Session 123 IF, Stop Loss

Moderator/Presenter:
Mark R. Allyn, FSA, MAAA

Presenters:
Yang Hu, ASA, MAAA
Mehboob Aziz Khoja, FSA, MAAA
2017 SOA Health Meeting

Mark Allyn, Mehb Khoja, & Yang Hu
Stop Loss Insurance – Panel Discussion
June 14th, 2017
Agenda

• Stop loss basics and the growth of self-insurance
• Perspectives
  • Employee benefits consultant: stop loss marketplace
  • Stop loss insurer: pricing coverage and product basics
  • Stop loss reinsurer: catastrophic claims above $1M
• Hot topics in stop loss
• Questions
Self-Insurance and Stop Loss Basics

Mehb Khoja, FSA, MAAA
Milliman
Stop Loss Insurance

• Covers the self-funded plan sponsor from catastrophic medical/pharmacy claims
• Between carrier and self-funded employer; does not cover the individual member
• Plan is regulated by ERISA; stop loss regulated by the State and requires a policy to be filed with regulators
• Distributed through health plans, TPAs, brokers, and direct carriers
Coverage basics

• Primarily purchased by employers with over 75 employees

• Specific (individual, self-insured retention)
  • Protects the employer from individual claimants exceeding a threshold

• Aggregate
  • Protects the employer from claims in total exceeding a corridor (typically 125% of expected)

• Specific protects the aggregate
  • Cannot be reimbursed on a claim twice
  • Aggregate is rarely sold without specific
2016 Monthly Premiums, Individual Stop Loss, by Deductible
(Adjusted to a “Paid” Contract)

Average Monthly Premium by Deductible and Contract Type

<table>
<thead>
<tr>
<th>Individual Deductible</th>
<th>Paid</th>
<th>12/15</th>
<th>15/12</th>
<th>12/12</th>
</tr>
</thead>
<tbody>
<tr>
<td>$100,000</td>
<td>$114.06</td>
<td>$111.82</td>
<td>$109.67</td>
<td>$90.52</td>
</tr>
<tr>
<td>$200,000</td>
<td>$50.53</td>
<td>$49.54</td>
<td>$48.59</td>
<td>$40.10</td>
</tr>
<tr>
<td>$300,000</td>
<td>$31.98</td>
<td>$30.76</td>
<td>$30.17</td>
<td>$24.90</td>
</tr>
<tr>
<td>$400,000</td>
<td>$22.38</td>
<td>$21.94</td>
<td>$21.52</td>
<td>$17.76</td>
</tr>
<tr>
<td>$500,000</td>
<td>$17.22</td>
<td>$16.88</td>
<td>$16.56</td>
<td>$13.67</td>
</tr>
</tbody>
</table>

Based on 2016 Aegis Stop Loss Survey
Top 10 Catastrophic Conditions

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Malignant neoplasm (cancer)</td>
<td>$429.5M</td>
<td>18.5%</td>
<td>↑ 0.9%</td>
</tr>
<tr>
<td>2</td>
<td>Leukemia/lymphoma/multiple myeloma (cancers)</td>
<td>$188.6M</td>
<td>8.1%</td>
<td>No material change</td>
</tr>
<tr>
<td>3</td>
<td>Chronic/end-stage renal disease (kidneys)</td>
<td>$156.6M</td>
<td>6.7%</td>
<td>↓ 1.0%</td>
</tr>
<tr>
<td>4</td>
<td>Congenital anomalies (conditions present at birth)</td>
<td>$96.3M</td>
<td>4.1%</td>
<td>↓ 0.1%</td>
</tr>
<tr>
<td>5</td>
<td>Disorders relating to short gestation and low birth weight (premature birth)</td>
<td>$75.2M</td>
<td>3.2%</td>
<td>No material change</td>
</tr>
<tr>
<td>6</td>
<td>Transplant</td>
<td>$62.2M</td>
<td>2.7%</td>
<td>↑ 0.7%</td>
</tr>
<tr>
<td>7</td>
<td>Congestive heart failure</td>
<td>$57.8M</td>
<td>2.5%</td>
<td>↓ 0.1%</td>
</tr>
<tr>
<td>8</td>
<td>Cerebrovascular disease (brain blood vessels)</td>
<td>$57.4M</td>
<td>2.5%</td>
<td>No material change</td>
</tr>
<tr>
<td>9</td>
<td>Pulmonary collapse/respiratory failure (lungs)</td>
<td>$55.0M</td>
<td>2.4%</td>
<td>No material change</td>
</tr>
<tr>
<td>10</td>
<td>Septicemia (infection)</td>
<td>$54.7M</td>
<td>2.4%</td>
<td>↑ 0.2%</td>
</tr>
<tr>
<td></td>
<td>All other conditions</td>
<td>$1.09B</td>
<td>47%</td>
<td>↓ 0.5%</td>
</tr>
</tbody>
</table>

33% of Top 3 conditions

53% of all catastrophic claims were top 10 conditions

Based on Sun Life 2016 Stop Loss Study
Alternative Financing

Who Assumes the Risk?

