



# Clinical Trial FLIGHT PLAN

**A Clinical Trial Navigation Tool for  
Families Affected by Duchenne**



Empowering families.  
Fighting Duchenne.

## UNDERSTANDING CLINICAL TRIALS IN DUCHENNE MUSCULAR DYSTROPHY

Clinical trials for Duchenne muscular dystrophy are helping researchers answer important questions about the disease and investigational drug or biologics, and by providing information that may help the development of future medical treatments. For many individuals and families affected by Duchenne, clinical trial participation may be a consideration, especially in the absence of an approved treatment for the disease.

This guide explains the purpose of a clinical trial, what is expected of you and your family when you participate, how the data collected in the clinical trial will be used, and what you can expect during the clinical trial.

A Glossary is provided at the end of this guide that gives definitions of some of the terms regarding clinical trials that may be unfamiliar.



## OVERVIEW OF CLINICAL TRIALS

### Why Are Clinical Trials Conducted?

Clinical trials are conducted to determine if an investigational medical product (such as a new drug or biologic, procedure, or medical device) is safe and effective. The clinical trial process can be long and complicated, because of the many steps in place to protect the safety of trial participants.

### Drug vs. Biologic

You'll see in this guide that we often refer to investigational medical products as drugs and biologics. Biologics include a wide range of products such as vaccines, blood and blood components, allergenics (substance that is likely to cause an allergic reaction), somatic cells (cells from body tissue), and gene therapy. Gene-based and cellular biologics, for example, often are at the forefront of biomedical research, and both investigational drugs and biologics are being studied for the treatment of Duchenne. Drugs are a more traditional form of medicine that typically are developed using chemicals that have a physiological effect when introduced to the body.

### Who Regulates Clinical Trials?

Each country has its own regulatory authority with laws and regulations for conducting clinical trials. In the United States, the regulatory authority is the Food and Drug Administration (FDA). The FDA reviews and approves the protocol (a detailed plan for the trial), and ensures that the clinical trial follows federal regulations. Regulatory authorities make sure that the rights of participants are protected by requiring that all clinical trials are approved and monitored by special committees. In the United States, these committees are called Institutional Review Boards (IRBs), and in other countries they are called Ethics Committees (ECs). IRBs and ECs are discussed subsequently in this packet.





Who Is Involved in Conducting Clinical Trials?

Many people are involved in planning, organizing, and conducting a clinical trial. They may include:

<b>CLINICAL TRIAL SPONSOR</b> A clinical trial sponsor can be a company (e.g., a pharmaceutical or biotechnology company), a non-profit institution, or a government organization. The sponsor initiates, manages, and funds clinical trials.	<b>CONTRACT RESEARCH ORGANIZATION</b> A contract research organization (CRO) is a company the who manages a clinical trial for a sponsor. They manage and monitor the data, work with the trial sites, and make sure the trial runs smoothly.
<b>DATA AND SAFETY MONITORING BOARD (DSMB)</b> The DSMB is an independent group or committee of experts that monitors patient safety and treatment efficacy while a clinical trial is being conducted. The DSMB plays a critical role in the administration of clinical trials.	<b>PRINCIPAL INVESTIGATOR (PI)</b> The principal investigator is often a medical doctor who is responsible for managing a clinical trial at an individual research center or hospital. The principal investigator is sometimes called the “study doctor,” and he or she is usually aided by other doctors, nurses, and clinical research coordinators who are part of the study team. The PI can also be a nurse, physical therapist, occupational therapist, or researcher who is studying a disease in a non-interventional setting such as a natural history study.
<b>REGULATORY AUTHORITY</b> The regulatory authority of each country (e.g. FDA in the US and EMA in the EU) reviews and approves the study protocol, and ensures that the clinical trial follows national regulations.	<b>PATIENT ADVOCACY GROUPS</b> Patient advocacy groups are an integral part of drug development. They are responsible for elevating the patient voice during the medical development process, interacting with sponsor companies on behalf of the general patient community, helping fund early research, educating the patient community on clinical trials, answering general patient questions, and interacting with regulatory agencies on behalf of patients.
<b>INSTITUTIONAL REVIEW BOARD (IRB) / ETHICS COMMITTEE (EC)</b> An IRB or EC is an independent committee who makes sure that clinical trials are conducted in a safe and ethical way. Each clinical trial location is monitored by a specific IRB or EC. The IRB or EC is responsible for reviewing and approving the study protocol, Informed Consent Forms, recruitment methods, and all written information provided to participants. They are also responsible for reviewing active clinical trials on an ongoing basis, requiring that any serious adverse events (any undesirable experience associated with the use of a medical product in a patient) be reported.	

Why Are Clinical Trials Necessary?

Clinical trials are designed to answer the following types of questions about a new treatment:

- Is it safe?
- Is it effective?
- What is the optimal dosing?
- Is it more effective than the current standard of care?
- Does it provide any benefit or advantage over standard treatment?

