

A maturity model framework for integrated virtual care: example of the Connected Health Hamilton collaborative

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BRIGHTER WORLD

Does virtual care* mean “better” care?

*Virtual care refers to care that occurs beyond the constraints of time and/or place

Yes! To the extent that virtual care enables integrated care**

But how, exactly?

What should we strive toward? What does integrated virtual care look like?

**Integrated care refers to integrating aspects of care delivery and management (people, systems, and structures) so that individuals receive care in a way that is coordinated, effective, and optimises health outcomes for all (Goodwin, 2016). It is often understood as the opposite of fragmented care.

References

Goodwin, N. (2016). Understanding integrated care. *International Journal of Integrated Care*, 16(4), 6. doi:10.5334/ijic.2530

Kodner D, L., & Spreeuwenberg, C. (2002). Integrated care: meaning, logic, applications, and implications—a discussion paper. *International Journal of Integrated Care*, 2(4). doi:10.5334/ijic.67

Background

- Realising the benefits of virtual care is highly dependent on the extent that it is intentionally planned and implemented to “create connectivity, alignment, and collaboration within and between the cure and care sectors” (Kodner & Spreeuwenberg, 2002)
- However, real-world implementations of virtual care vary widely in terms of the types and degree of integration being advanced
- Maturity models are useful tools for defining and assessing performance, but existing telehealth maturity models primarily focus on readiness or are geared toward IT professionals

Objective & Methods

- Our objective was to develop a maturity model describing the features of remote patient monitoring (RPM) that can advance integrated care
- The model was informed by a review of existing maturity models as well as online meetings and interviews with clinical leads, program leads, and staff involved in the Connected Health Hamilton collaborative

Results

- The maturity model is made of 5 domains: **Technology, Team Organisation, Program Support, Integrated Information Systems, and Performance and Quality**
- We applied the maturity model to the Connected Health Hamilton collaborative to demonstrate its use for describing the program and identifying areas to improve performance

		3 Maturity levels. Program/organisation(s) may perform across a range of maturity models within a single domain			
		BASIC	FOUNDATIONAL	ADVANCED	CONNECTED
1 Domains	2 Sub-domains				
	Roles	Providers add program responsibilities to existing roles	Providers assume dedicated roles that are defined and practiced according to each provider's expertise	Providers assume dedicated roles that have standardised workflows	Roles are defined and standardised such that each role may be covered by other team members as needed
	Service Hours	Program hours reflect providers' working hours and may change depending on providers' availability	Program hours have a consistent start and end that cover ≤56 hours a week	Program hours have a consistent start and end that cover ≤84 hours a week	Program coverage is available 24/7
	Responsibilities	Every provider assumes both monitoring and responding responsibilities	Monitoring and responding responsibilities are clearly defined and divided among team members	Responding responsibilities are further defined and divided among team members based on scope of practice and patient need	External partners assume some responding responsibilities based on scope of practice and patient need
Escalations	Response options are limited, often recommending patients seek emergency acute services	Escalation rules are in place for team members to respond to acute needs, diverting some emergency acute service use	Escalation rules are in place for team members to respond to both acute and non-acute needs	Escalation rules are expanded to include external partners	

Program Description (crafted from maturity model statements)

St. Joseph's Healthcare Hamilton, in partnership with St. Joseph's Home Care, offered an RPM service for patients admitted with COVID-19 during the height of the pandemic in early 2021. Prior to discharge, patients learned about the support service and were provided with a data-enabled tablet programmed with the RPM solution and a series of Bluetooth-enabled biometric devices to capture temperature, oxygen saturation, and blood pressure. In addition to hospital duties, the Integrated Care Coordinator was responsible for managing the device kits, enrolling eligible patients into the program while in hospital, and liaising with the patient's care team. Patients were enrolled in the program for 7 to 14 days. Every day, patients were prompted to complete a recovery survey and take vital sign readings using the biometric devices. Health data were uploaded continuously to the patient's dashboard in the RPM system, although there was no integration to exchange clinical information between the RPM system and the hospital information system. The vendor delivered training to patients by phone to support device setup and initial vital sign collection. The virtual care team, composed of nurses from St. Joseph's Home Care, also contacted patients on their first full day home to complete an initial health assessment. The care team was responsible for monitoring the RPM dashboard and alerts that were sent to their email relating to vital sign readings and survey responses. On the patient's final day in the program, the care team assessed the patient's readiness for discharge and sent a discharge summary to the patient's primary care provider. Internal medicine physicians supported this program on top of their existing responsibilities and rotated on-call to support any escalations and attend weekday rounds with nurses. All visits between the care team and the patient would occur virtually using the video conference functionality built into the RPM solution. Patients had access to the care team for this program Monday through Friday from 8:30 AM to 4:30 PM, with after-hours support provided by COVID Care at Home (a partnering RPM program).

Areas of Strength

- Patients having 24/7 access to a care team (connected level)
- Monitoring and responding responsibilities being clearly defined and divided amongst the team (foundational level)
- Escalation rules that supported follow-up care for both acute and non-acute concerns and warm handoffs to primary care and community care partners (advanced level)

Areas for Improvement

- Staff adding RPM responsibilities to existing roles
 - Long-term strategic investment in RPM programs should include dedicated roles

To see the full model, please read our paper:

Sinn, C. J., Pasat, Z., Holditch, C., Beltzner, C., Hogeveen, S., Klea, L., & Costa, A. (2022). A maturity model framework for integrated virtual care. *Journal of Integrated Care*, 30(4), 351-362. doi:10.1108/JICA-02-2022-0015



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