Reduce radial artery spasm

Sheath-to-Artery Ratio

Radial Approach
Hydrophilic Sheath
Patent Hemostasis
Increase first-pass success rate
Good Closure
Good Access
Reduce bleeding complications

Reduce complications

Femoral Approach
vascular access trauma
Reduce vascular access to Hemostasis
Minimize or eliminate complications
Reduce bleeding
Reduce the time to ambulation, and increase the complications
Reduce complications with
Compared to manual or mechanical compression, active closure can provide immediate hemostasis, ultrasound
Compared to tactile access, using a micropuncture needle for femoral access during cardiac catheterization reduces complications, such as bleeding or the need for transfusion.

Radial artery spasm avoidance
Patent artery occlusion and vascular access complications
Compared to traditional compression techniques, compared to uncoated sheaths, hydrophilic coated sheaths reduce the incidence of radial artery spasm which may lead to procedural disruption, patient discomfort and procedural failure.

Hydrophilic coated sheaths vs. Uncoated sheaths
Reduce complications with ultrasound technology
Reduce vascular complications with ultrasound vs. fluoroscopy
Reduce complications with ultrasound compared to fluoroscopy, real-time ultrasound guidance reduces number of attempts, time to access, and improved success rate.

Seamless sheath transition vs. Conventional sheath
Compared to conventional sheaths, seamless sheath-to-dilator transitions may minimize or even eliminate vascular access trauma.

Patent Hemostasis
Hydrophilic coated sheaths with patent hemostasis technique
Reduce radial artery spasm

Ultrasound
Reduce complications with ultrasound
Reduce radial artery spasm avoidance
Patent sheath-to-dilator transitions with hydrophilic coated sheaths
Reduce radial artery spasm

Increased success rate
Good Closure
Good Access
Radial Approach
Hydrophilic Sheath
Patent Hemostasis
Increase first-pass success rate
Good Closure
Good Access
Reduce radial artery spasm

Ultrasound
Reduce complications with ultrasound
Decrease radial artery spasm
Patent sheath-to-dilator transitions with hydrophilic coated sheaths
Reduce radial artery spasm
RECOGNIZE THE RATE OF VASCULAR ACCESS COMPLICATIONS

1 out of every 17

patients will have a vascular bleeding complication

Leading to significant consequences

1. Increased length of stay
2. Increased complications
3. Up to 6 days
4. In reduced profitability
5. Average increase in patient length of stay (LOS) associated with complications is 4 to 6 days

Marso S, JAMA. 2010

Reduced Access Site Complications

• Opportunity for same-day discharge
• Cost savings up to $3,500
• Improved patient satisfaction

The amount reported in this brochure refers to the U.S. market only.

REduce Complications With Radial and Femoral Solutions

PATIENT SELECTION
Choose the most appropriate approach

Radial Approach

Good Access
Ultrasound
Increase first-pass success rate
Hydrophilic Sheath
Reduce radial artery spasm disruptions
Sheath-to-Artery Ratio
Reduce the risk of radial artery occlusions

Good Closure
Patent Hemostasis
Minimize vascular access complications

Reduced Access Site Complications

• Opportunity for same-day discharge
• Cost savings up to $3,500
• Improved patient satisfaction

The amount reported in this brochure refers to the U.S. market only.

Femoral Approach

Good Access
Ultrasound
Reduce vascular access complications
Micropuncture
Reduce bleeding complications
Seamless Sheath Transitions
Minimize or eliminate vascular access trauma

Good Closure
Active Closure
Rapid and reliable hemostasis

Reduced Access Site Complications

• Opportunity for same-day discharge
• Cost savings up to $3,500
• Improved patient satisfaction

The amount reported in this brochure refers to the U.S. market only.
Proven to reduce bleeding rates, in-hospital mortality and related hospital costs\(^{13,14}\)*

