


Synergistic strategies: Optimizing outcomes through a multidisciplinary approach to clinical rounds

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ABSTRACT

Multidisciplinary rounds (MDR) constitute a patient-centered care model wherein professionals from diverse disciplines collaborate in real time to provide specialized expertise. The MDR team, encompassing care partners, hospitalists, nurses, pharmacists, and more, employs a collaborative approach that optimizes patient care through shared goals, electronic record access, regular reviews, and patient involvement. MDRs have evolved to reduce patient mortality, complications, length of stay, and readmissions, and they enhance patient satisfaction and utilization of ancillary services. Family engagement in MDRs further transforms relationships from adversarial to collaborative, leading to improved comprehension of treatment strategies and smoother navigation of challenging conversations. Despite challenges such as time constraints, limited patient coverage, and hierarchical barriers, MDRs are being increasingly conducted across healthcare settings, with positive outcomes.

KEYWORDS Interdisciplinary; interprofessional collaboration; multidisciplinary rounds; multidisciplinary team; patient-centered care

Multidisciplinary rounds (MDR) are a patient-centered model of care where professionals from different disciplines come together, form a team, and collaborate to offer expertise and contribute to patient care in a concerted manner in real time.¹ The MDR team consists of hospitalists, care partners, nurses, pharmacists, case managers, and social workers² and may also include physiotherapists, dietitians, and other professionals, with each member having a role in patient care (*Figure 1*). Physicians and bedside nurses contribute by outlining the admitting diagnosis, relevant medical history, treatment approaches, expected duration of the stay, and plans for post-acute care, while care coordinators and social workers are responsible for identifying crucial resources and managing various options for discharge. Bedside nurses are responsible for administration of medicine, taking vital signs, changing linens, and addressing patients' immediate needs such as pain management.³ Clinical pharmacists come into play to assess the suitability of medications and implement monitoring strategies,

particularly for high-risk medicines. Physical therapists perform assessments to evaluate mobility, transfers, and gait, providing insights into specialized service needs, while dietitians assess the patient's nutritional status and offer well-informed dietary recommendations. This approach enhances patient care by utilizing most of the expertise of individual team members.⁴

Historically, the effectiveness of multidisciplinary teams in medicine was proven during World War II, leading to the establishment of specialty-oriented teams in areas such as surgery, burns, and mental health. The concept then spread with the Education for All Handicapped Children Act of 1975. Primary care interdisciplinary teams started with Montefiore Hospital's efforts and Silver's Family Health Maintenance Demonstration Project. The University of Washington also pioneered a comprehensive interdisciplinary approach to family healthcare, emphasizing prevention and a family-centered model.⁵

A competent MDR approach is attributed to (1) shared treatment goals, (2) shared access to electronic records, (3)

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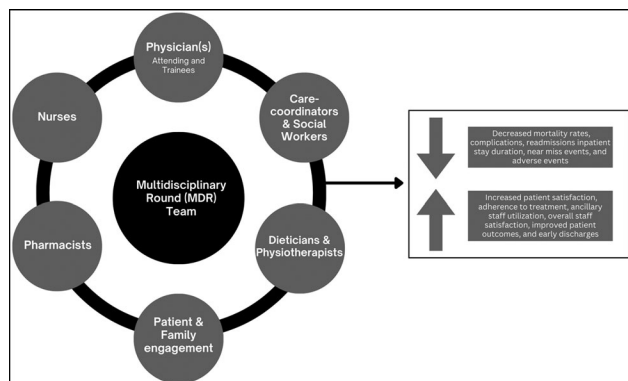


Figure 1. Members of MDR team and the benefits of an MDR approach.

regular reviews, (4) equal partnership, (5) proactive members, (6) involvement of patients/families in decision-making, and (7) the ability to connect through different platforms (in person/virtual/telephonic).⁶ MDRs have been found to decrease patient mortality, complications, length of stay (LOS), and readmissions, improve levels of patient satisfaction, and result in higher utilization of ancillary services such as physical therapy and nutritional services,⁷ in addition to improving communication among various healthcare disciplines, decreasing near-miss events and errors, and reducing the obstacles separating healthcare providers, patients, and their families.⁸ The active engagement of family members in rounds contributes to improved comprehension of the treatment strategy and heightened satisfaction with physician communication. Families' participation frequently offers valuable insights that shape the patient's care plan, and this involvement fosters a shift in the relationship between families and the healthcare team from adversarial to collaborative, facilitating smoother navigation through challenging conversations.⁹