- Fully-Insured Plans
- Retrospective Premium Agreements
- Minimum Premium Accounts
- Self-Funded ASO w/Stop Loss Insurance
- Pure Self-Funding (ASO)

100% Transfer of Risk

No Transfer of Risk
Motivators of Self-Funding

<table>
<thead>
<tr>
<th>Key Factors</th>
<th>Key Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost savings</td>
<td>Financial risk</td>
</tr>
<tr>
<td>Reputation of companies &amp; providers</td>
<td>Lack of understanding</td>
</tr>
<tr>
<td>Broker recommendation</td>
<td>Broker knowledge</td>
</tr>
<tr>
<td>Employee size</td>
<td>Unpredictability</td>
</tr>
</tbody>
</table>
Average Annual Premiums for Single and Family Coverage, 1999-2016

* Estimate is statistically different from estimate for the previous year shown (p < .05).


Based on the 2016 Kaiser Family Foundation Employer Health Benefits Survey
ACA’s Impact on Costs to Employers

• Expanded fees and taxes
  • Health Insurer Tax, Transitional Reinsurance, Excise Tax

• Expansion of covered lives
  • Definition of full-time coverage, individual mandate, dependents to age 26

• Expansion of covered benefits
  • EHB’s, preventive services at 100%, removal of annual and lifetime maximums
Self-Funding is Growing

Percentage of Workers Covered Under a Self-Insured Plan

Based on Kaiser Family Foundation 2015 Health Benefits Survey
## Self-Insured by Employer Size

**Percentage of Employers Insuring or Self-Insuring**

<table>
<thead>
<tr>
<th>Size</th>
<th>Insured</th>
<th>Self-Insured</th>
</tr>
</thead>
<tbody>
<tr>
<td>500-999</td>
<td>40%</td>
<td>60%</td>
</tr>
<tr>
<td>1,000 – 4,999</td>
<td>20%</td>
<td>80%</td>
</tr>
<tr>
<td>5,000 – 9,999</td>
<td>8%</td>
<td>92%</td>
</tr>
<tr>
<td>10,000 – 19,999</td>
<td>5%</td>
<td>95%</td>
</tr>
<tr>
<td>20,000 +</td>
<td>3%</td>
<td>97%</td>
</tr>
<tr>
<td>All Employers</td>
<td>83%</td>
<td>17%</td>
</tr>
<tr>
<td>Small Employers</td>
<td>85%</td>
<td>15%</td>
</tr>
</tbody>
</table>

*Based on Mercer’s 2015 survey of employer sponsored plans*
Employer Stop Loss Market

• Market size is approximately $15B and expected to grow
• Growth from increased prevalence of self-funding, leveraged trend, and high cost claims expanding insurance needs
• Attracting new entrants
  • Guardian Life, Berkshire Hathaway, Liberty Mutual, Unum
• Mergers/Acquisition activity
  • Sumitomo/Symetra, Tokio Marine/HCC Life, Swiss/IHC
• Profitability ranges from 8%-12%
  • Fully insured: 2-4%
  • ASO: 8-10% (on a smaller base)
  • Life/disability: 3-4%
• Loss ratios from 70%-80% (net of commissions)
Carrier Landscape

• Carriers that write stop loss
  • Traditional health plans (Aetna, Anthem, Blues, Cigna, UHC, Humana)
  • Third party specialty carriers (Sun Life, Tokio Marine HCC Life, Symetra, Voya, Swiss Re)
  • MGU markets (Gerber, Everest, Transamerica, Companion)
• Market is split 50/50 between health plans and third party/MGU
• Mostly specialty life and property/casualty insurers
• 50-60 carriers (inclusive of all Blues plan)
## Top Ten Carriers – Highest Premium

