SPECIAL ARTICLE

A breath of Twitter

E. Torrente[a,*], T. Martí[b], J. Escarrabill[a,c]

[a] *Catalan Agency for Health Information, Assessment and Quality, Barcelona, Spain*
[b] *Indesinenter, Barcelona, Spain*
[c] *Master Plan for Respiratory Diseases (PDMAR), Ministry of Health, Generalitat de Catalunya, Barcelona, Spain*

Abstract   The use of online social networks among physicians and physicians-in-training is similar to that of the general population. Patients also use online social networks to communicate and exchange information with other patients who have similar conditions and with health professionals, something which is not free from ethical problems. In any case, online social networks have penetrated clinical practice irreversibly.

Twitter is an effective social communication tool used for many different purposes. It has been massively adopted in many sectors including healthcare. The article explores its usefulness for respiratory physicians, focusing in four areas: 1) Access to generic and scientific information, 2) Contact with the professional community, 3) Public health, 4) Relationship with patients.
© 2011 Sociedade Portuguesa de Pneumologia. Published by Elsevier España, S.L. All rights reserved.

Um sopro de Twitter

Resumo   A utilização de redes sociais online pessoais entre os médicos e os médicos estagiários é semelhante à da população em geral. Os pacientes também utilizam as redes sociais online para comunicar e trocar informações com outros pacientes que têm condições semelhantes e com profissionais de saúde, algo que não se encontra livre de problemas éticos. De qualquer forma, as redes sociais online têm-se introduzido na prática clínica de modo incontestável e irreversível.

O Twitter é uma forma de comunicação social eficaz utilizada para muitas finalidades diferentes. Foi maciçamente adotado em muitos setores, incluindo na saúde. O artigo explora a sua utilidade para os médicos pneumologistas, principalmente concentrado em quatro áreas: 1) O acesso à informação genérica e científica, 2) O contacto com a comunidade profissional, 3) Saúde pública, 4) Relacionamento com os pacientes.
© 2011 Sociedade Portuguesa de Pneumologia. Publicado por Elsevier España, S.L. Todos os direitos reservados.

* Corresponding author.
  E-mail address: etorrente@gencat.cat (E. Torrente).

The use of online social networks among physicians and physicians-in-training is similar to that of the general population.[1] Patients also use online social networks to communicate and exchange information with other patients who have similar conditions[2] and also with health professionals, something not entirely free from ethical problems. In any case, online social networks have penetrated clinical practice irreversibly. Twitter is a social communication tool which is constantly growing in user numbers (around 200 million[3]). Its success can be explained by its multiple uses, but is it useful to the healthcare sector? And more specifically, could respiratory physicians benefit from it?

What is Twitter?

Twitter is a free social networking and micro blogging service that enables its users to read and send text-based posts of up to 140 characters, called tweets. The network of contacts is a system which allows you to follow users (*following*) and be followed by other users (*followers*) without requiring authorization.

Messages are automatically published on the users' front page (*timeline*).

Any user may answer (*reply*) or forward (*retweet*) any tweet, in this way generating public debate and conversation. In addition, links can be added to the tweets in order to give additional information beyond the 140 characters.

Some **key aspects** which may help us to understand the potential of Twitter.

Multifocal. Twitter is a window to unlimited sources of information. In fact, the amount of information circulating on this network is huge (more than 200 million tweets per day).[4] So much so that there is a danger of what has already been dubbed ''infoxication''.[5] However, Twitter offers the possibility of creating lists to manage tweets by themes or authors and tags (*hashtags*) which also helps manage the information by making it easier to follow a particular topic.

Moreover, social media aggregators (e.g. TweetDeck, Hootsuite...) have emerged to manage content from multiple social networks services.

Immediacy. Twitter is a very effective source of information. Update is instantaneous, which makes it an ideal tool to disseminate information or to broadcast live events (conferences, information on public transport, or any event worldwide[6]). Twitter is fast and viral (anyone can forward a tweet) so that the spread of information is unstoppable.

Links. One of the characteristic features of Twitter is its ability to include links that makes it easier to move from one content to another (user names, references, links that are added to tweets, hashtags...).

