Making the Most of Mealtimes (M3)

The M3 Model from Practice to Research and Back Again

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Outline

• Is there a problem with food intake in older adults?
• The beginning of the M3 concept
• Research that expanded the concept
  – Determinants of food intake in different vulnerable groups
  – Complexity of mealtimes
    → Life Nourishment Theory
• Using M3 in practice & Policy
• Using the M3 to design research and develop interventions
• Summary
Older Canadians are vulnerable...

- Poor intake of all four food groups (Quebec, British Columbia, New Brunswick, Ontario & Canadian Community Health Survey)

- A variety of nutrients consumed below recommendations; A, D, C, B6, B12, folate, B carotene, calcium, zinc, magnesium (Levy-Milne, 2004; New Brunswick Dept Health, 2005; Shatenstein et al., 2004)

- 65% do not consume 5 servings of vegetables & fruit (CCHS 2.2)

- 34% of older adults are at nutrition risk (Ramage-Morin & Garriguet, 2013)

- 45% of admissions to acute care medical/surgical are malnourished (Allard et al., 2015)

- Poor food intake is common in LTC
  - ~1600kcal and lower for those with dementia (Wendland et al., 2003; Parrott et al., 2006)
From practice
25+ years ago

WWI/WWII veterans
Geriatric Rehabilitation
Day hospital
Palliative care
Spinal cord and head injury long term rehabilitation
Malnutrition in Institutionalized Elderly: How and Why?
Heather H. Keller, MSc, RPDt

Predictors of Dietary Intake in Ontario Seniors

Heather H. Keller, RD, PhD, Truls Østbye, MD, MPH, Elizabeth Bright-See, RD, PhD
Family Studies
Sociologists
Psychologists
Family researchers

Qualitative methods
To Research...

A long journey
Prevention of Weight Loss in Dementia with Comprehensive Nutritional Treatment

Heather H. Keller, RD, PhD,* Amie J. Gibbs, RD, MSc,* Lynn D. Boudreau, RD, BSc,† Richard E. Goy, MA,* Marg S. Pattillo, RD, BASc,‡ and Heather M. Brown, RD, BASc‡

Resident Activities
- arriving
- eating
- waiting
- socializing
- distracted activities
- leaving

Mealtime Process

Residents Attributes

Direct Caregiving Activities

Resident Outcomes

Indirect Caregiving Activities

Administrative Activities

Government Activities

Co-resident Activities

Gibbs-Ward & Keller
2005
Reliance on Others for Food-Related Activities of Daily Living
Heather H. Keller, RD, PhD

Nutritional Risk in Vulnerable Community-Living Seniors

A Social Ecological Perspective of the Influential Factors for Food Access Described by Low-Income Seniors
Heather H. Keller, RD, PhD
John J. M. Dwyer, PhD
Christine Senson, RD, MSc
Vicki Edwards, RD, MS
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An opportunity

• SCREEN II validation study
  – Subsample in a geriatric clinic
  – Promise to a colleague

• Exploratory study with family care partners of persons with dementia
Key findings from exploratory work (Keller, et al., 2006/2007)

• Greatest area of concern for families was mealtimes

• Social activity to interact with person with dementia, highlight of day

• ‘Feed and please’
  – Changing mealtime behaviour, preferences
  – Tensions

• ‘Throwing in the dishtowel’

• ‘Shrinking plate’

• ‘Need to simplify’, ‘Stepping in’
The Eating Together Study

Longitudinal study with 27 dyads

- voice of the person with dementia

Importance of the mealtime experience

- promotes connection (Keller et al., 2010)

- honouring of identity (Genoe et al., 2010)

- adapting to their evolving life (Genoe et al., 2012)
What do Social Relationships Do?
Rook 1985 & Pierce 2000

Social Integration

Regulation, promote healthy behaviour

Social Support

Response to a Stressor
- Emotional/Encourage
- Informational
- Tangible

Companionship

Promotes Self Worth
Camaraderie
Emotional sharing
Intimacy & pleasure

IMPROVED FOOD INTAKE
Series of studies...social side of eating

Resident interactions at mealtime: an exploratory study

Leah Curle · Heather Keller

Review

Mealtimes in Nursing Homes: Striving for Person-Centered Care

HOLLY D. REIMER, MSc, RD and HEATHER H. KELLER, PhD, RD, FDC

Department of Family Relations and Applied Nutrition, Macdonald Institute, Canada

Dietetic Students’ Experiences
Providing Meal Assistance in Long-term Care Facilities

NICOLE OSINGA, BASc, Department of Family Relations and Applied Nutrition, University of Guelph, Guelph, ON; HEATHER KELLER, PhD, FDC, RD, Department of Kinesiology, University of Waterloo, Waterloo, ON
Why does Poor Food Intake Occur?

- Deficient Eating Environment
- Poor/Mismatched Food Product
- Inability to access/consume food

Inadequate food Intake
Another opportunity...
The formalized concept of M3

Development of a program of research to improve food intake in LTC

? Determinants

? Can we intervene

? Can we implement
M3 Conceptual Framework

Keller et al., JAMDA 2015
Back to practice...

