

# Cost of a lymphedema treatment mandate

## - 16 years of experience in the Commonwealth of Virginia

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# Background and Motivation

- High cost of treatment of chronic disease
- 3-10 million chronic lymphedema patients in U.S.
- Reticence of insurers to cover lymphedema treatment
  - Lack of population-based lymphedema treatment cost data
  - Fear of large uncontrolled costs for compression materials
- Insurers' influence on legislators retards new mandates

# Virginia Lymphedema Treatment Mandate

- Lymphedema treatment mandated in Virginia in 2003, effective 2004
- Virginia State law requires annual reporting of costs of all mandates
- Reporting applies to all insurers underwriting > \$500,000 insurance
- One series of annual reports covers private, group, and HMO contracts
- Another series covers Virginia State employee contracts
- Reports cover cost and utilization data
- More detail found in Weiss, *Health Economics Review* (2016) 6:42  
DOI [10.1186/s13561-016-0117-3](https://doi.org/10.1186/s13561-016-0117-3)

# Coverage for Lymphedema

- Section 38.2-3418.14 of the Code of Virginia requires that insurers, health services plans, and HMOs provide **coverage for the treatment of lymphedema**, including benefits for equipment, supplies, complex decongestive therapy, and outpatient self-management training and education.
- Section 38.2-3419.1 requires the State Corporation Commission to consolidate **cost and utilization reports** from insurers, health services plans, and health maintenance organizations for each mandated health insurance benefit.

# Data Sources Used in this Study

Private, Group, HMO Contracts *			Pre-mandate Contracts *		
Yr. Data	Yr. Rep't	Rep't No.	Yr. Data	Yr. Rep't	Rep't No.
2004	2005	RD191	1999	2001	HD007
2005	2006	RD289	2000	2002	HD010
2006	2007	RD246	2001	2003	HD008
2007	2008	RD322	2002	2003	RD049
2008	2009	RD294	2003	2004	RD110
2009	2010	RD300	State Employee Contracts **		
2010	2011	RD281	2009-10	2011	RD146
2011	2012	RD290	2010-11	2011	RD381
2012	2013	RD300	2011-12	2012	RD379
2013	2014	RD335	2012-13	2013	RD415
2014	2015	RD337	2013-14	2014	RD410
2015	2016	RD417	2014-15	2015	RD424
2016	2018	RD408	2015-16	2016	RD521
2017			2016-17	2017	RD588
2018	2020	RD471	2017-18	2018	RD510
2019			2018-19	2019	RD716
2020			1019-20	2020	RD655

Reports available at Virginia's Legislative Information system website  
<https://rga.lis.virginia.gov/search/>

\* The Financial Impact of Mandated Health Insurance Benefits and Providers Pursuant To Section 38.2-3419.1 of the Code of Virginia: 20xx Reporting Period

