

From Last Resort to First Choice: The Ascension of Exome Sequencing in Isolated NDD Diagnostics



Meghan Towne, Catherine Schultz, **Brooklynn Gasser**, Cassidy Carraway, Hannah Rea, Victoria Suslovich, Margo Gallegos, Dean Hoffer

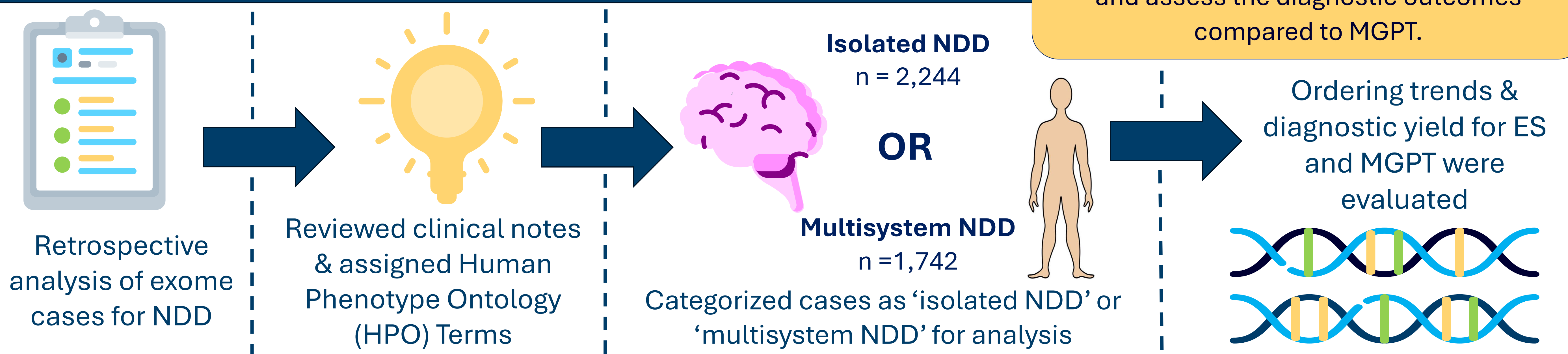
Contact: bgasser@ambrygen.com

BACKGROUND

- Historically, exome sequencing (ES) was used for complex, multisystem cases that remained undiagnosed after other testing.
- Professional guidelines now recommend ES as a first-tier test for neurodevelopmental disorders (NDD). Many clinicians still opt for multigene panel tests (MGPT).

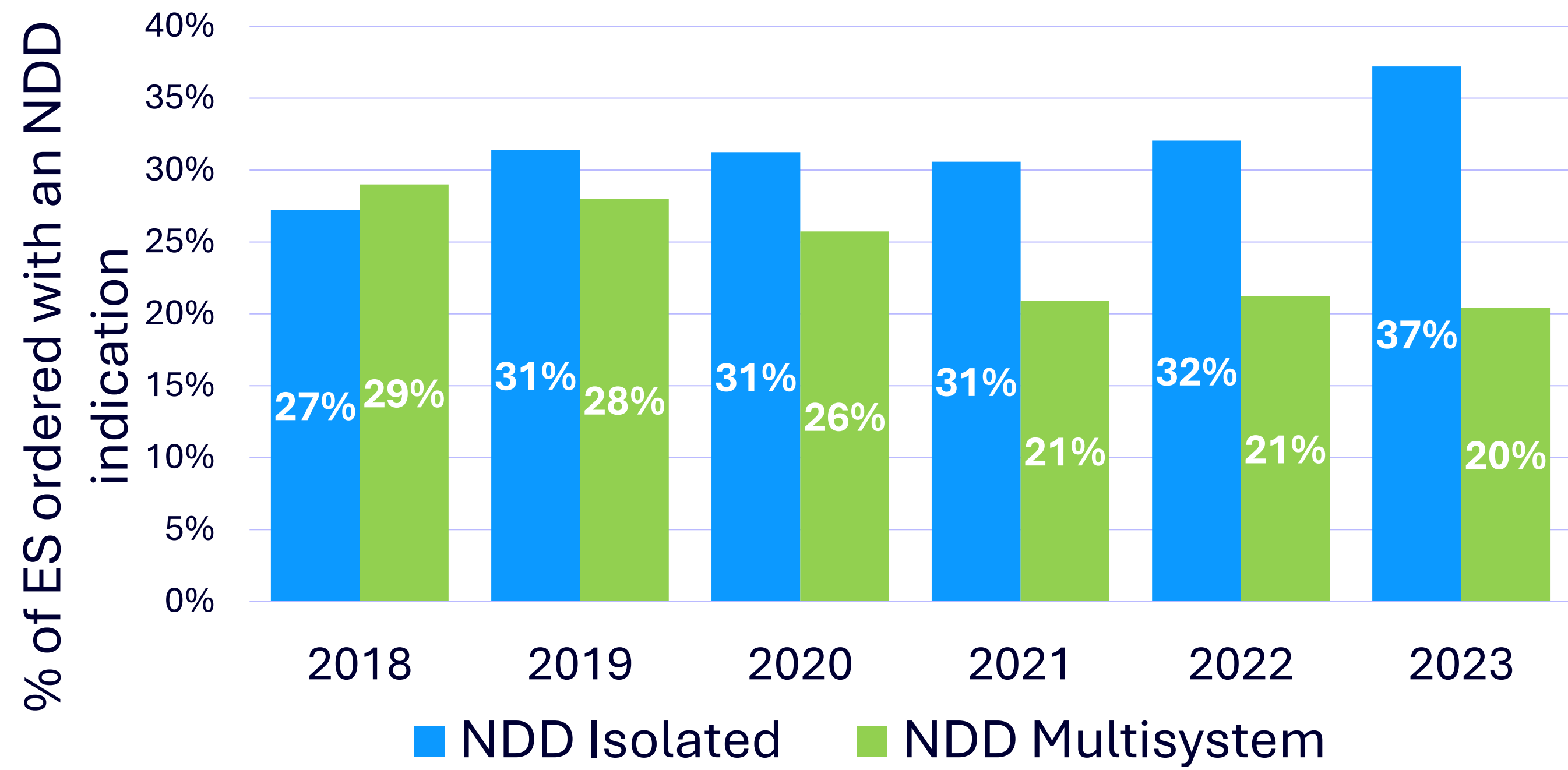
Study Aim: Explore the clinical characteristics of patients undergoing ES and assess the diagnostic outcomes compared to MGPT.

