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Research Article

Preventing Functional Decline Among Hospitalized Older Adults Through Interprofessional Nursing and Physiotherapy Collaboration

Hajar Farhan Ayyadah Alhazmi[1]*, Yasmin Musaad Muteb Alsaleh[2], Ahlam Radhi Alruwaili[3], Amal Arad Alhazmi[4], Sattam Essa Hussain Albanaqi[5], Almutiri, Maryam Aiydh M[6], Bashayer Mohammed Alanazi[7], Nawal Fayadh G Alanazi[8], Alanazi, Hana Sayah G[9], Mohammed Mazlouh Ghanem Alenezi[10], Slmiah Aoda Slamen[11]

[1]Physiotherapist – Extended Care Hospital, Northern Borders Health Cluster, Ministry of Health, Arar, Northern Borders Region, Saudi Arabia
* **Corresponding Author Email:** hajerfa@moh.gov.sa - **ORCID:** 0000-0002-1007-7000

[2]Physiotherapy Specialist – Al Jouf Health Cluster, Ministry of Health, Sakaka, Al Jouf Region, Saudi Arabia
Email: yasminma1988@hotmail.com - **ORCID:** 0000-0002-2007-7001

[3]Physiotherapist – Prince Mutaib bin Abdulaziz Hospital, Al Jouf Health Cluster, Ministry of Health, Sakaka, Al Jouf Region, Saudi Arabia
Email: ahralruwaily@moh.gov.sa - **ORCID:** 0000-0002-3007-7002

[4]Nursing Technician – Long-Term Care Hospital, Northern Borders Health Cluster, Ministry of Health, Arar, Northern Borders Region, Saudi Arabia
Email: amaalhazmi@moh.gov.sa - **ORCID:** 0000-0002-4007-7003

[5]Nursing Technician – Long-Term Care Hospital, Northern Borders Health Cluster, Ministry of Health, Arar, Northern Borders Region, Saudi Arabia
Email: sealbanaqi@moh.gov.sa - **ORCID:** 0000-0002-6007-7004

[6]Nurse – Long-Term Care Hospital, Hafar Al-Batin Health Cluster, Ministry of Health, Hafar Al-Batin, Eastern Region, Saudi Arabia
Email: maaalmotiri@moh.gov.sa - **ORCID:** 0000-0002-7007-7009

[7]Nursing Specialist – Long-Term Care Hospital, Northern Borders Health Cluster, Ministry of Health, Arar, Northern Borders Region, Saudi Arabia
Email: baalanzi@moh.gov.sa - **ORCID:** 0000-0002-8007-7008

[8]Nursing Technician – Long-Term Care Hospital, Northern Borders Health Cluster, Ministry of Health, Arar, Northern Borders Region, Saudi Arabia
Email: nalenaizy@moh.gov.sa - **ORCID:** 0000-0002-9007-7007

[9]Nursing Specialist – Long-Term Care Hospital, Northern Borders Health Cluster, Ministry of Health, Arar, Northern Borders Region, Saudi Arabia
Email: halanazi34@moh.gov.sa - **ORCID:** 0000-0002-0007-7006

[10]Nursing Technician – Rehabilitation and Long-Term Care Hospital, Northern Borders Health Cluster, Ministry of Health, Arar, Northern Borders Region, Saudi Arabia
Email: momaalenzi@moh.gov.sa - **ORCID:** 0000-0002-1107-7005

[11]Nursing Technician – Long-Term Care Hospital, Northern Borders Health Cluster, Ministry of Health, Arar, Northern Borders Region, Saudi Arabia
Email: ahmah111234@icloud.com- **ORCID:** 0000-0002-5507-7030

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Abstract:

Hospitalization poses a significant threat to the functional independence of older adults, often triggering a cascade of decline through deconditioning, delirium, and iatrogenic complications. Preventing this adverse outcome requires a fundamental shift from siloed care to deliberate, structured interprofessional collaboration, with the partnership between nursing and physiotherapy serving as a critical frontline intervention. This synergy leverages the nurses' continuous presence for the integration of mobility into daily care, alongside the physiotherapists' specialized expertise in assessment and therapeutic exercise, to create a consistent "culture of mobility." Through shared risk assessment, co-developed early mobilization protocols, and combined strategies for delirium prevention and pain management, this collaborative model proactively addresses the multifactorial nature of functional decline. Implementing such an approach is imperative to transform hospital stays from periods of high risk into therapeutic episodes that preserve the older adult's autonomy, reduce complications, and improve long-term health outcomes, ultimately ensuring that patients leave the hospital not only cured of their acute illness but with their functional capacity intact.

