

# More-2-Eat Phase 2: Spread/Scaling Up Improved Nutrition Care

CFN

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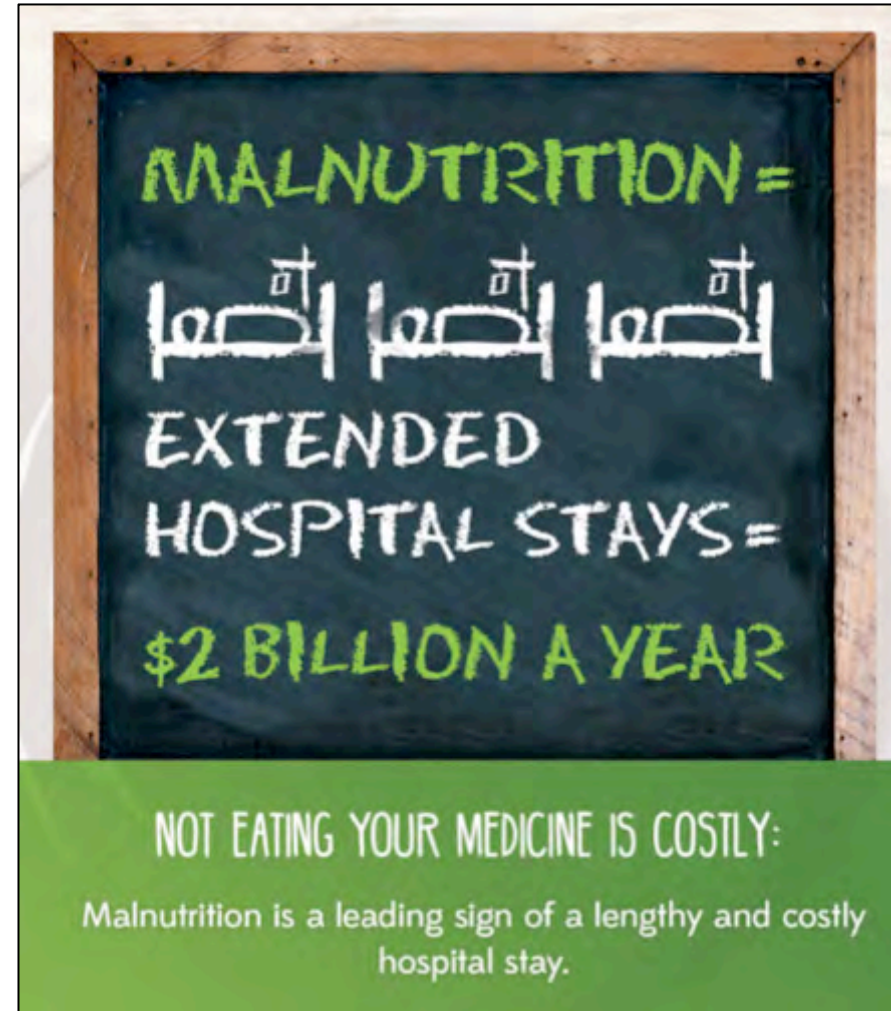
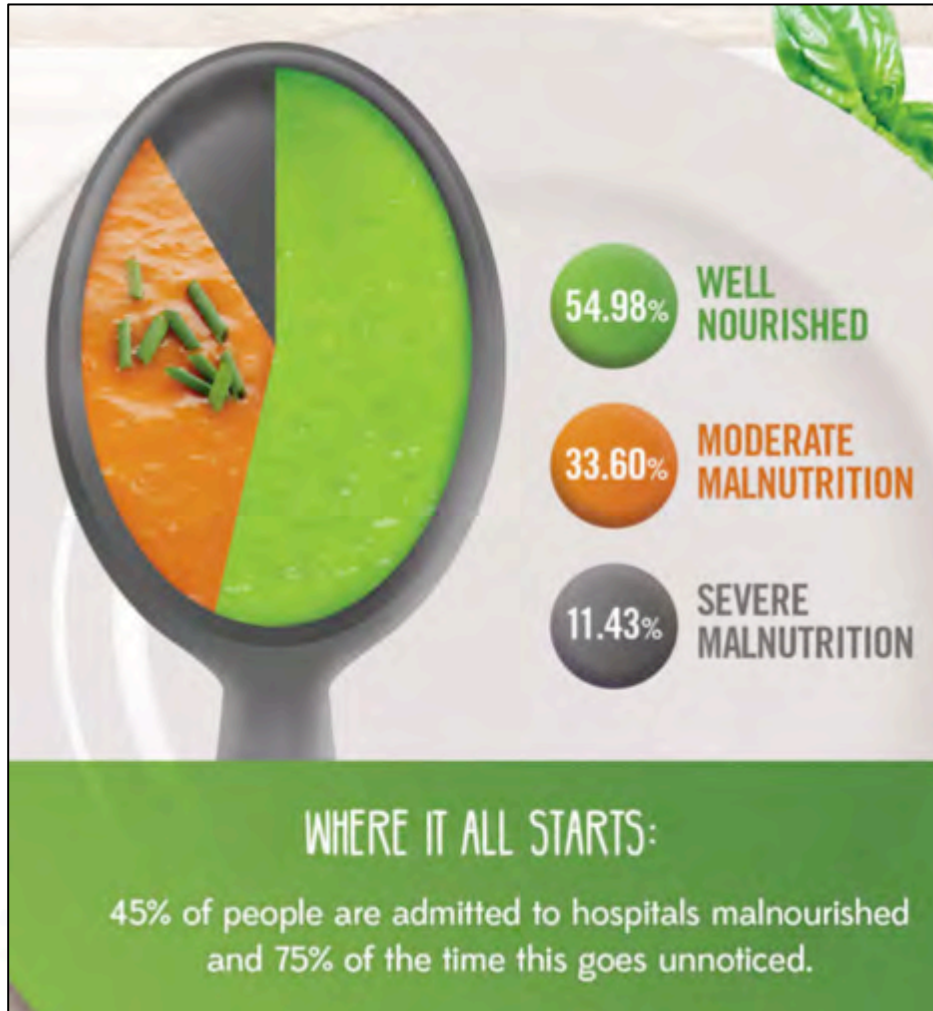


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# The Problem...

