Canadian Malnutrition Task Force (CMTF)

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Canadian Malnutrition Task Force (CMTF) Overview and Results

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- Heather Keller, RD, PhD, FDC

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- Manon Laporte, RD, MSc, CNSC
- Hélène Payette, PhD
CMTF Supporters

Abbott
A Promise for Life

Baxter

Fresenius Kabi
caring for life

Pfizer

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Malnutrition in Canadian Hospitals

- Literature background
- CMTF protocol
- Preliminary results
Prevalence of Hospital Malnutrition: Subjective Global Assessment (SGA) 28-70%

TABLE I.
FREQUENCY OF MODERATE OR SEVERE UNDERNUTRITION IN ACUTE HOSPITALS IN STUDIES USING THE SGA CRITERIA*

<table>
<thead>
<tr>
<th>Admission site</th>
<th>Moderate or severe SGA</th>
<th>Country</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute hospital (CRI admission)¹</td>
<td>28% (severe)</td>
<td>Australia</td>
<td>2001</td>
</tr>
<tr>
<td>Acute hospital (n = 2)²</td>
<td>36% (severe)</td>
<td>Australia</td>
<td>1997</td>
</tr>
<tr>
<td>Acute hospital³</td>
<td>45% (severe)</td>
<td>Netherlands</td>
<td>1997</td>
</tr>
<tr>
<td>Acute geriatric hospital⁴</td>
<td>41%</td>
<td>USA</td>
<td>1999</td>
</tr>
<tr>
<td>Acute hospital (n = 13)</td>
<td>50%</td>
<td>Latin America</td>
<td>2001</td>
</tr>
<tr>
<td>Acute hospital⁵</td>
<td>53%</td>
<td>Sweden</td>
<td>1996</td>
</tr>
<tr>
<td>Acute hospital⁶</td>
<td>61%</td>
<td>Switzerland</td>
<td>2002</td>
</tr>
<tr>
<td>Acute hospital (dialysis)⁷</td>
<td>65%</td>
<td>United Kingdom</td>
<td>1997</td>
</tr>
<tr>
<td>Acute geriatric hospital⁸</td>
<td>69%</td>
<td>Sweden</td>
<td>2002</td>
</tr>
<tr>
<td>Geriatric long-term care⁹</td>
<td>70%</td>
<td>USA</td>
<td>2000</td>
</tr>
<tr>
<td>Oncology¹⁰</td>
<td>76%</td>
<td>Australia</td>
<td>2002</td>
</tr>
</tbody>
</table>

* Only studies using the SGA were included. Several studies reported combined moderate and severe undernutrition, whereas others reported only severe undernutrition.
CRI, chronic renal insufficiency; SGA, Subjective Global Assessment

Prevalence of malnutrition in Canada

- **69%** moderate or severe using SGA; tertiary care general medical ward  

- **59%** moderate risk or malnourished, several measures; older adults, general medicine, orthopedics  
  Azad N et al. *CMAJ* 1999; 161(5); 511-15

- **40%** high risk of PEM using comprehensive assessment; geriatric rehab  
  Babineau et al *Can J Diet Pract Res* 2008; 69(2); 89-94

- **45-57%** undernutrition, comprehensive assessment; geriatric rehab  

- **40-60%** moderate or severe; long term care facilities  
Factors promoting Malnutrition

• Organizational barriers to food access (Naithani et al., 2008)
  – 48 patient interviews
  – Food not available between meals; enough time; positioning; assistance; interruptions

• Patient completed exit survey (Naithani et al., 2009)
  – N=764
  – Hunger 30%; physical barriers 24%; organizational barriers 29%; food choice 24%; food quality 21%
Nutrition Care Issues

• ~70% do not eat enough to meet needs (Thibault et al., 2010)

• Nurses identify 15% as malnourished; MNA identified 57% as malnourished (Suominen et al., 2009)

• Individualized nutrition interventions lead to higher intakes, weight maintenance, better outcomes (Feldblum et al., 2010; Starke et al., 2010)
Nutrition Care Issues

