Clinical Trials and Social Media:

Friends or Foes?

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"We were looking for others to understand what we were going through. A trial is an isolating experience. We formed a bond,"

– Jeri Burtchell, Clinical Trial Participant and Blogger[8]

For many years, researchers, sponsors and clinical research organizations (CROs) have used social media to advertise clinical trials and recruit trial participants.

Those interested in participating in a clinical trial can follow Twitter feeds[1, 2], check Facebook pages[3, 4], scan the "odd jobs" section of their local Craigslist site[5], and check webpages like Just Another Lab Rat[6] which includes both study information and details about the sites where the research is conducted. If potential participants are considering enrolling at a research center, they can even check its reviews on Yelp before they sign up[7].

But more recently, there has been increased attention paid to the use of social media during clinical studies. As society has grown more and more connected through various applications and community fora, so has the community of patients who participate in clinical research trials.

Social Media Use
During Clinical Trials

For clinical trial participants, forming bonds with other participants online can increase the feeling of community, and enhance the sense of recognition for their contribution to the important science being conducted. These positive effects may improve study retention, and perhaps even increase study enrollment, by encouraging others to participate in the same way. But interactions between clinical trial participants can have potentially negative effects on the study as well.

A number of examples have been identified in which participants have posted information about study drugs, in an effort to identify whether they are taking the active drug or placebo. They have also shared adverse event information (sometimes even discouraging others to report events to investigators if the events could cause removal from the study). In addition, they have discussed eligibility criteria, advising others what not to divulge in order to get into a trial.

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Social Media Use During Clinical Trials

Table 1. Promotion of Activities That May Be in Violation of the Research Protocol: Examples from Postings in Online Health Forums[9]

Note: Postings may have been shortened for length, to remove identifiers to specific agents, or to replace abbreviations that are difficult to understand out of context. Citations are to the full original posting. All spelling, grammatical, and typographical errors are as in the original post.

Concern Raised	Examples of Postings
Potential unblinding of treatment assignments	*…can you describe your pills in more detail? Like a more complete description of what they look like, how they react when they get wet, what their texture is, how long do they last in the mouth after being swished around, and a more complete description of the taste…*[1] *…And my pills are very bitter and nasty tasting. I've also cross referenced my taste experiences with others who I know are getting the [study drug] and we all agree on the flavor…*[1] *…So the big question is am I on the placebo or the actual drug? Well I feel optimistic that I am on the drug …. by observing … that my blood pressure, pulse and heart rate all dropped during the course of the day which is a known side effect of taking the drug for the first time.*[2]
Encouraging non-adherence to designated intended study duration	*…If you do end up participating, you may want to keep in mind the possibility of dropping out of the trial early on if it appears you are not responding – and if it appears that you are unlikely to be on the [study drug]…*[3] *…I would do the trial, wait until un-blinded and if [the virus] was undetected at 4 weeks I would stop at 24 weeks …*[4] *[note: trial was of a 24-week versus 48-week treatment duration]*
Falsifying eligibility status	*(Query)… I would appreciate any info on acceptance to a [pharmaceutical company] trial. I am willing to travel anywhere for any length of time. I was on [standard therapy] for 2 months and didn't do well on it. I am fairly desperate, so any help would be appreciated… (Response)…You still need to take [standard therapy] with [study drug]. So I wouldn't mention having problems with the standard therapy if you want to be accepted into any trials…*[6]

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Concern Raised	Examples of Postings
Bias in adverse event collection	*...The good thing about this drug is it has very little side effects...The big side effects will be from the [co-medication] not the [study drug]. Sooo no down side there...*[7] *...By week five, things started to fall apart... I got severely anemic and was beginning to feel quite bad. I had to deal with a bewildering variety of sides, including various stomach issues, intense fever/heat/itching. By week seven, the (study drug) effects became very pronounced. Lots of symptoms of every kind of allergy, anger and rage. The full panoply of mind tricks that [study drug] can produce. .... The main conclusion I reached was that the [study drug] intensified pretty much all the normal sides and the intensification was quite extreme...*[8]
Providing medical advice regarding safety and efficacy	*...For me it was essential to keep body heat under control. The hotter I let myself get, the worse the skin issues. ...Tylenol will keep down the temperature and make you feel better, but you have to actually get the heat out of your body. Watch out that your abdomen doesn't get too hot especially after injections. Expose your tummy to the air if necessary, dont wear tight clothes, check your body temperature manually and fix whatever part seems to be getting overheated. Sleep near open window, dont cover your hands and feet – let the heat eascape by opening palms and dangling feet outside the bed covers. Don't take hot liquids or meals. Don't eat anything spicy or peppery. No hot showers. Take showers as cold as you can stand. After showering, cover yourself with moisturizing cream after you shower, use it all the time to keep the hydrogenation inside the body. Drink masses of water all the time. As much as you can stand, then more.* *The heat can hit your face and eyes. for me this was the worst. Get some of those eyepatches which have coolant inside...store them in the fridge and place over eyes to get relief. Or just use a facecloth in a bowl of water every so often to wet down your face and eye areas....* [8] *...The [study drug] is causing the [side effect] ..... and it must be removed ....here's precisely what I would do if I were you right now (1) Stop the [study drug] and get it out of your system; (2) Go to a dermatologist and have them coordinate with the study doctor what your plan of action is;*

