---|---|
| LopezSoto et al. 2020 [44] United Kingdom | Adult intensive care; Other: unclear if only adult critical care, described as a tertiary London teaching hospital | Non-Critical Care professionals have been pivotal in continuing the patient-family connection in our institution during the pandemic | March 25th and on going during pandemic | Organizational level | time, semi-structured, telephone interview to understand their experience with the technology and their feedback regarding the e-family meeting. Until May 10th, the FLT has facilitated over 12,000 (video) calls and communicated with > 90 % of PFFs daily. Further evaluation is underway. |
| Makwana et al. 2022 [45] India | Adult intensive care | Virtual communication unit was set up where relatives can communicate audio-visually with their patient and caregiver via video calling technology. | April 2021 to July 2021 | Individual nurse; Unit level (including interprofessional collaboration) | A significant decrease in the HAM (Hamilton Anxiety Scale) score after audio-visual communication than before the communication; the revalence of anxiety decreased post-communication. |
| Mendiola et al. 2021 [46] United States | Adult intensive care; Other: Critical Care department: neuro, medical, cardiac, and surgical-trauma units | With permissions from leadership, the visitation program served patients hospitalized within the 70-bed critical care department. Microsoft Teams was loaded onto the Stroke Surface Pro by IT prior to program onset. The coordinator conducted rounds on the unit, speaking with the patient's primary RN to determine whether the video visit service would be appropriate for them. Appointments were 30 min in length, with the video call limited to 20 min. The additional 10 min allowed ample time to clean the device in between visits and travel between rooms. | 20 min for interaction; 10 min for cleaning | Unit level (including interprofessional collaboration) | 193 visits were facilitated between critical care patients and their loved ones, with a daily average of 9 visits. Fifty-four patients participated in the video visit program during the duration. |
| Munsey et al. 2021 [47] United States | Acute care hospital [including 48 intensive care beds] | Establishment of Family Resource Centre were: 1) Facilitating communication 2) Facilitating family presence through staff guided remote communication between patients and family members 3) Managing patient belongings. 4) Managing community donations. 5) Coordinating discharge. | March 2020 to October 2020 | Organizational level; Individual nurse; Unit level (including interprofessional collaboration); | Person-centered care; A comprehensive patient and family survey specific to the hospital (The Healthcare Consumer Assessment of Healthcare Providers and Systems survey) |
| Rasheed 2021 [48] Other: Saudi Arabia | Adult intensive care | A video call service was set up between the patient and their family. The patient-family video call aimed to reduce the anxiety and sense of isolation that families felt when unable to visit their loved one. A team of nurses were trained for this purpose, and a checklist created to identify patients who could take advantage of this service | Not stated | Unit level (including interprofessional collaboration) | Clinician-family phone call: We analyzed 120 family responses, all of which were "satisfied." Although the satisfaction evaluation tool wasn't structured and validated, it gave us a clear indication that these initiatives had achieved the aimed goal of keeping families up-to-date about the patient's condition. |
| Rose 2021 [49] United Kingdom; Other: England, Wales, Scotland, and Northern Ireland. | Adult intensive care | Fourth generation-enabled Android tablets had been delivered to ICUs by a LifeLines philanthropic COVID-19 pandemic rapid response team with preinstalled aTouchAway software for the purposes of supporting family virtual visits to the ICU. | Video conferencing duration not noted | Individual nurse; Unit level (including interprofessional collaboration) | Virtual visiting benefits (not measured but described in a narrative way) |
| Rose et al. 2022 [50] United Kingdom | Adult intensive care | The Life Lines virtual visiting solution: secure cloud-based, one-way initiation of bi- | Not described | Individual nurse; Unit level (including interprofessional | Facilitators to successful conduct were intensive care unit team member presence; |

