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Disrupting Fellow Education Through Group Texting

WhatsApp in Fellow Education?

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"New tools provide, for the first time, a mechanism for informal, self-directed just-in-time learning."

—Eugene Stead (1)

The doubling time of medical knowledge has shortened dramatically—in 1950, it was 50 years; in 2010, 3.5 years; and by 2020, it is projected to be a mere 73 days (2). As data and knowledge have increased exponentially, so have the challenges to develop mastery in medicine. Over the past several years, the forums for knowledge transfer also have changed. In the past, educational conferences were a key component of training programs. However, a recent observational study of internal medicine interns found that 40% of interns' time was occupied by computer use, but only 2.3% of their time was spent in educational conferences (3). Millennial medical trainees have competing responsibilities: providing optimal patient care, writing notes in the medical chart, learning new procedures and clinical skills, and keeping current with the rapidly evolving published data. It is not surprising when young trainees struggle with limited time. The time dilemma is a hurdle to traditional didactics, but it is also a unique opportunity for innovating the approach to medical education. In response to this challenge, the Duke Cardiology Fellowship Program developed a group-chat through the WhatsApp (WhatsApp, Mountain View, California) platform to enrich an emerging framework for fellowship education and lifelong learning (4).

Dr. Eugene A. Stead, a visionary educator, forecasted that "the library of tomorrow will be internet-centric, becoming the focus of producing knowledge units that meet our needs" (5). In the early 2000s, Up-to-Date, an online method for "just-in-time learning" was hailed as a revolution in medical education. House staff could query this living textbook at any time and within seconds obtain the most relevant, latest information on their diagnostic or management dilemma at hand. Other internet-based tools, such as the open-sourced WikiDoc project, have followed suit to make knowledge freely available to anyone (6). These sources have provided the basis for self-directed and "on-the-go" learning. However, the value added by classroom education and conferences should not be underestimated, as they not only serve as methods for knowledge dissemination, but also offer a venue for academic exchange and discussion. After the institution of further duty-hour restrictions in 2011, emerging data suggest that didactic time is decreasing during medical training (3,7,8). A reduction in classroom time must then be compensated for in another way.

Novel technological tools are disrupting medical education by filling this gap. Social media outlets, such as Twitter, have become popular in academic circles by exposing trainees and faculty alike to a far broader audience, allowing direct discussion with content experts, democratizing voices, and delivering

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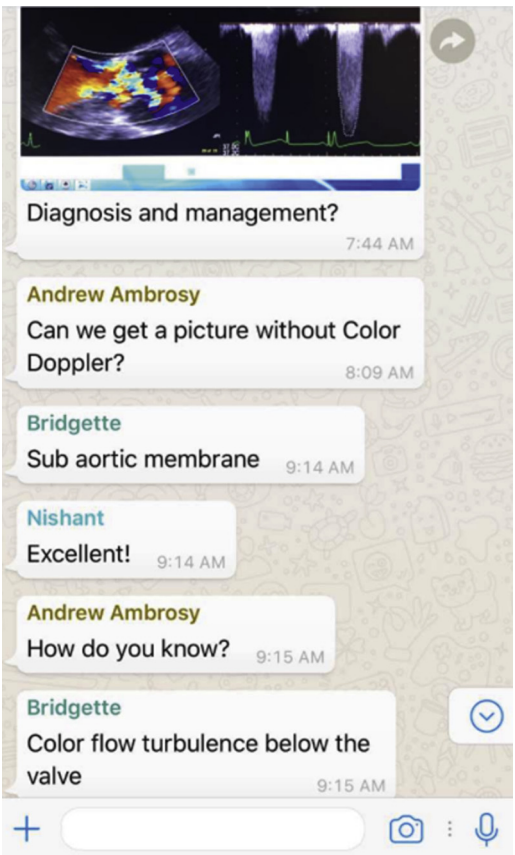
FIGURE 1 Sample Discussion Thread



high-yield teaching points in short and consistent units. Social media also amplifies the reach of medical conferences and enhances the dissemination, academic discussion, and peer review of novel trials and research endeavors (9,10). Furthermore, Twitter journal clubs permit a much larger, more diverse, and more global group to enrich discussion. A popular Nephrology Journal Club has a median of 61.6 individuals participating in each session, and a total of 40,802 tweets have employed the #NephJC hashtag (11). Professional societies have utilized other social media platforms, such as Facebook, to enhance continuing education through closed-group online discussions. However, tailoring such technological tools to individual training programs can be challenging. Many trainees and faculty may not actively participate on social media, and medical professionals may have concerns regarding sharing instructive cases while maintaining patient privacy and confidentiality.

At Duke, we developed a group text platform using WhatsApp to augment education among fellows. WhatsApp allowed us to rapidly share and discuss educational material through a group text, case-based format. Participants post interesting cases, often with images (electrocardiograms, echocardiograms, cardiac catheterizations, hemodynamic tracings, computed tomography images, and magnetic resonance images), and the group engages in discussions regarding diagnosis and management plans. All participants are required to remove protected health information before posting cases. The goal of the group text is to share individual case-based teachable moments to the entire fellowship program and stimulate interesting discussions. We chose WhatsApp as the interactive platform, because it allowed instantaneous messaging, unlimited number of participants, end-to-end encryption of texts, and the ability to evaluate participation and engagement with cases. The group text allows for administrative rights, so that faculty/fellow leads can ensure protected health information exclusion and keep discussions focused on education.

