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Re: Response to US Senate Finance Committee Request for Feedback

Ideas to effectively use or improve the use of telehealth and remote monitoring technology

Remote telemonitoring:

Acute care hospitals will pay from 0.23%-0.39% in CMS readmission penalties this year adding millions of dollars to the hospital's expenses. Patients with Congestive Heart Failure (CHF) account for a significant proportion of this expense.

While efforts to address the challenge of CHF readmissions have met with varying success, the most widely accepted and evidenced based approach is home telemonitoring. A CBO analysis found CHF home telemonitoring to be among the few proven methods to reduce CHF admissions. More recently published reports have documented successful use of telemonitoring at other at-risk organizations including Geisinger, claiming a 3:1 ROI.

Partners HealthCare's own experience started in 2003 with a collaboration between Partners HealthCare at Home (PHH) and Partners Connected Health. We instituted a remote monitoring program, where patients were discharged with some physiologic measurement devices (weight scale, blood pressure cuff and pulse oximeter) and a touch screen, to input data everyday. A panel of nurses would be available 24/7 to review this data, and respond as needed. They would also involve the cardiologist/PCP when required. These efforts examined the effectiveness of telemonitoring on several occasions using different study designs and consistently found a 50% reduction in 30-day readmissions, as well as high patient satisfaction rates. Recent data also revealed that patients that have been followed via telemonitoring have significant improvements in mortality¹. **We believe that for a segment of high-risk Medicare patients, such programs should be part of standard care.**

We currently are experimenting with several other models of telemonitoring too, as follows:

- 1) One approach is **simplifying vital-sign monitoring** to focus on patient self-management, rather than simply providing telemonitoring clinicians access to data remotely. This approach, recently studied in a pilot study² shows that even older patients with relatively low

¹ Agboola S, Jethwani K, Khateeb K, Moore S, Kvedar J. Heart Failure Remote Monitoring: Evidence From the Retrospective Evaluation of a Real-World Remote Monitoring Program. J Med Internet Res 2015;17(4):e101

² Zan S, Agboola S, Moore SA, Parks KA, Kvedar JC, Jethwani K. Patient Engagement With a Mobile Web-Based Telemonitoring System for Heart Failure Self-Management: A Pilot Study. JMIR mHealth uHealth 2015;3(2):e33

technology literacy were able to maintain over 80% engagement in a CHF self-management program.

- 2) A second approach is to improve **medication reconciliation and adherence**, through electronic monitoring tools, to ensure adherence to the right medications once patients are discharged from the hospital. Although still under study, this approach has shown excellent initial success, leading to almost four-fold decrease in 30-day readmissions.

Based on patients' clinical severity, we eventually plan to segment patients into those needing one of these three versions, to improve the chances of clinical success in these patients as well as make this approach cost-effective.

Patient Self-management:

Partners Connected Health has deployed several technology-based programs to improve the management of chronic diseases, by enabling better self-management for patients. Some ideas that we have tried are:

- 1) **Fall management** using wearable devices, to monitor patients and detect falls as soon as they happen, to be able to help patients in a timely manner
- 2) Using tablets for **discharge planning** after a complicated surgical procedure, to simplify discharge instructions and remotely monitor important parameters (like pain, function, etc)
- 3) Using virtual technology (like Wii Fit and XBox Kinect) to offer patients **rehabilitation support** after complex joint replacement surgeries. Such strategies can help patients regain function faster, and require fewer actual face-to-face PT visits
- 4) Using smartphone applications (apps) to promote the **adoption of new lifestyle behaviors**, like increased physical activity during cardiovascular rehabilitation, or salt and water control in hypertension.

Sincerely,



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