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Advocacy Department
1150 Connecticut Ave., NW | Suite 300 | Washington, DC 20036
P 202-785-7900 | F 202-785-7950 | www.heart.org

September 13, 2016

Tamara Syrek Jensen, J.D.
Director, Coverage and Analysis Group
Centers for Medicare and Medicaid Services
7500 Security Blvd.
Baltimore, MD 21244

Dear Ms. Syrek Jensen:

Attached is a formal request for a National Coverage Determination (NCD) for supervised exercise therapy for patients with peripheral artery disease (PAD). This request is submitted by the American Heart Association (AHA).

Also attached to this request is an evidence review that supports a potential NCD.

Please feel free to contact Susan Bishop, Senior Regulatory Affairs Advisor, at susan.k.bishop@heart.org or 202-785-7908 if you need any additional information.

Sincerely,

Steven R. Houser, PhD
President
American Heart Association

Mark A. Creager, MD
Immediate Past President
American Heart Association

Joshua A. Beckman, MD
Chair
AHA Council on PVD

Alan T. Hirsch, MD
Advocacy Ambassador
AHA Council on PVD

Formal Request for a NCD

September 13, 2016

Lower extremity peripheral artery disease (PAD) is a common cardiovascular disease in which plaque buildup narrows the arteries outside the heart. PAD is most commonly clinically recognized when it limits blood flow to the legs, both at rest or with exercise.

The primary ischemic lower extremity symptom suffered by individuals with PAD is "claudication", defined by fatigue, discomfort, cramping, or pain that is induced in leg muscles (buttock, thighs or calves) when walking or exercising and that consistently resolves with rest. Claudication represents "angina of the legs" but is, in fact, associated with a more major negative impact on quality of life and functional independence. Individuals with PAD and claudication may limit their walking and leave home less often, with major impacts on work and avocational activities.

As the disease worsens, some individuals experience pain in the feet when at rest, or even ulceration and gangrene. In this case, PAD may have advanced to the point where it is necessary to amputate affected limbs; PAD is a major contributor to non-traumatic limb amputation.[1] PAD is also the cardiovascular disease that is associated with the highest short term rates of heart attack, stroke, and cardiovascular death.[2,3]

PAD affects 12 to 20% of Americans age 60 and older, and the incidence of PAD increases considerably with age.[4]

Supervised exercise therapy has been demonstrated to be an effective therapy to lessen the symptoms of claudication and improve walking distance in patients with PAD in numerous trials.[5,6,7,8,9,10,11,12] Stakeholders like the American Heart Association (AHA) have long recommended supervised exercise as a first-line, non-invasive, low risk therapy for individuals with PAD who suffer from claudication. Despite the disease burden and the substantial evidence supporting supervised exercise therapy as a safe and effective treatment for PAD, it is currently not covered by Medicare.

This National Coverage Determination request addresses the lack of coverage for supervised exercise therapy for PAD by providing comprehensive information from recent peer reviewed literature that demonstrates the benefits of supervised exercise therapy for PAD patients with intermittent claudication.

Benefit Category

The proposed benefit would fall into the following benefit categories:

- Physicians' services (SSA 1861(s)(1))
- Hospital outpatient services incident to physicians' services (SSA 1861(s)(2)(B))

Submitted by

- American Heart Association (AHA)

Description of Service

In 2001, a Current Procedural Terminology (CPT) code was assigned to PAD Rehabilitation (CPT 93668). It defines PAD supervised exercise therapy as follows:

> "Peripheral arterial disease (PAD) rehabilitative physical exercise consists of a series of sessions, lasting 45-60 minutes per session, involving use of either a motorized treadmill or a track to permit each patient to achieve symptom-limited claudication. Each session is supervised on a one-to-one basis by an exercise physiologist, physical therapist, or nurse. The supervising provider monitors the individual patient's claudication threshold and other cardiovascular limitations for adjustment of workload. During this supervised rehabilitation program, the development of new arrhythmias, symptoms that might suggest angina or the continued inability of the patient to progress to an adequate level of exercise may require physician review and examination of the patient. These physician services would be separately reported with an appropriate level E/M service code."