• Organizational barriers to food access (Naithani et al., 2008)
  – 48 patient interviews
  – Food not available between meals; enough time; positioning; assistance; interruptions

• Patient completed exit survey (Naithani et al., 2009)
  – N=764
  – Hunger 30%; physical barriers 24%; organizational barriers 29%; food choice 24%; food quality 21%
Some nutritional parameters may reflect severity of disease:
- Serum albumin: Independent predictor of mortality in wide range of diseases
- Often normal in severe starvation due to anorexia nervosa

Malnutrition, Sarcopenia, Cachexia
Same Phenotypes different Etiology

**Malnutrition:**
Caused by chronic Protein-Energy Imbalance
Responds to Protein-Energy Feeding

**Cachexia (kakos=Bad Rexis=Condition)**
Disease related loss of muscle, weakness and lethargy
Does not respond to feeding (Evans et al Clin Nutr 2008, 27:793-99)

**Sarcopenia and Frailty:**
Specific loss of muscle related to ageing
Frailty when there is loss of body fat
Sarcopenic obesity if associated with increased fat
Responds to exercise and partly to feeding (Thomas Clin Nutr 2007; 2007:389-99)
Factors contributing to Malnutrition

Before admission:
- Weight loss often present
- Disease Factors
- Large proportion of Elderly
- Aging process

At admission:
- Patients often not properly screened
- Health care professionals: shortage, perception
- Nutritional Care Plan not systematic
- Underlying disease

During hospitalization/institutionalization:
- Food issues
- Tests issues
- Monitoring issues
- Recognition issues
- Lack of nutritional interventions
The Ideal Hospital Care Process: Nutrition Care Pathway

Step 1: Nutrition Screening
All patients screened

Step 2: Nutrition Assessment
Detailed examination of metabolic, nutrition, or functional variables by an expert clinician, dietitian, or nutrition nurse.¹

Step 3: Nutrition Intervention

MONITORING

Malnutrition

Morbidity ↑
Wound healing ↓
Infections ↑
Complications ↑
Convalescence ↓

Mortality ↑
Treatment ↑
LOS ↑

QOL ↓
COSTS ↑
CMTF Study Objectives

1. To assess nutrition status and **prevalence** of malnutrition, including obesity, in hospital patients

2. To determine whether malnourished and obese patients have **extended length of stay** or increased 30-day re-admission & mortality

3. To demonstrate the **change in nutritional status** that occurs during hospitalization

4. To evaluate the **practice** of nutritional care

5. To determine if patients are **satisfied** with their nutrition care, including meals

6. Identify Barriers to good nutrition care in hospitals

7. To determine the **cost-benefit** of quality care
CMTF Protocol

- Prospective cohort study
  patients followed during hospitalization
  + 30 days post discharge

- Patient population: adults
  - consecutive admissions
  - hospital stay > 2 days
  - surgical and medical wards

- Exclusion: pediatric, obstetric, psychiatry, palliative, admitted directly to ICU,

- academic / community / small and large centers
Measurements (1)

• Admission:
  – Subjective global assessment (SGA)
  – NRI, NRS-2002, CMTF screening tool
  – Weight, Height, BMI
  – Mid arm and calf circumference;
  – C-reactive protein and plasma albumin
  – Charlson comorbidity index
  – 3 day food record during first week of admission including nutritionDAY patient survey 1 meal

• Hospital Stay:
  – In-hospital mortality
  – Antibiotic use, surgeries,
    – Nutrition care- workload of RD and DT
    – Diet orders, ONS
  – Weight q 2 days;
  – repeat estimation of food intake and nutritionDAY patient survey
Table 2 Final Screening