Ubiquitous/mobile. As with any social network, Twitter can be accessed anytime and anywhere, a fact that has been enhanced by smart phones. This facilitates the broadcasting of live events by users themselves, a valuable tool from the point of view of peer-to-peer communication.

Twitter is part of the new wave of the global transformation of information and communication, called Social News.[7] This introduces the idea that the future of communication between people is based on obtaining information directly from the original source. Social media and web 2.0 enable users to become prosumers,[8] that is consumers and also producers of content on the web.

Twitter is an example of a growing trend called Personal Learning Networks, by which people can learn through a selection of experts (personal network) about a particular topic or subject area.

Doctors in Twitter: What for?

Twitter is an effective tool for information dissemination but it can be used for many different purposes. In fact, it has been massively adopted in many sectors including healthcare. Let's look at some examples of how useful it can be, focusing on four main areas: 1) Access to generic and scientific information, 2) Contact with the professional community, 3) Public health, 4) Relationship with patients.

Access to generic and scientific information

Twitter may offer doctors a source of information and knowledge exchange. You can follow news in real time within your area of interest at either a generic or scientific level. Scientific journals have embraced the use of Twitter to disseminate their scientific production and publications. See for instance how The Lancet (@TheLancet), PLoS ONE (@PLoSONE) or The New England Journal of Medicine (@NEJM) publish links to their recent articles.

Focusing on specialized respiratory journals, the following cases are highlighted (Table 1):

- American Journal of Respiratory and Critical Care Medicine.[9] Its Twitter account is that of the American Thoracic Society:[10] @atscommunity. Its main uses are: information about the latest issue and about news and resources from the Society.
- Chest.[11] The journal does not have a Twitter account but the American College of Chest Physicians[12] (@accpchest) reports the journal news.
- Thorax.[13] It has a Twitter account (@ThoraxBMJ) which is regularly updated (a tweet every 2/3 days). Its activity is mainly about publication updates, highlighted articles, links to podcasts, congress news or practical questions about the journal and the BMJ.
- European Respiratory Journal.[14] In the same way as Chest, its activity is followed by the European Respiratory Society[15] account (@ERSTalk) which shares scientific knowledge and news about the Society meetings.

Ultimately, real time access to scientific information through Twitter may facilitate continuous medical education and healthcare research.[16] Twitter's basic characteristics (multifocal, immediacy, links) have become essential qualities to access information. Following an appropriate network of professionals will guarantee access to interesting sources in real time. To some extent, Twitter allows you to access information in advance of conventional channels where information is also accessible but comes later and with lower impact.

Table 1 Respiratory journals Twitter uses.

Journal	Twitter account	Uses
American Journal of Respiratory and Critical Care Medicine	American Thoracic Society @atscommunity	• Recent issue information • News about Society resources
Chest	American College of Chest Physicians @accpchest	• Journal news
Thorax	@ThoraxBMJ	• Recent publication updates • Links to podcasts • Meetings news
European Respiratory Journal	European Respiratory Society @ERSTalk	• Share scientific knowledge • Meeting news

Contact with the professional community

Twitter is the perfect place to keep in contact with professional colleagues. The system of following someone without requiring authorization makes it easier to follow the activity of professional peers even if you do not know them. Never has it been so easy to be up to date through peer recommendations from all over the world. With an accurate selection of following accounts, critical news about your profession should come to you over your Twitter timeline.

In addition to disseminating information, this tool facilitates conversations with other users. For resolving doubts at a particular time, or for asking advice on a topic, it is useful to launch questions into the community using a tagging hashtag (#). Followers can answer any tweet publicly (or privately if required), and they can forward it to their followers, thus broadening the scope of the question audience.

Conversations are open and any other user can add to them. To invite a particular user to participate in the conversation, you can also use the mention (@user).

A good place to start conversations on Twitter is at a medical congress. There are many examples of the utility of this tool in this kind of environment,[17] for example, starting clinical discussions. During the conference, the conversation can be projected onto a screen in real time enabling the introduction of questions, ideas or comments from the audience.

