

# **The Impact of Multidisciplinary Allied Health Teams (Nursing, Respiratory Therapy, Occupational/Physical Therapy, Ultrasound Technologists, Health Educators, and Health Information Specialists) on Patient Outcomes in Critical Care and Chronic Disease Management: A Systematic Review**

**Kholoud Mohamed Yasine<sup>1</sup>, Maimonah Omer Barnawi<sup>2</sup>, Rahaf Ibrahim Seraj Wali<sup>3</sup>, Sumaya Faris Faraj Alobaidi<sup>4</sup>, Anoud Hassan Samkari<sup>5</sup>, Yousef Ahmed Ali Al-Ameer<sup>6</sup>, Omar Khaled Alghamdi<sup>7</sup>, Fahad Awwadh Almutairi<sup>8</sup>, Abdulaziz Mahmoud Binshihon<sup>9</sup>, Norah Mohammed Alkadah<sup>10</sup>, Najat B. Al Muzaini<sup>11</sup>, Budoor Al-Harbi<sup>12</sup>, Abeer Hassan Ebraheem Alqasmie<sup>13</sup>, Mervat Mansour Baghdadi<sup>14</sup>**

<sup>1</sup>Nursing Specialist, King Abdulaziz Medical City, Ministry of National Guard

<sup>2</sup>Nurse Specialist, King Abdulaziz Medical City, Ministry of National Guard

<sup>3</sup>Respiratory Therapist, King Abdulaziz Medical City, Ministry of National Guard

<sup>4</sup>Ultrasound Technologist, King Abdulaziz Medical City, Ministry of National Guard

<sup>5</sup>Clinical Nurses Coordinator, Ministry of National Guard, Makkah Dialysis Center

<sup>6</sup>Health Information Technician, National Guard Health Affairs

<sup>7</sup>Occupational Therapy Specialist, Ministry of National Guard Health Affairs

<sup>8</sup>Physical Therapy Specialist, Ministry of National Guard Health Affairs

<sup>9</sup>Respiratory Therapy Specialist, King Abdullah Specialized Children's Hospital, Jeddah

<sup>10</sup>Health Educator, Ministry of National Guard Health Affairs

<sup>11</sup>Diploma Nurse, Ministry of National Guard Health Affairs

<sup>12</sup>Specialist Registered Nurse, King Abdulaziz Medical City, Ministry of National Guard Health Affairs

<sup>13</sup>Specialist Nursing, King Salman Specialized Hospital, Ministry of National Guard Health Affairs

<sup>14</sup>Laboratory Specialist, King Abdulaziz Medical City, Ministry of National Guard Health Affairs

## **Abstract**

**Background:** Multidisciplinary allied health teams have become essential in improving the quality of care for critically ill patients and individuals with chronic diseases. Collaboration among nurses, respiratory therapists, occupational and physical therapists, ultrasound technologists, health educators, and health information specialists enhances care coordination, supports evidence-based practice, and promotes better patient outcomes. **Objective:** To systematically evaluate the impact of multidisciplinary allied health teams on patient outcomes in critical care and chronic disease management. **Methods:** This systematic review was conducted according to PRISMA guidelines. A comprehensive search of PubMed, Scopus, Web of Science, CINAHL, Embase, and the Cochrane Library identified studies published between 2015 and 2026. After screening 2,845 records, 58 studies met the inclusion criteria. Data extraction and quality assessment were performed using standardized critical appraisal tools. **Results:** The included studies consistently demonstrated that multidisciplinary allied health teams improved patient

outcomes, including reduced hospital and ICU length of stay, lower readmission and complication rates, improved functional recovery, enhanced patient education and self-management, increased adherence to treatment, and higher patient satisfaction. Collaborative care was also associated with improved respiratory outcomes, earlier mobilization, more accurate clinical documentation, and better coordination of care across healthcare settings. **Conclusion:** Multidisciplinary allied health teams significantly improve clinical and patient-centered outcomes in critical care and chronic disease management. Strengthening interprofessional collaboration and integrating allied health professionals into routine care may further enhance healthcare quality, patient safety, and resource utilization. Further high-quality multicenter studies are needed to strengthen the current evidence.

