

# An Inter-professional Approach to Malnutrition in Hospitalized Adults

*Dietitians Leading the Way*

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  - Janice Macdonald MEd RD FDC
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  - Corinne Eisenbraun, MA RD FDC
  - Jayne Thirsk, RD PhD FDC
  - Linda Dietrich MEd RD
  - Pat Vanderkooy MSc RD
  - Leslie Whittington-Carter MHS RD
- Sandra Rothberg MEd RD
- Marilee Stickles-White RD
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- Carole Chatalalsingh, PhD, RD – College of Dietitians of Ontario
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# 1. Introduction

To create hospital-wide change, health professionals must know the facts about how malnutrition affects length of stay, morbidity and readmission rates. This knowledge needs to be imparted to all levels within the organization. To do this, a systematic approach must be taken to create awareness and educate administrators, physicians, nurses, dietitians, speech language pathologists, physiotherapists, occupational therapists, food service managers, dietetic technicians, food service staff, and personal support workers on the rationale for an inter-professional focus on prevention, detection and treatment of malnutrition, on all hospital wards, and in all patient diagnostic groups. Each health care professional will have a unique responsibility in preventing, detecting and treating malnutrition, and working collaboratively gives the greatest chance for successful implementation. **Dietitians have the knowledge and skill set to lead this change in Canadian hospitals.**

## 2. Why should we be concerned about malnutrition?

### What is malnutrition?

There are many clinical definitions of malnutrition and the one that the experts from the Canadian Malnutrition Task Force adopted is: “Malnutrition includes both the deficiency or excess (or imbalance) of energy, protein and other nutrients. In clinical practice, undernutrition, or inadequate intake of energy, protein and nutrients, is the focus. Undernutrition affects body tissues, functional ability and overall health. In hospitalized patients, undernutrition is often complicated by acute conditions (e.g. a trauma), infections and diseases that cause inflammation. Such complications worsen undernutrition and make it more challenging to correct due to extensive physiological changes and increased nutritional needs where appetite is decreased.”<sup>1</sup>

*Undernutrition, or inadequate intake of energy, protein and nutrients...affects body tissues, functional ability and overall health. In hospitalized patients, undernutrition is often complicated by acute conditions (e.g. a trauma), infections and diseases that cause inflammation. Such complications worsen undernutrition and make it more challenging to correct.*

## Malnutrition increases cost of care, length of stay and risk of readmission

Malnutrition is associated with increased morbidity in acute and chronic diseases, including development of pressure ulcers, poor wound healing, increased risk of infection and post-operative complications such as acute renal failure, pneumonia and respiratory failure.<sup>2</sup>

As a result, malnutrition not only costs patients their health and quality of life, but it creates unnecessary costs to the health care system. In a prospective cohort study, Subjective Global Assessment (SGA)<sup>1</sup> was the method used to assess the nutritional status of 818 adult patients admitted to hospital. The authors found that 29% of patients were malnourished and had a significantly longer length of stay as well as a higher rate of mortality. The average cost of hospitalization was 24% higher for the malnourished patients. This cost was independent of the disease state.<sup>3</sup> Similar results are reported in other studies<sup>4,5</sup>, pointing to the additional costs incurred due to malnutrition.

## 3. What is done in other jurisdictions?

Unlike Canada, other countries have been systematically working on the problem of malnutrition for some time and the following table provides an overview of their work.

<i>Country</i>	<i>Awareness-raising campaign with hospital and political leaders</i>	<i>Training of health professionals</i>	<i>National guidelines/quality standard</i>
<b>United Kingdom (through the British Association Parenteral and Enteral Nutrition)<sup>6</sup></b>	✓ (Malnutrition Matters)	✓	✓
<b>Netherlands</b>	✓ (Fight Malnutrition Now) <sup>7</sup>	✓	✓
<b>Denmark<sup>8,9</sup></b>	✓	✓	✓
<b>United States<sup>2</sup></b>	✓	Recommended	✓

Malnutrition continues to be unrecognized and untreated in many hospital patients, and that addressing it requires a collaborative effort including dietitians as nutrition experts. At the same time, members of inter-professional teams are unsure of what they can or should do and how they fit in the solution to addressing malnutrition.

