

# Twittering Healthcare: Social Media and Medicine

## Introduction

It's mildly surprising to look for a definition of "social media" and not find it to be: an Internet-based way to stay in touch with friends, waste time, and kill productivity. It is, instead, loosely defined as user-generated content utilizing Internet-based publishing technologies, distinct from traditional print and broadcast media.

If there is a key differentiator for social media, it is the phrase "user-generated," distinguishing it from the content created by professional journalists, broadcasters, or other paid content providers.

If the concept of social media started with chat rooms and moved on to listservs, blogs, and RSS feeds, then social network sites such as MySpace, Facebook, and LinkedIn, the biggest current attention-grabber in the evolution of social media is Twitter.

What is Twitter, and does it have applications to healthcare and telemedicine?

## Twitter

On the Twitter Web site, it is defined as "a service for friends, family, and co-workers to communicate and stay connected through the exchange of quick, frequent answers to one simple question: What are you doing?"

Fair enough, if rather general. The key to Twitter is called microblogging, which has some relationship to text messaging (texting). A blog is a Web log, or online diary, where people can write their thoughts and allow readers to interact with what they publish. Texting is a way to communicate via cellular phone by sending text messages that are 160 characters or less and are read on a mobile device.

Twitter takes those concepts a step further. Once someone has a Twitter account, they can enter messages 140 characters or less, which are then sent out to anyone else on Twitter who is following that account. Vice versa, after signing up, you can search for people of interest and follow what they have to say at any given moment. It can

be read on the individual homepage on Twitter or have the messages pushed to or from a mobile device. A message is called a "tweet."

In March 2009, Nielsen.com ranked Twitter as the fastest-growing site in the Member Communities category for the previous month. There's not a lot of consensus on how many people are actually using Twitter, with estimates ranging from 4 to 5 million users to 6 million monthly visitors, with monthly visits hitting 55 million. It appears to have a 60% dropout rate as well.

Although as a "social entertainment" Twitter is remarkably successful—it's a wonderful time-waster—the more significant question, especially as it pertains to telemedicine and e-health, is: What good is it?

Joseph C. Kvedar, M.D., Director of the Center for Connected Health (Partners Healthcare System, Boston, MA), says that one way to look at Twitter is as a method of mass communication. "It's a bit like having a group of people you can instantly send a blast fax or blast e-mail or a blast communication to because it's real-time and because it was designed for mobility. Instead of being like texting my daughter, I might now text 30 people or 50 or 100 people, whatever the number is who are following you."

Several healthcare practitioners and organizations are putting Twitter to use.

## The Individual Physician

Michael Lara, M.D., is a board-certified psychiatrist and neurologist practicing in Belmont, California. He is also an early adopter of technology and runs a blog called "BrainTwits of Michael Lara, MD: Musings on Mind, Brain and Body in the Age of the Internet": [http://mlaramd.typepad.com/michael\\_lara\\_md/](http://mlaramd.typepad.com/michael_lara_md/). He cites three ways a physician can use Twitter. First is to communicate with other team members. In this respect it's not much different than a text message or e-mail, but it goes out to more people simultaneously. Lara says, "For instance, I'll get a tweet from one of my office staff, if I'm not in my office, saying that Mrs. Jones has canceled her 3:00 appointment."

The second category is to gather medical information. Lara notes that the people on Twitter who he follows are mostly physicians who tweet about their areas of expertise or experience with various drugs. In addition, pharmaceutical companies send out tweets about developing products. "It's a great way to stay posted on medical topics that are relevant to my practice."

The third basic category that Lara sees for physicians is acquiring general information about conference updates. For instance, at the time of this interview the American Psychiatric Association was being held in San Francisco. Lara, who did not attend, received tweets from attendees.

Is it clinically useful? Lara isn't so sure. The content from the conference was focused more on gossipy items such as attendance being down or how little pharma presence was compared to previous years. "Most of the tweets from the conference tended to fall into the interesting but not necessarily clinically useful information. Again, is it helpful? I don't know. But interesting? Yes."

But is there clinical use? Possibly, although privacy issues are a significant problem. This is an area where physician Twitter users should use great caution. Lara says, "I have a hard and fast rule about twittering about patients. I don't twitter any direct information about specific patients, to patients, or even about patients to people I know."

He notes, however, that one of his patients found his Twitter feed and began asking him specific questions about treatment. His response was to have his staff call the patient, resolve the issue, and remind her that Twitter was not the most appropriate way to contact him.

Michael Lara's Twitter feed is: <http://twitter.com/MichaelLaraMD>

### 10 HEALTHCARE APPLICATIONS FOR TWITTER (OUT OF 140!)

Phil Baumann, R.N., a former clinical nurse now working in pharma, blogs regularly about social media and healthcare ([www.philbaumann.com](http://www.philbaumann.com)). In one of his blog posts, he cites 140 potential uses of Twitter in healthcare. Here are 10:

1. Disaster alerting and response
2. Diabetes management (blood glucose tracking)
3. Drug safety alerts from the Food and Drug Administration
4. Biomedical device data capture and reporting
5. Shift-bidding for nurses and other healthcare professionals
6. Diagnostic brainstorming
7. Rare diseases tracking and resource connection
8. Providing smoking cessation assistance
9. Broadcasting infant care tips to new parents
10. Post-discharge patient consultations and follow-up care

## Hospitals

Ed Bennett, a hospital Web manager for the University of Maryland Medical System, maintains a blog where he tries to track social network activity in healthcare (<http://ebennett.org>). As of mid-May 2009, he cites 255 hospitals in the United States using social networking tools and 167 that have Twitter accounts.