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Concern Raised	Examples of Postings
Providing medical advice regarding safety and efficacy, continued.	*(3) Get them to start you on a prednisolone taper starting at 40mg first day, then 30mg for 4 days, then 20mg for 4 days and then 15mg for one day..... I'm convinced I'm the resident expert on the subject at this point. So yeah, I'm gonna go out on a limb and assert you should stop the [study drug]! And no I'm not a doctor, but I'm STILL going to recommend it.*[9] *(Query): My wife has been taking [drug] for about five maybe six months now. She has found it more difficult to be intimate with me over these months. ... is there anything else she can take that might have lesser side effects ...* *(Response): [class of drugs] can have sexual side effects for both men and Women. This is actually quite common... Hang in there because there is a new Antidepressant on the way (hopfully soon) called [drug] It is the worlds first [mechanism] and is already in it's last stage of FDA clinical trials. [drug] has thus far show to be even MORE effective at treating Severe Depression and Anxiety and has absolutely no sexual side effects. Personally, I can not wait for this to be approved by our FDA. It has already been fully approved in Germany and the reviews of it's effectiveness for even treatment resistant depression are fantastic. Let's hope the FDA gets moving on this one.*[10]
Influencing trial participation	*(Query): I am looking into second opinions ...and will be looking into clinical trials as options (trials are about hope and that's what I need!). Has anyone done a clinical trial? What questions should I ask? ..* *(Response 1): ...I would be inclined to stay on 'tried and true' drugs, before going on a trial. If you are battling cancer that seems to be spreading, then I feel it's best to stay on chemo that you know/expect to give you some good results, at least. ...I know of women who have done trials, and they tell me that there is no guarantee that you will be given the trial drug. You could be given something already available, so I guess that's a chance that you take ...Also ... they wouldn't consider a trial unless it's at least Phase 3. ...*[11]

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Concern Raised	Examples of Postings
Obtaining non-public information about study design and results	*(Query) Would everyone in a clinical trials for [specific new classes of medications] use this thread to give us your background and experiences with your clinical trial?* *Please provide information on the following:* *1.) Stats – Geno type, VL, fibrosis score, inflammation score, race, sex, age, how long infected?* *2.) What drug trial are you in?* *3.) What arm of the trial are you in? That is what amount of the drug are you taking, is it with INF and RBV? How long are you to take the drugs?* *4.) When did you start and where are you in the trial now?* *5.) What are the evaluation points (that is do you have to be [showing response] by a certain time to continue?)* *6.) How long will your trial last?* *7.) What's happened to your stats since taking the drugs? PCR, ALT, SGOT, etc.?* *8.) Are you [responding now]?* *9.) What are they saying about [permanent response]?* *10.) Do you think that you're getting a placebo? If so will they administer the real drug at some certain point?* *11.) What side effects are you experiencing? Do you think that the sx are contributable to INF or RBV (if taking)?* *12.) What expectations do the clinical trials make on you? Things like how often do you have to been seen at the clinic? Regularity of blood draws, tests?* *13.) How are you feeling? Has the tx made you feel any better?* *14.) Miscellaneous????*[1]

[1] *Med Help Hepatitis C Forum: ATTENTION: Protease/Polymerase Inhibitor Trials (VX-950, SCH503034, NM283) !!! http://www.medhelp.org/posts/Hepatitis-C/ATTENTIONProtease-Polymerase-Inhibitor-Trials-VX950--SCH503034--NM283/show/94203?forums=forums. Accessed April 2, 2011.*

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Awareness of this issue is increasing and a number of new articles and commentaries have been published in industry publications, scientific journals [8, 9, 10] and also in the Wall Street Journal[11]. Recent presentations at drug development industry meetings, such as DIA, have addressed this issue as well[12]. Researchers and sponsors worry that trial participants could be risking their safety by discussing adverse events and getting medical advice online but not reporting issues or concerns to the study team. They are also concerned that if a trial is unblinded, and the study data become unreliable, or if the lack of bias can no longer be assured, studies may have to be repeated.

Additionally, there are concerns about the reliability of the data that participants are sharing online. Many online fora use, or allow, pseudonyms and avatars so that contributors can post anonymously. Therefore, it cannot be confirmed that self-identified study participants are actually in the trial. They could be other interested parties, such as financial analysts looking for non-public study information, or company competitors trying to collect information. There are also concerns about the regulatory reporting of clinical safety information.

