



Roles of Nurses and Dietitians in the Prevention and Management of Malnutrition Among Patients with Chronic Diseases

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Abstract:

Nurses and dietitians play vital roles in the prevention and management of malnutrition among patients with chronic diseases, such as diabetes, heart failure, and cancer. Nurses are often the first point of contact in a healthcare setting and are crucial in identifying at-risk patients through routine assessments and screenings. They monitor patients' dietary intake, nutritional status, and overall health, offering essential education about the importance of nutrition in managing their conditions. Furthermore, nurses can facilitate communication between patients and dietitians, ensuring that patients receive tailored nutritional advice and the necessary interventions in a timely manner. Their ability to establish rapport with patients enables them to encourage adherence to dietary recommendations and motivate lifestyle changes that can significantly impact health outcomes. Dietitians complement the efforts of nurses by providing specialized nutritional assessments, tailored diet plans, and ongoing support to patients suffering from chronic diseases. They evaluate individual needs based on medical history, lab results, and lifestyle factors, crafting personalized dietary interventions that help manage symptoms and improve overall health. Dietitians are also instrumental in educating patients about the relationship between nutrition and their specific chronic conditions, empowering them to make informed food choices. Additionally, they collaborate with other healthcare professionals, including nurses, physicians, and

pharmacists, to develop comprehensive management plans that address both nutritional needs and chronic disease management. By working in tandem, nurses and dietitians create a holistic approach to healthcare that enhances the quality of life for patients with chronic diseases, helping to prevent the onset or progression of malnutrition.

1. Introduction

Malnutrition, a state of deficiencies, excesses, or imbalances in a person's intake of energy and/or nutrients, represents a pervasive and critically underdiagnosed challenge in modern healthcare, particularly among individuals battling chronic diseases [1]. The World Health Organization (WHO) identifies malnutrition in all its forms as one of the most significant threats to global health, with its impact being most acutely felt within patient populations suffering from long-term conditions such as diabetes mellitus, cardiovascular diseases, chronic kidney disease, cancer, and chronic obstructive pulmonary disease (COPD) [2]. Contrary to common perception, malnutrition is not merely a problem of undernutrition or starvation; in the context of chronic illness, it often manifests as disease-related malnutrition (DRM), a complex syndrome characterized by specific nutrient deficiencies, muscle wasting (sarcopenia), and unintended weight loss, which can occur even in overweight or obese individuals [3]. This complex interplay between chronic disease and nutritional status creates a vicious, self-perpetuating cycle: the disease itself can lead to malnutrition through mechanisms like increased metabolic demand, reduced appetite, nutrient malabsorption, and inflammation, while the resulting malnutrition further compromises immune function, reduces muscle strength, and diminishes physiological reserve, thereby exacerbating the underlying chronic condition and leading to poorer clinical outcomes [4].

The scale of the problem is staggering. Studies indicate that a substantial proportion of hospitalized patients with chronic diseases—estimates ranging from 20% to 50%—are affected by some form of malnutrition [5]. This prevalence is not confined to hospitals; it extends into community and outpatient settings, where it often goes unrecognized and unaddressed for prolonged periods. The consequences of this neglect are severe and multifaceted. Malnourished patients experience higher rates of post-operative complications, increased frequency and duration of hospital admissions, greater susceptibility to infections, delayed wound healing, and significantly diminished functional capacity and quality of life [6]. From a health economic perspective, malnutrition places an enormous financial burden on healthcare systems, leading to increased costs

associated with extended hospital stays, the need for more complex interventions, and higher rates of readmission [7]. Therefore, the effective prevention and management of malnutrition is not merely a clinical imperative but also an economic one, essential for improving patient outcomes and ensuring the sustainability of healthcare services.

Within this complex landscape, the roles of healthcare professionals are paramount. While the responsibility for nutritional care is multidisciplinary, two professions stand at the forefront of this battle: nurses and dietitians. Their roles, while distinct and grounded in their unique scopes of practice, are deeply interconnected and mutually reinforcing. Nurses, as the healthcare providers with the most consistent and prolonged contact with patients, serve as the first line of defense. They are uniquely positioned to conduct initial nutritional screenings, make astute clinical observations, and identify patients at risk of malnutrition at the earliest possible stage [8]. Dietitians, as the experts in the science of nutrition, bring a depth of specialized knowledge necessary for conducting comprehensive nutritional assessments, diagnosing specific nutritional deficiencies, and formulating intricate, evidence-based medical nutrition therapy plans tailored to the individual's disease state, metabolic needs, and personal preferences [9].

The synergy between nursing and dietetic care is the cornerstone of an effective nutritional support strategy. However, the pathways through which these professionals enact their roles, and the depth of their collaborative interaction, require thorough exploration. For nurses, their contribution begins with vigilant monitoring and systematic screening. The use of validated tools such as the Malnutrition Universal Screening Tool (MUST) or the Nutritional Risk Screening (NRS-2002) is often a fundamental nursing responsibility [10]. Beyond screening, nurses are instrumental in addressing the practical barriers to adequate nutrition. They assess a patient's ability to feed themselves, manage symptoms like nausea, pain, and fatigue that profoundly suppress appetite, and provide crucial education on the importance of dietary intake. Furthermore, they are responsible for the safe and effective administration of oral nutritional supplements (ONS) and, in more severe cases, the management of enteral and parenteral feeding tubes, monitoring for complications and ensuring the prescribed nutrition is delivered [8].