Clinical trials are designed based on the results of preclinical testing. The potential for success is based on preclinical testing involving laboratory studies, including in vitro studies (outside of a living organism) and in vivo studies (testing in animals such as a mouse). While these experiments are often insightful and can help scientists better understand how a certain drug works, animals and lab experiments aren’t the same as people. That means, even if the preclinical results are positive, you still need clinical trials to show true safety tolerability and effectiveness in humans.

The decision to participate in a clinical trial can be a difficult one to make, and one that may involve many considerations.

Participation is always voluntary, and you or your legal guardian can withdraw at any time and for any reason (or no reason at all). Doing so will not affect the care you are currently receiving or that may be provided in the future.

To help generate scientific data showing safety and efficacy, researchers may test an investigational drug or biologic for Duchenne:

- at different doses, at different frequencies, or for a different length of time
- against a placebo (an inactive substance designed to have no effect on health)
- by itself

Several clinical trials are currently taking place for Duchenne, some of which are evaluating investigational drugs and biologics designed to potentially help manage or slow disease progression. You can find more information on clinical trials in Duchenne by visiting [ClinicalTrials.gov](https://clinicaltrials.gov) (a database of privately and publicly funded clinical studies conducted worldwide) or using our “cheat sheet” which can be found on our website at [jettfoundation.org](https://jettfoundation.org).

Participation in a clinical trial for Duchenne typically begins with a conversation between the neurologist and the patient or caregiver. In many cases, the family of the patient is also involved in the decision-making process. If your doctor has not talked to you about clinical trials, make sure you ask during your next appointment. As an alternative, you can call your neurologist’s office to ask them about clinical trials you may be eligible for, or visit [clinicaltrials.gov](https://clinicaltrials.gov) to search for information about studies being done in Duchenne. You can also contact a patient advocacy group in the Duchenne space to discuss different clinical trial opportunities that are currently enrolling and how you can get in touch with a principal investigator for more information.



If you have concerns related to being in a clinical trial, raise your concerns with your doctor or **contact the Jett Foundation at [info@jettfoundation.org](mailto:info@jettfoundation.org)**, or any other advocacy group that is familiar with the clinical trial process.





Common Misunderstandings About Clinical Trials

**Q: If I/my child participate in a clinical trial, does this mean I/my child’s symptoms will improve?**

A: Receiving an investigational drug does not guarantee improvement of symptoms or the slowing of disease.

**Q: Can participating in a clinical trial harm me/my child?**

A: While safety and tolerability testing is done prior to an investigational drug being received by the intended population, investigational drugs may have adverse effects, including worsening of symptoms, acceleration of progression, and/or unwanted side effects.

**Q: If I/my child participates in a clinical trial, is there a guarantee I/my child will receive the actual drug?**

A: In some clinical trials, participants do not receive the investigational drug at all. Instead, participants receive placebo (a substance that has no therapeutic effect, used as a control in testing new drugs). Data about the patient taking the placebo are then compared with data from patients taking the drug to determine if the drug is having an effect.

**Q: I’m on the clinical trial website and see natural history studies. What does this mean?**

A: Natural history studies collect health information. They do not involve any administration of an investigational drug. Researchers, instead, focus on observing the natural progression of the disease.

What Is a Clinical Trial Protocol?

All clinical trials follow a detailed plan or blueprint, which is called a “protocol.” The protocol explains the purpose of the trial as well as many details regarding how the trial will be conducted. The protocol includes information about:

- the reason the clinical trial is being conducted.
- questions that researchers are trying to answer.
- the population that will be studied.
- planned medical tests and procedures.
- how data will be analyzed.
- the investigational drug or biologic(s), doses, and frequency of dosing.
- timeframe and schedule of patient assessments.
- how the health and safety of participants will be monitored.
- any known side effects or risks.

Before an individual research center or hospital can participate as a clinical trial site, the protocol and documents that will be provided to participants must be approved by an Institutional Review Board (IRB) or Ethics Committee (EC). As we have discussed previously, IRBs and ECs are independent committees responsible for protecting the rights, welfare, safety, and well-being of clinical trial participants. Sometimes IRB or EC approvals can take weeks or months, and thus patients and caregivers may be left waiting for their site to open.

Any departure from the approved procedures in the protocol during the clinical trial is called a protocol deviation. These deviations can have minor or major consequences to the trial or what can be learned from the trial. It is important that the patient and family, as well as the principal investigator and the clinical trial site and support staff, follow the protocol exactly to protect the study participants and the integrity of the data being collected.

If a principal investigator believes that a patient in a clinical trial is being harmed by the protocol, he or she can stop the study and contact the study sponsor to request a protocol amendment or, in a pediatric trial, submit an amendment to the IRB. After an extensive review by experts, the study protocol may be changed to reflect the needs of the participants and to protect their welfare.

How Is the Clinical Trial Population Chosen?

All clinical trials have standards about who can and cannot participate. These standards are called inclusion/exclusion (or eligibility) criteria. The criteria identify people who can participate in the study safely and who are likely to benefit from the investigational drug in ways that can be measured by the study tests. The use of eligibility criteria makes it easier and quicker for researchers to evaluate the investigational drug or biologic and compare its effect, if any, among participants, which may potentially lead to a faster review and approval.

