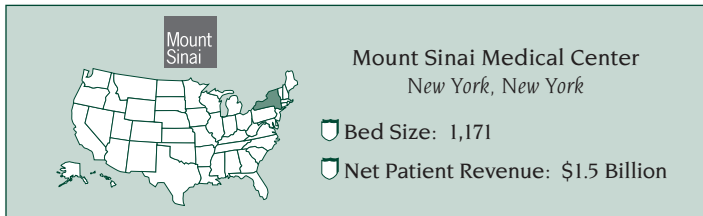




## THE ACADEMY OF HEALTHCARE TECHNOLOGY

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# Using Text Messaging to Enhance the Quality of Care



When healthcare providers attempt to integrate new technologies into established clinical processes, they often face skepticism from physicians. Sometimes the expected benefits are not immediately apparent, and clinicians may be resistant to using new technologies if they believe they are interfering with patient care. As more providers try to innovate by adopting technologies such as electronic health records and computerized physician order entry, a frequent challenge is obtaining support from clinical end users.

For this reason, it is useful to examine how other healthcare providers have successfully used technology to enhance patient care, particularly where emerging technologies and innovative uses of existing technologies are concerned. One area of increasing interest is mobile health technology, which attempts to improve communication with patients through mobile devices such as smart phones and tablets. Given the ubiquity of cell phones and the increasing use of text messaging, some providers have started exploring methods of using them to improve patient care.

One organization that has had success with using texting to communicate with patients is New York's Mount Sinai Medical Center. In 2009, physicians at Mount Sinai conducted a research study to determine if using text messages could improve outcomes for pediatric liver transplant patients. They found that using text message reminders can help to significantly improve medication adherence and reduce rejection episodes.

### Using Technology to Address Non-Adherence

The idea of using text messages to communicate with transplant patients originated with the need to address issues with transplant patients not taking required medications, not keeping clinic appointments, or otherwise not following instructions related to their care. With young children, it is typically the responsibility of the parents to ensure medication adherence, and that population does relatively well. Teenagers, on the other hand, tend not to prioritize taking medication.

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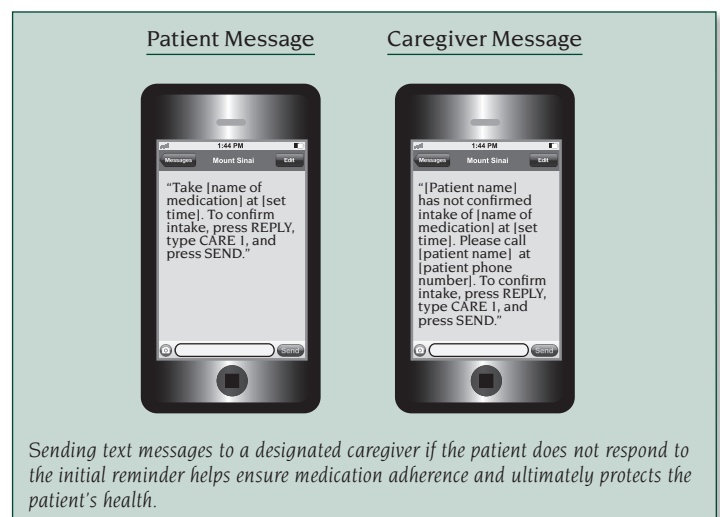
early childhood, so some of them stop taking their medication and then we can have big problems," says Dr. Nanda Kerkar, Director of the Pediatric Liver Transplant Program. "In transplant patients, it could lead to rejection and hospitalization. So we needed to have an interactive system to communicate with them, and text messaging was helpful for that."

Once Mount Sinai's institutional review board approved a research study on the effectiveness of texting for transplant patients, the physicians simply had to inform liver transplant patients about the program, and have them sign a consent form if they wanted to participate. Ultimately, 41 patients with a median age of 15 years participated in the program. After consent had been obtained, Mount Sinai's business partner, CareSpeak Communications, was responsible for administering the program—the physicians did not need to significantly alter how they worked with patients in order to use this technology.

