

Table of Contents

ACKNOWLEDGEMENTS	VI
GLOSSARY	VIII
COST DEFINITIONS	VIII
ACRONYMS	IX
INTRODUCTION	1
CHAPTER 1 – SKIN DISEASE NATIONAL PREVALENCE ESTIMATES	3
Introduction and Summary of Results	4
Table 1.1: 2013 US Skin Disease Prevalence by Skin Disease and Age	4
Background.....	5
Prevalence Measurement Methodology.....	5
Figure 1.1: Prevalence Measures in Relative Size Order	5
Data and Methodology.....	7
US Population by Age and Insurance Status	7
Table 1.2: Primary Payer Insurance Status	7
Insurance Data.....	7
Table 1.3: Data Sources	7
Table 1.4: Insured Data Selection Rules used for Risk Adjustment Disease Prevalence and Cost Estimates	8
Identifying and Categorizing Skin Diseases	8
Table 1.5: Skin Disease Categories.....	9
Modifying the Clinical Classification Software Disease Classifications	10
Skin Disease Prevalence	10
Results and Discussion.....	11
US Population by Age and Insurance Status	11
Table 1.6: 2013 US Population by Age Group and Insurance Status	11
Insurance Data for Analysis	11
Table 1.7: Insured Individuals used for Risk Adjustment Disease Prevalence and Cost Estimates.....	11
Skin Disease Prevalence	11
Table 1.8: 2013 US Skin Disease Prevalence by Skin Disease and Age for Commercially Insured Population ...	12
Table 1.9: 2013 US Skin Disease Prevalence by Skin Disease and Age for Medicare Population.....	13
Table 1.10: 2013 US Skin Disease Prevalence by Skin Disease and Age for Medicaid Population	14
Table 1.11: 2013 US Skin Disease Prevalence by Skin Disease and Age for Uninsured Population	15
Table 1.12: 2013 US Skin Disease Prevalence by Skin Disease and Age for Total Population	16
Table 1.13: 2013 US Disease Overlaps for Medicare Population	17

CHAPTER 2 – SKIN DISEASE NATIONAL BURDEN ESTIMATES – TABULATION METHODOLOGY 18

Introduction and Summary of Results 19

 Tabulated Healthcare Costs..... 19

 Table 2.1: 2013 US Estimated Skin Disease Healthcare Costs (in \$1,000,000s) by Insurance Status using Tabulation Method 20

 Specific Services and Drugs 21

 Table 2.2: 2013 US Services by Dermatologists Adjusted to Disease Prevalence of Commercial Population 21

 Table 2.3: 2013 Top 10 Skin Disease Drugs by Spending (percent of total skin disease drug spending shown in parentheses) 21

Background..... 22

 Tabulation Methodology..... 22

Data and Methodology 23

 Healthcare Cost Definition 23

 Medical (non-Drug) Costs 23

 Identifying Skin Disease Services..... 23

 Portion of Medical Services Assigned to Skin Disease..... 24

 Table 2.4: Allocation of Medical Services to Skin Disease..... 24

 Formula 2.1: Skin Percentage for Medical Claims with Skin and Non-Skin Diagnoses 24

 Tabulation..... 25

 Table 2.5: Medical Cost Tabulation Dimensions 25

 Prescription Drug Costs 25

 Identifying Skin Disease Drugs..... 25

 Portion of Drugs and Costs Assigned to Skin Disease 26

 Formula 2.2: Skin Percentage for Top 100 Prescription Drugs..... 26

 Tabulation..... 27

 Table 2.6: Prescription Drug Tabulation Dimensions 27

 Over the Counter Product Costs 27

 Table 2.7: Over the Counter Product Categories 28

 Total US Costs..... 28

Results and Discussion..... 29

 Total Costs..... 29

 Table 2.8: 2013 US Estimated Annual Skin Disease Insured Costs per Person by Tabulation Method for Commercial Population..... 30

 Table 2.9: 2013 US Estimated Annual Skin Disease Insured Costs per Person by Tabulation Method for Medicare Population 32

 Table 2.10: 2013 US Estimated Annual Skin Disease Insured Costs per Person by Tabulation Method for Medicaid Population 33

