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## Perspectives

# Lessons learned: One medical group's dissection and approach to remote patient monitoring services

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## Summary

Remote patient monitoring (RPM) has gained popularity over the last two decades. Initially sought after by large hospitals and academic institutions, RPM has shown benefits to patient management at all levels including solo practice. Majority of the companies we identified address two primary diagnosis, hypertension and diabetes. In an analysis of 10 companies we found cost structures varied greatly between vendors while equipment type did not. While there are numerous commonalities between vendors, each vendor differentiated itself through online dashboards and clinical pathways navigations. As the RPM market expands, it is important for physicians to have a structured approach to identifying vendors, selecting appropriate features and contracting with vendors. This article covers cost structures, commonalities and unique aspect of the vendors we reviewed.

## Introduction

The center for innovation at Center for Medicare and Medicaid services (CMS) has applied a broad definition of remote patient monitoring (RPM) [1]. While the most common RPM focus on monitoring vital signs such as blood pressure, temperature and respiration, there are numerous devices with disease specific application [2-14]. Many implantable cardiac devices and insulin pumps fall within the definition of RPM [15]. While CMS reimbursement is relatively new, these devices have been utilized by the medical community for over a decade.

In our research, devices achieved remote capabilities through two routes; Bluetooth enabled connectivity to cellphone or built in sim card connectivity to cellular towers. Devices, as stated above, are not the novel component of RPM. The remote capabilities have opened new opportunities for physician and health care organization to provide a higher standard of care. The second main component of RPM is its online presence or dashboard [16]. Most RPM system we inquired into shared these two basic features.

In order to run a successful RPM program, clinicians need to determine their population of qualifying patients. Patients with chronic conditions such as hypertension or diabetes

generally qualify for remote monitoring[16,17]. Additionally, to qualify for reimbursement the patient needs to be a recipient of Fee For Service (FFS) Medicare insurance [17]. Reimbursement codes are organized into three major categories. First there is a Current Procedural Terminology (CPT) code for initial setup and patient education that results in additional reimbursement of \$100-\$175 per visit, enough to cover the cost of device. Second, CMS reimburses clinicians monthly for patients that produce two or more recordings. Third, clinics can be reimbursed for time spent communicating with patients regarding RPM. A variety of CPTs reimburse as little as 5 minutes spent communicating with patients regarding the RPM program. Clinicians with a large Medicare capitation payment structure can utilize RPM selectively to increase their CMS rating [1,18]. The sections below will expand on commonalities and differences between RPM systems.

Throughout this article various aspects of vendor services are described. Since RPM vendors are continuously adapting in a competitive market it is not possible to describe every aspect of RPM. Additionally, references to specific companies were intentionally left out as these companies may be in the process of adapting and providing new services. This article is intended to serve as a starting point for early information gathering.

## Our approach

RPM was introduced to us by a small vendor. Our initial research on the subject matter showed a great deal of variability in the market. The first step was to compile a list of vendors based on internet searches and adverts in health care management publications. An initial set of questions were developed based on our needs and continuously revised throughout our approach. Initial engagements were through phone or video conferences. While the initial conferences were informative, after the fifth one we noticed a repetitive nature to the material. Upon collecting information from all vendors, a short list of three vendors was created for negotiations. Negotiations proved fruitful in acquiring additional services. A two-week contracting process involved refining details of termination and payment. Following contract approval, training was scheduled concurrently with delivery.

## Cost structure

There are three standardized costs for initiating RPM into clinics: equipment, monthly per device, and start-up or training fees. Equipment costs were relatively standard between companies. The monthly cost per device varied depending on the level of services sought after, see section on full service below. It is our advice to purchase the equipment then initiate the per month cost after each patient enrolls into the RPM service. CMS reimbursement for initial visit for a patient enrolling RPM covers the cost of devices such as blood pressure cuffs and glucometer. Set-up and training costs take longer to recover.

