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Commentary on Digital Health Outreach to Increase Patient Activation and Reduce 30-day Readmissions Following Heart Failure Hospitalizations

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Abstract

Readmissions after heart failure hospitalizations have been a focus of quality improvement programs for almost 2 decades. The program described in this paper is representative of an emerging theme of continuous remote care and appears to be very effective in reducing readmissions. As these programs are scalable and relatively inexpensive, one can envision tremendous growth potential.

Readmissions after heart failure hospitalizations have been a focus of quality improvement programs for almost 2 decades. The literature is replete with examples of sophisticated interventions which have all shown promising results in effectively reducing the rate of readmissions. Yet the problem has been incredibly persistent — prompting the obvious question of "why can't we solve the high rate of heart failure readmissions?"

It is instructive to review the "standard" process of a heart failure hospitalization to consider some of the factors that contribute to the persistent problem. Heart failure is not a "one size fits all" diagnosis — it has multiple causes ranging from reduced contractility, impaired relaxation, and valvular damage and variable severity, ranging from mild (managed with medications) to severe (considered for device therapy) to end stage (considered for transplant.) Most patients have multiple co-morbid conditions such as atrial fibrillation, diabetes, renal insufficiency, chronic obstructive lung disease and obesity, all of which influence presentation, disease severity and treatment. At discharge, we give the patient extensive teaching materials and multiple medications which can be overwhelming even for astute patients. To help the transition home, an early follow-up clinic visit is scheduled as an important check on progress and medical adherence. And finally, we always give the advice to "call if you have any questions or concerns."

The reasons why patients don't call medical staff are as varied as the causes of heart failure. They include denial, uncertainty, thinking the symptoms are mild and will resolve after a good night's sleep, and not wanting to be viewed as a complainer. Finally, there is the reluctance to call the answering service after hours because concerns over symptoms often increase after hours!

The range of interventions that have successfully reduced readmissions is impressive. Implantable and wearable medical devices can track key physiologic parameters and send the

information to the clinic and prompt pre-emptive intervention when the "check engine" light is on. Chronic care management deploys trained nurses, pharmacists, rehab specialists and others to proactively check in on patients so that monitoring and treatment does not have to depend on in-person clinic visits. The many reports of single arm demonstration projects and even some randomized trials show impressive results in reducing readmissions. Why has the problem persisted?

One of the most obvious limitations is the cost of scaling the interventions. For medical devices, there is a one-time cost of the device and the implant procedure. More problematic is the staff needed to monitor the data coming in (often on a daily basis) and distinguish the true positives, false positives and false negatives. There is inefficiency when the signal: noise ratio is low. The staff required for chronic care management can be considerable and will stretch the minimal reimbursement codes. It is also worth noting that most of the communication with patients is inefficient because it is synchronous and conducted over phone lines.

A second theme that limits success is that we are doing things FOR the patient which reinforces the passive nature of the patient. The medical staff is responsible for monitoring the physiologic data and for contacting the patient. What could happen if the patient was engaged and more proactive in health management?

The current paper presents a demonstration project that has 2 distinctly different strategies — asynchronous communication and engaging the patient to do things for themselves rather than waiting for things to be done for them.

Patients who were discharged with an ICD code of heart failure could self-enroll simply by scanning a QR code or by responding to an email. Patients indicated their preferred channel of communication (text or email) and if they wanted duplicate messages sent to a family member.

HIPAA-compliant communications included short educational videos, symptom surveys, and reminders for HF monitoring (e.g., daily weights) that were pushed to patients over 30 days post-discharge. The program did not require downloading an app or accessing a patient portal, which eliminated barriers to patient participation. The program was completely automated so that no staff involvement was required unless there was a clinical change.

To enhance participation in the program, a sweepstakes rewards program was also implemented. Rather than a nominal reward, patients were given tickets for each video watched and symptom survey completed. The larger the number of tickets, the higher the chances of winning in quarterly sweepstakes drawings.

Enrollment included 375 patients with a mean age of 76 years. Of note, nearly 10% of patients were >90 years of age. Most of the patients (62%) were male. Patients had either reduced EF (61%) or preserved EF (39%). Co-morbidities included AF (46%), COPD (26%), renal insufficiency (31%), and ASCVD (45%). Background medical therapy included beta blockers (72%), ACE/ARB/ARNI (48%), MRA (11%), and SGLT2 inhibitors (18%). Overall, 58 patients were re-admitted within 30 days, a 15.5% rate which is lower than the national historical average of 24%. Among "highly engaged" patients, the readmission rate was only 7.7%, representing a 68% decrease.

Communication via pushed text and email messages was instantaneous, meaning the patient would see the text or email as soon as the phone or computer was turned on. No cumbersome app, no sign in and no need to find a mutually convenient time.

Communication was asynchronous — the patient could access when it was convenient and could also be read/responded to in the comfort of their home.

Communication was in bite sized pieces. The educational videos, reminders and questionnaires could all be completed within 2-3 minutes, so the information was easily digestible.

Communication was consistent — something was sent almost every day so that the patient got into a rhythm and expected to receive something. Messages were also repeated at least once a week which helped retention and adherence.

The program was entirely automated so that messages were sent out on schedule without any staff involvement, which makes the system scalable and inexpensive. Staff acceptance was high because they had no additional work.

The program also appeared to solve the problem of depending on the patient to call the office for unusual symptoms or serious concerns. Patients were given two questions: "Do you feel your condition has worsened to the point where you might visit the Emergency Room?" If a "yes" response was clicked, a second question would automatically appear: "Would you like to speak to a staff member?" If yes, the program automatically initiated a call between the patient and the clinic (or answering service if after hours). It was remarkable that "clicking yes" was more effective than asking the patient to call the clinic. The end result was that the staff was able to intervene and many of these patients were not readmitted.

The program described in this paper is representative of an emerging theme of continuous remote care, especially with the transition of care from hospital to home. Rather than depending on the "episodes" of care that occur in the hospital or during an office visit, these programs are designed to enhance connections to the patient while

the patient is at home and on a more continuous basis. Moreover, these programs encourage patients to help themselves with greater adherence to medical regimens and healthy behaviors.

This program is limited by its small size, limited follow up and needs to be confirmed in a larger population, preferably within a controlled study. Further, this program relies on phone or computer skills and digital literacy which is not accessible to all patients.

As these programs are scalable and relatively inexpensive, one can envision significant growth potential of continuous remote care in heart failure and other chronic conditions.

References

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