Possible reasons for untreated malnutrition include: lack of knowledge of the effect of malnutrition on patient outcomes and the cost to the health care system, poor knowledge and recognition of malnutrition on the part of physicians and nurses, poor understanding of the dietitian's role in prevention, detection and treatment of malnutrition, and inadequate staffing of dietitians to address the problem.<sup>2</sup>

<sup>1</sup> Subjective Global Assessment is a simple bedside method of assessing the risk of malnutrition and identifying those who would benefit from nutrition care. The assessment includes taking a history of recent intake, weight change, gastrointestinal symptoms and a clinical evaluation. It has been validated in a variety of patient populations.

## 4. What do the Canadian data show?

While other countries developed unique programs based on their prevalence data, comprehensive Canadian data had been lacking. In the spring of 2013, the Nutrition Care in Canadian Hospitals study conducted by the Canadian Malnutrition Task Force (CMTF) was completed. The study enrolled 1022 patients from 18 acute care hospitals in 8 provinces.<sup>10</sup> Small (< 200 beds) and large (>200 beds) community and teaching hospitals were included in this prospective, cohort study to ensure reasonable representation of the general population admitted to hospitals across the country. All hospitals received Research Ethics Board approval to conduct the study at their site. The study is the most comprehensive study of its kind because it not only investigated the prevalence of malnutrition but also the cause or reasons for malnutrition by way of interviewing dietitians, surveying physicians, nurses and patients, as well as collecting data from patients about their medical history, living arrangements, cooking and shopping habits, in addition to anthropometric and biochemical measures.

### Incidence of malnutrition

The CMTF study patients underwent nutrition risk screening to compare the predictive value of the screening tool to that of the gold standard SGA.<sup>11</sup> Each patient had a comprehensive assessment that included anthropometric and biochemical measures along with an assessment of nutritional status based on the SGA methodology.<sup>12</sup> Based on SGA, 45% of the patients were either moderately or severely malnourished upon admission. This is in keeping with other first world countries where the results range from 20% to 50% of patients being malnourished.<sup>13,14</sup>

*The Canadian Malnutrition Task Force study established that malnutrition was an independent predictor of prolonged length of stay and 30-day readmission.*

### What was heard from dietitians in Canada

Focus groups were held with dietitians, diet technicians and menu clerks at each of the study sites to learn about their perception of the nutrition care at their facility. The comments were consistent across the country:

- A variety of methods are used to identify which patients may be at high nutrition risk and subsequently prioritized for assessment and intervention. Only two of the eighteen sites used a valid nutrition risk screening tool, while the other sites used food service diet order reports and patient diagnosis information as a means of determining which patients should be seen by a technician or dietitian.
- A common frustration was that the current system of identifying patients resulted in many potentially at-risk or malnourished patients not being seen.
- Referrals from other health professionals were often for concerns that did not warrant dietitian intervention, wasting precious clinical time.



- Dietitians generally do not have the authority to change diet orders, unless they have a medical directive/hospital policy to do so. Without the authority to change a diet order, patients are unnecessarily left on diet restrictions such as NPO or fluids only for too long. Valuable time is wasted waiting for approval, if it is ever obtained, to change the diet order.
- Patients' heights and weights are seldom available upon and during admission making nutrition assessment and treatment plans difficult to execute.
- Dietitians reported that food, an essential "tool" required by the profession to do its job properly, is not adequately budgeted and is not treated as an important factor in the care of patients.<sup>15</sup>

### What did the workload data show?

Only 27% of all patients were seen by a dietitian, diet technician or dietetic intern, and of the patients seen, 43% were well nourished, 39% were moderately malnourished and 18% were severely malnourished. Of the 116 patients who were severely malnourished, as assessed by SGA, 50 (43%) were seen by a dietitian.<sup>16</sup>