In calculating an ROI, first we took the one-time cost associated with new technology. This included purchase of equipment, any potential upgrades to clinic, training and other vendor fees. Next a monthly cost needs to be calculated. Each device has a monthly subscription fee. Additionally, we allocated 30 minutes of patient training for every new patient and 15 minutes for patient follow up per month. The training and follow up were conducted by a medical assistant and costs were calculated using the employees hourly rate. The main source of revenue is monthly usage by patients. It is advised to calculate return on investment (ROI) by subtracting expected revenue from utilization from one-time cost and monthly cost per month for the first twelve months. Higher patient enrollment and utilization leads to an earlier return on investment. We calculated a ROI for 80%, 50%, and 30% utilization to determine financial risk at 3 stratified levels. In our calculation, even 100 patients enrolled over 4 months and 30% utilization, an RPM program can be profitable after 10 months.

It is highly advisable to ensure proper staff allocation of time. Majority of the time spent in on-boarding new patients and follow up are billable. Hence, after an RPM program is established it is feasible to allocate one full time employee. The fee schedule is continuously being modified to include new guidelines [18] therefore annual monitoring of fee schedules by a biller is necessary [19].

## Commonalities between RPM vendors

All RPM companies provided an alert system for out of range measurements, such as a systolic pressure of 180 will result in the patient's name highlighted in red. Some systems have emerged to create automatic text messages to the patient while other systems utilized full time employees. Regardless of the system employed to connect with a patient, clinicians need to monitor alerts daily. Our clinics designed a flowchart to determine the course of action for each alert [2-13].

Another commonality is a graphing feature. Simply put each dashboard graphs blood pressure or blood sugar readings over a unit of time. Some services provide additional information such as communication from patient or provider, adjustment to treatment or medication, and other notes [2-13]. Overall, the clinician needs to be comfortable with the amount of information communicated. This approach may vary for disease to disease and patient to patient. In academic institutions, where clinic schedules change monthly, additional information can improve quality of care.

Resembling an electronic medical record, patient information and demographics are recorded. Every RPM dashboard provided control over content privileges that can be distributed to medical assistant, clinic managers and providers [20]. For large medical groups and hospitals, breakdown of content privileges needs to be considered early in the selection process.

Each service stated EMR integration was possible. The most common integration was an uploaded report directly into the patient chart. Clinicians that bill CMS monthly should upload reports monthly. Errors in reporting can trigger an audit, in the case of an automated system an error in documentation can result in loss of collection for all RPM. Prior to agreeing to an RPM system clinicians should inquire about the specification of generated reports.

## Unique aspects of RPM vendors

RPM companies are in the initial learning phases hence many offer unique services. Clinicians can take advantage of unique aspects of RPM services to facilitate integration into clinic workflow and reimbursement. Each patient population will have different expectations. It can be expected for seriously ill patients, with two or more chronic conditions, to benefit from the communication features listed below as increased timely communication can be preventative.

Text message has been incorporated into health care as a means to reach patients. RPM services have incorporated text messaging into their platform. Clinics can send individual messages to patients through the dashboard to an app on the patient devices. Individual messages are ideal for following up on a non-critical abnormal measurement. Additionally, clinics can send group message to remind patients to take measurements. We expect group messaging to increase compliance which increased collections. Alternatively, some phone apps generate automatic reminders if patients have not

taken a measurement during the month. Text messaging allows the patient to enter a response that can be followed by a clinic staff member. Time spent on communication with patients is billable under new CMS RPM guidelines [18].

Video call features are modeled after telehealth services. Clinic staff members can reach out to a patient with an abnormal measurement for a quick assessment with a personal touch. Additionally, video calling is a billable service through CMS through RPM CPT codes [15,18]. For CMS compliance, it is recommended clinics document the reason for call and discussion in the EMR. Not all RPM services track time of video call hence we recommend careful documentation of time spend on video platform.

Clinicians can choose to subscribe to a full service thus eliminating the need for allocating clinic staff. In the full-service model the RPM service assigns a nurse practitioner or similarly qualified personal to monitor patients enrolled in RPM. Services include contacting patients to acquire a measurement, following up on abnormal values and providing other patient services as determined by the clinician. The higher level of service comes with an increased price per enrolled patient per month.