### Managing Patient Communications in Practice

After consent was secured, patients were instructed to register online at CareSpeak's portal, where they provided the following data:

- Username and password
- Name and cell phone number
- Caregiver's name and cell phone number
- Medication name and frequency (e.g., twice per day)
- Exact times the patient wanted the reminders to arrive
- Elapsed time to notify caregiver if patient does not respond



Based on that, text messages were generated along the following template: “Take [name of medication] at [set time]. To confirm intake, press REPLY, type CARE 1, and press SEND.” If the patient did not respond within the time frame they had established, a message was sent to their caregiver. Patients and caregivers were reimbursed for any costs associated with receiving and sending text messages.

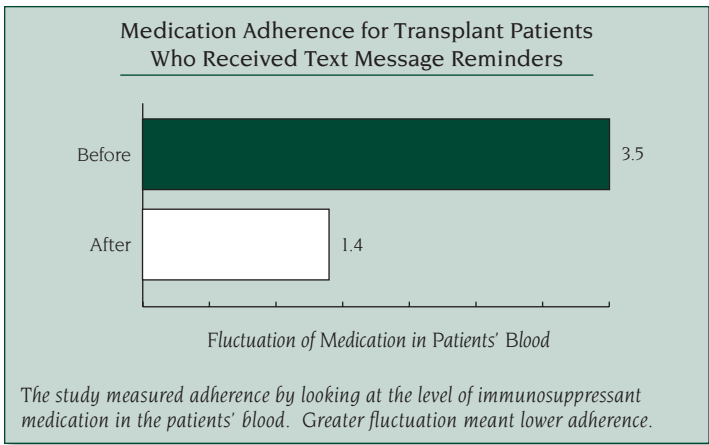
Data on the response rate was monitored by CareSpeak, which would coordinate with the Mount Sinai clinical team if any issues arose. “If I would notice patients were not receiving text messages, I would notify Mount Sinai and tell them to ask the patient if they changed phones, or ran out of credit, or didn’t want to be in the program anymore,” says Serge Loncar, CareSpeak CEO. “We always had engaging feedback from them, which helped us learn patient preferences.”

*“As teenagers, they are going out with friends, they have other things on their minds. Often they have received transplants in early childhood, so some of them stop taking their medication and then we can have big problems. In transplant patients, it could lead to rejection and hospitalization. So we needed to have an interactive system to communicate with them, and text messaging was helpful for that.”*

- Dr. Nanda Kerkar,  
Director of the Pediatric Liver Transplant Program

This collaborative relationship allowed Mount Sinai and CareSpeak to make improvements to the program as it went on. For example, the idea of escalation—i.e., texting a caregiver if the patient did not reply to the initial reminder—was a product of the partnership between Mount Sinai and CareSpeak. During the program, they also discovered they would need to give patients the option to request different reminder messages on weekends, when they may prefer not to receive a message as early in the morning as they would on a week day.

Another lesson learned was that some patients may want flexibility in terms of text message content. If a patient does not want their medication named in the message, they could opt to have it described in a generic manner, such as “blue pill.” Some patients may not even want the incoming text to refer



to medication at all; they could choose message content that does not explicitly say anything about their health, but which they would understand as a medication reminder. By working together to understand patients’ needs, Mount Sinai and CareSpeak were able to develop the process together with a focus on patient service.

“What was surprising to me in a positive way was how much patients wanted to be engaged and provide feedback,” says Loncar. “The experience overall has been very good in terms of patient interaction and willingness to share their input.”

From Mount Sinai’s perspective, Dr. Kerkar says text messaging proved helpful since physicians can only do so much to assure medication adherence. “Sometimes there are limited pairs of hands, so this was a good system,” she says. At the conclusion of the program, it appeared that using text messages had a notable positive impact. Patients who participated showed a significant increase in the rate of medication adherence compared to before the use of text message reminders (see image above).

It is not uncommon for physicians to be hesitant about using technologies that promise to improve patient care if the benefits are not immediately apparent. Mount Sinai’s experience of using text message reminders to improve the care of transplant patients provides an example of how providers can collaborate with their constituents to develop a process for using technology that benefits all parties involved. U



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*Information Technology Pathways* is published monthly by  
The Academy of Healthcare Technology