\*\* SFY20xx Mandated Benefits Report

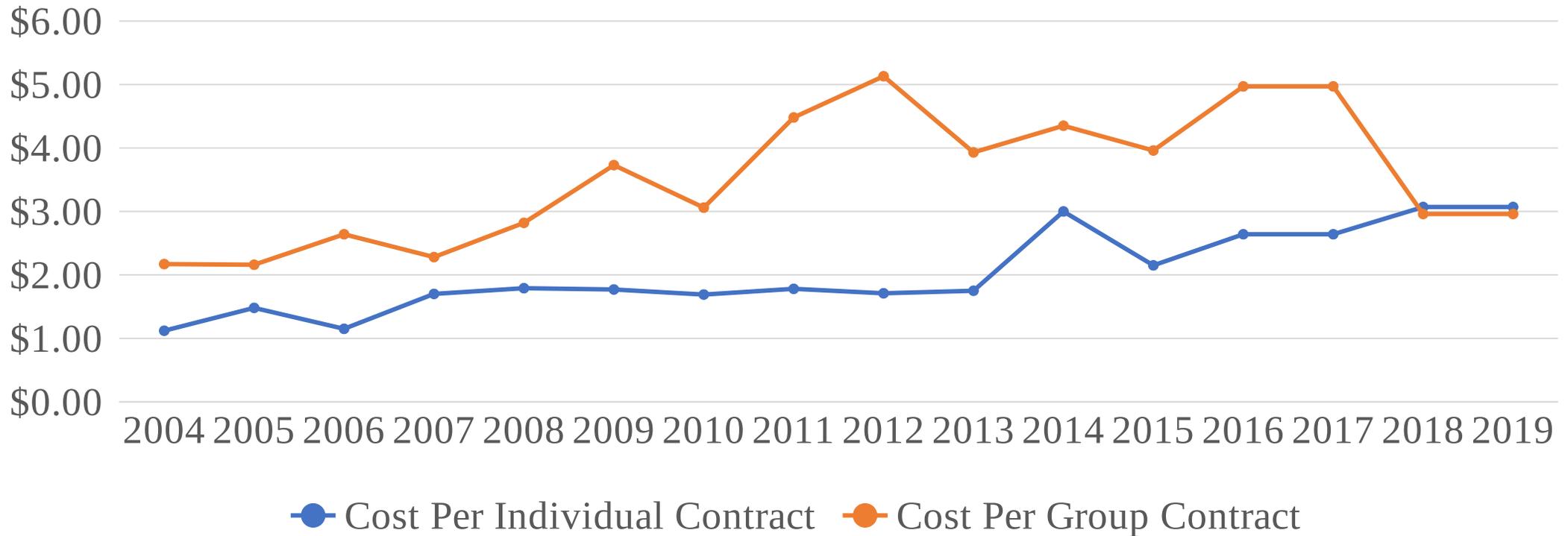
# Collected Lymphedema Diagnostic Codes

- Collected ICD-9 and CPT codes used from 1/1/2004 to 9/30/2015
  - 457.0 Postmastectomy lymphedema syndrome
  - 457.1 Other lymphedema
  - 757.0 Hereditary edema of legs
  - 97124 Massage, compression
  - 97140 Manual therapy techniques, manipulation
  - 97535 Self-care/home management training.
- Effective September 30, 2015, the ICD-9 codes were replaced by ICD-10 codes.
- ICD-10-CM: 457.0 □ I97.2; 457.1 □ I89.0; 757.0 □ Q82.0.
- 2015 reported data represents only 9 months