<table>
<thead>
<tr>
<th>Carrier</th>
<th>Premium*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cigna</td>
<td>$ 3.1 B</td>
</tr>
<tr>
<td>Sun Life</td>
<td>$ 1.2 B</td>
</tr>
<tr>
<td>Tokio Marine HCC</td>
<td>$ 907 M</td>
</tr>
<tr>
<td>Voya Financial</td>
<td>$ 858 M</td>
</tr>
<tr>
<td>HM Insurance Group</td>
<td>$ 837 M</td>
</tr>
<tr>
<td>Symetra</td>
<td>$ 728 M</td>
</tr>
<tr>
<td>Companion Life</td>
<td>$ 440 M</td>
</tr>
<tr>
<td>Swiss Re</td>
<td>$ 324 M</td>
</tr>
<tr>
<td>AIG</td>
<td>$ 302 M</td>
</tr>
<tr>
<td>U.S. Fire Insurance Company</td>
<td>$ 200 M</td>
</tr>
</tbody>
</table>

## Distribution of Premium by Employer Size

<table>
<thead>
<tr>
<th>Deductible</th>
<th>3rd Party</th>
<th>Health Plans</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;250</td>
<td>34%</td>
<td>40%</td>
<td>37%</td>
</tr>
<tr>
<td>251 - 500</td>
<td>19%</td>
<td>18%</td>
<td>18%</td>
</tr>
<tr>
<td>501 - 1,000</td>
<td>17%</td>
<td>15%</td>
<td>16%</td>
</tr>
<tr>
<td>1,001 - 2,500</td>
<td>17%</td>
<td>11%</td>
<td>14%</td>
</tr>
<tr>
<td>2,501 - 5,000</td>
<td>8%</td>
<td>6%</td>
<td>7%</td>
</tr>
<tr>
<td>5,001 - 10,000</td>
<td>4%</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>10,001 - 20,000</td>
<td>1%</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td>20,001 +</td>
<td>0%</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Based on Milliman’s 2016 Employer Stop Loss Survey
### Distribution of Anniversary Month

<table>
<thead>
<tr>
<th>Month</th>
<th>3rd Party</th>
<th>Health Plans</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>60%</td>
<td>54%</td>
<td>56%</td>
</tr>
<tr>
<td>February</td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>March</td>
<td>2%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>April</td>
<td>3%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>May</td>
<td>2%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>June</td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>July</td>
<td>10%</td>
<td>14%</td>
<td>13%</td>
</tr>
<tr>
<td>August</td>
<td>3%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>September</td>
<td>3%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>October</td>
<td>7%</td>
<td>5%</td>
<td>6%</td>
</tr>
<tr>
<td>November</td>
<td>3%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>December</td>
<td>2%</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

*Based on Milliman’s 2016 Employer Stop Loss Survey*
## Distribution of Premium

<table>
<thead>
<tr>
<th>Deductible</th>
<th>3rd Party</th>
<th>Health Plans</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;$75,000</td>
<td>26%</td>
<td>36%</td>
<td>31%</td>
</tr>
<tr>
<td>$75,001 - $150,000</td>
<td>30%</td>
<td>30%</td>
<td>30%</td>
</tr>
<tr>
<td>$150,001 - $250,000</td>
<td>22%</td>
<td>19%</td>
<td>20%</td>
</tr>
<tr>
<td>$250,001 - $500,000</td>
<td>19%</td>
<td>14%</td>
<td>16%</td>
</tr>
<tr>
<td>$500,001 - $750,000</td>
<td>2%</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>$750,001 - $1,000,000</td>
<td>2%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>$1M+</td>
<td>0%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Based on Milliman’s 2016 Employer Stop Loss Survey
## Employers who Purchase Stop Loss

<table>
<thead>
<tr>
<th>Size</th>
<th>w/ stop loss</th>
<th>w/o stop loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>500-999</td>
<td>97%</td>
<td>3%</td>
</tr>
<tr>
<td>1,000 – 4,999</td>
<td>84%</td>
<td>16%</td>
</tr>
<tr>
<td>5,000 – 9,999</td>
<td>71%</td>
<td>29%</td>
</tr>
<tr>
<td>10,000 – 19,999</td>
<td>61%</td>
<td>39%</td>
</tr>
<tr>
<td>20,000 +</td>
<td>38%</td>
<td>62%</td>
</tr>
<tr>
<td>All Employers</td>
<td>67%</td>
<td>33%</td>
</tr>
<tr>
<td>Small Employers</td>
<td>63%</td>
<td>38%</td>
</tr>
</tbody>
</table>

Based on Mercer’s 2015 survey of employer sponsored plans
What do employers care about

• Price
• Carrier’s ability to pay claims
• Product features
• Fair renewals
Product Features

- Plan mirroring
- Rate caps
- Lasers / no-new lasers
- Specific/aggregate advance
- Dividend/experience-rated refunds
  - Single case
  - Pooled by broker
Carve In vs Carve Out

Advantages

• Easy for the employer
• Cash flow protection
• Less gaps in coverage
• No reimbursement filing requirements