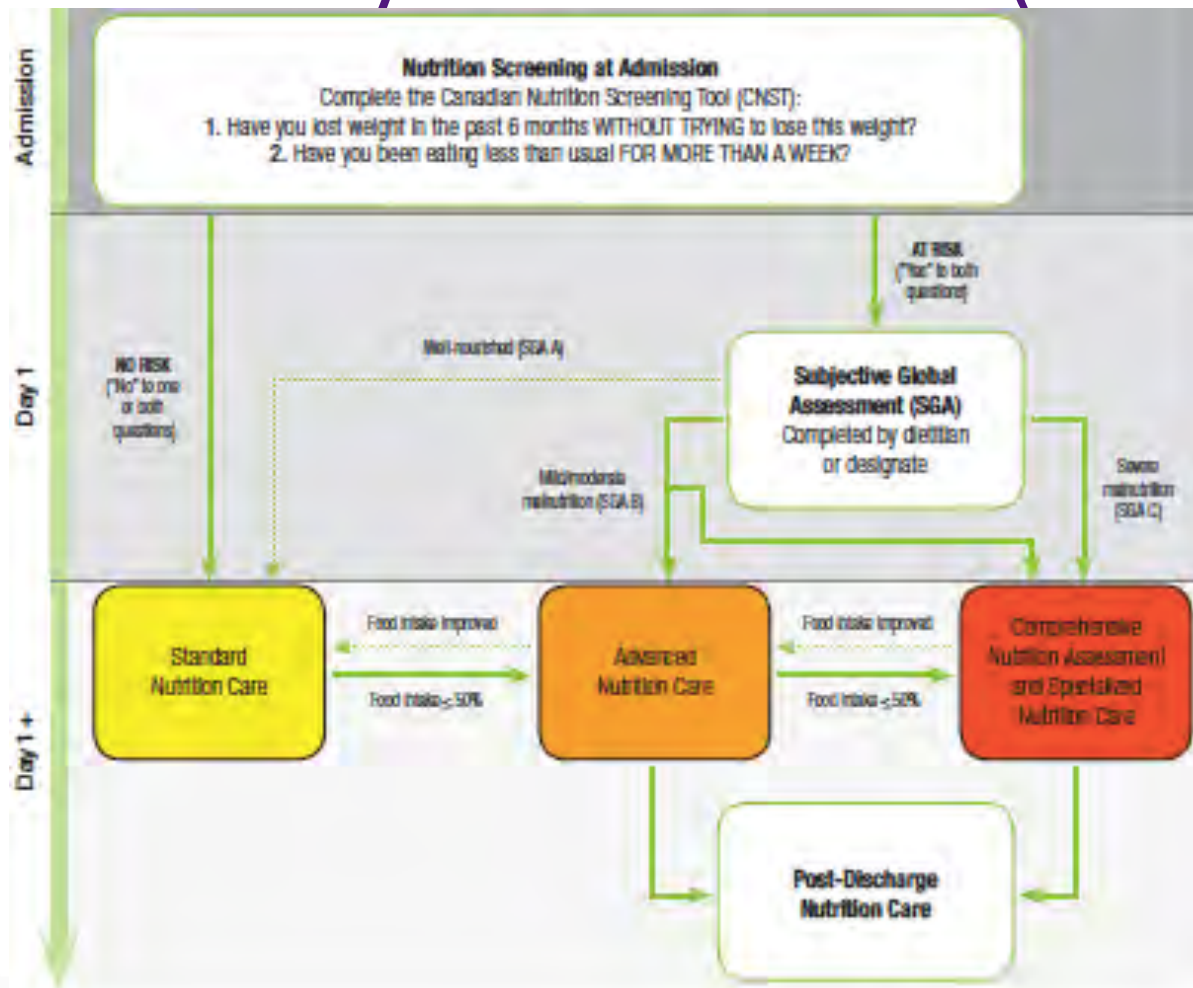


# Treatment works

- Mealtime management
  - Eating assistance
  - Nutrient dense food
  - Oral nutritional supplements
  - Dietitian counseling
- 
- (Baldwin & Weekes, 2011; Cheung et al., 2013 ; Kimber et al., 2015; Stratton & Elia, 2007)



# The Solution: The Integrated Nutrition Pathway for Acute Care (INPAC)



# The 'More-2-Eat' Project Phase 1

## Objectives:

- 1) Test and evaluate implementation process in 5 diverse hospitals in 4 provinces
- 2) To develop **a virtual toolkit to support implementation of INPAC**

Funding: Canadian Frailty Network (2015-17)

RESEARCH ARTICLE

Open Access

# Need for the *Integrated Nutrition Pathway for Acute Care (INPAC)*: gaps in current nutrition care in five Canadian hospitals



Renata Volaitis<sup>1</sup>, Colia Laur<sup>1</sup>, Heather Keller<sup>1,2\*</sup>, Donna Butterworth<sup>3</sup> and Brenda Hobson<sup>4</sup>

**Table 3** Estimates of screening; nutrition assessment; nutrition diagnoses; food intake & body weight monitoring by site (*n* = 700)