Principal investigators and their study teams evaluate potential clinical trial participants through a screening process, during which the patient’s medical history is reviewed and certain medical tests and evaluations may be performed. Thereafter, a discussion with the potential participant (or family member) may occur to help the principal investigator make a decision about whether the patient’s health status and medical history meet the eligibility criteria for participation. The final decision on inclusion in the clinical trial is made by the principal investigator.

It is important to understand that not everyone interested in a clinical trial may have the opportunity to participate. This could be because the health status and the medical history of a patient might not meet the eligibility requirements. It is also possible that the trial has already enrolled the required number of participants. Regardless, of your eligibility to participate in a specific clinical trial after completing the screening process, the principal investigator may be able to discuss the possibility of participating in a future clinical trial.

Common eligibility criteria for a DUCHENNE CLINICAL TRIAL may include:

- age at Duchenne diagnosis or age at onset of symptoms
- current age
- ambulatory status
- corticosteroid dosing
- mutation
- motor function
- respiratory function
- current health status and other medical conditions (not related to Duchenne)
- surgical history, including prior or planned surgeries
- current treatment or therapies for Duchenne
- previous exposure to the investigational drug or biologic
- previous exposure to other investigational drugs or biologics for Duchenne
- recent participation in a clinical trial
- distance from a participating clinical trial site





## What Is a Placebo, and Why Is It Used?

Some clinical trials include the use of a placebo to help researchers evaluate the effect, if any, the investigational drug or biologic has on Duchenne symptoms. A placebo is commonly used in Phase II and III clinical trials. A placebo is designed to look like the investigational drug or biologic but has no active ingredients.

In randomized, placebo-controlled clinical trials, some participants will receive the investigational drug or biologic and some will receive the placebo. Researchers compare the results of the group receiving the investigational drug or biologic to the group receiving the placebo to determine if the investigational drug or biologic is having the desired effect.

Using a placebo helps to speed up a clinical trial because researchers can more quickly observe any differences between the groups. Using natural history studies, in comparison, can take researchers much longer to conduct because they must determine if a difference between groups is real—without the help of a placebo, or sham.

## Bias vs. Placebo Effect

During clinical trials, participants may show improvements or side effects simply because they think they are being treated, which is called the placebo effect. Placebo effect is the benefit you get from having any intervention, even if it's inactive. Bias is the idea that the tests are administered or analyzed in an unfair or uneven way.

## Blinded vs. Randomization

The process that determines whether a participant will be assigned to the group receiving the investigational drug or biologic, as opposed to the group receiving the placebo is called randomization. As the name suggests, this process is done by chance, like flipping a coin. In a “blinded” clinical trial, the principal investigator knows which group the participant is assigned to, but the participant is not aware whether they are receiving the investigational drug or placebo. In a “double-blinded” clinical trial, neither the participant nor the principal investigator knows which group the participant has been assigned. Both methods are used to eliminate potential bias.



## THE FOUR PHASES OF CLINICAL TRIALS

Developing a new medical treatment is a long and complex process, averaging 10 to 15 years from start to finish. This is because there are several steps in place that are designed to evaluate whether an investigational drug or biologic is safe and effective before it is approved by a regulatory authority.

Once an investigational drug or biologic is identified, preclinical testing is performed in the laboratory before it can be tested in humans. This initial testing may take several years. Only approximately one in every 1,000 investigational drugs or biologics that enter preclinical testing will make it to human testing.

Following the completion of each phase, the sponsor will evaluate the results and decide if the investigational drug or biologic will advance to the next phase. More than 90% of investigational drug or biologics that enter Phase I clinical trials do not end up being approved for use because of:

- **safety issues**
- **a lack of effectiveness**
- **manufacturing issues**  
(e.g., technical issues related to not being able to make enough of the investigational drug or biologic or not being able to make it reliably)



AN OVERVIEW OF THE FOUR PHASES

Phase 1

In a Phase I study, the investigational drug or biologic is tested in a small group of people to evaluate its safety, determine a safe dose, and identify side effects. Sometimes Phase I trials involve a group of healthy volunteers, which helps researchers establish normal measurements and assess any side effects. This phase is not designed to answer questions about whether the investigational drug or biologic is effective for Duchenne; however, it still may capture these data if trialed in Duchenne patients.

Phase 2

In a Phase II study, the investigational drug or biologic is given to an increased number of people with Duchenne. Researchers look to identify initial signs that the drug or biologic may be effective and further evaluate its safety. Sometimes, if the data collected in the Phase II study are very compelling, the investigational drug or biologic may be eligible for Accelerated Approval, which could ensure that the drug or biologic is accessible to all patients faster while continuing to be studied for efficacy. The Accelerated Approval Program was initiated in 1992 by the FDA to allow the faster approval of drugs or biologics for serious conditions that fill an unmet medical need.

Phase 3

In a Phase III study, the investigational drug or biologic is given to an even larger number of people with Duchenne to confirm its effectiveness, monitor side effects, and collect information that will allow the investigational drug or biologic to be used safely. During this phase, the investigational drug or biologic is often compared with a placebo or sham.