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Table 3 (continued)

| Author, Year, Country | Context | Description of the Strategy | Duration of Strategy | Level of Strategy | Outcomes |
|--|--|---|---|--|---|
| | | directional video and audio calling, initiated from an intensive care unit-based tablet to facilitate family-patient interaction | | collaboration); Organizational level | enabling family involvement in care; inclusivity, accessibility, and flexibility; and having a sense of control. Barriers that created distress or conflict included restrictive virtual visiting practices; raising expectations then failing to meet them; lack of virtual visit pre-planning; and failing to prepare the patient. Barriers to visit conduct were incorrect camera positioning, insufficient technical and staff resources, issues with three-way connectivity, and lack of call closure. |
| Ross 2021 [51] United States | Neonatal intensive care | Parents view their infant on Live-stream video visitation (VVS) services in the NICU using a one-way video application installed on their smart device | Continuous | Individual nurse; Unit level (including interprofessional collaboration); Organizational level | Few parents reported calling the NICU less to check on their baby because they could see their baby via screen. |
| Sasangohar et al. 2021 [52] United States | All intensive care units | Virtual ICU: operations centre, beside team to operate the video camera-in patient room and facilitate communication, and the audio-visual communication infrastructure | Averaged 30 min | Individual nurse | n = 57 family members with 86 % positive sentiments in interviews of family members; also experienced inability to communicate due to patient's status (44 %), technical difficulties (35 %), lack of touch and physical presence (11 %); would prefer on demand access (51 %), more communication with the care team (17 %), improved scheduling processes (10 %), and improved system feedback and technical difficulties (17 %) |
| Shariati et al. 2021 [53] Other: three of the hospitals in Iran | Adult intensive care | The intervention included web-based communication between the nurse and the family members of the patients in the intervention group. | In the intervention group, web-based communication was performed for four consecutive days for 10 to 15 min. | Individual nurse; Unit level (including interprofessional collaboration) | Mean perceived stress scores after the intervention in the two groups were significantly different and this mean was lower for the intervention group ($p < 0.001$). The mean post-intervention perceived stress scores in the intervention group decreased significantly compared to before the intervention ($p < 0.001$) while the mean post-intervention perceived stress scores increased in the control group compared to before the intervention, although this increase was not statistically significant ($p = 0.062$) (Table 2) |
| Tallent et al. 2021 [54] United States | Other: Pediatric cardiac intensive care unit | A virtual rounding (VR) program was implemented allowing parents of patients admitted to PCICU to join medical rounds remotely through teleconferencing. A team consisting of NPs and nurses learned how to set up virtual rounding sessions for families that wanted to participate. | The project outcomes were collected over 104 days: 62 days preimplementation, 37 days of early implementation using the webcam, and 67 days of full implementation using the Meeting Owl Pro. | Individual nurse; Unit level (including interprofessional collaboration) | VR did not increase rounding times after implementation ($p = 0.673$). Staff satisfaction surveys revealed that staff felt the VR program did not prolong rounding times ($p = 0.001$), workload impact perceptions improved after intervention ($p = < 0.001$), and staff felt VR should be offered to families in PCICU ($p = 0.001$). Only nine pFS-ICU surveys were completed giving the family a limited voice in the evaluation of this project. |

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Table 3 (continued)

| Author, Year, Country | Context | Description of the Strategy | Duration of Strategy | Level of Strategy | Outcomes |
|--|----------------------------------|---|----------------------------|--|--|
| Taylor et al. 2020 [55] United States | Adult intensive care | This program model is intended to provide a standardized approach for implementing a family engagement navigator program to deliver family-centered care. | Along hospitalization | Unit level (including interprofessional collaboration) | Fourteen (70 %) of the identified stakeholders responded to the survey. Ten constructs encompassing all five CFIR domains were present in responses as implementation influencers, with the Intervention domain most frequently represented. Through these results and operational feedback from navigators during the pilot period, stakeholders selected multiple implementation strategies: audit and provide feedback, develop educational materials, conduct ongoing training, promote adaptability, assess and redesign workflow, identify and prepare champions, and engage community resources |
| Turkmen and Kebapci 2022 [56] Other: Turkey | Other: third level COVID 19 ICU | The sVPV program was designed to ensure that both intubated and non-intubated COVID-19 patients and their family members could be brought together in a daily virtual environment under the leadership of the ICU nurse. | November and December 2020 | Individual nurse; Unit level (including interprofessional collaboration); Organizational level | The results show that the sVPV program is highly innovative and effective and contributed to positive patient outcomes and family-centered care practices during the COVID-19 pandemic |
| Vetcho et al. 2022 [57] Other: Thailand | Neonatal intensive care | Flexible visitation to daily updates (flexible hour) 1 h/day (over a flexible time period between 10AM–4PM. (6 h) and restricted visitors to only parents, excluded during procedures and resuscitation.● *Telephone call (at least three times per week) to update newborn progress and treatment in NICU. Information booklet, e-booklet and paper-based with the details for the COVID-19 situation including NICU introduction: environment; staff; NICU policies; visiting management, important information and parental education during admission to NICU. To assist with implementation of these revised practices, in August 2020, there were theoretical, case study and practical training activities held by the development working group for the health care professional team. | September–October 2020 | Individual nurse; Unit level (including interprofessional collaboration); Organizational level | There was an increase in parents' perception of respect, collaboration and support domains and overall. Implementation had significantly higher scores for all 20 PFCC-P items than parents pre implementation. There was a difference of at least 0.3 between pre- and post-implementation scores for 16 out of 20 items. The median scores of parents' perception in the post implementation significantly improved for respect, collaboration, support, and the overall scores. |
| Wang 2021 [58] United States | PACU (Post Anesthesia Care Unit) | Texting family within 30 mins PACU arrival and phone/video call within 60 mins PACU arrival | Not specified | Unit level (including interprofessional collaboration) | Patient and family satisfaction |
| Webb et al. 2021 [59] United Kingdom | Adult intensive care | Relatives were offered the opportunity to have a virtual visit through a video call | Sporadic | Individual nurse | Many families requested daily video calls and feedback was very positive; relatives were largely sympathetic to the reasons behind the strict no-visiting policy. |
| Yang et al. 2022 [60] China | Adult intensive care | During the visitation, the appointed families are invited separately to stay in the communication room accompanied by the charge nurse on duty. The charge nurse is required to re-assess the | Unclear | Unit level (including interprofessional collaboration); Organizational level | Not measured |