Ref: Bureau of Insurance's Administrative Letter 2016-01, dated March 8, 2016

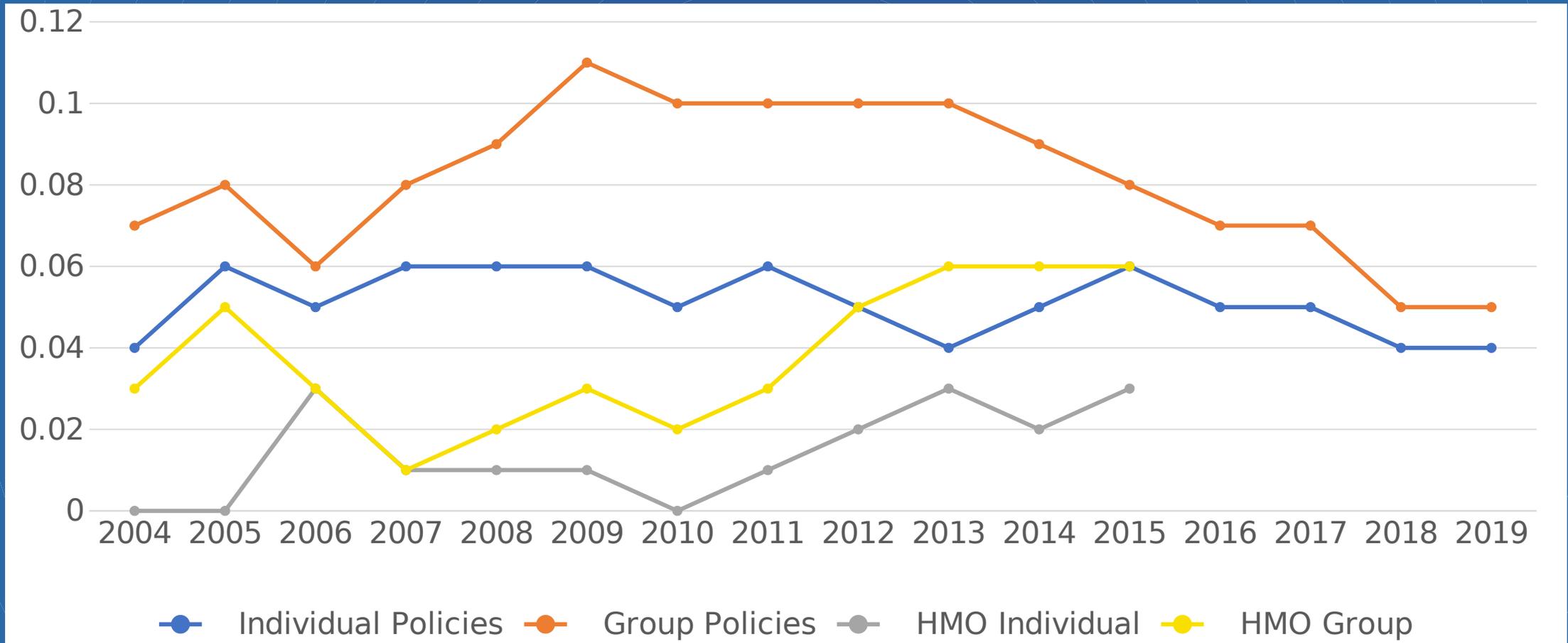
# Lymphedema Claim Experience

## Claim Cost Per Contract in Dollars (Tables 5 and 6)



# Claim Experience

## Lymphedema Claims as a Percentage of Total Claims (Tables 5, 6, and 18)



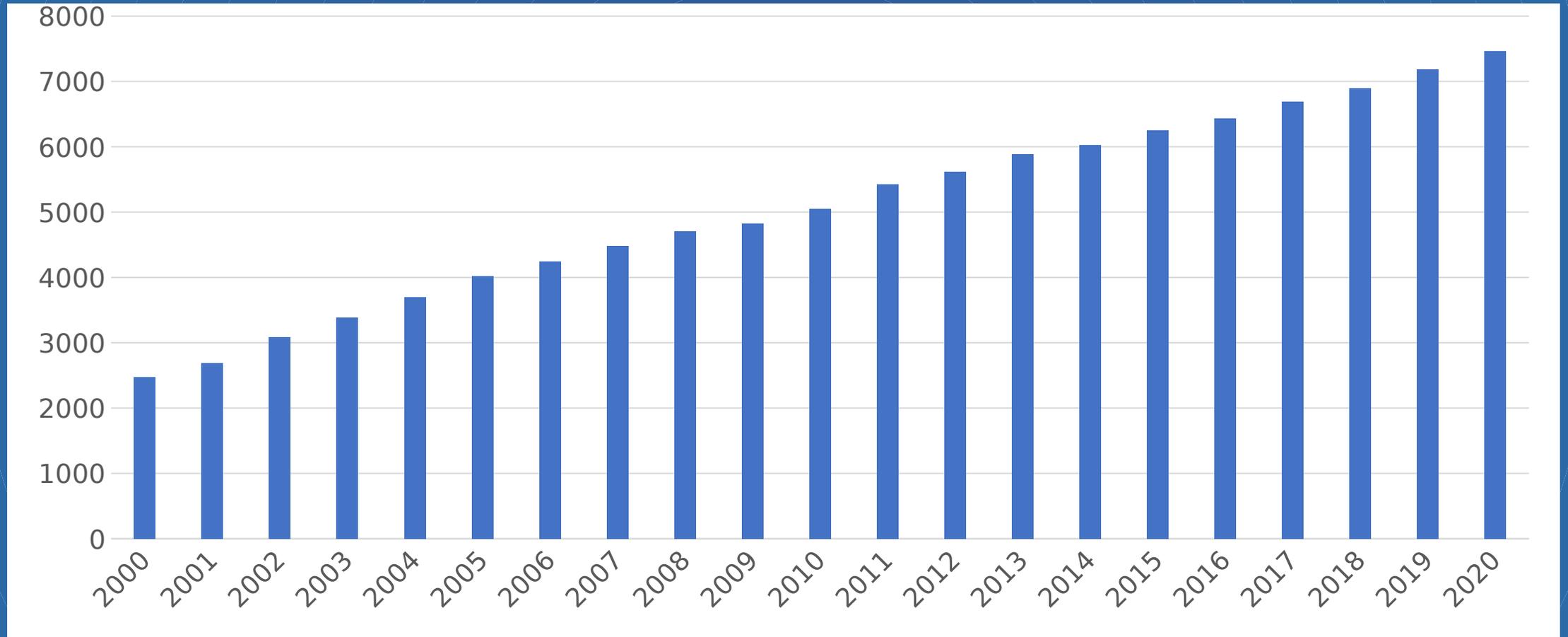
# 16-Year Lymphedema Claim Statistics (Tables 5, 6, and 18)

