Patients use an internet technology to report when things go wrong

John H Wasson, Todd A MacKenzie, Michael Hall

Objective: To investigate how an automated health assessment system can be used to identify adverse events.

Background: As patients directly experience harm from adverse events, investigators have proposed patient-report to complement professional reporting of adverse events.

Outcome: Patient perceptions of adverse events experienced during the previous year. Independent legal review was also used to estimate how many patient-reports were serious enough to be potentially compensable.

Results: Although patient reports of possible adverse events was low (1.4%), the percentage of adverse events was eight times higher for patients with the greatest burden of illness than for those with the least (3.4% vs 0.4%). Two expert malpractice attorneys agreed that 9% of the adverse events seemed to be serious.

Conclusions: Patients will use internet technology to report their perceptions of health-related adverse events. Some of the patient-reported events reported will be serious.
events and selected those that seemed serious enough to represent compensable injury: when the costs of the legal remedy could be greater than the costs of litigation.

We derived a conservative estimate of potentially compensable injuries by subjecting the adverse events identified by the first legal review to another review. The cases that were agreed upon by two attorneys constitute our estimate of potentially serious adverse events. A verbatim list of these events is available at http://www.howsyourhealth.org/adverse.pdf.

**ANALYSIS**

We have limited the analysis to descriptive statistics as the data are cross-sectional and are based on a convenience sample of patients out of a much larger potential population of non-respondents in clinical practices or communities.

**RESULTS**

From the 2-year convenience sample of 44 860 survey respondents, 2979 indicated a harm, hurt or injury to themselves or a family member, and 610 of these adverse events had happened to the respondents during the previous year.

**Association of possible adverse events with burden of illness**

Table 1 lists the characteristics of patients who reported health-related adverse events and those who did not. All but four (age, hypertension, exercise and excessive alcohol consumption) of the many listed variables were statistically different between the two groups of patients. In the stepwise regression of the demographic and composite variables listed in table 1, burden of illness had by far the greatest association with a report of a possible adverse event.

Figure 1 depicts the strong association between possible adverse events and burden of illness. The annual percentage of health-related adverse events ranged eightfold, from 0.4% to 3.4% across quintiles of illness burden.

**Severity of possible adverse events**

In all, 574 of the 610 patients provided descriptive information about what went wrong. The majority of these events occurred in an outpatient setting; only 12% (66) of the possible adverse events transpired in a hospital.

Two expert malpractice attorneys agreed that 9% (52/574) of the adverse events seemed serious enough to represent a possible compensable injury. In absolute terms, twice as many serious events were experienced in the ambulatory setting (n = 35) than in a hospital (n = 17). However, in relative terms, 26% (17/66) of the hospital events were possibly compensable compared with 7% of those in an outpatient setting.

**COMMENT**

This study demonstrates that patients will use internet technology to report their perceptions of health-related adverse events. Patients with a greater burden of illness are more likely to report adverse events than those with little burden. The legal
review adds credence to the notion that some patient reports will be more serious than mere complaints about poor service. These results suggest an inexpensive mechanism by which a clinician can learn about a patient’s perceptions of previous poor care, acknowledge the problem, investigate its cause and initiate a remedy. By being patient-centered and giving the perceptions of possible adverse events a human face, such systems could be useful for influencing the way the outpatient clinicians think about safety. Similar systems are also available for inpatients (http://www.howsyourcare.org).

Despite the promise of such automated systems for assessing health and healthcare, the findings have at least three significant limitations. First, since the patient denominator is a non-random sample from an unknown population, the adverse events reported in this study should not be interpreted as a benchmark rate based on a national probability sample of patients. A patient-reported adverse event will be biased by the background of the person who chose to respond to an online “health check-up” and their opportunities to interact with the healthcare system.

Second, in addition to the limitations intrinsic to our specific approach, both professional and patient-derived reports of “when things go wrong” have biases that reflect the attitudes and experiences of the reporters, their incentives or disincentives to report, and the ease of use and fidelity of the reporting system.

Finally, as yet there is no proof that patient-reported perceptions of health-related harms will improve the safety and quality of care.

In summary, we have shown how an internet-based, patient-assessment survey can produce information about health-related adverse events. More research is needed to demonstrate the value of such automated systems in improving healthcare.

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Competing interests: The results are based on the use of an internet technology www.howsyourhealth.org. Although the website is freely available without advertising or support from any commercial entities, it does cover its costs through a nominal fee for custom use by some subscribers. Under a license agreement with the trustees of Dartmouth College, the corresponding author has developed and distributed the HowsYourHealth.org website for the collection of data in this report. In this respect, the corresponding author has a conflict of interest. The authors have no other potential conflicts of interest.

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