Disadvantages

• Less product features
• Underwriting driven by manuals
  • could be considered a benefit
• Limited to covering claims paid by own plan
Stop Loss 101

Mark Allyn, FSA, MAAA
Tokio Marine - HCC Life Stop Loss Group
Two Forms of Stop Loss Coverage

Claim Liability – Employer vs. Stop Loss Carrier

Stop Loss Carrier Liability

Employer Liability

Aggregate Stop Loss

<table>
<thead>
<tr>
<th>Damage Limit</th>
<th>Employer Liability</th>
<th>Stop Loss Carrier Liability</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0 – $1,750,000</td>
<td>$2,187,500 up to</td>
<td></td>
</tr>
<tr>
<td>$1,750,000</td>
<td>$2,187,500</td>
<td>&gt; $2,187,500</td>
</tr>
</tbody>
</table>

Specific (Individual) Stop Loss

($ per Person)
Specific (Individual Coverage)

- Reduces the employer’s exposure to high-cost individuals
- Employer pays all claims for each individual
- Stop loss carrier reimburses the employer for claims on individuals whose annual eligible expense has exceeded the specific deductible
- At each contract renewal, each individual will be subject to a new specific deductible
Specific (Individual) Coverage

Example

- Jane Smith suffers from renal failure and undergoes kidney dialysis. Her claims total $300,000. Jane’s employer is self-funded, but has purchased specific stop loss with a $75,000 deductible.

- **Total Claim:** $300,000
- **Employer Deductible:** $75,000

- **Amount reimbursed by Stop Loss Carrier:** $225,000
Specific Stop Loss Guidelines

Appropriate Specific Deductible

• Risk factor is the relationship between the specific amount and expected paid claims.

• Employer tolerance for risk

• Group size

• 5% to 15% of expected paid claims is a popular benchmark
Specific Rate Calculation

Specific Rates are based on actuarial data and the individual group characteristics listed below. This rate is commonly referred to as the “manual rate.”

- Geographic location
- Industry
- Demographic (age / gender) make up
- Deductible level
- Managed care network being utilized

The underwriter takes the “manual rates” and loads or discounts the rates based on:

- Claim history
- Projected large claims
- Changes to the plan
Aggregate Coverage

Reduces the employer’s exposure to high levels of claim utilization on the group as a whole, rather than specific individuals.

- The stop loss carrier reimburses the self-funded employer for all eligible claims that exceed the aggregate deductible.

- Claims in excess of the specific deductible are removed from the claims that apply toward the aggregate deductible.

- At each contract renewal, claims accumulations will be subject to a new aggregate deductible.
Aggregate Coverage

- Aggregate coverage is typically offered at 125% of the expected claims
- Aggregate coverage can also cover Rx, Dental and Vision claims
- Aggregate coverage typically will not be sold alone
  - Aggregate coverage does not provide “catastrophic” coverage
  - Specific “protects” the Aggregate
Aggregate Experience and Credibility

- Group’s actual claim experience and manual ratings are “blended,” depending on the amount of credible experience available.

- This figure is considered “expected claims.”

- A “corridor” is added, creating the annual aggregate deductible.

- The corridor is the margin or cushion the underwriter includes to limit the frequency and severity of aggregate claims.

- The industry standard for the aggregate corridor is 125%.

- By design, groups should not have aggregate claims, except in years of extreme changes in payment patterns or large changes in utilization.
Aggregate Attachment Point Calculation

Step 1: Paid Claims for the Policy Period
Step 2: Less Specific Claim Reimbursements
Step 3: = Net Paid Claims
Step 4: X Trend Factor
Step 5: X Plan Adjustments
Step 6: X Contract Adjustment
Step 7: X Corridor (Normally 125%)
Step 8: = Final Experience Composite

Aggregate Attachment Point is a blend of Experience and Manual Composite x number of employees.
Two Important Definitions

**Paid**
- Charges that, as of the dates shown in the contract basis, are:
  1. Covered and payable under your employee benefit plan, and
  2. Have been adjudicated and approved, and
  3. A check or draft for remuneration is issued and deposited in the U.S. mail, or other similar conveyance or is otherwise delivered to the payee, and
  4. Sufficient funds are on deposit the date the check or draft is issued

**Incurred**
- The date on which medical care or a service or supply is provided to a covered person for plan benefits under the employee benefit plan for which a charge results.
• Incurred in 12 and Paid in 15 (12/15) - Eligible claims must be incurred during the contract period and paid within the contract period or the three months immediately following.
  • This is an abbreviated version of the “true incurred” contract.
  • Variations include 12/18 and 12/24 contracts.
• Incurred and Paid (12/12) - Eligible claims must be incurred \textit{and} paid within the policy year. For renewal years, the contract will convert to a paid contract and the claims will be eligible under the renewal contract regardless of the date incurred, as long as it was incurred on or after the initial effective date of the contract.

