iCOACH

Using Information Communication Technology in Models of Integrated Community-Based Primary Health Care: Exploring ICT in the iCOACH Study

Carolyn Steele Gray PhD,
Scientist, Bridgepoint Collaboratory, Lunenfeld-Tanenbaum Research Institute, Sinai Health System,
Assistant professor (status), Institute of Health Policy, Management and Evaluation, University of Toronto. Toronto, ON, CANADA

International Conference on Integrated Care. May 10 2017

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Team (evolving)

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Principal Investigators
Tim Kenealy
Walter Wodchis
Mylaine Breton
Nicolette Sheridan

Principal Knowledge Users
Karen Evison
Melissa Farrell
Frederika Scarth
Denis Roy

Knowledge Users
James Meloche

Patient and Family Caregiver
Frank Hanson
Rhene Hanson

Health Services Researchers
Geoff Anderson
Toni Ashton
Ross Baker
Jan Barnsley
Peter Carswell
Yves Couturier
Jean-Louis Denis
Janet Durbin
Gaya Embuldeniya
Dominique Gagnon
Anna Kone
Kerry Kuluski
Ann McKillop
Fiona Miller
John Parsons
Juliet Rumball-Smith
Jay Shaw
Carolyn Steele Gray
A Paul Williams

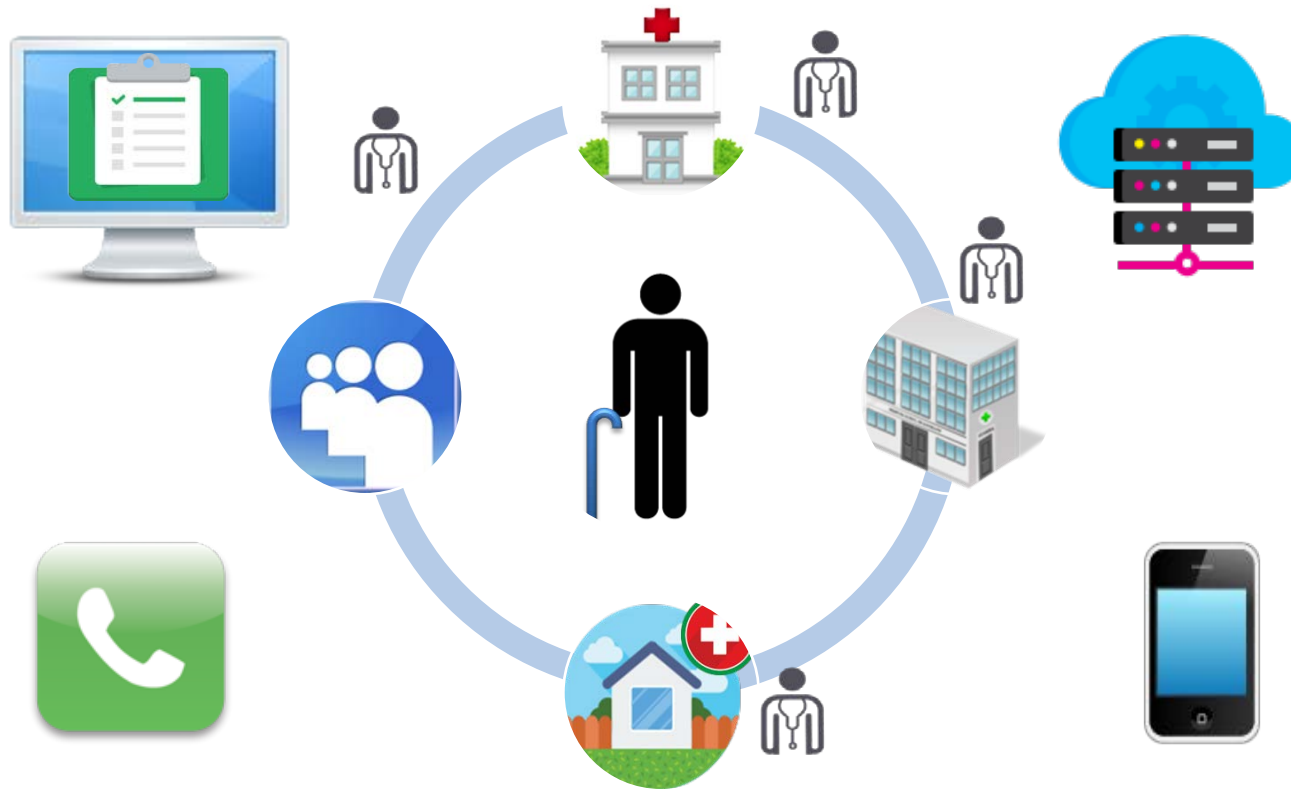**Clinical Investigators**
Martin Connelly
Ross Upshur

