WORLDWIDE CLINICAL TRIALS

WHITE PAPER

THE EMERGING USE OF SOCIAL MEDIA IN ORPHAN DISEASE DRUG RESEARCH

JEFFREY O'HAGAN, ASSOCIATE DIRECTOR, PROJECT MANAGEMENT
BARBARA ZUPANCIC, SENIOR DIRECTOR, PATIENT RECRUITMENT
MICHAEL F. MURPHY, MD, PHD, CHIEF MEDICAL OFFICER

Last Update: 19092019

The use of various social media platforms, such as Twitter, Instagram, Facebook, and LinkedIn, for dissemination of clinical trial information has created a cornucopia of possibilities enabling clinical trial performance. Characterized by a people-to-people immediacy, social media permits extraordinarily adaptive modification of study information in real-time, and it does so in a highly targeted fashion.

These attributes are invaluable for potential clinical trial participants who are widely dispersed, invested in new therapeutic developments, and longing for inclusion in a participatory study process involving sponsors, clinical research organizations, and families in a coherent development effort. As with any emerging technology, however, both benefits and disadvantages associated with use have now become apparent[1] and have been documented across a variety of different media, with implications for study conduct and reporting mechanisms across diverse stakeholders. Within an organization dedicated to the evaluation of innovative technology and highly nuanced patient populations characterized by orphan diseases, mastery of all elements is mandatory.

AN ALLY IN TRIAL RECRUITMENT AND RETENTION?

Commensurate with the demand for transparency in healthcare, social media provides a method of collaboration and enhanced patient and family engagement in orphan disease drug development. At a minimum, these exchanges provide for the quick dissemination of medical information that can be both accurate and actionable and potentially have a positive impact on quality of care. Additionally, the use of social media permits both speed and an extensive geographical coverage (particularly relevant for rare diseases) in service to the prevention, diagnosis, and treatment of diseases, especially for those individuals who do not have access to well-known medical advice.

The massive user base of Facebook (1.86 billion active monthly users)[15] means that a large majority of patients with a diagnosed medical condition are using the platform, as well as many patients whose presentation has not yet rendered a medical diagnosis. Rare disease patients and their caregivers are active on Facebook, and they tend to be very invested in the decision process regarding participation in clinical trials, perhaps more so than non-orphan-disease patients, taking more control of the decision-making process and seeking out clinical trials. Ads can be placed in various places on Facebook. They can appear on a patient's (or caregiver's) mobile feed, desktop feed, or on Instagram. There are a variety of targeting options that home in on a desired patient population. Ads can also be targeted to location, age, gender, ethnicity, and language. Facebook also identifies interests based on information users add to their profile.

These social media techniques are generally regarded as cost-effective and impactful, although exceptions have been noted. For example, a 2016 retrospective study by Topolovec-Vranic et al. found that of the 30 studies reviewed as part of their research only 12 of these studies found social media to be the most effective recruitment method. Additionally, only 5 of the 13 studies that reported cost-effectiveness data found social media to be the most cost-effective recruitment method. The study did note that the type of study may impact effectiveness of social media as a recruitment tool, and that it appeared to be most effective in "hard-to-reach" populations.[7]

At a minimum, the medium provides an opportunity for thought leadership, brand awareness regarding study concepts, and a mechanism by which patients, families, and sponsors develop a strategic relationship that continues through the clinical development process and long after product approval has occurred. Recent studies indicate that social media as

Last Update: 19092019

a recruitment tool also has been immensely efficient, saving both time and money for patients and sites alike[2] because patients can virtually engage with trials from any part of the world.

Social media platforms like Facebook have been shown to help decrease attrition, encourage participants to engage in follow-up, and generate active dialogue in indications that do not involve orphan research and by extrapolation may be applicable for rare and ultra-orphan indications.[3]

There is no consensus on which social media platform is best for recruitment, although limited data are available from non-orphan indications. For example, a multi-model recruitment method was used for a HIV prevention education study, which showed that internet advertisements yielded the largest number of recruited participants.[5] On the other hand, a smoking study found Craigslist and email were more cost effective and successful at targeting young adult smokers.[6] Comparable research has not been completed in orphan diseases.

