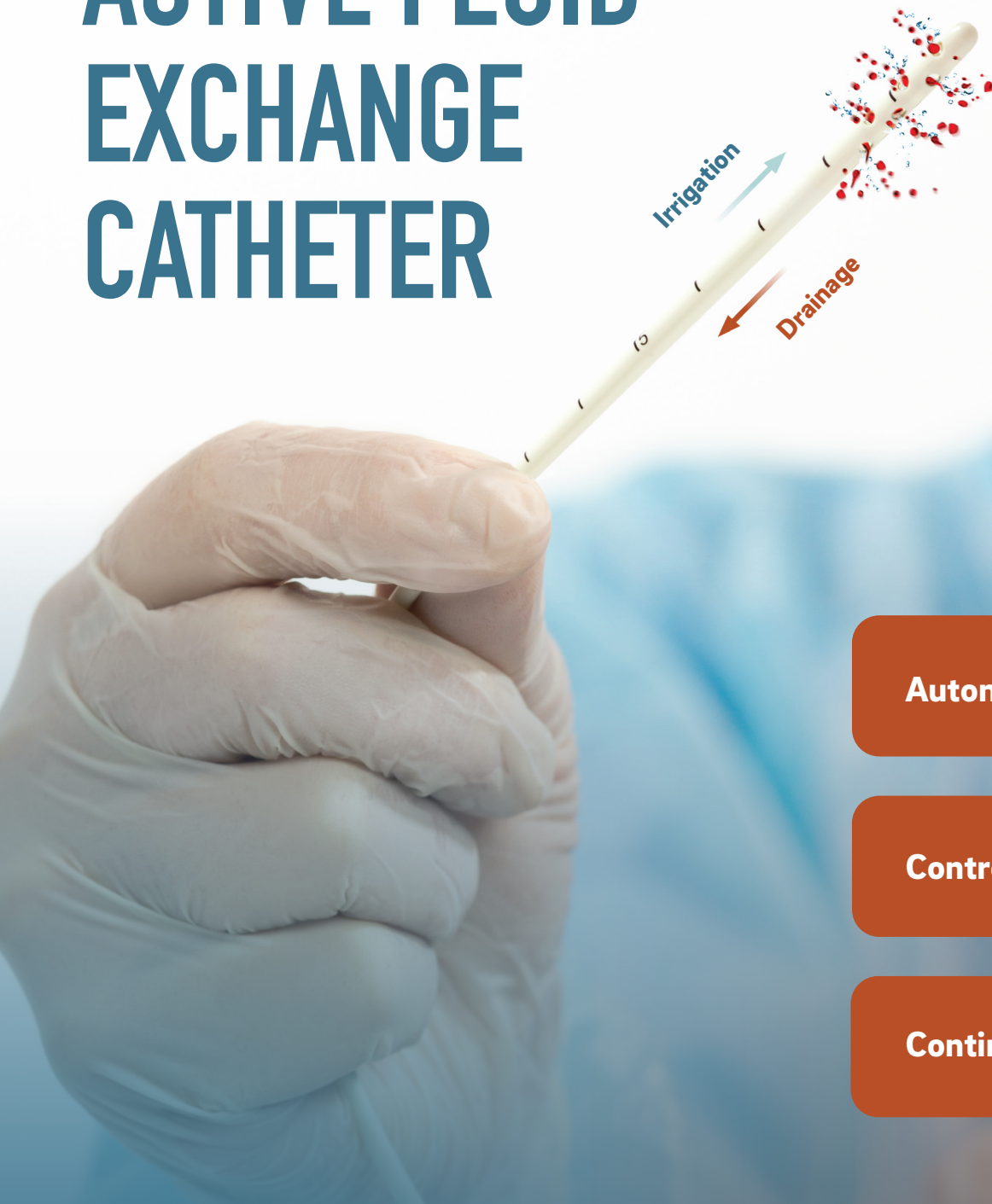




INTRODUCING AN
**ACTIVE FLUID
EXCHANGE
CATHETER**



Automated Irrigation

Controlled Drainage

Continuous ICP Monitoring



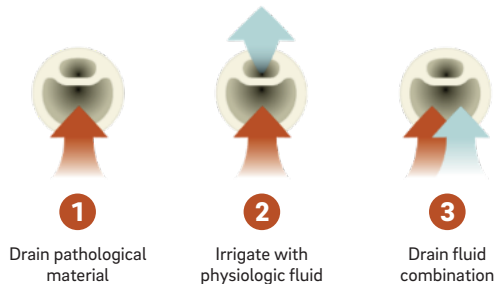
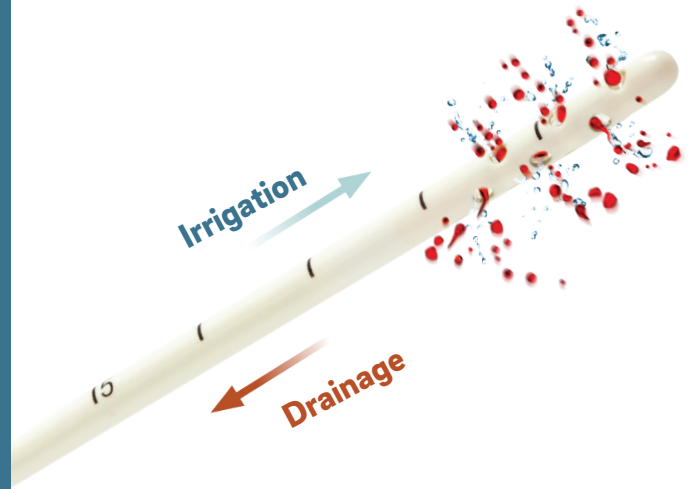
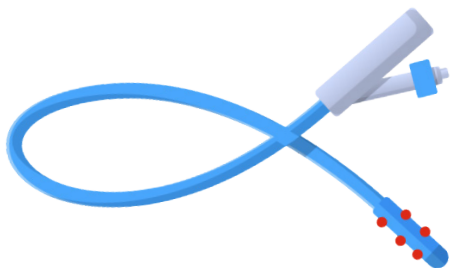
A FUNDAMENTAL SOLUTION FOR INTRACEREBRAL FLUID MANAGEMENT.

The IRRAflow dual-lumen catheter is a dynamic product for advanced fluid management in the intracerebral space.

IRRAflow's innovative technology allows the user to customize patient treatment with a therapeutic approach to treating intracranial bleeding by combining needed drainage, continuous ICP monitoring and automated, controlled irrigation, all in one system.

Market-leading EVDs become blocked up to **47%** of the time¹,