Through the congress hashtag, those who could not attend may follow the event through following Twitter activity in real time or when it is over.

With a good strategy for dissemination on Twitter, before (organizers can open an account to collect ideas and suggestions), during and after the event, the impact achieved can be as high as in other media.

Public health

Twitter has emerged as an effective tool for detecting health problems or trends. Chew and Eysenbach[18] analyzed Twitter as a tool for measuring public perceptions in emergency situations like the H1N1 outbreak in 2009. They analyzed tweets (more than 2 million) containing ''swine flu'' H1N1 and other related words and concluded that the tweets were used to disseminate information from reliable sources and also reflected a variety of opinions and experience.

In any case, the content of the tweets can be analyzed by the health authorities in real time and they can identify public concerns before taking action.

In emergencies, Twitter also has proved effective. During the earthquake in Japan in March 2011, Japanese doctors wrote, in letters to The Lancet that Twitter had been vital in notifying patients about where to get medication.[19] In this case, through ''retweets'', the information could spread quickly.

At the institutional level, agencies such as WHO (@whonews) or the US Center for Disease Control (@CDCgov) report on the latest recommendations, disease outbreaks and new prevention strategies.

Relationship with patients

Besides the above, Twitter becomes an influence on clinical practice when used as a complementary communication channel for patients on two levels.

First, health organizations have started to benefit from social networks such as Twitter by disseminating information and enhancing their digital presence. This is how pioneering hospitals such as Hospital Sant Joan de Déu (@HSJDBCN) are using this channel as part of their digital presence strategy.[20] However, there are still only very few hospitals which are active on different social networks simultaneously.[21]

Secondly, there are examples of use of Twitter by health professionals as a tool to communicate with their patients to provide health information (tips, sites. . .) or even for their practice agenda (@drcasado, @doctorcasado). However, some professionals do not recommend sharing information about individual patients on social networks,[22] because of the importance of maintaining the confidentiality required in any doctor/patient relationship.

At present, it is hard to predict the scope and consequences of social media for clinical practice because it is an emerging phenomenon in constant evolution. In fact, the whole range of possibilities of Twitter for different patient groups has still not been explored. A survey of asthmatic patients has shown how limited the impact of Twitter has been in the management of the disease.[23] The possibilities of Twitter as a support tool for giving up smoking have not yet been explored.[24]

However, there is no doubt that it is part of a broader phenomenon that has transformed forever the concepts of space and time in conventional medicine.[25]

How can we measure the impact of Twitter?

People frequently try to make a simplistic assessment of the impact of a tool based on the number of followers or subscribers and it is true that numbers can shed light on social impact. However, Avinash Kaushik, in his blog,[26] has proposed a method of assessing the impact of social networks that allows us to get away from the merely quantitative (number of followers or subscribers, number of comments, number of tweets...). The three elements of measurement are the ''conversation'', the ''amplification'' and the ''applause''. From these concepts come three rates:

1. Conversation rate: if the goal is to engage a lot of people, one parameter would be a good conversation rate which is measured through the number of mentions or retweets.
2. Amplification rate: if we want to measure how much content is shared, then we have to combine the measure of retweets with the size of the retweeters network.
3. Applause rate: number of positive reactions in relation to a post or a tweet.

This approach allows us to reinforce three possible uses of Twitter: to converse (many people talking about one topic/user), to distribute or amplify (many distribute what you have produced) or to assess the attitudes to a proposal (applause).

Risks and solutions

There are certain risks associated with participation in social networks. Clearly one of the challenges posed by the information society is to manage the huge volume of information circulating on the Internet.

Twitter can play a role in information management. It allows us to identify users (individuals, institutions, magazines) who can act as our information filter (a social filter). Through them, we can directly access the most relevant information to our field of interest.

Additionally, you can use hashtags or communication feeds to classify tweets by theme, or do something as simple as stop following users when they do not add value.

On the other hand, there are risks associated with privacy issues. We are faced with an ethical dilemma about the potential of the Internet and social networks to challenge the traditional boundaries of the doctor–patient relationship.

