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Integrated Knowledge Translation Tackling the role of context

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Toronto, ON

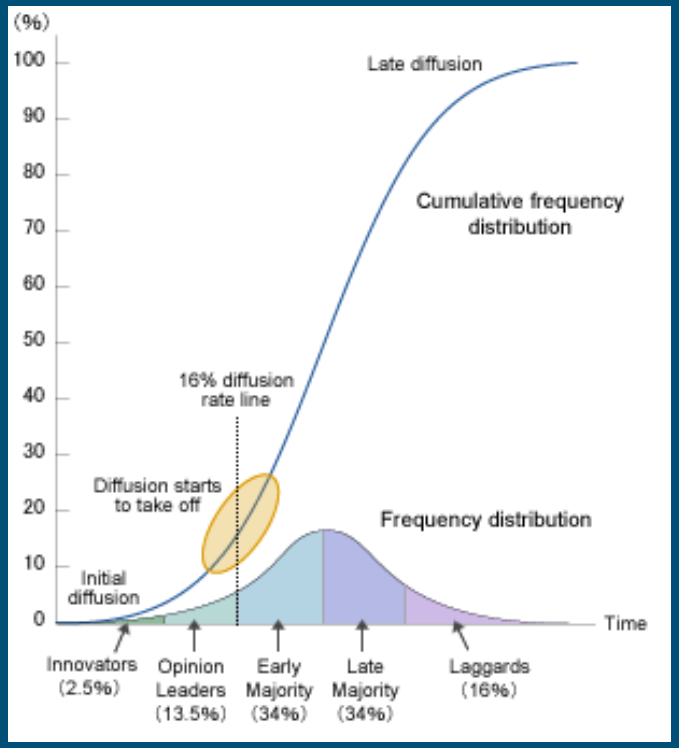
Diffusion of Innovation Theory

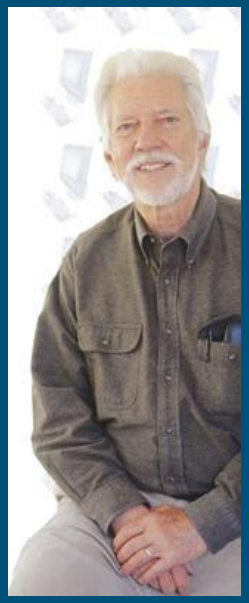
Elements

- The innovation
- Communication channels
- Time
- Social system

Attributes

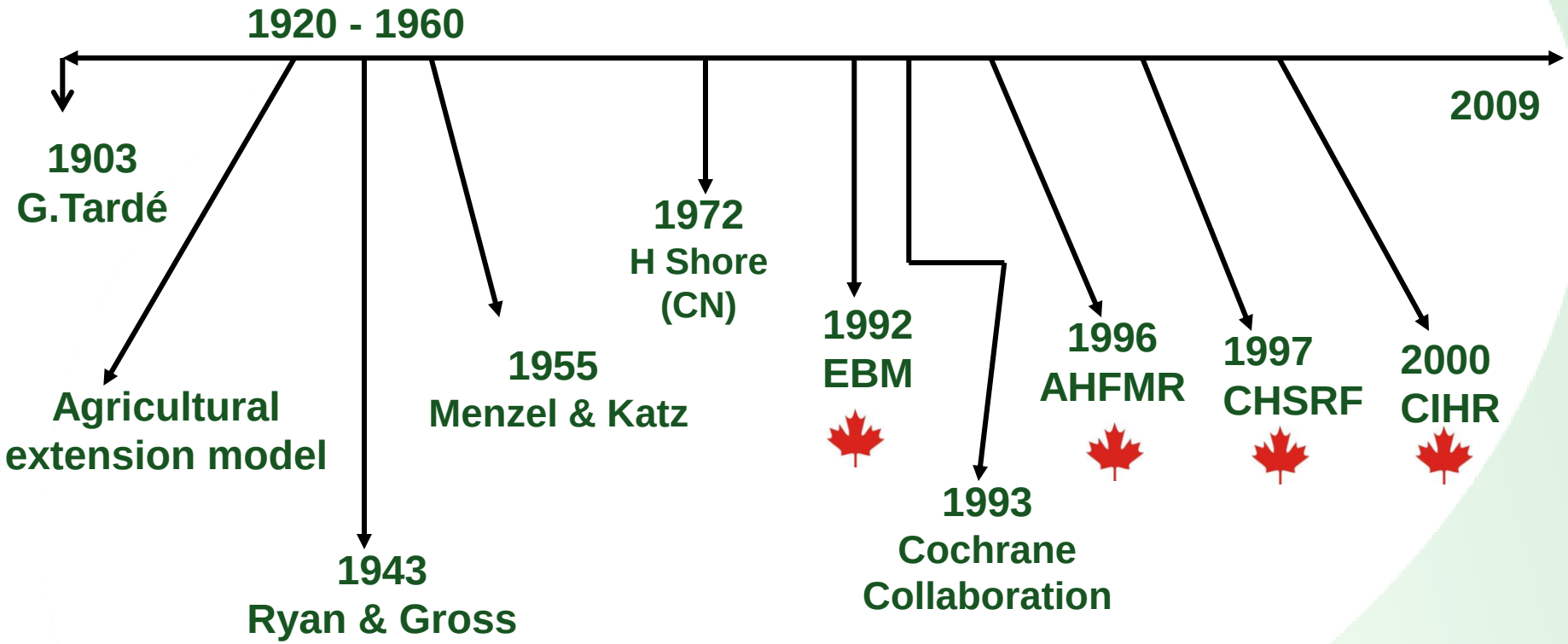
- The innovation
- The individual
- The organization





Ev Rogers
1931 - 2004

A Timeline


1920 - 1960
2009
1903
G.Tardé
Agricultural
extension model
1943
Ryan & Gross
1955
Menzel & Katz
1972
H Shore
(CN)
1992
EBM
1993
Cochrane
Collaboration
1996
AHFMR
1997
CHSRF
2000
CIHR

CIHR defines knowledge translation as …

… a dynamic and iterative process that includes synthesis, dissemination, exchange and ethically sound application of knowledge to improve the health of Canadians, provide more effective health services and products and strengthen the health care system.

CIHR IRSC
Canadian Institutes of Health Research
Instituts de recherche en santé du Canada

Implementation science

"Unlike routine applied (or operations) research, which may identify and address barriers related to performance of specific projects, **implementation science creates generalizable knowledge that can be applied across settings and contexts to answer central questions.**"

Madon, Hofman, Kupfer & Glass, 2007, Science

- **30%-40% of patients do not receive care based on current evidence**
- **20%-25% of care provided is not needed or potentially harmful**

Eccles et al., 2005; Schuster et al., 1998, McGlynn et al, 2005

How is the problem understood?

As a theory-practice gap

1. Practice fails to live up to theory
2. A relational problem exists between clinicians and organizations
3. Theory is irrelevant to practice.

(Allmark, 1995)

Sometimes as the "know-do" gap

1. Improving access to the world's health information
2. Translating knowledge into policy and action
3. Sharing and reapplying experiential knowledge
4. Leveraging e-Health in countries
5. Fostering an enabling environment

(WHO: http://www.who.int/kms/en/)

all input – no output

"I once asked a worker at a crematorium, who had a curiously contented look on his face, what he found so satisfying about his work. He replied that what fascinated him was the way in which so much went in and so little came out."

A. L. Cochrane, 1972, p. 12.

Theory as a tool

Theories that focus on:

- **Individual factors**
  - **Cognitive, educational, attitude, stages of change theories**

- **Social influence**
  - **Social learning, social network and influence (e.g., diffusion of innovation), factors related to patients, professional development, leadership theories**

- **The influences of organizational factors**
  - **Innovative organizations, quality management, process re-engineering, complexity, organizational learning, organizational culture (e.g., CVF), economic**

Theories, emerging theories and frameworks that I find useful

Central problems in the management of innovation

1. **Human - Managing attention**
   Longitudinal study of the social and political processes by which people become invested in or attached to new ideas and push them into good currency