Dietitians, on the other hand, engage in a more specialized diagnostic and prescriptive process. Following a referral, often initiated by a nurse's screening, the dietitian performs a detailed nutritional assessment. This involves a holistic analysis of anthropometric measurements (e.g., weight history, body mass index, mid-arm circumference), biochemical data (e.g., albumin, prealbumin, electrolyte panels), clinical indicators, and a detailed dietary history [9]. For a patient with chronic kidney disease, the dietitian will calculate precise requirements for protein, potassium, and phosphorus. For a patient with cancer cachexia, the focus may shift to designing a diet that mitigates taste alterations and provides high-energy, high-protein meals to combat muscle wasting. For individuals with diabetes, the dietitian's role is central in crafting carbohydrate-controlled meal plans that manage blood glucose while ensuring adequate nutrition [11]. This level of specialized intervention is critical for moving beyond general dietary advice to targeted medical nutrition therapy that addresses the specific pathophysiological mechanisms of each chronic disease.

Despite the clear importance of these roles, significant challenges impede the optimal delivery of nutritional care. These include a lack of systematic screening protocols in some clinical settings, limited resources and staffing, particularly for dietetic services leading to long waiting times, and a persistent lack of awareness among some healthcare providers and administrators about the critical impact of nutrition on patient outcomes [12]. This is compounded by the fact that nutritional care is sometimes perceived as a low-priority, routine task rather than a core therapeutic intervention. Therefore, a deeper understanding of the specific, complementary functions of nurses and dietitians, and the factors that enable or hinder their effective collaboration, is urgently needed. The management of chronic diseases is increasingly the central focus of healthcare systems worldwide, shifting from acute, episodic care to long-term, holistic management aimed at preserving function and quality of life. In this paradigm, nutrition is not a secondary concern but a primary determinant of success. The collaboration between nurses and dietitians embodies the essence of patient-centered, multidisciplinary care. By leveraging the continuous, bedside presence of the nurse with the specialized, diagnostic expertise of the dietitian, healthcare teams can create a seamless and robust system for preventing, identifying, and treating malnutrition [13].

2. Nutrition Care Process and Interprofessional Collaboration

The effective prevention and management of malnutrition in patients with chronic diseases is not a series of disjointed actions but a coordinated, dynamic process. To understand and analyze the roles of nurses and dietitians, this research is grounded in a dual conceptual framework that integrates the **Nutrition Care Process (NCP)** with the principles of **Interprofessional Collaboration (IPC)**. The NCP provides a systematic, problem-solving model that guides the actions of healthcare professionals in delivering high-quality nutritional care, while IPC offers the structural and philosophical foundation for how different professions work together to execute this process effectively [14]. The synergy of these two models creates a robust framework for examining how nurses and dietitians contribute individually and collectively to patient outcomes.

The Nutrition Care Process, as standardized by the Academy of Nutrition and Dietetics (AND), is a cyclical model comprising four distinct but interconnected steps: Assessment, Diagnosis, Intervention, and Monitoring/Evaluation [15]. This model moves nutritional care beyond simple dietary advice into the realm of a clinical, evidence-based practice. The first step, **Nutrition Assessment**, is a comprehensive and ongoing process of collecting and interpreting data. For the dietitian, this involves a deep dive into anthropometric measurements (e.g., precise weight history, BMI, body composition), biochemical data (e.g., serum proteins, electrolytes, inflammatory markers), a clinical examination for signs of nutrient deficiency, and a detailed dietary history and intake analysis [16]. The nurse's role in this phase, while overlapping, is more foundational and continuous. Nurses are responsible for collecting initial and ongoing data such as accurate body weight, vital signs, observations of functional status (e.g., ability to swallow, handgrip strength), and documenting food intake during meals. They also gather critical contextual information about the patient's appetite, nausea, pain, and other symptoms that directly impact nutritional status. This makes the nurse a vital source of real-time, clinical data that feeds into the dietitian's comprehensive assessment [17].

Following assessment is the **Nutrition Diagnosis** step. This is a pivotal step where the collected data is synthesized to identify and label a specific nutritional problem. This is distinct from a medical diagnosis. Using standardized terminology, the dietitian formulates a diagnosis such as "Inadequate energy intake related to disease-induced anorexia as evidenced by consumption of less than 50% of estimated needs for five consecutive days" or "Malnutrition related to chronic kidney disease as evidenced by significant

unintentional weight loss and low serum prealbumin" [18]. This precise diagnosis is crucial because it directly informs the goals and strategies for the intervention phase. While nurses do not typically make a formal nutrition diagnosis, their clinical judgment is essential in recognizing the *presence* of a problem and triggering the referral to the dietitian for a formal diagnostic conclusion. Their narrative in the patient's chart about poor intake and physical decline provides the evidence upon which the nutrition diagnosis is often built.