Phase 4

Phase IV studies are conducted after an investigational drug or biologic has been approved and made available to the public. Researchers gather information on the drug or biologic’s effects in various populations and any side effects associated with long-term use.

Different Medical Products, Different Development Plans

Not all medical products follow the same linear pathway described above. Gene therapy studies may differ in this traditional drug or biologic development approach and may be eligible for market approval earlier on in development.

There are also specialized approval pathways:

- **Priority review** - decreased application review time
- **Fast track** - for drugs that treat serious conditions and address an unmet medical need
- **Accelerated approval** - applied to new therapies that treat serious or life-threatening conditions for which there is an unmet medical need and have a “clinically meaningful outcome”
- **Breakthrough Therapy** - designed to speed up the development and review of drugs that are intended to treat serious conditions. Here, initial clinical evidence indicates that the drug may show substantial improvement over other available therapies

Open-Label Extension Trials

Some clinical trials have an extension trial that allow participants to take part following the completion of the main trial. In most cases, during an extension trial, all participants, including those who were assigned to the placebo group, receive the investigational medical product over an extended period of time so that researchers can study its long-term effects. Participation in all clinical trials is voluntary, and that means your continued participation in the extension study is still voluntary. You can choose to not participate in the extension study.



PARTICIPATION CONSIDERATIONS

Why Consider Participation in a Clinical Trial?

Individuals and families affected by Duchenne may choose to participate in clinical trials for a variety of reasons, including:



To help advance knowledge about Duchenne.



To contribute to medical research and to the development of a potential treatment.



To have potential access to an investigational product.



For clinical trial-related care, monitoring, medical tests, and assessments.  
*(Participants will continue to receive standard medical care from their primary doctor.)*

### Healthcare Considerations

Basing a current healthcare decision on the potential to participate in a current or future clinical trial is not advised. Healthcare decisions should be based on the current medical situation. It is never recommended to avoid treatment or care because you believe the treatment or care may prevent you or your family member from being able to participate in a clinical trial. There is no guarantee that doing so will make you or your family member eligible. In fact, most DMD trials require that participants are receiving DMD standard clinical care.

### Potential Risks and Benefits of Participation in a Clinical Trial

Clinical trials are experiments. There is no guarantee that participating in one will provide a medical benefit, and, in fact, there may be risks involved – some known, some unknown. This is particularly true for Phase I trials when the investigational product is tested in humans for the first time.

When potential risks are known, they must be fully explained by the study team to potential participants (or family members, depending on the age of the participant). These potential risks may include unpleasant or even serious side effects. If new risks are learned during the trial, this information must be shared as well. Participants may or may not experience a benefit from the investigational medical product.

As part of the decision-making process, you will be given a chance to discuss the potential risks and benefits of enrolling in a clinical trial with the principal investigator. You should consider all risks and benefits as part of your decision. You should only make a decision after having a full understanding of the risks that may be involved and what will be required of you or your family member as a participant.

### The Informed Consent Process

The site principal investigator will review the form with you. This process is called the informed consent process. If you decide to participate, you'll sign the informed consent form. You may take the form with you to review and discuss it with family members or friends while you consider participation. (See the section entitled Planning Ahead to Meet With the Principal Investigator.)

If you decide to participate, you must provide your consent by signing the Informed Consent Form. This process is called the informed consent process, and it is a standard process for participation in a clinical trial. As you consider your decision, please remember:

- Participation in a clinical trial is always voluntary and you can change your mind at any time
- Deciding not to participate will not affect care that may be provided now or in the future
- Participants may withdraw at any time and for any reason – doing so will not affect the care they would normally receive outside of a clinical trial
- The principal investigator is required to inform clinical trial participants of any new developments that may affect or influence their decision to participate; the IRB or EC plays a role in overseeing clinical trials to make sure this occurs

For some individuals, it is a possibility that their participation may be ended by the PI or sponsor, without their consent, if they become too sick, other medical issues develop, or if other medical care becomes available.

### Special Considerations for Children

Children who are 6-7 years of age or older may be asked by the principal investigator if they agree (or "assent") to participate in the clinical trial. Not all trials require assent. For those that do, the age when it is requested can vary depending on the trial, as well as the requirements of the research center or hospital and the country where the trial is being conducted. However, it is important to discuss participation with your child if they are at an age that they can understand.

### Considerations for Parents

Organizing and managing clinical trial appointments can be challenging. Other aspects of your family life may suffer because of your participation in the clinical trial. Oftentimes, patients miss school for appointments, parents miss time from work attending clinic visits, and siblings do not get the attention that they need. Additionally, the travel, time, and financial commitments are often extensive and can be stressful. However, it is important to keep these burdens in perspective, and remember that participating in a clinical trial is a choice that should be made with the entire family in mind.