Screening & risk identification:	Overall ( <i>N</i> = 700)	Site A ( <i>N</i> = 152)	Site B ( <i>N</i> = 119)	Site C ( <i>N</i> = 159)	Site D ( <i>N</i> = 131)	Site E ( <i>N</i> = 139)
Screened for malnutrition	35.5% ** ( <i>n</i> = 249/ 700)	76.3% ( <i>n</i> = 116/ 152)	0% ( <i>n</i> = 0/119)	25.8% ( <i>n</i> = 41/159)	0% ( <i>n</i> = 0/131)	66.1% ( <i>n</i> = 92/139)
Of those screened, AT RISK	36.1% ( <i>n</i> = 89/246) <sup>ab</sup>	31% ( <i>n</i> = 35/113) <sup>a</sup>	N/A	56.1% ( <i>n</i> = 23/41)	N/A	33.7% ( <i>n</i> = 31/92)
Comprehensive dietitian nutrition assessment						
% receiving comprehensive dietitian assessments	27.9% ** ( <i>n</i> = 195/700)	25% ( <i>n</i> = 38/152)	16.8% ( <i>n</i> = 20/119)	23.9% ( <i>n</i> = 38/159)	38.9% ( <i>n</i> = 51/131)	34.5% ( <i>n</i> = 48/139)
Nutrition diagnoses						
% who received a nutrition diagnosis	26.1% ** ( <i>n</i> = 183/700)	24.3% ( <i>n</i> = 37/152)	13.4% ( <i>n</i> = 16/119)	22.0% ( <i>n</i> = 35/159)	37.4% ( <i>n</i> = 49/131)	33.1% ( <i>n</i> = 46/139)
Food intake monitoring						
% who had food intake monitored	6.2% ** ( <i>n</i> = 43/699) <sup>a</sup>	0%	4.2% ( <i>n</i> = 5/119)	0.6% ( <i>n</i> = 1/158) <sup>a</sup>	8.4% ( <i>n</i> = 11/131)	18.7% ( <i>n</i> = 26/139)
Body weight recorded at admission						
% who had their body weight recorded at admission	47.9% ** ( <i>n</i> = 335/700)	14.5% ( <i>n</i> = 22/152)	16.8% ( <i>n</i> = 20/119)	78% ( <i>n</i> = 124/159)	93.1% ( <i>n</i> = 122/131)	33.8% ( <i>n</i> = 47/139)
Body weight monitoring						
% who had their body weight monitored during their time in hospital	17.5% ** ( <i>n</i> = 122/699) <sup>a</sup>	17.8% ( <i>n</i> = 27/152)	10.9% ( <i>n</i> = 13/119)	1.9% ( <i>n</i> = 3/158) <sup>a</sup>	16% ( <i>n</i> = 21/131)	41.7% ( <i>n</i> = 58/139)

\*\*Indicates statistically significant difference across sites (*p* < 0.0001)

<sup>a</sup>Indicates missing data

<sup>b</sup>Indicates use of Fishers' exact test rather than chi-square



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Contents lists available at ScienceDirect

## Clinical Nutrition

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### Original article

## Multi-site implementation of nutrition screening and diagnosis in medical care units: Success of the More-2-Eat project

Heather H. Keller <sup>a, b, \*</sup>, Renata Valaitis <sup>a</sup>, Celia V. Laur <sup>a, d</sup>, Tara McNicholl <sup>a</sup>, Yingying Xu <sup>a</sup>,  
Joel A. Dubin <sup>a</sup>, Lori Curtis <sup>a</sup>, Suzanne Obiorah <sup>c</sup>, Sumantra Ray <sup>d</sup>, Paule Bernier <sup>e</sup>,  
Leah Gramlich <sup>f</sup>, Marilee Stickles-White <sup>g</sup>, Manon Laporte <sup>h</sup>, Jack Bell <sup>i</sup>

CFN SIG 2015- 2017



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# Co-investigators/Collaborators for Implementation Study

## Co-investigators

- Barbara Liu
- Jack Bell
- Paule Bernier
- Carlota Basualdo-Hammond
- Leah Gramlich
- Manon Laporte
- Donald Duerksen
- Sumantra Ray
- Pauline Douglas
- Lori Curtis

## Collaborators

- Bridget Davidson
- Joel Dubin
- Marina Mourtzakis
- Richard Sawatzky
- Alies Maybee
- Khursheed Jeejeebhoy
- Sarah Robbins
- Linda Dietrich
- Heather Truber

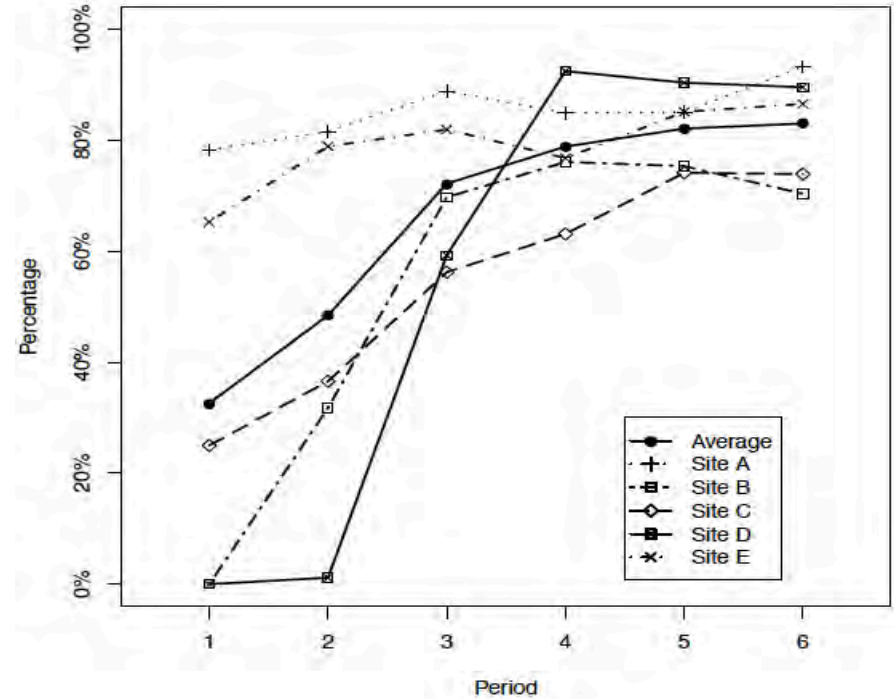
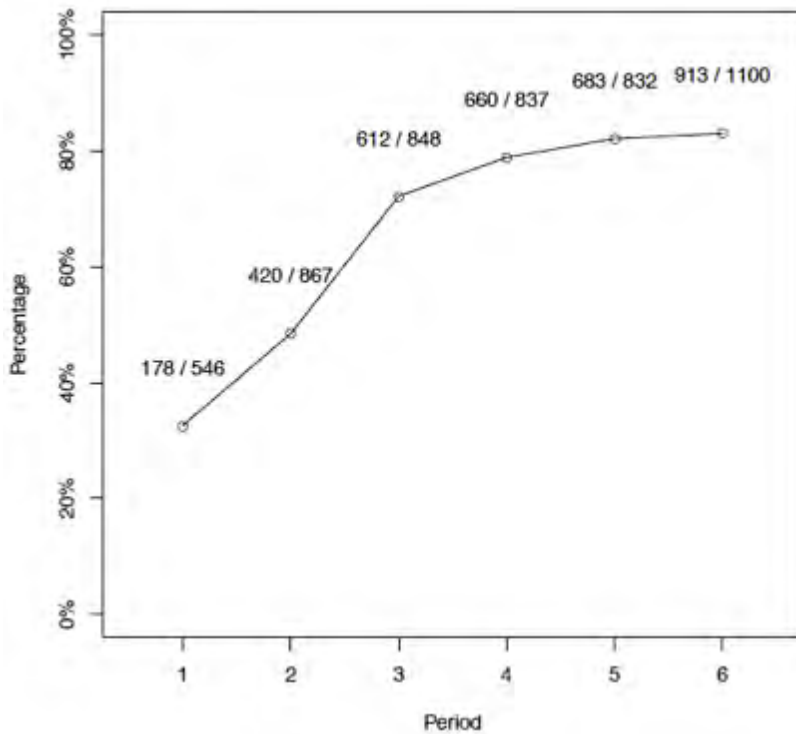