Despite numerous advantages associated with the utilization of MDRs, concerns have arisen among personnel from diverse disciplines around the efficiency of rounds due to constraints in time allocation. More specifically, some staff members have noted that the scope of patient coverage is limited within the given time frame, which compounds the challenges of managing an already demanding schedule. Additionally, some nurses mentioned a lack of opportunity to participate in the decision-making process.¹⁰ The hierarchical culture between physicians and nurses and the discomfort of patients, physicians, and nurses during bedside encounters are other barriers to MDRs being effectively deployed at the bedside.¹¹ This review aims to comprehensively examine and analyze the multifaceted aspects of MDR in healthcare, focusing on their roles, benefits, challenges, and strategies for optimal implementation, with a specific emphasis on the integration of family engagement for enhanced patient-centered care.

BENEFITS OF EFFECTIVE MULTIDISCIPLINARY ROUNDS

A multidisciplinary approach benefits health professionals by bringing more clarity to each team member's role, simplifying their duties, and comprehending a plan of care rather

than referring back to the patient's chart. A structured plan and better communication between the members during the rounds led to decreased adverse events and higher patient safety, as reported in a study by Mueller et al in 2011.¹² Engaging the patient and/or family members during MDR keeps them informed of their daily progress and promotes compliance with the treatment plan, reducing morbidity and medical mistrust.¹³ MDR also helps with being acquainted with the patients' ethical concerns, such as advance care directives, respecting their autonomy, and ensuring unnecessary interventions.¹⁰

Patient outcomes, length of stay, and cost reductions

Patients admitted to the hospital present with one or more symptoms involving different organ systems, requiring consultations with multiple healthcare professionals. Inpatient care is handled by different healthcare professional teams, including hospitalists, nursing staff, dietitians, pharmacists, physiotherapists, and social workers; however, the more challenges seen in a patient, the stronger the need to collaborate with more professionals. Hence, multidisciplinary teams could also include subspecialists like rheumatologists, oncologists, infectious disease specialists, nephrologists, and others, pertinent to management of complex multisystem disorders.¹⁴

The impacts of the MDR approach can be demonstrated by teamwork contributing to safe and reliable care, lower rates of errors, decreased ventilator days and central line days, a shorter LOS in the hospital with expedited discharges, a better flow of patients, and higher collaboration and satisfaction of all team members.¹ It was reported that better communication between the teams contributed to reduced morbidity and mortality in the patient and higher patient/family satisfaction rates as disease identification, interventions, and referrals were accelerated.^{15,16}

In a study by Epstein et al, MDR was found to not only improve patient outcomes and reduce hospital stays but also lead to improved performance by healthcare professionals, fewer adverse events, and reduced costs.⁸ The key to MDR is to share a common goal, be mutually accountable for providing patient care, and simultaneously allow each individual team to provide their expertise. Implementation of MDR across all clinical settings was proposed to help increase communication between members of the care team, ultimately leading to better clinical outcomes.¹⁰

In a study identifying outcomes of MDR, there was a decrease in all-cause mortality before and after MDR implementation (2.8% to 1.6%; $P < 0.03$), an increase in visits to physical therapy (35.2% to 53.5%; $P < 0.01$) and nutritionists (7.2% to 19.3%; $P < 0.01$), and a minor decrease in LOS before and after MDR implementation (4.2 vs 4.4 days; $P = 0.21$) which was not statistically significant.⁷ While some aspects of physical therapy and early patient ambulation could be delegated to nurses, this could potentially be counterproductive as it would further worsen the

ever-increasing workload on nurses and could negatively affect patient safety.¹⁷

A pilot project performed over a 15-month period to enhance healthcare outcomes showed an estimated cost reduction of \$1.0 to \$2.3 million by the use of an MDR approach in critically ill patients.¹⁸ With institution of daily MDR in an intervention group, physicians collaborated better with nurse practitioners ($P < 0.001$), staff nurses ($P < 0.001$), and fellow physicians ($P < 0.006$) than those in the control group. Nurses in the intervention and control groups reported similar levels of collaboration ($P = 0.47$) and communication with physicians ($P = 0.59$); however, better communication with nurse practitioners was reported by the intervention-group nurses than with physicians ($P < 0.001$).¹⁹