Cost Per Contract	Mean (USD)	Standard Deviation (USD)	Slope (% per Year)
Individual Contract	\$2.03	\$0.63	+6.05
Group Contract	\$3.54	\$1.00	+3.59
Percent Total Claims	Mean (%)	Standard Deviation (%)	Slope (% per Year)
Individual Policies	0.05	0.008	-1.26
Group Policies	0.08	0.018	-1.52
HMO Individual Policies*	0.01	0.011	+13.57
HMO Group Policies*	0.04	0.017	+7.93

\* 12 Year's Data

Note: Statistical analysis of abstracted data using Microsoft Excel for Mac, Version 16.16.27 installed on Apple iMac under OSX Version 10.15.7 operating system. Mathematical functions AVERAGE, STDEVP AND SLOPE

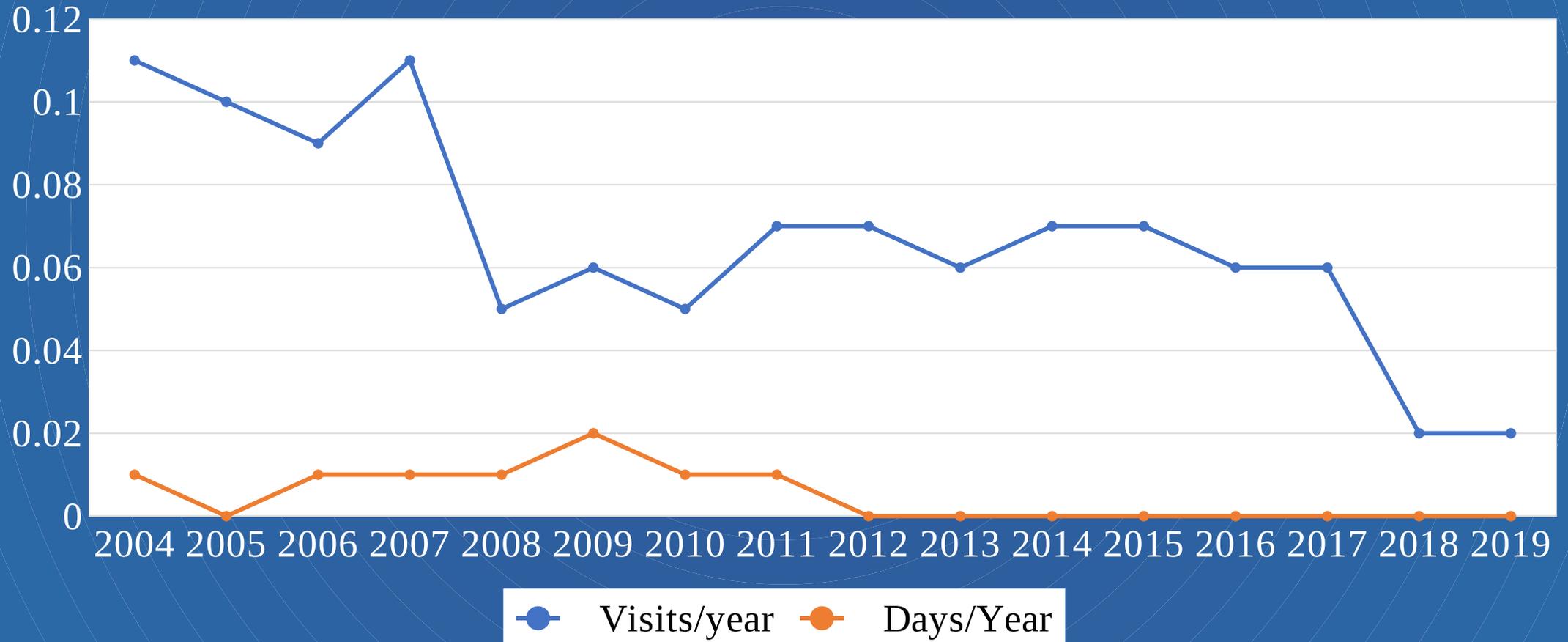
# Average annual health premiums for single employee coverage in the United States from 2000 to 2020 (in U.S. dollars)