Since initial creation of this code, data from recent clinical trials now suggests that supervision may also be provided in group settings.

We note that the proposed service is similar to the supervised exercise therapy component of cardiac rehabilitation services as described in Section 1861(eee) of the Social Security Act. Cardiac Rehabilitation (CR) is a physician-supervised program that furnishes physician-prescribed exercise, cardiac risk factor modification, psychosocial assessment, and outcomes assessment. However, as described further below, for patients with PAD and intermittent claudication, the provision of supervised exercise therapy does not require the full set of CR interventions.

Description of Proposed Use of Service for Identified Medical Conditions in Target Medicare Population and Medical Conditions for Which It Can Be Used

AHA, in collaboration with the American College of Cardiology (ACC), developed recommendations for the treatment of PAD with supervised exercise therapy in 2005, and updated the guidelines in 2011 based on evidence from further clinical trials. The recommendations are:

1. A program of supervised exercise training is recommended as an initial treatment modality for patients with intermittent claudication.

2. Supervised exercise training should be performed for a minimum of 30 to 45 minutes, in sessions performed at least 3 times per week for a minimum of 12 weeks. [13]

Both of these recommendations meet the threshold for "Level of Evidence A: Data derived from multiple randomized clinical trials or meta-analyses."

Under the guidelines, initiation of supervised exercise therapy for PAD should be preceded by an initial standard treadmill exercise test with 12-lead electrocardiographic monitoring to evaluate any potential cardiovascular risk at the exercise level achieved in the sessions.[14] Once cleared for supervised exercise therapy, a patient's sessions are supervised by a physician, physical therapist, nurse, or exercise physiologist.[15]

Based on the evidence, the guidelines indicate that supervised exercise therapy for PAD is effective by itself or in combination with other interventions. Other interventions commonly offered to patients with claudication due to PAD include either use of a claudication medication (cilostazol) or endovascular revascularization,[16,17] such as percutaneous transluminal angioplasty[18] and stenting.[19]

<u>Indications</u>

Supervised exercise therapy is indicated for patients with documented peripheral artery disease and claudication.

PAD may be documented via any guideline-based PAD noninvasive diagnostic test (rest and/or exercise ankle-brachial index; toe-brachial index; duplex arterial ultrasound; or use of advanced imaging (magnetic resonance or computed tomographic angiography).

Contraindications

PAD supervised exercise therapy is effective in individuals who are primarily limited by ischemic claudication and is generally contraindicated in individuals who have co-morbidities that would prohibit safe use of exercise. These contraindications include:

- Critical limb ischemia, foot ulcers, or podiatric limitations
- Unstable angina
- Decompensated heart failure
- Uncontrolled cardiac arrhythmias
- Severe symptomatic valvular heart disease
- Hemodynamic instability at rest or in response to exercise
- Orthopedic or neurologic contraindications to exercise

Recommendation for a Clinically-Beneficial Application of Supervised Exercise Therapy for the Target Medicare Population

Coverage of a specific PAD supervised exercise therapy benefit for patients with intermittent claudication will allow health professionals to prescribe supervised exercise therapy, with or without other claudication and cardiovascular risk reduction interventions, as appropriate for the patient. The service would be reimbursable for all appropriate providers under the AHA guidelines, including physicians, physical therapists, nurses, or exercise physiologists.

Compilation of Supporting Medical and Scientific Evidence for Medical Benefits

The evidence review submitted in conjunction with this NCD request provides an extensive overview of the peer reviewed literature that has evaluated the efficacy, risk and cost-effectiveness of supervised exercise therapy for PAD patients with intermittent claudication. Detailed descriptions of relevant trials and their findings, as well as full references, can be found in that review. This section briefly summarizes the evidence of those articles on supervised exercise therapy's general effectiveness, its effectiveness in comparison to unsupervised exercise therapy, its effectiveness compared to or in conjunction with non-exercise interventions, and the cost effectiveness of PAD supervised exercise therapy.