### Mealtime satisfaction survey results

Eight hundred and eighty-seven patients (89% response rate) completed a mealtime survey before discharge using a paper survey adapted from a previously validated questionnaire.<sup>17</sup> The results showed:

- Poor food intake (< 50% of hospital meals consumed) and poor appetite are common among hospitalized patients.
- Physical and organizational barriers were positively associated with poor food intake.
  - Common reasons why patients reported they did not eat were:
    - poor appetite (64.5%),
    - sickness (43.1%),
    - tired (41.5%),
    - pain (37.7%),
    - worry (25.4%),
    - depression (20%),
    - breathing difficulties (17%) and
    - chewing/swallowing problems (15%).
  - Physical barriers such as medical procedures, interruptions during the meal and noise and smell disturbed patient intake. Patients reported problems with opening and unwrapping food, body positioning, ability to reach the food, inability to cut food, not receiving assistance to feed self, and not having enough time to eat.
  - Organizational barriers such as food access were also a problem contributing to poor intake; patients felt hungry but food was not available, when meals were missed replacement meals or food was not provided, patients felt hungry but could not ask for food, and the time span between meals was too long. Over 30% of patients had family members bring food into the hospital for them.<sup>18</sup>

*Eating more than 50% of the food provided was a factor associated with earlier discharge.*

## Knowledge and attitudes of other health professionals

The CMTF set out to learn more about the knowledge and attitudes of physicians and nurses toward nutrition care using a 48-question paper survey adapted from a previously validated European questionnaire.<sup>19</sup>

Four hundred and twenty-eight physicians (35% response rate) completed the physician survey. While physicians believed that nutrition assessment should be performed at admission (87%), during hospitalization (86%) and at discharge (78%), the majority felt that this was not being done on a regular basis (admission 33%, during hospitalization 41%, at discharge 29%). Physicians believed that there is a gap between what was perceived to be the ideal management of hospital-related malnutrition and current practice. Education strategies are needed for physicians to close the gap between perception and practice, and to determine their role in the detection and management of malnutrition in hospitalized patients.<sup>20</sup>

*Dietitians are well-positioned to educate the inter-professional team and lead change to eliminate malnutrition.*

Three hundred and forty-six (response rate 48%) nurses completed the nurse survey. Thirty percent of the nurses felt that malnutrition was a problem in <25% of the patient population. Compared to the patient results, this indicates that a significant number of nurses underestimate the prevalence of malnutrition in patients. Ninety-three percent of the nurses believed that nutrition assessment should occur on admission, and 91% felt that three nutrition questions could be part of their admission assessment. Fifty-six percent felt that the dietitian should do nutrition risk screening, and 23% felt that the nurse could do it. Similar to the physician survey results, strategies are needed to promote increased nurse awareness and understanding of the problem of malnutrition.<sup>21</sup> As members of the inter-professional care team, dietitians are well positioned to provide in-service education and direct team members to appropriate resources as well as lead policy change.

## Clinical findings to support change in practice

- SGA was used as the tool for nutrition assessment as it has been effective in various international populations, is associated with clinical outcomes, and is a valid and reliable tool. It takes into account declining body mass associated with poor food intake, poor function and disease stress. This tool can assess the full effect malnutrition has on the body.<sup>12</sup>
- Body Mass Index (BMI) was not a good indicator of overall nutritional status as 62% of malnourished patients were within the range of 20–29.9 kg/m<sup>2</sup>, and only 9% of admitted patients were in the underweight BMI category. None of the BMI categories were statistically associated with outcomes, suggesting that BMI is not adequate to assess the nutritional status of patients upon admission, and it is not a predictor of clinical outcomes.
- Serum albumin was not statistically significantly associated with malnutrition.
- In addition to SGA, other parameters that were independent predictors of prolonged length of stay (LOS) were: NPO for at least three days, presence of nutritional support and an estimated average intake of less than 50% of the food provided to the patient during the first week of hospitalization.