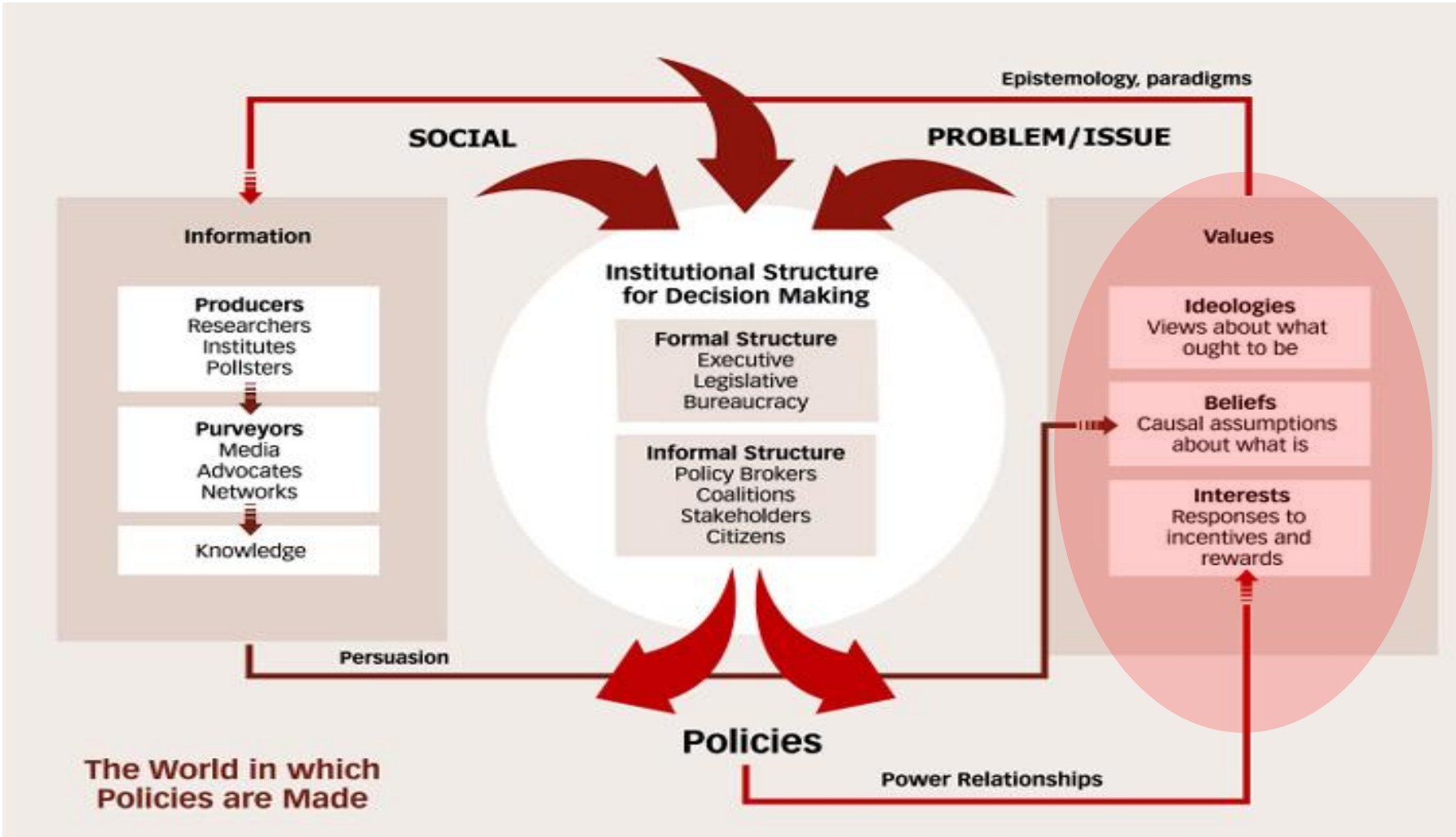
2. **Process - Managing new ideas into good currency**
   Physiological limitations of people and corresponding organizational inertial issues – what triggers people's action thresholds?

3. **Structural - Managing whole-part relationships**
   Individuals often lose sight of the whole innovative effort – left to themselves will design impeccable micro-structures for innovation that often result in macro nonsense. Managing - self-organizing groups, redundant functions, requisite variety, temporal linkage

4. **Strategic - Institutional leadership**
   Creating a context requires strategic leadership. The leader's problem is creating an infrastructure conducive to innovation and organizational learning