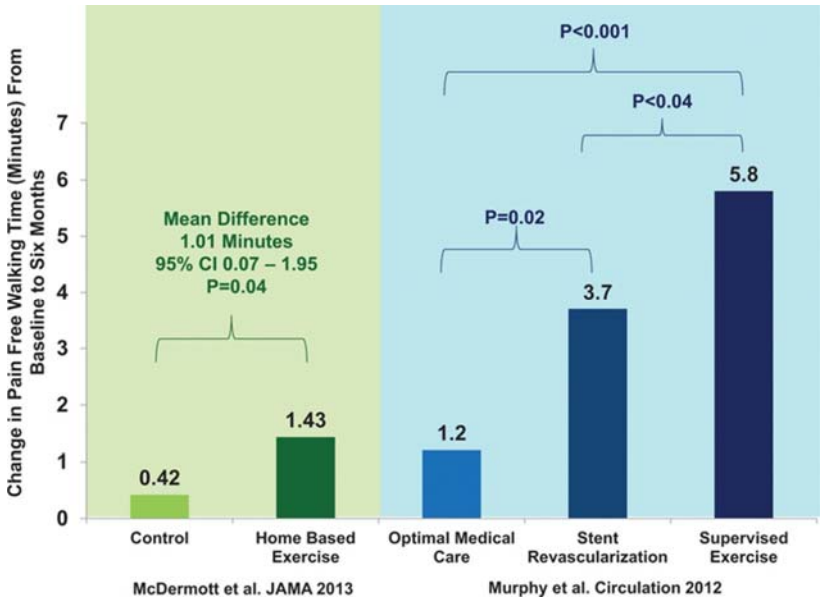
Effectiveness of Supervised Exercise Therapy

Many researchers have sought to address the efficacy of supervised exercise therapy compared to other treatment strategies for PAD (e.g., claudication pharmacotherapy or

revascularization) by evaluating standard functional status (treadmill outcomes) and quality of life (patient-focused outcomes) in well-designed prospective randomized clinical trials. These trials have offered convincing evidence that PAD supervised exercise therapy improves both objective functional capacity (maximal and pain-free walking) and subjective claudication symptoms and thus represents an effective PAD claudication treatment.[20,21,22,23,24,25] However, behavioral treatments (in contrast to pharmacologic trials), including those that utilize exercise to promote health, are often characterized by limited sample sizes. Thus, several meta-analyses have been completed in order to better define the therapeutic effect and predictors of benefit. These meta-analyses have universally demonstrated that supervised exercise therapy is an effective treatment to improve effort-induced limb symptoms in patients with PAD, and may offer a doubling or tripling of pain free or maximal walking.[26,27,28,29,30]

The results of these meta-analyses confirm that PAD supervised exercise therapy is an effective and safe treatment strategy for individuals with intermittent claudication. These data are robust and clarify that the supervised exercise functional benefit for individuals with claudication is likely comparable in magnitude to that provided by any revascularization (endovascular or surgical) treatments.

Figure 1: Effect of exercise on pain-free walking time in peripheral artery disease (PAD)[31]



Left, Efficacy of a home-based exercise program. Adapted from McDermott et al.[32]

Right, Supervised exercise training improved pain-free walking time more than stenting or medical therapy alone in patients with aorto-iliac disease. Adapted from Murphy et al.[33]

