Translating nutrition research into practice: a look at novel strategies to improve evidence-based diet-related decisions

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FRSQ Junior 1 Scholar
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Université Laval
Research group in Knowledge Transfer and Health Technology Assessment, Research Center of the Quebec University Hospital Center (CRCHUQ)

KT Canada seminar
Thursday, February 11 2010
1200-1300 EST
Objectives

1. To understand the relevance of studying KT in the field of nutrition.

2. To identify knowledge gaps, challenges and opportunities in this field.

3. To describe current KT-Nutrition initiatives in Canada.
Objective #1

To demonstrate the relevance of KT in the field of nutrition
Funding of Nutrition research

CIHR funding in Diet/Nutrition

Source: CIHR funded research database
Volume of research evidence in nutrition

Number of references/year indexed in Pubmed combining the terms « diet » and « diabetes »

Desroches, Nutrition, Science en évolution, 2009
Nutrition (mis)information (1)

Which ones are evidence-based?

"I'm dieting faithfully. For breakfast I follow the Egg Lovers Diet. At lunch, I switch to the Fast Food Diet. For dinner, I do the Steak-n-Pasta Diet. And during TV I switch to the Chip-n-Dip Diet."

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www.glasbergen.com
43% of consumers report they like to hear about new nutrition studies. 22% claim to be confused by reports. (American Dietetic Association, 2002)
Objective #2

To identify knowledge gaps, challenges and opportunities in the KT-nutrition field
KT research

Nutrition Research → Dietitians/Health professionals

→ Clients/patients/consumers

Better health
Gaps, opportunities, challenges

- Nutrition topics evaluate a diverse body of literature that can be diffuse and voluminous.

- Few systematic reviews related to nutrition exist in the Cochrane Library. (Summerbell et al, 2005; Nasser et al, 2008)

- No Cochrane review group devoted to nutrition, but a subfield on Diet and Nutrition within the Cochrane Primary Health Care field.

- The use of systematic reviews by dietitians is relatively new. (Lichtenstein et al, 2008)
KT research

Nutrition Research → Dietitians/Health professionals → Clients/patients/consumers → Better health
More gaps, opportunities, challenges!

- Food and nutrition misinformation is on the rise and widespread in the media and Internet. (American Dietetic Association, 2006)

- It can have harmful effects on the health, well-being and economic status of consumers. (American Dietetic Association, 2006)

- Several evidence-based dietary approaches are now advocated for the prevention and management of cardiovascular and other chronic diseases.
## Dietary options

<table>
<thead>
<tr>
<th></th>
<th>Low fat (26% fat)</th>
<th>MUFA (40% fat)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Body weight</strong></td>
<td>↓</td>
<td>↓</td>
</tr>
<tr>
<td><strong>Total cholesterol</strong></td>
<td>↓</td>
<td>↓</td>
</tr>
<tr>
<td><strong>LDL-cholesterol</strong></td>
<td>↓</td>
<td>↓</td>
</tr>
<tr>
<td><strong>HDL-cholesterol</strong></td>
<td>↓</td>
<td>=</td>
</tr>
<tr>
<td><strong>Triglycerides</strong></td>
<td>=</td>
<td>↓</td>
</tr>
<tr>
<td><strong>C-reactive protein</strong></td>
<td>=</td>
<td>=</td>
</tr>
</tbody>
</table>

Conclusions: Regardless of assigned diet groups, 12-month weight change was greater in the most adherent compared to the least adherent tertiles. These results suggest that strategies to increase adherence may deserve more emphasis than the specific macronutrient composition of the weight loss diet itself in supporting successful weight loss.
Objective #3

To describe current KT-Nutrition initiatives in Canada
Nutrition Research → Dietitians/Health professionals

Dietitians/Health professionals → Clients/patients/consumers

Better health

UNIVERSITÉ Laval
Cochrane systematic review

Interventions for enhancing adherence to dietary recommendations
Desroches et al. Protocol in revision.
Cochrane Consumers and Communication Review Group, 2010
CIHR Knowledge synthesis grant

Title: A systematic review of interventions for enhancing adherence to dietary recommendations
01/2010 to 12/2010

PI: Sophie Desroches, RD, PhD, ULaval
Co-I: Karine Gravel, RD, MSc, PhD candidate, ULaval
France Légaré, MD, PhD, ULaval
Jayne Thirsk, RD, PhD, Director, Professional Development and Support, Dietitians of Canada
Decision-maker partner: Dietitians of Canada (DC)

- DC: National accrediting body for all baccalaureate and practicum training programs that prepare dietitians to practice in Canada ~ 6000 dietitians

- Affiliate member of the Canadian Cochrane Network and Center

- Mission: Promote ethical, EBP and to support dietitians to be leaders in practice-based nutrition research
Objectives

1. Conduct a Cochrane systematic review to summarize the effects of interventions for enhancing adherence to dietary recommendations.