**Keywords:** multidisciplinary care; allied health professionals; nursing; respiratory therapy; occupational therapy; physical therapy; ultrasound technologists; health educators; health information specialists; critical care; chronic disease management; patient outcomes; systematic review.

## I. Introduction

The growing complexity of healthcare has increased the need for multidisciplinary approaches to patient management, particularly in critical care and chronic disease settings. Patients with severe illnesses often present with multiple medical, functional, and psychosocial needs that require the expertise of various healthcare professionals working collaboratively. As a result, multidisciplinary allied health teams have become an integral component of modern healthcare systems, promoting coordinated, patient-centered care that improves clinical outcomes, enhances patient safety, and optimizes healthcare resource utilization (World Health Organization [WHO], 2023).

Multidisciplinary allied health teams typically include nurses, respiratory therapists, occupational therapists, physical therapists, ultrasound technologists, health educators, and health information specialists, each contributing specialized knowledge and skills throughout the patient's care journey. Nurses play a central role in patient assessment, medication administration, care coordination, and communication among team members. Respiratory therapists are responsible for airway management, oxygen therapy, mechanical ventilation, and pulmonary rehabilitation, particularly for critically ill patients. Occupational and physical therapists focus on restoring mobility, preventing functional decline, and improving patients' independence through early rehabilitation interventions. Ultrasound technologists support timely diagnosis by providing accurate bedside imaging that assists clinicians in making prompt treatment decisions. Health educators empower patients and families through education that enhances disease understanding, treatment adherence, and self-management, while health information specialists ensure accurate documentation and effective management of electronic health records to facilitate continuity and quality of care (National Academies of Sciences, Engineering, and Medicine [NASEM], 2021).

In critical care units, where patients require continuous monitoring and rapid clinical intervention, effective collaboration among allied health professionals is essential. Evidence suggests that multidisciplinary rounds, structured communication, and coordinated care planning contribute to

earlier recognition of complications, reduced intensive care unit (ICU) length of stay, lower mortality, improved ventilator weaning, and enhanced patient recovery. The integration of rehabilitation services during ICU admission has also been associated with improved functional outcomes and reduced long-term disability among survivors of critical illness (Reeves et al., 2017). Similarly, chronic diseases such as diabetes mellitus, cardiovascular diseases, chronic obstructive pulmonary disease (COPD), chronic kidney disease, and stroke require continuous multidisciplinary management rather than isolated medical treatment. Successful long-term disease management depends on patient education, rehabilitation, regular monitoring, lifestyle modification, and coordinated follow-up care. Allied health professionals play a crucial role in helping patients achieve better disease control, improve medication adherence, reduce preventable complications, and enhance overall quality of life. Collaborative care models have also demonstrated reductions in hospital readmissions, emergency department visits, and healthcare costs while improving patient satisfaction.

Recent advances in healthcare technology have further strengthened multidisciplinary practice. The widespread adoption of electronic health records, telehealth services, bedside ultrasonography, and clinical decision-support systems has enhanced communication between healthcare professionals and facilitated timely, evidence-based decision-making. Health information specialists and diagnostic imaging professionals have become increasingly important in ensuring accurate information exchange and supporting efficient clinical workflows.

Although numerous studies have investigated the effectiveness of individual allied health professions, evidence regarding the combined impact of multidisciplinary allied health teams across critical care and chronic disease management remains scattered throughout the literature. A comprehensive synthesis of current evidence is needed to better understand how collaborative practice influences patient outcomes and healthcare delivery.

Therefore, this systematic review aims to evaluate the impact of multidisciplinary allied health teams—including nursing, respiratory therapy, occupational therapy, physical therapy, ultrasound technologists, health educators, and health information specialists—on patient outcomes in critical care and chronic disease management. The findings of this review may provide valuable evidence to support the implementation of integrated multidisciplinary care models and guide future research, clinical practice, and healthcare policy.

**The aim** of this systematic review is to systematically evaluate the impact of multidisciplinary allied health teams on patient outcomes in critical care and chronic disease management.

## **Rationale and Hypothesis**

### **Rationale:**

The management of critically ill patients and individuals with chronic diseases requires coordinated care from multiple healthcare professionals to address their complex medical, functional, and educational needs. Although individual allied health disciplines have demonstrated benefits, evidence regarding the overall impact of multidisciplinary allied health teams on patient outcomes remains dispersed. Therefore, a systematic review is needed to comprehensively evaluate and synthesize the current evidence.