These following tips may be helpful if you are a parent of a child participating in a clinical trial:

- With the help of the study team, develop a calendar showing key study appointments and telephone calls so that you are prepared in advance.
- Let your employer know that your child is going to need additional doctors' appointments in the coming months, and that you will need flexibility. Learn more about your company's FMLA (Family Medical Leave Act) policy to help you navigate this with your employer.
- Depending on the age of your child, consider bringing toys or games (books, puzzles, markers) to keep the child busy while waiting to meet with the study team.
- If you are traveling by plane and your flight has been canceled or delayed, please let the study team know so that they can adjust the time of your appointment.
- Make sure to have an extensive discussion about travel and lodging support with the clinic or study coordinator to understand the kind of travel support that will be available to you before you make the decision to participate.
- Make sure you have your child's medical records with you in case you need to share them with the study team.
- Put all of your child's trial-related information into a folder and bring it with you to each appointment so you can reference it, if necessary. Bring a copy of your consent form to the child's usual DMD doctor and bring it with you to all clinical appointments. It will have information the ER would need, for example, if there's something that happens during the study.
- Keep a journal or notebook handy to note questions or symptoms that may arise.
- arm yourself with a team of helpers, such as trusted family members and friends, who can help with travel to and from the airport, school pickups for siblings, and other errands, and otherwise be a general source of support (*remember, you don't have to do this alone*).
- Contact an advocacy group such as Jett Foundation at [info@jettfoundation.org](mailto:info@jettfoundation.org) and ask for support as needed.



Some Duchenne clinical trials may include travel support and reimbursement for parking, meals, and other expenses. This support may be helpful for families who need to travel a long distance to the clinical trial location, or who have a lengthy appointment or overnight stay. It is important that you have an extensive discussion about travel and lodging support with the clinic or study coordinator to understand the kind of travel support that will be available to you before you make the decision to participate.





### Responsibilities of Participants

There are certain responsibilities that clinical trial participants (or family members, depending on the age of the participant) are asked to follow. These may include:

- Following all instructions given by the study team.
- Attending all scheduled visits.
- Completing questionnaires about the status of the participant between visits.
- Capturing specific study videos in the home as part of the study.
- Advising the principal investigator of any new health-related problems (even if you do not consider them to be caused by the clinical trial or the investigational medical product, any small change is very important to report).
- Advising the principal investigator about any new medications or changes in doses or the frequency of medication.
- Refraining from discussing the clinical trial with other participants, including whether you think you or your family member may be receiving a placebo or sham.



### Social Media

It is important to limit discussions about your clinical trial participation to family members, advocacy groups, close friends, and doctors. It may be tempting to share information about your experience on Facebook, Twitter, or YouTube, but doing so can affect the results of trials and hurt the chances of a safe and effective medical product becoming widely available.

Clinical trials are designed to allow for the unbiased (or fair) collection of data. Posting your information online could influence others and could result in over-reporting or under-reporting of the side effects of the investigational medical product. Sharing information in this manner could unintentionally unblind the trial, revealing if participants are receiving the investigational drug or biologic or placebo/sham. If this happens, it could compromise all of the trial data.

If you have questions about what may be appropriate to share, please speak with a member of the study team.



### Planning Ahead to Meet With the Principal Investigator

When you meet with the principal investigator for the first time, you may have many questions. Here are a few tips to help you plan ahead so that you are prepared:

- Think about questions you may want to ask and write them down in advance so that you do not forget to ask any of them.
- Bring a family member or friend to support you with asking questions.
- Write down the principal investigator's response to your questions so you can review them with family members who could not attend.

Make sure you leave with an understanding of the potential risks involved with participation and the side effects that could occur. These are important things to consider during the decision-making process.



### Suggested Questions to Ask

When meeting with the principal investigator to discuss potential participation, you may want to consider asking some of the following questions:

- |   |   |
|---|---|
| <input type="checkbox"/> What is being studied?   | <input type="checkbox"/> Will I be reimbursed for other expenses?   |
| <input type="checkbox"/> If researchers are studying an investigational drug or biologic or biologic, why do they believe it may be effective for Duchenne? | <input type="checkbox"/> Is travel support included? If yes, how many family members will be covered?                                   |
| <input type="checkbox"/> Has this product been studied before in Duchenne?  | <input type="checkbox"/> Is there a planned extension trial?  |
| <input type="checkbox"/> How long will participation last?  | <input type="checkbox"/> Who do I contact in case of an emergency?  |
| <input type="checkbox"/> How often will I have to visit the hospital or clinic?   | <input type="checkbox"/> What if my child starts to have side effects?  |
| <input type="checkbox"/> Will any of these visits require an overnight stay?  | <input type="checkbox"/> Can I participate in other clinical trials in the future if this one does not work out?                        |
| <input type="checkbox"/> Is there a chance of receiving a placebo or sham?  | <input type="checkbox"/> Is there an extension study planned, and how long will the extension study be?                                 |
| <input type="checkbox"/> What types of medical tests and procedures will be performed?  | <input type="checkbox"/> What are the enrollment criteria and rules for current medications and supplements?                            |
| <input type="checkbox"/> What are the possible risks and benefits of participation?   | <input type="checkbox"/> Is the study still recruiting patients? (clinicaltrials.gov isn't always up to date)                           |
| <input type="checkbox"/> Who will oversee medical care for me or my family member while participating?  | <input type="checkbox"/> Is my identity and privacy being protected throughout the study? Who do I need to tell about my participation? |
| <input type="checkbox"/> Will the results of the clinical trial be available to participants?   | <input type="checkbox"/> What do I do if I decide to end participation?   |
| <input type="checkbox"/> Who will pay the costs associated with participation?  |   |



