Clinical Policy Title: Abdominal aortic aneurysm screening

Clinical Policy Number: 08.01.10

Effective Date: August 1, 2017
Initial Review Date: June 22, 2017
Most Recent Review Date: July 20, 2017
Next Review Date: July 2018

Related policies:

CP# 08.03.05 Endovascular repair of abdominal aortic aneurysm

ABOUT THIS POLICY: Keystone First has developed clinical policies to assist with making coverage determinations. Keystone First’s clinical policies are based on guidelines from established industry sources, such as the Centers for Medicare & Medicaid Services (CMS), state regulatory agencies, the American Medical Association (AMA), medical specialty professional societies, and peer-reviewed professional literature. These clinical policies along with other sources, such as plan benefits and state and federal laws and regulatory requirements, including any state- or plan-specific definition of “medically necessary,” and the specific facts of the particular situation are considered by Keystone First when making coverage determinations. In the event of conflict between this clinical policy and plan benefits and/or state or federal laws and/or regulatory requirements, the plan benefits and/or state and federal laws and/or regulatory requirements shall control. Keystone First’s clinical policies are for informational purposes only and not intended as medical advice or to direct treatment. Physicians and other health care providers are solely responsible for the treatment decisions for their patients. Keystone First’s clinical policies are reflective of evidence-based medicine at the time of review. As medical science evolves, Keystone First will update its clinical policies as necessary. Keystone First’s clinical policies are not guarantees of payment.

Coverage policy

Keystone First considers the one-time use of ultrasound screening for abdominal aortic aneurysm (AAA) to be clinically proven and, therefore, medically necessary when the following criteria are met:

- Men ages 65 – 75 with a history of smoking.
- Men ages 65 – 75 without a history of smoking if they have other AAA risk factors (e.g., family history of AAA, other vascular aneurysms, or coronary artery disease).

Keystone First considers the use of ultrasound for AAA prior to or post-endovascular repair or open surgical AAA repair to be clinically proven and, therefore, medically necessary when:

- The aneurysm’s absolute size is >5.5 cm.
- The aneurysm’s absolute size rate of change is >1cm/year.
- There are signs indicating impending rupture (e.g., retroperitoneal pain).

Limitations:
There is inconclusive evidence to recommend screening for AAA in women ages 65 to– 75 years of age with a smoking history. Women without a smoking history should not undergo screening because the harms likely outweigh the benefits and there is little to no medical evidence to support the practice.

All other uses of screening for AAA are not medically necessary.

**Alternative covered services:**

Routine patient evaluation and management by a network healthcare provider, inclusive of physical examination and incidental finding on imaging studies carried out for other purposes.

**Background**

Abdominal aortic aneurysm (AAA) is an abdominal aortic dilation of 3.0 cm or greater (Kiesler, 2015). The prevalence of AAA increases with age. It is uncommon in persons younger than 50 years; however, 12.5 percent of men and 5.2 percent of women ages 74 – 84 have AAA. It accounts for approximately 11,000 deaths each year in the United States, with mortality rates from ruptured AAAs reaching up to 90 percent.

The main risk factors are age older than 65, male sex, and smoking history. Other risk factors include a family history of AAA, coronary artery disease, hypertension, peripheral artery disease, and previous myocardial infarction. Diagnosis may be made by physical examination, an incidental finding on imaging, or ultrasonography.

**Searches**

Keystone First searched PubMed and the databases of:

- UK National Health Services Centre for Reviews and Dissemination.
- Agency for Healthcare Research and Quality’s National Guideline Clearinghouse and other evidence-based practice centers.
- The Centers for Medicare & Medicaid Services (CMS).

We conducted searches on June 14, 2017. Search terms were: “abdominal aortic aneurysm” and “ultrasound screening.”