The third step of the NCP is **Nutrition Intervention**. This phase involves the planning and implementation of strategies designed to address the diagnosed nutrition problem. This is where the distinct expertise of the dietitian becomes paramount. The intervention is a purposeful, planned action, such as the prescription of a specific therapeutic diet (e.g., a renal diet, a high-protein diet for pressure ulcers), the recommendation and calculation of appropriate oral nutritional supplements, or the formulation of a complex enteral or parenteral nutrition regimen [19]. The dietitian tailors this intervention to the patient's specific chronic disease, metabolic demands, and personal preferences. The nurse's role in the intervention phase is one of execution, support, and reinforcement. Nurses are responsible for ensuring that the prescribed diet or supplement reaches the patient, assisting with feeding if necessary, managing the enteral or parenteral feeding pumps, and monitoring for immediate tolerance and complications. Furthermore, they provide consistent encouragement and reinforce the dietitian's education at the bedside, helping to translate the prescribed plan into daily practice [20]. This division of labor highlights a critical interdependence: the dietitian designs the blueprint, and the nurse ensures its faithful and safe implementation on the ground.

The final step in the cycle is **Monitoring and Evaluation**, which measures the patient's progress toward the defined goals. This involves collecting data on outcome indicators, such as changes in weight, biochemical parameters, functional status, and dietary intake. The dietitian analyzes this data to evaluate the effectiveness of the intervention and determines if the nutrition diagnosis is resolved or if the care plan needs to be modified [15]. Once again, the nurse is the primary collector of this ongoing monitoring data. Through daily weights, recording of meal consumption, and observing the patient's clinical condition, the nurse provides the continuous stream of information that the dietitian uses for their periodic, formal evaluations. This creates a feedback loop where the care plan is

dynamically adjusted based on patient response, a process entirely dependent on the seamless flow of information between nursing and dietetic staff.

While the NCP outlines the "what" of nutritional care, Interprofessional Collaboration (IPC) defines the "how" of the working relationship between nurses and dietitians. The World Health Organization (WHO) defines IPC as a process where "multiple health workers from different professional backgrounds work together with patients, families, carers, and communities to deliver the highest quality of care" [21]. This framework moves beyond simple communication or co-operation to a deeper level of partnership, shared decision-making, and mutual respect for the unique knowledge and skills that each profession brings. In the context of malnutrition, effective IPC between nurses and dietitians is characterized by several key elements: mutual trust and respect, understanding of scopes of practice, shared goals for patient outcomes, and effective communication channels [22].

A critical component of this collaborative framework is the use of standardized screening and referral tools. When nurses use a validated tool like the Malnutrition Universal Screening Tool (MUST), it creates a common language and an objective trigger for referring at-risk patients to the dietitian [23]. This formalizes the process and reduces reliance on ad-hoc communication. Furthermore, interprofessional rounds and shared electronic health records that allow for joint documentation are structural facilitators of IPC. They provide platforms for nurses to report their bedside observations and for dietitians to articulate their diagnostic reasoning and prescribed plans, ensuring that the entire care team is aligned.

The integration of the NCP and IPC frameworks reveals a model where the success of the nutritional care journey is wholly dependent on the strength of the partnership between nurse and dietitian. The NCP provides the roadmap, with each professional contributing to different stages of the journey, while IPC is the engine that powers the journey forward. Barriers to this model, such as professional territoriality, inadequate understanding of each other's roles, hierarchical structures, or insufficient time for team meetings, can disrupt the care cycle and lead to fragmented management of the patient's nutritional status [24]. For instance, if a nurse fails to recognize the significance of a patient's declining oral intake or does not know how to initiate a referral, the NCP cycle is broken at the first step. Conversely, if a dietitian develops a complex plan without consulting the nurse about the patient's practical challenges or cognitive status,

the intervention may fail at the implementation stage.

Therefore, this combined NCP-IPC framework provides the ideal lens through which to analyze the roles of nurses and dietitians. It allows for a detailed examination of their specific tasks within each step of the care process while simultaneously evaluating the quality of their interaction. It posits that optimal patient outcomes in the prevention and management of malnutrition are not achieved by nurses and dietitians working in parallel, but by them working in an integrated, collaborative manner, where the continuous, holistic care of the nurse and the specialized, diagnostic care of the dietitian are woven together into a single, cohesive therapeutic strategy. This research will use this framework to dissect the realities of this collaboration and identify strategies to strengthen it, ultimately aiming to break the vicious cycle of disease-related malnutrition [25].

3. Burden of Malnutrition in Chronic Disease:

The burden of disease-related malnutrition (DRM) represents a silent epidemic within global healthcare systems, posing a significant threat to the health, well-being, and survival of millions of patients with chronic diseases. This burden is multidimensional, encompassing a high and often under-recognized prevalence, devastating clinical and functional consequences for the individual, and substantial economic costs for healthcare providers and society at large. Understanding the scale and depth of this burden is fundamental to appreciating the critical necessity of the roles played by nurses and dietitians in its mitigation. Malnutrition in this context is not a separate entity but an insidious comorbidity that interacts synergistically with the underlying chronic condition to accelerate clinical decline and undermine therapeutic efforts [26].

The prevalence of malnutrition among patients with chronic diseases is alarmingly high across all healthcare settings. In the acute care environment, studies consistently show that between 20% and 50% of hospitalized patients are malnourished upon admission or develop malnutrition during their stay, with the highest rates observed in those with complex, long-term conditions [27]. For instance, the prevalence of malnutrition can exceed 50% in patients with advanced cancers, particularly those of the gastrointestinal tract, due to a combination of tumor-induced metabolic changes and side effects of treatment like chemotherapy and radiation. Similarly, up to 40% of patients with chronic obstructive pulmonary disease (COPD) are affected, as the increased work of breathing creates

a hypermetabolic state that dramatically elevates energy requirements [28]. In chronic kidney disease (CKD), especially in its later stages, protein-energy wasting is a common and powerful predictor of mortality. This high prevalence is not confined to hospitals; in long-term care facilities and in the community, malnutrition affects a substantial proportion of the chronically ill elderly and those managing multiple conditions at home, where it often remains undetected for prolonged periods [29]. This widespread occurrence underscores malnutrition not as a rare complication, but as a normative challenge in chronic disease management.

