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#### Background

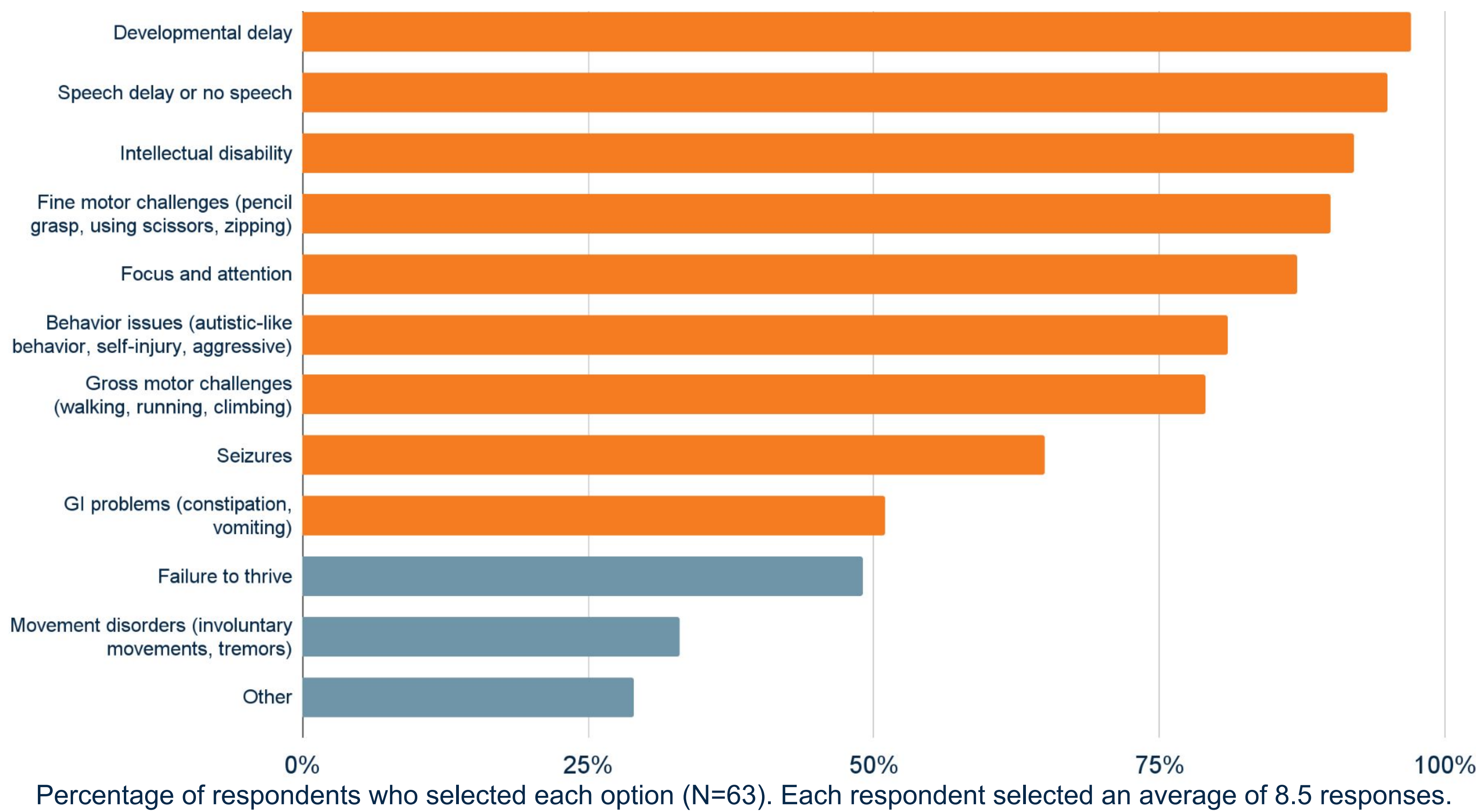
- EL-PFDD meetings are a methodical way to ensure that patient and caregiver perspectives are considered throughout the drug development process.
- The CCDS EL-PFDD meeting was held virtually on January 24, 2023 with 248 individuals in attendance.
- CCDS patients and caregivers were invited to submit public comments that were shared during the EL-PFDD.
- The Voice of the Patient (VOP) report captures the information shared during the EL-PFDD meeting and includes all comments received. It was submitted to regulatory authorities (e.g., FDA) and is made publicly available at [creatineinfo.org/el-pfdd](http://creatineinfo.org/el-pfdd).

