Moving RPM Out of the Shadows into the Spotlight

Rick Whittaker, Future Health

Kathryn Brohman, PhD. Smith School of Business, Queen's University, Canada.

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Introduction

- Who is Future Health?
  - Future Health is a promoter of social innovation…
  - Our business model is ‘eco-centric’ and we explore partnership opportunities to promote healthcare innovation with a focus on access for rural communities.

- What is Community Paramedic Remote Patient Monitoring (CPRPM)
  - A program launched in 2015 to empower community paramedics to care for patients living with chronic disease.

- Where do we operate?
  - Across all paramedic services in Ontario, Canada.

2018 Evaluation Overview

- Total Patients Enrolled: 1109 (745 patients evaluated)
- 911 Call Reduction: 26% (453 Calls)
- Actual Reduction in ED Transport (Interdev):31% (460 Transports)
- Actual Reduction in ED Visits (ICES): 26% (467 ED Visits)
- Actual Reduction in Hospital Admissions (ICES): 32% (170 Admissions)
- Estimated Savings to Overall Health System : CAD$ 4,731,350 ($7,279/patient)
- Estimated ROI to Overall Health System: 542%

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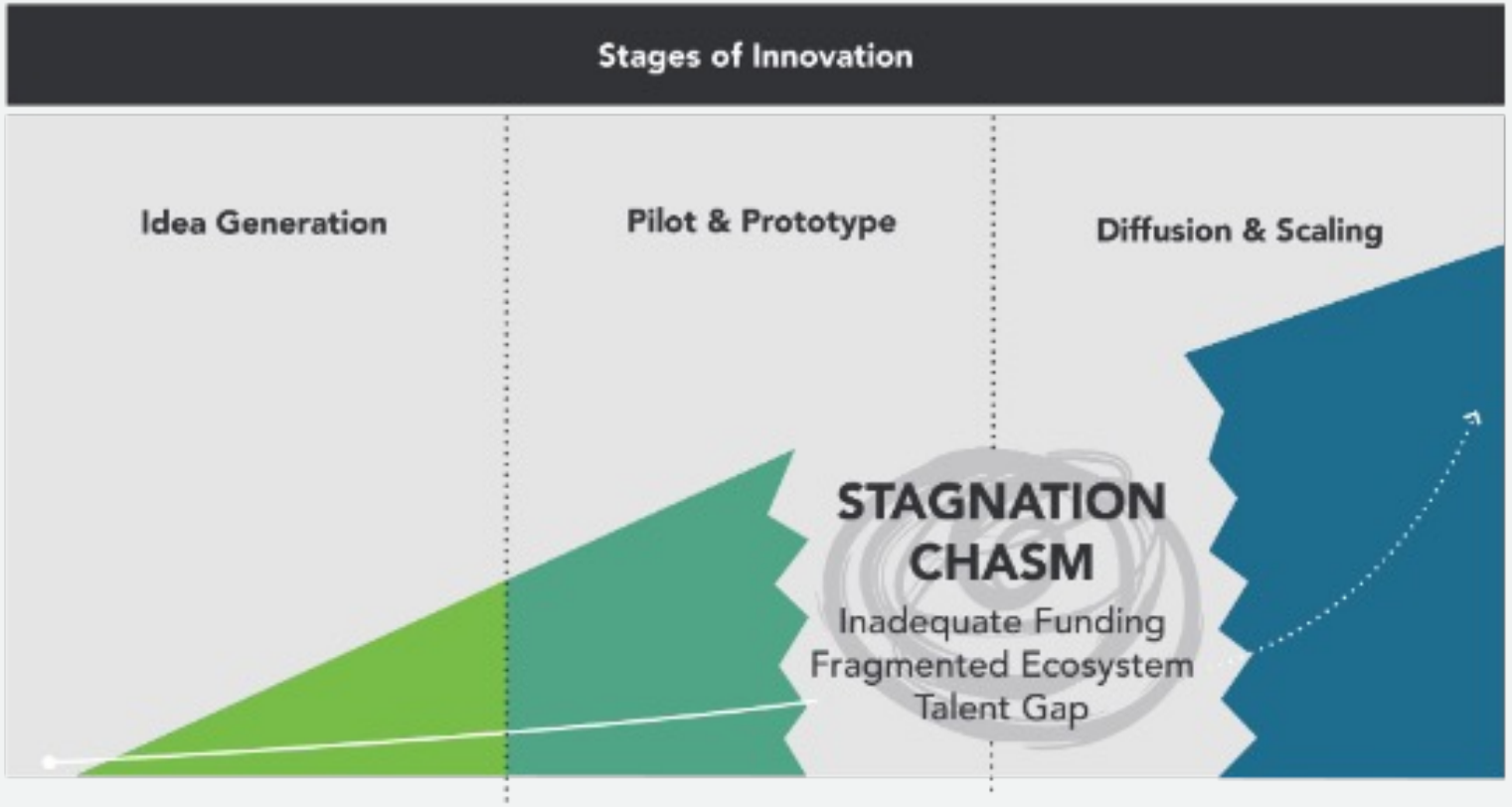
Next Three Years: 2018-2021