<table>
<thead>
<tr>
<th>Impaired nutritional status</th>
<th>Severity of disease (increase in requirements)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absent score 0</td>
<td>Absent Score 0</td>
</tr>
<tr>
<td>Normal nutritional status</td>
<td>Normal requirements</td>
</tr>
<tr>
<td>Mild score 1</td>
<td>Mild score 1</td>
</tr>
<tr>
<td>Wt loss &gt;5% in 3 months or food intake below 50-75% of normal requirements in preceding week</td>
<td>Hip fracture, Chronic patients</td>
</tr>
<tr>
<td>Moderate score 2</td>
<td>Moderate score 2</td>
</tr>
<tr>
<td>Wt loss &gt;5% in 2 months or BMI 18.5–20.5 + impaired general condition or food intake 25 – 60% of normal requirement in preceding week</td>
<td>Major abdominal surgery, Stroke, Severe pneumonia, hematologic malignancy</td>
</tr>
<tr>
<td>Severe score 3</td>
<td>Severe score 3</td>
</tr>
<tr>
<td>Wt loss &gt;5% in 1 month (&gt;15% in 3 months) or BMI &lt;18.5 + impaired general condition or food intake 0-25% of normal requirement in preceding week</td>
<td>Head injury, Bone marrow transplantation, Intensive care patients (APACHE&gt;10)</td>
</tr>
</tbody>
</table>

Age if ≥70 years: add 1 to total score = age-adjusted total score

Patients with a score of ≥ 3 are classified as nutritionally at-risk


- Nutrition Risk Screening NRS-2002:
Nutrition Screening Tools – Definitions (2)

- **CMTF screening tool:**
  - Based on 3 questions
    1) Has there been a recent and un-intentional weight loss?
    2) Has food intake been reduced for a week or more?
    3) Is BMI < 18.5kg/m$^2$ (BMI < 21kg/m$^2$ for patients age >65yr)?
    → YES to any of these questions scores the patient at high nutrition risk
  - Expected to be more feasible than NRS-2002
  - Validation with this study

- **Nutritional Risk Index (NRI):**
  \[
  \text{NRI} = [1.489 \times \text{serum albumin (g/l)}] + [41.7 \times (\text{present weight (kg)/usual weight (kg)})]
  \]
  - >100 good nutritional state
  - 97.5-100 mild malnutrition
  - 83.5-<97.5 moderate malnutrition
  - <83.5 severe malnutrition
Subjective Global Assessment

**History:**
- Changes in weight over past 6 months
- Changes in dietary intake
- Gastrointestinal symptoms
- Functional capacity
- Stress of disease

**Physical:**
- Loss of subcutaneous fat: triceps, chest
- Muscle wasting: deltoids, quadriceps, biceps, ...
- Edema: ankle, sacral, ascites

**Classification:**
- A: Well nourished: no history or physical findings of malnutrition
- B: Moderately malnourished
- C: Severely Malnourished

Detsky et al. *JPEN* 11:8, 1987
Charlson Co-Morbidity Index

Charlson comorbidity index: to classify the prognostic comorbidity

1: CVD disorders, dementia, cerebrovascular, COPD, conjunctive tissue disorders, diabetes without complications, chronic liver disease

2: Hemiplegia, moderate/severe kidney disease, diabetes with complications, tumours, leukemia, lymphoma

3: moderate to severe liver disease

6: malignant tumour, metastasis, AIDS
Measurements (2)

• **Discharge:**
  - Repeat nutrition measurements
  - Length of stay
  - 30-days mortality
  - 30-day admission rate
  - Patient satisfaction survey

• **Nutrition Care Process:**
  - Clinical Nutrition Team focus groups
  - Physician survey
• **Descriptive analysis**: mean, SD, % of patients

• **Comparison among SGA groups**
  – ANOVA (normally distributed)
  – Kruskal-Wallis test followed by Mann-Whitney test (skewed)
  – Pearson chi square test, Fisher’s exact test

• **Comparison discharge vs. baseline**
  – Paired t-test, Wilcoxon test (continuous)
  – McNemar test, Marginal Homogeneity test (categorical)