#### Objectives

- Share with key stakeholders and the public what it means to live with or be a caregiver for someone who has CCDS, including symptoms, daily impact, and overall quality of life.
- Highlight EL-PFDD discussions around existing treatments for AGAT and GAMT, and future approaches to treatments for CTD.
- Enhance clinical trial design by elevating the voice of CCDS patients.
- Raise policymaker awareness of the symptoms and impacts of CCDS as well as the need for drug development.

#### Polling Results

Which of the following health concerns has the person with CCDS ever had? Select ALL that apply.



Short of a complete cure, what TOP 3 specific things would you want in an ideal treatment for CCDS? Select TOP 3.

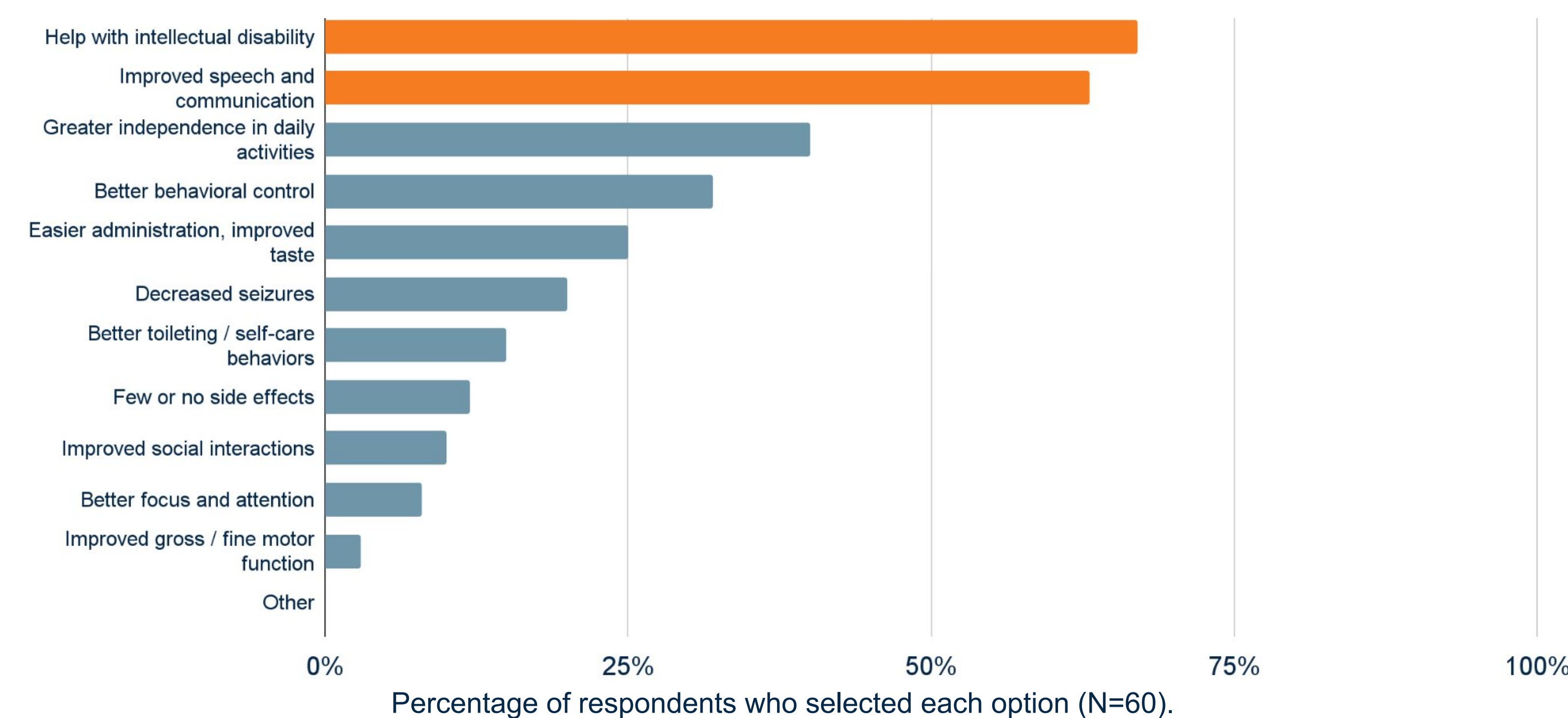


Figure 1. EL-PFDD online meeting poll responses from CCDS patients and caregivers. Poll responses selected by more than 50% of voters are shown in orange.

