Significant Savings with a Stepped Care Model for Treatment of Patients with Intermittent Claudication

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WHAT THIS PAPER ADDS
The aim of this study was to perform a cost-analysis of a recommended but largely underutilized SET first treatment strategy in intermittent claudication (IC). Until now no study has been performed to investigate the overall economic consequences of a nationwide SET first approach (stepped care). As the study used a large database (3.4 million people), daily practice is reflected well in the results. Implementation of a stepped care treatment for patients with IC may lead to significant savings of healthcare resources. These findings may be generalizable to other European healthcare systems.

Objectives: International guidelines recommend supervised exercise therapy (SET) as primary treatment for intermittent claudication (IC). The aim of this study was to calculate treatment costs in patients with IC and to estimate nationwide annual savings if a stepped care model (SCM, primary SET treatment followed by revascularization in case of SET failure) was followed.
Methods: Invoice data of all patients with IC in 2009 were obtained from a Dutch health insurance company (3.4 million members). Patients were divided into three groups based on initial treatment after diagnosis (t_0). The SET group received SET initiated at any time between 12 months before and up to 3 months after t_0. The intervention group (INT) underwent endovascular or open revascularization between t_0 and $t_{+3\ months}$. The third group (REST) received neither SET nor any intervention. All peripheral arterial disease related invoices were recorded during 2 years and average costs per patient were calculated. Savings following use of a SCM were calculated for three scenarios.
Results: Data on 4954 patients were analyzed. Initial treatment was SET ($n = 701$, 14.1%), INT ($n = 1363$, 27.5%), or REST ($n = 2890$, 58.3%). Within 2 years from t_0, invasive revascularization in the SET group was performed in 45 patients (6.4%). Additional interventions (primary at other location and/or re-interventions) were performed in 480 INT patients (35.2%). Some 431 REST patients received additional SET ($n = 299$, 10.3%) or an intervention ($n = 132$, 4.5%). Mean total IC related costs per patient were €2,191, €9851 and €824 for SET, INT, and REST, respectively. Based on a hypothetical worst, moderate, and best case scenario, some 3.8, 20.6, or 33.0 million euros would have been saved per annum if SCM was implemented in the Dutch healthcare system.
Conclusion: Implementation of a SCM treatment for patients with IC may lead to significant savings of health care resources.
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INTRODUCTION

Recently governments, nongovernmental organizations, and the private sector were called to assess the social and economic consequences of peripheral arterial disease (PAD) and to explore the best strategies for optimum treatment and prevention of this disease.[1] Although treatment strategies for PAD are well described in international guidelines[2–4] and advocate a multimodal approach, including medication, lifestyle changes, and symptomatic treatment, mentioning supervised exercise therapy (SET) as the primary treatment option,[3] the actual availability of these SET programs worldwide is limited.[5–9] There is a good availability of SET programs in the Netherlands.[10] However, a proven effective SET program
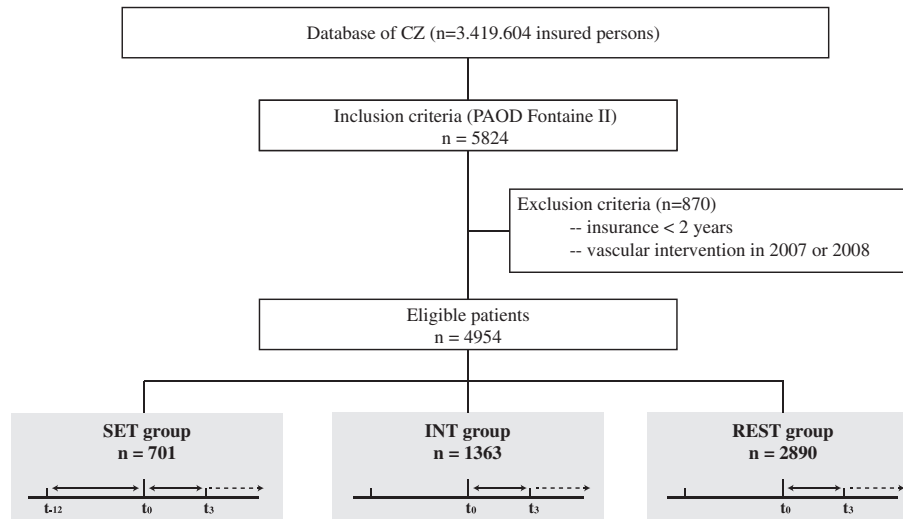
Figure 1. Flow-chart of study population and classification of subgroups. PAOD = peripheral arterial occlusive disease. * straight line: primary treatment; dashed line: secondary treatment.

