

VIEWPOINT

LESS IS MORE

Evaluating the Role of System-Generated Communications in Health Care Organizations

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Health care systems increasingly use communication channels, such as email, text messages, and interactive telephone technology, to communicate with individual patients or groups of patients about clinical, logistical, and financial issues. This trend has been accelerated by the COVID-19 pandemic.¹ Patients and clinicians who have traditionally spoken to each other in person or by phone can now communicate through secure patient portals, text messages, or live chats. Small clinical practices may augment these one-to-one clinical communications with basic automated messages that remind patients to keep appointments or pay their bills. Large, integrated health care systems, such as the US Department of Veterans Affairs and Kaiser Permanente, are expanding their communication portfolio to include system-generated appointment reminders from primary care and multiple specialty clinics, prompts to complete laboratory and imaging tests, medication reminders from system pharmacies, surveys to assess satisfaction with care, billing notices, and population health messages to encourage healthy lifestyles and disease-prevention practices.²⁻⁴ In aggregate, these automated, system-generated campaigns constitute an important part of the communication ecosystem of a health care organization. They can improve the quality and efficiency of care. Yet they could also devolve into a cacophony of excessive, intrusive, and irrelevant messages.

Systematic reviews have shown the effectiveness of automated communication campaigns. Text reminders can improve appointment-keeping, while automated telephone communications can change health behaviors and improve clinical outcomes.^{5,6} Despite the capacity of these interventions to improve system performance, an organizational strategy for automated communications should be anchored in the needs and preferences of individual patients. Its goals should be to communicate with patients about topics of interest and importance to them, using the communication channels they prefer, at a frequency they accept, with ongoing evaluation of effectiveness and unintended consequences. Herein we explore the unintended consequences of automated communications and propose a research agenda to address them.

Unintended Consequences of System-Generated Messages

Existing research has focused largely on specific interventions that affect a limited range of outcomes. Such studies do not assess the cumulative implications of multiple, simultaneous communication campaigns on global outcomes, such as engagement with care.

Because individual communication campaigns may be effective, health care systems can be tempted to pile on messages without considering the overall volume or content of messages the patient receives. If patients begin to feel that these campaigns are not well coordinated or that certain messages are unnecessary, impersonal, or repetitive, then they may start to ignore them regardless of content.² For example, patients may become frustrated with a health care system that continues to send them reminders for influenza vaccination after they have already been immunized. In response, some patients may even opt out of text messages or stop opening emails from the system.⁴

The potential problems of communication cacophony, message burden, and message fatigue have received limited research attention in health care. Existing research suggests that repeated communications on a topic can reduce information recall or desensitize the recipient to the intended message.⁷⁻⁹ The flurry of communication campaigns in response to the COVID-19 pandemic has amplified these concerns.¹ A qualitative study in the US Department of Veterans Affairs found that some veterans received appointment reminders via multiple communication channels and were frustrated that their responses to one message did not affect the content of subsequent messages.² In another large integrated health care system, requests to opt out of all text or automated telephone communications increased as a function of the total number of messages the patient received regardless of content.⁴ Still another system conducted rigorous evaluations of long-standing communication campaigns and identified some that were ineffective and could be discontinued.¹⁰ More systematic research is needed to extend this patchwork of studies.

An Agenda for Research About System-Generated Communications

As health care systems integrate more components of care delivery and expand their communication ecosystems, investment in ongoing research and evaluation can help them avoid communication cacophony.¹⁰ Research teams require individuals with expertise in clinical care, health communication, health services research, health care disparities, and data science. A research agenda about system-generated communications should include identifying patient priorities for communication topics, understanding patient preferences for communication channels, tracking the content and frequency of messages, and continuously evaluating communication campaigns and strategy.

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Identify Patient Priorities for Communication Topics

Health care systems should continually evaluate the communication priorities of their patients. Such evaluations should identify variations in sociodemographic and cultural characteristics, clinical conditions, and health literacy that predict preferences for different topics, channels, and frequency of communication. Health care systems could emulate other industries by conducting research to identify subgroups of patients who vary in their responses to specific message content or channels.⁹ Targeting of messages to specific patient subgroups may be refined by the use of data from electronic health records to ensure, for example, that individuals who have already received an influenza vaccination stop receiving reminders from the system to receive the vaccine. Patient input can also inform the design of an overall communication strategy by addressing issues such as the desirability of repeated messages on the same topic and overall thresholds for message fatigue.

Understand Patient Preferences for Communication Channels

Health care systems should develop and test approaches to increase the use of platforms in electronic health records that record the communication preferences of their patients. These platforms can also be used for research to explore the extent to which patients prefer to receive different types of messages through different communication channels and the stability of communication preferences over time.

Track the Content and Frequency of Messages

Research to improve system-generated communications must be guided by an inventory of existing communication campaigns. This may be difficult in health care systems that allow multiple clinical and nonclinical departments to generate campaigns independently and deliver messages through both internal channels and external vendors. Such an inventory can highlight the need for new communication campaigns, quantify message burden,

improve the consistency of campaigns across departments, and consolidate relevant appointment, laboratory, imaging, and pharmacy reminders for completion at a single patient visit. A communication inventory can also identify message campaigns that can be discontinued because they are outdated, redundant, or ineffective.¹⁰

Continuously Evaluate Communication Campaigns and the Communication Strategy

Routinely evaluating the effectiveness of system-generated communication campaigns is crucial. In systems with large patient populations and advanced clinical data systems, researchers can conduct rapid randomized trials in large patient samples, using existing data to track outcomes, such as reductions in missed appointments or increases in treatment adherence.³ Such studies can identify interventions that are either particularly effective or lead to unopened emails or text message opt-outs in specific patient subgroups.^{4,10} Serial patient surveys should also be conducted to assess global perceptions of the communication ecosystem, the value of specific message types, the coordination of communication campaigns, and the prevalence of message fatigue.

Conclusions

The goal of communication ecosystems in health care is to improve patient health, quality, safety, engagement, and efficiency of care. System-generated communications can help achieve these goals. A well-designed communication strategy may even help retain patients and attract new ones. To do so, health care systems must create a coherent, patient-centered strategy to develop and test their communications and harmonize a potential cacophony of solo voices into a well-orchestrated choir. Only when communication ecosystems assess and balance the benefits and unintended consequences of their interventions will health care systems fulfill the promise of the virtual revolution in health communication.

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