#### CCDS Patient & Caregiver Comments

*"Our son was 20 months old when he was diagnosed with CTD. It's a **blessing and a curse** as we all know, to have an answer but also not understand exactly what this means and what this will mean for his future."*  
Brittany, CTD parent

*"...I tried everything I could to avoid having to explain to others why I needed to take medicine. ... It was **hard to feel normal** when my kitchen counter looked like a lab bench with multiple vials, powdered filled containers and a digital medicine scale....when classmates stared at me when I poured a mysterious substance into my drink at lunch or when I had to sneak out of a day-long...rehearsal in order to gulp down my medication, so the other dancers would not notice."*  
Christina, AGAT patient

*"If we could see a **reduction in the aggressive behaviors, self injury, sensory and feeding issues** that prevent our children from being able to integrate into society and **live independently without the need for 1:1 caregiver support**, that would be a huge benefit..."*  
Whitnie, CTD parent

*"Due to the **harsh taste and increasing amount**, each of the daily doses takes Max a minimum of 30 minutes to consume. Max's day, and ours to a large extent, always revolves around getting each of his three doses in and doing it at the correct time or within the appropriate time window."*  
Leif, GAMT parent

*"Living in a **rural area** makes it really **hard to get services**. Finding time to make it to the therapy appointments is really tough when we have to travel and we both work full time..."*  
Kayla, CTD parent

*"My daughter suffers from **seizures that are not controlled** by the supplement and diet approach to GAMT. They are not controlled by seizure medicines. ...She has fallen and been injured many times from her seizures. We are **frequenting the emergency room** and I don't see an end in sight."*  
Heidi, GAMT parent

*"It's **hard for him to communicate his wants and needs**. ...I feel like sometimes when he gets frustrated or irritated or even when he's in pain, he's not able to pinpoint those."*  
Rachel, CTD parent

*"He only started his creatine supplements at age 5. **Had he started years before, the impact of his condition would not have been as severe.**"*  
Jacob, GAMT parent

*"...He requires near **constant supervision** to ensure his safety and emotional well-being. My husband and I always feel stretched too thin and constantly worry that our older, neurotypical son is not getting the attention he needs. Finding babysitters who are willing and competent to care for Xavier is extremely difficult, and we do not have family members who are able to provide that support... this **takes its toll on our mental health and relationship**. We avoid settings that are too crowded or where we cannot closely supervise his safety..."*  
Barbara, CTD parent

#### Key Insights

- For many, CCDS is diagnosed too late.
- Early diagnosis for GAMT and AGAT deficiencies is essential.
- Individuals living with CCDS experience many health concerns.
- CCDS has an enormous disease burden.
- Parents have many worries for their loved ones' future.
- There are no FDA-approved treatments for CCDS.
- Current CCDS treatment approaches and therapies are ineffective and require enormous effort and time commitments.
- CCDS families need treatments that work.

#### Additional Priorities

- Widespread knowledge about CCDS in the medical profession.
- Research and medical knowledge about the the identification and treatment of women with CTD.
- GAMT families need a way to monitor guanidinoacetate (GAA) and more evidence for the efficacy of low protein diets.
- Better ways to evaluate whether medications and treatments are working.
- Wider adoption of GAMT newborn screening, as well as AGAT and CTD newborn screening.
- Parents are enthusiastic about participating in clinical trials as long as safety is not a concern. Placebo-controlled trials are not an option.
- Identify clinical trial endpoints that are meaningful for patients and their families.

#### Looking to the Future

- We expect that data contained within the VOP report will help inform the development of CCDS-specific, clinically meaningful endpoints for current and future clinical trials.
- The VOP report can guide therapeutic development and inform regulatory authorities when assessing prospective therapies to address CCDS.
- It is important to note that the Key Insights, as well as Additional Priorities, are likely to evolve over time.

#### Acknowledgements

- Thank you to all CCDS community members for openly sharing their lived experiences and the devastating impacts of these disorders on their loves ones and families.
- Thanks to the US Food and Drug Administration, who attended the EL-PFDD meeting, Larry Bauer and James Valentine from Hyman, Phelps & McNamara, and Dudley Digital Works media team for their planning, moderation, and production of the EL-PFDD meeting.
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