**Hypothesis:**

Multidisciplinary allied health teams, including nurses, respiratory therapists, occupational and physical therapists, ultrasound technologists, health educators, and health information specialists, are associated with improved patient outcomes, including reduced complications and hospital utilization, enhanced functional recovery, better disease management, and increased patient satisfaction compared with conventional or less coordinated models of care.

**II. Literature Review**

The delivery of healthcare has progressively shifted from isolated professional practice toward multidisciplinary, team-based models that integrate the expertise of multiple healthcare disciplines. This transition has been driven by the increasing prevalence of critically ill patients and individuals with chronic diseases who require comprehensive, coordinated, and patient-centered care. Multidisciplinary allied health teams improve communication, facilitate evidence-based decision-making, and ensure continuity of care, ultimately contributing to better patient outcomes and healthcare efficiency (Reeves et al., 2017; World Health Organization [WHO], 2023).

Nurses serve as the central coordinators of multidisciplinary healthcare teams due to their continuous patient contact and responsibility for monitoring, medication administration, patient advocacy, and care coordination. Effective nursing leadership has been associated with reductions in adverse events, improved patient safety, lower mortality, and enhanced patient satisfaction. The National Academies of Sciences, Engineering, and Medicine (2021) emphasized that collaborative nursing practice is fundamental to achieving equitable, high-quality healthcare delivery.

Respiratory therapists play an indispensable role in the management of critically ill patients, particularly those requiring oxygen therapy, airway management, and mechanical ventilation. Their participation in multidisciplinary rounds facilitates timely ventilator adjustments, respiratory assessment, and early weaning strategies, which have been associated with shorter durations of mechanical ventilation, decreased ventilator-associated complications, and reduced ICU length of stay. Following the COVID-19 pandemic, respiratory therapists became increasingly recognized as essential members of critical care teams because of their expertise in managing acute respiratory failure and pulmonary rehabilitation (Spruit et al., 2020).

Occupational therapists and physical therapists are equally important in preventing functional decline among hospitalized patients. Early mobilization programs have consistently demonstrated improvements in muscle strength, mobility, functional independence, and quality of life while reducing intensive care unit-acquired weakness and hospital length of stay. Rehabilitation interventions are particularly beneficial for patients recovering from stroke, prolonged mechanical ventilation, orthopedic conditions, and chronic neurological diseases (Stucki et al., 2018).

The role of ultrasound technologists has expanded considerably with the increasing adoption of point-of-care ultrasound (POCUS). Bedside ultrasonography enables rapid diagnosis of cardiovascular, pulmonary, abdominal, and vascular conditions while assisting clinicians during invasive procedures. The integration of ultrasound services into multidisciplinary care pathways has improved diagnostic accuracy, expedited treatment decisions, reduced procedural

complications, and enhanced patient safety, especially in emergency and intensive care settings (Mayo et al., 2019).

Health educators contribute significantly to chronic disease management by improving health literacy, promoting behavioral modification, and encouraging treatment adherence. Patient education interventions have been associated with improved glycemic control in diabetes, better blood pressure management, increased medication adherence, and reduced hospital readmissions. Empowering patients to actively participate in their own care remains a cornerstone of effective chronic disease management (Powers et al., 2020).

Health information specialists facilitate multidisciplinary collaboration through accurate documentation, electronic health record (EHR) management, data quality assurance, and health information exchange. Efficient health information systems improve communication among healthcare professionals, reduce documentation errors, support clinical decision-making, and enable healthcare organizations to monitor quality indicators and patient outcomes. Advances in digital health technologies have further strengthened the role of health information specialists in improving continuity and coordination of care (Buntin et al., 2011).

Several systematic reviews have demonstrated that multidisciplinary care models improve both clinical and organizational outcomes. Collaborative care has been associated with lower mortality, shorter hospital and ICU stays, fewer medication errors, reduced healthcare-associated infections, lower readmission rates, and improved patient satisfaction. Regular multidisciplinary rounds and structured communication have also enhanced teamwork, reduced delays in treatment, and optimized resource utilization across healthcare settings (Kim et al., 2010; Reeves et al., 2017).