• **Univariate and multivariate analysis**

• **IBM SPSS Statistics 19.0 (IBM)**
## Patients Demography

<table>
<thead>
<tr>
<th></th>
<th>mean ± SD or % (n) of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>n</strong></td>
<td>160</td>
</tr>
<tr>
<td><strong>Age (years)</strong></td>
<td>63.2 ± 15.8</td>
</tr>
<tr>
<td><strong>Gender (% (n))</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>43.4 (69/159)</td>
</tr>
<tr>
<td>Female</td>
<td>56.6 (90/159)</td>
</tr>
<tr>
<td>*<em>Ethnicity</em> (%(n))**</td>
<td></td>
</tr>
<tr>
<td>White Canadian born</td>
<td>90.0 (144/160)</td>
</tr>
<tr>
<td>European</td>
<td>6.3 (10/160)</td>
</tr>
<tr>
<td>Asian **</td>
<td>5.6 (9/160)</td>
</tr>
<tr>
<td>Aboriginal/Natives</td>
<td>5.0 (8/160)</td>
</tr>
<tr>
<td>Other</td>
<td>2.5 (4/160)</td>
</tr>
</tbody>
</table>

* Total more than 100% as multiple responses were possible

** South Asian, West Asian, East/South East Asian
Patients Demography

- Admitting Diagnosis: n = 160, multiple responses possible

- Presence of cancer: 8.1 % (13/160)
## Patients Demography

<table>
<thead>
<tr>
<th>Parameter</th>
<th>N</th>
<th>Mean ± SD or Median (Range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charlson Co-Morbidity Index</td>
<td>147</td>
<td>2 (0; 14)</td>
</tr>
<tr>
<td>Number of Medication</td>
<td>160</td>
<td>9.8 ± 5.3</td>
</tr>
<tr>
<td>Number of Supplements (Multivitamins, Minerals)</td>
<td>54</td>
<td>0 (0; 4.0)</td>
</tr>
<tr>
<td>Number of Antibiotics</td>
<td>159</td>
<td>0 (0; 5.0)</td>
</tr>
</tbody>
</table>
## Prevalence of malnutrition at Admission according to Screening Tools

<table>
<thead>
<tr>
<th>Screening Tool</th>
<th>Prevalence (%) (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRS-2002 Score ≥ 3 (Age Adjusted) (%(n))</td>
<td>33.3 (46/138)</td>
</tr>
<tr>
<td>CMTF Screening Tool: Patients at High Nutrition Risk (%(n))</td>
<td>53.8 (86/158)</td>
</tr>
<tr>
<td>SGA B+C (% (n))</td>
<td>45.0 (72/160)</td>
</tr>
</tbody>
</table>
Comparison between SGA Classes at Admission (1)

<table>
<thead>
<tr>
<th>Admission</th>
<th>n</th>
<th>SGA A</th>
<th>n</th>
<th>SGA B</th>
<th>n</th>
<th>SGA C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (Years)</td>
<td>88</td>
<td>58.8 ± 14.3 A</td>
<td>57</td>
<td>68.9 ± 6.4 A</td>
<td>15</td>
<td>67.0 ± 14.7</td>
</tr>
<tr>
<td>Gender Male (% (n))</td>
<td></td>
<td></td>
<td>63.2 (55/87)</td>
<td>57</td>
<td>47.4 (27/57)</td>
<td>15</td>
</tr>
<tr>
<td>Gender Female</td>
<td>36.8 (32/87)</td>
<td></td>
<td>52.6 (30/57)</td>
<td></td>
<td></td>
<td>46.7 (7/15)</td>
</tr>
<tr>
<td>Charlson Co-Morbidity Index</td>
<td>78</td>
<td>2 (0;14) bl</td>
<td>57</td>
<td>2 (0;8) a</td>
<td>12</td>
<td>3.5 (1;10) bl, a</td>
</tr>
<tr>
<td>Medications (n)</td>
<td>88</td>
<td>10.0 ± 5.4</td>
<td>57</td>
<td>10.0 ± 5.2</td>
<td>15</td>
<td>8.2 ± 4.3</td>
</tr>
<tr>
<td>Antibiotics (n)</td>
<td>87</td>
<td>0 (0;5)</td>
<td>57</td>
<td>0 (0;3)</td>
<td>15</td>
<td>0 (0;2)</td>
</tr>
</tbody>
</table>

