

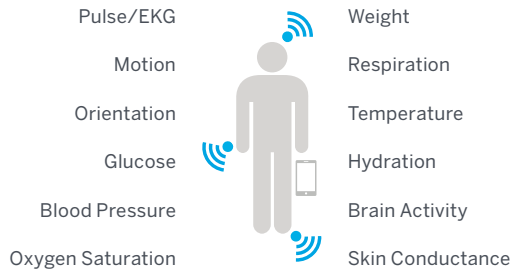
# 3 Key Questions for Remote Patient Monitoring

Remote patient monitoring (RPM) is the collection and transmission of clinical data, often from outside conventional care settings, to a provider. It includes data filtering, analysis, and alerting. It supports increasing geographic scope and clinical reach, improving care quality, and lowering unit and total costs.

The increase in RPM is being driven by the many advances in mobility and sensor technology, by the need to more comprehensively monitor an aging and chronically ill population, and by a growing retail reality that rewards patient engagement.

For providers to succeed with RPM, they need to answer three key questions:

## Is It Technically Feasible?



### Technical Considerations



#### Bio-health Engineering, Sensor, and Mobile Device Technology Advances

- Do form factors (wearables, implantables, smartphone attachments) match needs?
- What are the real-world patient deployment and reliability challenges?
- Can we leverage leading medical device companies and tech innovators like Apple and Google?



#### Wireless Connectivity

- What are the ramifications of interference, bandwidth, range, power requirements, and spectrum regulation?
- Can we leverage the emergence of medical body area networks (MBANs)?



#### Device Management and Security

- Do we have a mobile device management solution?
- Do we have layered security?
- Do we have processes for device install/reinstall and for ongoing maintenance?



#### Aggregation and Analytics

- Is our data collected in hubs and repositories?
- Is data filtered for accuracy, anomalies, and time frame?
- Do analytics identify what information and alerts to pass on to clinical systems?
- Does an audit trail of data exist to support clinical decisions and the legal medical record?

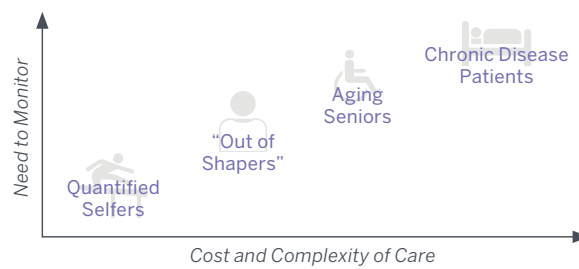


#### Standards, Platforms, and Ecosystems

- Does our solution meet existing and emerging standards (e.g., Continua Health Alliance)?
- Is our platform based on an ecosystem of partners?

If not, remote patient monitoring won't work

## Is It Clinically Relevant?



### Clinical Considerations



#### Care Settings

- Does RPM fit across the care continuum (e.g., acute, ambulatory, post-acute care, home)?
- Do the type, extent of monitoring, frequency, and required accuracy match the setting?



#### Patient Types

- Are we focused on chronic disease patients, such as heart disease, hypertension, diabetes, and COPD?
- Will we use RPM to keep an eye on aging senior patients?
- Will we extend monitoring to post-operative patients?
- When might we use RPM for other populations (e.g., quantified selfers)?



#### Determinants of Disease and Progression

- Have we worked with clinicians to select patient targets and evaluate biometric sets that best determine disease problems and progression?
- What are our expectations around accuracy levels and metadata required for clinical validity and confidence?



#### Intervention

- Is RPM deployed as part of the patient care lifecycle?
- Are results used to educate/influence patient behavior and compliance?
- Are we taking a team-based approach with RPM?



#### Exception Monitoring

- Are clinicians presented with relevant and useful results and trends?
- Are treatments adjusted based on results, and is there an escalation process?

If not, clinicians will ignore it

## Is It Cost Effective?

$$ROI = \frac{\text{Outcomes} - \text{Program Cost}}{\text{Program Cost}}$$

### Cost Considerations



#### Business Case

- Will RPM allow us to extend reach and serve more patients with better care?
- What are the business objectives for RPM initiatives based on quality, costs, resources, and market needs?
- What are the short-, medium-, and long-term benefits?



#### Delivery Model

- What vendors, partners, affiliates, and internal resources offer the best options for delivery?
- Would outsourced, turnkey, or mixed models best fit our needs?



#### Strategy

- Do we have pilots planned to gain experience and demonstrate business impact?
- How will we integrate RPM with clinical quality, telemedicine, patient engagement, contact centers, and population health management initiatives?



#### ROI Evaluation

- Are we capturing cost inputs (patient enrollment, technology, staffing, services, etc.) and outcomes to calculate ROI?
- Are we accounting for efficacy gains?



#### Retail Options

- What process is in place to monitor new cost-effective solutions in the evolving market?
- Can our needs be met by less expensive consumer-oriented solutions (and can they be integrated)?
- Are we tracking initiatives to see what's having a positive impact?

If not, you can't afford to deploy it

### Example: Remotely Monitoring Heart Failure Patients Is Technically Feasible, Clinically Relevant, and Financially Effective

Patients capture weight, pulse, and blood pressure at home



Analyzed data is transmitted to clinicians to monitor and treat patients' heart disease



RPM reduces hospital readmission rate of monitored patients from double digits to single digits