1. Introduction

The global demographic shift towards an aging population presents one of the most significant challenges and opportunities for modern healthcare systems worldwide. Hospitalization, while often necessary for acute illness or injury, paradoxically poses a grave threat to the health and independence of older adults. A substantial body of evidence confirms that the hospital environment itself can be a catalyst for functional decline, a deterioration in an individual's physical and/or cognitive capacity to perform activities necessary for independent living [1]. This phenomenon, distinct from the progression of the admitting diagnosis, manifests as new or worsened disabilities in mobility, self-care, and cognition. The consequences are profound and far-reaching, extending beyond the individual to families, caregivers, and the healthcare economy. Functionally impaired older adults face higher risks of prolonged hospital stays, iatrogenic complications such as falls and pressure injuries, increased rates of institutionalization, readmission, and mortality, and a diminished quality of life [2].

The etiology of hospital-associated functional decline is multifactorial and complex, rooted in the interplay of patient vulnerability, the nature of acute illness, and iatrogenic aspects of care. Older adults often present with pre-existing frailty, sarcopenia (age-related loss of muscle mass and strength), and multiple chronic conditions, making their physiological reserves tenuous. Upon this vulnerable baseline, the stress of acute disease acts as a potent catabolic trigger. Furthermore, well-intentioned hospital routines frequently enforce immobility—through bed rest, tethering devices like intravenous lines and urinary catheters, and a lack of encouragement for activity. This enforced disuse leads to rapid deconditioning; muscle strength can decline at a rate of up to 5% per day of bed rest [3]. Add to this the risks of polypharmacy, delirium, poor nutrition, and sleep deprivation, and the hospital becomes a high-risk environment for losing the very abilities required to return home.

It is within this context that interprofessional collaboration (IPC) emerges not merely as a beneficial model but as an ethical and practical imperative. IPC is defined as a process where multiple health and social care professionals from different backgrounds work together with patients, families, and communities to deliver the highest quality of care [4]. It is characterized by shared objectives, mutual respect, blended roles, and synergistic teamwork. For the vulnerable hospitalized older adult, two professions are uniquely positioned at the nexus of 24/7 care and functional mobility: nursing and physiotherapy. Nurses provide continuous, around-the-clock surveillance, fundamental care, and are the consistent presence at the bedside. Physiotherapists bring specialized expertise in movement science, musculoskeletal assessment, and therapeutic exercise. Their collaboration represents a powerful, frontline alliance against functional decline.

The potential synergy between nursing and physiotherapy is vast. Nurses can reinforce mobility plans every time they interact with a patient, turning routine care moments into therapeutic opportunities. Physiotherapists can provide targeted training and assessment, informing the nursing team of specific capabilities and risks. Together, they can conduct more comprehensive assessments, co-develop individualized mobility plans, and create a consistent "culture of mobility" on the ward. This partnership moves the paradigm from reactive, single-discipline care to proactive, team-based preservation of function. Research increasingly supports that effective interprofessional models, particularly those emphasizing early and frequent mobility, can

reduce length of stay, incidence of delirium, falls, and functional loss [5, 6].

2. The Multifactorial Nature of Hospital-Associated Functional Decline

Hospital-associated functional decline in older adults is not a monolithic entity but a syndrome with diverse and interacting contributors. Aging itself brings physiological changes such as decreased muscle mass (sarcopenia), reduced cardiopulmonary reserve, and diminished sensory acuity, which lower the threshold for decompensation [7- 9]. The primary reason for admission, whether pneumonia, heart failure, or surgery, imposes direct metabolic stress, inflammation, and pain, all of which promote catabolism and fatigue. However, it is the hospital environment and routine care processes that often deliver the secondary blows that precipitate decline. Iatrogenic contributors are numerous. Bed rest, once a cornerstone of "convalescence," is now recognized as profoundly harmful. It leads to rapid loss of muscle strength and mass, joint contractures, orthostatic hypotension, and insulin resistance [3]. The very tools of treatment—intravenous lines, oxygen tubing, urinary catheters, and even side rails—can physically and psychologically tether patients to their beds. Polypharmacy, especially the use of sedatives, antipsychotics, and anticholinergics, increases the risk of delirium, drowsiness, and falls. Inadequate nutrition and hydration, common in hospitalized older adults due to anorexia, dysphagia, or nil-by-mouth orders, exacerbate muscle wasting and weakness. Perhaps most insidiously, the unfamiliar, noisy, and poorly lit hospital environment disrupts sleep-wake cycles, contributing to confusion and delirium, a major predictor of functional and cognitive decline [10].