## Conclusion

Successful technology implementation requires numerous steps. Ideally a physician group will set aside at least 3 months to selecting a vendor and providing training. In our experience, vendor selection and relationship building were considered time well spent. A short list of vendors should only be considered after all information is gathered. At this point physicians should be involved in the selection of the desired vendor. While outside the scope of this article, it is important to assess physicians' ability and encourage involvement at various stages of implementation. Contract review is vital especially for determining termination process to minimize financial risk. Throughout the process numerous adaptations will take place and previously collected information should be periodically revisited. Once a vendor is selected it is recommended to inform remaining vendors a selection has been made.

## References

1. CMS (2018) CMS Takes Action to Modernize Medicare Home Health. [Link: https://go.cms.gov/2zis6lD](https://go.cms.gov/2zis6lD)
2. Care Clix (2020) [Link: www.careclix.com](http://www.careclix.com)
3. Health Arc (2020) [Link: https://web.healtharc.i](https://web.healtharc.i)
4. Optimize Health (2020) "optimize.health. [Link: https://www.optimize.health/](https://www.optimize.health/)
5. Tactio (2020) Remote Patient Monitoring-Tactio. [Link: https://rpm.tactiohealth.com/](https://rpm.tactiohealth.com/)
6. Vivify Health (2020) Remote Patient Monitoring for Healthcare Providers | Vivify Health. [Link: https://www.vivifyhealth.com/](https://www.vivifyhealth.com/)
7. Cloud Dx (2020) Cloud Dx. [Link: https://clouddx.com/](https://clouddx.com/)

8. Rimidi (2020) [Link: https://rimidi.com/](https://rimidi.com/)
9. Spire Health (2020) Spire Health. [Link: www.SpireHealth.com](http://www.SpireHealth.com)
10. MyVitalz (2020) MyVitalz™ | Telemonitoring Solutions, Omaha NE. [Link: https://myvitalz.com/](https://myvitalz.com/)
11. A&D (2020) A&D Medical Homepage. [Link: https://bit.ly/2KkXNg4](https://bit.ly/2KkXNg4)
12. Med Tronic (2020) Health Informatics and Monitoring Products-Medtronic. [Link: https://bit.ly/3eCo33G](https://bit.ly/3eCo33G)
13. Well H (2020) HoneyWell Life Care Solution. [Link: https://bit.ly/3cp5qhl](https://bit.ly/3cp5qhl)
14. ForaCare (2020) ForaCare Remote Patient Monitoring Solution. [Link: Http://Fora-Shop.com](http://Fora-Shop.com)
15. Catherine K, De Silvestri A, Gabutti G, Raisaro A, Curti M, et al. (2011) Economic impact of remote patient monitoring: an integrated economic model derived from a meta-analysis of randomized controlled trials in heart failure. Eur J Heart Fail 13: 450-459. [Link: https://bit.ly/2KjmrXM](https://bit.ly/2KjmrXM)
16. Field MJ, Grigsby J (2002) Telemedicine and remote patient monitoring. Jama 287: 423-425. [Link: https://bit.ly/3eKELQq](https://bit.ly/3eKELQq)
17. Peretz D, Arnaert A, Ponzoni NN (2018) Determining the cost of implementing and operating a remote patient monitoring programme for the elderly with chronic conditions: A systematic review of economic evaluations. J Telemedicine Telecare 24: 13-21. [Link: https://bit.ly/2VkdWOb](https://bit.ly/2VkdWOb)
18. Centers for Medicare & Medicaid Services (2019) Federal Register: Medicare Program; CY 2020 Revisions to Payment Policies Under the Physician Fee Schedule and Other Changes to Part B Payment Policies; Medicare Shared Savings Program Requirements; Medicaid Promoting Interoperability Program Requirements. [Link: https://bit.ly/2Kk5m72](https://bit.ly/2Kk5m72)
19. Coldiron B, Ratnarathorn M (2014) Scope of physician procedures independently billed by mid-level providers in the office setting. JAMA dermatology 150: 1153-1159. [Link: https://bit.ly/3aoyMeL](https://bit.ly/3aoyMeL)
20. Atsushi K (2001) Protecting privacy in remote-patient monitoring. Computer 34: 24-27. [Link: https://bit.ly/2XPE40f](https://bit.ly/2XPE40f)

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