A study in end-stage heart failure patients requiring ventricular assist therapy reported that a multidisciplinary approach decreased LOS in postoperative patients from 61 to 15 days ($P < 0.001$) with reduction in costs (\$202,238 vs \$161,744, $P < 0.01$), and decreased the on-floor LOS from 35 to 7 days ($P = 0.03$) with a cost reduction ranging from \$47,111 to \$8742 ($P < 0.01$) when compared with a single discipline approach. The same study also reported a drop in the 30-day readmission rate from 71% to 7% ($P < 0.01$) comparing the traditional single discipline approach vs the MDR approach. However, the limited sample size of 20 subjects in this investigation restricts its external validity, highlighting the need for further studies with a larger and more diverse population to better outline the impact of the MDR approach.²⁰

A retrospective cohort study performed at the Geriatric Injury Institute reported that once an MDR approach began, patients were efficiently triaged in the emergency department with an average time reduction of 1.5 hours (210.7 ± 602.9 min vs 219.8 ± 141.63 min before implementation) This reduction in time was, however, not statistically significant ($P = 0.054$). There was an increase in discharges following admission within 2 days and 4 days by 6% and 8%, respectively, after the MDR approach, which also led to a median cost savings of \$1100 per patient ($P = 0.031$).²¹ The above studies are summarized in *Table 1*.

Patient-centered approach through MDR

A change in population healthcare needs demands an adaptive healthcare system that can provide a more tailored therapeutic plan with the inclusion of patients themselves and family members in decision making (*Figure 2*). A multidimensional assessment of medical history, clinical progress, medications, and socioeconomic and cultural factors is possible when there are professionals with various expertise in a team responding and acting together in the interests of the patient.²² Evidence suggests that physician trainees were deficient in interprofessional collaboration (14% vs 37%, $P < 0.001$) and did not keep pace in patient-centered learning when compared to their nonphysician counterparts

(21% vs 36%, $P < 0.001$).²³ This deficiency was found to be a result of a hierarchical culture, poor communication with allied health professionals, and being profession focused, leading to gaps in MDRs. It was also reported that quality of care improved with a patient-centered approach rather than a disease-centered approach, and a change in culture is essential to transform healthcare by adopting this approach in the curriculum through didactics, observing allied health professionals, and practicing in real time in the wards and clinics.^{24,25}

CHALLENGES AND CONSIDERATIONS IN IMPLEMENTING MULTIDISCIPLINARY ROUNDS

Ensuring successful interprofessional collaboration in clinical practice remains a significant problem. The implementation of MDR poses certain challenges, such as time constraints and coordination challenges²⁶ (*Figure 3*). A study by Cao et al found that the utilization of MDR, coupled with a rounding checklist aimed at streamlining patient presentations, significantly shortened rounds and hypothesized that this reduction was attributable to decreased presentation time and fewer interruptions.²⁷ Checklists help address daily objectives, discharge concerns, and other actionable items during rounds, thus improving communication, minimizing the time needed, and reducing errors due to standardization.¹ Although nurses' greatest workloads frequently coincide with the time of traditional rounds, which further complicates matters due to the timing requirements posed by drug delivery during MDR, it is essential for the MDR team to be consistently and reliably present at the designated time for the benefit of the patients.²⁸