Collaborators
Michal Boyd
Reid Papaarangi
Te Tuhi Robust

Advisors
Nick Goodwin
Ed Wagner

Trainees
Louise Belzile
Anum Khan
Andrew Lynch
Frances Morton-Chang
Allie Peckham
Cecilia Wong

ICT enabled person-centred integrated care

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- Model of care is particularly useful for patients with complex care needs

Institute of Medicine, Crossing the Quality Chasm: A New Health System for the 21st Century. Washington, DC: National Academies Press; 2001.

Boyd, C.M. and M. Fortin, Future of multimorbidity research: how should understanding of multimorbidity inform health system design? Public Health Reviews, 2010. 32(2): p. 1.
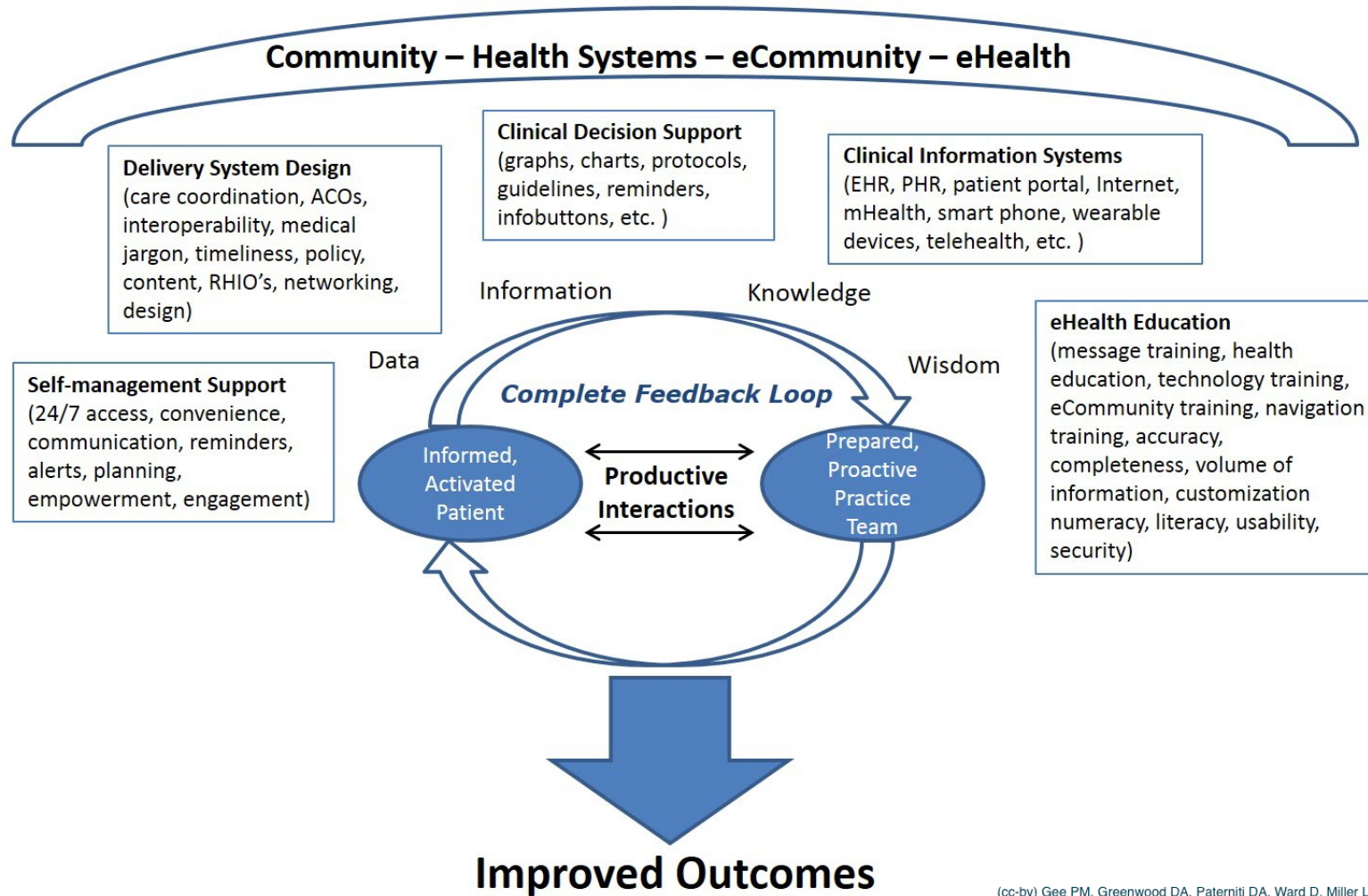
- ICT identified as a key enabler to support delivery of integrated care

