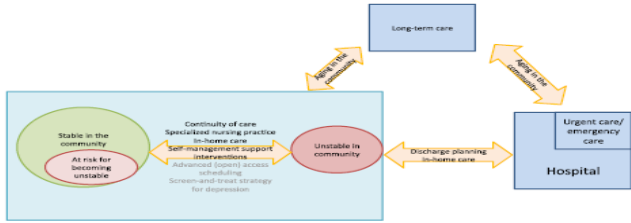


# OPTIMIZING AND EVALUATING THE CONTRIBUTION OF PRIMARY CARE NURSES TO CARE OF PATIENTS WITH COMPLEX HEALTH CONDITIONS: A RESEARCH PROGRAM

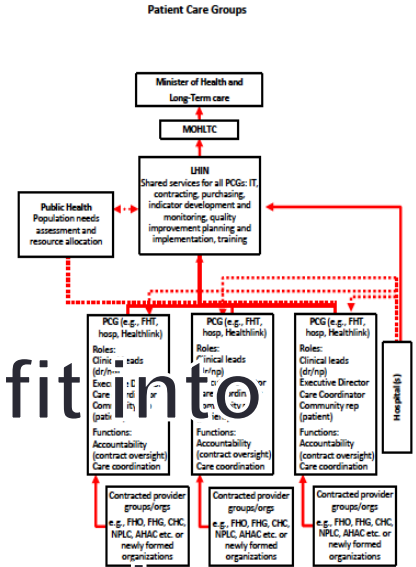
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Tranmer, J., Edge, D., Lukewich, J. & VanDenKerkhof, E.



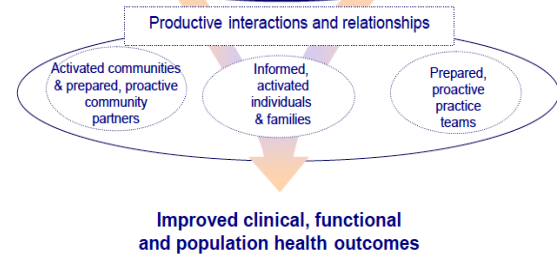
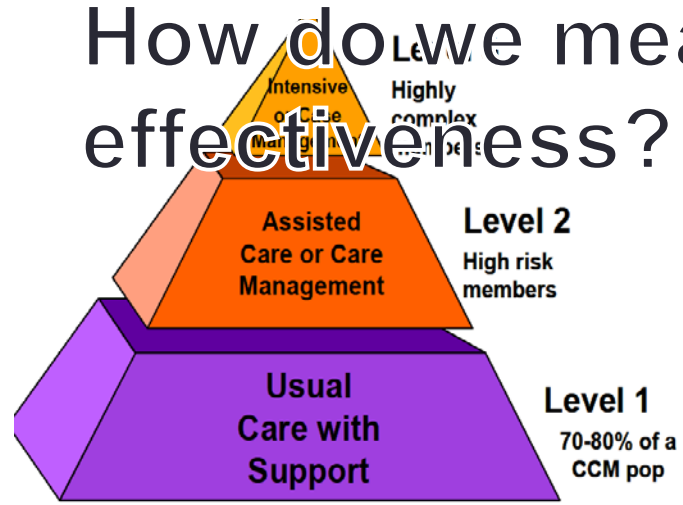
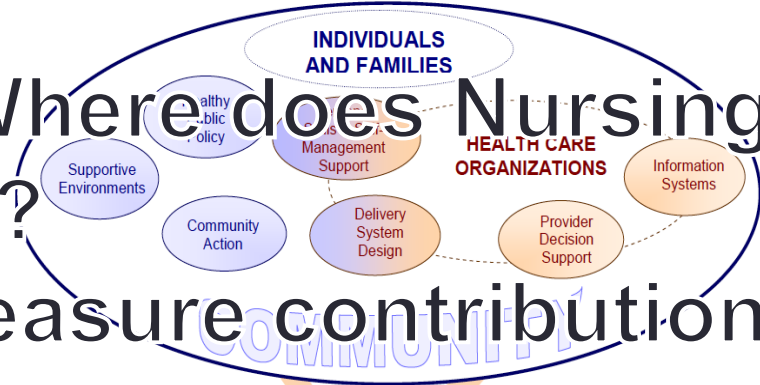


Ontario's Chronic Disease Prevention and Management Framework



Electronic tools for health information exchange Health technologies

Questions: Where does Nursing fit into these reforms?  
 How do we measure contribution and effectiveness?