2. Synthesize the results for publication on the online DC KT tool: Practice-based Evidence in Nutrition (PEN).
Dietitians of Canada
PEN: Practice-based Evidence in Nutrition

www.dieteticsatwork.com/pen

• An evidence-informed, web-based decision support tool for the dietetic profession
• > 2100 subscribers
• Includes 140 knowledge pathways which answer everyday practice questions in dietetics
• Literature is appraised and synthesized by experts and practitioners for each practice question
• Evidence is graded
• Usable practice guidance is provided
• Links to research articles and practice tools are integrated
Objectives

1. Conduct a Cochrane systematic review to summarize the effects of interventions for enhancing adherence to dietary recommendations.

2. Synthesize the results for publication on the online DC KT tool: Practice-based Evidence in Nutrition (PEN).

3. To assess, using the Delphi methodology, DC members’ opinion regarding the importance and applicability of the interventions found the most effective for enhancing adherence to dietary recommendations in the Canadian context.
Nutrition Research → Dietitians/Health professionals → Clients/patients/population → Better health
Shared decision making and KT

• SDM is defined as a process by which a healthcare choice is made by clinicians together with the patient. (Towle & Godolphin, 1999)

• ↑ treatment agreement and patient outcomes in chronic diseases. (Joosten, 2008)

• A SDM approach to KT: A process that is embedded in a specific relationship and by which both the clinician and the patient influence each other’s cognitions, emotions and behaviours, and come to agreement about a decision. (Légaré et al, 2009)

• A promising strategy to promote effective KTE between patients and their dietitian and to improve the quality of the decision making process for dietary choices that are informed and value-based.
Implementing shared decision making in nutrition clinical practice: a theory-based approach and feasibility study

PI: Sophie Desroches, Ph.D., Dt.P.
Co-I: France Légaré, MD, Ph.D.
Marie-Pierre Gagnon, Ph.D.

Funding:
Foundation for Informed Medical Decision Making
George Bennett Postdoctoral Grant

Study design: phase 1

Objective 1
to explore the integration of shared decision making within real nutritional consultations

Phase 1
Quantitative

- Sociodemographic characteristics of participants
- Assess decisional conflict (O'Connor, 1995)
- Explore involvement of patients in nutrition consultations (OPTION, Elwyn 2005)

Audiotape consultations

Questionnaire post consultations between patients et dietitians
Very preliminary results: phase 1

<table>
<thead>
<tr>
<th>Characteristics of dietitians</th>
<th>( n = 19 ) mean ± SD or ( n ) (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>39.3 ± 11.0</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>0</td>
</tr>
<tr>
<td>Women</td>
<td>19 (100)</td>
</tr>
<tr>
<td>Number of years in practice</td>
<td>13.5±9.2</td>
</tr>
<tr>
<td>Employment status</td>
<td></td>
</tr>
<tr>
<td>Full time permanent</td>
<td>13 (68)</td>
</tr>
<tr>
<td>Part time permanent</td>
<td>1 (5)</td>
</tr>
<tr>
<td>Part time temporary</td>
<td>5 (26)</td>
</tr>
<tr>
<td>Clinical setting</td>
<td></td>
</tr>
<tr>
<td>Inpatient</td>
<td>7 (37)</td>
</tr>
<tr>
<td>Outpatient</td>
<td>4 (21)</td>
</tr>
<tr>
<td>Both inpatient and outpatient</td>
<td>8 (42)</td>
</tr>
<tr>
<td>Diploma other than RD</td>
<td>2 (11)</td>
</tr>
</tbody>
</table>
### Characteristics of patients

<table>
<thead>
<tr>
<th>Characteristics of patients</th>
<th>( n = 19 ) mean ± SD or ( n ) (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>40.2 ± 25.2</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>8 (58)</td>
</tr>
<tr>
<td>Women</td>
<td>11 (42)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Elementary school</td>
<td>5 (26)</td>
</tr>
<tr>
<td>High school or college</td>
<td>9 (47)</td>
</tr>
<tr>
<td>University</td>
<td>5 (26)</td>
</tr>
<tr>
<td>Employment status</td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>8 (42)</td>
</tr>
<tr>
<td>Part-time</td>
<td>1 (5)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>6 (32)</td>
</tr>
<tr>
<td>Retired</td>
<td>4 (21)</td>
</tr>
</tbody>
</table>


\(^1\)4 patients were < 18 years old. Questions related to education and employment status for those four participants were answered by one of their parents.
**Table 3. Preferred decision-making style\(^1\) and quality of the decision.**

<table>
<thead>
<tr>
<th>Preferred decision-making style</th>
<th>Patient ((n=19))</th>
<th>Dietitian ((n=19))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient alone</td>
<td>1 (5)(^2)</td>
<td>1 (5)</td>
</tr>
<tr>
<td>Patient after considering the opinion of the dietitian</td>
<td>7 (37)</td>
<td>4 (21)</td>
</tr>
<tr>
<td>Patient and dietitian</td>
<td>6 (32)</td>
<td>9 (47)</td>
</tr>
<tr>
<td>Dietitian after considering the opinion of the patient</td>
<td>3 (16)</td>
<td>5 (26)</td>
</tr>
<tr>
<td>Dietitian alone</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>No answer</td>
<td>2 (11)</td>
<td>0</td>
</tr>
</tbody>
</table>

**Quality of the decision\(^3\)**

<table>
<thead>
<tr>
<th></th>
<th>Mean ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient</td>
<td>9.05±1.22(^4)</td>
</tr>
<tr>
<td>Dietitian</td>
<td>8.32±0.82(^5)</td>
</tr>
</tbody>
</table>

\(^1\) Assessed with one question: “Circle one of the following choices, the one who best represents your preference on how to make a decision when you see a dietitian/a patient”. (Strull et al., 1984)

\(^2\) \(n\) (%)

\(^3\) On a scale from 1 to 10, 1 representing the lowest quality level and 10 the highest quality level.