Professional hierarchies within healthcare teams can also impede open communication and hinder collaborative decision-making during MDRs. Therefore, it is imperative to remove hierarchies between professions in order to improve teamwork and communication in the healthcare industry. To fill in gaps in training, experience, and collaboration among various healthcare professionals, a variety of tactics are used, such as the use of common communication tools and language. The structured communication strategy known as SBAR (Situation, Background, Assessment, and Recommendation) is one example which is used to share crucial clinical information. Furthermore, efforts to improve communication in hospital settings include initiatives like formal checklists, daily care objectives, and debriefings. Because of this, the modifications brought about by the adoption of MDR are crucial in creating a culture that encourages participation from patients as well as other members of the multidisciplinary team in the decision-making process.^{29,30}

In addition to difficulties for healthcare professionals, studies also point out further challenges for patients. As a result of the MDR procedure, certain patients may become stressed, and using medical language may cause misunderstandings.³¹ One of the challenges is the concern regarding

Table 1. Summary of studies that implemented a multidisciplinary rounding approach

No	Reference	Study	Sample size	Aim	Result
1	Sreepathy et al, 2022 ⁷	The association between implementation of multidisciplinary rounds and clinical outcomes	<ul style="list-style-type: none"> • Pre MDR implementation, n = 1054 • Post-MDR implementation, n = 1659 	<ul style="list-style-type: none"> • Impact of MDR with cardiovascular patients 	<ul style="list-style-type: none"> • Decrease in all-cause in-hospital mortality from 2.8% to 1.6% ($P = 0.03$) • Utilization of dietary services and physical therapy
2	Carol et al, 2006 ¹⁸	Using evidence and process improvement strategies to enhance healthcare outcomes for the critically ill: a pilot project	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • Lower the occurrence of ventilator-associated pneumonia and catheter-related bloodstream infections among patients in the medical ICU 	<ul style="list-style-type: none"> • 18% reduction in mean LOS • Reduction in costs from \$1.0 million to \$2.3 million • 54% reduction in ventilator-associated pneumonia • 78% reduction in catheter-related bloodstream infections
3	Vazirani et al, 2005 ¹⁹	Effect of a multidisciplinary intervention on communication and collaboration among physicians and nurses	<ul style="list-style-type: none"> • Total participants, n = 279 • House staff, n = 111 • Attending physicians, n = 45 • Nurses, n = 123 	<ul style="list-style-type: none"> • Assess the effects of a multidisciplinary intervention on the communication and teamwork between physicians and nurses within an acute inpatient medical unit 	<ul style="list-style-type: none"> • Better collaboration between physicians and NPs ($P < 0.001$), staff nurses ($P < 0.001$), and fellow physicians ($P < 0.006$) than in the control group • Similar levels of collaboration ($P = 0.47$) and communication with physicians ($P = 0.59$) reported by nurses in the intervention and control groups • Better communication of intervention group nurses with NPs than with physicians ($P < 0.001$)
4	Murray et al, 2009 ²⁰	Multidisciplinary approach decreases length of stay and reduces cost for ventricular assist device therapy	<ul style="list-style-type: none"> • Total VAD patients, n = 20 • Multidisciplinary group, n = 13 • Traditional group, n = 7 	<ul style="list-style-type: none"> • Evaluate overall LOS and total cost after VAD therapy through a multidisciplinary and traditional approach 	<ul style="list-style-type: none"> • Longer preoperative LOS in traditional approach than in multidisciplinary approach (21 days vs 2 days) • Decrease in total postoperative LOS in multidisciplinary approach, from 61 to 15 days • Decrease in total cost, including OR, floor, and ICU, in multidisciplinary approach from \$202,238 to \$161,744 compared to traditional approach
5	Francis et al, 2020 ²¹	The impact of interdisciplinary care on cost reduction in a geriatric trauma population	<ul style="list-style-type: none"> • Geriatric patients ≥ 65, n = 663 	<ul style="list-style-type: none"> • Adopting a multidisciplinary approach to trauma services has the potential to reduce overall hospital expenses 	<ul style="list-style-type: none"> • Average reduction time of 1.5 h (210.7 ± 602.9 min vs 219.8 ± 141.63 min; $P = 0.054$) in ED triaging compared with pre-MDR approach

ED indicates emergency department; ICU, intensive care unit; LOS, length of stay; NP, nurse practitioner; OR, operating room.

