

# Quantizing the Growth in Clinical Trials for Implanted Brain-Computer Interfaces Addressing Motor, Sensory, and Communication Applications.

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**Introduction:** The total number of people living with motor control, sensory or communication impairments who have undergone long-term electrodes implanted to become a participant in implanted brain-computer interface (iBCI) clinical trials has more than doubled in the past six years [1]. In the past 18 months, two new electrodes have entered clinical trials: Neo by Neuracle Neuroscience and N2 by Neuralink. This emerging technology is demonstrating clinically viable results and is rapidly moving toward commercialization, yet there is no comprehensive data repository to guide the progression of the field.

**Material, Methods and Results:** An accurate and timely accounting that includes the increasing number of research groups, implanted participants, and electrodes in active clinical trials quantifies the rapid growth of the field. These parameters will be identified by surveying literature and ClinicalTrials.gov, requesting new participant information from known research groups, and reviewing university and industry press releases with a data collection date of 31 April 2025. These results will be compared with data collections ending December 2023 [1] and September 2024 (Figure 1) to provide the scale of growth in the iBCI field.

**Conclusion:** By demonstrating the growth in clinical trials, we propose an urgent need for the creation of an implanted brain-computer interface (iBCI) registry to act as a repository to provide accurate information to guide researchers, industry, investors, and regulators.

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## Reference:

- [1] Patrick-Krueger, K.M., Burkhart, I., Contreras-Vidal, J.L. The state of clinical trials of implantable brain-computer interfaces. *Nat Rev Bioeng* 3, 50-67 (2025).