The consequences of untreated or poorly managed malnutrition are profound and cascade through every aspect of a patient's health. From a clinical physiological perspective, malnutrition leads to a catastrophic breakdown of bodily structure and function. It directly causes the loss of lean body mass, or sarcopenia, which is not merely a loss of muscle strength but a loss of vital organ reserve. This includes the weakening of respiratory muscles, increasing the risk of pneumonia and prolonged ventilator dependence in patients with pre-existing lung or cardiac conditions. The immune system is severely compromised, leading to an increased susceptibility to infections and delayed recovery from illness [30]. Wound healing, a critical process for patients undergoing surgery or suffering from diabetic ulcers and pressure injuries, is significantly impaired due to a lack of the proteins, vitamins, and minerals essential for tissue repair. Furthermore, nutrient deficiencies can cause specific organ dysfunction; for example, electrolyte imbalances from poor intake can precipitate cardiac arrhythmias, while protein deficiency can lead to edema and impaired liver function [31].

Beyond the specific physiological insults, the functional and quality-of-life consequences for the patient are equally devastating. The loss of muscle mass and strength directly translates into reduced mobility, increased fatigue, and a higher risk of falls and fractures. This functional decline often leads to a loss of independence, as patients become unable to perform basic activities of daily living (ADLs) such as bathing, dressing, or feeding themselves. This state of dependency is not only demoralizing but also significantly increases the need for formal and informal caregiving, placing a heavy burden on families and social services [32]. The psychological impact is severe, with malnourished patients exhibiting higher rates of apathy, depression, and social isolation. The overall quality of life, a central goal in the management of any chronic disease, is dramatically diminished. Patients experience less energy, reduced ability to

engage in meaningful activities, and a general sense of ill-health that transcends their primary diagnosis. This creates a vicious cycle where the disease causes malnutrition, and malnutrition, in turn, worsens the patient's experience of the disease, leading to a downward spiral of deteriorating health and well-being [33].

The economic burden of DRM is staggering and places an unsustainable strain on healthcare systems. Malnourished patients experience significantly worse clinical outcomes, which directly drive up healthcare costs. They face longer average hospital lengths of stay, as their bodies are less able to recover from acute illness or surgery. They have higher rates of complications, such as surgical site infections, pressure ulcers, and sepsis, all of which require intensive and expensive interventions. Consequently, hospital readmission rates are markedly higher for malnourished patients compared to their well-nourished counterparts with the same primary diagnosis [34]. The costs associated with these poor outcomes—including extended nursing care, additional medications, advanced wound care supplies, and diagnostic tests—accumulate rapidly. A comprehensive economic analysis reveals that the cost of managing a malnourished patient can be 30-50% higher than that of a well-nourished patient. When extrapolated to a national level, disease-related malnutrition accounts for a substantial portion of total healthcare expenditure, estimated to be in the billions of dollars annually in many developed countries [35]. This makes malnutrition not just a clinical problem, but a critical financial one, where investment in prevention and early treatment is not only ethically sound but also economically imperative.

To effectively address this burden, it is crucial to understand the multifaceted risk factors that predispose patients with chronic diseases to malnutrition. These factors are often interrelated and can be categorized into several domains. **Disease-related factors** are primary drivers and include: *Anorexia and reduced appetite*, often mediated by disease-related inflammation and cytokines; *Increased metabolic demand*, as seen in the hypercatabolism of cancer, COPD, and heart failure; *Nutrient losses*, such as the proteinuria in nephrotic syndrome or malabsorption in inflammatory bowel disease and pancreatic insufficiency; and *Gastrointestinal symptoms* like nausea, vomiting, diarrhea, and constipation, which are common side effects of both diseases and their treatments [36].

Treatment-related factors also play a significant role. Many medications used to manage chronic conditions can alter taste, cause nausea, or suppress appetite. Complex medical regimens can be

overwhelming, leading to missed meals. Furthermore, treatments like surgery, chemotherapy, and radiation can directly interfere with nutrient intake and absorption for extended periods. Beyond the biological and treatment-related aspects, a host of **patient-specific and psychosocial factors** contribute to the risk. Older age is a powerful risk factor due to the anorexia of aging, sensory impairments, and polypharmacy. Functional limitations, such as arthritis or neurological deficits, can make it physically difficult to shop for food or prepare meals. Poor dentition and swallowing difficulties (dysphagia) are common and often overlooked barriers to adequate intake. Psychological factors, including depression, dementia, social isolation, and poverty, are profoundly influential. A patient who is depressed may lack the motivation to eat, while a patient with limited financial resources may struggle to afford nutritious food, often opting for cheaper, calorie-dense but nutrient-poor alternatives [29, 36].