Despite demonstrated benefits, CPRPM struggled to diffuse and scale.

2021 - Enter COVID-19

In response to the COVID 19 pandemic, funding models in Ontario changed and this allowed CPRPM to get clarity on the program's value proposition.

New Value Proposition: Eyes in the Home

- Realized CPRPM had implemented two ‘eyes in the home’ pathways.

- Demonstrated Benefits of ‘Eyes in the Home’
  - Patient convenience and safety;
  - Identify issues related to the home environment;
  - Patients benefit from more intensive, home-based care;
  - Evidence suggests that care provided in patients’ homes can both reduce costs and improve quality.

Providers Take Notice

- A key difference between CPRPM and other ‘eyes in the home’ providers was that community paramedics were able to ‘flip’ into a virtual offering as they already had the remote monitoring infrastructure in place.

- This caused other providers to take notice:
  - Hospitals re-engineered their discharge procedures to leverage RPM;
  - Long Term Care leveraged RPM as an alternative model of care;
  - Nurses and social workers adopted RPM as a way to provide virtual care;
  - Doctors adopted telehealth as an alternative to in-office visits.

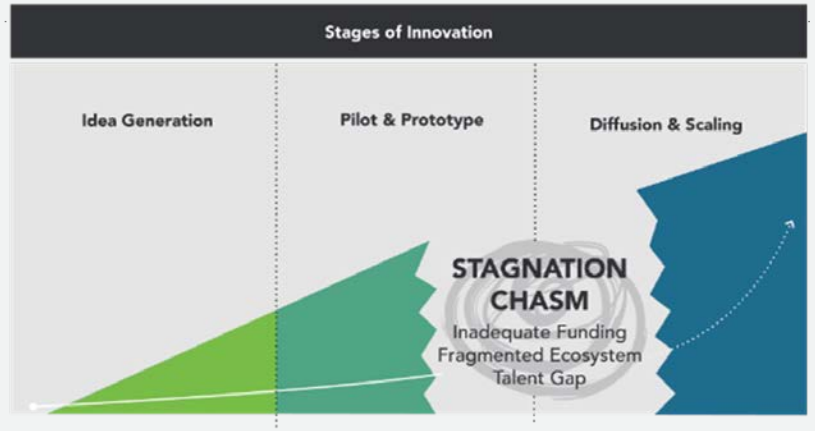
- So, how did other home care providers respond in Ontario?

Two Approaches

Start from Scratch and Build Their Own

Scan and Leverage What Already Exists

Golden Opportunity



- Changes to funding model due to COVID-19
- Ecosystem became more ‘tech savvy’
- Talent to implement ‘eyes in the home’ solutions is in high demand.

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Bringing RPM Into the Spotlight

- In Canada, funders are eager to step in to help bring digital health solutions to scale.
- There is a tremendous gap between the expectations of funders and the reality that changemakers (like Future Health) face every day.

- Also, the resources and talent at for-profit companies are vastly different than those available to economic development and other not-for-profit stakeholders.