Protti D. Integrated Care Needs Integrated Information Management and Technology. Healthcare Quarterly. 2009; 13:24-29

Stroetmann et al. WHO Policy Brief. How can telehealth help in the provision of integrated care? 2010. ISSN 1997-8073

All icon images from www.iconfinder.com

eHealth enhanced Wagner's Chronic Care Model

Community – Health Systems – eCommunity – eHealth

Delivery System Design
(care coordination, ACOs, interoperability, medical jargon, timeliness, policy, content, RHIO's, networking, design)

Clinical Decision Support
(graphs, charts, protocols, guidelines, reminders, infobuttons, etc.)

Clinical Information Systems
(EHR, PHR, patient portal, Internet, mHealth, smart phone, wearable devices, telehealth, etc.)

Information

Knowledge

Data

Wisdom

Self-management Support
(24/7 access, convenience, communication, reminders, alerts, planning, empowerment, engagement)

Complete Feedback Loop

Informed, Activated Patient

Productive Interactions

Prepared, Proactive Practice Team

eHealth Education
(message training, health education, technology training, eCommunity training, navigation training, accuracy, completeness, volume of information, customization numeracy, literacy, usability, security)

Improved Outcomes

(cc-by) Gee PM, Greenwood DA, Paterniti DA, Ward D, Miller LMS
J Med Internet Res 2015;17(4):e86, http://www.jmir.org/2015/4/e86/

- CCM used as best practice model for person with chronic and complex conditions
- Gee and colleagues use Theory Derivation to expand on core components of CCM
  - eHealth education
  - Community based supports
  - Productive interactions

Gee et al. 2015. The eHealth enhanced Chronic Care Model: A Theory Derivation Approach. *JMIR*, 2015; 17(4):e86

Implementing integrated Care for Older Adults with Complex Health needs (iCOACH) Study

iCOACH

The iCOACH study seeks to understand **implementation** of integrated models of community based primary health care (CBPHC) through international comparative case studies

"Models of integrated CBPHC (ICBPHC) are comprehensive, person-oriented, health promoting, strengths-based, and without a singular disease focus. They also address problems of inequity in health and risk across population sub-groups." (Wodchis et al, in press, IJIC)

Settings:

- Networks (primary care, home care, hospitals/acute, rehab, outreach, etc.)