Services Provided by Dermatologists	34
Table 2.12: 2013 US Office Visits and Surgeries per Person with a Skin Disease for Commercial Population ...	35
Table 2.13: 2013 US Office Visits and Surgeries per Person with a Skin Disease for Medicare Population.....	36
Table 2.14: 2013 US Office Visits and Surgeries per Person with a Skin Disease for Medicaid Population.....	37
Prescription Drug – Detailed Utilization and Costs.....	37
Prescription Drugs per Person.....	37
Table 2.15: 2013 US Prescription Drugs per Person for Commercial Population	38
Table 2.16: 2013 US Prescription Drugs per Person for Medicare Population	39
Table 2.17: 2013 US Prescription Drugs per Person for Medicaid Population.....	40
Most Costly Drugs	40
Table 2.18: 2013 US Most Costly Skin Disease Prescription Drugs for Commercial Population	41
Table 2.19: 2013 US Most Costly Skin Disease Prescription Drugs for Medicare Population	41
Table 2.20: 2013 US Most Costly Skin Disease Prescription Drugs for Medicaid Population.....	42
Vaccines – Detail Costs	42
Table 2.21: 2013 US Skin Disease Vaccine Costs per Person.....	43
Over the Counter – Detail Costs	43
Table 2.22: 2013 US Skin Disease OTC Product Costs by Product Category.....	44
CHAPTER 3 – SKIN DISEASE NATIONAL BURDEN ESTIMATES – RISK ADJUSTMENT METHODOLOGY	45
Introduction and Summary of Results	46
Table 3.1: 2013 US Estimated Skin Disease Healthcare Costs (in \$1,000,000s) by Skin Disease and Insurance Status using Risk Adjustment	47
Comparison to Chapter 2 Costs.....	47
Table 3.2: Comparison of Chapter 2 and Chapter 3 2013 US Estimates of Skin Disease Healthcare Costs.....	48
Background.....	49
Risk Adjustment Methodology.....	49
Data and Methodology.....	50
Risk Adjustment Flags	50
Costs by Type of Service	50
Table 3.3: Annual Allowed Cost Caps per Individual Person by Type of Service	50
Commercial and Medicare Incremental Cost Factors	50
Calculating Costs	51
Formula 3.1: Incremental Cost per Person with the Disease	51
Formula 3.2: Cost per Person (with or without Disease).....	51
Table 3.4: Data for Incremental and Average Costs per Person Calculations	52
Medicare Prescription Drug Costs	52
Table 3.5: Skin Disease Prescription Drug Estimates.....	52
Formula 3.3: Medicare Prescription Average Costs per Person	52

Calculating Population Costs	52
Formula 3.4: Population Costs.....	53
Results and Discussion.....	54
US Population Mean Healthcare Costs.....	54
Table 3.6: 2013 US Population Mean Annual Healthcare Costs per Person by Insurance Status.....	54
Skin Disease Incremental Costs	54
Table 3.7: 2013 US Incremental Cost per Person with Disease by Skin Disease and Insurance Status	55
Average Costs per Person.....	55
Table 3.8: 2013 US Estimated Skin Disease Total Costs per Person (with and without Disease) by Disease and Insurance Status	56
Population Costs.....	56
Table 3.9: 2013 US Estimated Skin Disease Healthcare Costs (in \$1,000,000s) by Skin Disease and Insurance Status.....	57
Comparison to Tabulation Estimates	57
Table 3.10: Comparison of 2013 US Skin Diseases Medical Costs per Person for Commercial Population	59
Table 3.11: Comparison of 2013 US Skin Diseases Medical Costs per Person for Medicare Population	60
Table 3.12: Comparison of 2013 US Skin Diseases Medical Costs per Person for Medicaid Population.....	61
CHAPTER 4 – SKIN DISEASE REVIEW OF INDIRECT COSTS	62
Introduction and Summary of Results	63
Mortality	63
Table 4.1: 2013 US Skin Disease Deaths and YPLL by Skin Disease	64
Interaction with the Healthcare System.....	64
Table 4.2: 2013 US Estimated Opportunity Cost of Time Interacting with the Healthcare System PPPY* by Skin Disease and Age Category	65
Other Indirect Costs	66
Background.....	66
Population Perspective	66
Indirect Cost Measures	66
Table 4.3: Articles that Review Skin Disease Indirect Cost Measures	67
Table 4.4: Skin Disease QoL Burden Measures	68
Data and Methodology.....	70
Mortality Analysis	70
Formula 4.1: Years of Potential Life Lost (YPLL).....	70
Interaction with the Healthcare System.....	70

Table 4.5: Patient-Days of Interaction by Type of Service	71
Formula 4.2: Patient-Days of Interaction.....	71
Formula 4.2: Opportunity Cost of Interactions with Healthcare System	71
Literature Review	71
Results and Discussion.....	73
Mortality Analysis	73
Interaction with the Healthcare System.....	73
Table 4.6: 2013 US Patient-Days of Interaction with the Healthcare System PPPY* with Skin Disease by Skin Disease.....	73
Table 4.7: 2013 US Patient-Days of Interaction with the Healthcare System PPPY* by Skin Disease and Age Category	74
Literature Review	75
Multi-Disease Literature.....	75
Single-Disease Literature	76
Further Research	78
Table 4.8: Potential Data Sources for Multi-Disease Population-Level Indirect Burden Analyses	79
CHAPTER 5 – COMPARING PREVALENCE AND COST ESTIMATES	81
Introduction and Summary of Results	82
Background.....	83
Prevalence and Cost per Person	83
Figure 5.1: Prevalence Measures in Relative Size Order	83
Figure 5.2: Average Cost per Person with Disease in Cost Order	84
Figure 5.3: Total Cost Calculation with Proper Pairing of Prevalence and Cost per Person	85
Figure 5.4: Incorrect Total Cost Calculation.....	86
Other Cost Determinants	86
Table 5.1: US Healthcare Cost Trend Factors	87
Data and Methodology.....	89
Results and Discussion.....	89
Table 5.2: Comparison of Our Estimates to Previous Estimates	89
CONCLUSION	90
LIMITATIONS	91
SUPPLEMENTAL DOCUMENTS.....	92
BIBLIOGRAPHY.....	93