

## TECHNOLOGY ASSESSMENT BRIEF

# Endovascularly Placed Grafts for Infrarenal Abdominal Aortic Aneurysms

## Report #9

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**Primary Objective:** To assess the effectiveness of endovascularly placed grafts for the repair of aortic disease. The report is confined to infrarenal abdominal aortic aneurysms (AAAs), the condition for which there is the most literature.

**Methods Used:** Systematic review of published research.

**Background:** An infrarenal AAA is an abnormal widening of the wall of the aorta, the main artery that carries blood from the heart through the abdominal cavity, situated or occurring below the kidneys. Risk of rupture increases with the size of the aneurysm. For AAAs with diameters over 5 cm, the standard treatment is open abdominal surgery with placement of a synthetic graft in the involved area. Endovascular treatment of AAAs is accomplished by inserting the graft through the artery and attaching it to the involved segment from inside the vessel. It is a less invasive and potentially lower risk and less costly alternative to open surgical repair. All endovascular graft devices for this purpose are considered investigational and have not been approved for marketing in the United States.

**Key Findings:** The best available evidence is predominantly from case series that are methodologically inadequate to answer critical assessment questions. Studies varied in the manufacture and design of the graft used, and in reporting patient severity of illness and study outcomes. Several issues remain unresolved in the existing research: patient selection criteria for endovascular AAA repair; health care cost variables; factors affecting long-term outcomes; and valid comparisons of the relative effectiveness of endovascular grafts with other treatment options.

**Conclusions/Recommendations:** The report concluded that additional research is needed to determine if endovascular repair of infrarenal AAAs results in lower morbidity, mortality, and/or health care costs when compared to either standard open surgical repair for patients who are eligible for either procedure, or medical management for patients either at high surgical risk or with small, asymptomatic, nonexpanding AAAs. Research should also address whether the availability of a minimally invasive treatment option would lead to overutilization of that procedure in patients with borderline indications for surgery.

The VHA Office of Research and Development Cooperative Studies Program is conducting two studies on AAAs: 1) the Aneurysm Detection and Management (ADAM) Study, which compares surgery versus observation in patients with AAA 4.0-5.4 cm in diameter who are an acceptable surgical risk, and 2) the Natural History of Large AAAs, which will obtain accurate estimates of rupture risk in patients with large AAAs.