# The start....

Defining and optimizing nursing contribution to chronic disease care within the primary care setting

CIHR, Meeting Planning Dissemination Grant, 2011-13

- Engaged with key stakeholders, health professionals, researchers and decision makers in a decision making process to inform research direction and priorities
  - Identified key research priorities relevant to Nursing
  - Reinforced directions and focus: complex patients, transitions, chronic illness
  - Established a research-practice network of collaborations within SELHIN

WHAT IS THE CURRENT  
PICTURE OF PRIMARY CARE  
NURSING?

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# Trends in nurse practitioners' prescribing to older adults in Ontario, 2000–2010: a retrospective cohort study

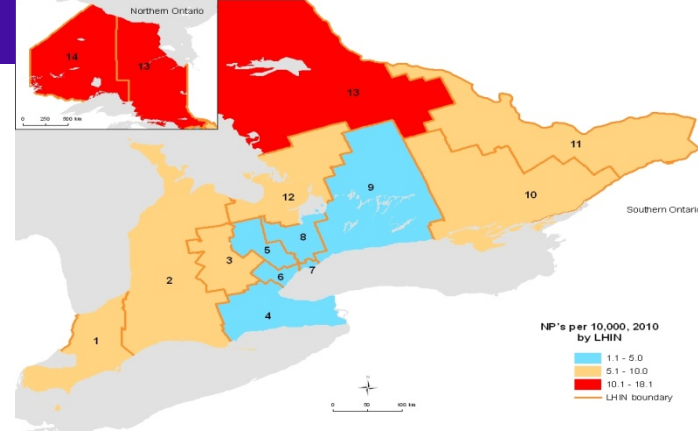
Joan E. Tranmer RN PhD, Lindsey Colley MSc, Dana S. Edge RN PhD, Kim Sears RN PhD, Elizabeth VanDenKerkhof RN DrPH, Linda Levesque BScPharm PhD

See related *CMAJ* commentary at [www.cmaj.ca/lookup/doi/10.1503/cmaj.150913](http://www.cmaj.ca/lookup/doi/10.1503/cmaj.150913)

# Methods

- Study cohort
  - All NPs in the Corporate Provider Database (CPDB) certified between 2000-2010 (Dec 31)
  - All Ontario residents  $\geq 65$  years, eligible for public health insurance, who submitted for dispensing at least one ODB claim prescribed by a NP
  - Geographical location: identifying address of first dispensed medication
- Comparator group
  - All prescription medications dispensed by family physicians in same time period
- Study databases
  - CPDB, ODB, RPDB, ICES Physician DB
- Descriptive analyses

# Some key findings



- The number of NPs prescribing to older adults steadily increased
- Prescribing patterns changed across the 10 years: episodic to chronic disease medications, similar to physicians
- Substantial variation across LHIN in number and proportion of NPs prescribing
  - Variation in response to population needs of older persons

# What about registered nurses?



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THE JOURNAL OF NURSING ADMINISTRATION

## Nursing Contributions to Chronic Disease Management in Primary Care

Julia Lukewich, RN  
Dana S. Edge, PhD, RN

Elizabeth VanDenKerkhof, DrPh, RN  
Joan Tranmer, PhD, RN



# Methods

- Descriptive, cross sectional provincial survey
- Sample: CNO registrants (RN, RPN, NP) who identified primary care as their work setting (n = 1900)
- Questionnaire: Modified based on a national survey conducted in Australia (Halcomb et al., 2007)
- Administered May – July 2011, (during a postal strike)
- ~ 20% response rate

# Key findings

- Roles
  - Approx. 40% of nurses reported that they did not have a clear job description and 25% reported that they did not practice within their scope of practice: need for role clarity
- Team composition and activities
  - NPs were undertaking many activities that were within the scope of practice of RNs and RPNs and substantial overlap between RN and RPN activities
- Variation in chronic disease management activities
  - Some nurses reported that they had access to clinical practice guidelines for support of chronic disease management activities
  - However, chronic disease management strategies were not uniformly implemented across practices and several chronic diseases were poorly represented