patient comfort, especially when several medical experts gather at the patient's bedside to exchange medical information. This worry can be made worse by the lack of space in patient rooms, resulting in a crowded and unpleasant atmosphere. Furthermore, the presence of a group of experts might unintentionally intimidate patients, preventing them from being receptive to dialogue, and the simultaneous input from several doctors during these rounds could confuse them when presenting different opinions and suggestions. Attending rounds can also disrupt patients' and medical staff's schedules, affecting their usual treatment and therapy. Addressing these issues is crucial to ensuring that participating in rounds improves patient

care while maintaining comfort, privacy, and the overall experience.³²

BEST PRACTICES FOR MULTIDISCIPLINARY ROUNDS

Effective MDR guarantees thorough and coordinated patient care in a hospital setting. It's crucial to first decide on a set start time and place for these rounds. This straightforward procedure promotes timeliness and guarantees that all required team members are present because they will be aware of when their participation is necessary. This encourages efficiency while also improving teamwork and communication among medical professionals.

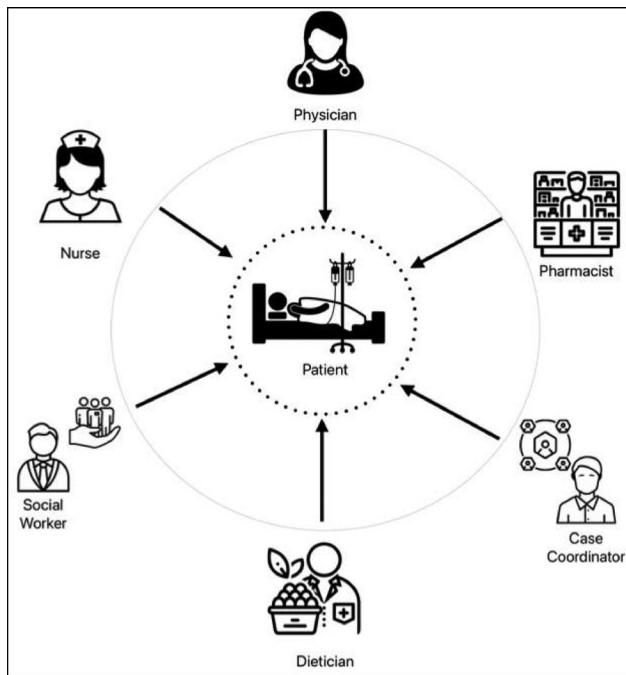


Figure 2. Patient-centered care.



Figure 3. Core challenges in MDR.

The systematic organization of team contributions is another essential component of efficient rounding. It is advantageous to define a certain order in which team members speak or have the opportunity to speak in order to expedite the process and lower the possibility of tangential topics. Depending on the healthcare situation and the patient's unique demands, this systematic method may change. For instance, during intensive care unit rounds, the attending physician is frequently followed by the nurse, the respiratory therapist, the occupational therapist, the physical therapist, the pharmacist, the nutritionist, quality assurance, and case

management. This methodical approach makes sure that every team member's opinion is taken into consideration and that conversations remain focused on the patient's treatment plan.

Additionally, it is crucial to retain professionalism throughout the rounds. The practice of active listening, which entails paying great attention to what others are saying, refraining from interruptions, and seeking clarification when appropriate, should be used. Eliminating distractions is also essential, so make sure your cell phone is on silent and avoid having side chats with other team members, especially when someone else is speaking. It's crucial to treat the patient with the utmost respect and dignity when they're present during rounds. This entails making them comfortable, speaking to them rather than about them, and doing everything in your power to include them in the conversation.

To sum up, the overarching objectives must be kept in mind at all times when rounding. These objectives usually center on four main issues: What brought the patient here? What is the patient's present condition? What must occur before the patient is discharged? Where will the patient go, and are there any obstacles that might prevent him or her from transitioning? Team members should be aware of the specific duties they are responsible for and be ready to contribute the effective amount of information necessary to help the group accomplish its goals.