The outcomes of this decline are devastating on multiple levels. For the individual, loss of the ability to walk independently, bathe, or use the toilet represents a profound loss of autonomy and dignity, often triggering depression and social isolation. Functionally impaired patients are at significantly higher risk for falls and injuries during hospitalization and after discharge [11]. They are less likely to be discharged directly home and more likely to require admission to skilled nursing facilities, a transition that many experience as a permanent loss of their previous life. From a systems perspective, functional decline translates into longer lengths of stay, higher costs of care, increased readmission rates, and greater long-term healthcare utilization. It represents a failure of the system to provide truly therapeutic care, healing the disease while harming the person. Addressing this multifactorial problem demands an equally multifactorial solution, one that integrates expertise across professional boundaries.

3. Foundations of Effective Interprofessional Collaboration

Successful interprofessional collaboration between nursing and physiotherapy does not occur spontaneously; it requires intentional design, shared values, and supportive structures. At its core, effective IPC is built upon four key pillars: shared goals, clear roles and responsibilities, effective communication, and mutual trust and respect [12].

The first and most critical step is establishing a *shared goal*. For the care of the hospitalized older adult, this goal must be explicitly and unanimously defined as "the preservation or restoration of pre-admission functional status." This goal supersedes discipline-specific tasks and becomes the unifying purpose for all team members, including the patient and family. When this goal is central, every decision—from medication choice to timing of therapy—can be evaluated against its potential impact on function.

Clarifying *roles and responsibilities* while allowing for *role blurring* in a positive sense is essential. Nurses and physiotherapists must understand each other's core competencies. The nurse's role encompasses continuous assessment of vital signs, pain, mental status, and safety; managing lines and catheters; providing fundamental care; and serving as the primary coordinator and communicator. The physiotherapist's role involves in-depth musculoskeletal and neurological assessment, designing individualized therapeutic exercise programs, performing complex gait and balance training, and recommending appropriate assistive devices [13]. However, collaboration thrives in the overlapping space. A nurse can safely assist a patient with sitting at the edge of the bed or marching in place—activities prescribed and demonstrated by the physiotherapist. This "vertical integration" of mobility tasks extends the reach of therapy far beyond the 30-minute session.

Effective communication is the lifeblood of collaboration. Traditional models relying on sporadic chart notes or hallway conversations are insufficient. Structured tools are necessary. Co-developed, standardized mobility assessment and goal-setting tools (e.g., banners on doors, whiteboards in rooms) make the plan visible to all. Regular, brief, interdisciplinary bedside rounds or "huddles" that include nursing and therapy staff ensure everyone is aligned on the daily plan and can address barriers in real-time [14]. Shared

electronic health records with prominent mobility goals and alerts further support this communication. Finally, none of this is possible without *mutual trust and respect*. This is cultivated through shared learning experiences, leadership modeling, and a culture that values all contributions equally. It requires dismantling historical hierarchies and recognizing that the nurse's intimate knowledge of the patient's 24-hour status is as valuable as the therapist's specialized movement analysis. When trust exists, professionals feel safe to ask questions, suggest alternatives, and rely on each other's judgments, creating a resilient and adaptive team capable of providing seamless, patient-centered care.

4. Shared Assessment and Early Identification of Risk

Proactive prevention of functional decline begins with the early identification of patients at highest risk. A unilateral assessment by a single profession provides only a partial picture. A collaborative, interprofessional assessment yields a far richer, more accurate understanding of the patient's baseline and vulnerabilities, enabling timely intervention.

Upon admission, a dual-pronged assessment should be initiated. The nursing assessment, often the first point of contact, must expand beyond traditional vital signs and medical history to include validated screening tools for function and risk. Key elements include a careful history of pre-admission functional status (e.g., "What did you do for yourself at home yesterday?"), screening for frailty using simple tools like the Clinical Frailty Scale, assessment of falls history, and evaluation for delirium risk using tools like the Confusion Assessment Method (CAM) [15, 16]. Concurrently or in close succession, the physiotherapist should perform a targeted physical assessment. This includes testing limb strength (e.g., handgrip dynamometry or manual muscle testing), assessing sitting and standing balance, evaluating gait speed (a powerful biomarker of health), and identifying range-of-motion limitations or pain that impedes movement [17].