Expanded Access Programs

If you or your family member is not eligible to participate in a clinical trial, expanded access – also called “compassionate use” – may be an option to explore. In the United States, the FDA allows some pharmaceutical companies to provide investigational drugs or biologics to patients outside of a clinical trial. However, expanded access programs are highly regulated and patients must meet several criteria in order to be eligible.

The FDA must approve the investigational drug or biologic and biologic for expanded access based on preliminary safety and efficacy data. In addition, the pharmaceutical company must be willing to make it available for expanded access.

Not all pharmaceutical companies can or want to make an investigational drug or biologic or biologic available for expanded access because of:

- A lack of safety and efficacy data.
- The risks that it could pose to ongoing controlled clinical trials.
- Cost (the investigational drug or biologic or biologic may be too expensive and time-consuming to make).
- Manufacturing (the ability to produce the investigational drug or biologic may be limited, especially for smaller pharmaceutical companies).

In developing an expanded access program, a pharmaceutical company may consider:

- Ethical concerns about providing the investigational drug or biologic while a placebo controlled trial is still enrolling participants.
- Whether the company needs to take resources from the medical product development program, which may slow down the approval timeline.
- Whether early access to the investigational drug or biologic could make Phase II and III clinical trials more difficult to conduct.
- Manufacturing capacity (and whether it may limit the availability of the drug or biologic for clinical trial participants).

Once an investigational drug or biologic has been approved for expanded access by the FDA or other regulatory authority, patients still need to meet certain criteria in order to be considered. Factors such as age, health problems, distance to the trial location, or whether the doctor believes that the potential benefits of the investigational drug or biologic will outweigh any potential risks to the patient will all be considered.



**Note:** Remember, the purpose of expanded access is to provide treatment for a patient’s disease, rather than to collect data about the investigational drug or biologic.

Potential Advantages and Disadvantages of Expanded Access for Duchenne

Expanded access for Duchenne provides a potential option for patients who are not able to participate in a clinical trial. In the absence of a cure or an approved treatment, expanded access provides patients with an opportunity to pursue an investigational approach, and it may bridge the gap between the final stages of development and approval by making the investigational drug or biologic available during that period.

However, expanded access may also limit enrollment in clinical trials, which is needed for the approval process; may carry unknown safety risks; and could reveal unrelated side effects that could result in the delay or termination of a medical product development program.

In addition, pharmaceutical companies may need to take resources from the medical product development, which may delay approval and thus access to those who might benefit from it.







# CLINICAL OUTCOME PROCEDURES AND ASSESSMENTS

Various procedures and assessments may be performed during the clinical trial process to determine outcomes. Some of these procedures and assessments are discussed below.



## Procedures

**Biopsy.** During a biopsy, a sample of tissue (in Duchenne it is a sample of muscle tissue) is removed from the body for examination. These cells are examined through a microscope. Typically, an extremely low level of dystrophin (a protein found in skeletal muscle) in the muscles is indicative of Duchenne. Sometimes biopsies are done in clinical trials to establish whether or not patients being treated with a drug or biologic are making a protein, such as dystrophin, compared to patients not on the drug or biologic. This can help establish whether or not a drug or biologic may be working. A biopsy can also show if the body is putting the new protein in the right place in the cell.

**Needle Biopsy.** A needle biopsy (or punch biopsy) is sometimes used in clinical trials to take a very small piece of muscle tissue. This is often done without general anesthesia and is less invasive than an open biopsy. Sutures aren't typically required and the physician numbs the area before the biopsy.

**Open Biopsy.** An open biopsy (sometimes called an incisional biopsy) is performed when abnormal tissue is not directly accessible through less invasive means such as the needle biopsy. Sometimes physicians will perform an open biopsy if they desire a larger sample of tissue to examine. Open biopsies are surgical procedures, and are usually done on an outpatient basis with local anesthesia. However, they do require sutures.

**Magnetic Resonance Imaging (MRI).** This test uses a machine with a powerful magnet to take pictures of the inside of the body. A MRI can be used to take pictures of the heart or other muscles for DMD studies. A computer records changes in the magnetic field around the body. The computer then uses the changes to create a series of detailed pictures. Each picture looks like a slice taken through the body. The computer can also create a three- dimensional image of the inside of the body. Unlike a computed tomography scan (called a CAT or CT scan), an MRI does not use x-rays (radiation) and is usually very safe. However, MRIs take longer than a CT scan, and usually last from 20 to 60 minutes. MRI machines also put the patient in a narrow tube or tunnel, which may be a problem for people with claustrophobia. There is an alternative called an open MRI that can reduce any anxiety associated with having an MRI. Because of the use of powerful magnets, make sure you advise the PI if you have any metal objects in your body.