We included:

- **Systematic reviews**, which pool results from multiple studies to achieve larger sample sizes and greater precision of effect estimation than in smaller primary studies. Systematic reviews use predetermined transparent methods to minimize bias, effectively treating the review as a scientific endeavor, and are thus rated highest in evidence-grading hierarchies.
- **Guidelines based on systematic reviews**.
• **Economic analyses**, such as cost-effectiveness, and benefit or utility studies (but not simple cost studies), reporting both costs and outcomes — sometimes referred to as efficiency studies — which also rank near the top of evidence hierarchies.

**Findings**

The U.S. Preventive Services Task Force (USPSTF) released updated recommendations for AAA screening in 2014. Men ages 65 – 75, with a history of smoking, should undergo one-time screening with ultrasonography based on evidence and findings that are generally consistent that screening will improve AAA-related mortality in this population. Men in this age group without a history of smoking may benefit if they have other risk factors (e.g., family history of AAA, other vascular aneurysms, coronary artery disease) based on available validating, but inconsistent medical evidence.

There is inconclusive evidence to recommend screening for AAA in women ages 65 – 75 with a smoking history. Women without a smoking history should not undergo screening because the harms likely outweigh the benefits and there is little to no medical evidence to support the practice.

Persons who have a stable AAA should undergo regular surveillance or operative intervention depending on aneurysm size.

**Summary of clinical evidence:**

<table>
<thead>
<tr>
<th>Citation</th>
<th>Content, Methods, Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>American College of Radiology (2017)</strong></td>
<td><strong>Key points:</strong></td>
</tr>
<tr>
<td>Appropriateness Criteria®.</td>
<td>• American College of Radiology (ACR) has promulgated guidelines for pre-operative and post-operative followup with abdominal ultrasound for AAA treated with EVAR or open AAA repair.</td>
</tr>
<tr>
<td>Clinical Condition: Abdominal Aortic Aneurysm:</td>
<td>• These guidelines specify that pre-interventional and follow-up ultrasound of AAA is recommended based on the patient's health status, comorbidities, the aneurysm's absolute size (&gt;5.5 cm) and rate of change (&gt;1 cm/year), and other signs of impending rupture.</td>
</tr>
<tr>
<td>Intervventional Planning and Follow-up; Variant 1:</td>
<td><strong>Key points:</strong></td>
</tr>
<tr>
<td>Planning for pre-endovascular repair (EVAR) or open repair of AAA.</td>
<td>• A systematic review on the natural history of a population based cohort of 70-year-old women with screening detected dilated aortas examined outcomes in 5,140 (74%) of 6,925 women who underwent an ultrasound (US) examination of the abdominal aorta at age 70 years.</td>
</tr>
<tr>
<td>Variant 2: Followup for EVAR or open repair of AAA.</td>
<td>• All 52 women with screening detected sub-aneurysms (SA, diameter 25-29 mm) and AAA, diameter ≥30 mm), were followed for 5 years with US. Infrarenal aortic diameters,</td>
</tr>
</tbody>
</table>
### Citation | Content, Methods, Recommendations
---|---
**Women.** | AAA repair, all-cause and AAA specific mortality, and risk factors were recorded.  
- A total of 33 (0.6%) women had a SA at the age of 70; two (6%) declined follow up, five (15%) had died, and 26 were re-examined after five years’ follow up at age 75.  
- Twelve of 26 (46%) had progressed to AAAs, where one was directly qualified for surgery. Smoking ($p = .010$) and aortic diameter ($p = .040$) were associated with progression to AAA.  
- A total of 19 (0.4%) women had an AAA at age 70; two (11%) had died, six (32%) had been electively repaired with no 30-day mortality, and 11 (58%) had an AAA still under surveillance after 5 years’ follow-up at age 75 years.  
- In the systematic search, four studies with heterogeneous cohorts were identified and data on natural history were extracted and reviewed.  
- The authors concluded that screening detected AAAs and sub-aneurysms are clinically relevant in women.  
- Within five years of detection a high proportion of AAAs require elective surgery, and a high proportion of sub-aneurysms progress to AAAs.  
- Consequently, surveillance of sub-aneurysms in women with reasonable life-expectancy can be considered.  