Values expressed as mean ± SD, median (range), or % of patients.
Values with identical superscript letters are significantly different.
a: P<0.05; A: P<0.01; bl: borderline significance
Comparison between SGA Classes at Admission (2)

<table>
<thead>
<tr>
<th>Admission</th>
<th>n</th>
<th>SGA A</th>
<th>N</th>
<th>SGA B</th>
<th>N</th>
<th>SGA C</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-Reactive Protein (mg/L)</td>
<td>83</td>
<td>24.9 (0.4;339.9)</td>
<td>56</td>
<td>33.8 (0.6;330.9)</td>
<td>12</td>
<td>30.9 (0.2;112.8)</td>
</tr>
<tr>
<td>Plasma Albumin (g/L)</td>
<td>83</td>
<td>33.25 ± 5.24</td>
<td>56</td>
<td>32.61 ± 5.39</td>
<td>13</td>
<td>28.69 ± 4.66</td>
</tr>
<tr>
<td>Nutritional Risk Index</td>
<td>80</td>
<td>91.9 ± 8.2</td>
<td>54</td>
<td>88.5 ± 8.5</td>
<td>10</td>
<td>79.0 ± 8.3</td>
</tr>
<tr>
<td>NRS-2002</td>
<td>70</td>
<td>1.0 (0;4.0)</td>
<td>54</td>
<td>3.0 (0;6.0)</td>
<td>14</td>
<td>3.0 (0;4.0)</td>
</tr>
<tr>
<td>CMTF Screening Tool: Patients at High Risk (%)</td>
<td>24</td>
<td>27.9 (24/86)</td>
<td>49</td>
<td>86.0 (49/57)</td>
<td>13</td>
<td>86.7 (13/15)</td>
</tr>
</tbody>
</table>

Values expressed as mean ± SD, median (range), or % of patients.

Values with identical superscript letters are significantly different.
a,b: P<0.05; A,B: P<0.01; bl: borderline significance
## Comparison between SGA Classes at Admission (3)

<table>
<thead>
<tr>
<th>Admission</th>
<th>n</th>
<th>SGA A</th>
<th>n</th>
<th>SGA B</th>
<th>n</th>
<th>SGA C</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI (m/kg²)</td>
<td>85</td>
<td>28.3 (19.0;59.1) (^A)</td>
<td>54</td>
<td>25.8 (17.1;66.4) (^B)</td>
<td>11</td>
<td>19.9 (13.3;22.8) (^{A,B})</td>
</tr>
<tr>
<td>Mid Arm Circumference (cm)</td>
<td>88</td>
<td>31.2 ± 5.4 (^A)</td>
<td>57</td>
<td>30.5 ± 5.8 (^B)</td>
<td>15</td>
<td>22.0 ± 2.8 (^{A,B})</td>
</tr>
<tr>
<td>Calf Circumference (cm)</td>
<td>88</td>
<td>37.6 ± 5.4 (^{a,B})</td>
<td>57</td>
<td>34.1 ± 5.2 (^{a,C})</td>
<td>15</td>
<td>28.1 ± 3.6 (^{B,C})</td>
</tr>
</tbody>
</table>

Values expressed as mean ± SD, median (range) or % of patients.

Values with identical superscript letters are significantly different.

\(a,b: P<0.05; A,B: P<0.01; \text{bl: borderline significance}\)
Prevalence of Malnutrition at Admission and Discharge Based on SGA and Albumin

<table>
<thead>
<tr>
<th>Albumin ≤ 35 g/L (%(n))</th>
<th>Admission</th>
<th>Discharge</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>68.4 (104/152)</td>
<td>58 (55/94)</td>
<td>0.012</td>
</tr>
</tbody>
</table>
## Nutritional Parameters: Admission and Discharge