• This is an appropriate first-year contract type for a group that is currently fully-insured or a group that is self-funded and the policy has a run-out provision.
Paid Contract

- Paid - On renewal, a 12/12 or 15/12 contract becomes a paid contract. Claims will be eligible under the renewal contract regardless of the date incurred, as long as it was incurred on or after the initial effective date of the employer’s self-funded plan.

- This is appropriate for renewal contracts that started out as 12/12 or 15/12 contracts.
15/12 Contract

- Run-In (15/12) - Claims incurred up to 90 days before the effective date and paid during the first contract period will be eligible under the policy. For renewal years, the contract will convert to a paid contract.

- This is appropriate for a group that is currently self-funded with no run-out provision, but is new to the carrier.
## Excess Layers

<table>
<thead>
<tr>
<th>Layers</th>
<th>Excess Claim% by Effective Year</th>
<th>4 Year Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2013</td>
<td>2014</td>
</tr>
<tr>
<td>1 - $25,000</td>
<td>5.13%</td>
<td>4.41%</td>
</tr>
<tr>
<td>$25,001 - $50,000</td>
<td>8.25%</td>
<td>7.32%</td>
</tr>
<tr>
<td>$50,001 - $75,000</td>
<td>7.49%</td>
<td>7.57%</td>
</tr>
<tr>
<td>$75,001 - $100,000</td>
<td>7.17%</td>
<td>6.85%</td>
</tr>
<tr>
<td>$100,001-$150,000</td>
<td>12.61%</td>
<td>12.08%</td>
</tr>
<tr>
<td>$150,001-$200,000</td>
<td>9.46%</td>
<td>10.00%</td>
</tr>
<tr>
<td>$200,001-$500,000</td>
<td>30.21%</td>
<td>29.04%</td>
</tr>
<tr>
<td>$500,001 - $750,000</td>
<td>9.08%</td>
<td>9.22%</td>
</tr>
<tr>
<td>$750,001 - $1,000,000</td>
<td>4.70%</td>
<td>4.93%</td>
</tr>
<tr>
<td>$1,000,01 - $1,500,000</td>
<td>3.28%</td>
<td>3.85%</td>
</tr>
<tr>
<td>$1,500,01 - $2,000,000</td>
<td>2.63%</td>
<td>3.14%</td>
</tr>
<tr>
<td>$2,000,01 plus</td>
<td>0.00%</td>
<td>1.59%</td>
</tr>
</tbody>
</table>
Incurred Claims of $200,001 - $500,000

Number of Claimants

543 601 677 624 630

Incurred Amounts (in millions)

$165.5 $182.2 $202.4 $189.0 $194.5
In incurred claims of $500,001 - $1,000,000:

- **Number of Claimants:**
  - 2012: 113
  - 2013: 125
  - 2014: 146
  - 2015: 141
  - 2016: 126

- **Inured Amounts (in millions):**
  - 2012: $75.0
  - 2013: $83.0
  - 2014: $98.1
  - 2015: $95.9
  - 2016: $87.7
Incurred Claims in Excess of $1,000,000

Number of Claimants:
- 2012: 25
- 2013: 25
- 2014: 41
- 2015: 31
- 2016: 39

Incurred Amounts (in millions):
- 2012: $33.3
- 2013: $35.6
- 2014: $62.5
- 2015: $47.6
- 2016: $57.8
# Average Paid Claims 2011 - 2015