Some studies have warned that doctors may be unwittingly exposed to risks when they employ these for personal use.[27] In response, professional associations around the world are drawing up public guidelines or making recommendations for the proper use of social networking.[28] There are no rules and, sometimes professional or positioning statements regarding doctors' criteria for using these tools with their patients may be sufficient.[29]

How to start?

Like most 2.0 tools, learning is about starting to use them. It makes no sense to pay much attention to a tool that is not going to be used regularly.

The best way to get introduced to the world of Twitter is with the counselling and support of someone you trust. Twitter has its own language and even though some guides with ''basic terminology'' may be useful (Table 2), our recommendation is to start by observing how it works (before starting tweeting).

At the beginning, it is worth following a small number of professionals who use Twitter ''moderately'' (more than four or five tweets per day are difficult to follow). *Followings*

Table 2 Other references.

Title	Link	
10 Twitter Tools Used by Social Media Experts	http://blog.kissmetrics.com/10-twitter-tools/	Summary of Twitter tools used by social media and industry experts
Medical innovations: Twitter epidemics	http://youtu.be/_JNogEk-pnM	Dr. Patty Kostkova (Head of City eHealth research center) shows how the data from twitter could be used to track future epidemics (Video)
Twitter 101: How should I get started using Twitter?	http://support.twitter.com/articles/215585-twitter-101-how-should-i-get-started-using-twitter	A support guide by Twitter
Guide to using Twitter in university research, teaching, and impact activities	http://blogs.lse.ac.uk/impactofsocialsciences/2011/09/29/twitter-guide/	A guide for academics and researchers
The Twitter GuideBook	http://mashable.com/guidebook/twitter/	A guide on how to use twitter
Twitter in Plain English	http://www.commoncraft.com/video/twitter	A short introduction to Twitter and why it has become so popular (Video)

of professionals should be complemented by looking at other users such as institutions and specialized journals. Do not hesitate to stop following users who give no added value. There are thousands of really interesting voices out there!

The conversation is there...what are you waiting for? Go and find it, it is worth doing it. Get connected!

Conflicts of interest

The authors have no conflicts of interest to declare.