**Ulug (2016)** | **Key points:**  
Meta-analysis of the current prevalence of screen-detected abdominal aortic aneurysm in women | - A systematic review including over 1,537,633 women aged at least 60 was undertaken of studies screening for AAA. Overall AAA prevalence rates were very heterogeneous, ranging from 0.37 to 1.53 percent: pooled prevalence 0.74 (95% C.I. 0.53 to 1.03).  
- The pooled prevalence increased with both age (more than 1% for women aged over 70 years) and smoking (more than 1% for ever smokers and over 2% in current smokers).  
- The current population prevalence of screen-detected AAA in older women is subject to wide demographic variation; however, in ever smokers and those over age 70, the prevalence is over 1%.  

**Ali (2016)** | **Key points:**  
Screening for abdominal aortic aneurysm in asymptomatic adults. | - A McMaster systematic review was produced for the Canadian Task Force on Preventive Health Care to provide guidelines on screening for AAA with US scan.  
- Moderate quality evidence showed significant reductions in AAA-related mortality and AAA rupture rate up to 13 – 15 years’ of follow up with 42% reduction (risk ratio [RR], 0.58; 95% confidence interval [CI], 0.39-0.88; number needed to screen = 212) and 38% reduction (RR, 0.62; 95% CI, 0.45-0.86; number needed to screen = 200), respectively.  
- The effect of on all-cause mortality was marginally significant for longer follow up.  
- The authors concluded that population-based screening for AAA with ultrasound scan in asymptomatic men age 65 and older showed statistically significant reductions in AAA-related mortality and rupture and, hence, avoids unnecessary AAA-related deaths.  
- The current evidence showed no benefit of one-time AAA screening in women.  
- Limited evidence is available on the benefits of repeat AAA screening and targeted screening approaches based on risk factors for AAA.  
- Future research should explore the differential benefits of AAA screening based on risk factors that increase risk for developing AAA.  

**Mussa (2015)** | **Key points:**

<table>
<thead>
<tr>
<th>Citation</th>
<th>Content, Methods, Recommendations</th>
</tr>
</thead>
</table>
| Screening for abdominal aortic aneurysm | • Guidelines are systematically developed statements to assist patients and providers in choosing appropriate health care for specific clinical conditions.  
• Consensus exists across guidelines on one-time screening of elderly men to detect and treat AAA ≥5.5 cm.  
• However, the recommendations regarding other age groups, imaging intervals for small AAAs, inclusion of women, and cost-effectiveness have not been universally adopted.  
• As many countries are considering the initiation of an AAA screening program, this is an overview on the current status of such programs. |
| Lahoz (2015) | Key points:  
• A narrative review reiterated the Society of Vascular Surgery guidelines that explain the appropriateness of one-time screening of elderly men to detect and treat AAA ≥5.5 cm.  
• However, the recommendations regarding other age groups, imaging intervals for small AAAs, inclusion of women, and cost-effectiveness have not been universally assessed. |
| Saquib (2015) | Key points:  
• A systematic review examined whether screening for AAA and other conditions decreases mortality in asymptomatic adults (excluding pregnant women and children), and assessed nine non-overlapping meta-analyses and 48 individual trials.  
• Among the results of the meta-analyses, reductions where the 95% confidence intervals (C.I.s) excluded the null occurred for four disease-specific mortality estimates (US for AAA in men, mammography for breast cancer, fecal occult blood test, and flexible sigmoidoscopy for colorectal cancer).  
• The authors concluded that among currently available screening tests for diseases where death is a common outcome, reductions in disease-specific mortality are uncommon and reductions in all-cause mortality are very rare or non-existent. |
| DeFrank (2015) | Key points:  
• A systematic review assessed the burden or frequency of psychological harm associated with screening for prostate and lung cancers, osteoporosis, AAA and carotid artery stenosis (CAS).  
• Sixty-eight studies assessing psychological harms met inclusion criteria; 62 % concerned prostate cancer and 16 % concerned lung cancer.  
• Evidence was scant for the other three screening services.  
• The authors concluded that evidence on psychological harms varied markedly across screening services in number and potential usefulness, and that the evidence on psychological harms is inadequate to make useful clinical assumptions. |
| Saucy (2015) | Key points:  
• The prevalence of AAA in general population is 4 – 9% with a high mortality rate when ruptured.  
• Therefore, screening programs were developed in many countries to detect small and large AAA in selected patients.  
• Indeed, prevalence of AAA increases in patients over 65 years old with cigarette |
LeFevre (2014)  