- Primary health/general practice lead

- Home and/or Community agency led

- Regional models

3 cases

3 cases

3 cases

eHealth and ICT across iCOACH cases
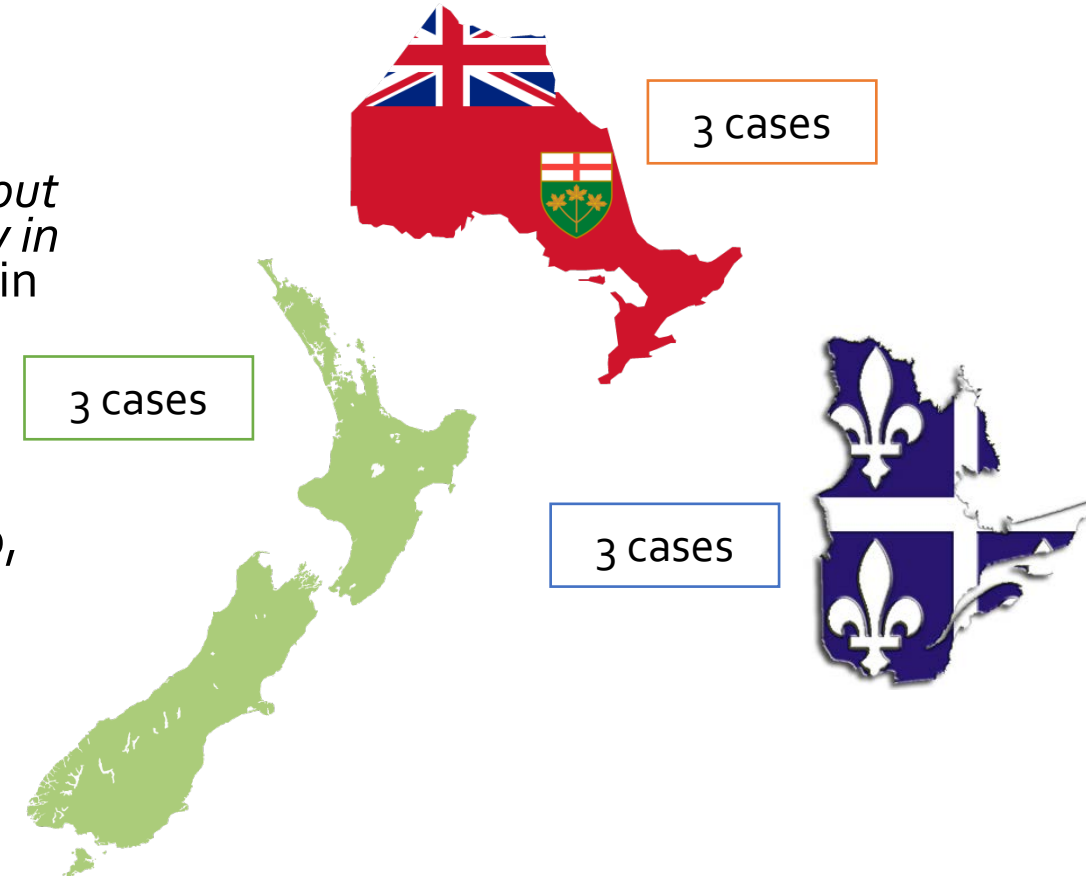
Sought to uncover:

1. The role ICT plays in the model of care with regard to important activities of integrated care

2. Types of ICT systems adopted, and

3. The perceived value of systems from the perspective of health care providers and organizational managers and leaders.

Methods

- Secondary analysis of case study data from iCOACH study
  - Pulled relevant coded data around ICT from interviews with providers and managers from all 9 case sites (some survey data available but not across all 9 cases)
- Data relating to ICT use coded using our analysis framework driven by the CCM and our three areas of inquiry
- Iterative coding approach
  - Leads for each jurisdiction
  - Double coding a subset of data to validate the coding structure
  - Built consensus on anticipated and emergent themes
- Generated tables of findings for each of the 9 cases were generated and consolidated into single jurisdictional tables to simplify within case and cross case analysis

Case overviews

	Ontario	Quebec	New Zealand
Cases	1. Community agency* 2. Primary care and home care 3. Community Health Centre	Single model rolled out in three geographic areas 1. Highly urban 2. Urban 3. Rural	1. Canterbury Clinical Network 2. Ki A Ora Ngatiwai 3. Manawanui Whai Ora Kaitiaki (MWOK) in Hauraki Primary Health Organization
Participants	1. Providers (n=); Managers (n=) 2. Providers (n=8); Managers (n=10) 3. Providers (n=7); Managers (n=6)	1. Providers (n=14); Managers (n=12) 2. Providers (n=8); Managers (n=9) 3. Providers (n=7); Managers (n=11)	1. Providers (n=4); Managers (n=6) 2. Providers (n=7); Managers (n=2) 3. Providers (n=8); Managers (n=2)