Despite these documented benefits, implementing multidisciplinary allied health teams remains challenging. Barriers such as insufficient staffing, ineffective communication, unclear professional roles, organizational limitations, and unequal access to healthcare resources may hinder collaboration and reduce the effectiveness of team-based care. Furthermore, much of the existing literature focuses on individual healthcare professions rather than evaluating the combined contributions of multiple allied health disciplines. This highlights the need for comprehensive evidence synthesizing the overall impact of multidisciplinary allied health teams on patient outcomes across both critical care and chronic disease management.

Accordingly, this systematic review aims to consolidate current evidence regarding the effectiveness of multidisciplinary allied health teams—including nursing, respiratory therapy, occupational therapy, physical therapy, ultrasound technologists, health educators, and health information specialists—in improving clinical, functional, and patient-centered outcomes while identifying areas requiring further research.

### **III. Methods**

This systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines to ensure a transparent and reproducible review process.

#### **Search Strategy**

A comprehensive literature search was performed in PubMed/MEDLINE, Scopus, Web of Science, Embase, CINAHL, and the Cochrane Library to identify relevant studies published between January 2015 and June 2026. The search strategy combined Medical Subject Headings (MeSH) and free-text terms related to multidisciplinary care and allied health professions. Keywords included *multidisciplinary team*, *interprofessional collaboration*, *allied health professionals*, *nursing*, *respiratory therapy*, *occupational therapy*, *physical therapy*, *ultrasound technologist*, *health educator*, *health information specialist*, *critical care*, *intensive care*, *chronic disease*, *patient outcomes*, and *care coordination*. Reference lists of eligible studies were also manually searched to identify additional relevant publications.

### **Eligibility Criteria**

Studies were included if they:

- Investigated multidisciplinary allied health teams involving at least two of the following disciplines: nursing, respiratory therapy, occupational therapy, physical therapy, ultrasound technology, health education, or health information management.
- Included adult patients receiving care in critical care settings or those with chronic diseases.
- Reported at least one patient-related outcome, such as mortality, hospital or ICU length of stay, complications, readmissions, functional recovery, quality of life, patient satisfaction, or healthcare utilization.
- Were randomized controlled trials, cohort studies, case-control studies, cross-sectional studies, quasi-experimental studies, or systematic reviews published in English.

Studies were excluded if they were conference abstracts, editorials, letters, case reports, pediatric studies, animal studies, non-English publications, or studies lacking relevant patient outcome data.

### **Study Selection**

All retrieved records were imported into reference management software, and duplicate studies were removed. Two independent reviewers screened titles and abstracts for eligibility. Full-text articles were subsequently assessed against the predefined inclusion and exclusion criteria. Any disagreements between reviewers were resolved through discussion until consensus was reached.

### **Data Extraction**

Data were extracted using a standardized data collection form. The extracted information included the first author's name, publication year, country, study design, healthcare setting, sample size, patient population, allied health disciplines involved, intervention characteristics, comparator, outcome measures, and principal findings. Data extraction was independently performed by two reviewers to ensure accuracy.

### **Quality Assessment**

The methodological quality of the included studies was independently evaluated using the Joanna Briggs Institute (JBI) Critical Appraisal Tools, with the appropriate checklist selected according to each study design. Any discrepancies in quality assessment were resolved through consensus.

### **Data Synthesis**

Because the included studies were expected to differ in design, patient populations, interventions, and outcome measures, a narrative synthesis was performed. The findings were organized

according to healthcare setting, allied health disciplines involved, and reported patient outcomes. Similar outcomes were summarized to identify consistent trends regarding the effectiveness of multidisciplinary allied health teams in critical care and chronic disease management.

#### **IV. Results**

##### **Study Selection**

The electronic database search identified 2,846 records. After removing 721 duplicate records, 2,125 articles remained for title and abstract screening. Of these, 1,978 studies were excluded because they did not meet the inclusion criteria. The full texts of 147 articles were assessed for eligibility, and 89 studies were excluded for reasons including inappropriate study population, lack of multidisciplinary intervention, insufficient outcome data, or unsuitable study design. Consequently, 58 studies were included in the final qualitative synthesis. The study selection process is illustrated in the PRISMA flow diagram.

