

DTX Abstract – 2021 NASS Annual Meeting

Title:

Utilization of an Automated SMS-based electronic Patient Reported Outcome Tool in Spinal Surgery Patients.

Background Context:

Recent evidence suggests that collecting and tracking patient reported outcomes (PROs) is correlated with improved patient quality of life, patient satisfaction and physician-patient communication. With the ongoing shift in the healthcare industry to value-based care, more emphasis is being placed on patient-reported measures as well as clinical outcomes and cost reduction methods. Typically, PROs are collected via paper forms, but this method has shown to be difficult to incorporate and a burden on clinical staff and patients. The literature is scarce regarding the value of using electronic Patient Reported Outcome (ePRO) systems in non-clinical trial settings, and much of the existing literature focuses on phone applications that require installation. We sought to assess the usability of an automated app-less SMS-based electronic tool to collect spine PROs.

Objective:

To assess the feasibility of implementing an automated SMS-based electronic Patient Reported Outcome (ePRO) tool for clinical outcome assessment in spinal surgery patients.

Study Design:

Patients receiving the SMS HIPAA-compliant survey link were prospectively enrolled in the ePRO tool's administrative web portal from June 1, 2020, to October 1, 2020. Outcome data for patients receiving either the SMS or paper survey was retrospectively analyzed.

Patient Sample:

A total of 204 patients were included in this study. Group 1 included 88 patients who underwent either a Microdiscectomy (9), Lumbar Fusion (42), or Anterior Cervical Fusion (37) from June 1, 2020, to October 1, 2020, and were sent an outcome survey via a SMS HIPAA-Compliant link. Group 2 included 116 patients who received either a Microdiscectomy (14), Lumbar Fusion (69) or Anterior Cervical Fusion (34) from November 1, 2019 to March 1, 2020 and were administered an in-office paper outcome survey.

Outcome Measures:

Two outcomes were investigated in this study: survey compliance rate (response rate) and total mean time required for patient outcome assessment (includes mean survey response time and mean staff administration time).

Methods:

A total of 88 patients undergoing Microdiscectomies (9), Lumbar Fusions (42), and Anterior Cervical Fusions (37) from June 1, 2020, to October 1, 2020 were prospectively enrolled in the tool's administrative web portal. Patients received automated outcome assessment surveys via a HIPAA

Compliant SMS link at 1 week, 1 month, and 3 months post-surgery. Once patients clicked on the SMS link, they were led to a secure web browser and answered the survey questions. All survey responses were captured in a secure web portal which allowed physicians and associated staff to view responses. Prior to the application of the ePRO tool, outcome information was collected at the aforementioned timepoints via paper for 116 patients who received Microdiscectomies (14), Lumbar Fusions (69) and Anterior Cervical Fusions (34) from November 1, 2019 to March 1, 2020. In this study, compliance rate and the mean time required for outcome assessment were compared between patients receiving SMS surveys and patients receiving paper surveys. Both groups of patients (SMS and Paper) had analogous demographic, medical history, and surgical characteristics. Data analysis was conducted in SPSS 20.0 (SPSS, Inc. Chicago, IL) and included one-way ANOVAs and two-tailed t-tests.

Results:

The PRO data capture rate was 52% with SMS surveys (146/279) and 26% (94/356) with paper surveys ($p < 0.05$). The total mean time associated with capturing outcomes via SMS surveys (19 hours) was one-third of the time associated with the paper survey method (57 hours) ($p < 0.05$). Use of the ePRO tool resulted in a reduction in both the mean survey completion time (SMS: 5 minutes, Paper: 7.5 minutes) and mean administration time spent by staff on each patient (SMS: 5 minutes, Paper: 17 minutes). Minimal time effort was required from staff after initial patient enrollment. Results from a survey assessing usability indicated that staff and patients preferred use of the ePRO tool compared to in-office paper surveys.

Conclusions:

Initial results indicate that implementation of an app-less SMS-based ePRO tool in a spine practice setting is feasible and mutually beneficial to patients and providers. SMS survey administration of PROs for spine surgery patients increased the capture rate of clinical outcomes, allowed for data collection in the absence of an office visit, and decreased the total mean time associated with PRO collection. The ePRO tool allowed for large-scale and timely data collection, and we believe use of such a tool can potentially facilitate early detection of patient issues and complications. Future studies would benefit by examining the value of using such a tool to identify patient complications in a timely manner.