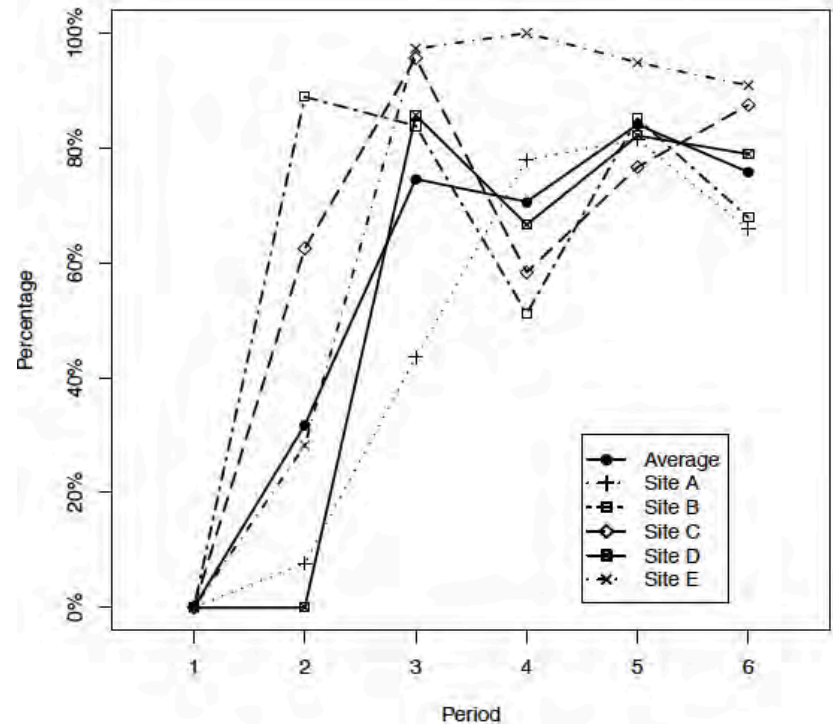
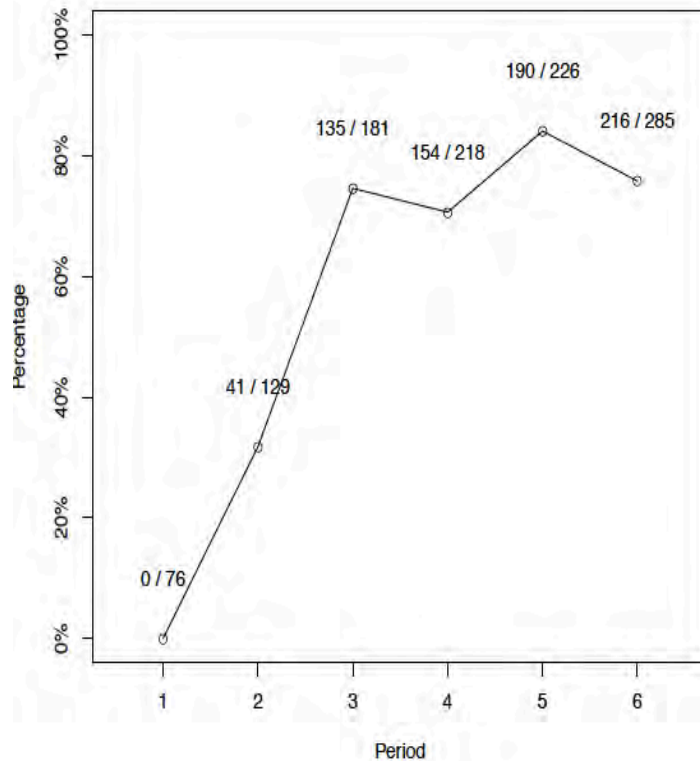
# INPAC Care Activities Implemented

Activity	Implemented?
Nutrition screening at admission (with CNST)	✓ (All sites)
Using SGA to triage patients	✓ (All sites)
MedPass used	✓ (All sites)
Food intake monitoring and following up low intake	✓ (Most sites)
Volunteers available during mealtimes	✓ (Most sites)
Weights taken on admission	✓ (Some sites)
Regular weights taken	✓ (Some sites)
More food available for patients on the unit	✓ (Some sites)
Discharge planning	✓ (Some sites)

# Implementation of Screening at Admission



# Implementation of Malnutrition Diagnosis with Subjective Global Assessment



# Patient Care Processes and Treatment Improved

Proportion of Patients (%)		
Treatment/Care Process	Baseline	Follow -up
Treatment (advanced care)	31	63
Medpass (oral nutrition supplement)	2	15
Weekly weight	3	21
Food intake monitoring	1	32