**Referenced Study:**
- **Ultrasound vs. Palpation**
- *Seto A. RAUST. JACC. 2015*

<table>
<thead>
<tr>
<th>Ultrasound</th>
<th>Palpation</th>
</tr>
</thead>
<tbody>
<tr>
<td>64.8%</td>
<td>43.9%</td>
</tr>
</tbody>
</table>

Compared to palpation, ultrasound reduces the number of difficult procedures\(^1\) with a significantly higher first-pass success rate.\(^2\)

\(^1\)Difficult procedures defined as requiring ≥3 attempts

**Reduce radial artery spasm avoidance**
- *JACC. Cardiovascular Interventions 2010;3(5):475-83.*

Hydrophilic coated sheaths vs. Uncoated sheaths

<table>
<thead>
<tr>
<th>Hydrophilic Sheaths</th>
<th>Uncoated Sheaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>81% Success rate</td>
<td>61.1% Success rate</td>
</tr>
</tbody>
</table>

Radial artery spasm avoidance

Compared to uncoated sheaths, hydrophilic coated sheaths reduce the incidence of radial artery spasm which may lead to procedural disruption, patient discomfort and procedural failure.\(^4\)

**Reduce the risk of radial artery occlusions (RAO) with the right-sized sheath**

<table>
<thead>
<tr>
<th>Sheath Size</th>
<th>Can’t Accept</th>
<th>(\geq 1) Fr</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Fr</td>
<td>27.4%</td>
<td>12.3%</td>
</tr>
<tr>
<td>7 Fr</td>
<td>59.7%</td>
<td>28.5%</td>
</tr>
</tbody>
</table>

Sheaths with an outer diameter that is equal to or greater than the inner diameter of the patient’s radial artery may cause distal flow reduction and be a factor in radial artery occlusion.\(^5\)

**Reduce radial artery occlusion (RAO) with patent hemostasis technique**
- *Pancholy S. PROPHET Study. Catheter Cardiovasc Intervent. 2008*

<table>
<thead>
<tr>
<th>Patent Hemostasis</th>
<th>Traditional Compression Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.8%</td>
<td>7%</td>
</tr>
</tbody>
</table>

1.8% Patent hemostasis vs. 7% Traditional compression technique

% of patients developed evidence of RAO

Compared to traditional compression techniques, patent hemostasis minimizes evidence of radial artery occlusion and vascular access complications.\(^6\)

**Reduced Access Site Complications**

- Opportunity for same-day discharge
- Improved patient satisfaction\(^11,12\)

\(*\)Compared to femoral access
Compared to femoral access
Reduce the risk of radial artery occlusions
or greater than the inner diameter of the patient's radial artery may cause distal flow reduction and
Sheaths with an outer diameter that is equal to
Increase first-pass success rate
Difficult procedures defined as requiring
≥ Cathet Cardiovasc Intervent. (n=250) Saito S. 1999
Optimal Sheath-to-Artery Ratio
64.8%
7 Fr  28.5%
6 Fr  12.3%
6 Fr  27.4%
Can't Accept with Ultrasound
Ultrasound vs. Palpation 2015 (n=698) Seto A. RAUST.
Proven to reduce bleeding rates, in-hospital mortality and related hospital costs13,14
43.9% with Palpation
with a significantly Artery Ratio
• Improved patient satisfaction11,12
• Opportunity for same-day discharge
• Improved patient satisfaction9

Seamless sheath transition vs. Conventional sheath
Seamless sheath transition vs. Conventional sheath
(n=189) Allie D. Csh Lab Digest. 2009
% Major complications
0.0 1.1
% Minor hematoma
0.05 3.8
complications, such as bleeding or the need for transfusion.5
Reduce bleeding complications with micropuncture needle technology
(n=1,475) Daggubati RB. FAMOUS. JACC. 2011

Ultrasound vs. Fluoroscopy
Ultrasound vs. Fluoroscopy
7 people with vascular complications
17 people with vascular complications
Compared to fluoroscopy, real-time ultrasound guidance reduces number of attempts, time to access, and improved first-pass success—leading to reduced vascular complications.3
Ultrasound vs. Tactile
1.5% 2.7% 2.1% 3.6%
All Procedures PCI
Bleeding events within 72 hours
Compared to tactile access, using a micropuncture needle for femoral access during cardiac catheterization reduces complications, such as bleeding or the need for transfusion.5