Applications for practice and policy
Residential living
Residential living seniors

Levels of influence: Senior, dining area, staff, home, province

**Access**
- Taste/smell
- Chewing/swallowing
- Food available
- Eating

**Quality**
- Nutrient density
- Variety
- Quality of cooking
- Preferences
- Sensory appeal
- Safe
- Presentation

**Experience**
- Social interaction
- Ambiance
- Interest in eating
- Pace
- Table mate compatibility
Practice & Policy

• Menus planned with residents/families
• Sufficient funding to provide quality food, variety
• Training staff on hospitality e.g. how plate
• Home-like approach to accessing food
• When preferences stated, meet needs of residents
• Balance food safety with issues of home-likeness
  – Food availability
  – Staff eat with residents
  – Leisurably meal
• Provide time and remove rules to promote social interactions
Hospital care
Hospital care seniors

Levels of influence: Senior, room mate, staff, hospital, province

Access
- Taste/smell
- Chewing/swallowing
- Food available
- Eating
- Tray, packages

Quality
- Nutrient density
- Variety
- Quality of cooking
- Preferences
- Sensory appeal
- Safe
- Presentation

Experience
- Social interaction
- Ambiance
- Interest in eating
- Staff interruptions
- Pain
- Eating in bed
Practice & Policy

• Focusing mealtimes on eating, staff view as an important activity
• Remove interruptions and factors that affect ambiance
• Investing in food and menu planning, important to recovery
• Promote choice as close as possible to meal, for as many items as possible
• Food available on unit between meals
• Support with mealtime tasks
Community-living seniors
Community living seniors

Levels of influence: Senior, household, social network, neighbourhood/city, province

Access
- Transportation
- Grocery store
- Money for food
- Help/support
- Cooking equipment
- Capacity to cook

Quality
- Food choices
- Preferences
- Other’s cooking

Experience
- Who eat with
- Eating alone/with others
- Interest in ‘meals’
- How often eat a ‘meal’
Practice & Policy

- City development, consideration of transportation, walkability
- Size of grocery stores, accessibility, transport, availability of quality, affordable choices
- Education on healthy eating, cooking small portions, motivating to eat well
- Sufficient income to support quality food choices
- Congregate meal programs
- Home delivered meal programs
- Homemaking assistance
- Family support food intake
Using M3 to design research that will change practice...

Developing Effective and Feasible Interventions
M3 Prevalence Study

**Aim:** To identify key drivers of food intake in long term care that can be the basis for multimodal interventions

**Research Questions**

1) What is the prevalence of inadequate energy, protein, micronutrient and fluid intake of residents in Canadian LTC, across and within four provinces?

2) What are the independent and inter-related associations between multi-level (i.e., resident, staff, unit, home, province) determinants of energy and protein intake of residents in Canadian LTC?
M3 Prevalence Study

• Multi-site cross-sectional study
  • Alberta, Manitoba, Ontario, New Brunswick

• 8 LTC homes in each province
  – Diversity in profit/non profit, size, special characteristics e.g. ethnicity

• 20 residents per home; total n= 640

• Funded by CIHR 2014-2016
Overview M3 Data Collection

Dependent Variable
• 3-day food & fluid intake for each participant (observed & measured)

Independent Variables
• Meal Quality *(nutritious, sensory appeal, variety, presentation, food safety)*
• Meal Access *(dentition, dysphagia, eating ability - assistance required)*
• Mealtime Experience *(social interaction, physical environment)*
• Resident Characteristics *(diagnoses, medication, cognition, pain, ADL, depression)*
• Staff Characteristics *(staff ratios, person centred care surveys, professional availability, dining activity training)*
• Residence Characteristics *(location, size, owner-operator model, menus, food production & procurement, food budgets, food delivery systems)*
• Provincial Characteristics *(food budget allocation, regulations for timing of meals & snacks, food safety regulations, requirements for menu development)*
M3 Team

**Investigators**
- Heather Keller (U of Waterloo)
- Christina Lengyel (U of Manitoba)
- Natalie Carrier (U of Moncton)
- Catriona Steele (TRI, UHN, U of Toronto)
- Lisa Duizer (U of Guelph)
- Habib Chaudhury (SFU)
- Minn Yoon (U of Alberta)
- Steve Brown, George Heckman, Veronique Boscart (U of Waterloo)
- Alison Duncan (U of Guelph)
- Lita Villalon (U of Moncton)

**Students**
- Sarah Wu (UW)
- Vanessa Vucae (UW)
- Sabrina Ilguilo (UW)
- Ashwini Navmasivayam (UT)
Example of mealtime experience intervention...

**Physical space**
- Home like
- Dining cloths, dishes, decorations

**Organizational space**
- Resident driven (PCC), individualized, greater control
- Flexible, open dining (24/7), open access
- Meaningful activities

**Way Caring Happens**
- Relational, caring as a family (resident, staff, family)
- Family style dining, including staff & family in meal
Summary & Way Forward

• Older adults are nutritionally vulnerable

• Making the Most of Mealtimes
  – Practice and evidence based framework
  – Resonates with various decision makers and stakeholders
  – Provides direction for practice and policy
    • Integrated approach, multiple levels, multiple determinants
  – Use to develop intervention research that has the potential to be more successful