- There were several pre-admission factors that were associated with malnutrition at admission: based on the Charlson Co-morbidity Index, having more than 3 diagnoses; and age-related social factors such as relying on adult children for grocery shopping (as compared to the patient or spouse doing this task) and living alone.<sup>22</sup>

## 5. How can the inter-professional team address malnutrition?

### Steps to introduce inter-professional care

The following three steps are recommended to begin the process for introducing a system-wide, inter-professional approach to addressing malnutrition:

1. **Dietitians prioritize identification and treatment of malnutrition.** A dietitian in a leadership role with authority to effect change for Clinical Nutrition should complete the Dietitians of Canada ethical nutrition screening program. The program provides the basis for how to select a nutrition risk screening tool, as well as the rationale behind an ethical nutrition screening program, which includes suggestions on how to ensure all “at risk” patients are assessed and prioritized for appropriate nutrition care. <http://www.dietitians.ca/Knowledge-Center/Learning-On-Demand/Learning-On-Demand-Store/lodStoreProduct.aspx?guid=36aa6d2d-ebd3-4fc5-acd5-d16b76e6218c>
2. **Create awareness by recruiting a medical and nursing champion to join the dietitian champion.** Present and discuss the problem of malnutrition at Grand Rounds; present literature and a snap shot of the economic effect of malnutrition to senior management. Other countries were successful in their implementation strategies when influential people (administrators and politicians) were aware of the problem and the solution.<sup>2</sup>
3. **Establish an inter-professional implementation team** that will include an administrator, physician, nurse, dietitian, diet technician, food service manager, speech language pathologist, physiotherapist, occupational therapist and personal support worker.<sup>2</sup> *Implementation Frameworks: Getting Started Kit* will provide the basics for understanding how to implement a health care program, such as a nutrition screening program, using the Plan, Do, Study, Act Framework. For more information: <http://www.saferhealthcarenow.ca/en/interventions/pages/default.aspx>

This process would be akin to a pilot testing the new nutrition screening program. Each individual has a role to play in the nutrition care process; screening, assessment, and treatment. Role delineation will be identified in the process. Additional information and tools can be obtained from the Canadian Malnutrition Task Force website ([www.nutritioncareincanada.ca](http://www.nutritioncareincanada.ca)).

## Components of an inter-professional malnutrition care program

Implementation of the following ten components of the nutrition care program to prevent, detect and treat malnutrition will change the way nutrition care is practiced and how services are provided in the hospital. This will take away the reliance on referrals from other health care professionals that are often based on a subjective assessment and erroneous beliefs about malnutrition and nutrition care. This standardized program should provide efficiency as it will ensure those who are in need of the care and services receive them as early as possible, with the ultimate goal of contributing to reduced LOS and preventing readmission. Figure 1 depicts this inter-professional malnutrition care program, with the centre showing those components needed to detect and assess malnutrition, and the outer ring depicting the processes to help prevent and treat malnutrition.

*Figure 1: Components of an inter-professional malnutrition care program*



## i. Screen for nutrition risk

The purpose of nutrition risk screening<sup>2</sup> is to identify malnourished patients or patients at risk for malnutrition; individuals considered “at risk” are provided a detailed nutrition assessment to inform a nutrition diagnosis and subsequent treatment plan.<sup>23,24,25,26,27</sup> Poor screening tool sensitivity can result in under-diagnosis of malnutrition and may leave patients who are malnourished or “at risk” as unidentified.<sup>29</sup> The screening tool questions can be completed by a nurse, using paper and pen tool, or be incorporated into the electronic health record and flagged for the appropriate personnel (nurse or diet technician) to be aware of a patient who is “at risk”. The latter has been successfully endorsed by all levels of administration at the Regina Qu’Appelle Health Region and is in the process of being incorporated in the health record nursing data base (*e-mail communication with Roseann Nasser, Research Dietitian, Regina Qu’Appelle Health Region, March 13, 2014*). Their approval process included ensuring that height and weight would be available upon admission. The implementation team could determine which health professional will be most responsible for obtaining height and weight from patients e.g. nurse, physiotherapist, diet technician or dietitian.