In conclusion, efficient rounding in the healthcare industry is a multifaceted process requiring careful preparation, organized communication, professionalism, and an emphasis on the needs of the patient. Healthcare teams can make sure rounds are effective and conducive to providing the best possible patient care by abiding by these criteria.³³

In addition to traditional MDR, there is telerounding, which is performed remotely using robotic devices, affecting healthcare teams by changing the dynamics of round participation. Busy providers may benefit from the flexibility of this tool, which enhances remote participation, streamlines paperwork, and improves communication efficiency. Additionally, telerounding proves to be time-efficient, accelerating patient flow, reducing hospital stays, and having the ability to lower the risk of infection by preserving physical distance. Although there are discrepancies in attitudes, particularly among nurses, the willingness of healthcare practitioners and patients to participate in telerounding is encouraging.³⁴

Additionally, there are family-centered rounds (FCRs), which are multidisciplinary discussions that involve the patient and their family in the decision-making process. The benefits of FCRs include improved trainee educational experiences, increased communication, simplified care coordination, efficient discharge planning, reinforced teamwork, and quality enhancement. Inadequate training of attending doctors and trainees in this technique, inconsistent FCR execution, time restraints, concerns about patient confidentiality, and logistical difficulties brought on by large teams working in constrained settings are notable barriers to successful

FCRs. It is crucial to perform research that impartially evaluates outcomes, including parental satisfaction, safety improvements, healthcare quality upgrades, and communication efficacy, as FCR practices become widespread. This research-based learning can later help to improve how FCR is implemented.³⁵

COLLABORATION ACROSS DISCIPLINES FOR AI IN HEALTHCARE

The application of artificial intelligence (AI) to healthcare has enormous potential for improving disease detection, laboratory testing, medication optimization, and mental health assistance. To use AI fairly and effectively, issues like bias and data privacy must be addressed. Strong cybersecurity safeguards and cooperation between healthcare organizations, AI researchers, and regulators are crucial for setting norms and standards to guarantee responsible adoption. It is essential to fund AI research that is specifically geared toward healthcare requirements. AI can identify high-risk patients and forecast healthcare events, but establishing patient confidence and resolving data quality and bias issues are crucial. Multidisciplinary cooperation will enable AI to reach its full potential, ultimately improving patient outcomes and boosting efficiency and personalization in healthcare.³⁶

FUTURE DIRECTIONS AND IMPLICATIONS

The MDR approach has the ability to effortlessly integrate into patient-centered care and become a crucial component as it provides promising prospects and constructive implications for the future. This integration is further fueled by the development of telemedicine and digital health technologies, which offer promising avenues for expanding MDR beyond conventional settings. Especially in underserved or remote areas, distant involvement and data exchange can bridge geographical disparities, enabling swift interventions and aligning with the emphasis on accessible healthcare delivery. However, the problems that come with this change must be carefully considered, as effective communication, efficient information sharing, and an effective technology infrastructure are all necessary for successful execution of MDR.

Maintaining open and transparent lines of communication is essential as healthcare teams become increasingly diverse. Involving patients in these rounds also necessitates careful attention to ethical and legal considerations to safeguard patient privacy and confidentiality. Creative methods are needed to strike a balance between patient empowerment and sensitive medical information. The transition to a multidisciplinary approach demands adjustments in training, workflow, and leadership structures from an organizational standpoint. Healthcare personnel must be prepared to interact across specialties, and leadership must develop an inclusive and team-oriented culture. This approach's significance extends beyond clinical outcomes to include cost-effectiveness and resource optimization. MDRs have the potential to

significantly improve patient outcomes and operational efficiencies by avoiding redundant efforts and maximizing shared knowledge.

CONCLUSION

The use of synergistic techniques in MDR offers a viable path to enhancing patient outcomes, and these approaches provide comprehensive diagnosis and individualized treatment plans by combining the knowledge of several medical specialists. Collaboration facilitates a vibrant learning environment that supports ongoing professional development and may produce groundbreaking medical treatments. However, challenges such as communication barriers and varying approaches between disciplines may arise, necessitating clear protocols and effective leadership to ensure successful implementation. Fostering open communication and professional development is necessary for embracing the benefits, while strategic collaboration is needed to manage the drawbacks. However, further research is needed to advance toward patient-centered excellence, using multidisciplinary collaboration to maximize benefits and minimize downsides.

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