derived from Fractional Flow Reserve without induced hypere-
mia. An FPR, with $\%D_P < 25\%$ (equivalent to $> 0.75$
FPR), is a strong indicator of patent artery flow. FPR during
balloon-stent deployment was simulated using Computational
Fluid Dynamics (figure 1b) and validated using benchtop mod-
ing in a circle of Willis (CW) vessel phantom equipped with
real-time branch pressure and flow monitoring.

**Results**

A balloon-stent with a stent ID $> 56\%$ of parent
artery ID maintained $\%D_P < 25\%$ during deployment and will
minimize ischemic risk. A balloon-stent device can temporarily
provide aneurysm neck protection during complementary
device deployment while maintaining blood flow in the parent
artery. A 2.6F Penumbra Velocity, jailed next to a balloon-
stent device permitted an inflation ID $> 56\%$ of parent artery
ID, will maintain $\%D_P < 25\%$ during deployment and will
minimize ischemic risk. The prototype maintained safe FPR
and parent vessel during in vitro and CFD simulations.

**Conclusion**

A balloon-stent device can provide neuro-interven-
tional surgeons with a larger time-frame to deploy embolic
without blood flow arrest and the need for repeated balloon
inflation/deflations. In addition, this novel medical device has
the potential to provide a smooth surface at the aneurysm
neck for consistent device placement, minimize parent vessel
trauma, eliminate ischemic effects distal to the parent artery,
and minimize intra-saccular flow remnants pre- and post-treat-
ment. Prototyping work on the balloon-stent device is cur-
rently underway.

**Disclosures**

O. Asgari: 1; C; the 2021 Flinn Foundation Medi-
cal Technology Seed Grant. H. Berns: None. A. Arzani:
None. T. Becker: None.

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**O-007 LENGTH OF HOSPITAL STAY IN ANEURYSMAL
SUBARACHNOID HEMORRHAGE PATIENTS WITHOUT
VASOSPASM ON ANGIOGRAPHY: POTENTIAL FOR A
FAST-TRACK DISCHARGE COHORT**

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C. Rutledge, R. Rahmani, M. Lavtron, A. Ducuet, F. Albuquerque. Neurosurgery, BNI, Phoenix,
AZ

**Background**

Aneurysmal subarachnoid hemorrhage (aSAH) patients frequently suffer from vasospasm. We analyzed the
association between absence of early angiographic vasospasm and early discharge.

**Methods**

All treated aSAH patients (August 1, 2007-July 31, 2019) at a single tertiary center were reviewed. Patients undergoing diagnostic digital subtraction angiogra-
phy (DSA) on post-aSAH days 5 to 7 were included in the
analysis; cohorts with and without angiographic vasospasm
angiographic reports by attending neurovascular surgeons)
were compared. Primary outcome was hospital length of
stay; secondary outcomes were ICU length of stay, 30-day return to the emergency department (ED) and poor neuro-
logic outcome, defined as a modified Rankin Score (mRS)
score $> 2$.

**Results**

A total of 298 patients underwent DSA on post-aSAH
day 5, 6, or 7. Most patients ($n=188, 63\%$) had angiographic
vasospasm, whereas 110 patients (37\%) did not. The no-vaso-
spasm cohort had a significantly lower mean length of hospi-
tal stay (18.0±7.1 days) than the vasospasm group (22.4±8.6
(days) ($p<0.001$). The 2 cohorts did not differ significantly in
the percentage of patients with mRS scores $> 2$ at last follow-
up or those returning to the ED before 30 days. After adjust-
ment for Hunt and Hess scores, Fisher grade, admission Glas-
gow Coma Scale score, and age, logistic regression analysis

**Disclosures**

O. Asgari: 1; C; the 2021 Flinn Foundation Medi-
cal Technology Seed Grant. H. Berns: None. A. Arzani:
None. T. Becker: None.

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**Abstract O-006 Figure 1**

a) CAD rendering of the balloon stent microcatheter device and cross-sectional view (upper right); b) results of a
Computational Fluid Dynamic (CFD) simulation rendering velocity streamlines of an ICA aneurysm

**Abstract O-007 Table 1**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>No Vasospasm (n=110)</th>
<th>Vasospasm (n=188)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yr)</td>
<td>58.6 (12.9)</td>
<td>53.1 (12.2)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>GCS on admission</td>
<td>11.9 (3.8)</td>
<td>10.9 (3.8)</td>
<td>0.02</td>
</tr>
<tr>
<td>mRS at last follow-up</td>
<td>2.5 (2.0)</td>
<td>3.1 (2.0)</td>
<td>0.01</td>
</tr>
<tr>
<td>Hunt and Hess grade</td>
<td>2.8 (1.1)</td>
<td>3.1 (1.1)</td>
<td>0.01</td>
</tr>
<tr>
<td>Fisher grade</td>
<td>3.7 (0.7)</td>
<td>3.7 (0.6)</td>
<td>0.36</td>
</tr>
<tr>
<td>Aneurysm size (mm)</td>
<td>7.0 (4.2)</td>
<td>6.5 (4.4)</td>
<td>0.36</td>
</tr>
<tr>
<td>Total hospital stay (days)</td>
<td>18.0 (7.1)</td>
<td>22.4 (8.6)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Last follow-up (days)</td>
<td>835.4 (1335.6)</td>
<td>834.6 (1319.0)</td>
<td>0.99</td>
</tr>
<tr>
<td>Open surgical clipping, n (%)</td>
<td>55 (50)</td>
<td>122 (65)</td>
<td>0.01</td>
</tr>
<tr>
<td>VPS, n (%)</td>
<td>26 (24)</td>
<td>51 (27)</td>
<td>0.58</td>
</tr>
<tr>
<td>DSA complication, n (%)</td>
<td>3 (3)</td>
<td>7 (4)</td>
<td>0.64</td>
</tr>
</tbody>
</table>