Supervised Exercise Therapy Compared to Unsupervised Exercise Therapy

PAD supervised exercise therapy merits full CMS coverage due to its proven efficacy, safety and cost-effectiveness. Efficacy and safety are maximized when this treatment is offered in a supervised setting (e.g., cardiac rehabilitation or physical therapy facility). Our request is not intended to cover performance of exercise in unsupervised settings (e.g. gym, club or home environment), as: (a) these sites are less effective than what has been achieved in supervised settings; and (b) unsupervised environments do not offer patients access to the additional support provided in supervised settings that has been shown to improve patient outcomes (e.g., encouragement and positive feedback from providers, smoking cessation, blood pressure monitoring, and gait/balance evaluations). As well, the data supporting supervised rehabilitations is more extensive.[34,35,36,37,38] Indeed, exercise performed in a supervised setting is likely most effective as this clinical environment permits a more aggressive increase in workload because of the supervision, additional encouragement, coaching, advice for continuation of efforts at home and measurement of the improvement, thus providing a "positive feedback environment" in which patients who experienced pain can alternatively be supported to experience success.

Supervised Exercise Therapy Compared to, or Provided with, Non-Exercise Interventions for Intermittent Claudication

Multiple clinical trials have evaluated the benefits of supervised exercise therapy either in comparison to pharmacological, endovascular or surgical claudication treatments, or in combination with those treatments. All recent high-quality prospective comparative effectiveness randomized clinical trials have consistently demonstrated either equivalence or superiority of supervised exercise therapy as compared with revascularization, at lower risk and lower cost.[39,40,41] Further, most contemporary data demonstrate that supervised exercise therapy, as an initial strategy of care, provides an excellent therapeutic response such that invasive procedures may not be required for most patients.[42,43] If claudication symptoms do not improve with supervised exercise therapy sufficient to eliminate the disability, other treatment methods can be then used as appropriate. This staged approach applies the most effective, lowest-risk and lowest-cost treatment first, and is core to American Heart Association evidence-based clinical practice guidelines. The literature also demonstrates that for some patients, there is major incremental value to providing supervised exercised therapy in combination with other therapeutic strategies (i.e., exercise with pharmacotherapy or exercise with revascularization).[44,45,46] This provides an additional and powerful rationale to create a coverage benefit that should be universally available to all individuals with claudication.

Cost-Effectiveness of Supervised Exercise Therapy

Comparative effectiveness studies find supervised exercise therapy to be as effective or more effective in improving quality of life and more cost-effective than other interventions commonly offered to patients with PAD such as endovascular revascularization,[47,48] including percutaneous transluminal angioplasty or primary angioplasty[49] and stenting.[50] These results have been replicated in other studies from the U.S. and the U.K.[51,52,53] The Inter-Society Consensus for the Management of Peripheral Arterial Disease (comprised of experts from 16 countries) determined from a literature review that supervised exercise therapy had a cost-effectiveness ratio ranging from $20,000-$40,000 per life year gained and was recommended as a first line therapy.[54]

Magnitude of Medical Benefit for Target Medicare Population

The prevalence of peripheral artery disease increases with age for both men and women, and is known to increase after age 65 years, affecting a significant portion of Medicare beneficiaries. PAD also disproportionately affects African-Americans, independent of other risk factor and social determinates of cardiovascular health.

Figure 2. Ethnic-specific prevalence of peripheral arterial disease in men.[55]