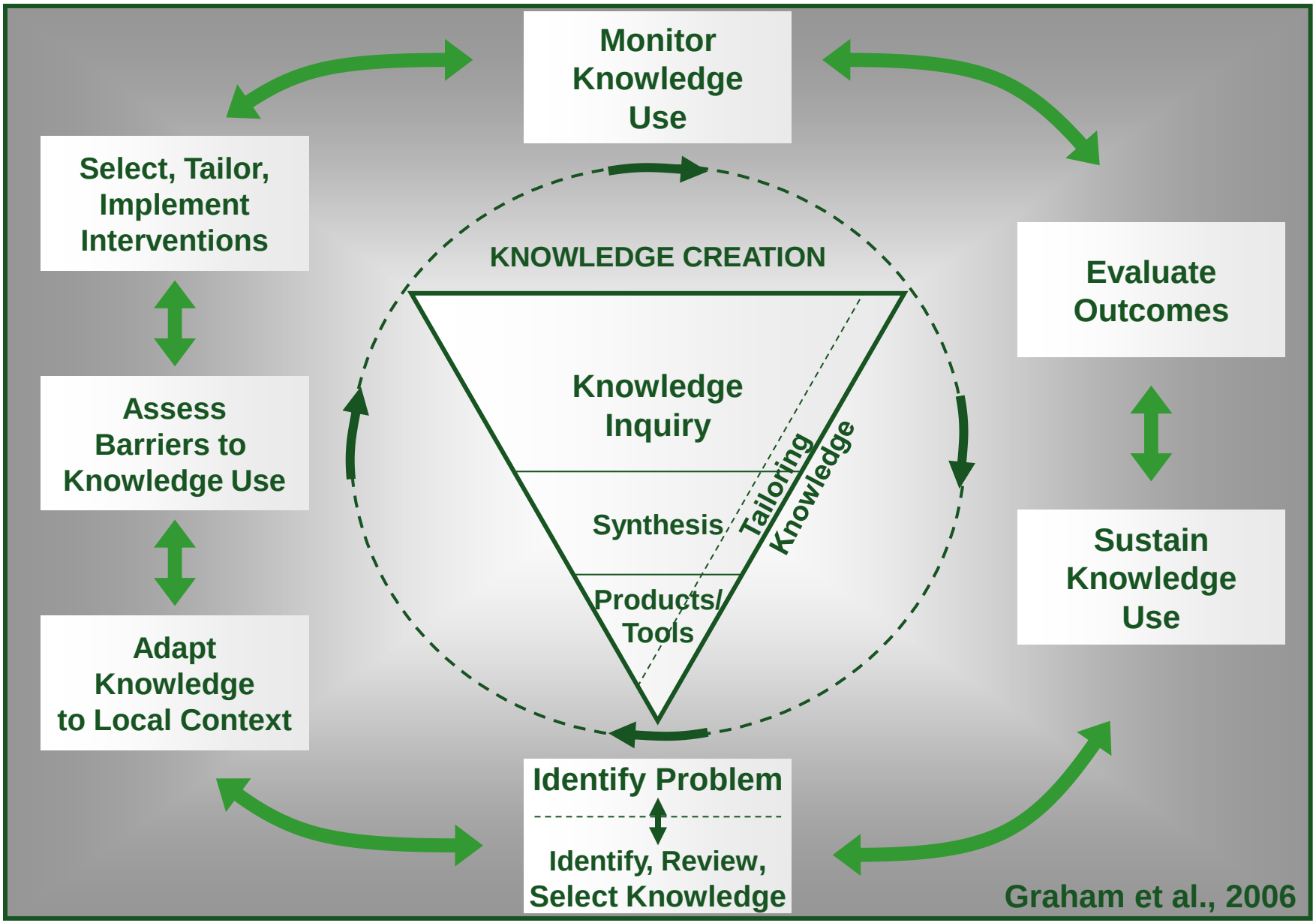
Van de Ven, A. Management Science, 1986

Policy analysis frameworks



Lomas, 2000, *ISUMA*

Knowledge-to-Action Cycle

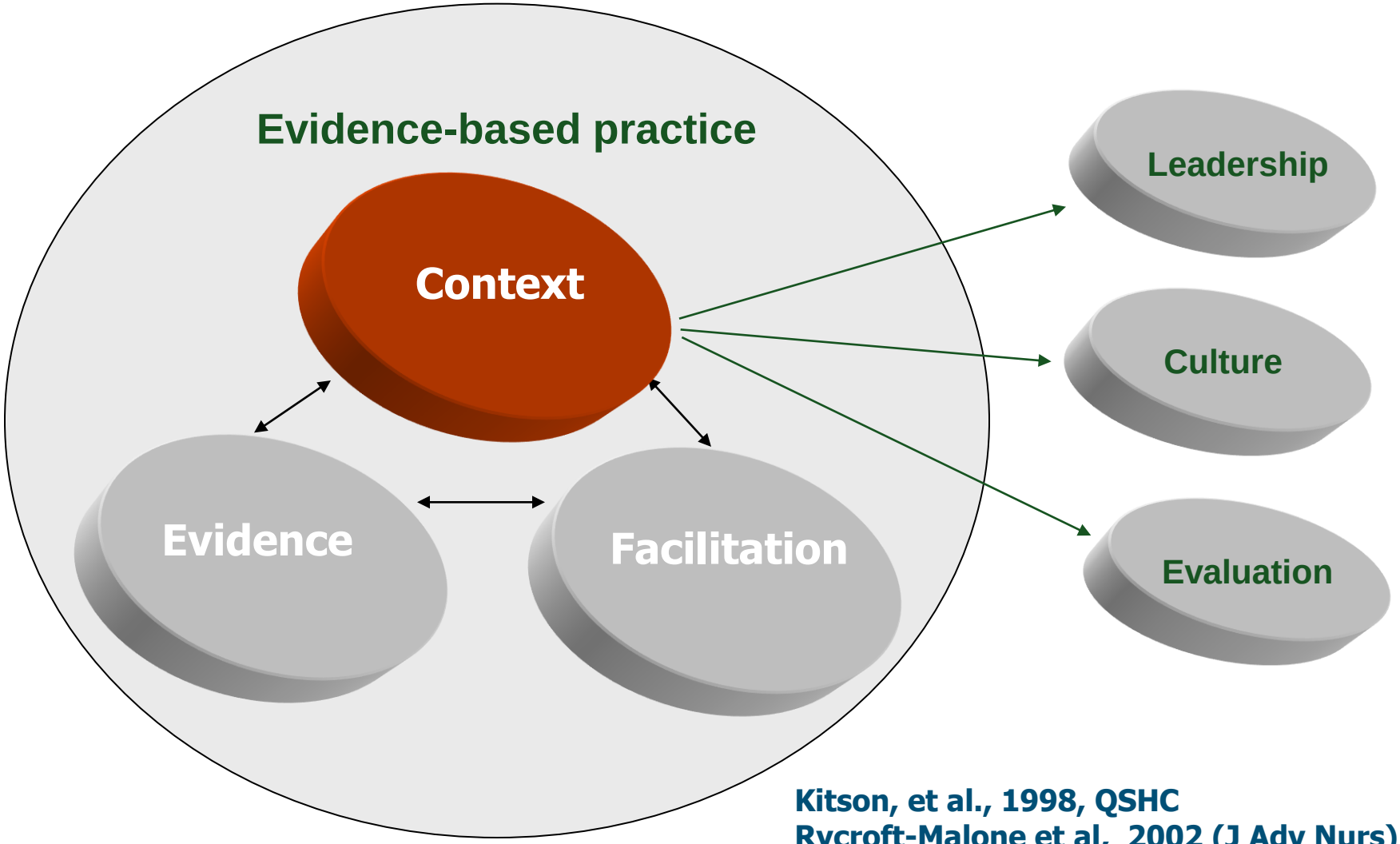


Normalization Process Theory

Normalization Process Theory explains how new technologies, ways of acting, and ways of working become routinely embedded in everyday practice, and has applications in the study of implementation processes.

May, C., et al., Implementation Science 2009, 4:29 (doi:10.1186/1748-5908-4-29)

PARiHS Framework for Research Implementation



Kitson, et al., 1998, QSHC
Rycroft-Malone et al, 2002 (J Adv Nurs)

What is knowledge translation research?

- **Research into the determinants and mechanisms of the dissemination and uptake of (research) knowledge in the context of decision-making at clinical, organizational, and regional and higher levels of the health system**
- **The goal is improvements in health outcomes, care delivery, and/or system performance**
- **Its methods are the same methods used in all other research**

Barriers to Research Utilization

- Studied extensively (probably excessively) in nursing
- Findings are consistent but have told us little since early studies
- Not used to inform interventions
- However, barriers do need to be assessed to determine viable strategies

The latest (last) review:
Nilsson-Kajermo, Boström, Thompson, Hutchinson, Estabrooks, Wallin. (in press). Implementation Science.

Commonly identified barriers to research use

- Time
- Resources
- Support
- Knowledge & skills
- Adequate evidence
- Culture, context, environment….

1997 to 2012

Phase I

1. Research utilization in nursing: An examination of formal structure and influencing factors (1997)
2. Determinants of research utilization: Pain management in adults and children (1999 – 2003) NHRDP/CIHR, AHFMR
3. Two bibliometric studies
4. Developing a valid and reliable measure of research utilization

Phase II

5. Translating research in acute care hospitals (AKUTE)
6. Translating research in pediatric care (pain management)
7. Translating research in elder care

Phase III

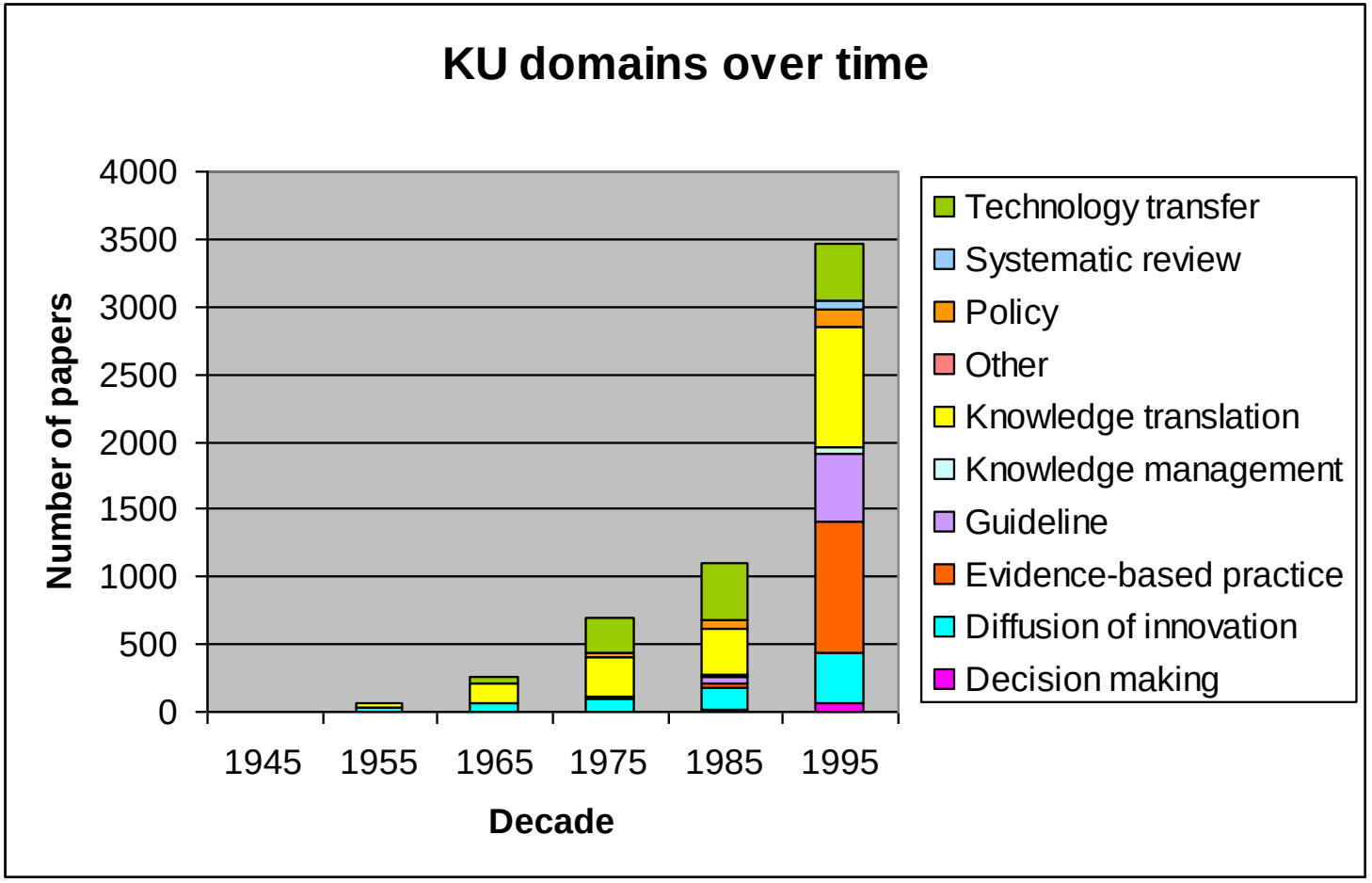
8. Facilitating the Implementation of Research Evidence (FIRE)
9. Older Persons Transitions in Care (OPTIC): Partnerships in Health System Improvement (PHSI) grant (AB & BC)
10. SCOPE study (Quality & Safety in Nursing Homes: AB and BC)

A Bibliometric Analysis of the Knowledge Utilization Literature: Structure and Substance of a Scientific Community

Estabrooks, Lavis, Wallin, Scott, Profetto-McGrath

- Web of Science over 60 years (1945-2004)
- Descriptive findings
- First author co-citation analysis

Estabrooks, Derksen, Winther, Lavis, et al. (2008). The intellectual structure of the knowledge utilization field… Implementation Science.