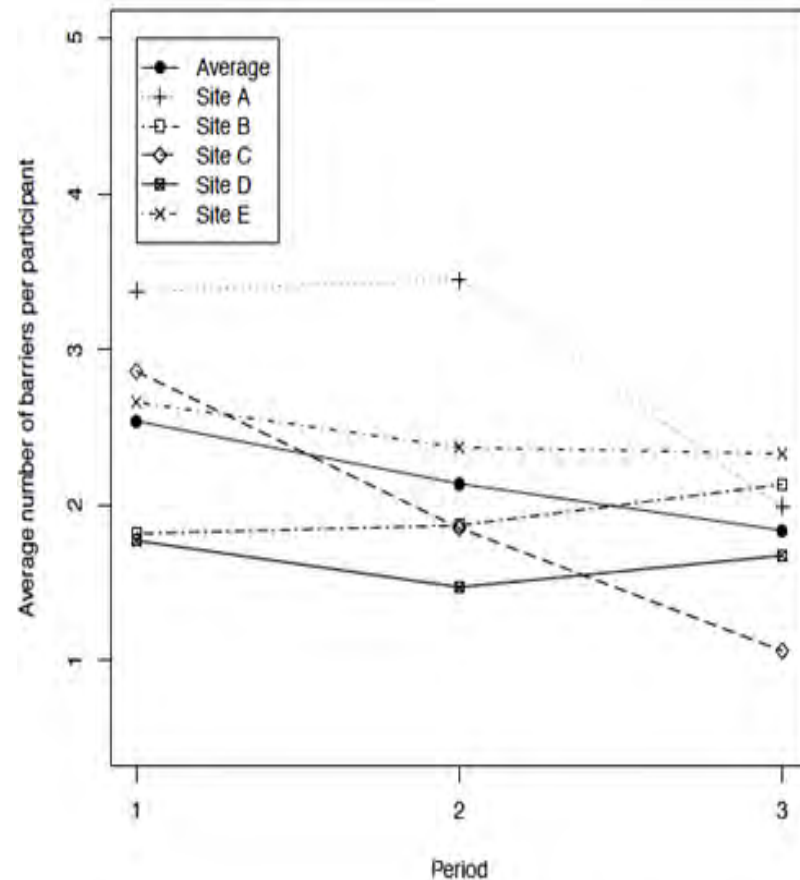
*Note:* This is across the 5 sites. Not all sites focused on weekly weights or food intake monitoring.

# Patient outcomes?

## Length of Stay (days)

Site	Baseline	Follow-Up
A	9	6
B	12	8
C	7	5.5
D	8	9
E	11	9

## Mealtime barriers to food intake



# Spread Post M2E Phase 1

Site	Screening	SGA
1	region	region
2	hospital	hospital
3	region	region
4	region	region
5	hospital	hospital



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**M2E Champions:** Mei Tom, Marlis Atkins, Roseann Nasser, Donna Butterworth, Brenda Hotson, Marilee Stickles-White, Suzanne Obiorah

**M2E Research**

**Associates:** Joseph Murphy, Andrea Digweed, Lina Vescio, Chelsa Marcell, Stephanie Barnes, Shannon Cowan, Sheila Doering, Michelle Booth

**Trainees**

- Celia Laur
- Renata Valaitis
- Tara McNicholl
- Sabrina Iuglio

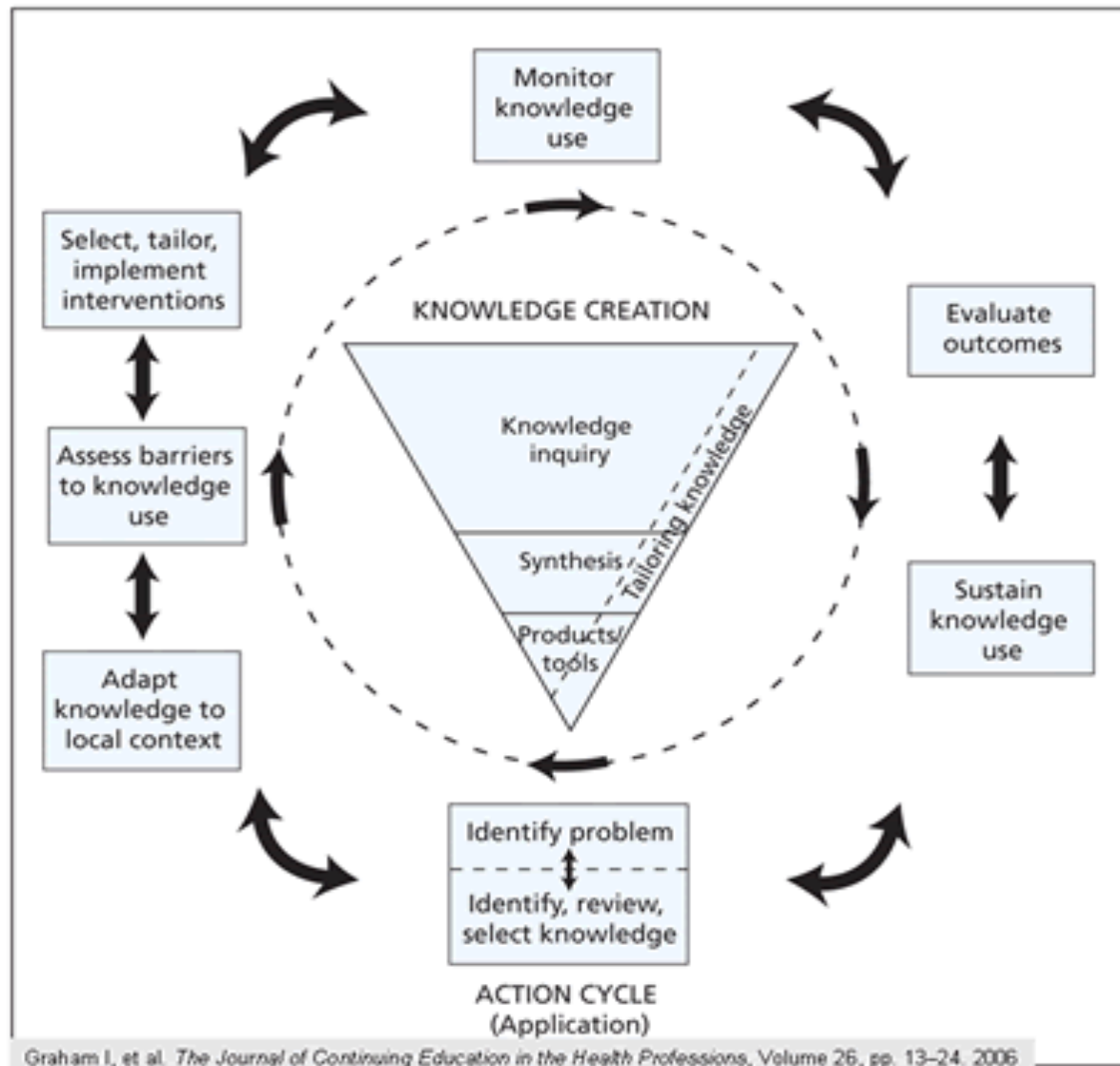


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# The Knowledge To Action Cycle





# Behaviour Change Wheel: Behaviour Change Techniques

## Capability

- Education: build skill
- Enablement: consider existing skills and opportunities

