Multicenter study

- Population-Based Real-World Outcomes of Post-Operative Adjuvant Brain Cavity Radiotherapy Versus Observation
- Angiographic Occlusion After Flow Diversion of Ruptured and Unruptured Intracranial Aneurysms Using the Flow Redirection Endoluminal Device-X: A Multicenter Analysis
- A Data-Centric Approach to Deep Learning for Brain Metastasis Analysis at MRI
- Radiosurgery for pediatric central nervous system lesions - initial report and insights from a multicenter registry
- Robot-assisted versus navigated spinal fusion surgery: a comparative multicenter study on transpedicular screw placement accuracy and patient outcomes
- Clinical outcomes following stereotactic radiosurgery for brain metastases from sarcoma primaries: An international multicenter analysis
- Postoperative Initiation of Thromboprophylaxis in patients with Cushing's Disease (PIT-CD): a randomized controlled trial
- Deep Brain Stimulation for VPS16-Related Dystonia: A Multicenter Study

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The study involves multiple research sites or centers. This can enhance the generalizability of the findings, as it incorporates a broader range of populations and settings, and can increase the sample size.

Classification

Multicenter studies can be classified based on various factors such as study design, research objective, data collection method, and degree of coordination among centers. Here’s a structured classification:

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1. Based on Study Design #### **A. Observational Studies** These studies do not involve interventions and primarily analyze existing data. - **Cohort Studies** – Follow groups of patients over time to assess outcomes. - **Case-Control Studies** – Compare patients with a particular condition to those without it. - **Cross-Sectional Studies** – Analyze data from multiple centers at a single point in time.

B. Experimental (Interventional) Studies These studies involve interventions such as new drugs, medical devices, or treatment protocols. - **Randomized Controlled Trials (RCTs)** – Participants are randomly assigned to different treatment groups. - **Non-Randomized Interventional Studies** – Treatment is assigned without randomization, often for ethical or practical reasons.

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2. Based on Data Collection Approach #### **A. Prospective Studies** - Data is collected going forward from the start of the study. - Common in clinical trials and cohort studies.

B. Retrospective Studies - Data is collected from past records or databases. - Often used in epidemiological research and case-control studies.

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3. Based on Number of Participating Centers #### **A. National Multicenter Studies** - Conducted within a single country. - Example: A study evaluating the outcomes of a surgical technique across hospitals in Spain.

B. International Multicenter Studies

see International Multicenter Study - Conducted across multiple countries. - Example: A global trial testing a new neuro-oncology drug.

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4. Based on Coordination and Control #### **A. Centrally Coordinated (Single-Sponsor) Studies** - A single entity (hospital, research institute, or pharmaceutical company) oversees all sites. - Protocols, data collection, and monitoring are strictly standardized.

B. Independently Coordinated (Consortium-Based) Studies - Multiple centers collaborate with some level of independence. - A coordinating committee ensures adherence to protocols.

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5. Based on Funding Source #### **A. Industry-Sponsored Studies** - Funded by pharmaceutical companies or medical device manufacturers. - Often focus on drug development and regulatory approval.

B. Investigator-Initiated Studies - Funded by academic institutions, government grants, or independent organizations. - Typically address clinical questions beyond commercial interests.

C. Public-Private Partnership Studies - Collaborative efforts between industry and academic/government institutions.

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6. Based on Primary Objective #### **A. Efficacy Studies** - Evaluate whether a treatment works under controlled conditions.

B. Effectiveness Studies - Assess real-world performance in clinical practice.

C. Safety Studies - Investigate adverse effects and risks associated with interventions.

D. Cost-Effectiveness Studies - Compare the economic impact of different treatment options.