References

1. Bosslet GT, Torke AM, Hickman SE, Terry CL, Helft PR. The patient–doctor relationship and online social networks: results of a national survey. J Gen Intern Med. 2011;26:1168–74.
2. Torrente Elena, Escarrabill Joan, Martí Tino. Impacto de las redes sociales de pacientes en la práctica asistencial. Revista de Innovación Sanitaria y Atención Integrada. 2010;2. Article 1. Available from: http://pub.bsalut.net/risai/vol2/iss1/1
3. ''Twitter'' in Wikipedia, the free encyclopedia [http://www.wikipedia.org/]. Wikimedia Foundation, Inc. [updated 4 November 2011]. Available from: http://en.wikipedia.org/wiki/Twitter
4. Schonfeld, E. (30 June 2011). Twitter Reaches 200 Million Tweets A Day, But How Many Come From Bots? Techcrunch. [http://techcrunch.com/]. 2011 AOC Inc. Available from: http://techcrunch.com/2011/06/30/twitter-3200-million-tweets/
5. Cornella A. Infoxicación: buscando un orden en la información. Barcelona: Infonomia Libros; 2009. Available from http://www.infonomia.com/articulo/libros/6285
6. Informe 21 [Homepage on the Internet]. Seguimiento masivo: El terremoto y tsunami de japón inundan Twitter. 2008 Informe21.com: [updated March 2011]. Available from: http://informe21.com/redes-sociales/seguimiento-masivo-terremoto-tsunami-japon-inundan-twitter
7. Baekdal, T. (27 April 2009) Where is Everyone? Baekdal [http://www.baekdal.com/]. Available from: http://www.baekdal.com/media/market-of-information
8. Tapscott D, Williams D. Wikinomics. London: Atlantic Books; 2006.
9. American Journal of Respiratory and Critical Care Medicine [homepage on the Internet]. American Thoracic Society: New York; 2011. Available from: http://ajrccm.atsjournals.org/
10. American Thoracic Society [homepage on the Internet]. New York: American Thoracic Society; 2011. Available from: http://www.thoracic.org/
11. Chest [homepage on the Internet]. Northbrook: American College of Chest Physicians; 2011. Available from: http://chestjournal.chestpubs.org/
12. American College of Chest Physicians [homepage on the Internet]. Northbrook: American College of Chest Physicians; 2011. Available from: http://www.chestnet.org/accp/
13. Thorax. An international journal of respiratory medicine [homepage on the Internet]. London: BMJ Publishing Group Ltd & British Thoracic Society; 2011. Available from: http://thorax.bmj.com/
14. European Respiratory Journal. Official scientific journal of the ERS [homepage on the Internet]. European Respiratory Society; 2011. Available from: http://ersjournals.com/
15. European Respiratory Society [homepage on the Internet]. Lausanne: European Respiratory Society; 2011. Available from: http://www.ersnet.org/
16. Curioso Walter H, Alvarado-Vásquez Eduardo, Calderón-Anyosa Renzo. Using twitter to promote continuous educat ion and health research in Peru. Rev Peru Med Exp Salud Publica. 2011;28:163–4. Available from: http://www.scielosp.org/scielo.php?script=sci_arttext&pid=S1726-46342011000100031&lng=en. doi: 10.1590/S1726-46342011000100031
17. Sinclair, C. (n.d.). How to use Twitter at your next medical conference. KevinMD.com. [http://www.kevinmd.com/blog/]. Available from: http://www.kevinmd.com/blog/2011/09/twitter-medical-conference.html
18. Chew C, Eysenbach G. Pandemics in the age of Twitter: content analysis of Tweets during the 2009 H1N1 outbreak. PLoS One. 2010;5:e14118.
19. BBC News. (13 May 2011). Twitter 'vital' link to patients, say doctors in Japan. Available from: http://www.bbc.co.uk/news/health-13373535
20. Hospital Sant Joan de Déu. Política de redes sociales del Hospital Sant Joan de Déu. Barcelona, 2011. Available from: http://www.hsjdbcn.org/polymitaImages/public/institucional/xarxes/Politica_Redes_Sociales_HSJD%20%288%20mar%202011%29_cast.pdf
21. ObservaTics. El observatorio permanente de las TIC en salud [homepage on the Internet]. Valencia: ITACA-TSB; 2011. Available from: http://www.observatics.com/default.php
22. Boyce N. The lancet technology: September, 2011. The Lancet. 2011;378:975.
23. Baptist AP, Thompson M, Grossman KS, Mohammed L, Sy A, Sanders GM. Social media, text messaging, and email-preferences of asthma patients between 12 and 40 years old. J Asthma. 2011;48:824–30.
24. Prochaska JJ, Pechmann C, Kim R, Leonhardt JM. Twitter=quitter? An analysis of Twitter quit smoking social networks. Tob Control. 2011, doi:10.1136/tc.2010.042507.
25. Escarrabill Joan. Medicina 2.0. Revista de Innovación Sanitaria y Atención Integrada. 2009;1. Article 1. Available at: http://pub.bsalut.net/risai/vol1/iss4/1
26. Kaushik A. Best social media metrics: conversation, amplification, applause. Economic Value. 2011. Occam's Razor [http://www.kaushik.net/]. Available from: http://www.kaushik.net/avinash/best-social-media-metrics-conversation-amplification-applause-economic-value/
27. British Medical Association. Using social media: practical and ethical guidance for doctors and medical students. London: British Medical Association; 2011. Available from: http://www.bma.org.uk/images/socialmediaguidancemay2011_tcm41-206859.pdf
28. American Medical Association. AMA Policy: professionalism in the Use of Social Media. Chicago: American Medical Association; 2011. Available from: http://www.ama-assn.org/ama/pub/meeting/professionalism-social-media.shtml
29. Kolmes, K. My Private Practice Social Media Policy. Keely Kolmes, Psy. D. – Social Media Policy – 4/26/10. Available from: http://www.drkkolmes.com/docs/socmed.pdf