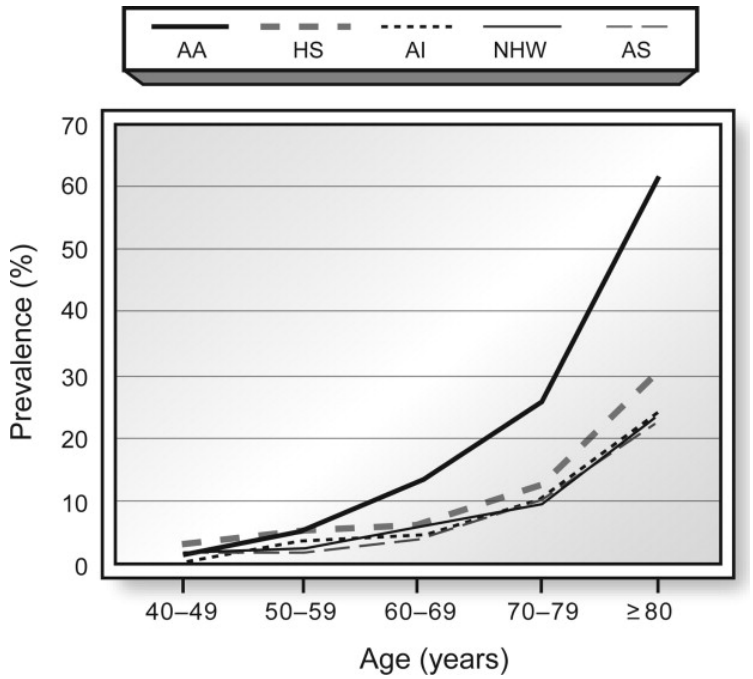
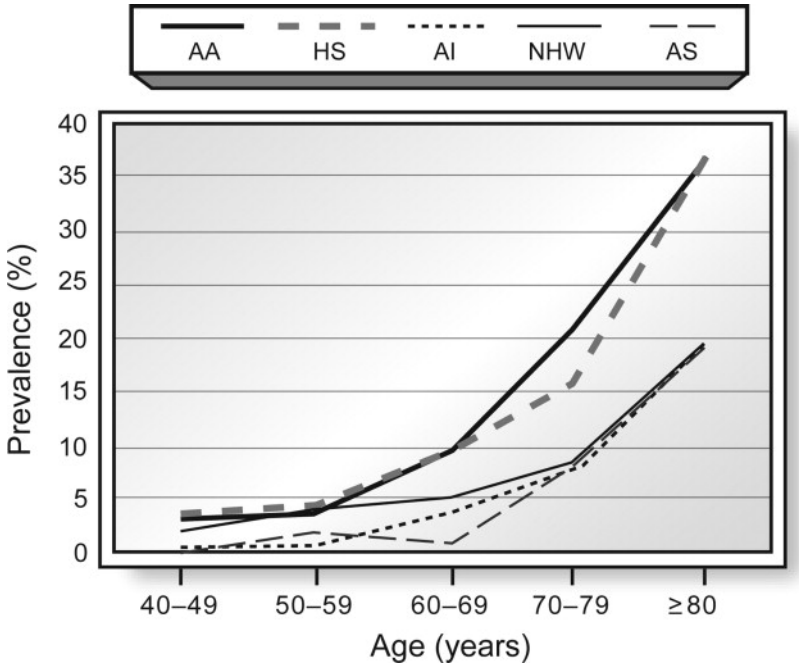


Figure 3: Ethnic-specific prevalence of peripheral arterial disease in women.[56]



As shown, PAD affects an estimated 12-20% of adults aged 60 and older.[57,58] The prevalence for those 65 and older is higher, based on the trends in the figures above. Therefore, a conservative estimate using the lowest 12% prevalence figure for a slightly younger cohort of adults yields 6.7 million beneficiaries with PAD. Approximately 10% of patients with PAD experience intermittent claudication,[59] meaning that approximately 670,000 Medicare beneficiaries would potentially be eligible for the proposed benefit.

Reasoning for How Coverage of Supervised Exercise Therapy Will Help Improve Medical Benefit to the Target Population

Despite the effectiveness and safety of PAD supervised exercise therapy, there is currently no Medicare reimbursement for the service, leaving providers who care for Medicare beneficiaries with intermittent claudication from PAD with an artificially limited number of treatment modalities at their disposal. Should CMS elect to expand coverage to supervised exercise therapy for PAD patients, evidence demonstrates the Medicare population would stand to benefit considerably. Supervised exercise therapy improves PAD patients' quality of life and clinical outcomes and is cost-effective and safe in comparison to other Medicare covered treatments. Therefore, the evidence supports the use and availability of supervised exercise therapy as a primary claudication treatment strategy, and as an efficient use of limited health economic resources.

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