Misinformation about antibiotics can travel to large audience via Twitter: study

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Misunderstandings about proper use of antibiotics have the potential to spread widely through social networks such as Twitter, according to a report in the April issue of *AJIC: American Journal of Infection Control,* the official publication of the Association for Professionals in Infection Control and Epidemiology, Inc. (APIC). Researchers from Columbia University and MixedInk (New York, NY) studied the health information content of Twitter updates mentioning antibiotics to determine how people are sharing information and assess the proliferation of misinformation. The investigation explored evidence of misunderstanding or misuse of antibiotics.

"Research focusing on microblogs and social networking services is still at an early stage," Daniel Scanfeld, MS, MA, and colleagues state in the article. "Further study is needed to assess how to promote healthy behaviors and to collect and disseminate trustworthy information using these tools." The authors stress that because health information is shared extensively on such networks, it is important for health care professionals to have a basic familiarity with social networking media services, such as Twitter. They add that such services can potentially be used to gather important real-time health data and may provide a venue to identify potential misuse or misunderstanding of antibiotics, promote positive behavior change, and disseminate valid information.

Using content analysis of 52,153 Twitter status updates ("tweets") mentioning antibiotics between March 13, 2009, and July 31, 2009, researchers categorized each tweet into one of 11 groups: general use,

advice/information, side effects/negative reactions, diagnosis, resistance, misunderstanding and/or misuse, positive reactions, animals, wanting/needing, cost and other.

Once categories were established, 1,000 status updates were selected randomly from the complete list of 52,153 tweets and analyzed. The full list of tweets was further explored for cases of misunderstanding or abuse with a search for the following combinations: "flu + antibiotic(s)," "cold + antibiotic(s)," "leftover + antibiotic(s)," "share + antibiotic(s)," and "extra + antibiotic(s)".

The most common category was "general use," including a range of updates about taking antibiotics, often simply mentioning the number of days remaining on a prescription and a desire that the antibiotics begin helping soon. The second most common category was "advice and information." Some updates included the transfer of personal advice or information, such as "get antibiotics if its [sic] serious" or "Garlic generally good, but not specific to strep…" The third most prevalent category was "side effects/ negative reactions," which included a variety of complaints and side effects from taking the medication. Examples of side effects ranged from the general, such as, "those antibiotics made me want to die," to the more specific, "I am on antibiotics that make me want to vomit." Negative reactions generally revolved around inconveniences, such as not being able to drink alcohol or sensitivity to the sun.

The authors also found that while the category of "misunderstanding and/or misuse" only comprised about 700 of the more than 52,000 tweets, such misunderstandings could easily spread to a large audience due to the nature of information flow through the Twitter network. The most popular word combination in this category was "flu + antibiotics," with 345 status updates including misinformation reaching a total of 172,571 followers. The next most popular word combination was "cold +

antibiotics," with 302 status updates reaching a total of 850,375 followers.

"As people change how they interact, going from passive consumption to active creation of content on the Internet, social networks have become increasingly important sources of information," said Cathryn Murphy, RN, PhD, CIC, APIC 2010 president. "These findings are a reminder that we need to continue to monitor networks such as Twitter and explore ways to positively impact public health using social networks."

  More information: Citation: *AJIC* 2010; 38 [3]

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