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Table 3 (continued)

| Author, Year, Country | Context | Description of the Strategy | Duration of Strategy | Level of Strategy | Outcomes |
|---------------------------------------|-------------------------|---|---------------------------------------|--|--|
| Yi et al. 2021 [61] China | Neonatal intensive care | health codes, symptoms and SARS-CoV-2 test results. The position of the charge nurse during visitation is also needed before the pandemic, but the content of the responsibility is altered. Family-centered care (FCC) has been adopted in many NICUs for the benefits which include but not limit to reducing parental stress and anxiety, increased rates of breastfeeding and parental satisfaction without the increase in hospital-acquired infections. However, FCC is an uncommon practice in the NICUs in China and other developing countries. During the COVID-19 pandemic, the management team of NICU came up with a series of systematic management strategies that ensured patient safety as the main principle and yet maintained the concept of FCC as much as possible | Not specified (along hospitalization) | Unit level (including interprofessional collaboration) | FCC outcomes (rates of breastfeeding at discharge, nosocomial infection and parents satisfaction) |
| Yuan et al. 2023 [62] China | Adult intensive care | Patients and their family members were given the option of using a video call method to communicate with each other once a day, as well as with the patient's nurse | Not described | Individual nurse; Unit level (including interprofessional collaboration) | A statistically significant difference in satisfaction was found between the two groups of patients, and the result of family members' satisfaction was also statistically significant. |
| Zante et al. 2022 [63] Switzerland | Adult intensive care | Video calls were made during the first wave of the COVID-19 pandemic when only end-of-life visits to the ICU were permitted | Not described | Individual nurse; Unit level (including interprofessional collaboration); Organizational level | No significant difference in IES-R scores was observed between the VCG and the SCG. During the ICU stay the members of the VCG made a median of 3 video calls. No difference between the groups was found for conventional telephone calls during the same period. The aFS-ICU 24R scores were high for both groups. |