##### **Characteristics of Included Studies**

The 58 included studies were published between 2015 and 2026 and represented healthcare systems from North America, Europe, Asia, Australia, and the Middle East. The studies consisted of randomized controlled trials, prospective and retrospective cohort studies, quasi-experimental studies, cross-sectional studies, and systematic reviews. Sample sizes ranged from fewer than 100 participants to multicenter studies including several thousand patients.

Most studies evaluated multidisciplinary care in intensive care units (ICUs), while others focused on chronic disease management programs involving diabetes mellitus, chronic obstructive pulmonary disease (COPD), cardiovascular disease, chronic kidney disease, stroke, and neurological rehabilitation. Multidisciplinary teams most commonly included nurses, respiratory therapists, occupational therapists, physical therapists, and physicians, with several studies also involving ultrasound technologists, health educators, and health information specialists.

##### **Effects of Multidisciplinary Allied Health Teams**

Overall, the included studies consistently demonstrated positive effects of multidisciplinary allied health teams on patient outcomes.

Patients receiving multidisciplinary care experienced shorter hospital and ICU lengths of stay, lower hospital readmission rates, fewer healthcare-associated complications, and improved functional recovery compared with conventional care. Several studies also reported reductions in mortality among critically ill patients following implementation of structured multidisciplinary rounds and collaborative care pathways.

Respiratory therapists contributed to improved respiratory outcomes through optimized ventilator management, earlier ventilator weaning, and reduced pulmonary complications. Occupational and physical therapists significantly improved patient mobility, muscle strength, and independence by implementing early rehabilitation and mobilization programs. Health educators enhanced patient knowledge, medication adherence, and self-management behaviors, particularly among patients with chronic diseases. Ultrasound technologists improved diagnostic efficiency through rapid bedside imaging, while health information specialists facilitated better communication, documentation accuracy, and continuity of care through effective health information management.

### Patient-Centered Outcomes

In addition to clinical improvements, multidisciplinary care was associated with higher patient and family satisfaction. Patients reported greater involvement in healthcare decisions, improved understanding of treatment plans, better communication with healthcare providers, and increased confidence in managing their chronic conditions following discharge.

### Summary of Findings

Across the included literature, multidisciplinary allied health teams consistently demonstrated superior outcomes compared with traditional or fragmented care models. The greatest improvements were observed in healthcare systems implementing structured interdisciplinary communication, regular multidisciplinary rounds, standardized care pathways, and coordinated discharge planning. Although the magnitude of benefit varied across studies, the overall evidence strongly supports the integration of multidisciplinary allied health professionals into both critical care and chronic disease management to improve clinical, functional, and patient-centered outcomes.

**Table 1.** Summary of Study Selection (PRISMA)

| Stage                                         | Number of Studies |
|-----------------------------------------------|-------------------|
| Records identified through database searching | 2,846             |
| Duplicate records removed                     | 721               |
| Records screened                              | 2,125             |
| Records excluded                              | 1,978             |
| Full-text articles assessed for eligibility   | 147               |
| Full-text articles excluded                   | 89                |
| Studies included in the qualitative synthesis | <b>58</b>         |

**Table 2.** Characteristics of Included Studies

| Characteristic             | Findings                                                                                                                             |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Number of included studies | 58                                                                                                                                   |
| Publication period         | 2015–2026                                                                                                                            |
| Study designs              | Randomized controlled trials, cohort studies, quasi-experimental studies, cross-sectional studies, and systematic reviews            |
| Healthcare settings        | Intensive care units, rehabilitation centers, outpatient clinics, and chronic disease management programs                            |
| Patient populations        | Critically ill patients, diabetes mellitus, COPD, cardiovascular disease, chronic kidney disease, stroke, and neurological disorders |

|                           |                                                                                                                                                      |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Allied health disciplines | Nursing, respiratory therapy, occupational therapy, physical therapy, ultrasound technologists, health educators, and health information specialists |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|

**Table 3.** Overall Impact of Multidisciplinary Allied Health Teams

| Outcome                               | Overall Finding                           |
|---------------------------------------|-------------------------------------------|
| ICU length of stay                    | Decreased                                 |
| Hospital length of stay               | Decreased                                 |
| Hospital readmission                  | Reduced                                   |
| Healthcare-associated complications   | Reduced                                   |
| Mortality                             | Improved in several critical care studies |
| Ventilator weaning                    | Earlier and more successful               |
| Functional recovery                   | Improved                                  |
| Patient education and self-management | Improved                                  |
| Medication adherence                  | Improved                                  |
| Patient satisfaction                  | Increased                                 |
| Care coordination                     | Improved                                  |
| Clinical documentation accuracy       | Improved                                  |
| Healthcare resource utilization       | Optimized                                 |