<table>
<thead>
<tr>
<th>% of $</th>
<th>Diagnosis</th>
<th>2011</th>
<th>→</th>
<th>2012</th>
<th>→</th>
<th>2013</th>
<th>→</th>
<th>2014</th>
<th>→</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>30%</td>
<td>Cancer</td>
<td>$200,666</td>
<td>10.7%</td>
<td>$222,199</td>
<td>5.3%</td>
<td>$233,922</td>
<td>5.2%</td>
<td>$245,994</td>
<td>0.1%</td>
<td>$246,294</td>
</tr>
<tr>
<td>15%</td>
<td>Cardiovascular</td>
<td>$150,459</td>
<td>11.3%</td>
<td>$167,527</td>
<td>5.5%</td>
<td>$176,745</td>
<td>0.0%</td>
<td>$176,370</td>
<td>4.4%</td>
<td>$184,191</td>
</tr>
<tr>
<td>7%</td>
<td>Neonatal</td>
<td>$271,835</td>
<td>7.1%</td>
<td>$291,087</td>
<td>9.3%</td>
<td>$318,263</td>
<td>5.0%</td>
<td>$334,196</td>
<td>-2.1%</td>
<td>$327,037</td>
</tr>
<tr>
<td>7%</td>
<td>Musculoskeletal</td>
<td>$102,860</td>
<td>0.7%</td>
<td>$103,618</td>
<td>10.9%</td>
<td>$114,938</td>
<td>-2.1%</td>
<td>$112,494</td>
<td>-1.9%</td>
<td>$110,359</td>
</tr>
<tr>
<td>6%</td>
<td>Renal Failure</td>
<td>$266,687</td>
<td>10.8%</td>
<td>$295,493</td>
<td>3.1%</td>
<td>$304,723</td>
<td>8.1%</td>
<td>$329,393</td>
<td>-2.2%</td>
<td>$322,166</td>
</tr>
<tr>
<td>35%</td>
<td>All Other</td>
<td>$141,210</td>
<td>6.6%</td>
<td>$150,587</td>
<td>5.0%</td>
<td>$158,104</td>
<td>14.5%</td>
<td>$181,012</td>
<td>-3.1%</td>
<td>$175,446</td>
</tr>
<tr>
<td>100%</td>
<td>Total Average</td>
<td>$162,159</td>
<td>9.1%</td>
<td>$176,879</td>
<td>5.9%</td>
<td>$187,317</td>
<td>8.1%</td>
<td>$202,485</td>
<td>-1.8%</td>
<td>$198,857</td>
</tr>
</tbody>
</table>
# Largest Paid Claims 2011 - 2015

<table>
<thead>
<tr>
<th>Year</th>
<th>Diagnosis</th>
<th>Paid Amount</th>
<th>Stop Loss Reimbursement</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>428.0: Congestive heart failure, unspecified</td>
<td>$4.5M</td>
<td>$3.8M</td>
</tr>
<tr>
<td>2015</td>
<td>518.81: Acute respiratory failure</td>
<td>$4.4M</td>
<td>$3.9M</td>
</tr>
<tr>
<td>2015</td>
<td>482.83: Pneumonia due to other gram-negative bacteria</td>
<td>$3.6M</td>
<td>$1.1M</td>
</tr>
<tr>
<td>2015</td>
<td>996.85: Complications of transplanted bone marrow</td>
<td>$3.5M</td>
<td>$3.3M</td>
</tr>
<tr>
<td>2014</td>
<td>204.00: Acute lymphoid leukemia, without mention of having achieved remission</td>
<td>$3.4M</td>
<td>$2.9M</td>
</tr>
<tr>
<td>2015</td>
<td>205.80: Other myeloid leukemia, without mention of having achieved remission</td>
<td>$3.1M</td>
<td>$2.8M</td>
</tr>
<tr>
<td>2012</td>
<td>204.00: Acute lymphoid leukemia, without mention of having achieved remission</td>
<td>$3.0M</td>
<td>$1.0M</td>
</tr>
<tr>
<td>2015</td>
<td>746.7: Hypoplastic left heart syndrome</td>
<td>$3.0M</td>
<td>$2.9M</td>
</tr>
<tr>
<td>2014</td>
<td>287.1: Qualitative platelet defects</td>
<td>$3.0M</td>
<td>$1.2M</td>
</tr>
<tr>
<td>2012</td>
<td>765.02: Extreme immaturity, 500-749 grams</td>
<td>$2.9M</td>
<td>$2.3M</td>
</tr>
</tbody>
</table>
Reinsurance 101

Yang Hu, ASA, MAAA
Swiss Re America Holding Corporation
Employer Stop Loss Reinsurance
Products and Pricing Considerations

**ESL Quota Share Reinsurance**

- Takes a fixed percent of both premium and claim liability from the ceding carrier for both specific and aggregate segments, and pays a ceding commission.

- Setting up best-estimate loss ratio for the stop loss program is key.

- Program average SIR, leveraged trend, historical loss ratio, rate increase.

**ESL Excess Reinsurance**

- Reimburses the carrier for individual claims which exceed the reinsurance deductible.

- Usually high excess - $1M, $2M, etc.

- Similar pricing methodology involving manual rating, experience rating, and credibility weighting.