The group started with 1 faculty lead and 14 fellows. Over a 5-month period, participation grew to 42 fellows and 14 faculty. Faculty expertise covers imaging, anesthesia, electrophysiology, congenital heart disease, and interventional cardiology. Current and former fellows, including subspecialty fellows, were included in the group to increase the diversity of experiences and cases. The discussions organically grew from mainly faculty posting cases and moderating discussions to fellows submitting cases and leading discussions. Since the group started in May 2017, >500 images and videos were shared on the group. An example thread is presented in **Figure 1**. Interesting cases continue to generate robust discussions, although the frequency of weekly posted cases waxes and wanes. The varying number of cases likely correlates with the availability of engaged faculty and fellows. The time of the year may also be important. For example, case volume may increase preceding board examinations during which some fellows might be particularly motivated to obtain expert faculty insights. A brief internet-based survey revealed that 66.7% of our fellows actively participated in this learning forum, and even more fellows (85.7%) believed the group-text format enhanced their educational experience.

We believe there are several key components for successful implementation of a training program text message-based education group. Most importantly,

TABLE 1 Duke Cardiovascular Education Group Text: Rules of Engagement

What happens on WhatsApp stays on WhatsApp. No penalties for wrong answers.
Posts are only permitted during business hours (08:00–17:00).
Maximum of 5 cases/day (can have multiple images/case).
Once post is made, wait 10 min before providing answers.

the group must be led by ≥1 faculty champion (preferably several) who proactively post interesting cases and disseminate high-yield teaching points. In addition to faculty champions, trainee champions are essential to actively engage in the group-text discussion by answering faculty questions and posting cases. Our experience demonstrated several barriers for optimal trainee and faculty engagement. Trainees may be concerned about being judged for incorrect answers; furthermore, enthusiasm for participation in the group can wane with time. Another key concern for both fellows and faculty is the potential for technology in general, and specifically a cellphone-based learning platform, to distract from productivity and task completion. To minimize these barriers, it is important to increase the awareness of the association between multitasking, often compounded by technology, and decreased attention. Furthermore, all health care providers are encouraged to minimize cell phone usage during important tasks, such as direct patient care or during physician-to-physician discussions.

For optimal implementation of this learning platform, we enacted 4 key guidelines for participating in the Duke Cardiovascular Education Group Text (**Table 1**). What happens on WhatsApp, stays on WhatsApp; importantly, participation is actively encouraged and there are no penalties for wrong answers. Participants should only post during business hours of 8:00 AM to 5:00 PM, Monday through Friday. There is a maximum of 5 cases/day to minimize group-text fatigue. Once a participant has posted a case, they should wait ≥10 min before providing the answer to allow for a broad discussion to develop.

Medical trainees are presently torn between an exponential growth of medical knowledge and limited dedicated teaching time. Narang et al. (4) elegantly describe a new framework to improve lifelong learning for cardiologists; one arm of this novel approach includes leveraging technological tools to augment traditional teaching curricula. We developed an education-focused group text that provides high-yield teaching points through a case-based model. Scaling this group-text approach to other cardiology and medical training programs to augment program-specific teaching should be easy and valuable. A program-specific group text is a simple and effective tool to enhance the learning experience for medical trainees.

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RESPONSE: What's App, Doc?

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The authors of this innovative approach for case-based clinical education are to be commended. Using WhatsApp showed not only an original methodology for medical education, but also a conscientious desire to be inclusive and interactive with clinical case vignettes. Millennials are inherently collaborative, want to know that their work produces a greater good, and are challenging the status quo (1). This makes them a unique group of trainees for developing bright, new ideas in what can be rather routine and repetitive educational processes within academic medical education. Fresh and varied methodologies are required to motivate and stimulate millennial residents and fellows in training. Engaging in social media and mobile phone apps enables physicians and scientists to enhance their ability to collaborate and network, and thereby expands research and clinical education. Our radiologist colleagues have already embraced innovative mobile phone apps and high technology. Social media is becoming an important contribution to a physician's reputation and a new core competence for cardiology (2).

There are definitely pros and cons to using a mobile app for expanding medical and clinical training. The pros are that the case being discussed is in real time and allows multilevel engagement from mature attendings with fellows-in-training and various subspecialists. It allows experience and evidence-based education to coexist in a clinical case-based teaching model. There are advantages for improved patient care when various ideas are exchanged and discussed. WhatsApp is cheap, easy, accessible, and a rather simple educational model. It is a flexible platform and can be brief or extended depending on the level of engagement. The cons are that few faculty are embracing the benefits and importance of social media and mobile phone apps for medical education. If faculty do not value these novel modalities, they are less likely to be engaged. The authors have acknowledged that being on your mobile phone can appear disruptive and rude in a clinical setting. The authors showed sensitivity and responsibility through the development of a code of conduct for their mobile app-based education tool. Thus, these issues have been adequately addressed.

The WhatsApp platform could be expanded to include mentoring and coaching in addition to medical education. Academic training programs as well as the American College of Cardiology sections and committees could develop similar platforms. My personal opinion is that WhatsApp is *APPropriate* for medical education and *APPropriate* for engaging millennials and expanding clinical care. The keys to a successful mobile app clinical education program will need to include significant faculty engagement and trainee participation, diverse and challenging cases, faculty oversight, and a code of conduct.

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