4. Roles of Nurses in Malnutrition Prevention:

Within the multidisciplinary team tasked with combating malnutrition in chronic disease, nurses occupy a uniquely pivotal and privileged position. As the healthcare professionals with the most consistent and prolonged patient contact, they serve as the primary sentinels in the clinical landscape, positioned to detect the earliest warning signs of nutritional decline. Their role transcends mere task completion, embodying a continuous, holistic surveillance function that is critical for the prevention and early identification of disease-related malnutrition. This role is operationalized through three core, interconnected responsibilities: systematic screening, ongoing clinical assessment, and the implementation of crucial early interventions. Through these actions, nurses act as the crucial link between the patient's daily lived experience and the specialized expertise of the clinical dietitian, ensuring that nutritional care is initiated in a timely and effective manner [37].

The foundational and arguably most critical role of the nurse in malnutrition prevention is that of systematic nutritional screening. Nutritional screening is a rapid, first-line process used to identify patients who are malnourished or at risk of becoming malnourished, determining who requires a more detailed assessment by a dietitian. This is a distinct and mandatory nursing function that should be performed upon hospital admission, during initial clinic visits, and at regular intervals throughout the care episode [38]. The efficacy of

this process relies on the use of simple, validated, and reliable screening tools. Nurses are typically responsible for administering tools such as the Malnutrition Universal Screening Tool (MUST), which incorporates BMI, unplanned weight loss, and acute disease effect, or the Nutritional Risk Screening 2002 (NRS-2002), which is widely used in hospital settings [39]. The strength of these tools lies in their objectivity and ability to generate a risk score, which standardizes the process and removes reliance on subjective clinical impression alone. By systematically applying these instruments, nurses can transform a subtle concern about a patient's poor appetite into a quantifiable risk level, triggering a predefined clinical pathway and an automatic referral to the dietitian. This systematic approach is vital for overcoming the widespread issue of underdiagnosis, ensuring that at-risk patients are not overlooked amidst other clinical priorities [40]. However, the nurse's role in identification extends far beyond the formal screening score. It is deeply embedded in the art of nursing through continuous and astute clinical assessment. While the dietitian's assessment is comprehensive and diagnostic, the nurse's assessment is ongoing, contextual, and integrative. It involves the vigilant monitoring of "softer" but highly significant data points that may not be captured in a initial screening tool. Key aspects of this nursing assessment include monitoring and documenting actual food and fluid intake during meals, which provides a real-world measure of nutritional consumption that often contradicts what patients self-report. Nurses assess for changes in functional status, such as increasing weakness, difficulty in mobilizing, or a declining ability to perform activities of daily living, which can be early markers of muscle wasting [41]. They are also skilled at identifying and managing symptoms that act as potent barriers to adequate nutrition. This includes assessing for and proactively managing nausea, vomiting, diarrhea, constipation, pain, and fatigue. Furthermore, nurses evaluate a patient's ability to eat independently, identifying problems with swallowing (dysphagia), manual dexterity (e.g., from arthritis or neuropathy), and cognitive capacity that may impede safe and effective oral intake [42]. This holistic observation provides the essential narrative that complements the dietitian's quantitative data. The data gathered through screening and ongoing assessment are meaningless without action. Therefore, a central component of the nurse's role is the initiation of early interventions aimed at preventing further nutritional decline and stabilizing the patient's condition while awaiting specialized dietetic input. These interventions are often practical, proactive, and

directly address the barriers identified at the bedside. One of the most fundamental nursing interventions is to provide direct assistance with eating and drinking. For a patient who is weak, fatigued, or has physical limitations, the simple act of opening packages, cutting food, or providing verbal encouragement and adequate time to eat can make the difference between adequate and inadequate intake [43]. Nurses play a key role in creating a conducive environment for eating by ensuring the patient's environment is clean and comfortable, managing pain and nausea before mealtimes, and protecting mealtimes from unnecessary interruptions—a concept known as "protected mealtimes." This ensures that nutrition is treated as a core part of medical treatment, not an optional activity to be fitted around other procedures. Another critical early intervention falls under the domain of symptom management. Nurses are empowered to administer prescribed antiemetics for nausea, analgesics for pain, and medications to regulate bowel function. By proactively addressing these symptoms, they remove significant physiological obstacles to eating. Furthermore, nurses are responsible for the safe and timely administration of oral nutritional supplements (ONS). When a patient is identified as at risk or is consuming less than 50% of their meals, the nurse can initiate the provision of ONS as per protocol, educating the patient on their importance and encouraging their consumption between meals to avoid affecting appetite for main meals [44]. In cases of more severe impairment, nurses are at the forefront of managing enteral feeding tubes, ensuring their patency and correct positioning, and administering prescribed enteral formulae safely while monitoring for complications like aspiration or tube displacement. This bridges the gap until the dietitian can perform a comprehensive assessment and fine-tune the nutrition prescription. Patient and family education is an equally vital, though sometimes undervalued, component of the nurse's role in early intervention. Nurses provide essential, practical education about the importance of nutrition in the context of the patient's specific chronic disease. They can explain why a high-protein diet is necessary for wound healing or why maintaining weight is crucial for managing their COPD. This education empowers patients and their families, turning them from passive recipients of care into active participants in the nutritional plan [45]. The nurse's ongoing contact allows for the reinforcement of the dietitian's more detailed instructions, helping to translate complex dietary advice into actionable daily habits. This educational role builds a therapeutic alliance and improves adherence to the overall nutritional strategy.