which can cause an increased risk of infection, and prolonging the length of stay in the ICU.



IRRAflow's dual lumen catheter was designed to enable active fluid exchange by enabling irrigation with physiologic fluids and drainage of pathological material.

IRRAflow's Active Fluid Exchange has the following benefits:

- Potential reduction of catheter occlusion due to automated cleansing of the catheter tip.^{3,4}
- A combination of automated irrigation and controlled drainage may have the ability to enhance the removal of collected blood.^{5,6}
- Removal of blood and proteins that can start an inflammatory cascade² and secondary hemorrhagic events.^{4,5,6}

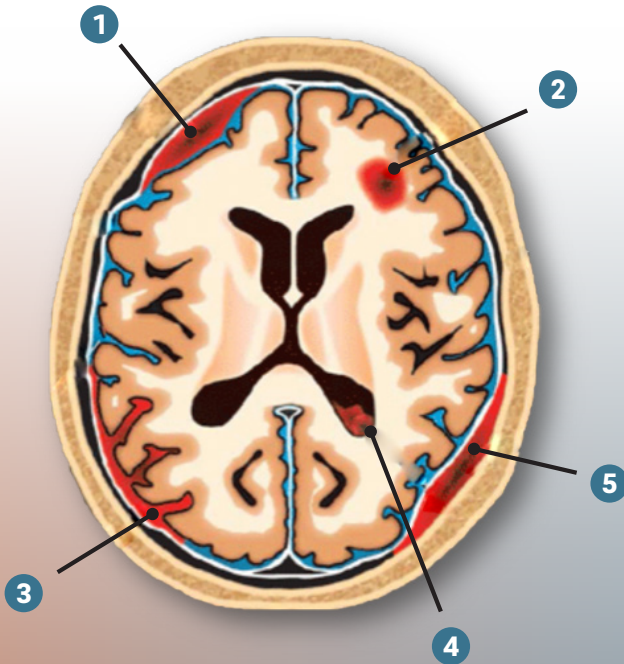
Cross-sectional view of dual-lumen catheter

