Improving Follow-Up of Abdominal Aortic Aneurysms by Implementation of a Radiology-Driven Care Coordination Program
Presenters & Disclosure of Commercial Interest

**Presenters:**

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None of the authors nor their immediate family members have a financial relationship with a commercial organization that has a direct or indirect interest in the content.
Purpose

1. Variability exists among radiologists in management of multiple medical conditions, including AAA.

2. AAA are often found incidentally on cross-sectional imaging, particularly in the ED.
   - They grow slowly over several years, but larger sizes have a higher rupture risk with 90% mortality rate.

3. RP developed and implemented evidence-based best practice recommendations (BPRs) for follow-up of AAA.

4. Collaborative care coordination program utilizing data mining was established.

5. Goal of these BPRs is to improve follow-up & reduce mortality from ruptured AAA.

Determine if a large practice could reduce variability in management of abdominal aortic aneurysms (AAA) through successfully developing, implementing, and maintaining ongoing adherence to a clinical best practice.
Clinical Initiative Goals

- Save and improve patient lives
- Make it easier to practice better
- Demonstrate economic and clinical value
- Set clinical and quality metrics in our specialty
Methods for AAA Care Coordination

AAA Care Coordination Program Part 1

• HIPAA-compliant, retrospective, single-center study
• One large academic center
• All radiology reports at this site from Nov. 2014 – July 2016 were reviewed utilizing a natural language processing engine search to identify cases of AAA

AAA Care Coordination Program Part 2

• Based on findings from AAA Part 1, a care coordination program was established in fall 2016
• Program was implemented for improving appropriate follow-up
• In cases of patient presenting to the ED with no PCP, patient was informed directly about their diagnosis of AAA by a radiologist
• Key Points:
  • Provided actionable recommendations
  • Improved communications among radiologist, provider(s) and patient
AAA Outpatient Care Coordination

- 69 y/o male presented on 10/29/09 for follow-up of lymphoma
- A 4.3 cm AAA was identified and reported by the radiologist
- No follow-up was recommended specifically at that time
- No follow-up imaging was obtained at the institution
- Patient returned to the ER 5 years later, at which point he had a ruptured AAA; he expired 32 hours later
## AAA Risk of Rupture

<table>
<thead>
<tr>
<th>AAA Size (cm)</th>
<th>Annual Rupture Rate(^1)</th>
<th># of Cases</th>
<th>Deaths per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;4 cm</td>
<td>0.5%</td>
<td>11</td>
<td>0.0</td>
</tr>
<tr>
<td>4 – 4.9 cm</td>
<td>2.8%</td>
<td>24</td>
<td>0.6</td>
</tr>
<tr>
<td>5 – 5.9 cm</td>
<td>9%</td>
<td>16</td>
<td>1.3</td>
</tr>
<tr>
<td>6 – 6.9 cm</td>
<td>15%</td>
<td>9</td>
<td>1.2</td>
</tr>
<tr>
<td>7 – 7.9 cm</td>
<td>30%</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>&gt;8 cm</td>
<td>40%</td>
<td>2</td>
<td>0.7</td>
</tr>
</tbody>
</table>

**Total** 4.1

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# AAA Best Practice Outline

<table>
<thead>
<tr>
<th>AAA Size (cm)</th>
<th>Recommended Follow Up¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.6 cm to 2.9 cm</td>
<td>Every 5 years²</td>
</tr>
<tr>
<td>3.0 cm to 3.4 cm</td>
<td>Every 3 years</td>
</tr>
<tr>
<td>3.5 cm to 4.4 cm</td>
<td>Every 12 months³</td>
</tr>
<tr>
<td>4.5 cm to 5.4 cm</td>
<td>Every 6 months³</td>
</tr>
<tr>
<td>&gt; 5.5 cm</td>
<td>Referral to vascular surgeon</td>
</tr>
</tbody>
</table>

2. For aortas with maximum diameter of 2.6-2.9 cm meeting the criteria for AAA (>1.5 times proximal normal segment)
3. Vascular consultation recommended for AAA measuring > 4 cm
Results for AAA, Part I

- Identified **122 new diagnoses of AAA** with lack of follow-up imaging for 36% of cases
- Analyzed the missed appropriate follow-up and projected
  - Volume loss of 280 CTA abdomen/pelvis follow-up studies
  - Revenue loss of $159,600 to the hospital

Results for AAA, Part II

- Initial results show about 130 phone calls (2-3/case) were made to connect to appropriate follow-up imaging
- 13 patients were scheduled for follow-up CTA studies
- **Program is expected to save 4 lives a year**
Conclusion

- Inadequate care coordination for AAA can result in ruptured AAA with high rate of mortality
- By implementing care coordination programs with use of data mining to drive notification and management, imaging can play a key role in follow-up of AAA
- Radiologists can fill *significant gaps* in population health management by assuming responsibility for follow-up
Next Steps

Learn more about our best practices by:

Visiting www.radpartners.com
Emailing Info@radpartners.com
Or calling 424-290-8005