- So, how is Future Health moving forward?
  - **Academic Partnerships** – Collaborating with researchers in academia (i.e., Queen's University) to participate in experiential learning and grant-making opportunities;
  - Working closely with **paramedic solution providers** (e.g., Prehos) to explore ways to embed CPRPM as a turnkey solution;
  - Lead the launch of a **Canadian Roundtable for Community Paramedicine** to influence CP policy development in Canada.

Next Steps for CPRPM

- What can CPRPM in Ontario do to leverage the golden opportunity?
  - Critically evaluate what benefit CPRPM offered other home care programs (e.g., LTC) during COVID-19 and modify CPRPM program to maximize value.
  - Rebrand and expand RPM as an 'eyes in the home' social innovation and demonstrate the benefits of RPM as a way to connect patients to:
    - Real-time information they need to manage their condition;
    - Access to the right care provider at the right time.
    - Better 'peace of mind' living in the comfort of their own home.
  - Align RPM as a core competency in community paramedicine practice. CPs are well ahead of the learning curve in RPM and well-positioned to establish this as a core competency.

Quick trip back to 2018: What we Learned

Not all homes look alike… this would be nice.. but

Many look like this…

Not all users look alike? We would like this… but

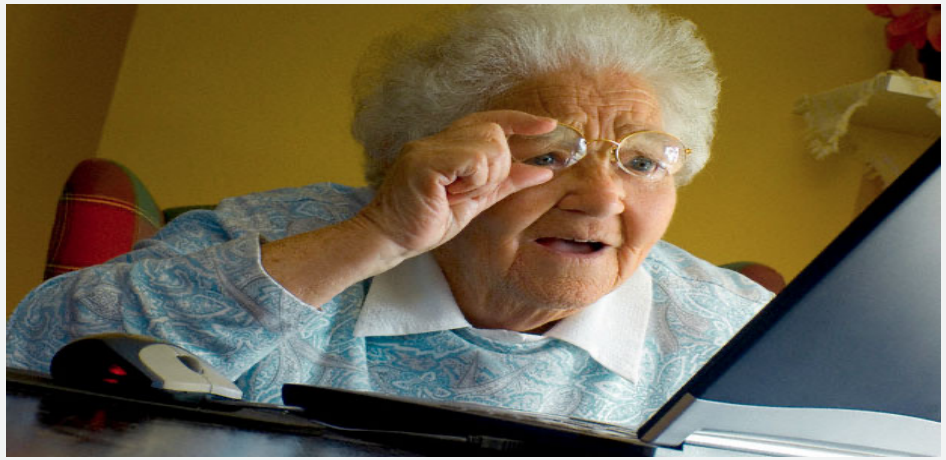
- Mobile and Agile
- Great Dexterity
- Technology Savvy

But may be like this

- **Many not very mobile**

Many not

- **Many struggle with dexterity or vision**



Despite all that: We Learned

- 28,703 Medical Alerts (38 alerts/patient)
  - Approximately five (5) medical alerts/patient/month.
- 107,788 Compliance Alerts (144 alerts/patient)
  - Approximately 18 alerts/patient/ month.

- So, on average – having RPM devices in the home allow paramedics the opportunity to 'check in' on a patient 23 times a month.
  - Several paramedics and patients surveyed said they felt the program reduced their stress and anxiety knowing someone was "keeping an eye on them". When allowed to stay on the program longer, the benefits appear to increase.

- Lastly, paramedics noted 5,593 Paramedic-Patient Interactions
  - This equates to one noted interaction/patient/month that captured insights and shared patient information with other paramedics.

Cost to Implement ‘Eyes in the Home’

- $114/patient monthly cost.

- This cost takes into account ..
  - The average number of patient interactions;
  - Time spent coaching;
  - Time spent documenting notes.

- This cost structure was discussed with paramedics in June 2017 and used to calculate the standard monthly rate for patients interested in staying on the program.

Where do we go from here?