## ii. Use Subjective Global Assessment

The dietitian on the inter-professional malnutrition implementation team will be trained to conduct SGA on patients who have been identified “at risk” from the nutrition risk screening tool. SGA has been identified in many diagnostic groups as the best global indicator of malnutrition.<sup>19</sup> Once trained, the assessment takes approximately 10 minutes to complete. Patients who are identified as SGA A (well nourished) will not undergo further nutrition assessment, whereas patients identified as SGA B (moderately malnourished) and SGA C (severely malnourished) will undergo a comprehensive nutrition assessment by an dietitian. To learn how to do SGA go to:

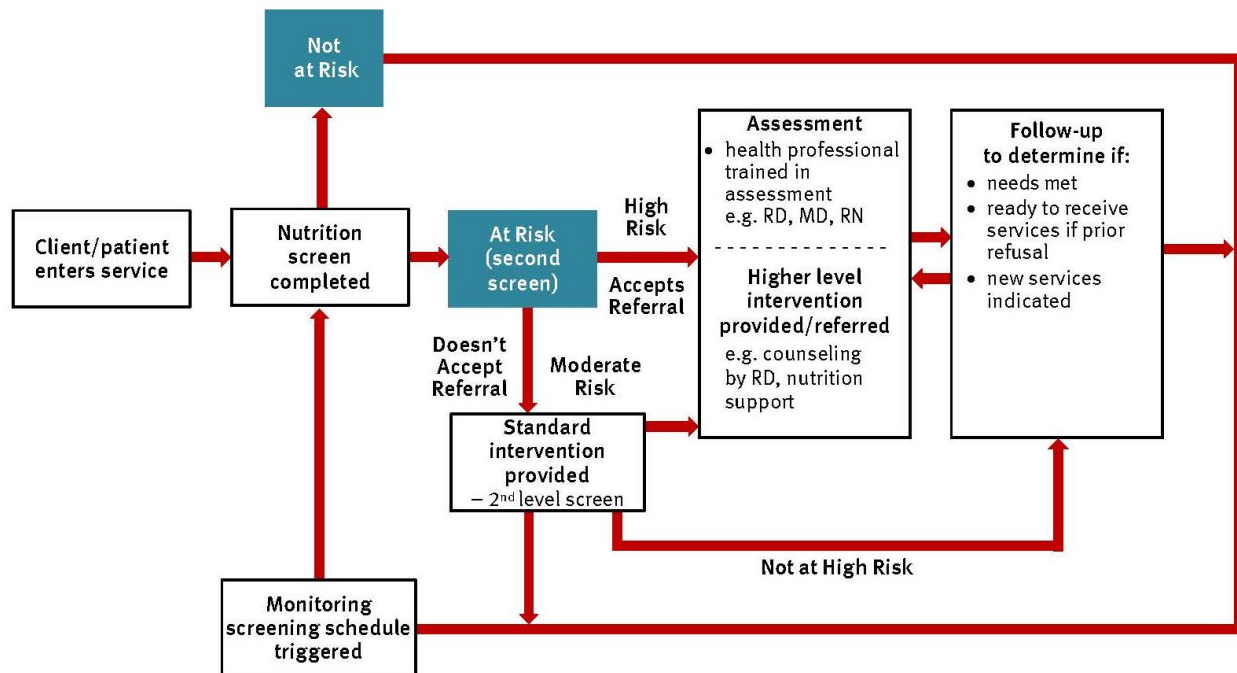
[www.subjectiveglobalassessment.com](http://www.subjectiveglobalassessment.com).

Since dietitians are not adequately staffed to re-assess all patients that may be assessed as SGA B and C (could be as high as 45% of the patient population), the implementation team may consider establishing a standard treatment that includes the care and monitoring of patients who are SGA B, possibly by a diet technician or other health care professional. The standard treatment could include implementation of a standard calorie dense diet plus oral nutrition supplements (ONS). See Ethical Nutrition Screening Program Pathway (Figure 2) for a graphic representation of how the care process could unfold.