Data from Statista website 2021

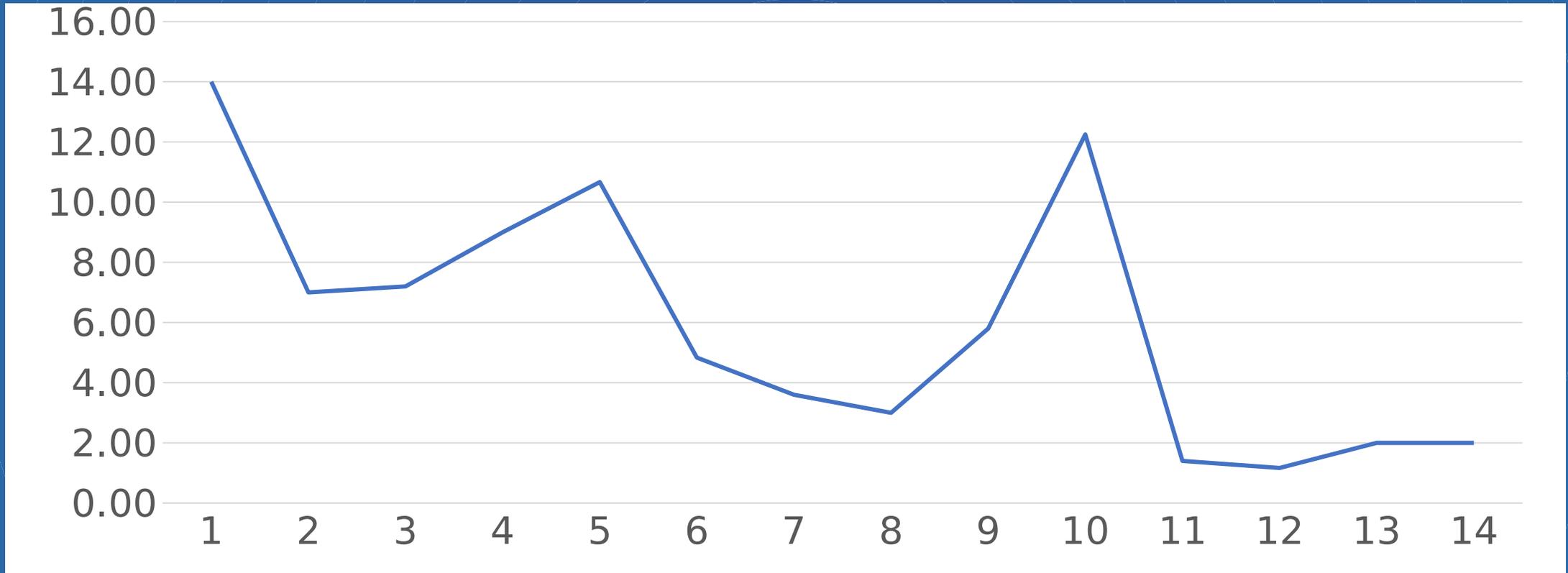
# Utilization

## Medical Office Visits and Hospitalizations, Group Certificates (Tables 7)

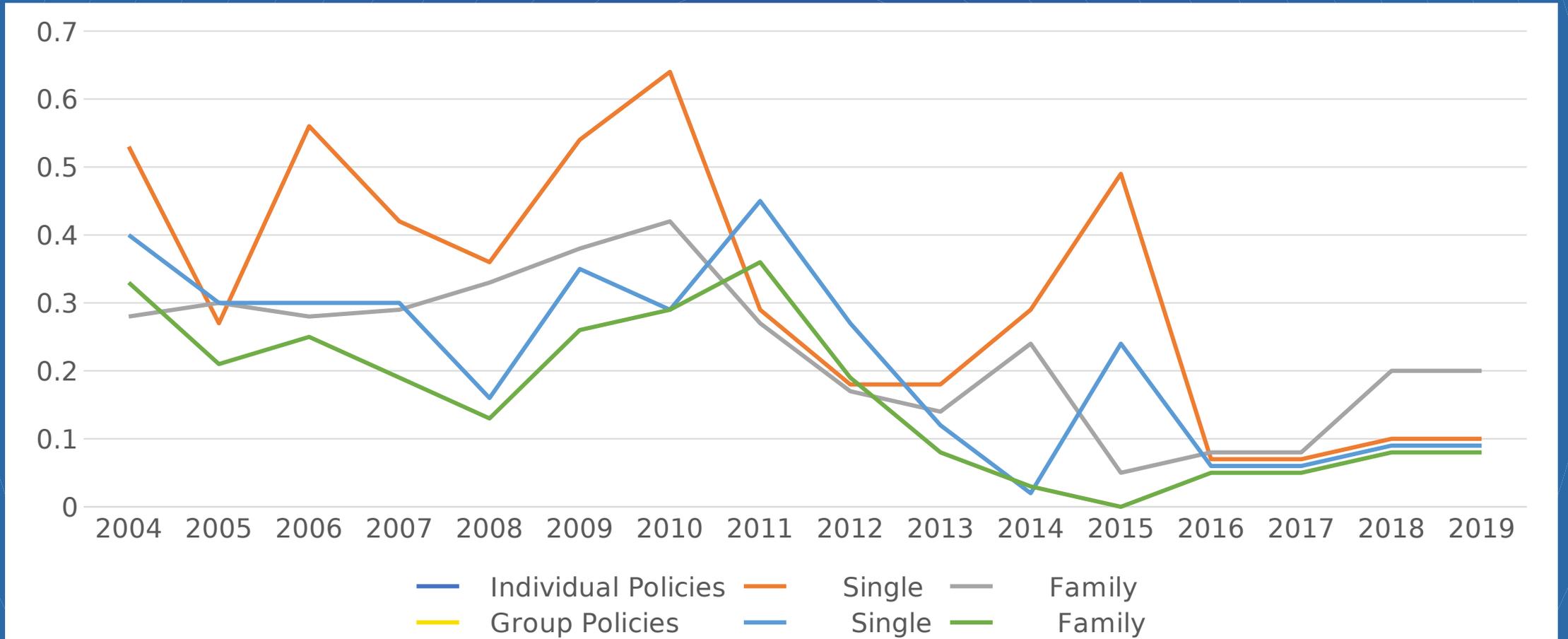


# Actuarial Uncertainty?

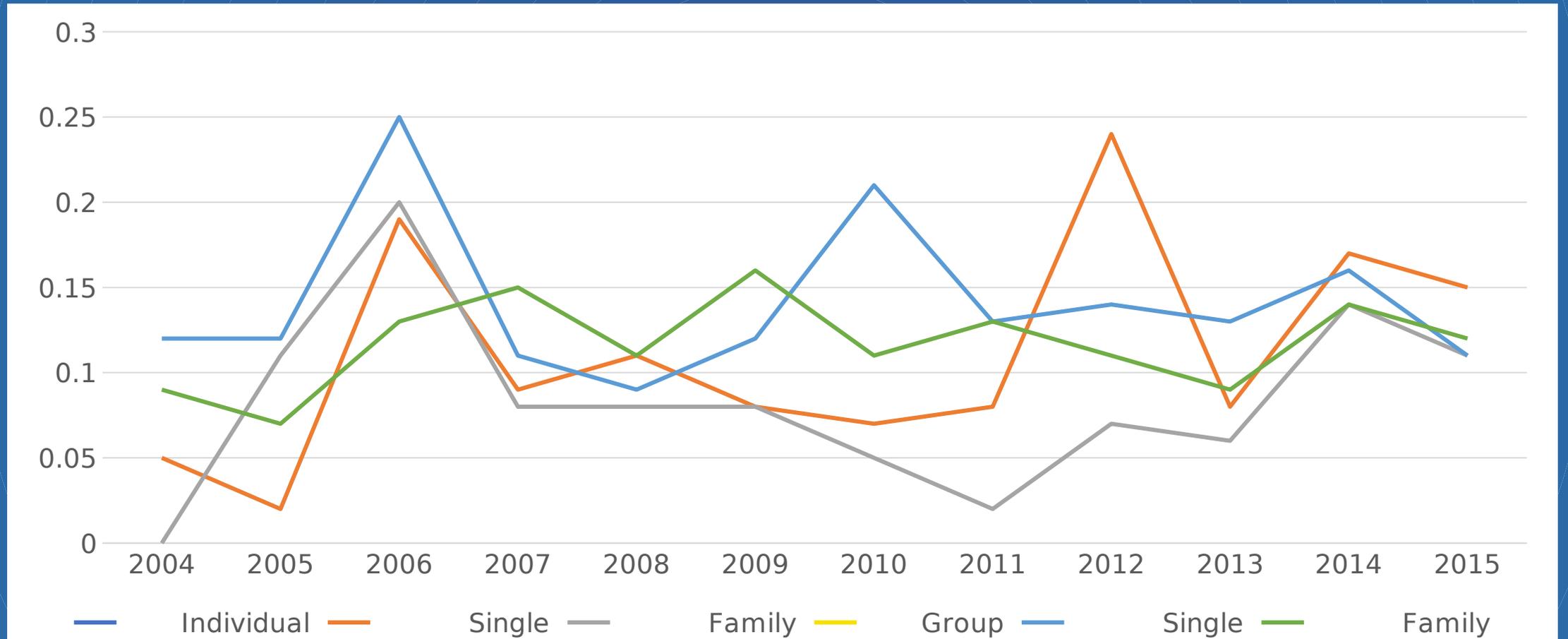
Ratio of Lymphedema Premium (year n) to Claims (year n-2)



# Lymphedema Premium Allocation Individual & Group Policies in Percent/Contract (Tables 1, 2, 3, and 4)



# Lymphedema Premium Allocation HMO Policies in Percent/Contract (Tables 17)



# Experience with State Health Benefit Plans

- Individual, Group, and HMO Plans covered 1-1.5 million policies between 2004 and 2013 (number not reported after 2013)
- State Benefit Plans covered 80-100 thousand policies by 3 Insurers between 2010 and 2020 (not reported before 2010)