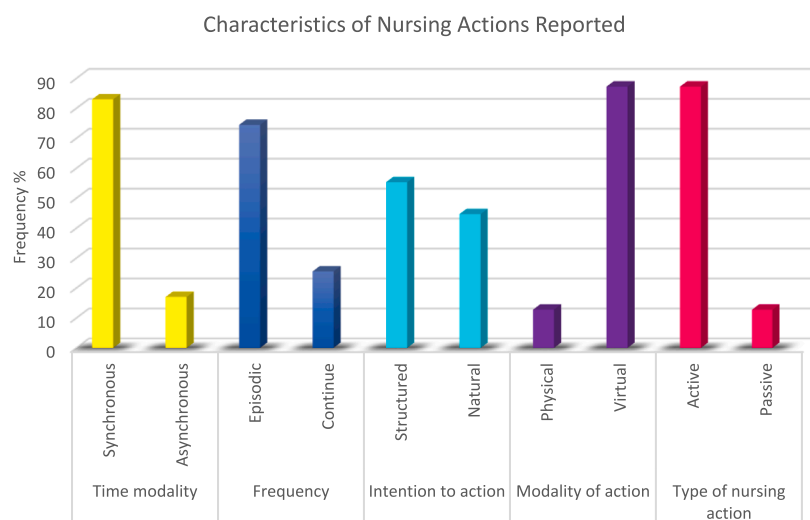
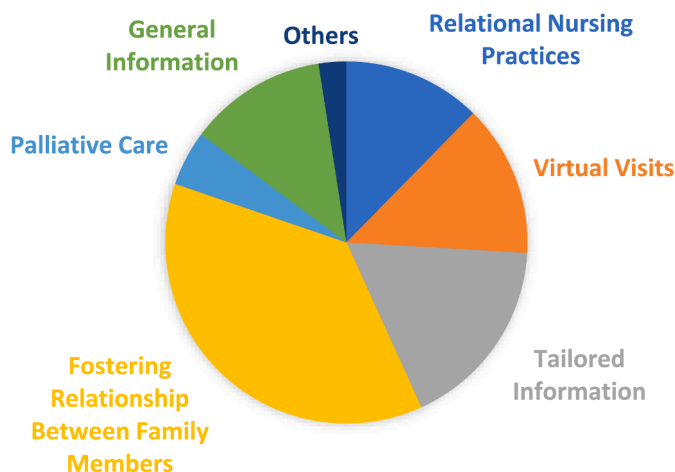


Fig. 2. Characteristic of Nursing Strategies Reported (n = 46).



Relational Nursing Practice: Every aspect of care regarding the relationship between nurse/health care provider and family members.

Virtual Visits: Interprofessional or nursing round.

Tailored Information: Information and guidance regarding the family priority or the specific situation of the patient.

Fostering Relationship Between Family Members: Anything that supports the relationship between family members.

Palliative Care: Any kind of support regarding the end of life.

General Information: General information and information related to COVID-19.

Others (i.e., support regarding belongings of the patient, preparation for discharge)

Fig. 3. Core Components of Nursing Actions Reported. *Relational Nursing Practice*: Every aspect of care regarding the relationship between nurse/health care provider and family members. *Virtual Visits*: Interprofessional or nursing round. *Tailored Information*: Information and guidance regarding the family priority or the specific situation of the patient. *Fostering Relationship Between Family Members*: Anything that supports the relationship between family members. *Palliative Care*: Any kind of support regarding the end of life. *General Information*: General information and information related to COVID-19. *Others* (i.e., support regarding belongings of the patient, preparation for discharge).

via the electronic tablet using the family member's aTouchAway account on their personal device.

Munsey et al. [47] described an innovative approach to maintaining an organizational philosophy of patient-centered care through a Family Resource Center (FRC) constructed as a physical structure adjacent to the hospital entrance which included 48 intensive care beds [47]. Family members could visit the FRC and connect to the patient virtually in a safe manner. The nurse, as part of the interprofessional team, guided the virtual visit and responded to patient and family needs in real time. The FRC has become a permanent service that acts as the hospital's main hub for enhancing person-centered care.

A combined high-technology and physical presence strategy was initiated early in the pandemic in Hangzhou, China [60]. This approach was a unit-level, family-centered moderate restrictive visitation program for adult intensive care. Family members were invited to come to a communication room outside the ICU to participate in important medical decisions. An intranet computer equipped with a secure information system provided access to all important information. The patient's family was connected to the patient's room using videocall technology. The charge nurse accompanied the patient's family, and the bedside nurse supported the patient. This allowed the charge nurse to briefly update the family on the patient's condition and treatment and then assist them in communicating with the patient via live video calls. This supported decision-making and allowed the charge nurse to clarify any confusing information. While leading nursing roles in this setting preceded the pandemic, their responsibilities shifted to implementing a family-centered moderate restrictive visitation program to enhance family involvement in decision-making. Organizational support was provided for this initiative, implemented at the individual nurse and unit levels.