Integrated care activities supported by ICT

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Activities	Ontario			Quebec	New Zealand		
	CA*	P+HC	CHC		CN	NG	HA
Case finding	✗	✓	✗	✗	✗	✗	✓
Informed management decisions	✗	✗	❓	✓	✓	✓	✗
Eligibility & assessment	✓	✗	✗	✓	✓	✓	✓
Care planning	✓	✓	✓	✓	✓	✓	✓
Supporting self-management	✗	✓	✗	✗	✓	✓	✗
Prevention activities	✓	✓	✗	✗	✗	✓	✓
Monitoring	✗	✓	✗	✓	✓	✓	✗
Supported clinical decision-making	✗	✗	✓	✓	✓	✓	✓
Referrals	✗	✓✗	✗	✓	✓	✓	✓
Quality improvement	✓	✓	✓	✓	✓	✓	✓
Organization strategic planning	✗	✓	✗	✓	✗	✗	✗

Integrated care activities supported by ICT

Activities	Ontario			Quebec	New Zealand		
	CA*	P+HC	CHC		CN	NG	HA
Case finding	✗	✓	✗	✗	✗	✗	✓
Informed management decisions	✗	✗				✓	✗
Eligibility & assessment	✓	✗				✓	✓
Care planning	✓	✓	✓	✓	✓	✓	✓
Supporting self-management	✗	✓	✗				✗
Prevention activities	✓	✓	✗				✓
Monitoring	✗	✓	✗				✗
Supported clinical decision-making	✗	✗	✓	✓	✓	✓	✓
Referrals	✗	✓✗	✗				
Quality improvement	✓	✓	✓				
Organization strategic planning	✗	✓	✗				

Often a static care plan that sits in an EMR as a form where only some of the care team has writing privileges

Most often around accessing evidence-based guidelines.
**CN has peer-support

Valued by leaders in collecting performance measure data - however not all providers see that data as important/relevant to integrated care

Types of ICT: An important distinction

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Technology-assisted information storage

- Collection and storage of patient information
- Most common across all case sites often EMRs, and other health information storage systems linked to particular practices and/or profession
- Includes organizational, regional and system level data systems

Technology-assisted information exchange

- Technology supporting communication between providers, organizations and individuals and their families receiving care
- Can occur within a single clinic or across settings
- Can be supported through multiple forms of technologies (EMR, PHRs, mobile apps, telemonitoring, platforms, messaging systems)