## Opportunity

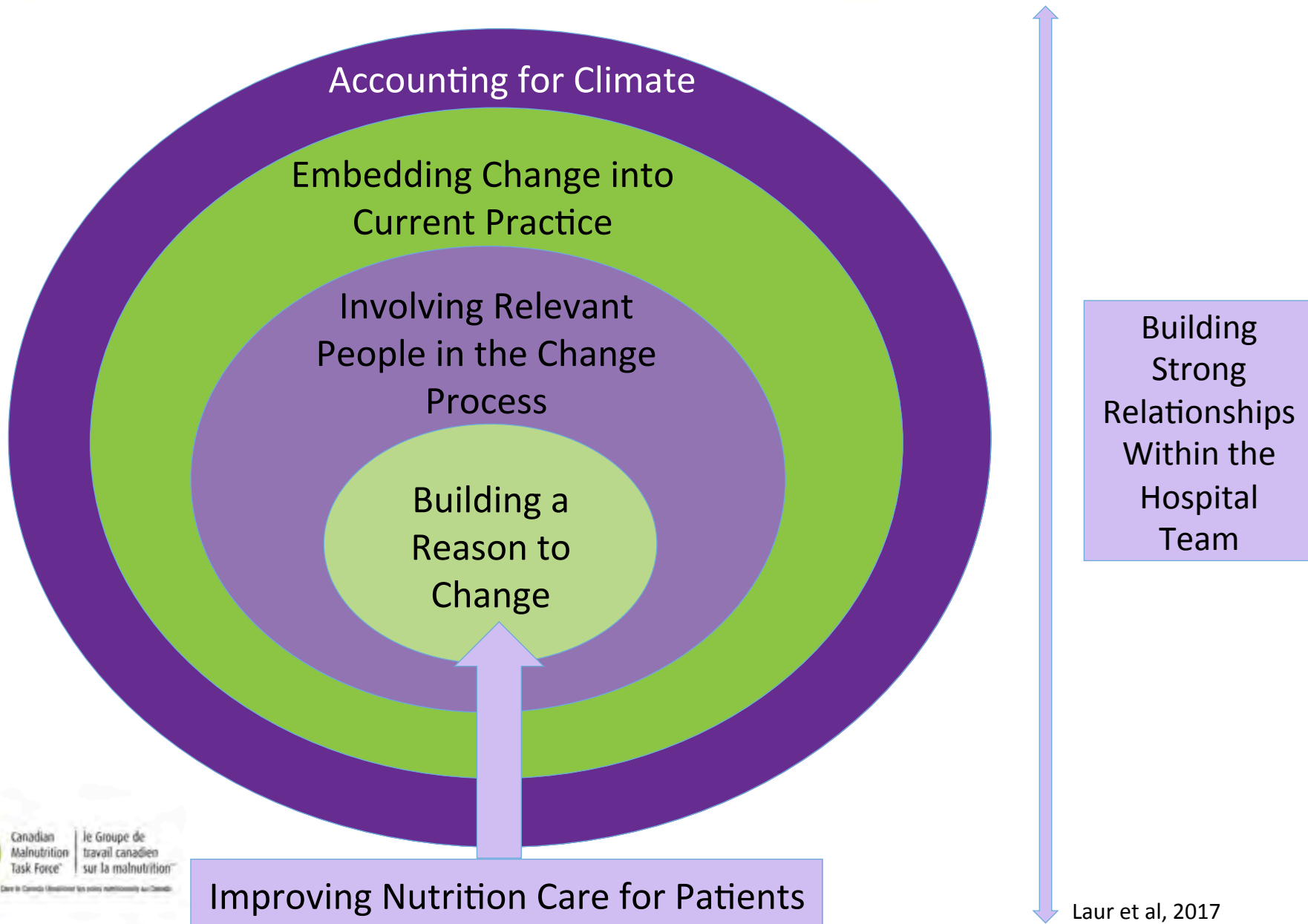
- Environmental restructuring: make it easy to do the right thing
- Modeling: create a cultural expectation for the behavior

## Motivation

- Persuasion: make the behaviour a 'good thing to do'
- Incentivisation: make it desirable to do the behavior



# Hospital Staff/Management Opinions About Making Change



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Addressing Nutrition Care in Canada (Qualitative Synthesis) [www.cma.ca](https://www.cma.ca)

Improving Nutrition Care for Patients

Laur et al, 2017

# Key KT activities

- **Build** team engagement
  - Staff discussion groups
  - Survey to understand KAP, barriers
  - Lunch and learns
- **Tailor** INPAC to specific unit processes/context
- Collect **data** to evaluate and stimulate change
- Learn about **change management**
  - Use diverse behaviour change techniques
  - Ready-to-use resources
- **Build** on early success

## Key Actors

Champion

Site

Implementation  
Team

External coach

Co-champions



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# INPAC Audit

## INPAC Audit

Auditor Initials: \_\_\_\_\_ Unit/Hospital: \_\_\_\_\_

Date: \_\_\_\_\_ Audit #: \_\_\_\_\_

### 1. Patient Information

Patient Identifier Room/Bed: \_\_\_\_\_ Year of Birth (YYYY): \_\_\_\_\_

Sex:  Male  Female  Other

Date admitted to unit: (YYYY-MM-DD): \_\_\_\_\_

Was the patient an ER/Unit transfer?  Yes  No  
If yes, transferred from where? \_\_\_\_\_

### 2. Specific diagnoses that are being addressed in this hospitalization


### 3. Nutrition Screening

Completed → At Risk:  Yes  No  
 Not completed: Reason not completed: \_\_\_\_\_

### 4. Subjective Global Assessment

Completed: If completed:  
 A (well nourished)  
 B (mild/moderate malnutrition)  
 C (Severe malnutrition)  
 Referred, not yet completed  
 Not Completed; if not completed, why:  
 Not at risk  
 Other: Specify reason: \_\_\_\_\_

### 5a. Comprehensive Dietitian Nutrition Assessment Completed

Not completed/No assessment required (not at risk; SGA A and/or B)  
 Yes, completed → Complete 5b  
 Referred, not yet completed  
 Not Completed AND at Risk/Malnourished: If not completed, why? \_\_\_\_\_  
e.g. palliative, SGA not yet completed etc.

