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
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 |  |  |  |
| 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 |

State Employee Contracts **

| Yr. Data | Yr. Rep’t | Rep’t No. |
| 2010 | 2011 | RD281 |
| 2011 | 2012 | RD290 |
| 2012 | 2013 | RD300 |
| 2013 | 2014 | RD335 |
| 2014 | 2015 | RD337 |
| 2015 | 2016 | RD417 |
| 2016 | 2018 | RD408 |
| 2017 |  |  |
| 2018 | 2020 | RD471 |
| 2019 |  |  |
| 2020 |  |  |

Reports available at Virginia’s Legislative Information system website [https://rga.lis.virginia.gov/search/](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 were utilized to determine the means, standard deviations, and slopes of the data, respectively.
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)

![Graph showing Lymphedema Premium Allocation for Individual, Single, Family, and Group policies from 2004 to 2015]
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.