**Dual-energy X-ray absorptiometry (Dexa Scan).** A Dexa Scan is a non-invasive test that measures bone mineral density to assess if a person is at risk of osteoporosis or fracture. During a Dexa scan, two X-ray beams with different energy levels are aimed at the patient's bones. The bone mineral density can be determined from the absorption of each beam by bone once the soft tissue is subtracted out.



## Cath Placement (Port)

Some investigational medical products are oral, some are given by directly accessing vein (IV), and some are subcutaneous injection (in the fatty tissue just under the skin). Sometimes, if people's veins are being repeatedly accessed for an infusion of a medication, it becomes more difficult each time for nurses to find a vein. In this case, a Port-A-Cath, also referred to as a port, is surgically inserted completely beneath the patient's skin and allows easy access to a patient's veins. A port is a silicone balloon that is placed under the skin. You can't see it from the outside of your body. When it's time to draw blood or give an IV medication, the nurse will put a short needle through the skin into the port, which is much easier than placing an IV. The implantation of a port is done under general anesthesia by a general surgeon, and should only be done if determined necessary by the principal investigator and the patient and their family. There are risks to this procedure that should be extensively discussed prior to the surgery. Other access devices may be used depending on the patient. Please talk to your doctor about the best choice for you and your family.



## Blood Work And Urine Testing

Blood and urine samples help monitor safety issues that may come up during the clinical trial. Sometimes these samples can be taken at home, but oftentimes they need to be taken in the clinic. It is important to understand what this blood and urine sample schedule will look like during the clinical trial before you begin, and recognize that it is being done to protect the patient from any adverse events or side effects.



## Cardiac Testing

**Echocardiogram.** An echocardiogram (sometimes called an "echo") is ultrasound imaging taken of the heart. A small machine bounces sound waves off of the heart to create a moving image. A technician puts gel on the chest, which helps the sound waves pass from the machine into the body. The technician then holds a wand against the chest that sends out the high-pitched sound waves. This is a simple, fast, and painless test. There are no side effects and you cannot hear the sound waves. The main types of echocardiograms are two-dimensional, three-dimensional, Doppler, and color Doppler. The process of getting these tests is the same, but each test shows the doctor something different. Depending on the test, an echocardiogram can show whether the heart is moving normally, whether enough blood is pumping, whether the heart is enlarged, or if there is fluid building up around the heart. An echocardiogram may be used to monitor cardiac function during a clinical trial and predict whether or not a drug or biologic is having an affect on the cardiac health of a patient in the clinical trial.



## Pulmonary Testing

Pulmonary function testing in patients with Duchenne helps to evaluate the respiratory status of patients at the time of diagnosis, monitor their progress and course and gives an overall idea of respiratory health. In a clinical trial, you may be asked to undergo pulmonary tests that measure forced vital capacity (FVC), peak flow rate (PFR), cough peak flow (CPF), forced expiratory volume in 1 second (FEV1), maximum insufflation capacity (MIC), maximal expiratory pressure (MEP), and maximal inspiratory pressure (MIP). These assessments will typically be done under the supervision of a pulmonologist or a respiratory therapist in the clinic, and may help predict whether or not an investigational drug or biologic is having an affect on the pulmonary health of a patient in the trial.



Other Types of Assessments Used in Clinical Trials



**6-minute walk test (6MWT):** The 6MWT is a commonly used clinical outcome assessment used in clinical trials studying an investigational drug or biologic in ambulatory patients. A patient is asked to walk as fast as they can for 6 minutes, typically in a hallway around cones. The number of meters the patient walks in 6 minutes is measured and used to evaluate whether or not an investigational drug or biologic is having an effect. Parents are often not allowed to be in the room during physical therapy testing. This is done so that the test can be administered consistently across all the children in the study.



**10 meter walk run:** In a 10 meter walk run, ambulatory patients are asked to walk or run 10 meters. They are timed, and their time is used to evaluate whether or not an investigational drug or biologic may be working.



**Stacking cans:** This clinical outcome assessment is used in both ambulatory and non-ambulatory patients to test arm strength. Patients are asked to stack a series of cans or blocks and timed to see how long it takes them to do the exercise. Their times are used to evaluate whether or not a drug or biologic is having an affect.



**4 stair climb:** The 4 stair climb measures how fast a patient can climb 4 stairs, and is used to measure whether or not a drug or biologic might be working and is having a clinically meaningful impact.



**Performing other activities of daily living:** Other activities of daily living, such as getting up from the floor (Rise from Supine) may be measured during clinical trials as well. Additionally, surveys or video captures may be used to help better inform how a drug or biologic may be working and affecting the daily lives of patients.



GLOSSARY

Listed below are some of the common terms associated with clinical trials along with their definitions.

Accelerated Approval

Initiated in 1992 by the FDA to allow faster approval of drug or biologics for serious conditions that fill an unmet medical need. Accelerated Approval could ensure that a drug or biologic is accessible to all patients faster while continuing to be studied in clinical trials for efficacy.

