

# Aggregate-only stop-loss

## A potential alternative to traditional stop-loss

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Based on our analysis, employers of various size could expect lower total medical spending, on average, by purchasing aggregate-only stop-loss in place of traditional specific plus aggregate coverage. Furthermore, the "extreme" outcomes an employer would occasionally experience that are due to high costs are less extreme under an aggregate-only stop-loss structure.

This study was originally prepared at the request and for the benefit of Cigna Stop Loss for the purpose of identifying cost-effective coverage options for its policyholders.

## Background

The employer stop-loss insurance market is a \$14 billion to \$17 billion industry that allows employers choosing to self-fund their healthcare costs to partially mitigate the risk of unexpectedly high medical costs.

There are two principal types of stop-loss, specific and aggregate. Specific—also known as "individual"—stop-loss is a member-level coverage that reimburses a portion of each member's costs in excess of a prescribed deductible. Aggregate stop-loss, on the other hand, reimburses groups when the total claims cost for the group exceeds a certain threshold, usually denoted as a proportion of expected costs. While aggregate more directly addresses a group's overall risk, individual has historically been characterized as the more insurable risk and, therefore, represents a majority of stop-loss premium. In fact, many carriers offer aggregate policies only as a bundled complement to specific policies, with the aggregate premium and recoveries typically representing a fraction of the specific. According to the Kaiser Family Foundation Employer Health Benefits Survey, companies that purchase aggregate-only stop-loss represent just 3% of workers among firms that purchase stop-loss.<sup>1</sup>

Throughout this paper, the combination of specific plus aggregate stop-loss will be referred to as "traditional" stop-loss.

## BRIEF HISTORY OF AGGREGATE-ONLY STOP-LOSS

As stated above, aggregate-only coverage makes up a small part of the overall stop-loss market. We believe there are several reasons for this. In our view, some of these reasons are legitimate obstacles to overcome. Others are driven by misconceptions about how aggregate-only coverage must be designed.

- Aggregate stop-loss is generally sold as a complement to specific coverage, with the specific coverage absorbing a majority of the employer's risk. As a result, aggregate stop-loss in its common form is a relatively low-premium, low-value policy. If aggregate-only premium were limited to current aggregate stop-loss per employee per month (PEPM) levels, there wouldn't be sufficient premium to sustain a stop-loss portfolio.
- As a low-premium, low-value product, aggregate stop-loss loss ratios can be very volatile. One misstep in aggregate underwriting can cost a carrier a substantial portion of its aggregate premium.
- In the late 1990s, the stop-loss industry saw net loss ratios of 110% to 130%. These loss ratios were driven, in large part, by overly aggressive aggregate stop-loss underwriting.
- Some states have minimum limits on aggregate stop-loss corridors that require aggregate stop-loss to remain a low-premium product.
- Employers may be overly concerned about "shock" losses from very large claimants. These employers may not recognize that an aggregate-only policy would still provide protection if that large claimant led to overall costs that were significantly higher than expected.

## Methodology

To evaluate the difference between aggregate-only stop-loss and traditional stop-loss from the employer's point of view, we used simulation techniques to compare total employer expenditures under both structures. To do this, we replicated each component of an employer's medical spending for a large number of randomly generated groups. The replicated components include:

<sup>1</sup> Kaiser/HRET Survey of Employer-Sponsored Health Benefits, 2016.

*This document was sponsored and commissioned by Cigna*

- Self-funded medical and pharmacy claims
- Stop-loss premium
- Stop-loss reimbursements

Using a total of three years of data, we used the first two years of claims experience to set underwriting expectations, then estimated each component of employer medical spend in the third year. Following are the steps we used to generate our results. While these steps are a simplification of stop-loss underwriting, we believe they represent a reasonable approximation of high-level stop-loss underwriting and pricing concepts.

#### CREATION OF SIMULATED EMPLOYER GROUPS

Using a large (40 million members) internal database that consists of data from many contributing payers (i.e., insurers and third-party administrators), we compiled member-level medical and pharmacy claims and exposure data for calendar years 2013 to 2015. To ensure reasonable member turnover, we excluded any contributing payer that was added or dropped during the period.