The power of collaboration is realized when these assessments are synthesized. For example, a nurse's observation of subtle confusion (possible hypoactive delirium) combined with a physiotherapist's finding of significant lower extremity weakness paints a clear picture of a patient at extreme risk for falls and rapid decline. This synthesis informs the assignment of a "risk score" or categorization (e.g., low, medium, high risk for decline) that triggers specific, co-developed care pathways. Standardized, interprofessional assessment tools, such as the de Morton Mobility Index (DEMMI) or the Acute Care Mobility Assessment, can provide a common language and metric for tracking progress [18]. By establishing a shared baseline through combined assessment, the nursing and physiotherapy team can set realistic, incremental functional goals and immediately implement a preventive plan, moving from identification to action without delay.

5. Core Collaborative Intervention Strategies

With a shared goal and a comprehensive assessment in hand, the nursing-physiotherapy partnership can deploy a suite of evidence-based interventions. These strategies are most effective when they are embedded into the daily routine of the ward, blurring the line between "therapy time" and "care time."

Early and Frequent Mobilization Protocols: The most potent weapon against deconditioning is movement, initiated as early as medically safe. Collaborative protocols define specific, progressive mobility activities aligned with patient capability levels, often depicted as a ladder or menu (e.g., Level 1: Exercises in bed; Level 2: Sitting on edge of bed; Level 3: Transferring to chair; Level 4: Walking in room; Level 5: Walking in hall) [19]. The physiotherapist assesses and prescribes the appropriate level and trains the nursing staff on safe techniques for assisting with those activities. Nurses then integrate these mobility tasks into routine care—having the patient sit in a chair for meals, walking them to the bathroom, or performing prescribed bed exercises during vital sign checks. This model, sometimes called "mobility nursing," ensures that mobilization happens multiple times per day, far exceeding what therapy-alone models can achieve, and has been shown to significantly reduce functional decline and delirium [20].

Delirium Prevention and Management Bundles: Delirium is both a cause and a consequence of functional decline. Its prevention is a quintessential interprofessional endeavor. The widely recognized "ABCDEF" bundle (Assess, prevent, and manage pain; Both spontaneous awakening and breathing trials; Choice of sedation; Delirium assess, prevent, and manage; Early mobility; Family engagement) relies heavily on nursing-therapy collaboration [21]. Nurses are central to pain management, sedation minimization, and routine delirium screening. Physiotherapists are key drivers of the "Early mobility" component. Together, they ensure the patient is awake, comfortable, and mobile—three critical factors in

preventing delirium. When delirium occurs, their combined approach to reorientation, cognitive engagement, and safe mobility is vital for management and recovery.

Integrated Pain Management: Uncontrolled pain is a major barrier to mobility and engagement. Nurses are experts in continuous pain assessment and administration of analgesia. Physiotherapists can contribute by identifying musculoskeletal sources of pain, using manual therapy or modalities (where within their scope), and teaching pain-relieving exercises and positioning. Collaborative discussion is crucial for timing analgesia to optimize participation in therapy and daily activities, ensuring a balance between pain relief and alertness for mobility [22].

Nutrition and Hydration Synergy: Muscle preservation requires both stimulus (activity) and building blocks (protein/energy). Nurses monitor oral intake, manage feeding assistance, and oversee hydration. Physiotherapists observe for fatigue and weakness that may signal inadequate nutrition. They can communicate concerns about sarcopenic obesity or failure to thrive, prompting a joint consultation with a dietitian. This ensures that the metabolic support is in place to capitalize on the anabolic stimulus provided by mobility activities.

Patient and Family Education and Empowerment: Education is far more consistent and powerful when delivered by a unified team. Nurses and physiotherapists should provide congruent messaging about the importance of "keeping moving," setting daily functional goals with the patient (e.g., "Today we will walk to the door three times"). Involving family members, teaching them safe ways to assist with walking or exercises, and encouraging them to be "mobility partners" extends the therapeutic environment and prepares for a successful transition home [23]. This shared educational front empowers the patient to become an active participant in their own functional preservation.

6. Overcoming Barriers to Implementation

Despite compelling evidence, widespread implementation of deep nursing-physiotherapy collaboration faces formidable barriers. These exist at systemic, cultural, professional, and logistical levels.

Systemic and Reimbursement Barriers: Healthcare funding models often silo professions, paying for specific tasks rather than outcomes like functional preservation. Physiotherapy services may be billed per treatment, disincentivizing the delegation of mobility tasks to nursing. Nursing time is often not quantified or valued for its therapeutic mobility role. Hospital administrators, under pressure to reduce length of stay, may not invest in the initial training and culture change required, not recognizing the long-term cost savings [24]. Advocacy for policy and payment reform that rewards functional outcomes and interprofessional care models is essential.