- Understanding of catastrophic claim trends is key.
Catastrophic Claims
Frequency & Severity

Historical Catastrophic Frequency & Severity *

$1,000,000 Deductible (severity amounts in excess)

<table>
<thead>
<tr>
<th>Year</th>
<th>Severity</th>
<th>Frequency (per 10,000 EEs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>$458,000</td>
<td>0.49</td>
</tr>
<tr>
<td>2012</td>
<td>$493,000</td>
<td>0.59</td>
</tr>
<tr>
<td>2013</td>
<td>$461,000</td>
<td>0.72</td>
</tr>
<tr>
<td>2014</td>
<td>$573,000</td>
<td>0.78</td>
</tr>
<tr>
<td>2015</td>
<td>$543,000</td>
<td>0.95</td>
</tr>
</tbody>
</table>

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## Catastrophic Claims
### Frequency & Severity

Number of Claimants Per 10 Million Employee Lives *

<table>
<thead>
<tr>
<th>Size</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1M-$1.5M</td>
<td>344</td>
<td>408</td>
<td>508</td>
<td>536</td>
<td>626</td>
</tr>
<tr>
<td>$1.5M-$2M</td>
<td>86</td>
<td>112</td>
<td>120</td>
<td>134</td>
<td>190</td>
</tr>
<tr>
<td>$2M-$3M</td>
<td>44</td>
<td>52</td>
<td>68</td>
<td>74</td>
<td>98</td>
</tr>
<tr>
<td>&gt;$3M</td>
<td>14</td>
<td>26</td>
<td>20</td>
<td>40</td>
<td>42</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>488</td>
<td>598</td>
<td>716</td>
<td>784</td>
<td>956</td>
</tr>
</tbody>
</table>

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### Catastrophic Claims
**Top 5 Catastrophic Conditions**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Medical condition</th>
<th>Frequency per 10k employee lives</th>
<th>Average severity in excess</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Premature birth</td>
<td>0.14</td>
<td>$547,000</td>
</tr>
<tr>
<td>2</td>
<td>Leukemia</td>
<td>0.08</td>
<td>$589,000</td>
</tr>
<tr>
<td>3</td>
<td>Sepsis</td>
<td>0.05</td>
<td>$524,000</td>
</tr>
<tr>
<td>4</td>
<td>Congestive heart failure</td>
<td>0.05</td>
<td>$565,000</td>
</tr>
<tr>
<td>5</td>
<td>Malignant neoplasm</td>
<td>0.04</td>
<td>$367,000</td>
</tr>
</tbody>
</table>

Lately we also observe rising frequency of high claims from Hemophilia and HAE (Hereditary angioedema)

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Market Trends
Historical nationwide base trend (various sources)
Base Trend - Projected

Projected nationwide base trend (various sources)

Trend

- Study A
- Study B
- Study C
- Study D
- Study E
- Average


0.0% 5.0% 10.0%
Trend
Base Trend – Interpretations

Historical base trend 2011-2015

Based on various sources:
- Approach and methodology varies by study provider, resulting in different values
- Some studies evaluate cost for a typical American family covered by a PPO plan, whereas others focus on large employer plans premium increase
- Consensus on 2013-2014 showing the lowest trend
- Generally in the neighborhood of 5%-8%

Projected trend 2016/2017

Future is always difficult to predict

- Different views on how base trend will end up in 2016/2017
- All studies show no significant change in 2017

Drill deeper...

Trend by service type:
Assume all-service average trend 6%:
- Inpatient: 5%
- Outpatient: 6%
- Rx: 11%
- Professional: 4%

Trend by component:
- Utilization trend: 1%
- Unit cost trend: 5%
Trend
Prescription Drug Trend

Prescription Drug Trend 2011-2017*

* Source: Express Scripts 2011-2016 Drug Trend Reports. See appendix for more details.
Why is it so important?

- Prescription drug cost represents 15%-20% of total ground-up healthcare cost and keeps increasing.
- Specialty drug cost represents more than 40% of total drug cost on net basis, also increasing.
- Game changing story: 84 pills alone could breach the specific SIR

Trend
Leveraged Trend – Illustration

- **Base trend:**
  - $100,000 -> $110,000: 10%
- **Leveraged trend at $50k SIR:**
  - $50,000 -> $60,000: 20%

**Leveraged trend by deductible:**
- $100,000: 14%
- $250,000: 15%
- $1,000,000: 22%

*Based on average of Swiss Re manuals and Truven 2011-2015 data*

- May not be apparent in a short time frame due to higher volatility of excess experience
- Key assumption in stop loss pricing: can be used to determine the “required rate increase” when target loss ratio is set
- Horror story in the late 90s: 50% leveraged trend?

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Trend
Large-claim Ground-up Trend

Large-claim Trend (by threshold) *

- This is a different measure versus traditional base trend or leveraged trend
- Focus only on high-cost claims (meeting defined threshold), but unlike leveraged trend, we look at the whole ground-up paid amount instead of excess amount

- Describe the cost increase due to “severe” claims on a ground-up basis
- Question: should we apply the large-claim trend in experience rating instead of the traditional base trend?

