

### Context

Patients with chronic conditions account for approximately 75% of health care expenditures and experience avoidable complications and exacerbations of their conditions due to fragmented, low-quality, and uncoordinated care.<sup>1</sup> Research demonstrates that nurse-based care management and health information technology (IT) can improve clinical outcomes for patients with chronic diseases in urban settings.<sup>2,3</sup> Dissemination of care management models to small- to mid-sized rural practice settings has not previously been studied.<sup>4</sup>

### Objective

The overall study sought to evaluate the feasibility and acceptability, impact on clinical outcomes, and business case of implementing a nurse-based care management and health IT intervention in rural primary care called Care Management Plus (CMP). Here we identify themes emerging from a series of interviews with four clinic cohorts regarding barriers and facilitators to successful program implementation.

### Study Design

Early intervention clinics were matched with delayed intervention control practices. Pre- and post-intervention semi-structured interviews were analyzed using grounded theory.

#### Selected key characteristics of study clinics

Intervention Group	Immediate			Delayed		
	Family Medicine	Family Medicine	Pediatrics	Family Medicine	Family Medicine	Pediatrics
Physicians	9	4	4	3	7	5
Other Clinicians	3	4	0	4	4	2
Patients in Practice	11,312	9,936	6,180	6,627	12,647	12,813
Business Model	Not for profit	Private practice	Private practice	Not for profit	Not for profit	Private Practice
Electronic Health Record	NextGen	Centricity	Practice One	Epic	Epic	Misys Healthcare



#### Participants

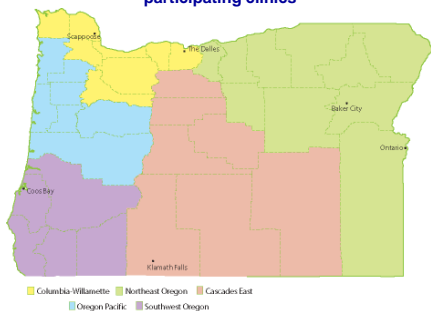
Clinician champions, clinicians, clinic administrators, and care managers. Total of 45 pre- and 36 post-intervention interviews.

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### Oregon Rural Practice-based Research Network participating clinics



#### Setting

Six primary care clinics associated with the Oregon Rural Practice-based Research Network.

#### Intervention

A nurse care manager (NCM) and the Care Management Tracking Software health IT system were introduced to the study clinics.

NCMs were trained to:

- identify barriers to care and intervene;
- coordinate resources;
- teach patients to implement self-management strategies; and
- demonstrate quality and cost-effectiveness outcomes.

Clinicians were encouraged to refer patients based on a variety of medical and social factors. A software algorithm pre-selected patients with one or more chronic conditions who might benefit from program referral.

#### Outcome Measures

- Perceived barriers to delivering chronic illness care
- Challenges of practice change
- Facilitators of successful CMP implementation

#### Acknowledgements

The research team thanks the six practices that made this intervention a priority in their busy clinical settings. This project was supported by contract number H5SA29020071000161 (Task Order 5) from the Agency for Healthcare Research and Quality. Care Management Plus program development and training is generously supported by the John A. Hartford Foundation.

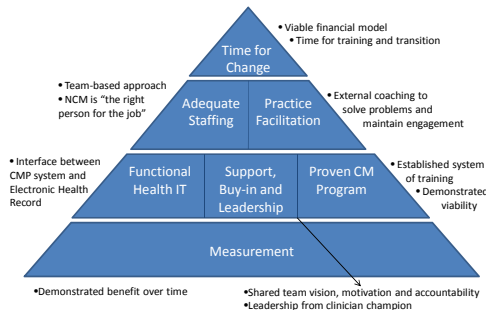
### Principal Findings

#### Barriers to Successful Implementation

Barriers included lack of patient resources or willingness to change behavior; clinician time, payment structure, and other resource concerns; role definition clarity; and IT implementation challenges.

	Barriers to Chronic Disease Management in Current Practice	Barriers to Practice Change (Implementing Nurse Care Management)
<b>Patient Factors</b>	<ul style="list-style-type: none"> <li>• Behavioral barriers</li> <li>• Lack of patient resources</li> </ul>	<ul style="list-style-type: none"> <li>• Resistance to Change in Procedures, provider interactions</li> </ul>
<b>Clinic Factors</b>	<ul style="list-style-type: none"> <li>• Access to care</li> <li>• Time: payment structure and 15-minute office visits</li> <li>• No patient registries and reminders</li> </ul>	<ul style="list-style-type: none"> <li>• Clarifying role definitions,</li> <li>• Resources: time and money</li> <li>• Resistance to practice change</li> <li>• IT implementation challenges</li> <li>• Support from clinic administration</li> </ul>

#### Key Facilitators to Successful Implementation



### Qualitative Themes of Ideal Outcomes, Post-Implementation Successes, and Facilitators and Challenges to Successful Implementation

Pre-Implementation Interviews	Post-Implementation Interviews		
Ideal Outcomes	Post-Implementation Successes	Facilitators of Success	Challenges to Success
Care coordination and patient follow-up	NCM incorporated into routine care	NCM is "the right person for the job"	Finding the right person for the NCM Role
Improved patient outcomes/quality of care	Systematic way to track care and communicate outcomes	Leadership across cohorts	Limited clinic resources (i.e., time, financing, personnel)
Increased clinic efficiency	Improved patient care and clinical/community services	Developing a team based care approach	Lack of support from clinic administration/management

#### In the words of the practice staff...

"Clarity of task, direction from leadership, organization of the team and empowerment of staff" were critical to implementation success. – Clinician

"If administration doesn't support it, it won't happen." –Lead Clinician

"The [use of NCM] increased... once the clinicians had a good experience with the process... providers need to develop a better mind-set that they have another 'team member' to rely upon." –Care Manager

"It's nice to know there is something else to offer these patients other than another normal office visit." –Clinician

"It was good to have a connection with OHSU and that gave the group the feeling they were doing important work and part of something bigger." –Administrator

### Conclusions

Clinician leadership and buy-in at all clinic levels are critical to CMP success. Researchers must work within a clinic's workflow and data management systems and adapt study timelines/goals to fit clinic realities.

#### References

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