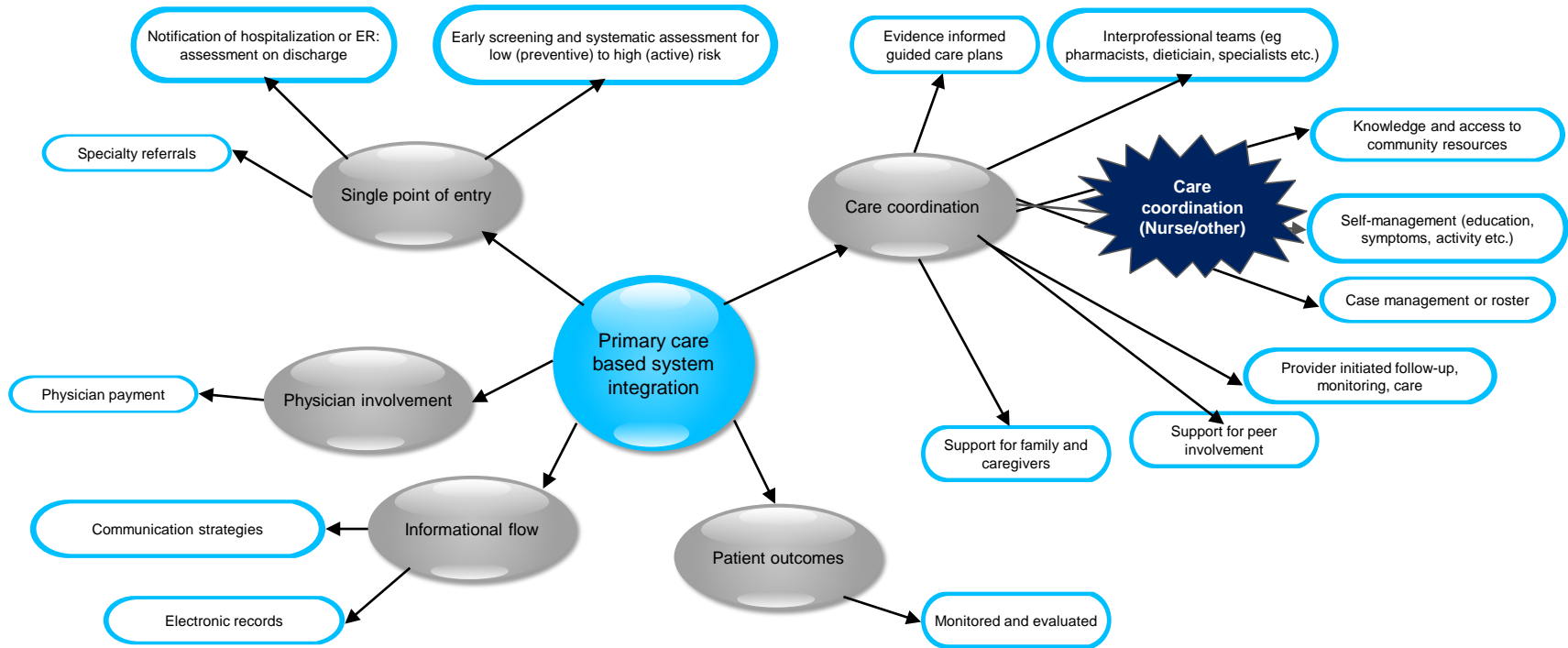
WHERE ARE NURSES (AND  
OTHERS) OPTIMALLY  
PLACED WITHIN THE  
SYSTEM TO CONTRIBUTE?

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# Strategies used within primary care to support system integration for patients with complex health care needs: a scoping review

Joan Tranmer, Dana Edge, Cheryl Chapman, Renee Corbin, Christine Godfrey, Julia Lukewich, Elizabeth VanDenKerkhof

Funding support: INSPIRE – PHC Applied Health Research Question



# Next step: Impact on outcomes

Evaluation of primary health care integration strategies for adults with chronic health conditions: a systematic review

CIHR Operating Grant SPOR PIHCI Network – Knowledge Synthesis Grant

- Identify and assess the quality of evidence on primary care based integration strategies and their impact on patient outcomes.
- Identify and synthesize common organizational attributes that support successful integration strategies for adults with complex health needs in primary care
- Meta-synthesis approach

# CHALLENGE: MEASURING THE IMPACT OF NURSING CONTRIBUTION

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**Association between registered nurse staffing and management outcomes of patients with type 2 diabetes within primary care: a cross-sectional linkage study**

Julia Lukewich RN PhD, Dana S. Edge RN PhD, Elizabeth VanDenKerkhof RN DrPH, Tyler Williamson PhD, Joan Tranmer RN PhD



# Approach

- Purpose: To examine the relationship between primary care delivery models that incorporate RNs and health outcomes in patients with Type 2 diabetes
- Methods: Data linkage study. Organizational survey data from primary care practice sites in SELHIN was linked with patient level data housed at CPCSSN
- Practice sites: 8 FHT which included 15 practice locations