One of those hospitals is the Anne Arundel Medical Center in Annapolis, Maryland. They recently began implementing social media elements into their marketing in hopes of staying ahead of the shifts in traditional media. Justin Paquette, Media Coordinator for AAMC, says, "Twitter is one component of our overall strategy, and AAMC is still in the experimental phase with the service. We're trying to measure its value in reaching not just our patients, but other hospitals, physicians, and healthcare services throughout the region."

Paquette cites studies that report that 53% of patients between the age of 25 and 34 are influenced by social media when it comes to healthcare decisions. At the same time, traditional media and advertising is still influential. Demographics suggest that in order to provide information to the younger population, adopting newer social media tactics may be required.

AAMC is using Twitter cautiously, placing direct limits on the types of activities allowed. In AAMC's Twitter profile, they have placed a disclaimer indicating that just because AAMC is "following" another Twitter user does not constitute an endorsement of those users' opinions. Paquette says, "I set this protection because while we want AAMC to be in the healthcare conversation, we need to be sure our audience knows that we cannot advocate for what others are posting on their accounts. Just like in any other conversation, we can only be responsible for what we say."

AAMC is primarily utilizing Twitter to push hospital news, to steer people to the hospital Web site and toward press releases. AAMC also provides links in their Twitter feed to local media outlets as well as national media such as The New York Times or CNN. In addition to news feeds, they use Twitter interactively. As the Twitter feeds' host, Paquette will respond to questions, but he's clear that hospitals need to participate carefully. They will not dispense health advice, for instance. Interaction focuses on hospital events or questions related to expansion or health system projects.

AAMC reports that their Twitter feed, which was launched on April 21, 2009, had 175 "followers" in the first month, averaging more than 5 new followers each day. Paquette expects the numbers to continue to grow.

Companies—hospitals and others—are struggling with whether there is real utility in Twitter use. It has potential, but it's not clear whether it's really effective. One potential drawback, Paquette notes,

is “that above anything else, the brand, the company, must dictate content. We must use these services responsibly, and be sure that the information we’re pushing to our followers is accurate, credible, and of use to them. AAMC’s Twitter account is an extension of the brand that our region has come to trust, and there is a lot of responsibility that comes with that to use the service correctly.”

AAMC’s Twitter feed is: [www.twitter.com/aamcnews](http://www.twitter.com/aamcnews)

### TrialX

Launched in October 2008, TrialX is a service that helps patients find clinical trials and connect them with trial investigators. The company integrated with two online personal health record providers: Google Health and Microsoft’s HealthVault.

Set up as a more focused alternative to Clinicaltrials.gov, which might show thousands of search results, TrialX creates a match between the patient’s health profile, lab results, and medications, as well as locations. Clinical trial investigators sign up and pay to post their clinical trials for \$99 per month, which is how TrialX generates revenue. Patients can search the TrialX Web site and contact the trial investigators through the site via e-mail. Chintan Patel, co-founder of TrialX and the technical lead, says, “Now patients can use their health records to find clinical trials. In one or two clicks they can get a clinical trial that matches to their health problems.”

Beginning in March 2009, TrialX developed a Twitter application. The idea was to allow patients to communicate with TrialX without actually leaving Twitter (Fig. 1). With their TrialX Twitter application, which builds on top of Twitter, patients interested in a clinical trial can send TrialX a tweet that says “TrialX” with the key word “CT.” For instance, the message can say: “I am a 55-year-old female in New York, a breast cancer patient looking for clinical trials.” The TrialX program then finds the values for a 55-year-old female and sends a tweet back with the Web site address that will take them to the matching pages. Patel says, “You can also send us a direct message on Twitter so you don’t have to put it on the site publicly.”

On his blog (<http://blog.trialx.org/>), Patel indicates that using Twitter has two primary advantages. First, “It allows a user to leverage an increasingly common mode of communication for finding useful information.” Second, a user’s tweets, unless sent directly, are public, which expands patients’ opportunities to become informed about clinical trials. Patel says, “For example, only 3% of cancer patients participate in trials, but surveys have shown that many more would like to participate if only they were aware of trials and had a simple way to access trial information.”

TrialX’s Twitter feed is: <http://twitter.com/TrialX>

### Centers for Disease Control & Prevention

During the recent outbreak of H1N1 swine flu, Twitter became a source of a tremendous amount of information about the flu. Unfortunately, most of it was unreliable, ridiculous gossip, which may be one of the most significant problems with user-generated content—let the buyer beware ... and double-check the source.

