Measure #256: Surveillance after Endovascular Abdominal Aortic Aneurysm Repair (EVAR)

2013 PQRS OPTIONS FOR INDIVIDUAL MEASURES:
REGISTRY ONLY

DESCRIPTION:
Percentage of patients 18 years of age or older undergoing endovascular abdominal aortic aneurysm repair (EVAR) who have at least one follow-up imaging study after 3 months and within 15 months of EVAR placement that documents aneurysm sac diameter and endoleak status

INSTRUCTIONS:
This measure is to be reported each time an EVAR is performed during the reporting period. This measure is proposed for individual clinicians. This measure may be reported by clinicians who perform the quality actions described in the measure based on the services provided and the measure-specific denominator coding.

A registry that includes surgical details or CPT procedure codes is required to identify patients for numerator inclusion, and this registry must link the original operation with outpatient follow-up information. The Society for Vascular Surgery Vascular Quality Initiative (SVS VQI) and the Vascular Study Group of New England (VSGNE) registries record such information, but the measure is not limited to these registries. Patients undergoing EVAR, recorded in the registry (CPT codes 34800, 34802, 34803, 34804, 34805) who undergo computed tomography angiography (CTA), magnetic resonance angiogram (MRA), or duplex imaging completed after 3 months but within 15 months of the original procedure with documentation of aneurysm sac size and presence or absence of endoleak as recorded in an appropriate registry during a subsequent physician office visit that is linked to the original procedure.

A registry that includes surgical details or CPT procedure codes is required to identify patients for denominator inclusion. This registry must also collect follow-up data based on an outpatient visit that links to the original EVAR procedure and documents aneurysm sac size and endoleak status based on an outpatient imaging study (CT, MR or ultrasound). The Society for Vascular Surgery Vascular Quality Initiative (SVS VQI) and the Vascular Study Group of New England (VSGNE) registries record this information. CPT codes that define the initial cohort of EVAR operations include: 34800, 34802, 34803, 34804, 34805, 34825, 34826, and 34900.

Measure Reporting via Registry:
CPT codes and patient demographics are used to identify patients who are included in the measure’s denominator. The listed numerator options are used to report the numerator of the measure.

The quality-data codes listed do not need to be submitted for registry-based submissions; however, these codes may be submitted for those registries that utilize claims data.

DENOMINATOR:
All endovascular repairs of non-ruptured, infrarenal abdominal aortic aneurysms

Denominator Criteria (Eligible Cases):
Patients aged ≥ 18 years on date of encounter
AND
Patient encounter during the reporting period (CPT): 34800, 34802, 34803, 34804, 34805, 34825, 34826, 34900
NUMERATOR:
Patients who have at least one follow-up CTA, duplex, or MRA of the abdomen and pelvis after 3 months but within 15 months of EVAR, assessing for sac size and endoleak

Numerator Options:
Follow-up CTA, duplex, or MRA of the abdomen and pelvis performed (G8813)

OR
Patient is not eligible for follow-up CTA, duplex, or MRA (e.g., patient death, failure to return for scheduled follow-up exam, planned follow-up study which will meet numerator criteria has not yet occurred at the time of reporting) (G8812)

OR
Follow-up CTA, duplex, or MRA of the abdomen and pelvis not performed (G8814)

RATIONALE:
Complications of EVAR such as graft migration and endoleak can occur in a delayed fashion. These complications can result in aneurysm rupture. It is important that appropriate imaging is performed during the described time interval in order to detect these potential complications.

CLINICAL RECOMMENDATION STATEMENTS:
Despite the overall success rate of EVAR, there are multiple publications demonstrating the potential failure of endograft therapy. Wyss et al. just published a manuscript entitled “Rate and predictability of graft rupture after endovascular and open abdominal aortic aneurysm repair: data from the EVAR Trials.” (Wyss TR, et al., Ann Surg, 2010) The authors describe 27 ruptures that occurred in EVAR patients (in 848 treated) as compared to 0 ruptures in 594 patients treated with open surgery. Five ruptures occurred in the first 30 days after surgery. The risk of rupture increased in the setting of an identified problem (endoleak type 1, type 2 with sac expansion, type 3, migration or kinking). The authors concluded that few ruptures after EVAR seem to be spontaneous without complications identified during optimal surveillance.

