Artemis™
Neuro Evacuation Device
Stereotactic ICH Underwater Blood Aspiration (SCUBA) technique for minimally invasive endoscopic intracerebral hemorrhage evacuation

88.2% clot evacuation

N = 47 | SD = 20.8

Current Review of ICH Studies: Odds Ratio

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Functional Independence</th>
<th>Survival at Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIS vs. Non-MIS</td>
<td>2.2×</td>
<td>1.7×</td>
</tr>
<tr>
<td>MIS vs. Craniotomy</td>
<td>2.3×</td>
<td>1.8×</td>
</tr>
<tr>
<td><strong>Endoscopic MIS vs. Other Treatments</strong></td>
<td><strong>2.5×</strong></td>
<td><strong>2.7×</strong></td>
</tr>
<tr>
<td>Stereotactic Thrombolysis vs. Other Treatment</td>
<td>2.1×</td>
<td>No benefit</td>
</tr>
</tbody>
</table>

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The clinical results presented herein are for informational purposes only, and may not be predictive for all patients. Individual results may vary depending on a variety of patient-specific attributes.
Artemis Neuro Evacuation Device

**Single Touch Control**
Powerful and controlled aspiration

**Minimally Invasive Cranial Access**
14 mm burr hole with 19 F sheath designed to minimize iatrogenic injury

**Controlled Aspiration**
Maximum vacuum power -29 inHg

**Neuroendoscope Compatible**
Three sizes to work with neuroendoscopes with working channels 1.6–2.9 mm

**Atraumatic Evacuation**
Recessed bident at distal tip maintains cannula patency and aspiration

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**Case Examples**

Christopher Kellner, MD  
Mount Sinai Health, NY

Dimitri Sigounas, MD  
George Washington University Medical Center, Washington, D.C.

Paul Saphier, MD  
Overlook Medical Center, NJ

Ziad Hage, MD  
Novant Health, NC

Christopher Nickele, MD  
Methodist University Hospital, TN

Pinakin R. Jethwa, MD  
Atlantic NeuroSurgical Specialists, NJ

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Images and illustrations courtesy of Penumbra, Inc. Images or illustrations may not be indicative of clinical performance. Individual results may vary depending on a variety of patient-specific attributes.
Ordering Information

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Description</th>
<th>Cannula Outer Diameter</th>
<th>Cannula Length</th>
<th>Aspiration Tubing Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP28</td>
<td>Artemis Device 2.8 mm</td>
<td>2.8 mm</td>
<td>27 cm</td>
<td>9.5 ft</td>
</tr>
<tr>
<td>AP21</td>
<td>Artemis Device 2.1 mm</td>
<td>2.1 mm</td>
<td>26 cm</td>
<td>9.5 ft</td>
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<tr>
<td>AP15</td>
<td>Artemis Device 1.5 mm</td>
<td>1.5 mm</td>
<td>27 cm</td>
<td>9.5 ft</td>
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<tr>
<td>APCAN2</td>
<td>MAX Canister</td>
<td>—</td>
<td>—</td>
<td>—</td>
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<tr>
<td>PMX110</td>
<td>Pump MAX 110V</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

ARTEMIS Neuro Evacuation Device — Indication for Use
The ARTEMIS Neuro Evacuation Device is used for the controlled aspiration of tissue and/or fluid during surgery of the Ventricular System or Centrum in conjunction with a Penumbra Aspiration Pump.

Penumbra Aspiration Pump:
The Penumbra Aspiration Pump is indicated as a vacuum source for the Penumbra Aspiration Systems. The safety and effectiveness of its use with a non-Penumbra recommended Aspiration Pump has not been established and can lead to patient injury or death.

Contraindications
• The ARTEMIS Neuro Evacuation Device is not recommended during surgery of the brainstem, cerebellum, epidural or subdural spaces. • Do not use fibrinolytic therapy during the procedure. • Do not use the ARTEMIS Neuro Evacuation Device with a non-Penumbra recommended Aspiration Pump.

Warnings
The ARTEMIS Neuro Evacuation Device should only be used by physicians who have received appropriate training to perform image-guided neurosurgical procedures.

Precautions
• The ARTEMIS Neuro Evacuation Device is intended for single use only. Do not resterilize or reuse. Resterilization or reuse could lead to infection or ineffective removal of tissue and/or fluid. • Do not use kinked or damaged devices. Do not use open or damaged packages. Return damaged devices and packaging to the manufacturer/distributor. • Use prior to the “Use By” date. • Use the ARTEMIS Neuro Evacuation Device in conjunction with intraprocedural image-guidance. • Do not use in an oxygen-rich environment. • Do not advance or use the ARTEMIS Neuro Evacuation Device against resistance without careful visual assessment of the cause. If the cause cannot be determined, withdraw the device. Unrestrained traction or forced insertion of the device against resistance may result in damage to the device, which may lead to tissue damage and/or device breakage.

Potential Adverse Events
Possible complications include, but are not limited to, the following: hematoma expansion, fever, headaches, vomiting, altered mental status, intraventricular hemorrhage, hydrocephalus, thromboembolic events, decreased consciousness, cranial nerve deficit, unintended removal of tissue leading to neurological and/or sensory deficit.

Penumbra Pump MAX — Indication for Use
The Penumbra Pump MAX is indicated as a vacuum source for the Penumbra Aspiration Systems.

Contraindications
There are no contraindications.

Warnings/Precautions
• The canister/tubing is intended for single use only. Do not reuse. Reuse may result in canister cracking or tubing blockages, which may result in the inability to aspirate. • Do not block bottom or back air vents. Unit may overheat and shut off or fail to restart if run for extended periods of time without airflow. • To avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth. • Do not position the pump so that it is difficult to operate the power cord disconnection device. • Remove and service the pump if liquids or solids have been drawn into the vacuum pump. • Do not use open or damaged packages. Return damaged devices and packaging to the manufacturer/distributor. • Use prior to the “Use By” date. • Use the ARTEMIS Neuro Evacuation Device in conjunction with intraprocedural image-guidance. • Do not use in an oxygen-rich environment. • To prevent fire or shock hazard, use replacement fuses of equal size and rating. • To prevent fire or shock hazard, use a replacement power cord of equal rating. • Do not re-infuse blood or fluid from the canister back into the patient. • Do not use petroleum base compounds, acids, caustics, or chlorinated solvents to clean or lubricate any parts. It will reduce service life of the pump. Use only water-based solvents for cleaning. • Federal (USA) law restricts this device to sale by or on the order of a physician. • No modification of this equipment is allowed.