<table>
<thead>
<tr>
<th>Parameters</th>
<th>n</th>
<th>Admission</th>
<th>n</th>
<th>Discharge</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-Reactive Protein (mg/L)</td>
<td>151</td>
<td>30.2 (0.2-339.9)</td>
<td>93</td>
<td>12.4 (0.3-321.8)</td>
<td>&lt;0.00001</td>
</tr>
<tr>
<td>Plasma Albumin (g/L)</td>
<td>152</td>
<td>32.6 ± 5.4</td>
<td>94</td>
<td>33.0 ± 5.2</td>
<td>0.183</td>
</tr>
<tr>
<td>Nutritional Risk Index</td>
<td>145</td>
<td>89.8 ± 8.9</td>
<td>88</td>
<td>88.9 ± 8.5</td>
<td>0.622</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>150</td>
<td>77.8 (36.9-189.9)</td>
<td>131</td>
<td>74.7 (37.1-190.7)</td>
<td>&lt;0.00001</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>150</td>
<td>27.1 (13.3-66.4)</td>
<td>131</td>
<td>26.6 (13.4-62.7)</td>
<td>&lt;0.00001</td>
</tr>
<tr>
<td>Mid arm Circumference (cm)</td>
<td>160</td>
<td>30.4 ± 6.0</td>
<td>135</td>
<td>29.9 ± 6.0</td>
<td>0.007</td>
</tr>
<tr>
<td>Calf Circumference (cm)</td>
<td>160</td>
<td>35.8 ± 5.9</td>
<td>135</td>
<td>35.3 ± 6.0</td>
<td>0.011</td>
</tr>
</tbody>
</table>

Values expressed as mean ± SD or median (range)
Food Intake in Hospital

NutritionDAY self-report on meal intake

– 32.5% consumed <50% of meal provided
– Reasons provided: lack of hunger (30.1%), not allowed to eat (18.9%), did not like taste (17.9%)
– 0.6-1.3% consumed ONS at meal
– 30% ate ‘outside’ foods
Food Intake in Hospital

- 77% satisfied with taste of food
- 88% satisfied with appearance
- 69% satisfied with portion size
- 36% interrupted during meals
- 37% missed at least one meal due to tests
Food Intake in Hospital

- 23% had difficulty reaching meals
- 32% in an uncomfortable/poor position for eating
- 24% had difficulty cutting food
- 41% had difficulty opening packages
- 12% needed help with eating
- 67% had poor appetite during admission
  - Sickness (56%), pain (45%), tired (43%), worried (30%), depressed (23%)
Main Outcomes among SGA Classes

Hospital mortality: n=156
30-day mortality: n=157

P=0.018
P=0.056
P=0.020

Hospital mortality
30-day mortality
## Main Outcomes among SGA Classes

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>SGA A</th>
<th>n</th>
<th>SGA B</th>
<th>n</th>
<th>SGA C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>30-day re-admission (% (n))</strong></td>
<td>88</td>
<td>21.6 (19/88)</td>
<td>53</td>
<td>22.6 (12/53)</td>
<td>13</td>
<td>46.2 (6/13)</td>
</tr>
<tr>
<td><strong>Length of Stay (days)</strong></td>
<td>88</td>
<td>5 (1; 81)</td>
<td>56</td>
<td>7 (2; 93)</td>
<td>56</td>
<td>7 (2; 46)</td>
</tr>
</tbody>
</table>

Values expressed median (range) or % of patients.

No significant differences among the SGA classes.
Obstacles to Nutrition Care: FOCUS GROUP STUDY

- 4 conducted in person; 3 with assistant to record key points
- 1 conducted via video conference
- N=47 (n=6 non-RDs)
- ~1 hour in length

Questions
- How identified patients to treat, how monitored
- What worked well in nutrition care process
- What were obstacles to nutrition care
What are the obstacles?

• Multiple systems to identify patients who need treatment; miss patients
  – ‘at risk’ screens not seen as high a priority as referrals
  – Computerized systems result in error (e.g. NPO trigger)
• Meals are not patient-centred (e.g. cultural, age, renal)
  – Inflexible, poor quality, lack variety
  – Regionalization, off-site food preparation, 7-day menu, lack of back-up such as alternate menu
  – Computerized systems create barriers with standard diets, restrictions and ‘allergy’
What are the Obstacles?

