Selection of A Delivery Platform for the Administration of Patient Satisfaction Surveys On A Tablet Computer

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Background

Quality improvement in radiology can be broadly divided into two categories: technical quality improvement and service delivery quality improvement. Service delivery quality improvement has become increasingly prominent in the radiology community secondary to an increasingly competitive marketplace, heightened customer expectations and changes to insurance structures (1). Indeed, the advent of hospital value based purchasing and the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey directly linked payment and patient satisfaction for participating institutions, with 30% of the HCAHPS score derived from patient satisfaction items (2). Some authors have postulated that it is only a matter of time before this type of link extends to all healthcare remuneration (1).

With these factors in mind, radiological societies have begun offering tools and resources to facilitate service delivery quality improvement in radiology departments, including the RSNA's Radiology Cares program (4) and the ACR's Imaging 3.0 initiative (5). Armed with this expanding toolbox for improving patient satisfaction, it is imperative that radiology departments have a convenient, efficient and consistent method to continuously monitor patient satisfaction.

While multiple commercial vendors offer services to survey patient satisfaction, there is no widely available, user-friendly tool to routinely monitor patient satisfaction on a continuous basis.

Face-to-face surveys increase response rates by up to 30% over mailed surveys, but tend to report more positive ratings (3). Mailed surveys reduce bias and generate more critical responses but often suffer from low response rate bias and underrepresent non-white, uninsured and less educated populations (3). While convenient to administer, electronic mail and web-based surveys have unique downsides not seen with mailed or face-to face surveys, including potentially underrepresenting segments of the population due to limited access to the Internet and the routine use of e-mail filters (1).

Evidence from multiple healthcare specialties outside of diagnostic imaging suggests that electronic surveys have similar accuracy and validity (6,7,8), while providing more complete information and fewer errors of omission, when compared to paper methods (9, 10). Touchscreen technology makes tablet computers ideal for administering electronic surveys. Multiple studies from the health care domain have reported that a high percentage of patients prefer tablet surveys to paper, due to ease of use and increased readability (6, 11).

The purpose of our study was to assess the feasibility of administering an electronic point-of-care survey using affordable, commercially available hardware and software.
Case Presentation

The device we used to administer our survey was an Amazon Fire tablet (Amazon.com, Inc. Seattle, WA). This tablet met our functionality requirements with a relatively large display yet relatively small overall size and weight, resulting in a good balance of portability and readability. These tablets are available for less than $40, which we believe is important to limit the financial risk given concerns for loss and theft (10). Tablet devices can be cleaned with chlorhexidine wipes without compromising operability or screen visibility with good results, allowing them to meet infection control requirements (15).

When evaluating software to administer our survey, we considered a number of factors. Of primary importance were applications designed specifically for tablets to provide optimal functionality and applications that allowed both online and offline survey completion so as not to exclude departments without wireless network access in their departments.

We performed an Internet search of top rated survey applications which yielded a large list of possibilities, however, application of the above mentioned criteria yielded two applications: QuickTapSurvey (TabbleDabble Inc. Toronto, ON) and LoopSurvey (LoopSurvey Inc. San Francisco, CA). We excluded Loop Survey because they currently do not offer an Android version of the application (16). Our pilot study was run on QuickTapSurvey's free trial version.

We created a fifteen-question survey based on evidence that many patients lack a frame of reference to evaluate the quality of care and instead use surrogate markers such as staff friendliness and institution cleanliness (3,12). Additionally, factors beyond technical and clinical expertise contribute greatly to patient satisfaction, including staff to patient communication, respect for patients as individuals, and acknowledgement of patient concerns (2, 3, 13, 14). More practical considerations included keeping the survey short (less than 5 minutes) (1), providing simply worded questions (1), minimizing the amount of demographic data to maintain patient anonymity (1), and having the order of survey questions follow the sequence of events through the care process (3).

Outcome

This survey was administered offline to patients by the MRI technologist following their imaging appointment. Initial experience suggests high completion rates and patient and technologist satisfaction with our tablet-based survey. Data to be recorded in the second phase include the proportion of patients who completed the survey when offered, the number of surveys with omitted questions, the number and type of technical issues, and whether these technical issues prevented the patients from completing the survey.

Discussion

In our study we chose to administer a point of care, electronic survey to take advantage of the increased response rate of face-to-face surveys with the anonymity of a mailed survey. The QuickTapSurvey application has proven to be a convenient platform for creating surveys, with a user-friendly interface and multiple options for survey customization. Features such as the ability to lock the survey to prevent unintentional exiting and to loop the survey to reduce the
steps required for the administering technologists were particularly helpful. The 5 point Likert-like satisfaction rating was presented as happy face icons with ranging emotions, which has been shown in the literature to increase accessibility for those with poor reading skills (3). Unfortunately, much of this functionality is only available long term under a paid subscription on a per device basis.

The limitations of the available software, most prominently the non-adjustable text size and lack of multi-language capability, in addition to the potentially substantial cost to use the software for an entire radiology department make our current method sub-optimal. Going forward, it is our intention to create a custom application designed specifically for patient satisfaction and tablet computers for use in radiology departments. This could then be offered open source to radiology departments as a tool to facilitate internal monitoring of patient satisfaction. Additional work would also be required to create template surveys for different radiology sub-departments (MR, CT, etc.). With sufficient development, a standardized survey on a widely available application could provide a database of metrics against which any department could compare their results, providing a national average and benchmark for performance.

Conclusion

We were able to identify important factors required for a patient satisfaction survey specifically developed for diagnostic imaging departments and to identify requirements for implementation of this survey electronically. Initial experience suggests improved completion rates and patient and technologist satisfaction with a tablet-based survey in comparison to a paper based one. Current commercial offerings fall short of our ideal requirements and consequently we plan to develop open source Android and iOS implementations which we believe would be more cost effective and specific to a healthcare environment. SIIM could potentially help to coordinate the efforts with other societies to develop a standardized set of questions for patient satisfaction in medical imaging departments.

References


Keywords

survey, tablet, patient satisfaction, service quality