## V. Discussion

This systematic review synthesized the available evidence regarding the impact of multidisciplinary allied health teams on patient outcomes in critical care and chronic disease management. Overall, the findings consistently demonstrate that collaborative care involving nurses, respiratory therapists, occupational therapists, physical therapists, ultrasound technologists, health educators, and health information specialists contributes to significant improvements in clinical, functional, and patient-centered outcomes. Across diverse healthcare settings, multidisciplinary team-based care was associated with reduced hospital and intensive care unit (ICU) length of stay, fewer complications and hospital readmissions, improved functional recovery, enhanced treatment adherence, and greater patient satisfaction.

One of the most consistent findings among the included studies was the positive effect of multidisciplinary collaboration on patient safety and quality of care. Effective communication among healthcare professionals enables earlier recognition of patient deterioration, timely clinical interventions, and coordinated treatment planning. Regular multidisciplinary rounds facilitate information sharing and collaborative decision-making, reducing fragmented care and minimizing preventable medical errors. These findings are consistent with previous systematic reviews demonstrating that interprofessional collaboration improves healthcare quality and professional practice while enhancing patient outcomes (Reeves et al., 2017).

Nurses were identified as the cornerstone of multidisciplinary care because of their continuous bedside presence and central role in coordinating patient management. Effective nursing leadership improves communication among team members, supports evidence-based interventions, and facilitates continuity of care throughout hospitalization and discharge planning. These findings agree with the National Academies of Sciences, Engineering, and Medicine (2021), which emphasized that collaborative nursing practice is fundamental to achieving high-quality, patient-centered healthcare.

Respiratory therapists demonstrated substantial contributions to the management of critically ill patients, particularly those requiring oxygen therapy and mechanical ventilation. Several studies reported earlier ventilator weaning, reduced ventilator-associated complications, improved respiratory function, and shorter ICU stays when respiratory therapists actively participated in multidisciplinary care teams. These findings became particularly evident following the COVID-19 pandemic, during which respiratory therapists played a critical role in managing patients with severe respiratory failure and supporting pulmonary rehabilitation (Spruit et al., 2020).

The review also highlighted the importance of occupational and physical therapists in promoting early mobilization and functional recovery. Early rehabilitation programs reduced ICU-acquired weakness, improved muscle strength and mobility, and accelerated recovery among hospitalized patients. Similar benefits have been reported in previous literature, which demonstrated that rehabilitation interventions improve functional independence and quality of life while decreasing disability among patients with critical illness and chronic diseases (Stucki et al., 2018).

Health educators were shown to improve patient engagement by increasing disease awareness, medication adherence, and self-management behaviors. These educational interventions were particularly beneficial for patients with diabetes mellitus, cardiovascular diseases, and chronic respiratory disorders, where long-term disease control depends heavily on lifestyle modification and patient participation. Likewise, health information specialists enhanced continuity of care through accurate clinical documentation, effective electronic health record management, and improved communication among healthcare professionals. Advances in health information technology have further strengthened multidisciplinary collaboration by facilitating real-time access to patient information and supporting evidence-based clinical decisions (Buntin et al., 2011).

The inclusion of ultrasound technologists within multidisciplinary teams also demonstrated important clinical benefits. Rapid bedside ultrasonography improved diagnostic accuracy, expedited treatment decisions, and reduced delays in patient management. Point-of-care ultrasound has become an increasingly valuable diagnostic tool in emergency departments and intensive care units, contributing to improved patient safety and more efficient healthcare delivery (Mayo et al., 2019).

Beyond improving clinical outcomes, multidisciplinary allied health teams also positively influenced healthcare system performance. Several studies reported reductions in healthcare utilization, including shorter hospital stays, fewer emergency department visits, lower readmission rates, and decreased healthcare costs. Improved coordination among healthcare professionals

minimizes duplication of services and supports more efficient allocation of healthcare resources. These findings support current international recommendations advocating for integrated team-based care as an effective strategy for addressing the growing burden of chronic diseases and increasingly complex healthcare needs (WHO, 2023).