• Lack of food availability outside of trays
• ONS access, variety and wastage
• Protocols not followed
  – Braden scale, weights, calorie counts
• Dietitian time misused
  – Identifying patients, getting diet orders, food preferences, inappropriate referrals, continual training of interns/residents on role, documentation
What are the Obstacles

• Inadequate meal help
  – Many involved in food chain and limited accountability

• Insufficient diet tech/aid time
  – Monitoring, preferences, low priority, basic teaching

• Inadequate follow-through at community-level post discharge
Suggestions for Improvement

• Raise awareness of the importance of nutrition
• Standardized screening/treatment/monitoring protocols
• National standard for hospital food
• Menu planning driven by patient needs
• Role delineation
  – Admission screen, RD, diet tech
• Systematic monitoring of patients food intake and interventions
  – Tray-line checks, meal rounds
Suggestions for Improvement

• Training
  – Physicians, nurses on screening/referral
  – Residents/interns on nutrition care process & roles prior to rotation
  – Dietitians on physical exam, SGA, medical directives, streamlined ax and documentation
  – Meal helpers on importance of nutrition and adequate support

• Meal helpers
• Med-pass for ONS
• Food availability outside of meals
SUMMARY

- Mean age is 63y, 57% women, poly-pharmacy (~10)
- Median length of stay: 6 days (wide range)
- Main admitting diagnosis: gastrointestinal disorder

- 33% (NRS-2002) to 54% (CMTF) are at nutritional risk
- Based on SGA 45% of patients have some malnutrition at admission

- Between admission and discharge:
  - improvement in CRP and ↓ proportion of patients with low albumin
  - reduction in weight, BMI, MAC, CC
  - increase proportion of patients with SGA A at discharge

- SGA C had:
  - higher Charlson comorbidity, lower albumin, NRI, BMI, MAC, CC

- SGA B and C had higher in-patients mortality and
  SGA B had higher 30-day mortality versus SGA A

- Sample size still too small to conduct multivariate analysis
SUMMARY

• Standardized screening protocols are mandatory in hospitals in Canada

• Administrators, physicians, nurses and allied health professionals in hospitals are educated on the need to integrate nutrition care as part of practice.

• Mealtimes are patient focused; they are protected and staff (nursing, food/nutrition services) provide nutrition and mealtime care that is consistent with the nutrition care plan.

• A national standard for menu planning ensures quality food is provided in hospitals and requires that food services provides adequate nutrients to meet needs of diverse patients, as indicated in their nutrition care plan.
SUMMARY

• A multidisciplinary team is involved in nutrition care and dietitian is responsible for the determination of the nutritional care plan, including the route of alimentation; medical directives are in place to facilitate timely care and nutrition orders.

• Oral nutrition supplementation is used effectively to improve malnutrition; MedPASS and other strategies are used to ensure consumption.
FUTURE PLANS

• Data to be completed summer 2012

• 9 hospitals are currently enrolled
  Goal is to enroll 15 – 20 hospitals

• Currently 500 patients enrolled
  Goal of enrolling 1000 patients
Institutions

- **Campbellton Regional Hospital, Campbellton, NB** - Site Investigator Manon Laporte, Site Coordinator Isabelle Caissie
- **University Health Network, Toronto, ON** - Site Investigator Johane Allard, Site Coordinator Bianca Arendt
- **St. Michael's Hospital, Toronto, ON** - Site Investigators Khursheed Jeejeebhoy & Pauline Darling, Site Coordinator Stanley Zhang
- **St. Boniface General Hospital, Winnipeg, MB** - Site Investigator Donald Duerksen, Site Coordinator Laura Toews
- **Royal Alexandra Hospital, Edmonton, AB** - Site Investigator Leah Gramlich, Site Coordinator Nicole Journault
- **Sturgeon Community Hospital, Edmonton, AB** - Site Investigator Leah Gramlich, Site Coordinator Nicole Journault
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