**Table 1: Provider and patient profiles across Family Health Team practices in fiscal year 2013/14**

Practice no.	No. of patients with diabetes mellitus	Providers			Patients			
		No. of GPs	No. of RNs	No. of patients with diabetes per RN	Male, no. (%)	Age, yr, mean $\pm$ SD	Age $\geq$ 65 yr, no. (%)	$\geq$ 1 comorbid condition, no. (%)
All	6673	–	–	–	3415 (51.2)	65.1 $\pm$ 14.0	3690 (55.3)	4734 (70.9)
1	735	18	4	184	352 (47.9)	62.4 $\pm$ 14.1*	335 (45.6)	507 (69.0)
2	295	5	1	295	158 (53.6)	63.2 $\pm$ 14.9†	144 (48.8)	212 (71.9)
3	315	2	0	NA	155 (49.2)	67.3 $\pm$ 14.5	190 (60.3)	264 (83.8)
4	208	4	3	69	91 (43.8)	65.5 $\pm$ 13.1	129 (62.0)	196 (94.2)
5	809	8	2	405	457 (56.5)	66.2 $\pm$ 13.0	493 (60.9)	375 (46.4)
6	392	2	1	392	233 (59.4)	66.0 $\pm$ 13.2	234 (59.7)	334 (85.2)
7	542	7	4	136	251 (46.3)	63.8 $\pm$ 14.0†	277 (51.1)	417 (76.9)
8	832	8	6	139	447 (53.7)	67.0 $\pm$ 14.5	499 (60.0)	627 (75.4)
9	647	2	2	324	282 (43.6)	62.5 $\pm$ 14.0*	305 (47.1)	332 (51.3)
10	191	5	2	96	80 (41.9)	64.7 $\pm$ 14.4	94 (49.2)	141 (73.8)
11	304	6	2	152	172 (56.6)	66.4 $\pm$ 13.4	183 (60.2)	235 (77.3)
12	170	2	4	42	86 (50.6)	68.5 $\pm$ 12.8	112 (65.9)	143 (84.1)
13	448	5	0	NA	233 (52.0)	63.7 $\pm$ 14.0‡	237 (52.9)	353 (78.8)
14	504	13	6	84	266 (52.8)	66.0 $\pm$ 13.4	292 (57.9)	432 (85.7)
15	281	4	1	281	152 (54.1)	66.2 $\pm$ 13.8	166 (59.1)	166 (59.1)

Note: GP = general practitioner, NA = not applicable, RN = registered nurse.

\* $p < 0.05$  compared with practices 3, 5, 6, 8, 11, 12, 14 and 15.

† $p < 0.05$  compared with practices 3, 8 and 12.

‡ $p < 0.05$  compared with practices 8 and 12.

**Table 4: Proportions of patients within practices with at least 1 registered nurse who met recommended targets for diabetes management indicators, across quartiles of patients with diabetes per registered nurse**

Variable	Management indicator				
	Hemoglobin A <sub>1c</sub>	Fasting blood glucose	Blood pressure	Low-density lipoprotein cholesterol	Urine albumin: creatinine ratio
No. of patients	2372	1378	1916	2036	826
Patients per registered nurse, no. (%), quartile					
Q1: ≤ 90 patients	744 (31.4)*	346 (25.1)*	552 (28.8)	611 (30.0)	204 (24.7)
Q2: 91–152 patients	906 (38.2)	567 (41.1)	635 (33.1)	751 (36.9)	366 (44.3)
Q3: 153–310 patients	482 (20.3)	315 (22.9)*	282 (14.7)†	430 (21.1)*	153 (18.5)
Q4: ≥ 311 patients	240 (10.1)	150 (10.9)	447 (23.3)	244 (12.0)	103 (12.5)
F-test	4.02	2.94	9.27	2.95	2.46
<i>p</i> value	< 0.01	0.03	< 0.01	0.03	0.06

\**p* < 0.05 for difference with Q4 (analysis of variance).

†*p* < 0.05 for difference with all other quartiles (analysis of variance).

# Proposed activities: next steps to address the complexity

- Pan- Ontario study: team composition
  - Population level analysis with data linkage (n = 372 CPCSSN sentinels)
  - Case-study analysis (performers and non-performers)
  - Other complex conditions (diabetes, depression, hypertension)
- Submitted to the HSRF (Targeted Nursing Research)
  - Focus on nursing contribution
- To be submitted to CIHR project scheme
  - Focus on team composition and contribution
- Others –”in the works”

# Acknowledgments and thank you

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  - M. Kirkland
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- Institute of Clinical and Evaluative Sciences