\(^4\) Mean ± SD.

\(^5\) Significantly different from patients, \(P<0.05\).
Very preliminary results: phase 1

Quality of the decision\(^1\)

\(^1\)On a scale from 1 to 10, 1 representing the lowest quality level and 10 the highest quality level.
Phases 2 and 3

Phases 2 and 3

**Objective 2**

to design a questionnaire to assess dietitians' psychosocial determinants underlying their intention to adopt two behaviors related to shared decision making using the Theory of Planned Behavior

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Phase 2

**Qualitative Focus groups**

- Identify salient beliefs underlying dietitians' intention to engage in SDM behaviors
  1. to present dietary treatment options for a given health condition
  2. to clarify patients' values and preferences

Phase 3

Develop and validate TPB questionnaire
Title
Applying a theory-based approach to identify the determinants of the intention of dietitians to engage in shared decision making behaviors.
(04/2010 to 03/2012)

Team
Sophie Desroches, PI (ULaval)
Marie-Pierre Gagnon, co-I (ULaval)
France Légaré, co-I (ULaval)
Anne Sales, co-I (U of Alberta)
Specific objective 1

To conduct a survey, using the TPB questionnaire developed through the FIMDM grant, to identify the psychosocial determinants underlying the intention of dietitians to

1. Present dietary treatment options relevant to their patients’ health status

2. clarify the values and preferences that are important to their patients

We hypothesize that dietitians’ attitudes, subjective norms, and perception of behavioral control will be significant in explaining their intention to perform the two selected SDM behaviors.
**Specific objective 2**

To examine, through an exploratory study, the dyadic effects of patients’ and dietitians’ psychosocial determinants and intentions on their respective performance of two selected SDM behaviors (1-discuss dietary options and 2-discuss values and preferences) during cholesterol-lowering dietary counseling.

We hypothesize that there will be interdependence between patients’ and dietitians’ psychosocial determinants and intentions to perform the selected SDM behaviors during cholesterol-lowering dietary counseling.
Actor-partner interdependence model (adapted)

D1: Dietitian’s psychosocial determinants of behavioral intention (attitudes, subjective norms and perceived behavioral control)

P1: Patient’s psychosocial determinants of behavioral intention (attitudes, subjective norms and perceived behavioral control)

Actor effects (dietitian)

Partner effects (Dietitian)

Partner effects (patient)

Actor effects (patient)

D2: Dietitian behavior

P2: Patient behavior

Patient outcomes (adherence to dietary treatment decision, CVD risk factors assessment, etc.)

Adapted from Dyadic Data Analysis. Kenny, Kashy & Cook (2006)
Summary

Nutrition Research

Systematic reviews
Knowledge synthesis

Dietitians/Health professionals

Clients/patients/consumers

Better health
Where next? (1)

- Develop and evaluate interventions for improving KT in nutrition (develop tools (ptDA), SDM RCT, etc).
- Promote the use of knowledge synthesis among dietitians.
- Increase the relevance and applicability of systematic reviews by involving dietitians in the whole review process.
Increasing dietitians' roles in knowledge synthesis and use: A collaborative project meeting

- PI: JM Grimshaw, MD, PhD
- Team and core steering group:
  - Jayne Thirsk, RD, PhD, Director, Professional Development and Support, Dietitians of Canada
  - Cheryl Arratoon, MSc, Knowledge Broker, CCNC
  - Adrienne Stevens, MSc, Education Coordinator, CCNC
  - Nancy Santesso, RD, MLIS, Research Coordinator, Clinical Epidemiology and Biostatistics, McMaster U
Objectives

• 1.5 day meeting to facilitate collaboration among stakeholders in the nutrition field around a project

• Develop, test, and plan the implementation and evaluation of a web-based module for dietitians to enhance their skills as peer reviewers of Cochrane protocols and reviews
Where next? (2)

• Other partners for improving KT in nutrition?

• Food industry
  Functional foods
  Dietary supplements
  Natural/organic foods
Acknowledgments

Research team and collaborators
France Légaré, MD, PhD, U Laval
Marie-Pierre Gagnon, PhD, U Laval
Anne Sales, RN, PhD, U of Alberta
Jayne Thirsk, RD, PhD, Dietitians of Canada
Annie Lapointe, RD, PhD, Research coordinator
Sarah-Maude Deschênes, RD, MSc candidate

Knowledge translation

Knowledge Translation CANADA
Application des connaissances CANADA

Fonds de la recherche en santé
Québec

Université Laval
Thank you!

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Website: http://decision.chaire.fmed.ulaval.ca/