Clinical information systems

Clinical decision support

Delivery system design

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Types of ICT

Telemedicine

Online resources

Primary care

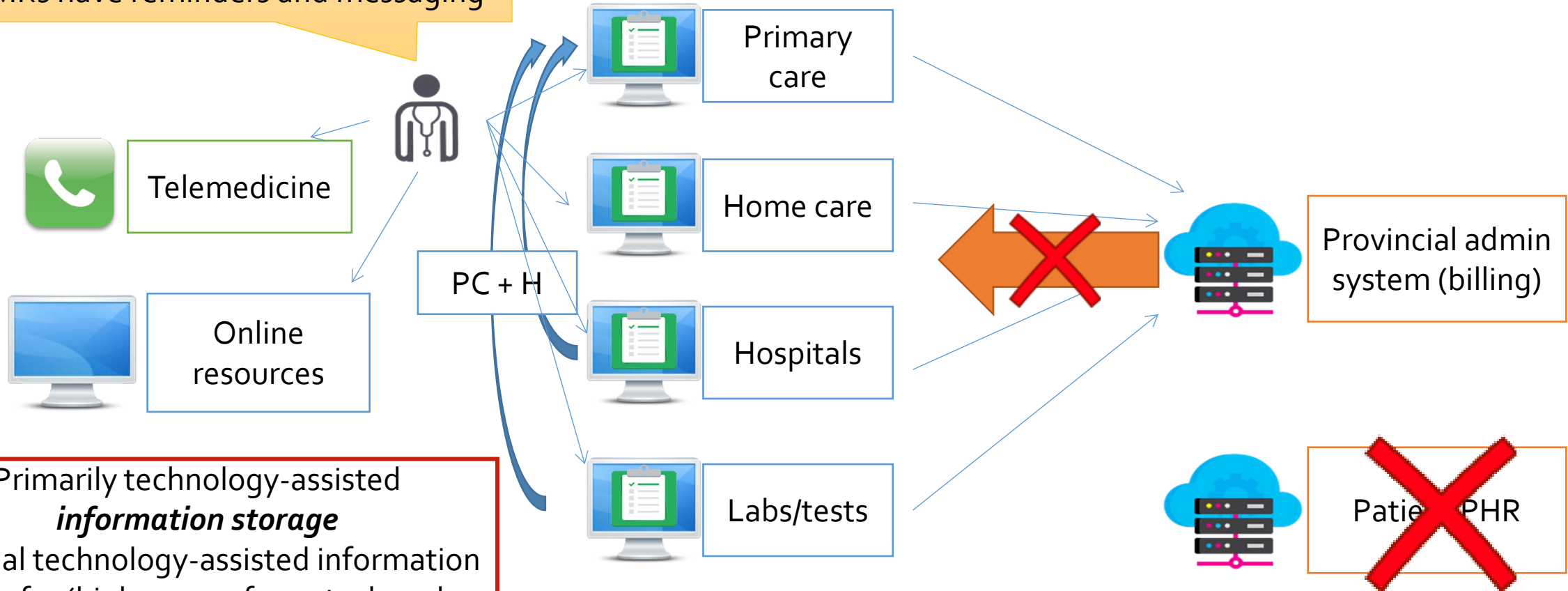Home care

Hospitals

Labs/tests

Regional/ provincial systems

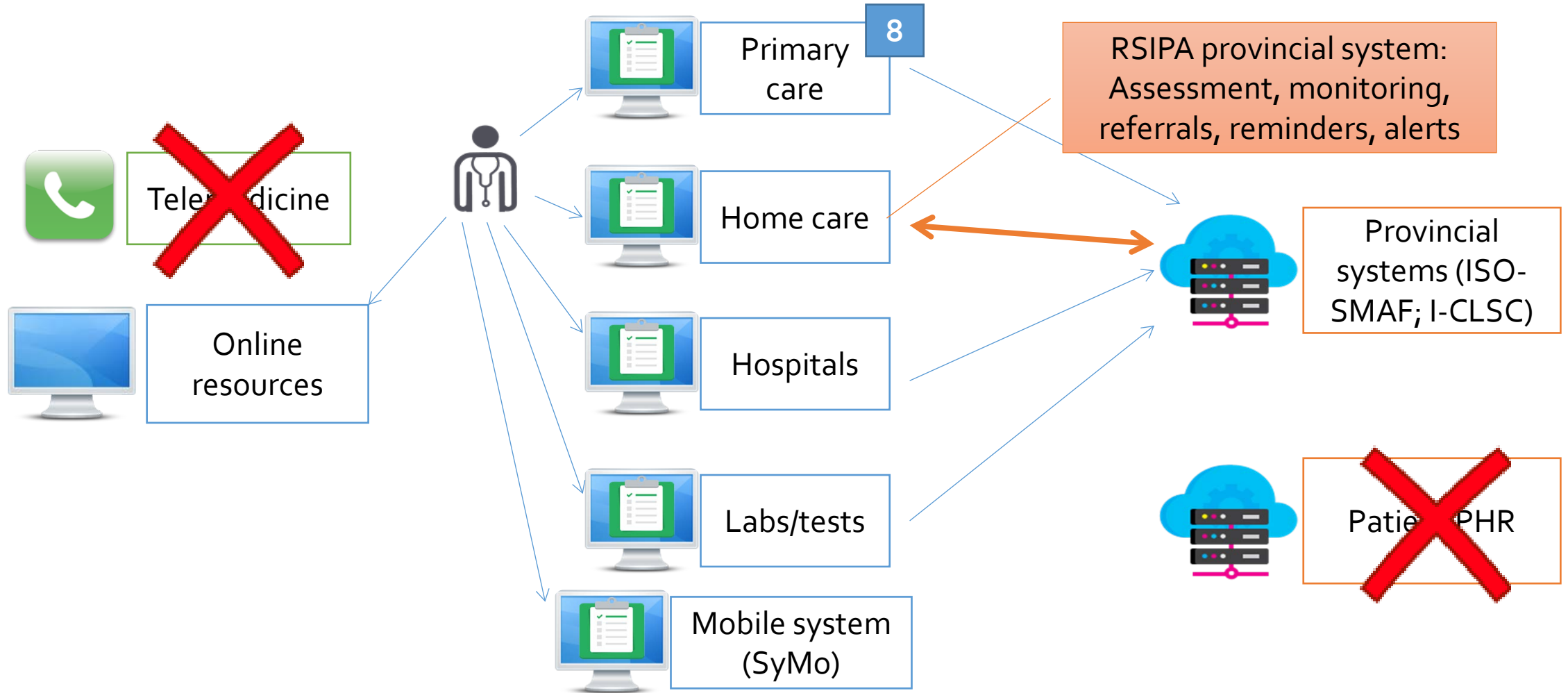Patient PHR

Ontario: ICT systems used by cases

EMRs have reminders and messaging

Telemedicine

