



Authors: Ramona Ramadas, Director, Dawn Hawkins Johnson, Executive Vice President

Remote patient monitoring has the potential to improve care management and lower costs for high-risk patients – but the right devices alone are not enough. Organizations must think about how and where to integrate remote patient monitoring into the care management work flow, as well as the operational support needed to support a remote monitoring program. The fundamentals of how remote patient monitoring programs work, as well as key organizational considerations for program success, are included in this discussion.



What is remote patient monitoring?

Remote patient monitoring typically involves deployment of a monitoring device within the patient's home. Patients receive a simple equipment package for self-service installation or an expert -- such as a home health worker, social worker or member of the hospital or payer's care management teams -- may come into the patient's home to complete the installation. The remote monitoring device is often similar to or even smaller than a tablet PC or iPad and has the ability to connect to peripheral equipment such as blood pressure cuffs, wireless scales or glucometers. Some units include video capabilities for real-time interaction with a provider.

The ordering provider designs the frequency of monitoring, which is typically daily, to begin establishing healthy behaviors. Included in the order are the appropriate clinical parameters for each patient. Staff members are assigned to monitor the data and take action based on pre-defined protocols when the data falls out of range or is missing within the expected transmission schedule. Interventions may include a teaching visit with an RN, a video visit with the provider, a medication change or scheduling an in-person visit.

Remote patient monitoring's position within the telehealth umbrella

Telehealth solutions span a wide range of encounter types from direct-to-consumer virtual visits to "store-and-forward" specialty care. Remote patient monitoring, the collection and transmission of patient data for analysis and intervention, falls within this range. These programs are designed to provide daily intervention for chronic conditions (e.g. CHF, diabetes and hypertension) and may include a real-time patient-to-provider exchange, depending on the patient's data. For many organizations struggling to manage chronic patients at high risk for readmission or decline, remote

patient monitoring programs provide a vehicle to follow these patients more closely after they leave the controlled environment of a hospital, often at a lower cost than the potential readmission penalty or in-person visits with a provider.

Who can benefit from remote monitoring systems?

Although patients and their immediate care teams (i.e., providers, nurses, etc.) are the most obvious stakeholders in the efficiency and timeliness of remote patient monitoring programs, care management teams, hospitals and payers can also realize a benefit. For care management teams, the program provides a lower-cost alternative to frequent in-person visits to support patients with chronic conditions, and increases their effectiveness in building healthier habits and increased wellness over time. Hospitals may see fewer readmissions due to earlier detection/prevention of decline, and payers maintain a lower cost of care for high-risk, difficult to manage conditions. Important considerations in your remote monitoring strategy

Although remote monitoring devices have become increasingly “user-friendly” over time, and technology infrastructure to support these devices has improved, it is still important to develop a comprehensive work flow for installation, staff training and troubleshooting these devices. Components of a well-designed program include:

Robust IT systems for monitoring and documentation

IT systems must include the ability to design appropriate protocols for remote monitoring patients. Additionally, flagging and alerts should notify staff that the patient’s clinical condition has moved outside of expected clinical parameters. In scenarios where an intervention is necessary, care team members should be able to document interventions in the electronic medical record and share this data with the patient or member’s PCP and specialty care teams as appropriate. Well planned systems with rich capabilities will support the team’s ability to provide the right intervention to the right patient at the right time.

Sufficient technology infrastructure and training in the patient’s home

Typically, remote monitoring devices can leverage existing in-home wired/wireless systems or cellular systems. Prior to initiating the service, a staff member must work with the patient to ensure that equipment is performing as expected. Additionally, patients must understand how to properly use the equipment in order to successfully transmit data. This evaluation may also provide the added benefit of ensuring that the patient has the connectivity they need to access other resources available to them, such as patient portals or telephone-based visits. Without this initial evaluation step, equipment placed in the patient’s home may be used inappropriately by the patient or may fail to successfully transmit data. Regardless of the root cause of technical failures, both clinical and IT teams will need to prepare to identify technical issues and address them through end-user education or through remote or in-person equipment troubleshooting.

Clinical staff, IT and patient roles and responsibilities

In order to successfully implement a remote monitoring program, roles and responsibilities across the organization must be established to manage program components, including, but not limited to:

- » Identification of appropriate patients/member to include in the program
- » Completion of remote monitoring orders
- » Design of non-clinical tasks such as reminder messages
- » Evaluation of out-of-range data
- » Follow-up response to out-of-range data
- » Technical troubleshooting
- » Appropriate data exchange and care coordination

Once the roles and responsibilities that will successfully operate the program have been defined, a clear set of workflows for all members of the remote monitoring team should be developed. Additionally, patients have their own responsibilities to participate in remote monitoring programs, such as logging in at a certain time, sending the data requested by the provider and providing data at the expected frequency. Furthermore, patients can assist with technical troubleshooting by quickly letting the IT department or care team know that they have encountered a problem and working collaboratively to resolve the issue.

Initial investment and reimbursement

The reimbursement landscape for all telehealth services is changing frequently. Understanding the regulations within the states your organization supports, as well as the specific requirements for Medicare, Medicaid and commercial payers is a critical first step to take before initiating a telehealth program. In some cases, organizations may find that the potential for positive patient outcomes (and subsequent cost-savings) outweighs the initial investment as well as the ongoing costs of these programs. A thorough analysis of the investment, operations, reimbursement and cost savings is a significant but necessary undertaking prior to beginning a remote patient monitoring program.

Measuring Success

Prior to beginning any telehealth program, including remote patient monitoring, organizations should complete a thorough assessment of both organizational competencies related to telehealth as well as goals they hope to achieve through implementation of a telehealth program. Although remote patient monitoring is a valuable tool for managing chronic conditions, not all organizations are prepared to successfully implement these programs, and not all patient populations are appropriate recipients of a telehealth intervention. However, once the organization agrees that a remote patient monitoring program is appropriate, establishing a measurable set of clinical and non-clinical criteria for program success should be a top priority of the project team. These metrics should align with clinical goals for the patient as well as organizational goals that support the transition to value-based care. Examples of success metrics include readmission reduction by condition and fewer out-of-range clinical parameters by patient, over time or increased compliance with attending scheduled appointments. Additionally, the team should plan for program growth or expansion of covered clinical conditions as the organization begins to realize the value of the remote monitoring medium.

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