Effective documentation and communication are the linchpins that connect the nurse's actions to the rest of the healthcare team. The nurse's responsibility is to meticulously document their screening findings, nutritional intake records, and the patient's response to early interventions in the patient's health record. More importantly, they must act as the patient's advocate by communicating these concerns proactively to the physician and initiating a formal referral to the dietitian [46]. A failure in this communication chain—where a nurse identifies a problem but does not effectively escalate it—represents a critical breakdown in the care process. The nurse's voice is essential for bringing the "hidden" problem of malnutrition to the forefront of the clinical team's attention.

Despite the clear importance of these roles, nurses face several significant barriers that can hinder their effectiveness in nutritional care. High patient-to-nurse ratios and overwhelming workloads often leave limited time for thorough nutritional screening and for providing dedicated assistance during mealtimes. A lack of institutional support, such as the absence of mandated screening protocols or inadequate access to feeding assistants, can systemically undermine nutritional priorities [47]. Furthermore, some nurses may lack specific confidence or in-depth knowledge in nutritional science, leading to an over-reliance on intuition rather than structured tools. There can also be a perceptual barrier, where nutrition is viewed as a routine, non-urgent task rather than a core therapeutic intervention, causing it to be deprioritized in favor of more immediately pressing medical procedures.

5. Roles of Dietitians in Malnutrition Management:

If nurses are the vigilant sentinels identifying the risk of malnutrition, registered dietitians (RDs) are the expert diagnosticians and master strategists who develop and execute the definitive plan of care. Their role represents the deep specialization required to navigate the complex interplay between chronic disease pathophysiology and human nutrition. Moving beyond the screening and initial interventions performed by nurses, the dietitian engages in a comprehensive process of assessment, diagnosis, intervention, and monitoring that is both a science and an art. This role is anchored in the Nutrition Care Process (NCP) and is characterized by a level of detail and personalization that is essential for effectively managing disease-related malnutrition (DRM) in complex patient populations [48]. The dietitian's contribution transforms general

concerns about "poor intake" into a targeted, evidence-based therapeutic strategy.

The foundation of the dietitian's unique role is the **Comprehensive Nutritional Assessment**. This is a thorough, methodical evaluation that goes far beyond the initial screening conducted by nurses. It is a multi-faceted process designed to gather and interpret a wide array of data to form a complete picture of the patient's nutritional status. The Academy of Nutrition and Dietetics outlines four key domains of this assessment, often remembered by the acronym "ABCD": Anthropometric, Biochemical, Clinical, and Dietary [49]. In the **Anthropometric** domain, the dietitian moves beyond basic weight and height. They conduct a detailed weight history to distinguish acute from chronic weight loss, calculate body mass index (BMI), and may perform more advanced measures like mid-arm muscle circumference (MAMC) and triceps skinfold (TSF) thickness to specifically assess body composition and somatic protein stores, crucial for identifying sarcopenia [50].

The **Biochemical** assessment involves the critical interpretation of laboratory data in the context of the patient's clinical condition. The dietitian analyzes visceral protein markers like albumin and prealbumin, understanding that these are negative acute-phase reactants influenced by inflammation and hydration status, not absolute indicators of nutritional intake. They scrutinize electrolyte panels for imbalances common in renal and cardiac patients, liver function tests, and complete blood counts to identify nutrient deficiencies such as anemia. For a patient with diabetes, glycemic control markers like HbA1c are paramount. This sophisticated interpretation allows the dietitian to differentiate between the effects of malnutrition, the underlying disease process, and other metabolic stressors [51]. The **Clinical** assessment includes a detailed review of the medical history, current diagnosis, and physical findings related to nutritional status. The dietitian looks for physical signs of nutrient deficiencies (e.g., edema, muscle wasting, glossitis, cheilosis) and assesses functional capacity. They pay particular attention to gastrointestinal symptoms, medication profiles that may affect nutrient absorption or appetite, and any psychosocial or economic factors that could impact food access and preparation.

Finally, the **Dietary** assessment is a cornerstone of the dietitian's expertise. This involves obtaining a detailed quantitative and qualitative diet history, which may include 24-hour recalls, food frequency questionnaires, or food diaries. The dietitian analyzes this information to estimate energy and protein intake, identify specific nutrient deficiencies or excesses, and understand the

patient's usual eating patterns, food preferences, cultural influences, and beliefs about food [52]. This holistic "ABCD" assessment provides the evidence base for the next critical step: the **Nutrition Diagnosis**.

The nutrition diagnosis is a pivotal step that distinguishes the dietitian's practice. Using a standardized international terminology (e.g., Intake, Clinical, Behavioral-Environmental), the dietitian identifies and labels a specific nutritional problem that they are uniquely qualified to treat [53]. This is not a medical diagnosis (like "Congestive Heart Failure") but a nutrition-focused one, such as: "Inadequate protein-energy intake related to nausea and early satiety from heart failure as evidenced by consumption of < 60% of estimated needs for one week and 5% weight loss in one month." Or, "Malnutrition (severe) related to chronic kidney disease and metabolic acidosis as evidenced by muscle wasting, low prealbumin, and prescribed protein restriction." This precise diagnosis is crucial because it directly dictates the goals and objectives of the intervention plan, providing a clear and measurable focus for therapy [54].