METHODS

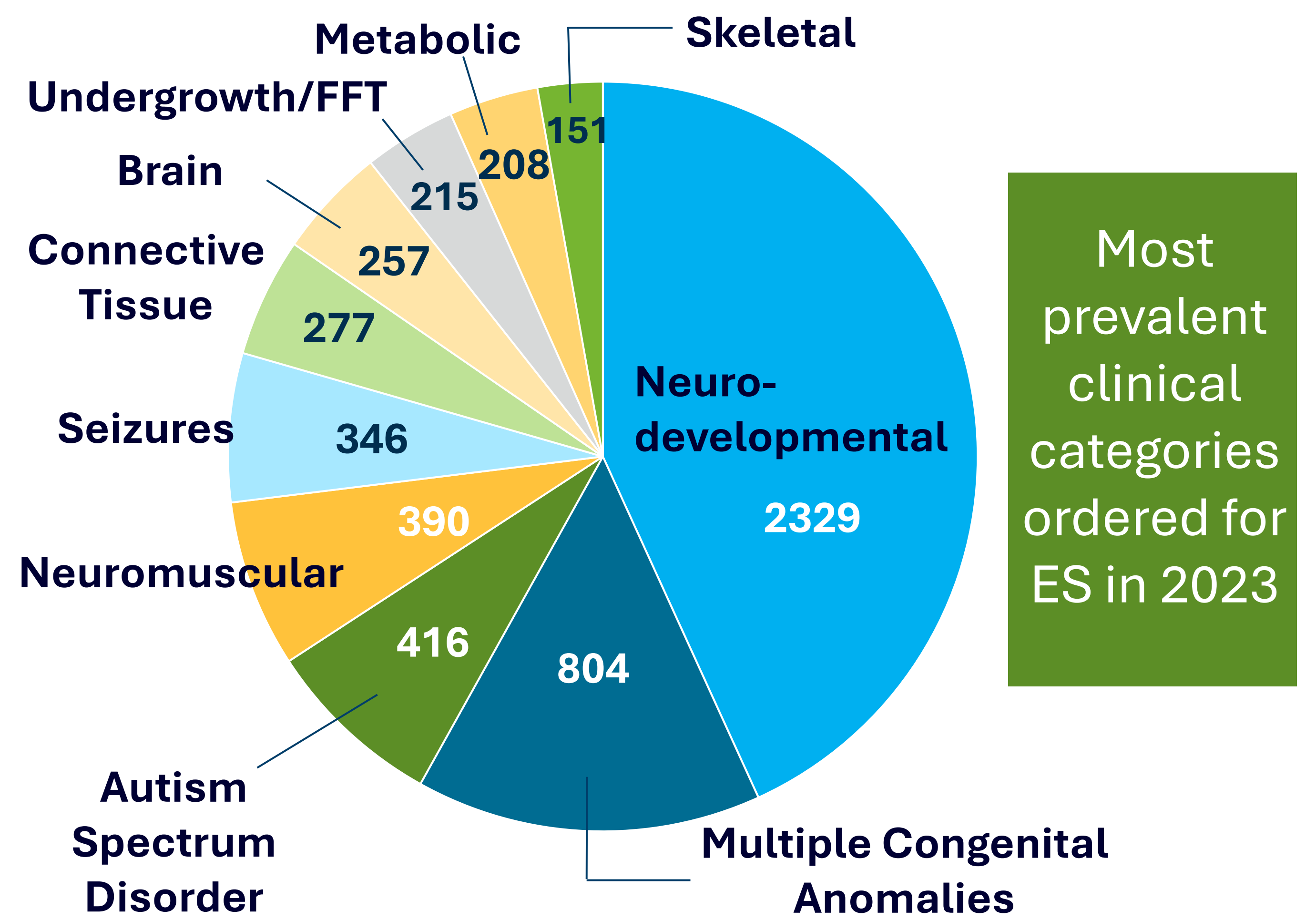


RESULTS

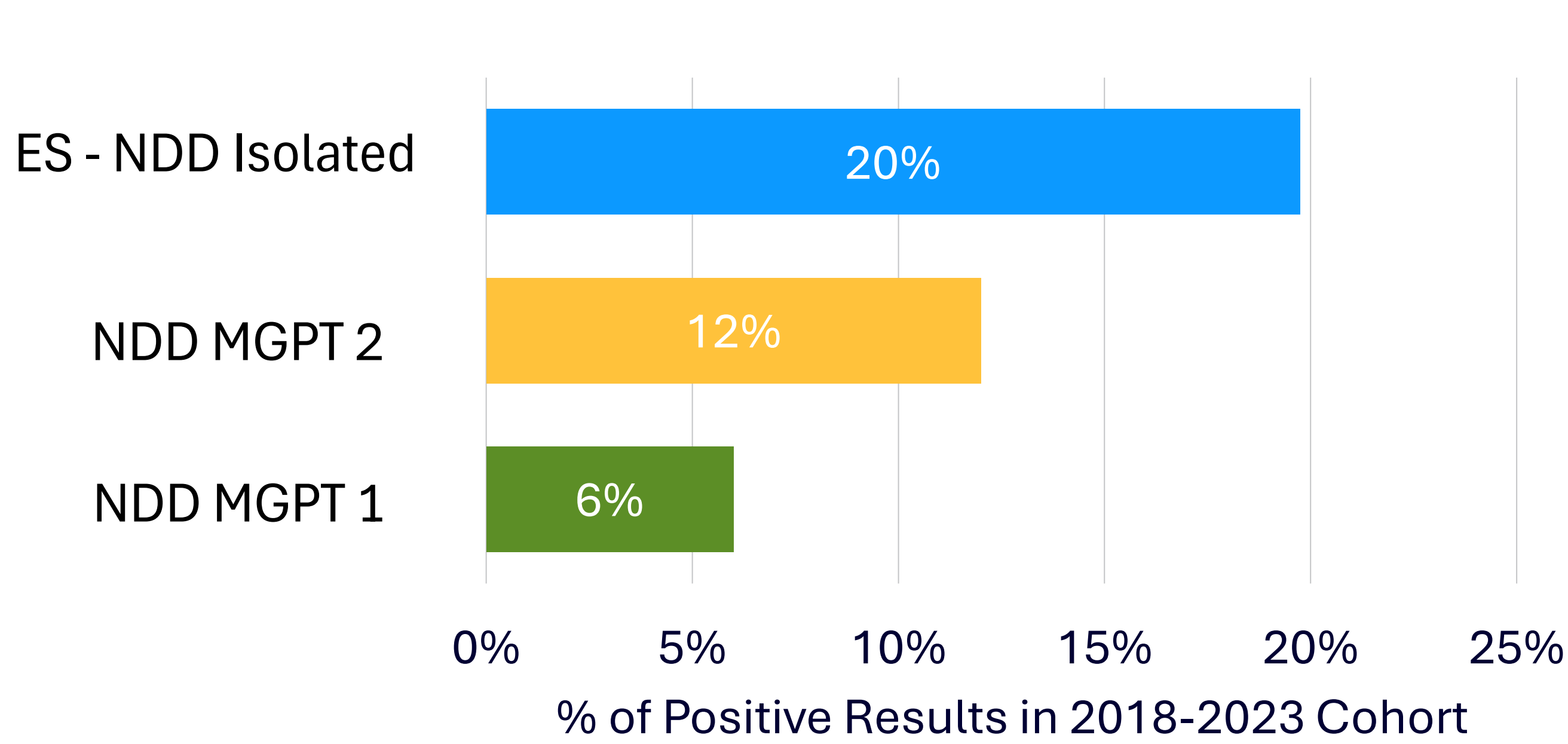
ES Ordering Trends for NDD Cases



- Isolated NDD cases exhibited a 37% relative increase in ES orders.
- Multisystem NDD had a relative decrease of 29%.

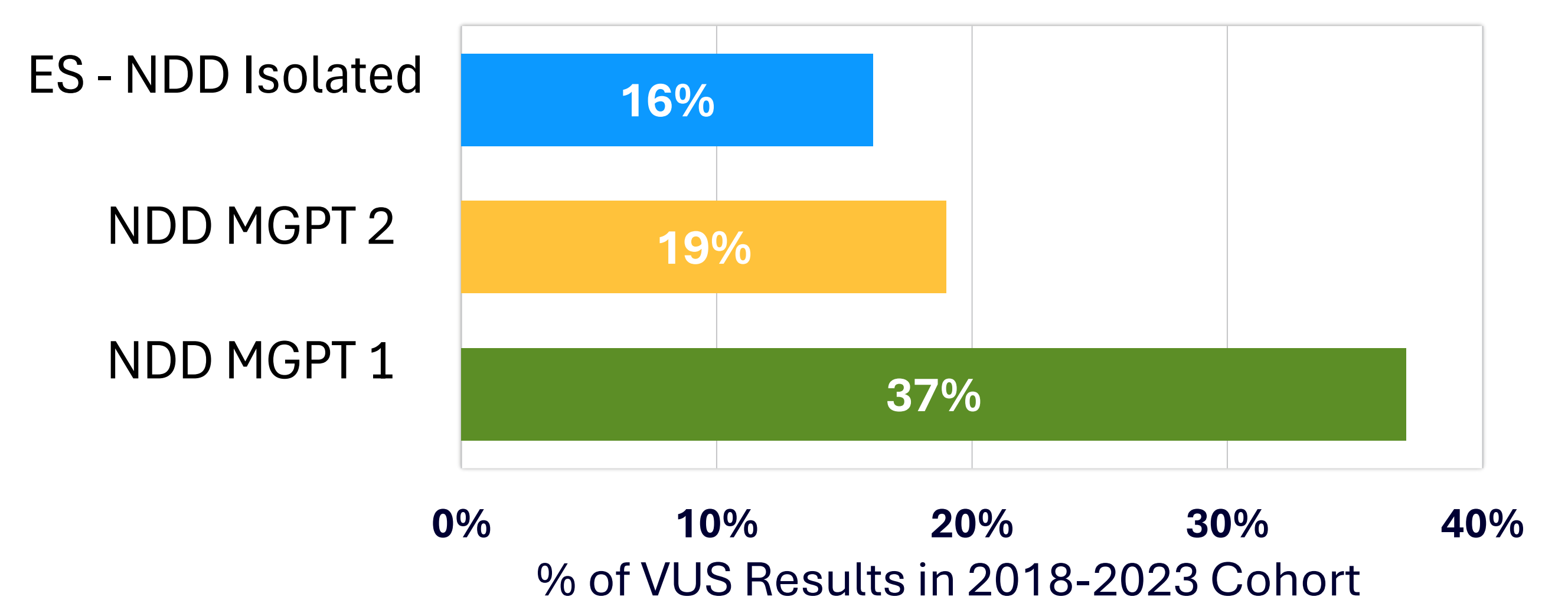


ES vs MGPT Diagnostic Yield



- ES had a diagnostic yield of 20%.
- NDD MGPT 2 and NDD MGPT 1 had 12% and 6% from 2018 to 2023.
- Panel 1 contains 202 genes associated with NDD.
- Panel 2 is a comprehensive panel with >1200 genes associated with NDD.

ES vs MGPT Rate of VUS



- ES had a VUS rate of 16%, while NDD MGPT 2 and NDD MGPT 1 had 19% and 37% from 2018 to 2023.

TAKE HOME POINTS

The shifting trend towards ordering ES for isolated NDD reflects evolving clinical practices.

Higher diagnostic yield and lower VUS rates makes ES an appropriate first-tier test over MGPT.