An organizational-level intervention to address the impact of separation between patients and family members, even after death and the lost opportunity to be together at the end of life, was described [26]. Nurses, at the hospital level, coordinated the organization of the

patient's belongings. The deceased person's belongings were placed in specially designed bags (instead of in plastic garbage bags or specimen bags). Nurses then called the relatives to offer condolences and arranged to meet with the patient's family to return the belongings. These meetings occurred either in the hospital in a nonclinical meeting room or outside if the family preferred. If the family was not able to meet, they were mailed the belongings and a note of condolence, in the bag, with the goal of creating a memory of the patient having been cared for. This was a creative, low-cost, nurse-led, organizational initiative.

Differences between settings in nursing strategies to mitigate the impact of separation between patients and families

The most obvious differences in nursing strategies between settings were that actual physical visits and exceptions to visitor restrictions occurred most often in pediatric and neonatal critical care settings than adult acute/critical care settings [25,61]. Nurses promoted strategies to ensure that parents could accompany their child throughout the hospitalization while keeping parents and children safe. When family members were physically brought into the adult acute and critical care settings, it was typically prior to or after end of life [21,26,36].

Beyond differences noted between child and adult ICU settings, differences were also noted in how different organizations supported nurses in decreasing separation between patients and families in the COVID-19 pandemic. Some hospitals expanded critical care bed capacity while also prioritizing communication between family members and the staff caring for the patient. Nurse-guided remote communications [19,47], video call services, [48], Yuan et al. [62], Zante et al. [63], and web-based nurse-family member communication Shariati et al. [53] processes were developed to support nurses in maintaining the virtual presence of families with the patient and to inform families of patient condition changes, even if direct video links to the patient were not possible. Dürst et al. [28] found that both phone and video calls were useful in addressing the fears of death among patients and family members, with video calls being favored to decrease the anxiety

surrounding death. Yuan [62] described that the use of a daily video call with patient, family, and nurse producing a statistically significant change in satisfaction with care in an adult intensive care unit.

Finally, some organizations developed a specific nurse liaison role to support virtual or physical connections between patients and families [21,38,44,50,52]. Within these settings, nurses were typically part of an interprofessional team.

Discussion

We mapped the literature to describe the nursing practices and strategies used to mitigate the impact of forced separation between patients and their families. Across the 47 articles, nurses instituted active strategies, either alone or as part of interprofessional teams, to mitigate separation. Understanding the strategies used by nurses across the globe to mitigate separation of patients and families provides insight into the importance of nurses' role during a health delivery crisis, particularly if hospital policy is not aligned with best practices for family care [64–66], Ely and Ely [67].

Establishing ways to maintain the presence of family members during the threats of a critical illness have been discussed in previous acute and critical care research as a means to moderate post-intensive care syndrome (PICS) [68–70]. In addition, research has described emotional stress in family members of ICU patients. For example, the anxiety, depression, and posttraumatic stress disorder that comprise family member post-ICU syndrome (PICS-F) is fully recognized in critical care practice [66,71,72]. Family engagement and empowerment is a key element of the ICU Bundle [67]. Given the occurrence of restriction of family members of adults in critical care demonstrated in this study, it is likely that this practice would occur in future health care crisis events. If family engagement and empowerment are truly valued, it is essential to develop consistent access to virtual, video-centric communication between patients and their families.

Nursing strategies identified in this review required nurses to have knowledge and skills about how to interact with flexibility to meet patient and family connection needs [73]. Strategies in this paper include properties of complex adaptive systems described [74]. For instance, strategies used were complex because they included patients and families and they often included providing information and support through virtual means. Strategies were dynamic in that they required great adaptability in ever-changing and uncertain care environments. The context of COVID-19 held immense uncertainty within which to provide care. Nurses and their colleagues in intensive and critical care settings met the challenges of providing care in the complex context of COVID-19. Episodic, active, and synchronous connections provided by nurses as part of interprofessional collaboration at the unit level were the primary strategies used. Following a framework for developing and evaluating complex interventions to prepare for future care environment uncertainties would be somewhat novel [74]. Of particular note, such a framework would involve stakeholders (former patients, family members, the public, nurses and other professional care providers) in considering possible scenarios, key uncertainties, posing of strategies to connect patients and families in critical illness, and economic implications. Such an approach would intentionally involve family members and nurses in planning for system care of patients and contribute to patient- and family-centered care from the grass roots level [75]. Use of such a framework for developing and evaluating complex interventions may also empower nurses and give them a sense of control while promoting systems thinking. Innovative, systems level solutions may result.