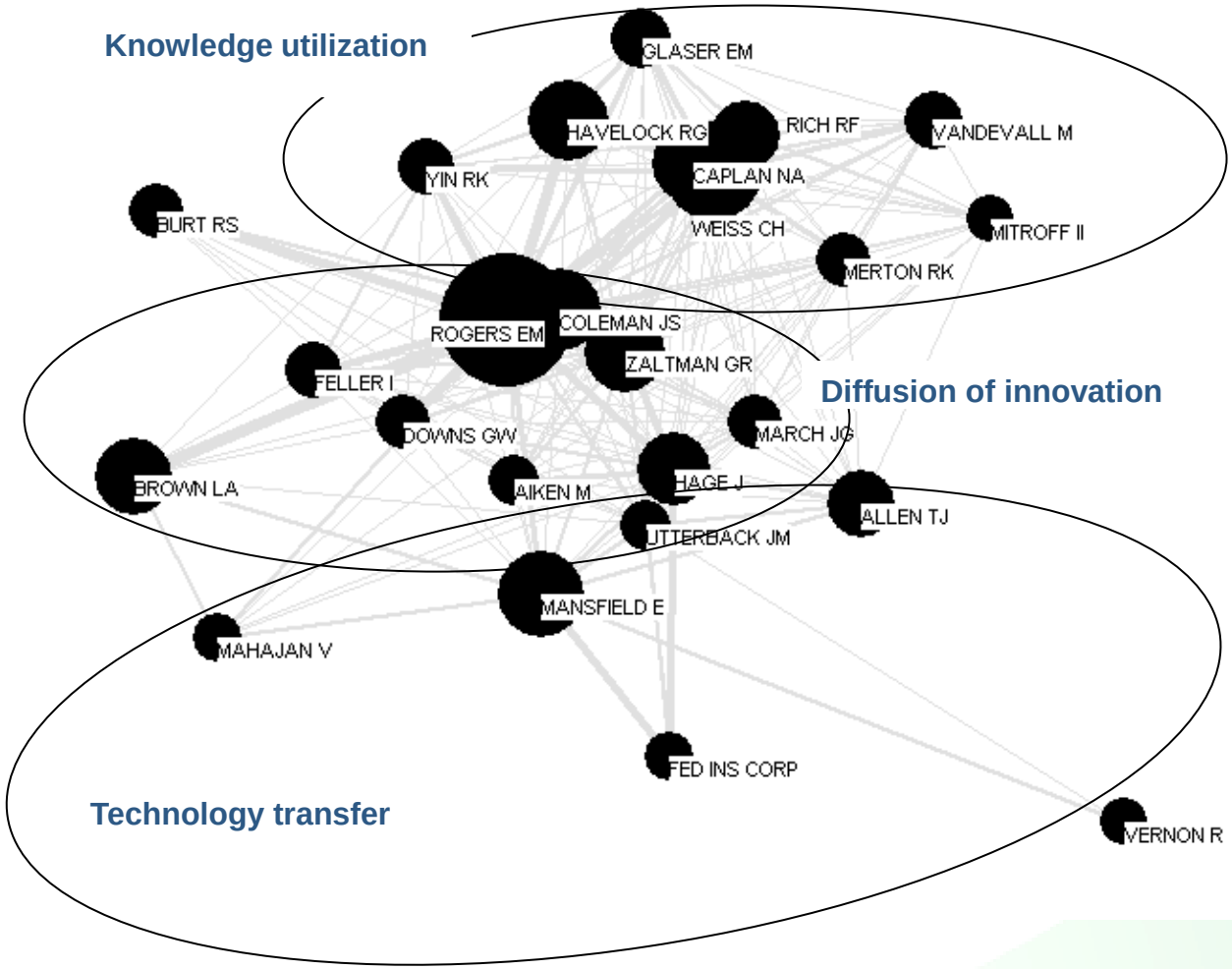

KU domains over time
Number of papers
4000
3500
3000
2500
2000
1500
1000
500
0
1945
1955
1965
1975
1985
1995
Decade
Technology transfer
Systematic review
Policy
Other
Knowledge translation
Knowledge management
Guideline
Evidence-based practice
Diffusion of innovation
Decision making

Key journals

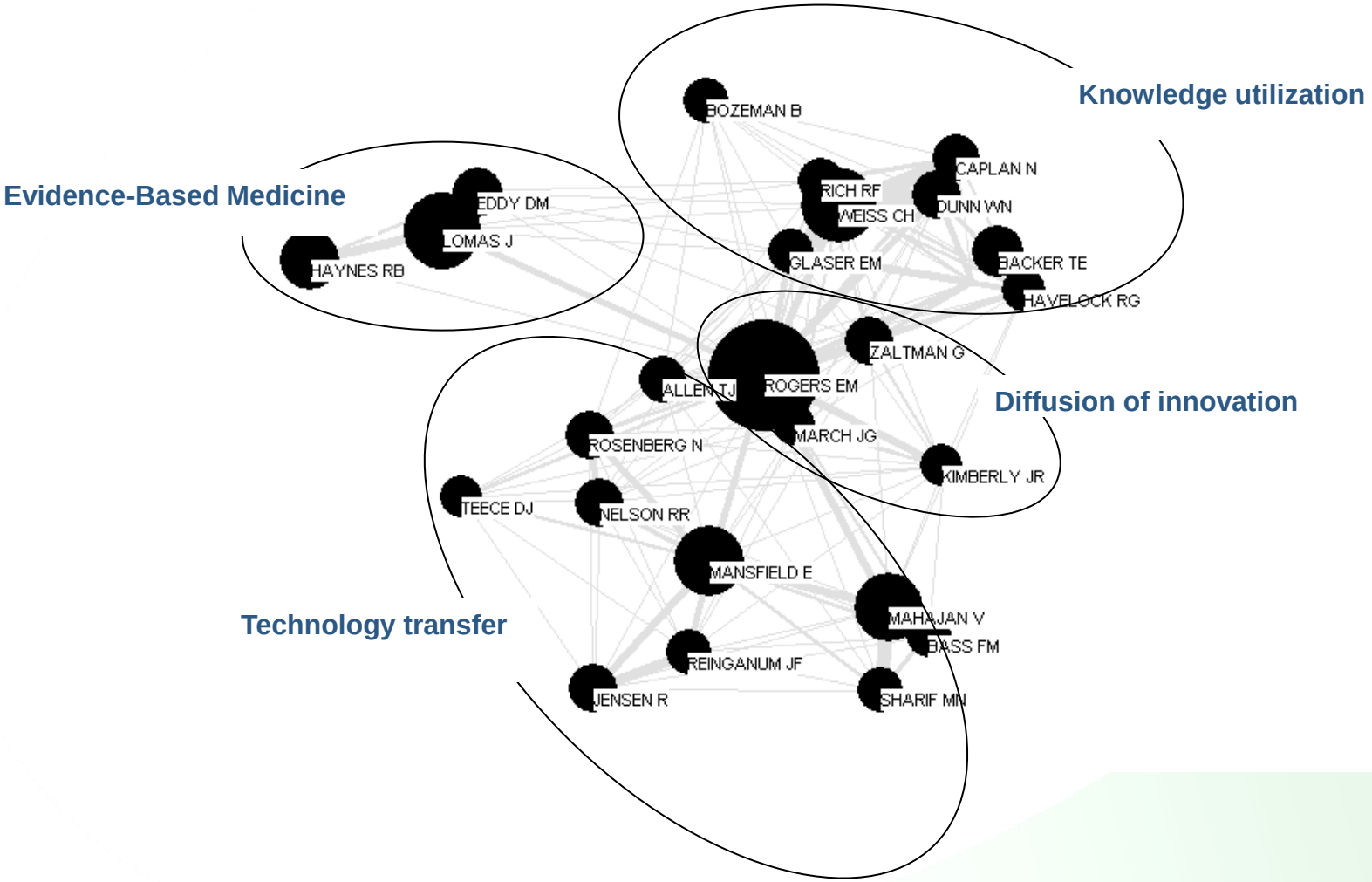
- Journal of Evaluation in Clinical Practice
- Journal of Advanced Nursing
- BMJ
- Knowledge: Creation, Diffusion, Utilization*
- The Lancet
- Journal of General Internal Medicine
- Research Policy
- JAMA
- Science Communication*
- Social Science & Medicine