Align CPRPM to Other 'Eyes in the Home' Services

- Home Visits –
  - Nurses: Care management and care transitions programs
  - Social Work: Evaluate patients' home environments and identify needs.
  - In the US, Medicare has created new reimbursement models to support home visits for patients who are functionally unable to attend office-based visits.

- Challenges of Home Visit Programs in Healthcare and Social Services
  - Expensive;
  - Staffing shortages;
  - Not real time;
  - Redundancy – multiple providers in the home offering different services can create confusion for patients.

Make the Case: Why Community Paramedics?

CPs are mobile.

CPs are expanding their scope of practice.

Funding Model	INCUBATE	SCALE	OPTIMIZE	CONSTRAINTS
	• Establish pilot teams as capacity-driven. • Work within budget and financial constraints. • Use a quarterly funding model for piloting teams.	• Shift from project funding all teams for technology investments. • Release funding quarterly based on value delivered. • Create a "Strategic Investment Committee." • Epic-based funding/"Shark Tank."	• Continue to focus on alignment on business priorities and product funding. • Expand funding model to non-technology investments.	• Technology organizations are treated as cost centers. • Business leaders expect to fund features.

Localized Funding Models

Position CP as leaders in scaling RPM as a digital health solution.

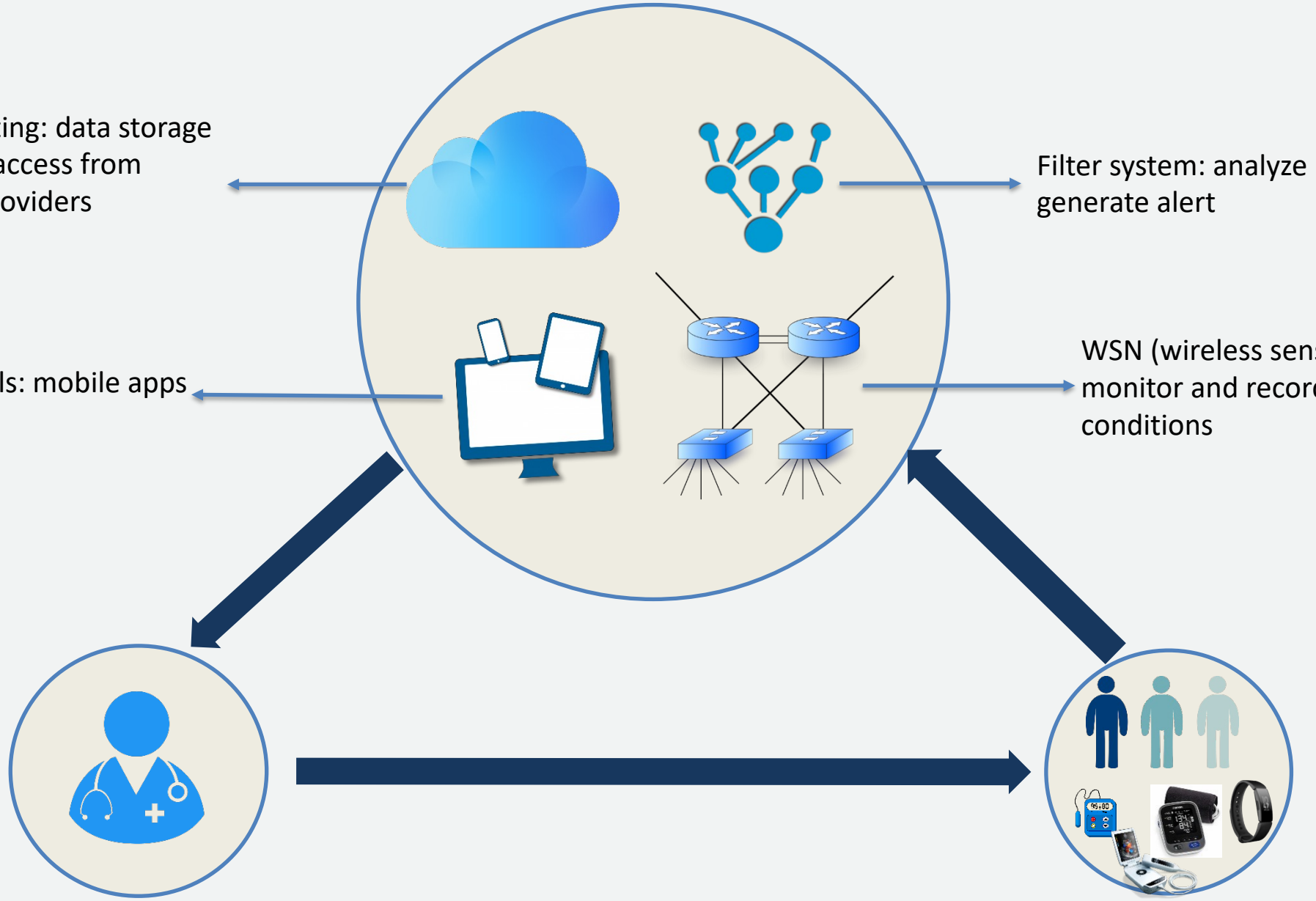
New Model: Eyes in the Home Social Innovation