While people—anybody with a Twitter account apparently—were shouting their opinions on the virus into the ether, soon Twitter users began looking for reliable information. The Centers for Disease Control & Prevention (CDC) emphasized their Twitter feeds as a source of reliable, up-to-date information about the flu. Primarily the Twitter feeds contained TinyURLs [see Sidebar 2] that led back to the CDC Web site, which contained more extensive updates than could be reported in 140 characters or less.

Erin Edgerton, Senior Social Media Strategist for the CDC, says, “We have three feeds in Twitter and we segmented them so they have different content so they may appeal to different people. So, rather than having one general CDC Twitter feed, we try to segment out the information so people can really find what’s relevant and interesting for them.”

The first is CDC E-Health, which was launched in October 2008 right around the time Hurricane Ike struck Galveston, Texas. This particular Twitter feed focuses on all the different types of social media the CDC has operating. This Twitter feed drives traffic to other CDC-created social content, which allow larger chunks of information.

The second Twitter feed the CDC launched was related directly to the flu in general, as opposed to the H1N1 flu.

The third is a CDC emergency feed that was launched during the peanut product recalls in early 2009. Edgerton says, “The CDC emergency feed was the one we primarily promoted during the H1N1 outbreak and we saw a huge increase in the number of followers.”

The CDC is tracking social media carefully, whether it’s Twitter,



Fig. 1. Example of a TrialX Twitter message.

podcasts, their YouTube channel, or their various Web site pages. Since April 22, 2009, when the CDC began collecting metrics, 195,000 people signed up for e-mail updates and 153,000 subscribed to the Twitter feed. The e-mail updates are specific to H1N1. The H1N1 outbreak showed a significant increase in usage for all CDC media. From April 22 to May 12, the CDC.gov homepage received 120 million hits and the H1N1 flu pages themselves received 58 million hits.

Edgerton notes that Twitter, similar to many of the communication activities at the CDC, is relatively new. "So we're still learning how to use it. We are refining our strategy and evolving our activities. I think as we get better at using the channeling and listening to what people want from us, we can use it more effectively."

Because of the nonstop streaming quality of Twitter feeds and the sheer volume of traffic, Twitter more closely resembles radio, where the consumer turns it on, checks what's going on, looks through traffic and content for that particular moment in time, but doesn't back-track through the archives. Edgerton says, "So for us it's always going to be the channel we use in support of other activities. It's never going to be a main channel we'll send out to users for information."

At its core, Twitter is simply another tool the CDC is using to reach the public. Although hits on the CDC's Web sites indicate a high traffic volume, the CDC is aware that many people are also getting information from micro-blogs such as Twitter and other social networks. Edgerton says, "We're trying to participate in spaces where we feel it's useful, relevant, and effective so we can reach as many people as possible with the information they want."

The CDC Twitter feeds are:

[http://twitter.com/CDC\\_eHealth](http://twitter.com/CDC_eHealth)

<http://twitter.com/CDCflu>

<http://twitter.com/CDCemergency>

### Twitter's the Engine, Not the Vehicle

It's easy to dismiss Twitter because so much of the media attention focused on it looks at how movie stars and celebrities like Ashton Kutcher or Oprah are using it, or how so much of the traffic on Twitter is made up of comments about people going to the grocery store or what they ate for lunch.

What Kvedar finds most intriguing about Twitter isn't how it's currently being used, but the openness of the platform. "It's so easy to build other applications that feed into that platform. So you have

### TWITTER APPS LIKE TWEETDECK

A number of companies are developing applications for Twitter, which can be checked out at <http://twitter.com/downloads>. Two of the more prominent are Tweetdeck, developed by Adobe Systems, which is a personal browser for managing tweets. Various types of tweets can be broken into columns. For instance, one column for direct replies; one column that is just the open Twitter timeline; and a third that tracks search results.

An important application when using Twitter is TinyURL.com, which allows users to take a long Web site address, enter it into its search engine, and it creates a shorter URL that can then be cut-and-pasted into the browser, e-mail, or Twitter entry, saving the other 140 characters for the rest of the message.

secondary applications like Tweetdeck [see Sidebar 2], for instance. You can input from the Web, you can input from one of these third-party applications. There's a malleability for the platform that's very appealing for people who want to design new things."

Phil Baumann, R.N., a former clinical nurse now working in pharma, is also a big proponent of Twitter and agrees with Kvedar. He focuses on the Application Programming Interface (API) as the real power of Twitter. Twitter is basically a data stream made up of millions and millions of individuals' short comments. Twitter accesses that stream and allows a developer to withdraw, input, or otherwise manipulate that data stream. "It's the API that really gives Twitter its ability. The sky's the limit with the API. It's just that the API so far has been primarily designed for frivolous entertainment applications. TrialX so far is the most publicly known application that might have some return on investment for the public. The API is really where it's at."

Kvedar notes that simply mentioning Twitter and social media applications like it is likely to make hospital CIOs uneasy. "I think we need to at least note that mainstream healthcare is just not going to get this at all. They're going to look at it as some really crazy wide-open thing with all sorts of risks as opposed to a really interesting tool they can use to inform patients about things that are really important."

—Mark Terry