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

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Team (evolving)

**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

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


• ICT identified as a key enabler to support delivery of integrated care


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

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eHealth enhanced Wagner’s Chronic Care Model

- 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

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

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
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

<table>
<thead>
<tr>
<th>Cases</th>
<th>Ontario</th>
<th>Quebec</th>
<th>New Zealand</th>
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</thead>
</table>
| 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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**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

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)
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

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

- **Provincial admin system (billing)**
- **Patient PHR**
Quebec: ICT systems used by cases

- Telemedicine
- Online resources
- Primary care
- Home care
- Hospitals
- Labs/tests
- Mobile system (SyMo)
- RSIPA provincial system: Assessment, monitoring, referrals, reminders, alerts
- Provincial systems (ISO-SMAF; I-CLSC)
- Patient PHR

DICU
New Zealand: ICT systems used by cases

- **EMR (MedTech)** has care plans, reminders, messaging, referrals, EBGs
- **Telemedicine**
- **Online resources**
- **Vetted info for patients (HealthInfo)**
- **Evidence based**

**Primary care**

**Home care**

**Hospitals**

**Labs/tests**

**Pop health info (DrInfo)**

**Regional & PHO systems**

**Patient PHR**

Many systems to for technology-assisted *information storage and transfer*

Minimal integration across systems – providers access *many* systems (double documentation issue)
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 TKo8)
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 \( \rightarrow \) fully integrated]
   - \( \uparrow \) # systems \( \rightarrow \) \( \uparrow \) 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)
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?
Thank you

Carolyn.SteeleGray@sinaihealthsystem.ca