Nurses, patients, and family members have been negatively affected by their inability to connect patients and their families during the COVID-19 pandemic [6,10,11,76]. In addition, reports of compassion fatigue and burnout among nurses as a result of navigating the care space during COVID-19 exist [77,78]. Nurses described the demands of providing regular updates and additional information to family members during visitation restrictions [10]. The infection control and

prevention measures instituted during the COVID-19 pandemic created physical separation barriers for family members and created a need for greater relational care from health care providers [79]. Supplying information increased the workload among hospital staff [80]. Decision-makers need to be aware of the negative impact of visitation restrictions and be prepared for the impact of injury on patients, families, and nurses [81].

There is a need to develop and test interventions that decrease existential distress in acute/critical illness situations among family caregivers of patients with serious illnesses [9,82]. Ensuring that clinicians are equipped with strategies to address existential distress in patients, families, and themselves is important [83].

Transparency in the process of making decisions about developing and completing visitor/family restrictions is critical, as ethical dilemmas are created by such practices [84]. Nurses described feeling alone and abandoned during the pandemic and were asked to enforce guidelines and practices in which they had no input [6]. Moral distress and moral injury, as well as the existential distress of nurses caused by separating families at end of life is an experience from which nurses are still trying to heal. Nurses may be in need of existential distress interventions as much as the families they care for [83,85].

Previous studies have shown that clinicians prefer to have family members present when the condition of adult patients begins to deteriorate [86], and a majority of critical care nurses support family presence during adult patient resuscitation [87]. Family members are often included as surrogates for decision-making during the management of chronic conditions [88]; due to physical visitation restrictions during COVID-19, nurses and other health care professionals devised other means to include family surrogates in decision-making. However, this practice left the adult patient physically alone during a time of suffering.

Limitations

Readers should be aware that while we mapped the literature published between March 2020 and September 2023, publications that describe and test interventions used during this time period may yet be published. Most of the included studies were qualitative due to the state of the available evidence at the time, which was primarily descriptive. Our purpose was to map the relevant literature; therefore, we did not evaluate the quality of the literature. This is consistent with the goals of a scoping review [89].

Conclusion

Nurses primarily used synchronous, episodic, and structured virtual interactions, either alone or as part of an interprofessional team, to mitigate separation between patients and families during the COVID-19 pandemic in acute and critical care settings. Nurses supported physical visits and exceptions to visitor restrictions in acute palliative care settings for the purpose of facilitating patient and family goodbyes and in pediatric and neonatal critical care settings for the purpose of facilitating parental presence with children throughout hospitalization. World and national critical care multidisciplinary associations should provide guidelines to support family centered care across the patient age spectrum by all means possible. Permanent policy changes are needed across acute and critical care settings to provide support for nurses to mitigate patient and family separation. We recommend that family members be considered as caregivers and care receivers, not visitors in patient and family-centered care in acute and critical care settings.

CRedit authorship contribution statement

Sonja Meiers: Writing – review & editing, Writing – original draft, Validation, Supervision, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Véronique de Goumoëns:** Writing – review & editing, Writing – original draft,

Visualization, Validation, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Lorraine Thirsk:** Writing – review & editing, Writing – original draft, Visualization, Validation, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Kristen Abbott-Anderson:** Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Petra Brysiewicz:** Writing – review & editing, Writing – original draft, Validation, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Sandra Eggenberger:** Writing – review & editing, Writing – original draft, Validation, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Mary Heitschmidt:** Writing – review & editing, Writing – original draft, Validation, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Blanche Kiszio:** Writing – review & editing, Writing – original draft, Validation, Methodology, Investigation, Data curation, Conceptualization. **Natalie S. McAndrew:** Writing – review & editing, Writing – original draft, Visualization, Validation, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Aspen Morman:** Writing – review & editing, Writing – original draft, Visualization, Investigation, Formal analysis, Data curation. **Sandra Richardson:** Writing – review & editing, Writing – original draft, Validation, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Ethical statement

We confirm that this work is original and has not been published elsewhere, nor is it currently under consideration for publication elsewhere.

We confirm that no human subjects were involved in this study and that all authors of studies included in the scoping review have reported that they followed human subjects protection measures.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.iccn.2024.103773>.

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