Cloud computing: data storage and allowing access from health care providers

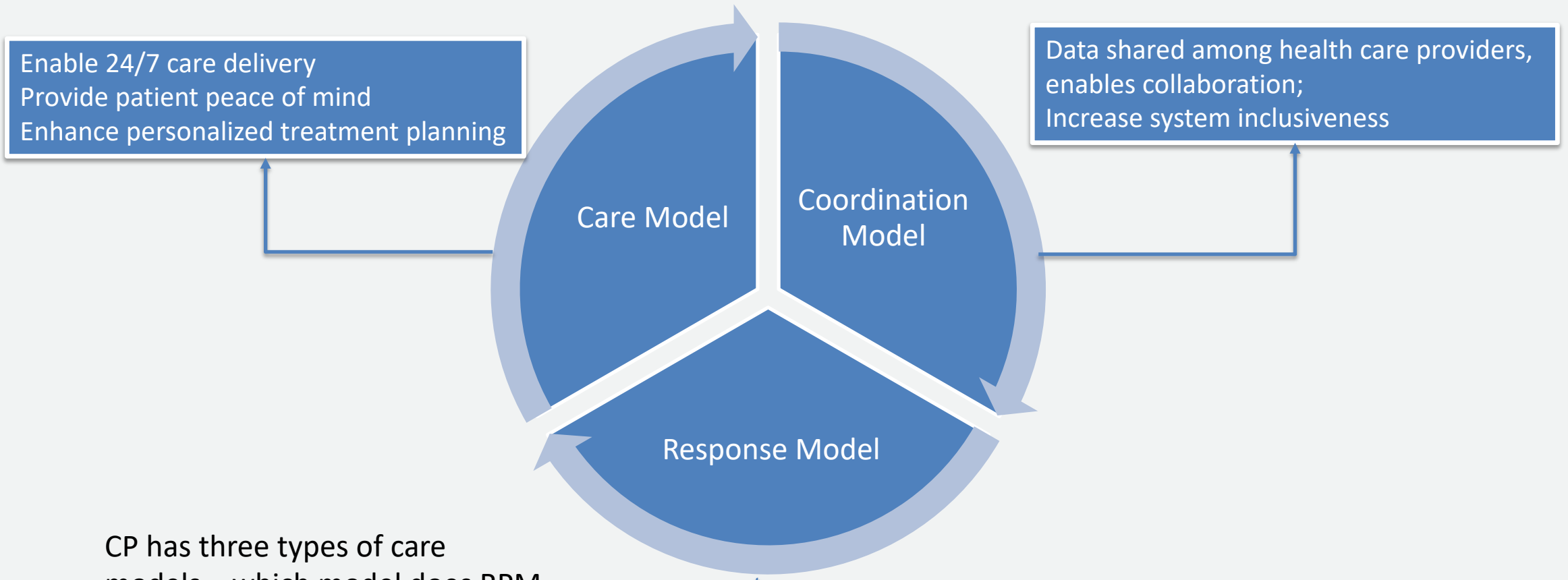
Filter system: analyze readings and generate alert

intelligent terminals: mobile apps and webpages

WSN (wireless sensor network): monitor and record the physical conditions



Focus the RPM Care Model



CP has three types of care models – which model does RPM generate the most value?

