

Using an Interactive Voice Response System to Monitor Chronic Disease Patients

By Gary Hannah

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Jan. 8, 2008 | Patients with chronic conditions such as diabetes have intensive health care concerns, take many different medications with specific administration directions, and require regular blood tests and countless follow-up appointments. For many patients with chronic conditions, such as those in their senior years, it can be even more difficult for them to remember which medications to take in what amounts and at what intervals, increasing the likelihood of a life-threatening adverse event. If a medication isn't proving effective, for example, they may forget to bring it to their health care provider's attention at their next appointment, amid all of the other items on the agenda like referral appointments, blood work and the host of other concerns for chronic patients.

Because of the requirement for rigorous patient monitoring, already-busy nurses are usually tasked with maintaining close contact with patients by telephone. The problem is, it can take as many as five calls to reach a patient, resulting in nurses spending inordinate amounts of unproductive time.

With so many factors – medication, appointments, test results – the introduction of a comprehensive technology solution can help ensure consistent ongoing patient monitoring.

Interactive voice response systems (IVRS), previously associated only with telemarketing or customer-service automated systems, can facilitate ongoing patient monitoring by automating the monitoring telephone calls required to ensure adherence to chronic patients' health care plans. IVRS are being integrated into dosing technology and patient record systems to provide a fulsome solution and ensure consistent quality of care.

IVRS utilize the latest in natural-voice-recognition speech technology, which has advanced to the point where the systems can determine with great accuracy the confidence levels of responses based on various terms and the positive or negative connotations of the particular words. Business rules can determine the course of action for the call, deciding whether the patient is transferred to a live attendant at a medical call center, a notification is sent to a clinician or nurse so pertinent call-backs can be conducted by a medical professional, or merely that call data are collected for audit purposes, statistical trends, and analysis. By using customized business rules and call scripts to gather important data from the patient, limited nursing resources are used only where personal follow-up is required.

Perceived barriers to the adoption of this technology by patients were dispelled by recent studies. One hypothesis tested was that patients would not want to receive a call from a machine due to unpleasant prior experiences with telemarketing IVR systems. Similarly, health care facilities had reservations about a computer calling its patients, and whether the elderly or infirm would have difficulty interacting with the system.

Concerns about the ease of implementation and integration into existing systems were alleviated by the studies, conducted by the Ottawa Health Research Institute's Dr. Alan Forster using Vocantas CallAssure at three health care facilities across North America. Patients participating in the studies were notified in advance that they would receive the automated calls as part of their discharge plans. Between them, the three studies included a broad range of patient subjects, covering a wide span of ages, both genders, and with a range of diagnoses. Results of each of these studies have been published in peer-reviewed medical journals and presented at medical conferences.

Patients from all age and gender categories reported high acceptance of the system. Two-thirds of patients actually preferred the automated call to receiving a call from a live nurse because patients felt that they could be more honest with the system as it offered no judgment on their responses. This honesty will ensure more accurate care as it is based on the reality of the situation, not the idealized version that patients may report to a nurse out of embarrassment or inaccurate recollections.

Calls administered by the IVRS are not unsolicited and are made with the intent of improving the quality of health care received by the patient. This increases the willingness of respondents to participate. With an automated system, calls are non-disruptive and scheduled for times that are most appropriate for patients, avoiding the dinner hour, for example. A reminder call about an upcoming appointment need last only a few seconds but ensures the fidelity of the ongoing care plan.

The introduction of an IVRS can successfully reduce the workload of skilled medical professionals and ensure the consistency of care of chronic patients. With multiple applications in the health care market beyond chronic patient monitoring, including post-discharge patient follow-up and pandemic planning,

an IVRS is an added solution as the health care sector increasingly moves to an eHealth model. This automated solution can mitigate adverse events and enable quick response by a caregiver. If clinics adopt improved processes and integrated technology solutions, patients will receive the care that they require and deserve while reducing the risks for health care providers and limiting potential liability.

About the author

Gary Hannah is the founder, CEO and president of [Vocantas](#), a developer of advanced-speech-technology solutions that recently launched its CallAssure product line, an interactive voice-response system optimized for the health care environment.

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