### 5b. Nutrition Diagnosis (check all that apply):

<input type="checkbox"/> No Nutrition Diagnosis at this time N0-1.1	<input type="checkbox"/> Inadequate protein-energy intake NI-5.3
<input type="checkbox"/> Inadequate energy intake NI-1.2	<input type="checkbox"/> Inadequate protein intake NI-5.7.1
<input type="checkbox"/> Predicted suboptimal energy intake NI-1.4	<input type="checkbox"/> Swallowing difficulty NC-1.1
<input type="checkbox"/> Inadequate oral intake NI-2.1	<input type="checkbox"/> Underweight NC-3.1
<input type="checkbox"/> Increased nutrient needs NI-5.1	<input type="checkbox"/> Unintended weight loss NC-3.2
<input type="checkbox"/> Malnutrition NI-5.2	<input type="checkbox"/> Other Nutrition Diagnosis (specify) _____

### 6. Action taken to improve nutrition for patient (check all that apply)

<input type="checkbox"/> No action	<input type="checkbox"/> Enteral nutrition
<input type="checkbox"/> ONS as medpass (small amount of nutrient dense product)	<input type="checkbox"/> Parenteral nutrition
<input type="checkbox"/> ONS at other times/with meals	<input type="checkbox"/> Other: _____
<input type="checkbox"/> Nutrient dense diet	Specify: _____
<input type="checkbox"/> Liberalized diet	

7. a. Food intake monitoring has occurred  Yes  No skip to 8

b. Food intake is ≤ 50%  Yes  No skip to 8

c. Intake ≤ 50% triggered local action plan  Yes  No skip to 8

d. Action taken to improve nutrition when food intake is ≤ 50% (check all that apply)

No new action  
 RD consult  
 ONS between meals/at medication times  
 Nutrient dense diet  
 Liberalized diet  
 Other: Specify: \_\_\_\_\_

8. Body weight was measured at admission  Yes  No

9. Body weight monitoring post admission has occurred  Yes  No

10. Has a NUTRITION discharge plan/summary, education, and/or recommendation for follow up post discharge been initiated?

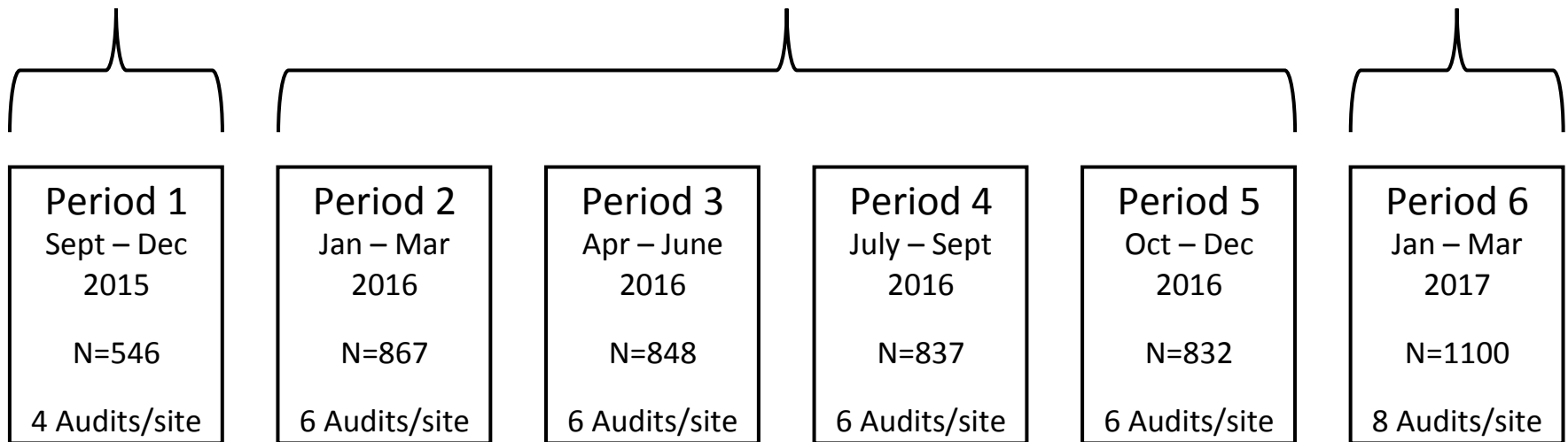
Yes  No If yes, please specify details: \_\_\_\_\_

This resource is a result of the collaboration of the hospital sites, researchers and stakeholders participating in the *Meat-3: Eat stroke Study 2017* 6

## Developmental

## Implementation

## Sustainability



Overview of the More-2-Eat Study Time Frames and INPAC Audit Data Collection  
(**n=5036** patients).

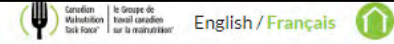


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# INPAC Implementation Toolkit



WHAT HOW RESULTS RESOURCES + TOOLS +

"Food Is Medicine" is more than just a slogan.

It's a belief. It is an approach to care. It represents a tremendous amount of research that identifies the process changes we can make to improve nutrition within our healthcare institutions.