*Knowledge became Science Communication

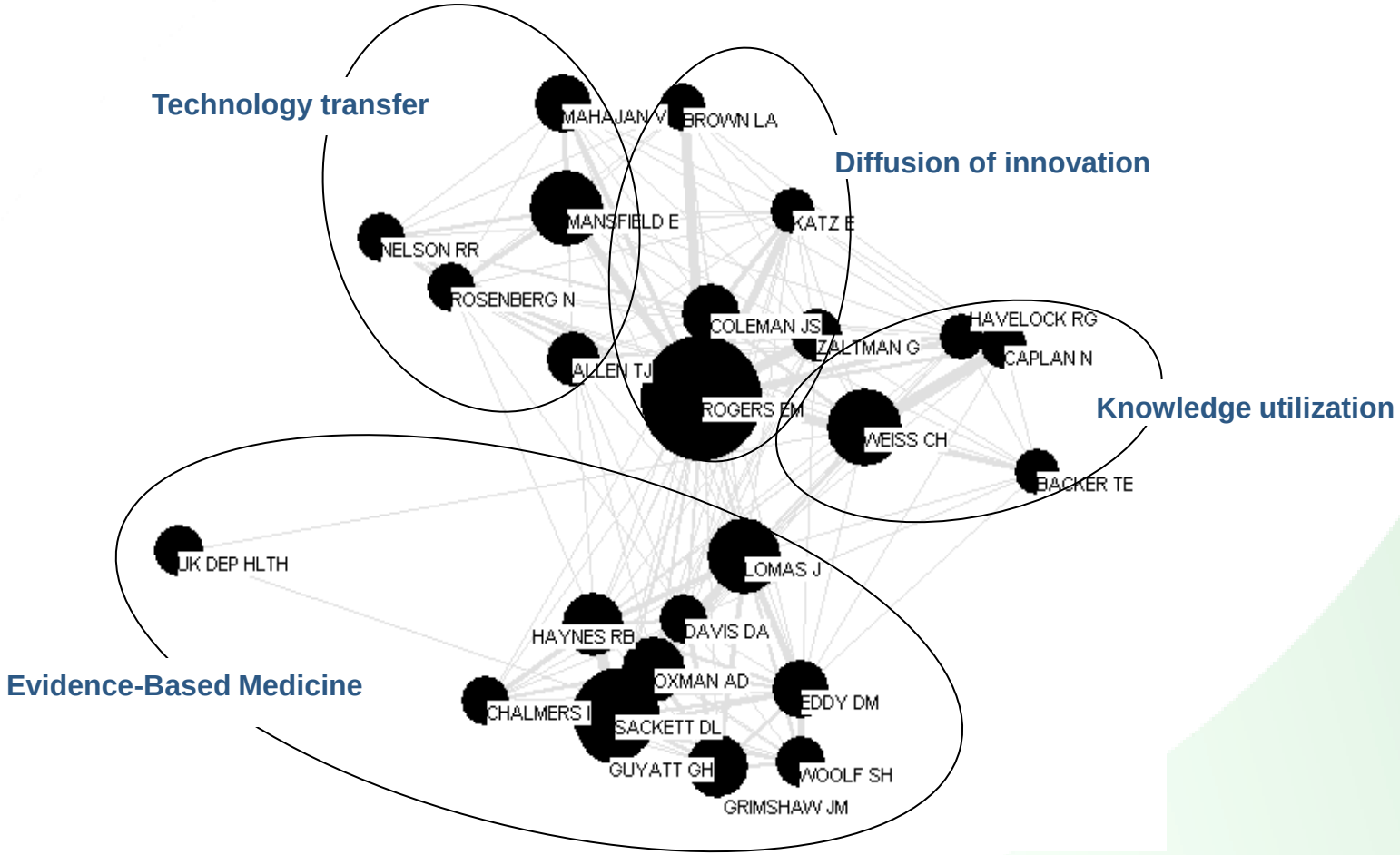
First author co-citation map 1975-1984



First author co-citation map 1985-1994



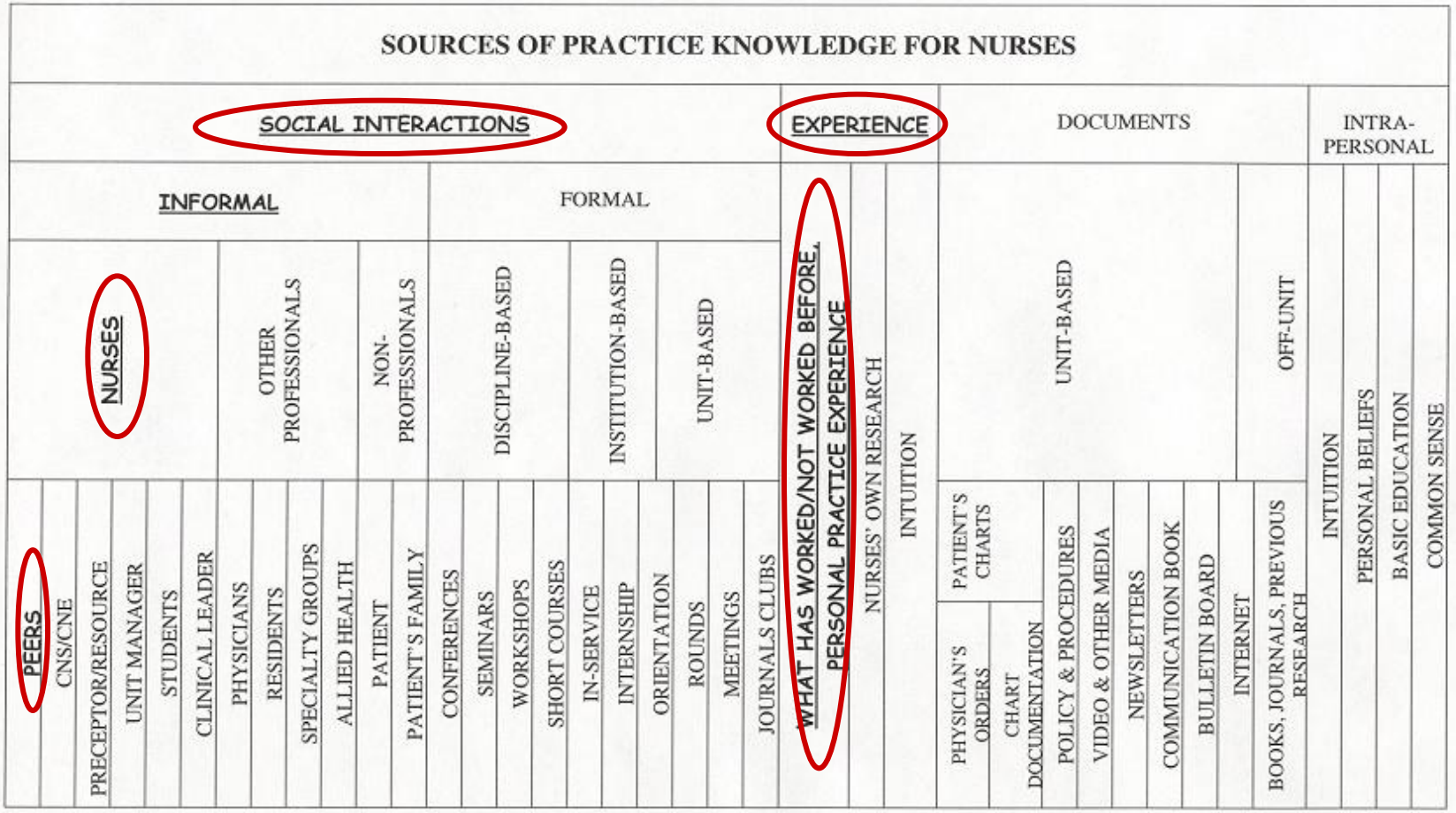
First author co-citation map 1995-2004



Determinants of research utilization: Pain management in adults and children (1999 – 2003) NHRDP/CIHR, AHFMR

- Four hospitals (two in Ontario, two in Alberta)
- Adult and pediatric surgical units
- Qualitative and quantitative data collected
- Six months of participant observation each unit
- Nurses, patients, physicians, social workers, physiotherapists, and administrators participated

Taxonomy of nurses' sources of knowledge



Estabrooks, C.A., Rutakumwa, W., O'Leary, K., Profetto-McGrath, J., Milner, M., Levers, M.J., & Scott-Findlay, S. (2005). Sources of practice knowledge among nurses. Qualitative Health Research, 15(4), 460-476.

Thoughts on why

Time: Nurses typically work on multiple schedules; high and frequent levels of resequencing are required

Context: Nurses tend to be motivated to seek knowledge when they have context specific patient care situations and problems to deal with

Trust: Nurses tend to seek information/knowledge from those they trust (knowledgeable, empathetic)

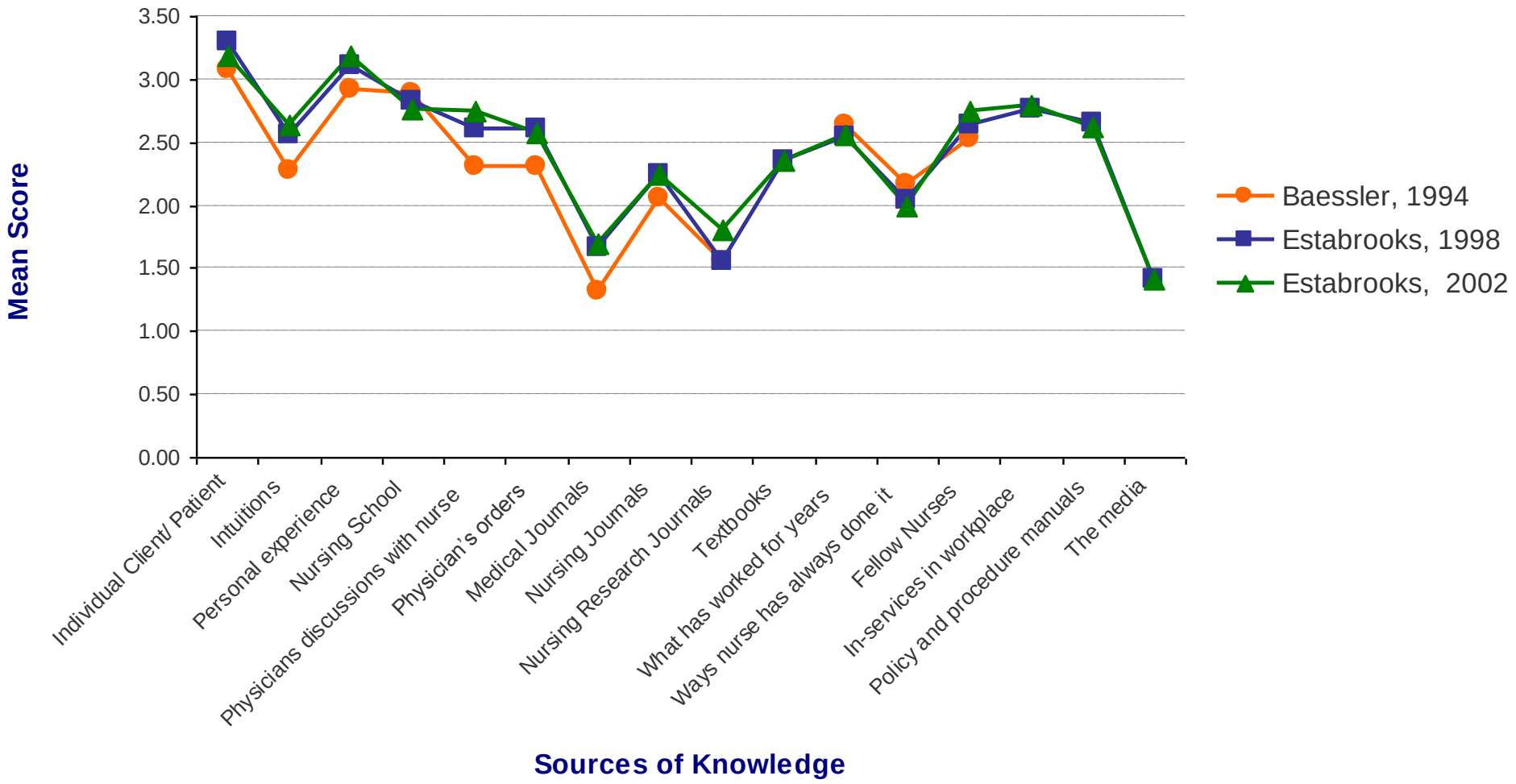
Hierarchy: An environment where norms of organizational hierarchy are strictly adhered to negatively affects knowledge transfer between nurses and CNS's, clinical leaders, and physicians