Using this database of members, a large number of coverage “groups” was simulated. We created and separately analyzed groups of three different sizes: 200 employees (small), 500 employees (midsize), and 1,000 employees (large). To ensure credibility of the results, we generated just over 2,000 large groups, over 4,000 midsize groups, and over 10,000 small groups.

#### SUMMARY OF GROUP RESULTS

For each simulated group and each of the three calendar years (2013-2015), we calculated various metrics, including:

- Ground-up (or “first dollar”) claims costs
- Total membership
- Specific stop-loss recoveries, where the assumed deductible increased with group size.
  - \$75,000 for small groups
  - \$200,000 for midsize
  - \$350,000 for large groups

#### CALCULATION OF AGGREGATE STOP-LOSS REIMBURSEMENT

To determine aggregate stop-loss reimbursement, it was necessary to calculate a reasonable attachment point for the third year, then compare that attachment point against actual costs in the third year.

Each group’s first two years’ medical/pharmacy costs were trended to third-year cost levels based on trends observed in the data. The two years’ trended amounts were blended together to

develop an expected claims amount for the third year. To ensure that any findings were not a result of trend discrepancies, we validated that the total of expected third year claims across all groups was equal to total actual third year claims.

For aggregate-only, the attachment point was set at 110% of expected claims. For the aggregate portion of traditional stop-loss it was set at 125% of expected claims under the specific deductible. No further adjustments were made to replicate the effect of underwriting decisions.

Aggregate reimbursement was calculated as the greater of zero and:

*Actual costs - specific stop loss recoveries - attachment point*

#### CALCULATION OF STOP-LOSS PREMIUM

Total premium for each type of stop-loss (traditional specific, traditional aggregate, and aggregate-only) was calculated such that premium for each group size would achieve a specified target loss ratio.

- A 70% loss ratio was targeted for the specific portion of traditional specific plus aggregate stop-loss
- A 30% loss ratio was targeted for the aggregate portion of traditional stop-loss
- A 55% loss ratio was targeted for aggregate-only stop loss
  - The 55% loss ratio chosen for aggregate-only is significantly lower than the implied overall loss ratio of specific plus aggregate of 69%
  - It is likely that agg-only would be priced at a lower loss ratio to compensate for the reduced premium carriers would collect for agg-only,
  - The selection of 55% is not intended to imply that carriers would, or should, target 55% for aggregate-only policies

Total specific premium was allocated to individual groups based on expected ground-up claims as described above. This approach oversimplifies the true stop-loss rating process, and wouldn’t be our preferred approach for underwriting a single group. However, we believe it should be a reasonable approximation of the premium differential between high-cost and low-cost groups for a simulation analysis involving a large number of groups.

Total aggregate premium (both traditional and aggregate-only) was set equal to calculated aggregate claims divided by the target loss ratio. The resulting premium was allocated to each group proportional to the calculated attachment point. As an example, for “small” groups:

- Aggregate-only premium was set equal to 8.44% of (expected claims x 110%)

- Aggregate premium under traditional coverage was set equal to 0.45% of ([expected claims - expected specific stop loss reimbursement] x 125%)

Calculating premium in this way resulted in aggregate-only premium 30 to 100 times as high as the aggregate premium under a traditional specific plus aggregate policy, depending upon the group size. However, the aggregate-only premium was still substantially lower than that calculated for specific plus aggregate.

#### CALCULATION OF GROUP EXPENDITURES

For each simulated group, third-year expenditures were calculated as:

- Total medical and pharmacy claims costs, *less*
- Specific stop-loss reimbursements, *less*
- Aggregate stop-loss reimbursements, *plus*
- Stop-loss premium

#### DISTRIBUTION OF RESULTS BY GROUP SIZE

We compiled the results of all groups to produce aggregate distributions for the net cost of both stop-loss options to the group, as well as a distribution of the difference in net cost between the two options.