Speaking out about Change



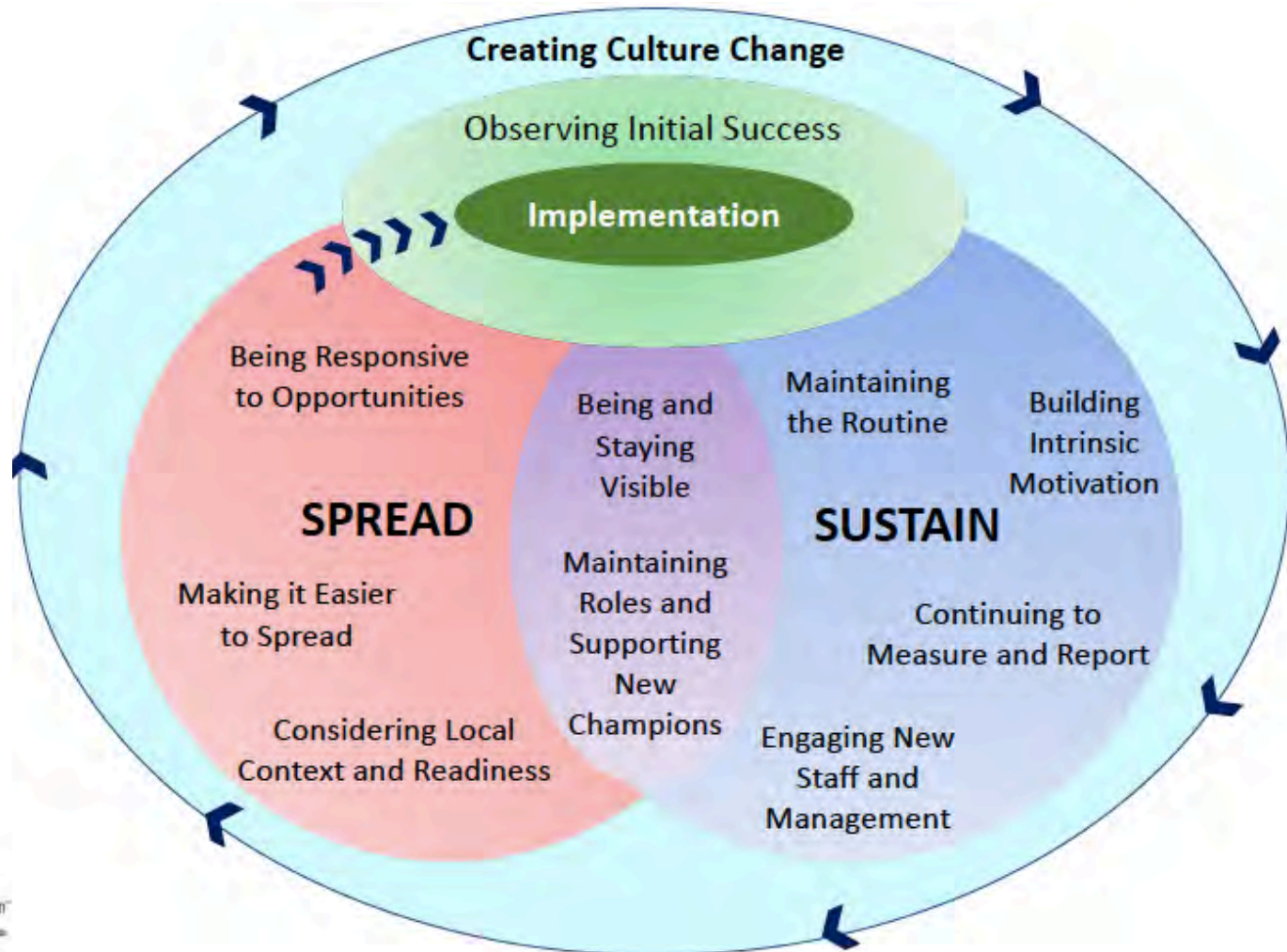
Food is Medicine Video Series

1 / Roseann Nasser  
Dietitian



[m2e.nutritioncareincanada.ca](http://m2e.nutritioncareincanada.ca)

# What we think helps sustain/ spread (Laur et al, submitted)



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Addressing Malnutrition Care in Canada | *Aborder les soins nutritionnels au Canada*

# Phase 2... (Keller, Laur, Valitis, Dublin, Chen, Curtis, Bell, Ray, Gramlich, Morrison)

- **Can implementation be done within current resources?**
  - 10 hospitals, 6 provinces
  - Phase 1 sites expand to 2+ further units
    - Sustain and replicate?
  - Phase 2 hospitals, 1 unit
  - RedCAP Registry for data entry and templates for reports
    - self managed
  - INPAC toolkit and resources
  - Training on behaviour change
  - Monthly telephone coaching
  - Community of Practice Listserv

Outcome data: LOS, readmission, in –hospital mortality



# Publications from M2E to date

1. McNicholl T et al., Handgrip strength, but not 5m walk, is a useful functional measure to add to clinical nutrition Assessment. *Nutr Clin Practice* (accepted Aug 2018).
2. Curtis L, et al., Low food intake in hospital: patient, institutional, and clinical factors. *Appl Physiol Nutr Metab*. 2018. doi 10.1139/apnm-2018-0064
3. Keller H, et al., Multi-site implementation of nutrition screening and diagnosis in medical care units: success of the project More-2-Eat. *Clin Nutr*. 2018; 1-9 doi 10.1016/j.clnu.2018.02.009
4. Laur C, et al., Nutrition care after discharge from hospital: an exploratory analysis from the More-2-Eat study. *Healthcare*. 2018; 6(1): 9. doi 10.3390/healthcare6010009
5. Keller H et al., Update on the Integrated Nutrition Pathway for Acute Care (INPAC): Post implementation tailoring and toolkit to support practice improvements. *BMC Nutr*. 2018; 17: 2. doi 10.1186/s12937-017-0310-1.
6. Laur CV, et al. Comparing hospital staff nutrition knowledge, attitudes, and practices before and 1 year after improving nutrition care: results from the More-2-Eat Implementation Project. *J Parenter Enteral Nutr*. 2018; 42(4): 786-796. doi 10.1177/0148607117718493
7. Valaitis R et al., Need for the Integrated Nutrition Pathway for Acute Care (INPAC): gaps in current nutrition care in five Canadian hospitals. *BMC Nutr*. 2017; 3: 60. doi 10.1186/s40795-017-0177-8
8. Laur C, et al., Changing nutrition care practices in hospital: a thematic analysis of hospital staff perspectives. *BMC Health Serv Res*. 2017; 17(1): 498 doi 10.1186/s12913-017-2409-
9. Laur C, Keller H. Making the case for nutrition screening in older adults in primary care. *Nutr Today*. 2017; 52(3) :129-136. doi 10.1097/NT.0000000000000218
10. Laur C, et al., Malnutrition or frailty? Overlap and evidence gaps in the diagnosis and treatment of frailty and malnutrition. *Appl Physiol Nutr Metab*. 2017; 42(5): 449-458. doi 10.1139/apnm-2016-0652
11. Keller H et al., . More-2-Eat: evaluation protocol of a multi-site implementation of the Integrated Nutrition Pathway for Acute Care. *BMC Nutr*. 2017; 3: 13. doi 10.1186/s40795-017-0127-5

# Acknowledgements



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Network

Réseau canadien  
des soins aux  
personnes fragilisées

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Dietitians of Canada

Canadian Society of Nutrition Management

Canadian Nutrition Society

NNEdPro Global Centre for Nutrition and Health

Regional Geriatric Program of Toronto



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THANK YOU!

Questions?



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