Blinding

The design of a clinical trial in which participants do not know which treatment they have been assigned to receive (e.g., the investigational drug or biologic or the placebo, or sham). Blinding is done to prevent the unintentional bias that can occur when assignments are known.

Data and Safety Monitoring Board (DSMB)

The DSMB is an independent group, or committee, of experts that monitors patient safety and treatment efficacy while a clinical trial is being conducted. The DSMB plays a critical role in the administration of clinical trials.

Double-blind

The design of a clinical trial in which neither the participant, nor the family member/caretaker, nor the principal investigator knows whether the participant has been assigned to receive the investigational drug or biologic or placebo, or sham.

Expanded Access

Pharmaceutical companies may provide investigational drugs or biologics to patients with serious diseases or conditions if patients cannot participate in a clinical trial and no other treatments are available to these patients.

Extension Trial

For some clinical trials, an extension trial is conducted that allow participants to take part after the completion of the main trial. In most cases, during an extension trial, all participants receive the investigational drug or biologic over an extended period of time so that researchers can study its long-term effects.

Informed Consent

The process by which a person provides consent, or agreement, to participate in a clinical trial. This occurs after patients have reviewed the Informed Consent Form and have had an opportunity to ask the principal investigator any questions they may have about participation.

Institutional Review Board (IRB)/Ethics Committee (EC)

An independent committee that includes medical, scientific, and non-scientific members, whose responsibility it is to protect the rights, welfare, safety, and well-being of clinical trial participants.

Open-label

A clinical trial in which everyone involved (participant, doctor, and study team) is aware of who is receiving the drug or biologic and the dosing levels. In open-label trials, no one receives a placebo or sham.

Placebo

An inactive substance designed to resemble the drug or biologic being tested. A placebo is used as a control to eliminate any any bias.

Principal Investigator

Often a medical doctor who is responsible for managing a clinical trial at an individual research center or hospital. The principal investigator, sometimes called the “study doctor,” is usually aided by other doctors, nurses, and clinical research coordinators who are part of the study team. The PI can also be a nurse, physical therapist, occupational therapist, or researcher who is studying a disease in a non-interventional setting such as a natural history study.



**GLOSSARY**  
(cont.)

**Protocol**

A detailed plan or blueprint of the clinical trial that explains the purpose of the trial as well as many details regarding how the trial will be conducted.

**Protocol Deviation**

Any departure from the approved procedures in the protocol during the clinical trial. These deviations can have minor or major consequences depending on the seriousness. Patients and family members, as well as the principle investigator and the clinical trial site and support staff, must follow the protocol exactly to protect the study participants and the integrity of the study data.

**Regulatory Authority**

A government agency that decides whether or not medical products can be sold in a country. Most countries have their own regulatory authority. In the United States, the Food and Drug Administration is the regulatory authority.

**Randomized Controlled Trial**

A type of clinical trial where participants are randomly assigned (like flipping a coin) to a particular group. Depending on the trial, participants may be assigned to receive the placebo or sham, the investigational drug or biologic, or a particular dose of the investigational drug or biologic.

**Sham**

A sham, or “sham procedure,” serves the same purpose as a placebo. It mimics the actual surgical procedure (including pre-procedure routine, anesthesia, and post-procedure follow-up), but does not include the actual delivery of the therapy to the patient.

**Standard Treatment (Standard of Care)**

Treatment that is accepted by medical experts as a proper for a certain type of disease and that is widely used by healthcare professionals.

**Study Coordinator**

A specialized member of the study team who supports the management and coordination of clinical research studies.

**Treatment Arm**

A group or subgroup of participants in a clinical trial who receive a specific intervention or treatment, or no intervention, according to the protocol of the trial.

**ABOUT JETT FOUNDATION**

Since 2001, **Jett Foundation** has met the needs of the Duchenne muscular dystrophy community. Our mission is to empower people and families impacted by Duchenne muscular dystrophy through the development of transformative programming, educational opportunities, and ongoing support for every stage of a Duchenne journey.

Every day, we strive to provide our community with helpful resources, interactive programs, and tools to use on a Duchenne journey. To learn more about our family-focused programs and get support, please visit our website at **jettfoundation.org**.

**We aim to reach every patient and family in the Duchenne community, and invite you to engage with us as we realize a world without Duchenne.**

**Will you join us?**

To get more involved with Jett Foundation and to help further our mission of enriching and extending the lives of individuals with Duchenne and other neuromuscular diseases, go to [jettfoundation.org](https://jettfoundation.org) or contact [info@jettfoundation.org](mailto:info@jettfoundation.org).

**JOIN OUR ONLINE COMMUNITY**







Empowering families.  
Fighting Duchenne.

## connect with us

---

### **Jett Foundation**

65 Cordage Park Circle | Suite 130  
Plymouth, MA 02360  
P: 781-585-5566 | F: 781-585-5233

**[jettfoundation.org](http://jettfoundation.org)**

