

## Patient perceptions of e-prescribing and its impact on their relationships with providers: A qualitative analysis

Caitlin K. Frail, Megan Kline, and Margie E. Snyder

### Abstract

**Objective:** To describe patients' perceptions of electronic (e)-prescribing and its impact on patients' quality of care, interactions with prescribers and pharmacists, and engagement in health care overall, particularly in regard to medication use.

**Methods:** Semistructured, one-on-one interviews with 12 patients.

**Results:** Patients were generally unfamiliar with the functions of integrated e-prescribing systems and did not perceive that use of such technology affected their relationships with providers. Those respondents having positive perceptions of, and experiences with e-prescribing mostly cited convenience and improvements in safety and quality, while patients with negative e-prescribing perceptions and experiences primarily expressed concern about loss of control in the medication-use process, misdirected prescriptions, and reduced communication with prescribers and pharmacists.

**Conclusion:** Patients generally felt unaffected by the use of e-prescribing technology; however, there may be opportunities to better engage and educate patients, particularly at the point of prescribing.

**Keywords:** Health communication, electronic prescribing, health information technology, pharmacists, physician-patient relationships, qualitative analysis.

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The electronic transfer of prescription information from the prescriber to the pharmacist has become widely adopted in our health care system. In 2012, 788 million prescriptions were actively routed electronically, an increase of 38% from 2011.<sup>1</sup> The overall goal of electronic prescribing (e-prescribing) is to enhance efficiency and safety, while decreasing costs and improving quality of care.<sup>2–4</sup>

Another potential benefit of e-prescribing systems integrated with electronic medical records (EMRs) is the ability to provide real-time medication information (e.g., prescription benefit data and refill history) that may facilitate more meaningful discussions between patients and prescribers.<sup>5</sup>

Overall, previous studies have found prescriber and pharmacist experiences with e-prescribing systems to be generally positive,<sup>6–10</sup> with 83% of primary care physicians preferring e-prescribing to traditional prescribing.<sup>11</sup> Pharmacists have reported perceived improvements in effectiveness and efficiency of care, as well as patient safety.<sup>7</sup> However, while the goals of e-prescribing are positive, use of the technology does introduce the potential for new medication safety concerns, workflow disruptions, and other challenges.<sup>12,13</sup> Community pharmacists have reported that e-prescribing has affected their communication and interaction with patients, which they suspect could have medication safety implications.<sup>14</sup>

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To our knowledge, few studies have addressed patient perspectives on e-prescribing in the United States. Lapane et al. identified positive attitudes of older patients about e-prescribing and a related increase in discussions between patients and prescribers about medication adherence and medication safety.<sup>15</sup> A separate study coauthored by Lapane determined that while patients who received e-prescriptions did not perceive a related increase in medication-related communication with their providers, they were more likely than patients not receiving e-prescriptions to report that their provider always verified their list of current medications.<sup>16</sup> These studies focus primarily on patient perceptions of the e-prescribing experience, with little attention to the pharmacy experience and patient-pharmacist relationships.

This study seeks to examine the e-prescribing experiences of patients beyond the geriatric population and the perceived impact, if any, that the use of integrated e-prescribing has on patients' engagement in their medication use and interactions with their health care providers, including pharmacists.

**Objective**

The objective of this study was to describe patients' perceptions of e-prescribing and its impact on patients' quality of care, interactions with prescribers and pharmacists, and engagement in health care overall, particularly in regard to medication use.

**Methods**

**Design**

We conducted semistructured, one-on-one interviews with patients at a grocery store-based chain pharmacy in central Indiana. We employed this approach so that we would have the flexibility to explore patient perceptions. The study was approved by the Purdue University Institutional Review Board.

**Participants**

We generated a list of prescribers who most frequently send e-prescriptions to the pharmacy and contacted them to verify their use of EMR-integrated e-prescribing systems with access to certain functionalities, including pharmacy benefits data and claims-based prescription refill reports. When e-prescriptions from these prescribers were processed, a flyer was attached to patients' prescription bags to invite them to contact us for information about the study. Patients 18 years and older who used at least one regularly scheduled prescription medication (to ensure regular pharmacy visits) were eligible. Patients were offered a \$25 gift card as an incentive to participate.

**Data collection and analysis**

Our interview guide assessed general prescription

**Table 1.** Sample demographics (n = 12)

Characteristics	No. (%) (unless otherwise noted)
Age (years)	Mean ± SD, 64.9 ± 11.8
Range	50–89
Gender	
Women	7 (58)
Men	5 (42)
Race	
White	9 (75)
Black	3 (25)
Number of prescriptions (median)	6
Range	1–12
Number of prescribers (median)	4
Range	1–8
Prescription payers	
Commercial insurance	6 (50)
Medicaid	2 (17)
Medicare Part D	1 (8)
Medicaid/Medicare dual eligible	1 (8)
Tricare	1 (8)
Uninsured	1 (8)
Use of multiple community pharmacies	
With no mail service	4 (33)
Including mail service	2 (17)

routing, adherence, pharmacy benefits, and patient-pharmacist relationships (see Appendix A, available under Supplemental Content on JAPhA.org). The guide was pilot tested with two patients at another pharmacy. Interviews were conducted in a private room at the pharmacy by a single investigator. Interviews were audio recorded and transcribed verbatim by a commercial medical transcriptionist agency, with transcripts verified against the audio recordings. As part of the interview, limited demographic data were also collected.

Transcripts were read and coded separately by two investigators and then discussed to identify inconsistencies and achieve consensus regarding coding decisions. We applied conceptual codes<sup>17</sup> to identify main overarching ideas expressed and completed subcoding to further examine each main idea. The investigators maintained a codebook and audit trail to record decisions. Qualitative analysis was supported by MAXQDA v. 10 (VERBI, Berlin, Germany), and descriptive statistics for demographic data were computed using SPSS v.19 (IBM).

**Results**

Between April and October 2012, we conducted 12 interviews lasting approximately 15–60 minutes each. Generally, participants were white (75%), women (58%), older adults (mean age: 65 years) and using an average of six regularly scheduled prescriptions (Table 1). The following describes prominent themes from the analysis. Counts of participants who responded in a certain

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