



Maximizing the Value of Mobile Health Monitoring by Avoiding Redundant Patient Reports: Prediction of Depression-Related Symptoms and Adherence Problems in Automated Health Assessments

Piette J, Sussman J, Pfeiffer P, Silveira M, Singh S, Lavieri M

RESEARCH BRIEF

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Monthly symptom reports for patients with depression may be nearly as informative as weekly or biweekly reporting

Background/Objectives: Interactive Voice Response (IVR) technology is being used more often by clinicians to monitor the health status of patients in between scheduled visits. The system makes calls to patients and an automated process asks questions about symptoms, general health status, self-management or any other information pertinent to a patient's diagnosis. Patient answers are recorded and analyzed. The system can then alert a physician of any potential health risks that would require further investigation. Though an effective and useful new health technology, studies have suggested IVR's overall effectiveness could be limited if patients tire of frequent or repetitive IVR calls. This presents a challenge for conditions like diabetes and depression, which require frequent and in-depth monitoring to find important changes in health. The objective of this study was to determine whether an IVR system could become more efficient or effective by using patient response history to predict which calls may be unnecessary.

Method: Patients from 13 community-based primary care practices with clinical depression were provided information about the study and were invited to participate. Patients who elected to participate in the study were contacted regularly at times of their choosing in order to investigate the study's 4 outcomes of interest: a patient's depression symptoms, self-reported overall health, antidepressant adherence, and days spent bedbound due to symptoms of depression. All eligible patients were scheduled for weekly assessment calls; provided that 5 consecutive assessments at the selected interval were completed before the index assessment, researchers removed weekly assessment data to simulate biweekly and monthly call intervals. The various simulated frequencies of assessment were then analyzed regarding their power to predict future outcomes of interest.

Findings/Impact: A total of 208 patients were included in the study and completed 1050 index assessments. Researchers discovered that monthly IVR calls were almost as effective as weekly or biweekly IVR assessments of depression symptoms, self-reported overall health, or antidepressant adherence. Days spent bedbound due to depression symptoms, however, did benefit from more frequent monitoring, and are not as predictable by past assessment as other health indicators.

These findings suggest that less frequent assessment of predictable health indicators could make IVR systems more efficient and less burdensome to patients, with little to no loss in effectiveness. Patient dropout risk could be lessened, and redundancies in IVR screenings could be eliminated. Tailored, comprehensive messages could broaden the range of clinical parameters that IVR monitors, and improve observation of comorbid conditions that may complicate treatment of a patient's depression.

Links to the **full text** and additional information can be found here: <http://www.ncbi.nlm.nih.gov/pubmed/23832021>