AN ENCUMBRANCE TO STUDY OPERATIONS?

Potential disadvantages are abundant, including the requirement to adhere to privacy policies and the need for sponsors and contract research organizations to master collaborative technologies fully to exploit the medium.

The use of social media by clinical research organizations therefore adds to a process that is already inherently complex and fundamentally indeterminate in terms of its efficiency. Potential interference and miscommunication between physicians and patients also becomes possible, particularly when there is an implication of clinical care by the exchange of information presented in most forums. Attention should be paid to balancing the openness of these kinds of communities with the privacy requirements of a research study.[8]

Additionally, the need for precisely targeted recruitment efforts that consider demography and patient characteristics as well as geographical location to participating centers requires additional diligence in study conduct. For example, the focused methods in which patients may be approached lead to a distortion in the population that ultimately participates (e.g., a selection bias is inherent in reliance on social media in that better educated, more technologically savvy families and patients may be preferentially contacted, diminishing the generalizability of the test population). Reports from the FDA raised issues concerning the demographics of most clinical studies, indicating that clinical trial participants were 74% Caucasian, creating a critical issue of racial imbalance in trials. Since many social media platforms skew toward one racial group or gender, depending on the platform, a reliance on social media for recruiting could exacerbate the issue.[9]

A CASE FOR BUYER'S REMORSE?

Data integrity issues loom large in that discrepancies between patient-reported health information obtained via web-based data entry and subsequent medical records from medical databases have been reported.[10] Additional, unplanned oversight regarding medical history and supporting documentation becomes a part of the process for engaging patients as web-derived information provides a substrate for subsequent review but not a substitute for an informed review. Screen failure rates at the site level with improperly constructed screening algorithms could become disproportionately prohibitive in the process of identifying and referring patients to a site for trial participation.[11]

Last Update: 19092019

Following randomization (enrollment) additional biases may be introduced into study conduct due to the information which patients elect to enter on publicly available forums. The anticipated outcome is increased interest in study engagement, but an equally probable result is that the reporting of inaccurate, unverifiable information could also curtail interest in study participation.

A study specific website has been suggested where user content could be closely monitored by internal sponsor staff thus eliminating the potential for the inadvertent introduction of bias, while facilitating the detection of spontaneously reported adverse events. A website sponsored and monitored by the sponsor of a clinical trial does not obviate uncertainties in regulatory safety reporting, but it does offer a controlled gating procedure for patient and family comment that would not be available through public non-moderated platforms.

Members of online support groups may share details of clinical trials they have participated in. Some may discuss potential side effects that possibly could influence study results, particularly when the symptoms are subjective. Online discussion may cause increased drop-out rates or increased reports of adverse events. Some may attempt to guess if they were in the control or experimental groups or even try to start their own clinical trials.[12,1] Minimizing and managing patient concerns can be done by disabling user comments.

Unverified information may contribute to "blind breaking" in the case of controlled clinical investigations, resulting in premature patient discontinuation from ongoing studies under presumptive evidence that an active treatment has not been administered. Finally, and importantly, there is an additional regulatory responsibility inherited by sponsors in clinical research organizations who must passively survey data to ensure and manage a reporting process, with appropriate investigator referral, for adverse events that have hitherto not been reported. The posting of adverse events online by patients makes this process exponentially more complicated. The likelihood of generating excess adverse event traffic is one of the reasons the pharma industry has not chosen to leverage extensive social media use.[13]

Although the FDA has not yet waded directly into the fray between clinical trials and social media, draft guidance documents in 2011 and 2014 have started to address issues relating to drug information distributed over social media. These documents included diverse topics, such as the following:

How to present benefit and risk information on electronic/digital platforms, given character space limitations?

How to correct independent third-party misinformation about prescription drugs and medical devices on social media?

