

7. SUMMARY OBSERVATIONS

In this section, we discuss some opportunities to improve Health Buddy™. Overall, patients like their Health Buddies™. Few have difficulty setting up the device and learning to use it, and most use it almost daily. Thus the Health Buddy™ serves its purpose well as a communication and data link between the patient at home and the case manager.

However, Health Buddy™ remains a work in progress. We believe it can be made better in the following ways.

Can the Dropouts be Prevented?

Some patients never responded to a single survey. We can only speculate why, but possibly they were intimidated by the task of setting up the device, or antagonistic towards new technology. Similar reasons may account for a few patients responding once or twice and then quitting, though some patients quit because they moved out of the area, or switched to a physician or a health plan that was not participating in the program. The question arises, then, whether there is anything Health Hero can do to prevent these dropouts.

Health Hero currently sends Health Buddies™ to patients via Federal Express, but relies on the case manager to follow up with patients who never attempt the initial instructions. Health Hero also expects the case manager to follow up with patients who have stopped responding. However, the case managers at the two beta sites have not done so consistently. We suggest, therefore, that Health Hero should remind and encourage the case managers to follow up with these patients. It may be possible to persuade or teach some patients to set up and use the device, and they may come to like it. Health Buddies™ can be recovered from those who will not use them (whatever the reason), and refurbished for use by another patient.

Improving Health Buddy™ Survey Questions

Health Hero included the questions of Sections 3, 5, and 6 in Health Buddy™ surveys in order to support efforts to improve Health

Buddy™. The questions are intended to identify shortcomings, on the basis of which Health Hero designs and implements changes to Health Buddy™ protocols and surveys. Then the same questions are asked again of both old and new patients, to support another cycle of improvement.

As noted earlier, the questions on patient compliance with medications and dietary restrictions can themselves be improved. They should be more concrete, so patients' answers are more matters of fact and less matters of judgement. For example, instead of asking the patient whether he is following an appropriate Heart Failure diet, one should ask the patient specifically what he eats, and how much salt he adds to his food either during cooking or at the table. This approach will turn one question into several, but the answers should be more reliable. The questions should also be less leading, and to the extent possible should not require patients to recall their behaviors from months before.

The Educational Role of Health Buddy™

Literature cited earlier reports that education can improve compliance with medications and diet, and that improving compliance is associated with improved outcomes. Thus it may improve patient outcomes to exploit Health Buddy's™ potential for educating the patient concerning the physiology of CHF and its symptoms, reasons for compliance and consequences of noncompliance, training on how to comply, and repeated encouragement, reassurance, and reinforcement. As discussed in Section 5, current Health Buddy™ surveys include a number of questions intended for this purpose.

Health Buddy™ surveys can provide feedback and individualized instruction, both of which are considered to make education much more effective [15]. It can present the patient with a different survey each day. Moreover, each survey can be designed so that a particular answer to one question (e.g., answering "yes" to "do you have any new swelling, or any more swelling in your feet or legs than usual today?") can trigger a follow-up question or comment (e.g., "Limiting sodium intake may help prevent excess fluid accumulation in the body.").

Patients report that Health Buddy™ is helping them to understand their condition better and to manage it better as well. This is promising, though the data are not sufficient to demonstrate that actual patient outcomes (e.g., number and length of hospitalizations) have improved.

Improving Other Aspects of Health Buddy™ Programs

Survey questions directed at patients cannot probe all aspects of Health Buddy™ use. As discussed earlier, there are two mechanisms by which case management programs seek to improve patient outcomes. One mechanism is to improve the patient's compliance with medications, diet restrictions, and other medical advice. Survey questions can probe how well this mechanism is operating. The other mechanism is to monitor the patient, and quickly notify the physician of signs of deterioration. If the physician can intervene early, perhaps he can fix the problem before it grows. Survey questions directed at patients are a poor means for assessing the effectiveness of this mechanism.

Health Hero can play a role in assessing this mechanism, though they cannot do it alone. Though barely mentioned in this report, Health Hero collects all patient responses to every Health Buddy™ survey. "Out of range" responses are flagged, but Health Hero currently makes no attempt to determine how the case manager responds to flagged responses. In particular, Health Hero does not know when the patient's physician is notified, nor what the physician does in response. Case managers and physicians would have to provide these data.

Given these data, however, one could assess the process by which a patient's signs and symptoms provoke a medical intervention such as an adjustment of medications or hospitalization. One could judge whether the case managers receive the right information and react to by notifying physicians when it is correct to do so and not notifying them when it is unnecessary. One could judge whether physicians receive the right information when they are notified, and whether they respond in the best way. And based on this assessment, any or all of the steps in the process might be improved, from the information on signs and symptoms collected by Health Buddy™ surveys, to how the information is

presented to the case manager, to case manager protocols and physician guidelines.

Ultimately, the value of Health Buddy™ depends on its effect on patient outcomes, such as numbers and lengths of hospitalizations, and patient survival rates, functional status, and quality of life. Collecting most patient outcome data will require extraordinary efforts by Health Hero in cooperation with some combination of hospitals, physicians, hospitals, and insurers. However, Health Hero could include questions on quality of life and functional status in some Health Buddy™ surveys. The Short Form 36 (SF-36) survey [16] is a possible source of 36 questions, which could be included a few at a time (to avoid adding too much length) in successive surveys.

Concluding Comments

We have made some suggestions in this section on how to improve Health Buddy™ programs. Some of the suggestions are fairly straightforward for Health Hero to implement, as Health Hero could carry them out alone. Following up on other suggestions is more difficult, requiring a partnership between Health Hero and its clients and perhaps with third parties.

Beyond these specific suggestions, we recommend that Health Hero keep a mindset of continual improvement. The literature on case management points out substantial disagreements about how and how well case management programs work. Thus Health Hero is not simply providing a product or service for which there is generally agreed methodology. Health Hero needs to keep abreast of advances made by others in case management practice and theory, and they should seek to contribute their own advances by monitoring and continually improving the case management programs of which they are a part.