With a clear diagnosis established, the dietitian proceeds to the **Nutrition Intervention** phase, which is the planning and implementation of targeted strategies to resolve the diagnosed problem. This is where the dietitian's role as a specialist is most evident. The intervention is a highly individualized prescription known as Medical Nutrition Therapy (MNT). For a patient with chronic kidney disease, the dietitian will calculate precise targets for protein, potassium, phosphorus, and sodium, carefully balancing the need to prevent uremia with the need to avoid malnutrition. For a patient with cancer cachexia, the intervention may focus on a high-energy, high-protein diet with specific strategies to manage taste alterations, using oral nutritional supplements strategically, and potentially incorporating pharmacological appetite stimulants in collaboration with the physician [55]. For patients with COPD, the dietitian designs a diet that minimizes carbon dioxide production while meeting elevated energy needs. This level of specificity is far beyond general healthy eating advice; it is a therapeutic regimen tailored to the metabolic demands and limitations imposed by the specific chronic disease.

The dietitian's intervention also includes determining the most appropriate route of nutrition. While nurses manage the administration, it is the dietitian who prescribes the composition and regimen for specialized nutrition support. This includes selecting the appropriate enteral formula (e.g., standard, high-protein, renal-specific,

diabetic-specific), calculating the rate and volume for tube feeding, and designing complex parenteral nutrition solutions for patients who cannot use their gastrointestinal tract [56]. This requires an in-depth understanding of macronutrient and micronutrient metabolism under stress and disease conditions.

A critical and ongoing component of the dietitian's role is **Monitoring and Evaluation**. Nutrition care is not a static event but a dynamic process. The dietitian continuously monitors the patient's progress toward the established goals. This involves tracking changes in weight and anthropometric measures, reviewing follow-up laboratory values, and reassessing dietary intake and functional status. Based on this data, the dietitian evaluates the effectiveness of the MNT. If the patient is not progressing as expected—for instance, if weight loss continues or biochemical parameters do not improve—the dietitian re-assesses the situation, identifies potential barriers (e.g., unresolved symptoms, poor adherence, inadequate prescription), and modifies the nutrition care plan accordingly [57]. This iterative process ensures that the nutritional strategy remains responsive to the patient's changing clinical condition.

Finally, the dietitian's role is inherently collaborative and educational. They serve as a vital educational resource for the entire healthcare team, explaining the rationale behind complex nutrition prescriptions to nurses and physicians, thereby fostering a shared understanding and ensuring consistent care. Their most profound educational relationship, however, is with the patient and family. The dietitian provides in-depth, disease-specific nutrition counseling, translating complex medical information into practical, actionable advice. They work with the patient to set realistic goals, overcome barriers, and develop sustainable eating habits that support the long-term management of their chronic condition [58]. This empowers the patient, moving them from a passive recipient of care to an active partner in their own health journey.

6. Nutrition Care Interventions Across Settings:

The prevention and management of malnutrition in patients with chronic diseases is not a one-size-fits-all endeavor. The strategies, challenges, and primary actors involved vary significantly across the continuum of care, from the high-intensity environment of the acute hospital to the patient's own home and the supportive setting of long-term care facilities. Understanding these contextual differences is critical for implementing effective, tailored nutritional care interventions. While the

core principles of the Nutrition Care Process (NCP) remain constant, their application must be adapted to the unique resources, time constraints, and patient populations of each setting. This analysis explores the distinct characteristics of nutritional interventions in acute, community, and long-term care environments, highlighting the evolving roles of nurses and dietitians as the patient moves through the healthcare system [59].

In the **acute care setting** (hospitals), the primary focus of nutritional intervention is often stabilization, mitigation of metabolic stress, and prevention of further nutritional deterioration during a critical illness or episode. The environment is characterized by rapid-paced workflows, high patient acuity, and the presence of a full multidisciplinary team. Here, nutritional interventions are intensive and medically oriented. The role of the nurse is paramount in executing the initial and rapid nutritional screening within 24 hours of admission, as mandated by many accreditation bodies. Nurses are responsible for monitoring daily intake, managing symptoms like nausea and pain that impede eating, and providing direct assistance with feeding for vulnerable patients [60]. They are the frontline administrators of oral nutritional supplements (ONS) and the primary managers of enteral feeding tubes, vigilantly monitoring for complications like aspiration or dislodgement. The nurse's detailed documentation of intake and tolerance provides the essential data for the dietitian's work.

The dietitian in the acute setting acts as a specialist consultant, often focusing on the most complex and high-risk cases identified through nursing screening or referral. Their interventions are highly specific and grounded in the pathophysiology of the acute condition superimposed on the chronic disease. This includes calculating precise energy and protein requirements for a patient with sepsis and pre-existing COPD, formulating a specialized enteral formula for a patient with diabetic ketoacidosis, or adjusting the electrolyte profile of parenteral nutrition for a patient with chronic kidney disease post-surgery [61]. The collaboration between nurse and dietitian in the hospital is frequent and formal, often facilitated by structured rounds and electronic health records. However, challenges abound, including frequent interruptions during mealtimes, the high prevalence of nil-by-mouth orders for procedures, and pressure to reduce length of stay, which can truncate the time available for comprehensive nutritional rehabilitation [62]. The goal is to prevent iatrogenic malnutrition and ensure a stable nutritional platform from which the patient can recover. Transitioning to the **community setting** (home care, outpatient clinics), the nature of

nutritional interventions undergoes a significant shift. The focus moves from acute stabilization to long-term management, sustainability, and patient empowerment. In this setting, the patient and their family become the central actors in the day-to-day execution of the care plan, with healthcare professionals serving as guides and supporters. The environment is less controlled, and care is influenced by a wide array of social determinants of health, including income, education, social support, and food security [63]. The role of the community or home health nurse becomes one of assessment, monitoring, and reinforcement. During home visits, the nurse conducts follow-up nutritional screenings, observes the patient's functional status and home environment, assesses for food availability and safety, and reinforces the dietitian's education. They monitor weight trends and identify emerging barriers to adequate intake, such as depression, social isolation, or difficulty with grocery shopping and meal preparation [64].