How to fulfill regulatory requirements for post-marketing submissions of interactive promotional media for prescription human and animal drugs and biologics?

How to respond on social media to unsolicited requests for off-label information about prescription drugs and medical devices?

Nevertheless, as with all new technology, there are both challenges and opportunities – and a compelling need for an informed approach to clinical trial design in study conduct as part of differentiated study services.[14]

Last Update: 19092019

REFERENCES

1. Ledford H. How Facebook and Twitter could be the next disruptive force in clinical trials. Nature. 2018;563(7731):312-315.
2. Comerford M, Fogel R, Bailey JR, Chilukuri P, Chalasani N, Lammert CS. Leveraging social networking sites for an autoimmune hepatitis genetic repository: Pilot study to evaluate feasibility. J Med Internet Res. 2018;20(1):e14.
3. Bolanos F, et al. Using Facebook to maximize follow-up response rates in a longitudinal study of adults who use methamphetamine. Substance Abuse: Research and Treatment. 2012;6:1–11.
4. Orizio G, et al. The world of e-patients: a content analysis of online social networks focusing on diseases. Telemedicine and e-Health. 2010;16:1060–1066.
5. Rice E, et al. Mobilizing homeless youth for HIV prevention: a social network analysis of the acceptability of a face-to-face and online social networking intervention. Health Education Research. 2012;27:226–236.
6. Ramo DE, Hall SM, Prochaska JJ. Reaching young adult smokers through the internet: comparison of three recruitment mechanisms. Nicotine & Tobacco Research. 2010;12:768–775.
7. Topolovec-Vranic J, Natarajan K. The use of social media in recruitment for medical research studies: A scoping review. J Med Internet Res. 2016;18(11):e286.
8. Burke-Garcia A, Winseck K, Jouvenal LC, Hubble D, Kulbicki KM. A review of social media methods and lessons learned from the National Children's Study. J Clin Transl Sci. 2017;1(4):260-264.
9. Goldberg, L. Finding Patient X: The role of digital media in rare disease research. Applied Clinical Trials. 2018:27(3).
10. Vimalachandran, P, Wang H, Zhang Y, Heyward B, Whittaker F. Ensuring data integrity in electronic health records: A quality health care implication. International Conference on Orange Technologies (ICOT). 2016 p 20-27.
11. Alsumidaie M. 4 steps to mitigate screen failure risks. Applied Clinical Trials. 2016
12. Tang H. How social media is changing the face of clinical trials. AI Med. 2018. Accessed from https://ai-med.io/how-social-media-is-changing-the-face-of-clinical-trials/.
13. Limaye N and Saraogi A. How social media is transforming pharma and healthcare. Applied Clinical Trials. 2018;27(2).
14. Belby J. Big pharma and social media: How to avoid trouble with the FDA. Forbes Online Website 2017. Accessed from https://www.forbes.com/sites/joannabelbey/2017/05/25/big-pharma-and-social-media-how-to-avoid-trouble-with-the-fda/#4f2fd442330b.
15. www.emarketer.com/Article/Instagram-Will-Top-100-Million-Users -By-2018

Last Update: 19092019

WORLDWIDE CLINICAL TRIALS

Worldwide Clinical Trials employs more than 1,700 professionals around the world, with offices in North and South America, Eastern and Western Europe, Russia, and Asia. Founded by physicians committed to advancing medical science, Worldwide is out to change how the world experiences CROs – in the best possible way. From early phase and bioanalytical sciences through late phase, post-approval and real-world evidence, we provide world-class, full-service drug development services.

With infrastructure and talent spanning 60 countries, we execute predictable, successful studies with operational excellence across a range of therapeutic areas, including central nervous system, cardiovascular, metabolic, general medicine, oncology and rare diseases. We never compromise on science or safety. We're never satisfied with the status quo. We're the Cure for the Common CRO.

For more information, visit **http://www.worldwide.com**

WORLDWIDE
CLINICAL TRIALS

Last Update: 19092019