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<sup>2</sup> A valid and reliable nutrition risk screening tool that has high sensitivity (almost all with the condition are identified) and fairly high specificity (those without the condition are not identified) is needed. An examples of such tools is CMTF Nutrition Risk Screening Tool, which has been tested for reliability in a “real life” setting.<sup>23,28</sup>

Figure 2: Ethical Nutrition Screening Program Pathway



### iii. Provide comprehensive nutrition assessment for malnourished patients

The Registered Dietitian will assess all patients who are determined to be SGA C (possibly SGA B, if staffing permits) and develop a plan of care using the following nutrition care process:

- nutrition assessment and reassessment
- nutrition diagnosis
- nutrition intervention
- nutrition monitoring and evaluation<sup>30</sup>

### iv. Protect meal times

The entire team will play a role in implementing Protected Meal Times throughout the system. For more details on a complete program go to [www.nrls.npsa.nhs.uk/resources/?entryid45=59806](http://www.nrls.npsa.nhs.uk/resources/?entryid45=59806). A Protected Meal Times program involves many health care professionals and a complete educational program is required for its successful implementation. Physicians, lab technicians, physiotherapists, etc. cannot visit patients or order tests during meal time; patients are properly seated or positioned by a personal support worker, nurse or occupational therapist, aids to assist in eating are provided if necessary, and food packages are opened and food is cut for the patient, if necessary. Scheduling of meals is centred on patient needs and not job routines or health professionals' schedules.

#### **v. Provide adequate and appropriate food**

Feeling hungry was a common complaint in the Canadian patient satisfaction survey results. Food, the least expensive therapy available to patients, needs to be available to prevent or treat malnutrition. Timely and appropriate meal and snack delivery times need to be established. A system for obtaining food after hours is also required, as patients' hunger is not necessarily synchronized with the operation of the kitchen.<sup>15</sup>

#### **vi. Liberalize “diets”; review evidence for diet orders**

The Institute for Healthcare Improvement (IHI) reported a "patients as partners" project where the concept of "comfort food" inspired changes in patients' diet options that improved patient satisfaction, and resulted in better nutrition. The project started when the hospital surveyed patients to describe a perfect patient experience. Many responses focused on improvements in food service. It was recognized that, in many cases, the value of meeting patients' food preferences might outweigh whatever small health-related benefits could be gained from a restricted diet during their hospital stay. The nutrition staff responded by creating a liberalized diet program, easing dietary restrictions and extending kitchen hours. The changes resulted in a 42 percent increase in the number of patients who rated the service as exceeding or greatly exceeding their expectations; a 42 percent increase in the number of patients who consumed 75 percent or more of the food on their trays; and, ironically, a 10 percent increase in the number of patients selecting appropriately for their prescribed diet. The nutrition staff monitor the choices patients make and use the information to educate patients during discharge planning.<sup>31</sup>

An evidence-based review of diet orders should be undertaken to eliminate diet orders for which no evidence exists. It is not uncommon to see 150 different diet orders in a food service system. Removing unnecessary diet orders will allow for fewer restrictions and more food options for the patient.

#### **vii. Authorize dietitian diet orders**

Ideally, dietitians would be authorized to order nutrition therapy in hospitals, as noted in the College of Dietitians of Ontario and Dietitians of Canada – Ontario's 2009 request to the Ministry of Health and Long Term Care (MOHLTC). To date, an amendment to the Public Hospitals Act authorizing dietitians to order nutrition therapy has not been made.<sup>32</sup>

Until a change can be made to the Public Hospitals Act, obtaining a medical directive/hospital policy for dietitians to change diet orders is necessary to prevent patients from being left on inappropriate diets for too long. Dietitians are encouraged to work with the inter-professional team to implement medical directives for diet orders in their hospital.