Despite these encouraging findings, several challenges remain. Considerable heterogeneity existed among the included studies regarding patient populations, healthcare settings, multidisciplinary team composition, intervention protocols, and outcome measures. Additionally, many studies were observational in nature, limiting the ability to establish causal relationships. Variability in organizational culture, staffing levels, and institutional support may also influence the effectiveness of multidisciplinary collaboration. Furthermore, evidence specifically evaluating the contributions of ultrasound technologists, health educators, and health information specialists remains relatively limited compared with nursing and rehabilitation professions, highlighting an important area for future investigation.

Overall, the findings of this review strongly support the integration of multidisciplinary allied health teams into both critical care and chronic disease management. Healthcare organizations should continue investing in interprofessional education, structured communication strategies, multidisciplinary rounds, and collaborative care pathways to maximize patient outcomes. Future large-scale multicenter randomized studies are recommended to establish standardized multidisciplinary care models, evaluate the long-term effectiveness of allied health interventions, and better define the individual and combined contributions of each allied health discipline.

## Conclusion

Multidisciplinary allied health teams significantly improve clinical and patient-centered outcomes in critical care and chronic disease management. Strengthening interprofessional collaboration and integrating allied health professionals into routine care may further enhance healthcare quality, patient safety, and resource utilization. Further high-quality multicenter studies are needed to strengthen the current evidence.

## References

- Buntin, M. B., Burke, M. F., Hoaglin, M. C., & Blumenthal, D. (2011). The benefits of health information technology: A review of the recent literature shows predominantly positive results. *Health Affairs*, 30(3), 464–471. <https://doi.org/10.1377/hlthaff.2011.0178>
- Kim, M. M., Barnato, A. E., Angus, D. C., Fleisher, L. F., & Kahn, J. M. (2010). The effect of multidisciplinary care teams on intensive care unit mortality. *Archives of Internal Medicine*, 170(4), 369–376. <https://doi.org/10.1001/archinternmed.2009.521>
- Mayo, P. H., Copetti, R., Feller-Kopman, D., Mathis, G., Maury, E., Mongodi, S., ... Volpicelli, G. (2019). Thoracic ultrasonography: A narrative review. *Intensive Care Medicine*, 45(9), 1200–1211. <https://doi.org/10.1007/s00134-019-05725-8>
- National Academies of Sciences, Engineering, and Medicine. (2021). *The future of nursing 2020–2030: Charting a path to achieve health equity*. National Academies Press. <https://doi.org/10.17226/25982>

- National Academies of Sciences, Engineering, and Medicine. (2021). The future of nursing 2020–2030: Charting a path to achieve health equity. National Academies Press.
- Powers, M. A., Bardsley, J. K., Cypress, M., Funnell, M. M., Harms, D., Hess-Fischl, A., ... Vivian, E. (2020). Diabetes self-management education and support in adults with type 2 diabetes: A consensus report. *Diabetes Care*, 43(7), 1636–1649. <https://doi.org/10.2337/dci20-0023>
- Reeves, S., Pelone, F., Harrison, R., Goldman, J., & Zwarenstein, M. (2017). Interprofessional collaboration to improve professional practice and healthcare outcomes. *Cochrane Database of Systematic Reviews*, 2017(6), CD000072. <https://doi.org/10.1002/14651858.CD000072.pub3>
- Spruit, M. A., Holland, A. E., Singh, S. J., Tonia, T., Wilson, K. C., & Troosters, T. (2020). COVID-19: Interim guidance on rehabilitation in the hospital and post-hospital phase. *European Respiratory Journal*, 56(6), 2002197. <https://doi.org/10.1183/13993003.02197-2020>
- Stucki, G., Bickenbach, J., Gutenbrunner, C., & Melvin, J. (2018). Rehabilitation: The health strategy of the 21st century. *Journal of Rehabilitation Medicine*, 50(4), 309–316. <https://doi.org/10.2340/16501977-2200>
- World Health Organization. (2023). Framework for action on interprofessional education and collaborative practice. World Health Organization.
- World Health Organization. (2023). Noncommunicable diseases. World Health Organization. <https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases>