



What You Need to Know about Clinical Trials

While the OI community and the entire world eagerly await a coronavirus vaccine, we want to briefly explain the importance of clinical trials and how people with OI can get involved in helping expand medical knowledge.

Clinical trials are an essential part of developing new treatments (like medications, and vaccines) and test whether a specific treatment under consideration is effective and safe. Trials start with a small number of volunteer test subjects, and can grow to include thousands, or tens of thousands, of participants. Many clinical trials are *controlled, randomized, and double-blind*.

- **Controlled:** a clinical study with a group who receive the new treatment being studied are compared to a matching set of people who instead receive another treatment like a placebo, a harmless “fake” treatment (a placebo-controlled trial), a comparator drug (often a drug that is already approved for the condition under study), or different dosages of the study drug
- **Randomized:** participants are randomly assigned to either receive the new treatment or to be in the control group
- **Double-blind:** both the medical practitioners and the clinical study participants do not know who is receiving the new treatment and who is receiving a placebo (either the sponsor of the study knows the “key” to who is receiving the study drug or a designated person not directly involved in the study has the key)

Overall, these criteria help remove bias from a clinical study and ensure that results are accurate. In the US, the National Institute of Health (NIH) and the Food and Drug Administration (FDA) monitor clinical trials to ensure their safety and accuracy. While clinical studies of treatments for OI and other rare diseases have some differences, their basic structure is the same. All enroll volunteers at each phase, following protocols set out at the beginning of the study.

The phases of a study include:

- **Preclinical or Non-clinical testing:** scientists give the treatment to animals (like mice) to see if it produces a response and is safe
- **Phase 1:** a small group of human participants are examined; looking for safety, proper dosage amounts and to confirm it has some response in humans. Phase 1 may be done in healthy volunteers or in patients with the disease, or at-risk of the disease, under study.
- **Phase 2:** hundreds of people, further tests safety and if it stimulates response in different types of people
- **Phase 3:** thousands or tens of thousands of people; determine if vaccine or treatment is effective; a vaccine needs to be at least 50%-70% effective in protecting people. These are large enough to find relatively rare side effects that might be missed in earlier studies
- **Phase 4:** sometimes used after a treatment has been approved, this phase follows thousands of individuals and is used to find any long term effects of the treatment

Individuals with OI play an especially important role in the outcome of clinical trials because they have a rare condition. Compared to more common conditions, rare disease based clinical trials usually have far fewer participants that in the example listed above, making every volunteer even more valuable to the research process.

This article was prepared with assistance from Robert “Sandy” Sandhaus, MD, PhD, OIF Medical Advisory Council Member, September 2020.



Clinical Trials and OI Questions

How do clinical trials focused on treating people with OI differ from trials focused on a more general population?

Since OI is a rare disease, it is difficult to find hundreds, let alone thousands, of participants. Therefore, rare disease clinical trials involve fewer participants at each phase. More information on clinical trials and how they differ for rare diseases can be found in Dr Adam Hartman's "[An Introduction to Clinical Trials](#)" presentation from July 23, 2020.

Are clinical trials safe to participate in?

While potential risks differ trial to trial and person to person, participating in clinical trials is safe, overall. Due to regulations in the US, volunteers are monitored at every stage of their involvement. Each participant in a clinical trial is informed about known and potential risks of the treatment being studied and will need to make an informed decision about whether those risks outweigh the benefits to themselves and the community when deciding whether to join the study.

How can I participate in clinical trials addressing OI?

The easiest way to learn more about current and upcoming clinical studies is to enroll in the [OI Registry](#). Once you enter your information into this registry, the OIF or researchers will have access to your deidentified information and may ask you to volunteer in a study. To find out about more information on specific clinical studies, you can also go to [Clinicaltrials.gov](#) and search for "osteogenesis imperfecta" in the "Condition or Disease" field. Here you will find an updated list of studies related to OI around the world.

Where can I learn more about clinical studies relating to OI?

The best way to hear more about potential clinical studies you can enroll is by enrolling at the OI Registry. More information can be found on the [OIF website](#). To find out about more information on specific clinical studies, you can also go to [Clinicaltrials.gov](#) and search for "osteogenesis imperfecta" in the "Condition or Disease" field. Within this search, you can filter studies by recruiting status, location, phase, and other criteria.

This article was prepared with assistance from Robert "Sandy" Sandhaus, MD, PhD, OIF Medical Advisory Council Member, September 2020.



COVID-19 Clinical Trial Questions

How are coronavirus vaccine trials different from other clinical trials?

Many studies for a coronavirus vaccine are completing separate phases simultaneously, or getting approval to begin producing a vaccine that has not yet received final approval from the FDA. These steps help accelerate the timeline for creating a vaccine while not compromising on the safety and effectiveness standards of their clinical trials. If a treatment being studied does not reach a specific threshold to advance, the researchers may still alter their trial or decide not to progress.

Can participating in a vaccine or antibody trial give someone Coronavirus?

The vaccines and antibodies being studied in the US cannot cause COVID-19 and do not contain the virus. While details differ in each study, a vaccine gives a participant genetic “instructions” on how to create antibodies used to fight off coronavirus, or cause the participants to create the antibodies directly. While some researchers may be considering “challenge studies” that intentionally expose knowing volunteers to the coronavirus to accelerate research, none are currently under consideration in the US as of August 19, 2020. In addition, there are some studies in other countries looking at the use of a live attenuated virus as a vaccine. An attenuated virus is one that is modified or selected to cause a milder infection than the SARS-CoV-2 virus that causes COVID-19.

Does participating in a vaccine trial mean I am getting a lifesaving treatment early?

Not necessarily! As a participant in a *randomized, placebo-controlled, double-blind* clinical trial, you do not know if you are receiving the treatment or a placebo. And even if you are receiving the treatment, vaccines usually do not stop 100% of transmissions. Like the seasonal flu vaccine, receiving a coronavirus vaccine will improve your likelihood of not getting COVID-19 or of having a milder infection if you become infected; it will not guarantee your immunity.

How does flu season and the flu vaccine impact my chances of getting coronavirus?

Seasonal flu and more mild cases of coronavirus have some similar symptoms and may be mistaken for each other. Therefore, it is especially important to receive a flu vaccine in 2020 to help keep yourself healthy. Also, you must be vigilant when you experience symptoms and take appropriate social distance measures, so you don't spread anything. If someone gets the seasonal flu and COVID-19 simultaneously, they are more likely to develop severe symptoms because of their compromised immune system.

I am nervous about being one of the first people to get a vaccine. When a coronavirus vaccine does become available, should we wait to “see what happens” for others before getting the vaccine ourselves?

As explained earlier, if a vaccine has progressed through all stages of a clinical trial and been approved by the FDA, it means that it is both safe and effective. If a COVID vaccine receives “emergency authorization” before completion of the full Phase 3 safety and effectiveness evaluation, it would be reasonable to discuss with your physician if you should be willing to receive the vaccination. Unless specific guidance has been given by your physician, people with OI can take the coronavirus vaccine as soon as it is available.

This article was prepared with assistance from Robert “Sandy” Sandhaus, MD, PhD, OIF Medical Advisory Council Member, September 2020.