Active closure vs. Other hemostasis methods
Active closure vs. Other hemostasis methods
<1 MINUTE >20 MINUTES
to Hemostasis to Hemostasis
Compared to manual or mechanical compression, active closure can provide immediate hemostasis, reduce the time to ambulation, and increase the potential for same-day discharge25

Reduced Access Site Complications
• Opportunity for same-day discharge
• Improved patient satisfaction9
Unique thin-wall sheath design combined with hydrophilic coating proven to enable transradial access without compromise

Optimal sheath-to-artery ratio
with the smallest option for procedures requiring 5, 6, and 7 Fr sheaths

Hydrophilic coating may reduce the risk of radial arterial spasm and occlusion1-3

The outer diameter of the introducer sheath is reduced by one Fr size with thin-wall technology to maintain larger inner-diameter equivalent.

The preferred radial access sheath on the global market*

PROVEN AT THE POINT OF ACCESS
Global leader in arterial access and closure

*Data on file.

References:
Precise compression with innovative design proven to achieve hemostasis

**Hemostasis achieved at low pressures**, minimizing the chances of applying occlusive force

**Air titration** provides a more precise way of applying pressure to the radial artery

**Dual balloon technology** provides precise compression of the radial artery without compromising local nerve structure

The #1 preferred radial hemostasis device on the global market*

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*Data on file.
Smooth atraumatic access proven to help reduce complications and enable same-day discharge¹

Pinnacle Precision
Access System

Seamless sheath transition with Total Integrated Fit Technology (TIF) minimizes trauma and supports uncomplicated closing²

Micropuncture needle features tapered transitions from 21G tip to 19G shaft for better blood return²

Ultrasound guidance is facilitated by the enhanced visibility of the spiral echogenic tip. The needle tip also features back bevel cuts which help to ensure a straighter entry²

The #1 vascular access sheaths on the global market*

PROVEN AT THE POINT OF ACCESS
Global leader in arterial access and closure

¹Data on file.

References:
Active closure for rapid and reliable hemostasis proven to accelerate patient mobility and enable same-day discharge\(^1\)

Resorbable components provide immediate closure with uncompromised blood flow\(^1-3\)

Lower bleeding complication rates compared to other hemostasis strategies\(^4\)

Manual compression not required for reinforcement of the closure

Active closure using bioabsorbable anchor and collagen with 99.7% deployment success\(^5\)

Bioabsorbable ANGIO-SEAL is no longer visible 30 days following implantation\(^*\)

The \#1 vascular closure device on the global market\(^\dagger\)


\(^\dagger\)Data on file.

Indications:
The Angio-Seal Vascular Closure Device product family, including the VIP and Evolution platforms, is indicated for use in closing and reducing time to hemostasis of the femoral arterial puncture site in patients who have undergone diagnostic angiography procedures or interventional procedures using an 8 French or smaller procedural sheath for the 8 F Angio-Seal device and a 6 French or smaller procedural sheath for the 6 F Angio-Seal device. The Angio-Seal VIP and Evolution platform devices are also indicated for use to allow patients who have undergone diagnostic angiography to safely ambulate as soon as possible after sheath removal and device placement, as well as to allow patients who have undergone an interventional procedure to safely ambulate after sheath removal and device placement.

Important Safety Information:
Possible adverse events for vascular closure devices include, but are not limited to: bleeding or hematoma, AV fistula or pseudoaneurysm, infection, allergic reaction, foreign body reaction, inflammation or edema. This device should only be used by a licensed physician (or other health care professional authorized by or under the direction of such physician) possessing adequate instruction in the use of the device, e.g., participation in an Angio-Seal physician instruction program or equivalent.

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References:
3. Angio-Seal™ VIP and Angio-Seal™ Evolution Instructions for Use.

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References: