What Is a Clinical Trial?

For the purposes of data collection to track and monitor clinical trial activity, the University of Michigan has adopted a modified NIH definition of a clinical trial, which captures major points of consensus among definitions from DHHS, FDA, WHO, clinicaltrials.gov, and major philanthropic funders. The U-M definition for clinical trial is not intended to be inclusive of all clinical research activity but rather serves as an operational definition for the purposes of data collection and standardized reporting for a specific type of clinical research.

The U-M defines a clinical trial as “a prospective, biomedical or behavioral research study of human subjects that is designed to answer specific questions about biomedical or behavioral interventions (drugs, biologics, treatments, devices, or new ways of using known drugs, biologics, treatments, or devices). Behavioral interventions are intended to prevent or treat an acute or chronic disease or condition.”[1]

Clinical trials are used to determine whether new biomedical or behavioral interventions are safe, efficacious, and effective. Clinical trials are often characterized in phases:

**PHASE 0:** Officially named at the FDA as an exploratory investigational new drug study and also known as a "microdosing" study. Exploratory trials to establish whether the agent behaves in humans as was expected from preclinical animal studies, to gather preliminary data on pharmacodynamics or pharmacokinetics, to select promising lead candidates, or to explore biodistribution characteristics. Phase 0 studies do not replace formal Phase I drug safety testing and do no offer any possibility of patient benefit. Intended to speed drug development as part of the FDA Critical Path Initiative by quickly weeding out ineffective drugs early in the development process. (No therapeutic or diagnostic intent.)

**PHASE I:** Initial studies to determine the metabolism and pharmacologic actions of the agent in humans, the side effects associated with increasing doses, and to gain early evidence of effectiveness; may include healthy participants and/or patients.

**PHASE I/II (Device – Pilot):** Some trials combine Phase I and Phase II, and test both efficacy and toxicity (safety, dosage levels, and response to new treatment).

**PHASE II:** Controlled clinical studies conducted to evaluate the effectiveness of the agent for a particular indication or indications in patients with the disease or condition under study and to determine the common short-term side effects and risks.

**PHASE II/III:** Some trials combine Phase II and Phase III, and test for both efficacy and overall benefit-risk relationship. The new treatment is compared to a standard treatment regimen.

**PHASE III (Device – Pivotal):** Expanded controlled and uncontrolled trials after preliminary evidence suggesting effectiveness of the agent/test article has been obtained and are intended to gather additional information to evaluate the overall benefit-risk relationship and provide an adequate basis for physician labeling. Compares new agent/test article against commonly used agents/test articles.

**PHASE IV:** Post-marketing studies to delineate additional information including the agent’s risks, benefits, comparative effectiveness, and optimal use. These studies are designed to monitor the effectiveness of the approved intervention in the general population and to collect information about any adverse effects associated with widespread use.

[1] U-M has adopted a modified NIH definition of clinical trials to track and monitor organizational metrics. However, your trial may be subject to legal or regulatory requirements that may depend upon other definitions (e.g., registering your trial and trial results in ClinicalTrials.gov. See http://www.med.umich.edu/medschool-regulatory/policies/Clinicaltrials-gov.html)