7 Unit Comparison

Overall, few differences in the sources used by nurses across units

Information Source	*Ranking by Means*						
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7
Individual patient	3	1	1.5	2	2	1	2.5
Intuitions	8	8	4	5	8	7	4.5
Personal experience	1.5	2	1.5	1	1	2	1
Nursing school	1.5	4	3	3	6.5	9	8
Physicians discussions w ns	9	5.5	7	7	6.5	3	9
Physician's orders	7	7	9.5	7	9.5	8	12.5
Medical journals	15	15	16	14.5	15	14	15
Nursing journals	13	12	13	11	13	10	10
Nursing research journals	14	13	14	16	15.5	13	11
Textbooks	11	9	11	12.5	11	12	14
'What has worked for years'	6	11	7	7	4.5	11	4.5
'Ways nurse has always done it	12	14	12	10	12	15	12.5
Fellow nurses	4.5	5.5	7	4	3	6	7
In-services in workplace	4.5	3	5	12.5	4.5	5	2.5
Policy & procedure manuals	10	10	9.5	9	9.5	4	6
The media	16	16	15	14.5	15.5	16	16

Sources of Knowledge Patterns Over Time



Note: Mean scores were transformed to fit a five-point likert scale (0-4), with 0 as 'never' and 4 as 'always'.

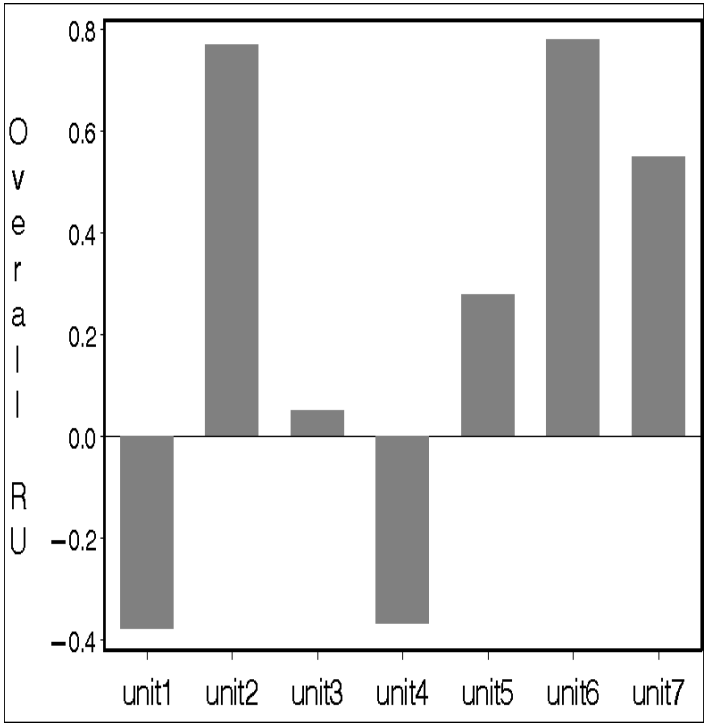
Summary

- Individual patient information, personal experience, and social interactions are main information sources – and this should not be a surprise
- Limited use of journals, textbooks, and popular media, less clear re the internet
- The structure and organization of nurses' work has a major influence on their choice of knowledge sources
- Researchers need to merge nurses' information-seeking behavior with dissemination strategies

Estabrooks, C.A., Chong, H., Brigidear, K., & Profetto-McGrath, J. (2005). Profiling Canadian nurses' preferred knowledge sources for clinical practice. Canadian Journal of Nursing Research, 37(2), 118-141.

Patterns of research use

Research utilization scores by units (half of the shifts as reference line)



Mapping of results patterns onto units based on research utilization scores

	Low Group	Medium Group	High Group
	Units 1& 4	*Units 3 & 5*	*Units 2, 6, & 7*
FACTORS			
Influence of students	X		
Organizational support		X	
People support	X		
Resequencing			X
Attitude			X
Continuing education			X
Critical thinking			X
Creativity			X
Efficiency			X
Authority			
Beliefs		X	
Questioning behavior			X
Intent		X	
Coworker support			X
Total PRN score	X		

Estabrooks, C.A., Scott-Findlay, S., Squires, J.E., Stevens, B., O'Brien-Pallas, L., Watt-Watson, J., Profetto-McGrath, J., McGilton, K., Golden-Biddle, K, Lander, J., Donner, G., Boschma, G., Humphrey, C.K., Williams, J. (2008). Patterns of research utilization on patient care units. Implementation Science, 3:31.

Some summary comments…

Interventions

- Education
- In-service
- Reminders
- Audit with feedback
- Knowledge brokers and other intermediaries (e.g., clinical educators)

What's missing?

- Context of work of nursing services delivery
- System, organizational environment
- Feasibility
- Modifiability
- Sustainability

1997 to 2012

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9. Older Persons Transitions in Care (OPTIC): A CIHR Partnerships in Health System Improvement (PHSI) grant

Understanding the influence of context on knowledge translation

Suite of three programs

Pediatric Acute Care

CIHR Team grant (TROPIC)

- Context assessment
- Context to KT
- Multi-level & structural eqn. modeling
- KT and clinical outcomes

2006-2011

(Mostly) Adult Acute Care

Utilization of research in hospitals (AKUTE)

- Pilot (in progress) in AB teaching hosp.
- Five "groups" of health professionals
- Instrument testing
- Next stage - western provinces (outcomes, multi-level modeling)

2005-2007

Facility Based Elder Care (LTC)

Translating research in elder care (TREC)

- Sweden/Canada knowledge & work project (dementia)
- TREC program
  - 3 prairie prov., LTC
  - Context surveillance
  - Enhanced A&F
  - KT and resident outcomes
  - Pilot studies

2007-2012

Adult/acute care (AKUTE)

(Mostly) Adult Acute Care

Utilization of research in hospitals (AKUTE)
(Estabrooks & Norton)

- Pilot in AB teaching hosp.
- Instrument dev. & testing
- Five "groups" of health professionals
- Assessment of their research use (self-report)

$150K AHFMR

Objectives:

- to determine the feasibility of a larger scale study in Western Canada
- To develop & validate the Alberta Context (ACT) tool
- To identify predictors of research utilization
- To assess five provider group differences and similarities

N=4 teaching hospitals
N=453 (5 professional groups)

Estabrooks, C.A., Norton, P., Birdsell, J.M., Newton, M.S., Adewale, A.J., & Thornley, R. (2008). Knowledge translation and research careers: Mode I and Mode II activity among health researchers. Research Policy, 37(6-7), 1066-1077.

Purpose:

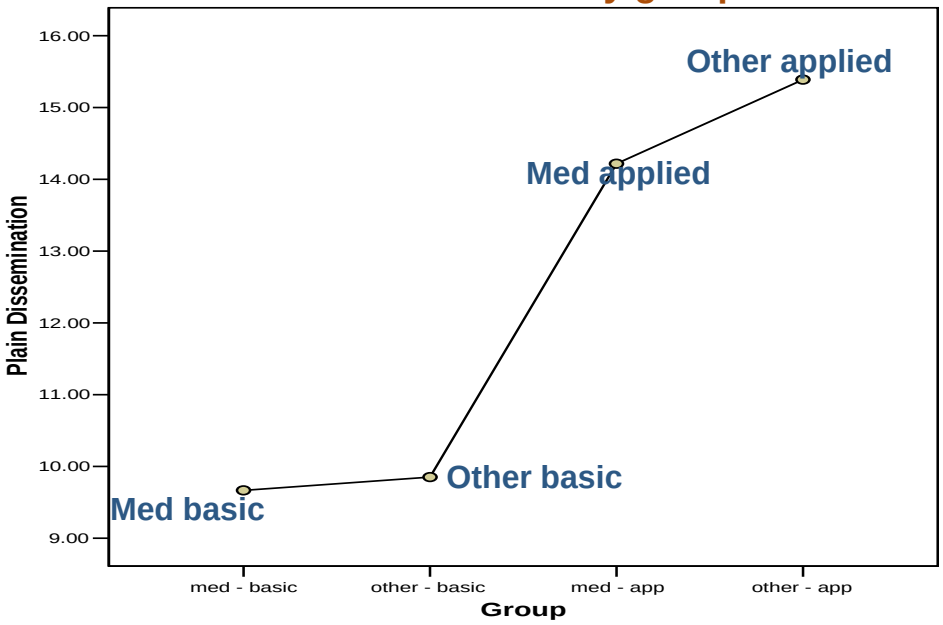
To examine knowledge translation activities of Alberta health researchers from different disciplines and faculties using Mode I and Mode II archetypes as an analytical frame.

