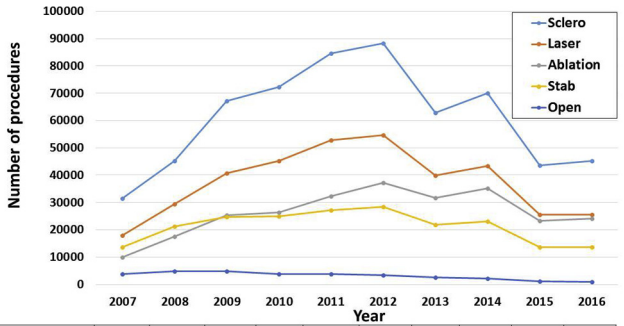

# of Patients	31,537	47,677	61,985	64,043	73,133	75,952	57,658	61,488	36,904	36,686
Total Payment	$101m	$163m	$216m	$226m	$274m	$297m	$229m	$248m	$154m	$157m
Average payment/patient	$3,203	$3,419	$3,485	$3,529	$3,747	$3,910	$3,972	$4,033	$4,173	$4,280

Fig. The volume of each type of procedure by year with payment information.

innovation and advances in technology. The purpose of this study was to evaluate the contemporary trends in the treatment type and treatment-related costs for superficial venous disease.

Methods: Using the Truven MarketScan database (Truven Health Analytics, Ann Arbor, Mich), a comprehensive database of all private insurance claims in the United States, we investigated the treatment of lower extremity venous insufficiency from 2007 to 2016. We extracted *Current Procedural Terminology* codes from the outpatient claims file and classified treatment into five categories: sclerotherapy, laser ablation, radiofrequency ablation, stab phlebectomy, and open venous ligation/stripping. We used multivariate regression to evaluate patients' characteristics and physicians' specialty as it related to treatment reimbursements.

Results: From 2007 to 2016, we identified 448,051 patients who underwent 1,301,565 procedures for lower extremity superficial venous disease. The average (mean ± standard deviation) number of procedures per patient was 3.33 ± 3.56, with a median of 2 procedures per patient (interquartile range, 1-4). The volume of each type of procedure by year is depicted in the Fig. Sclerotherapy consistently had the highest procedure volume, followed by laser ablation. All procedure types saw a decline in volume following a peak in 2012; however, open venous ligation started to see waning volumes beginning in 2010. This decrease in volume corresponded to a decrease in the overall annual total cost of treatment, down to $157 million in 2016 from its peak of $297 million in 2012. The average payment per patient per year continued to rise by more than $1000 from $3203 in 2007 to $4280 in 2016. In analyzing physicians' specialty, compared with radiologists, cardiologists were associated with a $733 decrease in payment per patient, and vascular surgeons were associated with a $163 decrease in payment per patient.

Conclusions: The treatment of lower extremity venous insufficiency continues to evolve and to favor less invasive open procedures. Although the overall number of procedures for superficial venous disease decreased in patients with private insurance, the average payment per patient has continued to increase, indicating that physicians continue to maximize reimbursements. Further work is needed to evaluate the efficacy of procedural reimbursements, especially in the setting of repeated procedures.

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Location of Reflux in the Saphenous Vein Does not Affect the Outcomes of Vein Ablation

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Objective: Varicose veins are commonly caused by valvular reflux in the saphenous vein. Most insurance companies approve venous ablation (VA) for treatment of junctional reflux only and deny therapy for symptomatic patients with significant reflux below the junction of the saphenous vein with the deep system. We hypothesize that there is no difference in outcomes of VA between patients treated for junctional reflux and patients treated for reflux below the junction with the deep system.

Methods: A retrospective single-center review of consecutive patients undergoing VA using radiofrequency in an outpatient office was performed from 2012 to 2016. Patients' electronic medical records were reviewed for characteristics, imaging, and outcomes. A telephone survey inquiring about intensity of symptoms on a numeric rating scale of 0 to 10 before and after treatment was also conducted. Patients were divided on the basis of the location of reflux at the saphenofemoral or saphenopopliteal junction or below the junction. Patients' characteristics and outcomes were compared between the two groups. Clinical success was defined by improvement or resolution of symptoms. Technical success was defined by vein closure on duplex ultrasound.

Results: There were 265 patients (junctional reflux, 224 [84.5%]; reflux below junction, 41 [15.5%]) who underwent VA of 343 veins. The mean age of the patients was 58.8 ± 15 years. There was no difference in age ($P = .59$), sex ($P = .61$), or race ($P = .88$) between the groups. Patients with junctional reflux were significantly more likely to undergo bilateral treatment (33.3% vs 12.2%; $P = .006$). There was no difference in Clinical, Etiology, Anatomy, and Pathophysiology (CEAP) score ($P = .67$), laterality ($P = .66$), or type of vein treated ($P = .59$). On ultrasound, veins with junctional reflux were noted to have significantly larger diameters ($P = .004$); however, veins with reflux below the junction had higher reflux time ($P < .0001$). The clinical success ($P = .98$), technical success ($P = .12$), and complications ($P = .29$) were not different between groups. The survey results demonstrated no difference in improvement in pain ($P = .24$) or swelling ($P = .07$) and recurrence of pain ($P = .32$) or swelling ($P = .84$) after 2 years.

Conclusions: The location of reflux in the saphenous vein does not affect the patient's presentation or outcomes of VA. Absence of junctional reflux should not be used by insurance companies as a criterion for denial of VA.

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Segmental Saphenous Ablation for Chronic Venous Disease Management

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Objective: Endovenous thermal ablation for chronic venous disease treatment is recommended over traditional surgery by international guidelines. Nevertheless, the indication is associated with its mini-invasiveness rather than with the recurrence rate, which remains the same despite the constant technical evolution of the different devices. Indeed, the strategy remains the same ablative one of the surgical stripping. In a 2015 Cochrane analysis, venous hemodynamics application in a saphenous-sparing strategy was associated with a decreased recurrence rate compared with traditional stripping. The aim of this investigation was to assess the safety and efficacy of a 6-cm endovenous segmental ablation of the saphenofemoral junction in a saphenous-sparing strategy.

Methods: Eighty-five lower limbs of 79 patients (mean age, 55 ± 10 years; 30 men and 49 women) affected by chronic venous disease ($C_3E_PA_SP_R$) were included. All the patients underwent a 6-cm great saphenous vein (GSV) ablation distal to the superficial epigastric vein confluence. Of these patients, 41 were operated on by radiofrequency (ClosureFast; Covidien, Mansfield, Mass) and 38 patients by laser (LASEmaR 1500; Eufoton, Trieste, Italy). The procedure was indicated in case of terminal valve incompetence with presence of a re-entry perforator along the GSV. Incompetent tributaries along the leg were flush ligated. Follow-up was performed at 1 year by clinical and ultrasound evaluation. Venous Clinical Severity Score (VCSS) and Aberdeen Varicose Vein Questionnaire (AVVQ) were filled in before the procedure and at 1 year.

Results: At a mean 12 ± 1 months of follow-up, a recanalization was recorded in 5 of 85 (5.8%) cases (2 radiofrequencies, 3 lasers), of which just 2 (1 radiofrequency, 1 laser) showed also a reflux recurrence. No