(performed by physiotherapists trained in improving cardiorespiratory health status as well as lifestyle factors and medication compliance) is in many cases not fully reimbursed.

This reimbursement issue originates from a contradictory policy in the Dutch healthcare system. In the Netherlands, healthcare insurance companies have an obligation to accept everyone for basic healthcare insurance. The Dutch government determines coverage of the standard insurance. In the case of patients suffering from intermittent claudication (IC) the government decided not to cover the first 20 treatment sessions of a SET program, which have to be paid by the patient (either directly or through additional insurance). From the 21st session onwards all additional treatment sessions given in 1 year are covered by the basic healthcare insurance. Medication (prescribed by a physician) and invasive vascular interventions are both included in the standard package and fully reimbursed. As a consequence SET is largely underutilized. Patients may receive proven insufficient and less cost-effective "go home and walk" advice,[11–14] or a vascular intervention as an alternative first-line treatment strategy,[5] which contradict contemporary guidelines.

The advocated treatment strategy in the above-mentioned guidelines could be incorporated into a so-called "stepped care" model (SCM).[5,15,16] This theoretical approach strives to initially refer all IC patients to a SET program and restrict revascularization to those who do not respond to SET. Several cost-effectiveness analyses have been performed supporting such a SET first treatment strategy.[13,16–20] However, no study has been performed to investigate the overall economic consequences of SCM implementation nationwide. This study is a cost-analysis of SCM implementation in the Dutch healthcare system. Costs of IC treatment were calculated and compared with estimated costs associated with three hypothetical scenarios of nationwide SCM implementation.

METHODS

Inclusion and exclusion

The 2009 database of CZ, a large Dutch healthcare insurance company ($n = 3,419,604$ insured persons, approximately 21% of the Dutch population) was retrospectively analyzed. Insured patients who had received an invoice related to the diagnosis "PAD Fontaine 2" corresponding to IC complaints as diagnosed by a vascular surgeon, were eligible for inclusion. Only patients who had been insured for at least two consecutive years at CZ were eligible, excluding crossover patients from other insurance companies (possibly harboring an unknown 2-year history of PAD). To restrict the study to newly diagnosed IC patients, all patients who underwent vascular interventions in 2007 or 2008 were also excluded (Fig. 1). Data on co-morbidity (diabetes mellitus, COPD, hypercholesterolemia, and heart failure) were collected on the basis of prescribed medication.

Definition of IC subgroups

Patients meeting inclusion criteria were subdivided into three groups based on the primary treatment initiated by
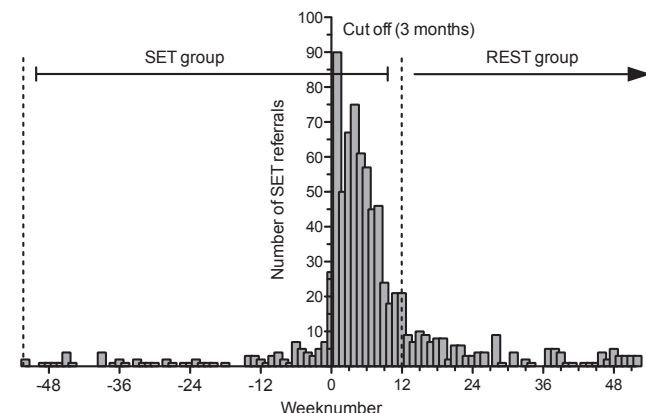

Figure 2. Referral for SET in the SET and REST group 12 months prior and after diagnosis (t_0).