**Key points:**  
- The U.S. Preventive Services Task Force (USPSTF) commissioned a systematic review that assessed the evidence on the benefits and harms of screening for AAA and strategies for managing small (3.0 to 5.4 cm) screen-detected AAAs in asymptomatic adults age 50 years or older.  
- The USPSTF recommends one-time screening for AAA with ultrasonography in men ages 65 – 75 years who have ever smoked. (Grade B recommendation).  
- The USPSTF recommends that clinicians selectively offer screening for AAA in men ages 65 – 75 years who have never smoked. (Grade C recommendation).  
- The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for AAA in women ages 65 – 75 years who have ever smoked. (Grade I statement).  
- The USPSTF recommends against routine screening for AAA in women who have never smoked. (Grade D recommendation).

Scott (2002)  
Randomized clinical trial of screening for abdominal aortic aneurysm in women.  

**Key points:**  
- The Chichester trial examined the benefits of one-time AAA screening in women and found no significant differences between screening and control arms for up to 10 years of follow up (RR, 0.88; 95% CI, 0.72-1.07).  
- For consequences of one-time AAA screening in men compared with controls, there was a significant increase in the total number of AAA-related procedures over a follow-up of 13 to 15 years (2.16 times more likely) compared with controls.  
- For harms of one-time AAA screening, no significant differences were observed in 30-day postoperative mortality for elective and emergency operations with compared control groups.

Multicentre Aneurysm Screening Study Group.  
Multicenter aneurysm screening study (MASS 2002)  
Cost-effectiveness analysis of screening for abdominal aortic aneurysms based on four year results from randomised controlled trial.  

**Key points:**  
- Evidence from the multicenter aneurysm screening study trial using 13-year follow-up data showed that one-time AAA screening with US scan was potentially associated with an overdiagnosis of 45% (95% CI, 42%-47%) among screen-detected men.

**References**

**Professional society guidelines/other:**

American College of Radiology (ACR) Appropriateness Criteria®. Clinical Condition: Abdominal Aortic Aneurysm: Interventional Planning and Follow-up; Variant 1: Planning for pre-endovascular repair
(EVAR) or open repair of AAA. Website: https://acsearch.acr.org/docs/70548/Narrative/ Last accessed May 31, 2017.


Peer-reviewed references:


CMS National Coverage Determinations (NCDs):

No NCDs identified as of the writing of this policy.
Local Coverage Determinations (LCDs):

No LCDs identified as of the writing of this policy.

**Commonly submitted codes**

Below are the most commonly submitted codes for the service(s)/item(s) subject to this policy. This is not an exhaustive list of codes. Providers are expected to consult the appropriate coding manuals and bill accordingly.

<table>
<thead>
<tr>
<th>CPT Code</th>
<th>Description</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>76706</td>
<td>Ultrasound, abdominal aorta, real time with image documentation, screening study for abdominal aortic aneurysm (AAA)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ICD-10 Code</th>
<th>Description</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z13.6</td>
<td>Encounter for screening for cardiovascular disorders [abdominal aortic aneurysm (AAA)]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HCPCS Level II Code</th>
<th>Description</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;Code&gt;</td>
<td>&lt;Code description&gt;</td>
<td></td>
</tr>
</tbody>
</table>