## Results

To evaluate the difference between an aggregate-only stop-loss policy with a 110% attachment point and traditional stop-loss with specific coverage and a 125% attachment point, we compared the two policy types from two different perspectives.

- Average difference in total group spending (as previously defined) in the third year
- Difference in total group spending in the third year under extreme scenarios

#### AVERAGE DIFFERENCE IN GROUP SPENDING

The distribution of group costs are presented in the table in Figure 1 for each decile of outcomes, where the decile is defined by the difference in total group cost between aggregate-only and individual plus aggregate stop-loss policies. That is, the experience of a group in the first decile is such that it would be harmed the most by purchasing an aggregate-only policy relative to traditional stop-loss. On the other hand, a group in the 10th decile would have seen the most benefit from having an aggregate-only policy.

Total group cost includes ground-up claims experience less stop-loss recoveries plus stop-loss premiums. Our results are summarized in Figure 1. In this table, a positive number indicates aggregate-only coverage would have resulted in lower group costs than traditional stop-loss coverage.

**In our simulations, aggregate-only stop-loss provided a lower expected cost to over 70% of simulated groups, regardless of group size.**

On average, the aggregate-only option has a lower expected cost to the group regardless of group size. The benefits of aggregate-only are not perfectly uniform across all groups, however. In our simulations, aggregate-only stop-loss provided a lower expected cost to 71% of simulated small groups, 67% of midsize, and 68% of large groups.

**FIGURE 1: DECREASE (INCREASE) IN TOTAL GROUP COST MOVING FROM TRADITIONAL SPECIFIC + AGGREGATE TO AGGREGATE-ONLY**

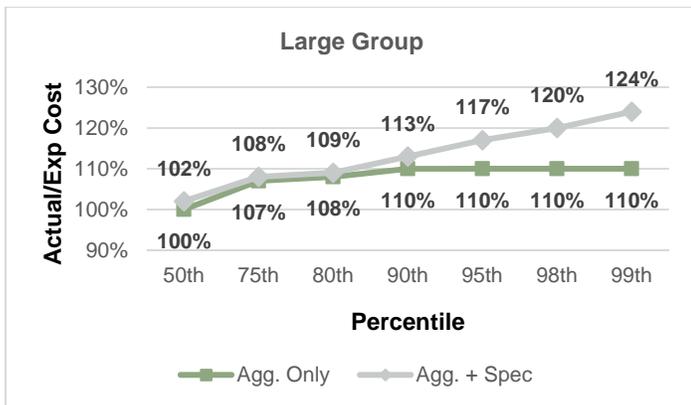
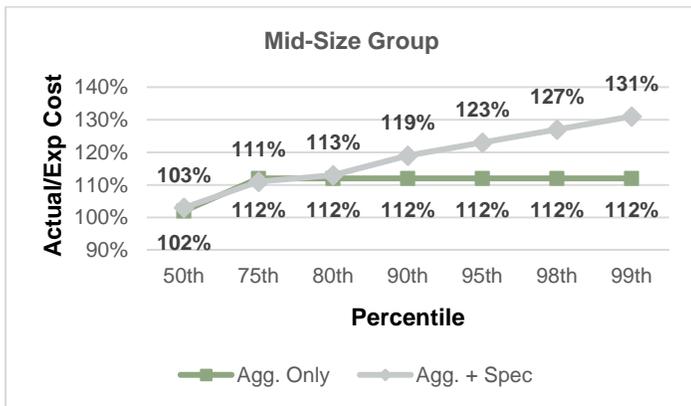
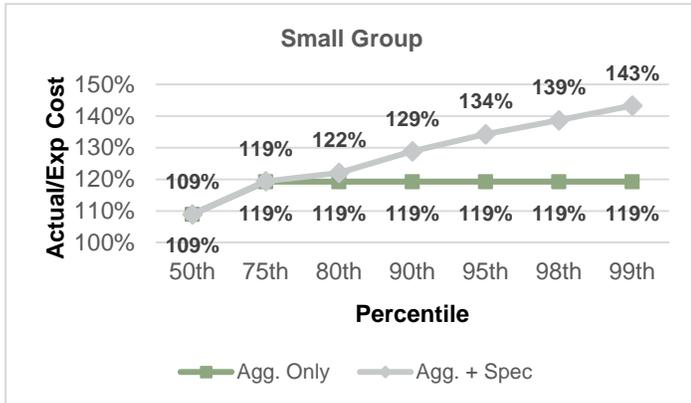
OUTCOME DECILE	SMALL GROUP	MIDSIZE GROUP	LARGE GROUP
1ST	(406,224)	(638,225)	(800,332)
2ND	(126,352)	(220,675)	(272,610)
3RD	(28,891)	(76,332)	(74,576)
4TH	34,705	15,770	33,330
5TH	81,403	86,045	113,076
6TH	121,776	137,165	173,128
7TH	156,100	173,648	199,583
8TH	189,114	195,491	211,032
9TH	225,612	221,475	224,927
10TH	299,902	448,570	553,141
<b>AVERAGE</b>	<b>54,677</b>	<b>34,166</b>	<b>35,777</b>
<b>AS % OF SPEC + AGG PREMIUM</b>	<b>12.0%</b>	<b>8.0%</b>	<b>8.5%</b>