Sample characteristics (n=240)	Frequency	Percent
Gender		
Male	152	63.3%
Female	88	36.7%
Faculty		
Medical school	128	53.3%
Other health science faculties	112	46.7%
Research Domain		
Basic	72	30.0%
Applied	168	70.0%
Academic Rank		
Full professor	104	43.3%
Associate professor	74	30.8%
Assistant professor	53	22.1%
Other	9	3.8%
Work setting		
Hospital only	18	7.5%
University only	110	45.8%
University + Hospital	112	46.7%

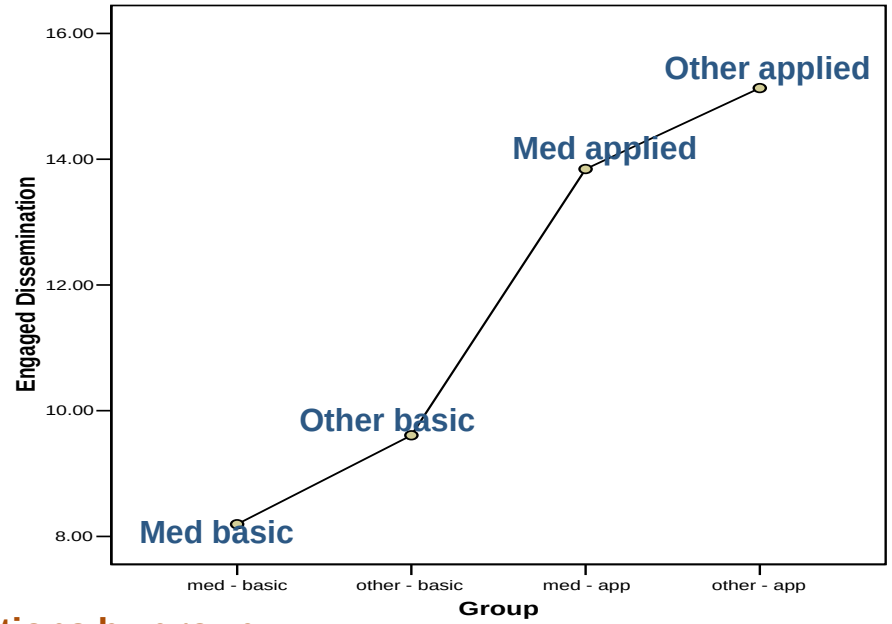
We defined:

- **Mode I activities as the number of scholarly publications**
- **Mode II activities as the scores on items reflecting *plain* and *engaged* dissemination**

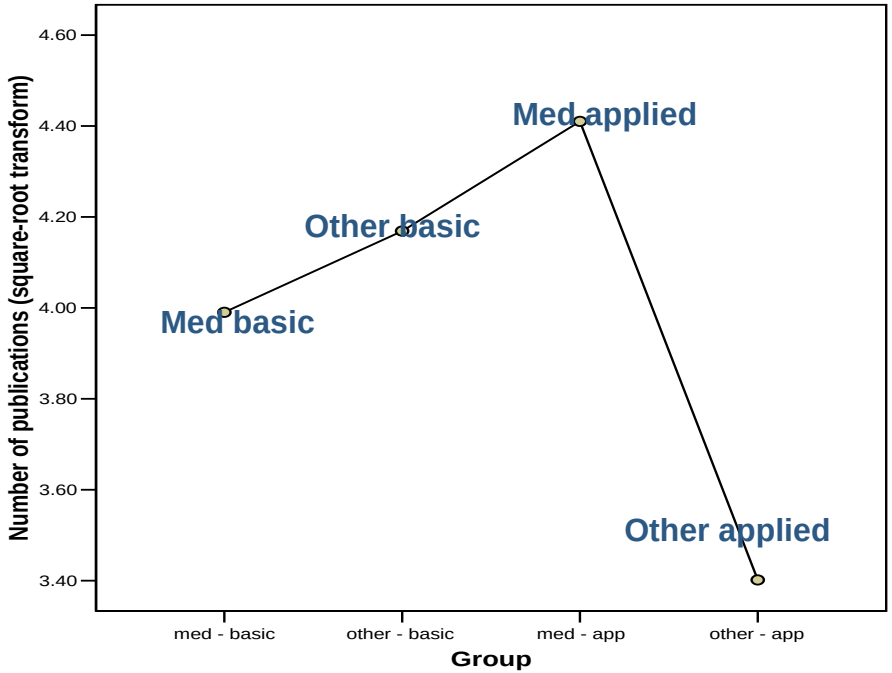
Plain dissemination by group



Engaged dissemination by group



Number publications by group

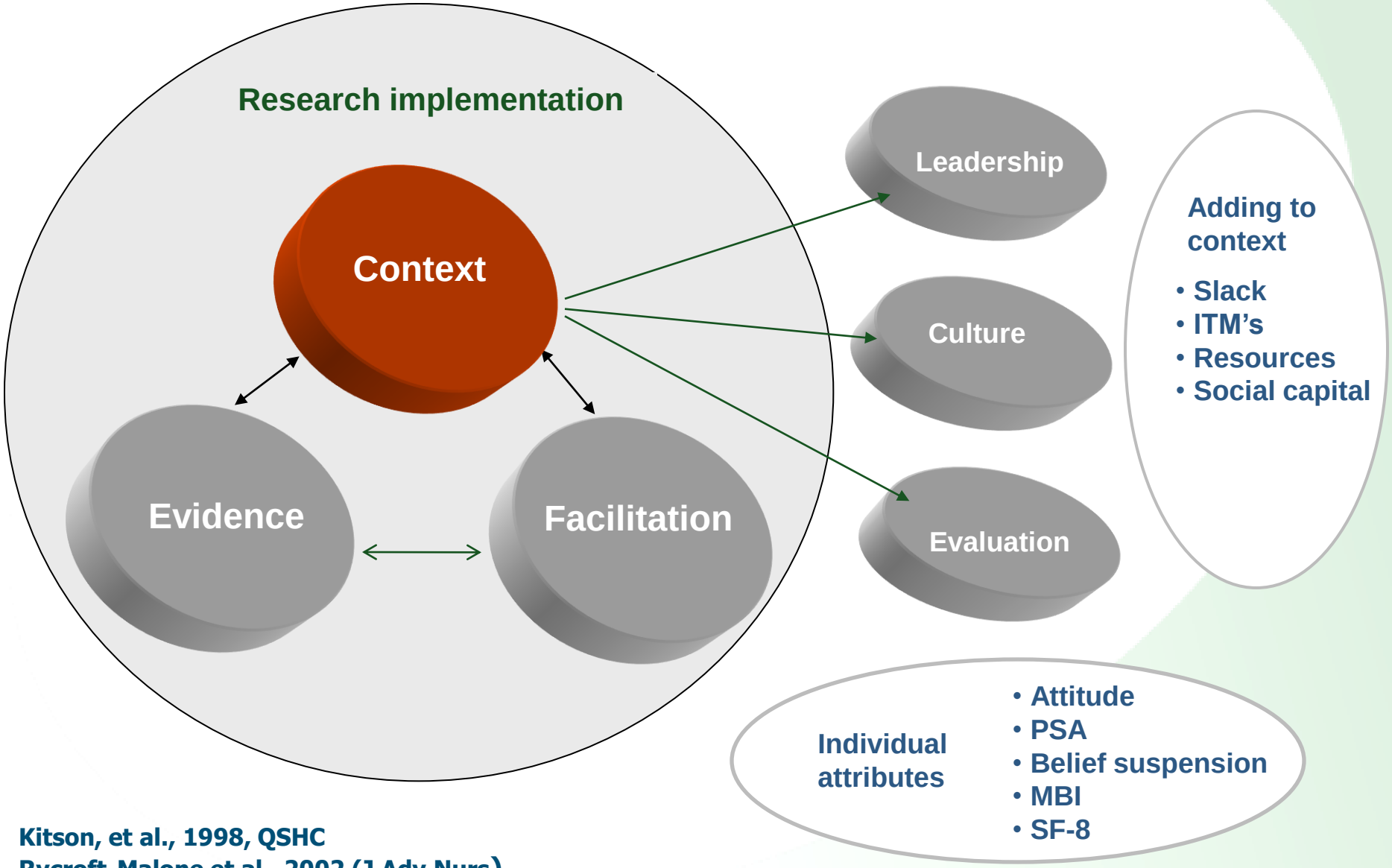


Correlations

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

	Plain Dissemination	Engaged Dissemination	Number of Publications
Contribution provided by users	.507(**)	.448(**)	
Perceived impact	.624(**)	.590(**)	
Relational capital	.561(**)	.495(**)	
Barriers to uptake of research	.241(**)	.267(**)	
Perceived importance of dissemination activities (A)	.306(**)	.164(*)	
Perceived importance of dissemination activities (B)	.404(**)	.341(**)	
Recognition of expertise	.618(**)	.448(**)	
Years of experience (as service provider)	.364(**)	.331(**)	
Research focus – users' need	.464(**)	.542(**)	
Research focus – scholarly advancement	-.144(*)	-.191(**)	.192(**)
Perceived importance of original studies leading to publication	-.133(*)	-.157(*)	.316(**)
Cost of utilization			.213(**)
Number of research personnel			.247(**)
Years of experience (post grad)			.303(**)

PARiHS Framework for Research Implementation



Kitson, et al., 1998, QSHC
Rycroft-Malone et al, 2002 (J Adv Nurs)

Constructs in the Alberta Context Tool (ACT)

- Leadership
- Culture
- Evaluation (feedback processes)

Core elements
(~65% variance)

- Information sharing interactions
- Information sharing activities
- Information sharing processes (social capital)
- Structural and electronic resources
- Organizational slack