- **Annual Claim Cost per policy:** 10-year Mean \$0.90 (Range \$0.39-1.73)
- Changes in insurers in 2014, reporting basis in 2017, ICD codes in 2015, methodology in 2018 make **trend analysis virtually impossible**
- Trending conclusions are therefore based on the more homogeneous Individual and Group claims data over the period of 2004 to 2019.

# Are Pre-Mandate Insurer Cost Predictions Accurate?

- 72% of VA insurers who returned the Bureau of Insurance's questionnaire claimed to already cover lymphedema treatment without a mandate.
- VA Bureau of Insurance **Pre-mandate predictions** of lymphedema costs ranged from \$1.80 to \$24.00 per year per individual policy.
- Actual range of lymphedema **claim costs over 16 years** for individual contracts was \$1.12 to \$3.07 [Mean \$2.03]
- Actual range of lymphedema **claim costs over 11 years** of the largest State Healthcare Plan was \$0.39 to \$1.73 [Mean \$0.90]
- Actual range of lymphedema **claim costs over 16 years** of group certificates was \$2.16 to \$5.13 [Mean \$3.54]

# Conclusions

- 16 years of insurance experience with a lymphedema treatment mandate in Virginia shows that **costs of lymphedema treatment are an insignificant part of insured healthcare costs.**
- Treatment of lymphedema **reduces costs for office visits and hospitalizations** due to lymphedema and lymphedema-related cellulitis.
- Lymphedema treatment is a potent tool for **reduction in healthcare costs** while **improving the quality of care** for cancer survivors and others suffering with this chronic progressive condition.