Data are presented as mean (SD) unless otherwise indicated.

*Angiographic vasospasm is defined on the basis of DSA on post-aSAH days 5–7. Abbreviations: aSAH, aneurysmal subarachnoid hemorrhage; DSA, digital subtraction angiography; GCS, Glasgow Coma Scale; mRS, modified Rankin Scale; VPS, ventriculo-peritoneal shunt.*
showed that absence of vasospasm on post-aSAH day 5-7 predicted discharge on or before hospital day 14 (OR 3.4, 95% CI 1.8-6.4, p<0.001).

**Conclusion**
Lack of angiographic vasospasm 5 to 7 days after aSAH is associated with shorter hospitalizations, with no increase in 30-day ED visits or poor neurologic outcome.

**Disclosures**

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**Abstract O-008 Table 2**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>No Vasospasm (n=110)</th>
<th>Vasospasm (n=188)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital discharge ≤ post-aSAH day 14</td>
<td>37 (34)</td>
<td>22 (12)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>mRS score &gt; 2 at last follow-up</td>
<td>51 (46)</td>
<td>106 (56)</td>
<td>0.12</td>
</tr>
<tr>
<td>mRS score &gt; 2 at last follow-up with at least 6 months of follow-up</td>
<td>12 (26)</td>
<td>21 (27)</td>
<td>0.86</td>
</tr>
<tr>
<td>Return to the ED within 30 days of discharge</td>
<td>13 (12)</td>
<td>30 (16)</td>
<td>0.39</td>
</tr>
</tbody>
</table>

*Angiographic vasospasm defined on the basis of digital subtraction angiography on post-aSAH day 5-7.
Abbreviations: aSAH, aneurysmal subarachnoid hemorrhage; ED, emergency department; mRS, modified Rankin Scale.

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**Abstract O-008 Table 3**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>LOS≤14 days (n=59)</th>
<th>LOS&gt;14 days (n=298)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, mean (SD), yr</td>
<td>58.0 (13.7)</td>
<td>54.4 (12.4)</td>
<td>0.054</td>
</tr>
<tr>
<td>Preexisting comorbidities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiovascular disease</td>
<td>12 (20)</td>
<td>54 (18)</td>
<td>0.68</td>
</tr>
<tr>
<td>Cirrhosis</td>
<td>1 (2)</td>
<td>2 (0.7)</td>
<td>0.55</td>
</tr>
<tr>
<td>Diabetes</td>
<td>3 (5)</td>
<td>42 (14)</td>
<td>0.057</td>
</tr>
<tr>
<td>Hypertension</td>
<td>42 (71)</td>
<td>235 (79)</td>
<td>0.46</td>
</tr>
<tr>
<td>GCS score on admission, mean (SD)</td>
<td>12.8 (3.7)</td>
<td>10.9 (3.8)</td>
<td>0.001</td>
</tr>
<tr>
<td>Hunt and Hess grade, mean (SD)</td>
<td>2.6 (1.1)</td>
<td>3.1 (1.0)</td>
<td>0.002</td>
</tr>
<tr>
<td>Fisher grade, mean (SD)</td>
<td>3.6 (0.8)</td>
<td>3.7 (0.6)</td>
<td>0.16</td>
</tr>
<tr>
<td>Open surgical clipping</td>
<td>35 (59)</td>
<td>177 (59)</td>
<td>0.99</td>
</tr>
<tr>
<td>Angiographic clipping</td>
<td>22 (37)</td>
<td>207 (69)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

*Data are presented as number (percentage) unless otherwise indicated.
Abbreviations: aSAH, aneurysmal subarachnoid hemorrhage; GCS, Glasgow Coma Scale; LOS, length of stay.

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**Abstract O-008**

**ENDOVASCULAR EMBOLIZATION VS. SURGERY FOR Ruptured Intracranial Aneurysms: A PROPENSITY-MATCHED STUDY OF 2,740 PATIENTS IN THE TRINETX ANALYTICS NETWORK**

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10.1136/neurintsurg-2021-SNIS.8

**Background**
Endovascular embolization (e.g. coiling) and surgery (i.e. clipping) are both treatment strategies for ruptured intracranial aneurysms. Endovascular treatment for ruptured