Additional concepts

- Knowledge translation (research use)
- Facilitative mechanisms in the workplace
- Relationship with work
  - job satisfaction, career/occupation satisfaction
  - knowledge, orientation for work
- Demographics
- Selectively added scales, e.g.,
  - MBI-GS
  - Health Status SF-8
  - Problem Solving Inventory (PSI)
  - Attitude to research
  - Belief suspension

Pediatrics

Objective: To determine the influence of organizational context on KT, and KT on patient outcomes (pain intensity)

Pediatric Acute Care
CIHR Team grant
(Bonnie Stevens, PI)

- Context assessment
- Context and KT
- Multi-level & structural eqn. modeling
- KT and clinical outcomes

$6M CIHR

Three projects:

1. EPIC (dBase)
2. Assessing context (Edmonton led)
3. A facilitation intervention

N = 8 pediatric hospitals
N = 32 patient care units
N = 1200+ (~900 nurses + 4 additional provider groups in wave 1)

Translating Research in Elder care

Phase II (2007-2011) of a multi-year (2002 to 2022) research program

Facility Based Elder Care (LTC)

Translating research in elder care (TREC)

- Multi-method
- Multi-level
- Longitudinal (5 years)
- 3 major inter-related projects:
  - Organizational monitoring system
  - Context case studies
  - A & F intervention
  - Series of 3 pilot studies

$4.7M CIHR

Purpose: To address the impact of context on knowledge translation (KT) and subsequent impact of KT on health outcomes* (as well as provider and system outcomes)

CIHR IRSC
Canadian Institutes of Health Research
Instituts de recherche en santé du Canada

TREC

TRANSLATING RESEARCH IN
Elder Care

Search

The Translating Research in Elder Care (TREC) Research Program is a five-year study funded by CIHR (Canadian Institutes of Health Research). In our research program the researchers will explore the factors that influence the use of 'best practices' by staff providing care in long-term care facilities in the three Canadian Prairie Provinces (Alberta, Saskatchewan, Manitoba). They will also look at how the organizational environment and the use of 'best practices' influence resident and system outcomes. TREC has three

Profiles

Sue Dopson

Dr. Dopson teaches elements of the University's degree program in Management, at Oxford Said Business School, is a

Team members

Alberta: Carole Estabrooks (PI), Peter Norton, Greta Cummings (SL), Joanne Profetto-McGrath, Corinne Schalm, Caroline Clarke, Belle Gowriluk, Donna Stelmachovich

Saskatchewan: Debra Morgan (SL), Norma Stewart, Gary Teare, Gretta-Lyn Ell, Juanita Treemer

Manitoba: Lesley Degner (SL), Malcolm Smith, Verena Menec, Lori Lamont, Luana Whitbread

ONT: Kathy McGilton, Heather Laschinger
UK: Sue Dopson, Jo Rycroft-Malone

Collaborators, advisors:
Jack Williams, David Hogan, Chuck Humphrey, Judy Birdsell, Michael Leiter, Charles Mather, Phyllis Hemple

Scientific Advisory Committee: Dot Pringle (Chair), Rejean Hebert, Alison Kitson, Rosalie Kane, Cy Frank

Purpose

To address the impact of context on knowledge translation (KT) and subsequent impact of KT on resident outcomes (and secondarily provider and system outcomes)

Aims

1. To build knowledge translation theory on the role of context in influencing knowledge use in long term care (LTC) settings and among non-professional care givers

2. To contribute to better use of knowledge leading to better quality care and better resident outcomes*

3. To pilot knowledge translation interventions (to increase best practices)

*pain management, dementia behavior management, falls and injury falls reduction

Program Description

- **Multidisciplinary, multi-method, multiple stakeholders**
- **Multi-level (provinces, regions, facilities, individuals)**
- **Longitudinal (5 years)**
- **Series of inter-related projects**

translating research in elder care

The Projects

Project 1: Building context: An organizational monitoring program
Project 2: Building context: A Case Study Program in LTC
Feedback Mechanisms: Front line and Site administrators

Pilots:
Leadership development
Supportive supervision
Strategic storytelling

+ Post doc projects

translating research in elder care

Project 1: An Organizational Monitoring Program

Purpose: To explore the effect of context upon knowledge translation and resident, provider, and system outcomes in long-term care

Design: Longitudinal, descriptive

Sample: 36 long-term care facilities

- Alberta (urban)
- Manitoba (urban)
- Saskatchewan (mixed urban and rural)

Methods:

- Survey data collection (TREC survey includes ACT)
- RAI-MDS 2.0
- Facility and unit level data

Project 2: A Case Study Program

Purpose: To develop a robust explanation of the way context mediates the use of knowledge in practice in long term care.

Design: Longitudinal, case study

Sample:

- 3 major case studies (1/province)
- 6 focused case studies (2/province)

Methods:

- Non-participant observation
- Interviews
- Family perspectives
- Documents
- Focus groups

Pilot Projects

Intervention-focused Pilot Studies:

- Storytelling (Malcolm Smith, Winnipeg)
- Supportive Supervision (Profetto-McGrath & McGilton, AB)
- Leadership Development (Cummings & Laschinger, AB)

Additional pilot ideas:

- A good day's work
- Quality of moment*
- Increasing mobility in dementia residents*
- Development of a facilitation (KT) intervention*
- Development of organizational slack concept*

Results

Project 1

- Year 1 of survey data collection completed
- Year 2 in progress
- RAI-MDS 2.0 data acquisition in progress
- Structural data collection in progress

Project 1

- Major case studies round 1 data collection and analysis complete, interviews complete, analysis in progress

Feedback mechanisms

- Underway

Pilots

- All in progress

TREC Commitment

In addition to the science, to work toward:

- **Establishing processes where all facilities within the organizations supporting TREC research (and eventually facilities in the Prairie Provinces) learn in ways meaningful to them from our research**

- **Contributing to the creation of sustainable enhanced capacity within the LTC sector**

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TREC

TRANSLATING RESEARCH IN
Elder Care

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The Translating Research in Elder Care (TREC) Research Program is a five-year study funded by CIHR (Canadian Institutes of Health Research). In our research program the researchers will explore the factors that influence the use of 'best practices' by staff providing care in long-term care facilities in the three Canadian Prairie Provinces (Alberta, Saskatchewan, Manitoba). They will also look at how the organizational environment and the use of 'best practices' influence resident and system outcomes. TREC has three

Profiles

Carole Estabrooks

Dr. Estabrooks is Professor, Faculty of Nursing, at the University of Alberta, Edmonton, Alberta, Canada, and holds a

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Ongoing plans for assessments of organizational context

1. Links to Outcomes

Patient/Resident Outcomes – links to context

Pediatric study (TROPIC)

- Link children's pain intensity

Nursing home study (TREC)

- Link RAI-MDS 2.0 outcomes: pain management, dementia behavior management, falls and injury falls reduction, as well as, other RAI-MDS 2.0 QI's

OPTIC study (NHs, EMS, EDs in AB and BC)

- Link data on transitions (e.g., EMS, ED and return to nursing home times and transition outcomes) with RAI-MDS 2.0 QI's

SCOPE study (Quality & Safety in NHs: AB and BC)

- Link RAI-MDS 2.0 QI's to intervention and context

Staff Outcomes – links to context

- Burnout
- Health status
- Job satisfaction
- Career satisfaction
- Aggressive acts (TREC only)

2. To Guide KT Intervention Development

European Union Project (FIRE)

- **Seventh Framework Program: Facilitating Implementation of Research Evidence (FIRE)**
- **Will explore and evaluate facilitation as a process for promoting the uptake of research evidence on continence promotion in clinical practice in long-term care**
- **Will be conducted in long-term care facilities in Ireland, Canada, Sweden, Netherlands**
- **The impact of context on the successful implementation of the facilitation intervention will be assessed**
- **ACT being used to measure context**

OPTIC

(Older persons transitions in Care)

Mixed methods

- Qualitative interviews residents, families, providers
- Follow NH-ED transfers over one year using T3
- Link data on transitions with RAI-MDS 2.0 QI's
- Develop OPTICS tool

SCOPE

- **Aim is to improve the safety and quality of care to frail elderly Canadians living in nursing homes and to improve the quality of work life for direct caregivers**
- **Will consist of an intervention composed of education on quality improvement techniques (Safer Healthcare Now) that will be tailored to context**
- **Will be conducted in 8 nursing homes in Alberta and BC**
- **ACT being used to measure context**

Health Canada Santé Canada

Applied Health Research Agenda
Improving Care and outcomes for Older Canadians
History

- AHFMR/AKUTE (2005 – 2007)
- Assembly of TREC group (Fall 2004)
- TROPIC grant submitted (Sept 2005)
- TROPIC grant started (Sept2006)
- TREC grant submitted (Sept 2006)
- TREC grant started (April 2007)
- FIRE (EU 7th Fr'wk) grant submitted (Sept 2007)
- FIRE grant started (July 2008)
- OPTIC funded (Fall 2009)
- SCOPE funded (January 2010)
- PHSI to extend SCOPE (MPD in 2010 then grant)
- TREC renewal (2011)

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KUSP

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KUSP - Knowledge Utilization Studies Program

KUSP is a funded health research program focusing on nursing and the social sciences. One of our particular areas of focus has been research utilization in the nursing profession. For more information on our program, please click on the links in the left-hand bar.

News

KUSP welcomes Postdoctoral Fellows!

KUSP would like to announce the arrival of two postdoctoral fellows in the fall of 2008. Susan Slaughter, arriving in October, was recently awarded the first ever Elizabeth

Questions

www.kusp.ualberta.ca