#### **viii. Code malnutrition and track LOS**

Consider coding malnutrition as a diagnosis in the medical record as is done in other jurisdictions. This would provide dietitians with the long awaited ability to quantify their role in assisting in decreasing LOS and to prevent readmission.<sup>33</sup> This can help with evidence-based decision-making in supporting the role of the dietitian in hospitals. If all hospitals started to do this, it could be the beginning of malnutrition being used as a quality indicator and/or for funding purposes.

### **ix. Ensure discharge planning includes nutrition care and education**

The aim is to enhance the patient's quality of life, to ensure continuity of services upon discharge from the hospital and to prevent readmission. The discharge plan, whether it is to an outpatient dietitian, home care, rehabilitation hospital, assisted living centre or long term care facility, will be comprehensive and individualized to the patient's needs<sup>2</sup>

### **x. Standardize documentation using Nutrition Care Process Terminology**

In the past decade, several countries, including Canada, have adopted a framework for standardized terminology. In 2002, the American Dietetic Association, now the Academy of Nutrition and Dietetics, described the Nutrition Care Process, and formed the Standardized Language Task Force in 2003. The standardized language is referred to as the Nutrition Care Process Terminology (NCPT) previously the International Dietetics and Nutrition Terminology (IDNT). With NCPT, outcomes can be tracked and reviewed internally and benchmarked with other facilities using NCPT, within and external to the province. The efficiency resulting from improved charting requirements, clear communication between health professionals, and improved decision support reporting would result in cost containment.

For other health care professionals working with dietitians, the standardized terminology provides clear communication of the goals of care, better coordination of care, clear criteria for the evaluation of care, and consistent terminology used across the continuum of care, which would be beneficial for the inter-professional care team when establishing care plans for malnourished patients. It can also facilitate clear communication for discharge planning.<sup>30</sup>

The adoption of NCPT is considered best practice not only in Canada but also in other countries such as the United States, Australia, The Netherlands, and the United Kingdom.<sup>30</sup> Some Canadian hospitals have adopted portions of the standardized terminology but generally acceptance of the framework has been slow due to lack of resources. (*Personal communication with Clinical Nutrition Leadership Action Group, November 5, 2013*).



## 6. Conclusion

Despite years of dedication to detecting and treating malnutrition in hospitals, it is apparent that dietitians cannot single-handedly address and manage this significant problem. Dietitians have the skills and knowledge to be leaders in changing the approach to prevention, detection, and treatment of malnutrition in hospitals. The following steps for changing the nutrition care process by implementing an inter-professional nutrition care program will improve patient outcomes and reduce hospital costs.

The steps to introducing inter-professional care to drive improvement are:

1. Dietitians to prioritize identification and treatment of malnutrition
2. Create awareness with senior management and other health care professionals through presentations and dissemination of resources
3. Establish an inter-professional implementation team.

Once the inter-professional team is established, then work towards implementing a system wide nutrition care program to prevent, detect and treat malnutrition can begin with the following components:

- i. Nutrition risk screening using a valid and reliable tool
- ii. SGA to assess nutritional status
- iii. Nutrition assessment and treatment plan for malnourished patients completed by dietitian
- iv. Protected Meal Times
- v. Adequate food provided to patients around the clock
- vi. Diets are liberalized and an evidence based review of diet orders is conducted
- vii. Authorize dietitians to independently order diets (medical directive/hospital policy)
- viii. Code malnutrition and track LOS
- ix. Discharge planning for nutrition care and education is essential to the care of the malnourished patient
- x. Implement NCPT to provide concise, clear communication to other health care professionals.

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Dietitians of Canada / Les diététistes du Canada  
480 University Avenue, Suite 604  
Toronto, Ontario, Canada M5G 1V2

**TEL:** 416.596.0857

**FAX:** 416.596.0603

**EMAIL:** [centralinfo@dietitians.ca](mailto:centralinfo@dietitians.ca)

**[www.dietitians.ca](http://www.dietitians.ca) | [www.dietetistes.ca](http://www.dietetistes.ca)**