Social Media Use During Clinical Trials

Sponsors must report any adverse events that they become aware of during the use of investigational products. If someone anonymously reports online that they are experiencing severe headaches during a clinical study, how should the sponsor react to that information? The sponsor doesn't know if the commenter is genuinely enrolled in the study or at which site they are being seen. The sponsor also doesn't know if the event has already been appropriately reported, but cannot take the risk that it hasn't. This creates a difficult situation both for assuring appropriate safety monitoring and regulatory compliance.

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The Participant's Perspective

As attention to this issue has grown, some patients and their families have spoken out about their social media interactions. Some participants share researchers' concerns. They want to tread carefully and ensure that their interactions don't introduce bias into the conduct of a study or raise questions about the validity of the data, which might delay progress of the new therapy and make other patients wait longer to receive it.

Other patients and families believe that sponsors and researchers are unrealistic in expecting participants to prioritize concerns about the conduct of research over the immediate concerns of finding and getting access to potentially effective therapies.

Rare disease clinical trial participants will share information with one another and their disease community. In many cases, they will unblind trials, especially if their lives or the lives of their children hang in the balance of a drug development program. To expect otherwise is either patronistic (sic), naïve, or both."

– Melissa Hogan, Blogger[13]

"I'm trying to educate others about the use of social media while participating in a study. How was I to know that what I viewed as my own online place to chronicle my progress would have such far-reaching implications down the road?"

– Jeri Burtchell, Blogger[14]

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Next Steps

Researchers, sponsors, and other parties involved in the conduct of clinical trials have spent a lot of time considering how to address this issue. It is, of course, unlikely that the patient community is going to become less connected, or that participants will willingly forgo all interaction with their online support communities during trials that are sometimes years long – nor should they be asked or expected to. The following ideas have been proposed:

> **Conduct risk assessment**
Some clinical studies may be more at risk from potential bias due to participant interaction than others. Factors to consider include:

~ Whether there is an active patient advocacy community, including a strong or centralized online presence or disease-specific websites, where participants are likely to find and communicate with each other.

~ The degree of unmet medical need in the disease area, and the patient community's interest in the development of new therapies. This may be particularly relevant in rare diseases.

Next Steps

- ~ Whether the study endpoint is subjective (such as whether migraine headaches improve with an investigational pain medication) or objective (progression of cancer as determined by an adjudication committee).

- ~ The size of the study; a study with several thousand participants may be diffuse and diverse enough for communication to have little impact. In a 12-person study, one participant who posts online about a negative experience may have a significant impact on both the study outcomes and the ability of the study to recruit additional participants.

> **Educate Participants on the Potential Impact of Their Communication**

- ~ **Speak Out, But Speak Smart** With Shire's support, the Center for Information and Study on Clinical Research Participation (CISCRP) has developed the "Speak Out, But Speak Smart"[15] website, highlighting "the surprising effects of words" on the outcome of clinical studies. Through brief text and three animated videos, which allow viewers to select potential outcomes, the website illustrates the potential impact of discussing eligibility criteria, sharing side-effect information, and the placebo effect.

Next Steps

~ **Educational Language in the Informed Consent Document**

Some sponsors have chosen to add language to informed consent documents which helps inform participants about the potential impact of their online communications. An example of this language is provided here:

> *In all clinical studies, it is important that the people participating in the study (doctors, nurses and subjects) do not make any conclusions about what the results of the study might be, until all the data has been collected and reviewed. If there are rumors about how many subjects have side effects, or about whether the drug is working or not working, it may affect the study. If the data from the study might be affected by early conclusions, it could cause the study to have to be repeated. If you participate in this clinical study, you should feel free to discuss the study with your family and with other people who are close to you. You should also tell any health care providers who treat you that you are in the study. However, to help make sure that the data from the study is as accurate and reliable as possible, please do not discuss information about the study in public places while the study is in progress. Public places may be situations like support groups, or may be places like internet message boards. If you have questions about side effects, please talk to your study nurse or study doctor.*

Next Steps

> **Moderated Online Fora**

Some people have proposed the development of private online communities for participants in individual clinical trials through which they could be provided with information about the study, and also encouraged to communicate with each other. Moderators could review the communication and respond to any posts that were considered to contain information which could impact the study conduct or data.

Summary

Social media use among clinical trial participants is likely only to increase. With awareness and preparation, sponsors and researchers can address participants' questions in advance, ensure that lines of communication with the clinical site remain strong, and that they are aware of any potential impact social media participation may have on the conduct of a study.

Dr. Lindsay McNair is chief medical officer and president of consulting services at WIRB-Copernicus Group®, the world's largest provider of regulatory and ethical review services and software to support clinical research.

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