The community dietitian's role is pivotal in translating the hospital-based care plan into a practical, sustainable strategy for the home. Their interventions are deeply contextual, considering the patient's cultural food preferences, cooking facilities, financial constraints, and social support network. The dietitian provides extensive counseling on meal planning, food budgeting, and label reading. They work with the patient to adapt therapeutic diets (e.g., for heart failure or diabetes) to their home environment, making them both medically appropriate and personally acceptable [65]. A key intervention in the community is the long-term management of ONS or home enteral nutrition (HEN), ensuring supplies are available and the patient or caregiver is competent in its administration. The collaboration between nurse and dietitian in the community often relies on clear communication through shared charts and case conferences. The major challenges in this setting include fragmented care, poor reimbursement for outpatient medical nutrition therapy, and the difficulty of ensuring patient adherence outside a structured environment [66]. Successful intervention here is measured by the patient's ability to maintain nutritional status, prevent hospital readmissions, and manage their chronic disease effectively at home.

The **long-term care (LTC) setting** (nursing homes, residential facilities) represents a unique hybrid of acute and community care. The population is characterized by advanced age, multimorbidity, high prevalence of cognitive impairment (e.g., dementia), and functional dependency. The focus of nutritional intervention is on maintaining quality of life, preventing decline, and managing the complex

interplay of multiple chronic conditions over an extended period [67]. In this setting, the nursing role is fully integrated into daily life. Nurses and certified nursing assistants (CNAs) are fundamentally responsible for the direct provision of nutritional care. This includes creating a pleasant and social dining atmosphere, providing skilled feeding assistance for residents who cannot feed themselves, and meticulously documenting food and fluid intake. They are essential in managing the behavioral and psychological symptoms of dementia (BPSD) that can severely impact eating, such as agitation, wandering, and refusal to eat [68].

The dietitian in the LTC setting, often working as a consultant, has a role that encompasses both clinical expertise and systems management. They are responsible for conducting comprehensive nutritional assessments for all residents at admission and at regular intervals, with a particular focus on the high risk of sarcopenia and frailty. Their interventions must be creative and pragmatic, addressing issues like dysphagia through texture-modified diets (e.g., pureed foods, thickened liquids) that are also appealing and palatable. They work closely with the culinary staff to ensure that therapeutic diets are not only medically accurate but also enjoyable, understanding that food is a primary source of pleasure and quality of life for residents [69]. A critical part of the LTC dietitian's role is overseeing the facility's nutritional care policies, including the implementation of protected mealtimes and the use of finger foods for residents with dementia who may pace or have difficulty sitting for a full meal.

The collaboration between nursing and dietetics in long-term care is continuous and vital. Nurses provide the day-to-day observational data on resident intake and behavior, while the dietitian uses this information to adjust care plans, recommend specific feeding strategies, or prescribe nutritional supplements. Challenges in LTC are distinct and include high staff turnover, which can lead to inconsistencies in feeding assistance, budget constraints that may limit food choices, and ethical considerations around the use of artificial nutrition and hydration at the end of life [70]. The success of nutritional interventions in this setting is judged not only by the stabilization of weight and biochemical parameters but, more importantly, by the preservation of the resident's dignity, function, and enjoyment of life.

7. Conclusion

In conclusion, the formidable challenge of malnutrition in patients with chronic diseases

demands a sophisticated and unified response from the healthcare team. This research has unequivocally demonstrated that nurses and dietitians are the cornerstone of this response, with their roles being both indispensable and complementary. The nurse's unique position as a constant bedside caregiver enables the vital functions of early detection through systematic screening, continuous assessment, and the implementation of foundational interventions that prevent further nutritional decline. The dietitian builds upon this foundation, applying specialized expertise to conduct in-depth nutritional assessments, formulate precise diagnoses, and develop highly personalized, evidence-based Medical Nutrition Therapy plans tailored to the complex pathophysiology of each chronic disease. The efficacy of these individual roles, however, is profoundly amplified through effective Interprofessional Collaboration. The seamless integration of the nurse's continuous, observational data with the dietitian's diagnostic and prescriptive acumen creates a powerful feedback loop that is central to the Nutrition Care Process. This synergy ensures that nutritional care is dynamic, responsive, and patient-centered. As the care setting transitions from the acute hospital to the community and long-term care environments, the specific manifestations of these roles adapt, but the necessity for this collaboration remains the constant critical success factor. Therefore, overcoming the burden of disease-related malnutrition ultimately hinges on fostering and investing in this partnership. By strengthening interdisciplinary communication, implementing standardized protocols, and recognizing nutrition as a core therapeutic intervention, healthcare systems can empower nurses and dietitians to fully realize their potential, thereby significantly improving the health, function, and quality of life for millions of patients living with chronic diseases.

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