#### ADVERSE OUTCOMES

An important consideration in an employer's selection of aggregate-only coverage would be how the contract protects the employer from the risk of adverse outcomes relative to the employer's expected claims. Figure 2 shows the level of actual costs relative to expected claims groups would experience under aggregate-only and traditional stop-loss policies in bad years, where "bad" is defined as costs, adjusted for stop-loss claims and reimbursements, being higher than the employer's expected medical costs in the absence of stop-loss. The outcomes are presented by percentile with respect to actual total cost to the

group as a percentage of expected costs. For example, under a traditional specific plus aggregate policy, our analysis suggests there is a 1-in-10 chance (i.e., 90th percentile) that a small group's total spending, after accounting for stop-loss premium and reimbursements, would be at least 129% of its expected claims costs.

**FIGURE 2: ACTUAL GROUP COST AS % OF EXPECTED COSTS (CLAIMS + STOP-LOSS PREMIUM - STOP-LOSS REIMBURSEMENT)**



As expected, the tail outcomes under traditional stop-loss become less extreme as group size increases. However, the lower claims corridor of an aggregate-only policy, combined with its lower premium, provides an effective cost “ceiling” for employers. The specific plus aggregate structure allows for more adverse outcomes because:

- It provides less protection on claims below the specific stop-loss deductible with the higher 125% aggregate attachment point
- The relatively high stop-loss premium under the traditional specific plus aggregate structure can increase total cost further if there are no specific stop-loss recoveries to offset the cost of the premium.

The lower corridor and lower premium of aggregate-only policies can provide a lower ceiling on potential costs to the employer.

## Conclusion

Our analysis suggests that aggregate-only stop-loss policies can be beneficial to an employer. This appears to be because these policies can be written at a lower premium without reducing the employer's protection against adverse outcomes in total spending.

In addition to the potential statistical advantages of aggregate-only coverage, the lower attachment point can make it easier for the employer to set its annual healthcare budget at the maximum possible expenditures under the stop-loss contract.

The advantages of aggregate-only policies shown in this paper do not make these policies right for all employers. The methodology in this paper is a simplified version of the stop-loss underwriting process and relies on several key assumptions such as target loss ratio. Employers will need to consider their risk tolerances and the price and availability of aggregate-only policies in the market to determine whether it is the best option. However, our results do show that groups of all sizes should consider aggregate-only coverage as a legitimate alternative to traditional specific plus aggregate coverage.

Aggregate-only policies may pose new challenges to carriers, including:

- The need to update pricing models
- Changes to underwriting philosophy and required data
- Lower overall premium

In spite of these challenges, aggregate-only policies have the potential to present another option for balancing cost with risk mitigation, which could benefit the industry as a whole.



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