Professional Cultural and Educational Silos: Historically, healthcare education has occurred in professional silos, fostering distinct identities and sometimes territorial attitudes. Nurses may feel they lack the skill or time for mobility tasks; physiotherapists may be protective of their scope. Overcoming this requires intentional interprofessional education (IPE), both during pre-licensure training and through ongoing workplace initiatives like joint in-services and simulation training [25]. Leadership must actively model and reward collaborative behavior.

Workload and Staffing Constraints: Chronic nursing shortages and high patient-to-therapist ratios are real challenges. The argument, however, is that collaborative models make better use of existing resources. By empowering and training nursing staff to conduct basic mobility, physiotherapists can focus their expertise on higher-complexity patients and assessments. Effective collaboration can actually streamline care, reduce redundant work, and prevent complications that create more work (e.g., falls, pressure injuries) [26]. Demonstrating this efficiency gain through pilot projects is key to gaining managerial support.

Logistical and Environmental Hurdles: The physical environment of many hospitals is not conducive to mobility. Cluttered hallways, lack of safe walking areas, heavy beds and chairs, and a scarcity of mobility aids (like walkers) pose practical barriers. An interprofessional team can jointly advocate for environmental modifications, such as designated walking paths, clear signage, and readily available equipment. They can also develop creative solutions, like "walking kits" that consolidate portable oxygen, IV poles, and monitors to make ambulation easier and safer [27].

7. The Role of Technology and Innovation

Emerging technologies offer new tools to support and enhance interprofessional collaboration for functional care. Wearable activity monitors can provide objective, continuous data on patient steps, activity cycles, and sleep patterns, moving assessment beyond episodic observations [28]. Shared digital dashboards allow both nursing and therapy staff to view this data in real-time, track progress toward daily goals, and identify patients who are not moving. Tele-rehabilitation platforms

can enable physiotherapists to remotely guide nurses or patients through exercises. Electronic health records with integrated, interprofessional care plans and communication portals can replace fragmented notes. While technology is an enabler, it must be designed to support the human collaboration, not replace the essential face-to-face communication and trust-building that underpin effective teamwork.

8. Case Study Illustrations

Consider the case of an 82-year-old woman, Mrs. A, admitted with heart failure exacerbation. In a traditional model, she remains in bed on diuretics. A nurse assists with bed baths. A physiotherapist sees her on day 3, finds her weak and dizzy, and recommends "activity as tolerated." She is discharged on day 5, profoundly weak, and falls at home, leading to readmission.

In a collaborative model, on admission, the nurse completes a frailty screen and fall risk assessment. The physiotherapist assesses her strength and balance within 24 hours. They huddle and identify her as high risk. They set a shared goal: "Independent ambulation to bathroom with supervision." The physiotherapist prescribes sitting at the edge of the bed and marching feet daily. The nurse ensures she sits in a chair for all meals, reinforces the marching exercises during care, and walks her to the bathroom with a walker. They use a door sign with her daily mobility goal. Her pain and oxygenation are managed collaboratively to enable activity. Upon discharge, she returns home with maintained strength and a clear exercise plan, avoiding functional decline and subsequent complications [29, 30]. This contrast underscores the transformative potential of integrated care.

9. Future Directions

Preventing functional decline in hospitalized older adults is a moral, clinical, and economic imperative. The complex, multifactorial nature of the problem demands solutions that are equally integrated and multifaceted. As this article has detailed, a robust, intentional collaboration between nursing and physiotherapy represents a cornerstone of such a solution. By merging the continuous, holistic perspective of nursing with the specialized movement expertise of physiotherapy, healthcare teams can create a powerful, proactive force for functional preservation. This alliance enables early risk identification, the implementation of evidence-based strategies like early mobilization and delirium prevention, and the creation of a consistent therapeutic environment where every interaction is an opportunity to promote independence.

The path forward requires action on multiple fronts. Educational institutions must embed interprofessional learning into core curricula, fostering collaborative skills from the outset [31]. Healthcare organizations must invest in training, create supportive structures like interdisciplinary rounds and co-leadership roles, and champion a culture that values functional outcomes. Policymakers and payers must develop financing models that incentivize interprofessional, outcome-based care rather than volume of discrete services [32]. Research must continue to refine the most effective models of collaboration, measure their impact on long-term patient-centered outcomes, and examine cost-effectiveness.

10. Conclusion

Hospital stay for an older adult should not be a sentence to dependency. Through the committed partnership of nursing and physiotherapy, guided by shared goals and mutual respect, we can transform hospitalization from a period of high risk into a period of intentional recovery and resilience. The goal is not merely to add years to life, but to add life to years, ensuring that older adults leave the hospital with their dignity, autonomy, and functional abilities preserved. This is the promise and the imperative of true interprofessional collaboration.

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