Online resources

PC + H

Primary care

Home care

Hospitals

Labs/tests

Provincial admin system (billing)

Patient PHR

Primarily technology-assisted *information storage*
Minimal technology-assisted information transfer (higher use of non-tech and workarounds)

Quebec: ICT systems used by cases
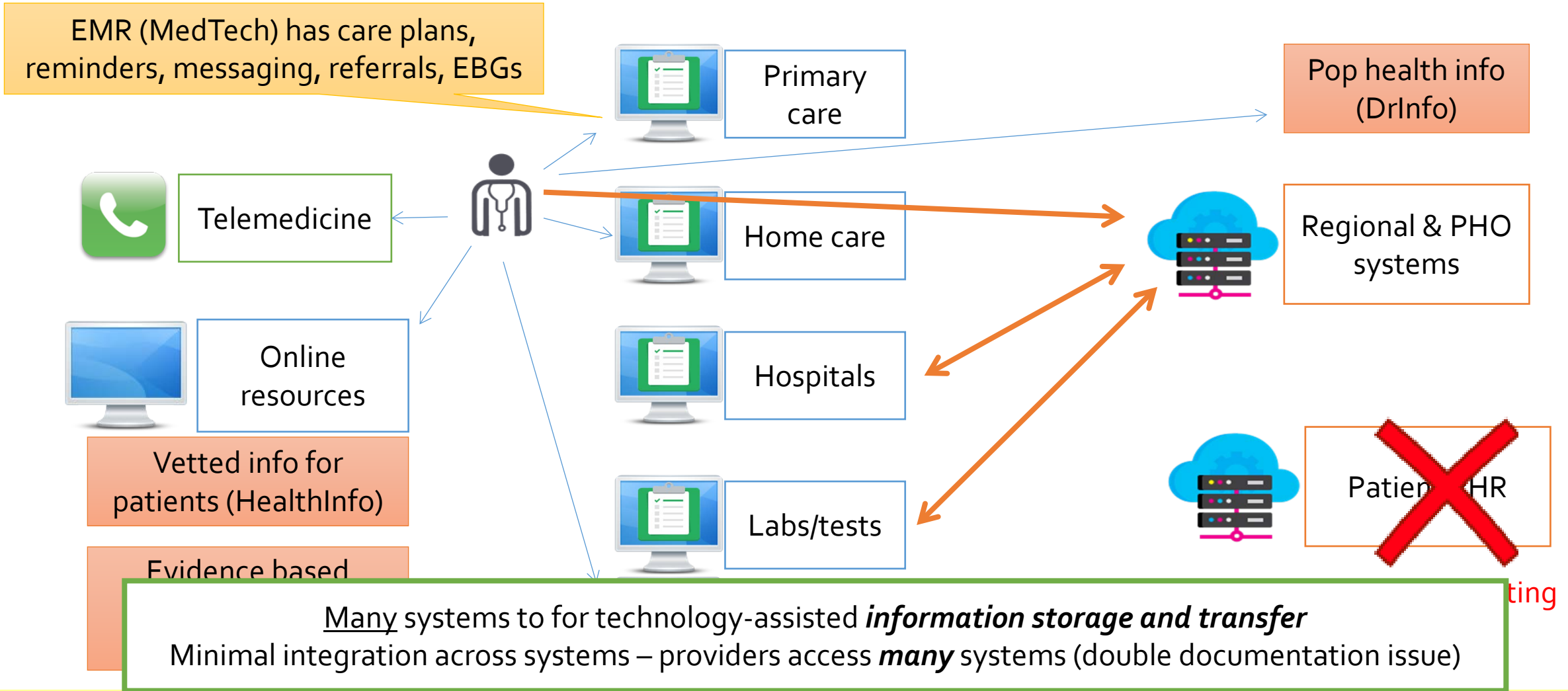

Telemedicine

Online resources

Primary care **8**

Home care

Hospitals

Labs/tests

Mobile system (SyMo)