Brown and colleagues also published some concerning findings in regards to EVAR and initial anatomy. (Brown, et al., Br J surg, 2010) Elective EVAR was performed in 756 patients. Over almost four years of follow-up, 179 serious graft complications occurred (rate 6.5 per 100 person years) and 114 reinterventions (rate 3.8 per 100 person years) were needed. The highest rate of complication was during the first 6 months. In addition, graft-related complication and reintervention rates were common after EVAR in patients with a large aneurysm. The data from these two publications stress the need for CT imaging within one year of EVAR.

Persistent type 2 endoleak treatment is controversial. But, persistent type 2 endoleak can lead to complications of EVAR therapy. Jones et al. identified 164 patients with a type 2 endoleak on the initial CT scan performed within 30 days of treatment. (Jones, et al., J Vasc Surg, 2007) The majority of these endoleaks resolved on follow-up imaging, but 33 persisted. Persistent type 2 endoleak was associated with an increased incidence of adverse outcomes, including aneurysm sac growth, the need for conversion to open repair, reintervention rate, and rupture. Therefore, these data suggest that patients with persistent type 2 endoleak (> 6 months) should be considered for more frequent follow-up.

When can surveillance be minimized in the setting of possible EVAR failure? Houbballah et al. described the rate of significant sac retraction after EVAR. (Houbballah, et al., J Vasc Surg, 2010) SSR was observed in 24.8% (92/371) of the patients after an average of 26 ± 21 months of FU. In this series, SSR was accurately predictive of a durable success after EVAR. It occurred mostly in patients with a favorable anatomy. But, the percentage of patients was low. This data also suggests that failure can occur in a large number of patients unless surveillance is performed. This surveillance must include assessment of AAA sac diameter and determination of endoleak status by imaging (CT, MR or ultrasound).

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**Current Surveillance Paradigms**

The goal of aneurysm repair, whether open or endovascular is to prevent rupture. With EVAR, there is an ongoing risk of endoleak and/or migration which can lead to re-pressurization of the residual aneurysm sac and renew the possibility of subsequent rupture. Therefore, post-EVAR surveillance is necessary for monitoring of these complications. Current recommendations for post-EVAR surveillance include contrasted CT scans and four view abdominal radiographs at 1, 6, and 12 months and then annually thereafter. These recommendations were derived from early clinical trials without substantial data. A recent trial looking at surveillance for a single device found that if at 30 days there was absence of endoleak, 92% of those patients remained free of aneurysm related morbidity at 1 year and the 6 month surveillance studies did not correlate with any difference in 5 year freedom from aneurysm related morbidity. (Stembergh WC, et al., J Vasc Surg, 2008) As a result of their findings, the authors recommended continued aggressive surveillance for patients with endoleak present at 30 days but even in those without endoleak, a CT scan at one year was still recommended. In a separate study Go et al. looked at the utility of the 6 month CT scan in those patients with a normal CT scan at 1 month. (Go MR, et al., J Vasc Surg) In the 130 people who underwent CT scan at 6 month only two were abnormal. However among those who did and did not undergo 6 month CT scan (n=332), 11 had abnormal CT scans at 1 year. Therefore they recommended a CT at 1 month and if normal, eliminating the 6 month CT, but continuing to obtain the 1 year CT. As stated previously, the goal of EVAR is to prevent aneurysm rupture. In a literature search study looking at rupture after EVAR, Schlosser et al. identified 270 ruptures reported in the literature and found that the majority of them occurring within the first 3 years. (Schlosser FJ V, et al., Eur J of Vasc Endo Surg) As a result, they also concluded that surveillance should focus on the first few years post EVAR.

Although CTA is considered the "gold standard" for followup, patients with renal insufficiency cannot safely receive contrast for CTA, so endoleak status must be determined by duplex ultrasound or dynamic MRA.