Today’s medical students and residents are from the first generation of digital natives: those who grew up with cell phones, text messaging, and the Internet. They are comfortable with e-innovation, are increasingly disengaged from traditional teaching methods within medical schools and residency programs, and are quick to embrace new teaching technologies. Students instead stream lectures from home, use electronic devices to access medical journals online, and use “smart” phone applications during rounds. Adapting teaching methods within medical schools and residencies to connect with this generation of e-learners is challenging. Text messaging (short message service) offers a method of bridging the gap between traditional teaching styles and the educational styles of millennial learners because of its ease, familiarity, and asynchronous nature. Among adults aged 18 to 29 years, 94% own a cell phone, and of those, 97% send and receive text messages. Some residency programs even provide trainees with smart phones. The prevalence, acceptance, and low cost of text messaging make it particularly inviting as a potentially high-yield learning tool in medical education.

**FOUNDATION OF TEXT MESSAGING USE IN EDUCATION**

Texting has already become a well-accepted way to communicate with and engage students in high school and undergraduate settings, with a variety of platforms available for teachers. Teachers may use text messages to remind students about assignments, to deliver rapid-fire surveys or quizzes during class, or to conduct course-wide discussions (either within or outside the standard classroom period). Texting platforms are unique in that they allow participants to ask questions or discuss topics via the comfort of anonymity, which may promote participation and enhance learning. This form of feedback direct from one’s mobile phone is popular. Texting that occurs directly between learner and teacher, although it may not afford anonymity to the student from the teacher, still allows students to pose questions anonymously from their peers (often in real time). It also provides teachers immediate feedback regarding whether learners are adequately assimilating information, both as individuals and as an entire group. By engaging students in a familiar medium (text messaging), teachers open the door to new styles of learning. Negative student responses to texting occur when the time that messages are sent and subsequently received is perceived to encroach on one’s personal time. Cost may also be a factor, although texting fees continue to decline.
EXPERIENCES WITH TEXT MESSAGING IN MEDICAL EDUCATION

Despite its acceptance in other settings, there are remarkably few studies evaluating the utility and use of text messaging as an educational tool for medical students or residents in training. One of the more applicable studies assessed learning in obstetrics and gynecology. Residents received information on breast cancer both via text message (2 or 3 messages per day for 17 days) and through a printed booklet. Whereas both groups improved, pre- and posttest scores revealed that the residents performed significantly better on the questions that referenced information provided to them via text message, and residents also felt more motivated to learn from the texted messages.

The prevalent usage of texting among residents within a surgical residency program has been used to successfully introduce a text message–based duty-hour monitoring system. The study noted that residents are both proficient with their cellular phones and comfortable with using text messaging to interact with their residency program. In a short period of time, duty-hour compliance among 39 residents increased to 100% without being overly intrusive on residents’ time.

EMBRACING NEW OPPORTUNITIES WITH TEXTING IN MEDICAL EDUCATION

Although the use of text messaging as a learning tool in graduate medical education is uncommon, the acceptance of texting as an easy, simple form of personal communication among residents is ubiquitous. Information sent via text message can be quickly read by the recipient and does not require the user to access the Internet, log-in to an e-mail account, or download any document; this fast-paced style appeals to medical trainees. Text messaging in medical education can function as both a private or a broad (group) method of communication. Individualized, private texts may have benefit as a gentle reminder for residents to update or work on their individualized learning plans, which may be linked to specific content suggested by faculty, chief residents, or an advisor. Text messages may also serve to kick-off a larger discussion, either within the training program, or across an entire department. This interaction could take place via back-and-forth messaging (eg, resident to resident or resident to faculty), through an online discussion board or serve as a springboard for scheduled educational didactic sessions (eg, morning report, noon conference). Texting of specific educational messages could serve as a learning tool in a larger “topic of the week” across a department (eg, a text for an Oncology Week: “Tumor lysis syndrome: HYPERuricemia, HYPERkalemia, and HYPERphosphatemia with HYPOcalcemia”). Themes may help consolidate learning and increase discussion between trainees and faculty. Trainees absent from traditional educational conferences (eg, due to shift-scheduling) would still benefit from an educational pearl received via text message.

What residents choose to do with the texts also holds potential. They may delete messages immediately or save them, in essence creating an accessible study guide. Because text messages received via smart phone are innately categorized by author, messages sent from a single texting platform would allow users to compile strings of educational messages available for quick review at the user’s convenience. Given the fast-paced nature of residency training, having a few minutes to scroll through knowledge-based text messages on board-relevant material via a smart phone may have greater appeal to millennial learners than looking up similar information in a review book.

Although opportunities clearly exist with 1-way texting of information to trainees, it is important to consider the possibility of 2-way texting programs. Instead of messages containing only factual information, they could be question-based and seek trainee input. In this format, trainees could have the ability for a 1-way reply (eg, answering the question only to the sender) or potentially reply to all recipients of the original message. Training programs would have the ability to hybridize texting curricula, balancing texts of medical knowledge with open-ended questions posed to trigger residency-wide discussions on themed topics. Texting curricula could be developed by individual training programs or via a collaborative effort across several residency programs. The minimal geographic boundaries and efficient nature of cellular service would enable enrollment of a large number of trainees and further increase the possibility of interaction. Learners could be divided into “texting teams” to help facilitate group participation and knowledge sharing. Programs that enact broad, 2-way texting platforms should consider appointing a representative to monitor the discussion. As with all forms of communication, perception and etiquette are paramount. In medical education, trainees interact with other trainees, faculty, staff, patients, and families throughout the day. A texting curriculum provides opportunities for modeling and feedback focused on how to interact with one’s mobile device in front of others. Demonstrating to learners the appropriate usage, timing, and contextual implications of mobile devices during patient interactions is an important component of medical education with millennial trainees. Being mindful of both
patients’ feelings and one’s institutional culture and attitudes toward mobile learning will be imperative. The starting points for evaluating medical-texting platforms are medical schools and residency programs. A thorough analysis and discussion with participants regarding the best time to send messages to avoid a negative impact on the learning intervention will be critical to the success of any new platform. As medical educators, we should continue to extend our comfort zone and experiment with new educational methods to best connect with our learners. We should embrace the growing wave of mobile technology in education and actively examine how text messages may assist us in teaching. If, through the use of texting, trainees can acquire new information that they would not have otherwise obtained, academic investment into these methods may well be worth it. We believe that text messaging, a communication medium already accepted and used daily by medical students and residents, will develop its niche in both undergraduate and graduate medical education. The best lecturers can still fall short of their intended objectives if their message does not stick with the audience. With text messaging, the ideas will not be lost; learners have the texts and can review them repeatedly. So as we ponder the poor attendance at noon conference or once-packed lecture halls, or lament the “good ole days” of morning report, take a look at your phone and consider text messaging in medical education: RUUP4IT?

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