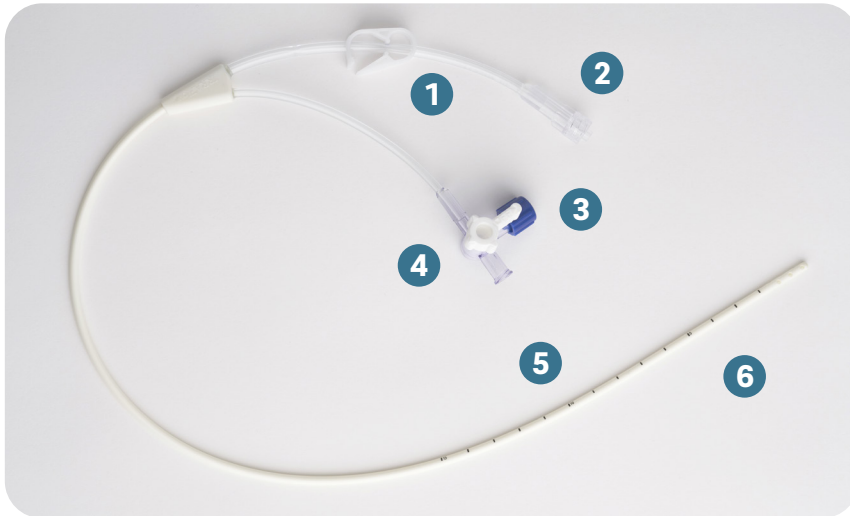


IRRAflow HAS BEEN USED TO TREAT MULTIPLE DISEASE STATES




The IRRAflow system has been used to effectively treat a variety of pathologies, offering unique ways to treat acute or chronic SDH, IVH, IPH with Ventricular involvement, SAH, Ventriculitis and Cerebral Abscesses.

- 1 Subdural Hematoma
- 2 Intracerebral Hematoma
- 3 Subarachnoid Hemorrhage
- 4 Intraventricular Hemorrhage
- 5 Epidural Hematoma





- 1. Pinch Clamp
- 2. Drainage Port
- 3. Stop Cock
- 4. Irrigation Port
- 5. Graduations every centimeter up to 15 cm
- 6. 9F, 38cm Dual-lumen Catheter

| Product # | Product Name | Product Description |
|--|--|---|
|  | IRRAFLOW DUAL-LUMEN CATHETER ICGS 020 IRRAflow 2.0 Catheter, 9F, 38cm | Dual-lumen catheter that combines active irrigation with CSF drainage, with a slightly larger inner diameter which enhances fluid removal. |
|  | IRRAFLOW TUBE SET ICDS 020 IRRAflow Tube Set | Intelligent digital pump enables communication between control unit and catheter to provide automated irrigation, fluid drainage, and ICP monitoring. |
|  | IRRAFLOW CONTROL UNIT ICCU 020 IRRAflow Control Unit | Active fluid exchange via an intuitive touchscreen with personalized alarm settings that provide control when managing ICP and CSF. |

CUSTOMER SERVICE

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1. Fargen KM, Hoh BL, Neal D, O'Connor T, Rivera-Zengotita M, Murad GJ. The burden and risk factors of ventriculostomy occlusion in a high-volume cerebrovascular practice: results of an ongoing prospective database. *Journal of Neurosurgery*. 2015:1-8.
 2. Mracsko Eva, Veltkamp Roland. (2014). Neuroinflammation after intracerebral hemorrhage. *Frontiers in Cellular Neuroscience*. Identifier ISSN1662-5102.
 3. Rajjoub K, Hess R M, O'Connor T E, et al. (May 22, 2021) Drainage, Irrigation, and Fibrinolytic Therapy (DRIFT) for Adult Intraventricular Hemorrhage Using IRRAflow® Self-Irrigating Catheter. *Cureus* 13(5): e15167. DOI: 10.7759/cureus.15167
 4. Brandmeir, Nicholas, et al. Early Experience with Patient Treatment & Drug Delivery with IRRAflow: An Automatically Irrigating and Draining Ventricular Catheter. As presented at The Neurosurgical Society of the Virginias Annual Meeting in January 2022.
 5. Rezaei Jahromi, Behnam. Active CSF Exchange for Removal of SAH to Reduce Shunt Dependency. As presented at the Congress of Neurological Surgeons, 2022, San Francisco, CA.
 6. Rezaei Jahromi, Behnam. Active CSF Exchange is for IVH Treatment. As presented at the European Association of Neurological Societies, 2022, Belgrade, Serbia.



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