

Table of Contents

SUMMARY	7
Chronic Venous Disease	7
Varicose Veins	8
Chronic Venous Insufficiency	10
Venous Ulcers	10
INTRODUCTION.....	15
CEAP CLASSIFICATION SYSTEM FOR CHRONIC VENOUS DISEASE	15
CHRONIC VENOUS DISEASE IS FREQUENTLY UNDERESTIMATED.....	16
CHRONIC VENOUS DISEASE	17
Definition	17
Prevalence	17
Symptoms	17
Chronic Venous Disease is a Progressive Condition.....	18
Causes	19
Reflux.....	19
Secondary Reflux Due to Post-Thrombotic Syndrome (PTS).....	20
Obstruction—Deep Vein Thrombosis	20
Extrinsic Obstruction	21
Risk Factors	21
Impact on Quality of Life and Costs.....	22
VARICOSE VEINS	22
Definition	22
Reflux Increases the Risk.....	22
Summary of Prevalence and Incidence Estimates	23
Prevalence	23
San Diego Population Study and American Venous Forum Screening Study	25
Edinburgh Vein Study.....	25
Bonn Vein Study	25
Other European Studies	26
Limitations of Older Studies	26
Tecumseh Community Health Study	26
Callam Review	26
Gloviczki Review.....	26
Incidence	27
Varicose Vein Symptoms and Quality of Life.....	27
VARICOSE VEINS—PROGRESSION TO MORE SEVERE DISEASE.....	28
Progression to Chronic Venous Insufficiency	28
Risk Factors for Progression to Chronic Venous Insufficiency.....	28
Risk Factors for Developing Ulcers.....	29
Varicose Veins Should Be Treated To Prevent Progression	30
CHRONIC VENOUS INSUFFICIENCY (CVI).....	30
Definition	30
CVI PREVALENCE.....	30
Summary of Prevalence and Incidence.....	30
Prevalence	31

San Diego Population Study and American Venous Forum Screening Study	31
Tecumseh Community Health Survey	33
Callam Review	33
Edinburgh Vein Study.....	33
Bonn Vein I and Spanish DETECT Results	33
Worldwide Vein Consult Results and Italian and Belgian Studies.....	33
Incidence	34
Progression to More Severe Disease.....	34
VENOUS ULCERS.....	34
Definition	34
Cause—Primarily Reflux.....	34
Distribution of Reflux Differs in Primary and Secondary Disease.....	36
Deep Vein Thrombosis and Post Thrombotic Syndrome (PTS).....	36
Incidence of Ulcers after Deep Vein Thrombosis.....	37
Peripheral Artery Disease in Venous Ulcer Patients	37
Peripheral Artery Disease in Leg and Foot Ulcer Patients	37
VENOUS ULCERS—SUMMARY OF PREVALENCE AND INCIDENCE.....	37
VENOUS ULCER PREVALENCE	38
Tecumseh Community Health Study (TCHS)	39
Callam Estimates	39
Fowkes Review	39
Nelzen Skaraborg County Prevalence	39
American Venous Forum Screening.....	41
Two European Studies with High Prevalence	41
Three European Studies with Prevalence Less Than One Percent	41
VENOUS ULCER INCIDENCE	41
Incidence Frequently Confused with Prevalence.....	41
Commonly Quoted Incidence Numbers are Actually Prevalence	42
Review of Incidence Studies.....	42
Heit-Olmstead County	42
Fowkes Review	42
Rice Study.....	43
Incidence in Elderly	44
Incidence Estimate Based on Elderly Incidence.....	44
Study Limitations Suggest Conservative Incidence Numbers.....	45
VENOUS ULCER COSTS—ALL-CAUSE.....	45
Summary and Conclusion	45
Analysis of U.S. Venous Ulcer Cost Studies.....	45
Olin Study	46
Ma Study	47
Rice—Burden of Venous Leg Ulcers	48
Rice Costs and Lower Venous Ulcer Incidence	48
Why Our Venous Ulcer Cost Estimates are So Much Higher than Those Commonly Quoted.....	49

ALL-CAUSE VENOUS ULCER COSTS EXCEED THOSE OF DIABETIC FOOT ULCERS	50
VENOUS ULCER TREATMENT IS PRIMARILY OUTPATIENT	51
FACTORS THAT INCREASE VENOUS ULCER COSTS.....	51
Length of Time to Heal and Percentage Unhealed	52
Hospitalization Costs More.....	53
Recurrent Ulcers Cost More	54
VENOUS ULCERS ARE HIGHLY RECURRENT	55
Factors Affecting Ulcer Recurrence	55
VENOUS ULCERS HAVE POOR HEALING RATES	56
Randomized Controlled Trials Achieve Higher Healing Rates	56
Analysis of Percentage of Unhealed Ulcers.....	57
Conclusions Regarding Percentage of Unhealed Ulcers at Six Months and One Year	58
Some Ulcers Remain Unhealed at Two and Five Years.....	58
Factors That Increase Venous Ulcer Healing Time	59
Inadequate Compression Reduces Healing.....	59
Non-Compliance Impacts Healing.....	60
VENOUS ULCER PATIENTS INCUR HIGHER COSTS THAN AGE- AND RISK-MATCHED CONTROLS	60
Incremental Costs of Venous Ulcers Exceed Those of Diabetic Foot Ulcers	61
LOST PRODUCTIVITY INCREASES ECONOMIC BURDEN OF VENOUS ULCERS	61
Direct Costs Understate the Economic Burden	61
Annual Workdays Lost Based on West German Data.....	62
U.S. Workdays Lost and Costs	62
Work-Loss Costs of Venous Ulcers—Less Than Those of Diabetic Foot Ulcers.....	62
Crude Indicator of Indirect Costs.....	63
PATIENT COSTS MAY BE SIGNIFICANT	63
POOR QUALITY OF LIFE WITH VENOUS ULCERS	64
Chronic Pain Restricts Mobility and Causes Sleeping Problems	64
Pruritus, Swelling, Discharge and Smelling	64
Venous Ulcers Negatively Impact Work Capacity and Activities of Daily Living.....	64
Social Isolation and Loneliness	65
Ulcer Treatment Burdensome, Uncomfortable and Time Consuming	65
VENOUS DISEASE—ONE OF THE PRIMARY CAUSES OF LEG AND FOOT ULCERS	65
Peripheral Artery Disease Highly Prevalent in Leg and Foot Ulcers	66
Misdiagnosis and Underdiagnosis	66
Etiology of Leg Ulcers May be Changing	67
CHRONIC VENOUS DISEASE—U.S. PREVALENCE SUMMARIZED.....	67
U.S. Prevalence of Total Chronic Venous Disease and Major CEAP Class	67
U.S. Prevalence of Chronic Venous Insufficiency and Venous Ulcers	69
U.S. PREVALENCE OF MAJOR CHRONIC DISEASES	70
CHRONIC VENOUS DISEASE—U.S. INCIDENCE SUMMARIZED	70
U.S. Incidence of Varicose Veins, Chronic Venous Insufficiency and Venous Ulcers	70

U.S. INCIDENCE OF MAJOR CHRONIC DISEASES.....	71
REFERENCES.....	73
INDEX OF TABLES	83
INDEX OF FIGURES	85
CONTACT INFORMATION.....	86