RSIPA provincial system: Assessment, monitoring, referrals, reminders, alerts

Provincial systems (ISO-SMAF; I-CLSC)

Patient PHR

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EMR (MedTech) has care plans, reminders, messaging, referrals, EBGs

Primary care

Pop health info (DrInfo)

Telemedicine

Home care

Regional & PHO systems

Online resources

Hospitals

Vetted info for patients (HealthInfo)

Patient HR

Evidence based

Labs/tests

ting

Many systems to for technology-assisted *information storage and transfer*
Minimal integration across systems – providers access *many* systems (double documentation issue)

Valued

- Available systems support care delivery, planning, and coordination highly valued
  - In NZ having access to PHO and regional level data was very important and helped ensure continuity and avoid *"starting again from scratch"* at each patient encounter (Provider NG, AM03)
- Key valued enabler is integration of some systems (e.g. care plans) into EMRs which prompt use to increase adoption (QC and NZ)
- Integration of information highly valued, particularly in the Ontario case where EMRs were integrated from primary care to hospital

"Having that direct integration of reports [between hospital and primary care EMR] *is amazing"* (PC provider, SE-06)

- Availability of telemonitoring viewed as critical for complex patients
- Access to real-time data to inform decision-making
- Remote access to systems - *"we're not isolated anymore."* (Provider CN, RS04)
- Some reported efficiency gains and cost reductions (H-U case)

Common challenges

- Access to systems varied by profession and sector
  - Privacy concerns act as barriers to integration
- Still engaging in double documentation (no remote access in patient homes)
- Many workarounds to incomplete and non-connected systems
- Provider resistance and engagement (lack of training)

"It's more time consuming clicking, clicking, clicking... it's straightforward if we discuss face-to-face" (CHC provider, UN-19)

- Implementation issues (e.g. lack of processes)
- No patient/family access to information
- Competing values
  - Not all providers value systems the same
  - Conflicts between org-level use of data and provider interests
- Integration across multiple systems
  - Needing to manage multiple systems

"And then, I take all that information from it and then I try to transfer that as clearly and as concisely as I can onto the two computer systems, copy and paste, onto CCMS, over to Health Connect South, so that if a GP is… have time to sit there and think, 'Oh I might have a look at that client,' out of the blue, which is a reality. But, I can also then… the Community Service Teams are on there as well and Psych are on there and I can have a look at their notes and get some background. But, I put all that on, and then the case manager has to spend her time look at that end and reading all that as well […] whereas if a provider coordinate it, to me, it would be better if we could just try and streamline it a little bit." (CN TK08)

Discussion

1. ICT primarily EMR systems designed for asynchronous documentation.
2. Varying levels of integration that can be understood as existing along a spectrum [no integration → fully integrated]
   - ⬆ # systems → ⬆ fragmentation
3. Access issues to ICT for different providers, patients and families
4. User-friendliness of systems can lead to avoidance behaviours
5. ICT is highly valued when seen as relevant, addressing an actual perceived need, and sufficiently tailored to workflow
6. Implementation of ICT enabled through:
   - strong managerial and clinical leadership
   - availability of needed resources (like staff and training)
   - clearly established processes
   - establishment of strong trust-based relationships (particularly when cross organizational boundaries)

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Limitations

- Cases not necessarily representative of ALL ICT efforts in each jurisdiction
  - AND, based on provider/manager *perception* of what was available
- Advances already made in certain areas since time of data collection (2014-2015)
- Perceived value not explicitly asked about in interviews so we may have missed some issues here (that being said individuals offered freely their opinions of technology without need for much prompting)

Concluding thoughts

- Next step is comparing findings to an exploration of the policy landscapes in each jurisdiction to make directed policy recommendations based on findings

- Integrated care requires we think differently about the ICT systems we adopt – need to move beyond legacy "filing-style" systems towards innovative and disruptive systems that change the model of care

Up for Debate
- Adopt new tech?
- Modify use of existing?

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Thank you

Carolyn.SteeleGray@sinaihealthsystem.ca