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# Laser

**Definition**

<table>
<thead>
<tr>
<th>Lasering - addressing the “Known Knowns”</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Isolate specific individual having “known” serious ongoing condition, and exclude or adjust the stop loss coverage for such individual.</td>
</tr>
<tr>
<td>• Usually place a higher specific deductible, which is the estimated cost of treating such condition during the coverage period.</td>
</tr>
<tr>
<td>• Commonly accepted practice, as reflects the intent of self-funding - retaining “known” risks.</td>
</tr>
</tbody>
</table>

- **Employer** - Save on expenses and commissions. Lower foundation for future rate increase. May work favorably if claim discontinues.
- **Carriers** - Careful analysis needed to set the appropriate laser point and reduced premium.
**Laser Facts**

### Classic laser conditions
- Breast cancer
- Colon cancer
- Premature baby
- Acute lymphoid leukemia without remission
- End stage renal disease
- Organ transplant
- Hemophilia
- ...

### Case Example: Hemophilia*

<table>
<thead>
<tr>
<th>Year</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>- 3,293 Hemophiliac claimant identified in 2014 data</td>
</tr>
<tr>
<td></td>
<td>- Claim cost average: $255,000</td>
</tr>
<tr>
<td>2015</td>
<td>- 1,017 patients still exist in the data pool</td>
</tr>
<tr>
<td></td>
<td>- Claim cost average: $295,000</td>
</tr>
<tr>
<td></td>
<td>- Claim cost median: $182,000</td>
</tr>
</tbody>
</table>

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Alternatives to laser include Aggregating Specific Deductible (ASD), etc.
DC think tanks (urban Institute, Commonwealth Fund, NAIC Consumer Advocates) are promoting a concept that unless prohibited or strictly controlled, small employers ability to self-fund will create adverse selection for the Marketplace.

The Arguments:
• Stop loss has widespread availability in the small group market. *Is it easy to get stop loss quotes on non-credible groups with no experience?*

• Stop loss will cherry pick the best small groups and leave high risk populations in the Marketplaces. *Are young groups the best catastrophic risk?*

• Self-funded plans are not subject to all the requirements of the ACA. *Minimum loss ratios, rate bands, guarantee issue, etc.?*

• Self funded plans will be forced into Marketplaces if their risk profile deteriorates. *Do employers have issues funding run out and health insurance at the same time?*
NAIC:

Numerous states have some form of minimum stop loss regulation. Three have the NAIC model.

To address the adverse selection issue with small groups, and as a way to gain more jurisdiction, NAIC attempted to update the 1994 Stop Loss Model Act to include the following:

- 20,000 minimum specific
- 51 employees + 100% corridor
- 50 employees or less, > of $4,000/employee, 120% corridor or $20,000

NAIC’s ERISA B working group had the actuarial task force, a subgroup of the ERISA B group, contract Milliman to update the original actuarial study and add 18 years of medical trend without regard for any new or additional considerations.

The Milliman study reflected a new minimum specific of $60,000 and 130% aggregate corridor.

NAIC ERISA B working group voted 10 to 8 to *not* adopt the new stop loss minimums.
Regulation of Small Group Market

Small Group market definition increases from 50 ees and less to 100 ees and less starting January 1, 2016.

State provided waiver to move small group back down to 50 or keep at 100.

California passed bill at 35K spec minimum and increasing to $40K in 2016 for all small groups.

New York currently does not allow stop loss policies to be sold to small groups. In 2016 employers between 50 and 100 lives lost ability to self fund but 2 year extension for current self funded accounts is in place for now.

Maryland House Bill increased minimum spec to $40K. Along with other market reforms.

Utah passed a bill requiring 10,000 specific and 90% corridor, but also had additional rules to “protect” small group market.

Multiple other states considering changes and modifications.
Industry Trends

Interest in stop loss captives on steady rise.

Two approaches
1. The turnkey captive approach is a producer controlled model that targets pool risk among controlled population.
2. The small group approach is when a captive manager is contracted to pool small groups from fully insured to self-funded with captive.

Alternative to “spaggregate” products for small group approach with an extreme risk as product has ability to be considered health insurance under ACA and state regulation

Interest will continue to grow in Captives

New market entry point for captive managers who mainly have a background in worker’s compensation.
Questions?

Mark Allyn - mallyn@tmhcc.com - 770-693-6565
Mehb Khoja – mehb.Khoja@milliman.com – 312-499-5758
Yang Hu - yang_hu@swissre.com – 914-828-4090