Challenges Moving Forward

- A number of challenges were identified in 2018 that need to be resolved:
  - **Role of CP.** How can CP influence the ‘eyes in the home’ ecosystem. What role should they play? How can they collaborate with others?
  - **Disentangle RPM from Telemedicine.** Demonstrate how they are complementary (and not competing) programs.
  - **Community Paramedic Fatigue.** Continuous stream of low priority alerts that increased risks related to paramedic alert fatigue
  - **Lack of consistency in RPM practices.** Variance across paramedic services with regard to the quality of coaching and note taking and the degree to which patient interaction enabled an adaptation of behavior in patients.
  - **Patient enrollment.** Need to get more clarity with what types of patients benefit most from ‘eyes in the home’ type programs.

Technology-Related Challenges

- **Manufacturing level:**
  - Device reading accuracy
  - Concerns over maintainability

- **Data processing level**
  - Automation is needed to save time dealing with massive data, mass message patients, improved patient intake and discharge process.
  - Need to establish standard protocol in reporting consistency.
  - Need to establish stronger privacy and security protocols.

- **Operational level:**
  - Establishment of the system can be expensive. Reimbursement is needed

Thank You

Any questions?

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RPM vs Telemedicine:

	RPM	Telemedicine
Technology Enablement	Comprehensive use of technologies for vital sign reading, data transmission and analysis	Virtual communication technology
Ability to Connect	- Alternative approach of connection - Enable service delivery in natural environment (i.e. patient's home) - Reach remote and rural areas - Minimize virus transmission	- Alternative approach of connection - Enable service delivery in natural environment (i.e. patient's home) - Reach remote and rural areas - Minimize virus transmission
Patient Empowerment	- Increase sense of control - Encourage patient take responsibility of their health management-behavior adaptation happens - Provide patient peace of mind by providing real-time vital readings - Enables patient to patients to stay at home longer	- Provide patient peace of mind
Automate	- Improved system effectiveness. Lower transportation cost - Effectiveness of information processing. Automatic generate alerts; cloud base information storage. - Service optimization. Clinical benefits such as a decreased ED transport or hospital readmission; Reduce health care cost; diabetes management	- Improved system effectiveness. Lower transportation cost

RPM Benefit Highlights (based on a 2017-18 study in Ontario, Canada)

- Total Patients Enrolled: 1109
- Patient evaluated: 745
- 911 Call Reduction: 26% (453 Calls)
- Total Savings to Paramedic Services: CAD$331, 576
- Actual Reduction in ED Transport (Interdev):31% (460 Transports)
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Other Evidence of RPM Cost-effectiveness

- 41% decrease in annualized HF hospitalizations (US, 2016)
- Cost reduction of $233,958 per year (US, 2008)
- CAD$361 in savings per patient or CAD$8566 total service cost savings compared with traditional care (Canada, 2006)
- Avoid 53% of admissions (Australia, 2016)
- Cost savings of AUD$2,931 per person (Australia, 2013)
- £242 saving to health system per patient (UK, 2013)
- £188 per person per year (UK, 2012)

RPM in Context

- Chronic disease: diabetes, chronic obstructive pulmonary disease (COPD), heart failure, hypertension
  - RPM used to monitor vital signs
  - Encourage self-management
- Hospital Discharged COVID-19 Patients
  - Limit virus transmission
  - Monitor health conditions
  - Alternative way of communication
- Brain, neurological system related diseases and mental health issues
  - Keep tract of ambulatory activity, ie.detect wandering of patients with dementia
  - Gather data on speech and sleep activity
  - Collect EEG signal for epilepsy classification
- Mobility related disease
  - Fall prediction and detection using wearable device based, ambience device based, vision based, posture based devices
- Infants in neonatal intensive care unit
  - heart rate measured using noncontact monitor, pulse oximetry sensors, or ECG sensors

- **Long term care: research gap, promising use**

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