Achieving the Potential of Primary Care with Digital Tools

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Older adults who waited >=6 days for an appointment, %

- Germany: 34%
- Canada: 29%
- Sweden: 28%
- Norway: 26%
- UK: 24%
- France: 22%
- US: 18%
- Switzerland: 12%
- Australia: 9%
- Netherlands: 8%
- New Zealand: 7%

Source: 2017 Commonwealth Fund International Health Policy Survey of Older Adults
Older adults who had difficulty getting after-hours care without going to the ED

Source: 2017 Commonwealth Fund International Health Policy Survey of Older Adults
Isn’t tech supposed to solve this?
Primary care practice provides patient with electronic access, %

- Switzerland: 80%
- Sweden: 60%
- US: 55%
- Netherlands: 55%
- New Zealand: 50%
- Germany: 45%
- UK: 40%
- Norway: 35%
- Australia: 30%
- Canada: 15%

Source: 2015 Commonwealth Fund International Health Policy Survey of Older Adults
IT productivity paradox
IT productivity paradox
IT productivity paradox
How to overcome the IT productivity paradox?

Build better tools

Reimagine the work
Key Questions

01 How do we know if the tools work?

02 How do we build better tools?

03 What new models of care could unlock their potential?
How do we know if the tools work?
Managing Uncertainty

Source: Osterwalder et al, 2014
Health services

Design/evaluation process

01 Design thinking
- Define problems
- Generate solutions

02 Quality improvement
- Standardize processes

03 Implementation science
- Measure impact
Health services

Design/evaluation process

01 Design thinking
- Define problems
- Generate solutions

02 Lean startup
- Test problem/solution fit

03 Quality improvement
- Standardize processes

04 Implementation science
- Measure impact
Design thinking

Define problems
Generate solutions

What are the problems?
Convergent

What are some solutions?
Convergent

Discover Define Develop Deliver

Divergent

Solution
Search

User Discovery → User Validation

Search

User Discovery → User Validation

Pivot
Change user, intervention or outcome

Standardize processes
To control bias and rigorously measure impact, you have to fix all key parameters:

- Population
- Intervention
- Control
- Outcome
Build better tools

- Virtual visits
- Care coordination platforms
- Remote monitoring
Evaluation & Service Design

Current State

Team

Routine
Evaluation & **Service Design**

- **Current State**
  - Team
  - Routine

- **Tool**
  - Clear value propositions for all users

- **Re-configured State**
  - Routine
  - Team

Shaw et al, *Nature Digital Medicine*, 2018
Building Blocks of Modern Primary Care

Virtual visits
Building Blocks of Modern Primary Care

Virtual visits

Care coordination platforms
Building Blocks of Modern Primary Care

Virtual visits

Care coordination platforms

Remote monitoring
Virtual visits

Building Block #1
#1: Virtual visits

- Text or video
- Billing
- Stand alone

Tool

Routine
- Respond in 2 hours
- Respond in 2 days

Team
- Patient
- Family doctors
- On-call doctors
#1: Virtual visits

Text or video
Billing
Stand alone

Tool

Routine

Team

Patient
Family doctors
On-call doctors

Respond in 2 hours
Respond in 2 days
PARTICIPANTS

<table>
<thead>
<tr>
<th>Regions in Ontario</th>
<th>Primary care providers &gt;=1 visit</th>
<th>Patients registered</th>
<th>visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>194</td>
<td>14,291</td>
<td>14,317</td>
</tr>
</tbody>
</table>
#1: Virtual visits

14,317 e-Visits

**e-Visits (N=14,317)**
- Asynchronous message alone: 82%
- Did not require follow-up: 81%

**Patients' experience (N=1742)**
- Replaced face-to-face visits with own MD: 67%
- Same or better than in-person: 98%
- Saved patient's time: 93%
- Saved patient's money: 75%
Managing communication channels
Next steps

01 Understand the fit between medium & context
   Patient, problem & provider

02 Invest in workflow redesign, training & analytics
   • Triage: AI/nurse suggests a modality
   • Patients learn to request/use the best modalities
   • Clinicians learn what works best for them
Building Block #2

Virtual visits

Care coordination platforms
#2: Care coordination platforms

[Image of care coordination platforms]
#2: Care coordination platforms

- **Text or video**
  - Access coordinated care plan

**Tool**

**Routine**

- Develop care plan
- Execute care plan
- Home visits

**Team**

- Patient
- Caregiver
- Coordinator
- General Practitioner
#2: Care coordination platforms

- Text or video
  - Access coordinated care plan

**Tool**

**Routine**
- Develop care plan
- Execute care plan
- Home visits

**Team**
- Patient
- Caregiver
- Coordinator
- General Practitioner
RESULTS

77

Older patients in rural area

• 36% socially isolated
• 72% lived alone

Video

Most prized modality

• 31% of calls between coordinator & patients
• 61% of calls between patient and caregiver

Modest

Benefits

• 9.7% reduction in time to develop care plan for those who made 10+ calls
• No benefit for executing care plan
Building Block #3

Virtual visits

Care coordination platforms

Remote monitoring
Cloud DX Connected Health Kit

01 Tracks vital signs using Bluetooth-enabled medical devices
   • pulsewave wrist cuff monitor
   • oximeter
   • wireless body-weight scale
   • thermometer

02 Dedicated connection to the patient’s clinical care team
Remote monitoring

Routine

Self-management
Remote monitoring

Tool

Track and analyze vitals
Track symptom scores
Paper COPD action plan

Team

Patient
Caregiver
Respiratory Therapist
Respirologist
General Practitioner
TRIAL PARTICIPANTS

122 = 41 + 41 + 40

COPD patients  Self-monitoring  Remote + self-monitoring  Standard care
#3: Remote monitoring

**OUTCOMES**

**UTILIZATION**
- **Good**
  - Near daily use by most

**EXPERIENCE**
- **Positive**

**OUTCOMES**
- No difference
  - Knowledge
  - Self-efficacy
  - Symptoms
  - ED visits
  - Hospitalizations

**COSTS**
- Increased
  - 1 FTE Respiratory Therapist
  - Tablets
What happened?

Routine

Team
Reimagine the work
A. Text
  1. Facilitates note writing
  2. Allows AI-powered history and plan communication
  3. Facilitates collaboration

B. Asynchronous
  1. gives clinicians time to look up information
  2. allows diagnosis over time
  3. allows quick f/u check-ins or forgotten questions
Triage & video visits
holistic care and connection
Hub to support primary care
Conclusions
Can we overcome the IT productivity paradox?

Build better tools

Virtual visits
Care coordination platforms
Remote monitoring

Reimagine the work

Tool

Routine
Team
What can researchers do to help?

Manage uncertainty with the right methods
  Fail **faster**
  **Pivot** when you can
Help define value across stakeholders
Make a science of balancing rigour and responsiveness
Thank you.