

EVD

 EXTERNAL
VENTRICULAR
DRAIN

SINGAPORE HOSPITAL

First-in-human precision.
100% ideal placement.

ZETA was evaluated in a first-in-human clinical trial at Singapore's National Neuroscience Institute, guiding ventricular cannulation procedures with real-time, vision-based navigation and no rigid skull fixation. The study demonstrated 100% ideal catheter placement, 100% single-pass success, and no significant complications.



THE CHALLENGE

Ventricular cannulation is a high-stakes procedure where accuracy directly affects patient safety. Freehand placement can lead to catheter misplacement, multiple passes, hemorrhage, infection, or revision procedures.

Traditional navigation can improve guidance, but often depends on complex workflows, rigid reference systems, and OR-based infrastructure that limit broader clinical use.

CLINICAL RESULTS: IN THE FIRST-IN-HUMAN STUDY

100%

Ideal catheter placement
(vs. 32% freehand)

0%

Adverse events
(vs. 28% freehand)

100%

Single-pass success
(vs. 81% freehand)

0%

Revision surgeries
(vs. 19% freehand)

OUR APPROACH

ZETA enabled frameless, real-time, vision-based navigation during ventricular cannulation:

- No rigid skull fixation
- Automatic image-to-patient registration
- Real-time markerless tracking
- Portable, single-cart system
- Rapid navigation setup

In this first-in-human study, all procedures were performed in the OR, allowing the system's accuracy, workflow integration, and safety profile to be evaluated under controlled clinical conditions.