2019 Group Long-Term Disability
Experience Study Appendix 4

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Section 1: GLTD Study Exposure Documentation

The details of the exposure calculation have not changed since the Society of Actuaries' Group Long Term Disability (GLTD) Experience Committee defined the method for the development of the GLTD2008 table. Since we continue to use this study to set expectations, we have kept the exposure method constant so that the GLTD2008 table is appropriately applied.

Section 2: Data Fields

The following are the variables used to define the exposures and termination counts

1. Date of Disability

2. Claim Status

3. Termination Date (if closed)

4. Termination Code (reason for term, if closed)

5. Benefit Commencement Date (used for effective elimination period)

6. Claim Maximum Date

In addition, we also define the study begin and ending dates. For this most recent study, we defined these as Study Begin Date: 1/1/2009, Study End Date: 12/31/2017.

Section 3: Monthly Exposure

Each claim is exposed to termination from the later of the Benefit Commencement Date and the Study Begin Date to the earlier of the Termination Date or the Study End Date. If Claim Status is open or if the Termination Date is after the Study End Date, the claim is exposed to the Study End Date. The accompanying database includes one record for each month of exposure for each claim. If the Claim Status is closed, then the actual termination count is placed in the last month of exposure.

Section 4: Effective Elimination Period

The Effective Elimination Period is defined as the number of days between the Date of Disability and the Benefit Commencement Date. For most claims, this matches the supplied Elimination Period, but if there is a difference, the Effective Elimination Period is what is used. For brevity the definitions below sometimes refer to the Elimination Period or the EP, but this always means the Effective Elimination Period.

Section 5: Definition of Duration

The Duration of the claim for each month of exposure is defined relative to the monthly anniversary of the Benefit Commencement Date. For example, if a claim has a Benefit Commencement Date of 1/10/2011, then the first month of exposure goes from 1/10/2011 to 2/9/2011, while the second month goes from 2/10/2011 to 3/9/2011, and so on. We then convert into the conventional definition of Duration (since disability) as follows:

This number of days in the Effective Elimination Period is rounded to months by dividing by 30 and then rounding to the nearest integer. This method ensures that for a 3-month or 90-day elimination period, the first month of exposure is always 4 and for a 6-month or 180-day elimination period, the first month of exposure is always 7.

Section 6: Exclusion of Short Elimination Periods

In the development of GLTD2008, claims with elimination periods less than 15 days were excluded. This means, according to the definitions above, there is no entry on the table for Durations since disability less than 2 (months). For this reason, claims with an effective elimination period less than 15 days were also excluded from the 2016 Study and this Study. For a claim with an EP of between 15 and 44 days, the first Duration is 2 months.

Section 7: Fractional Months of Exposure

Most claims will get a full month of exposure in most months. We use fractional months for the first and last month of exposure under the following circumstances:

First Month of Exposure: The claim started before the start of the study period

Last Month of Exposure: The claim was open at the end of the study, or the claim closed during the study for a reason other than recovery or death. If the claim recovered or died, then the last month of exposure is always a full month.

To determine the fraction, we use the number of days exposed within the month as defined above, divided by 30 days. Due to the variable number of days in the months there is special logic for handling the ends of months, which is described below, but absent that complication the method works as follows:

Claim started before the start of the study: In the first month the claim is exposed from the first day of the month to the end of the exposure period for that month, defined above. For example, if the Benefit commencement date was 1/10/2008, then the 12th full month of exposure is from 12/10/2008 to 1/9/2009. Since the study starts on 1/1/2009 the claim is exposed for 9 days from 1/1/2009 to 1/9/2009. The fractional month is then defined as 9/30 or 0.30, which occurs in Duration 12.

Claims open at the end of the study: In the last month, the claim is exposed from the monthly anniversary of the Benefit Commencement Date to the last day of the study. If the claim described from above remains open at the end of 2017, then the last month of exposure gets a fractional month of exposure from 12/10/2017 to 12/31/2017. This is technically 22 days, and so in order not to give claims an extra month of exposure, the same logic is used as for beginning claims, but with the compliment exposed. For example, the missing portion of exposure is 9 days from 1/1/2018 to 1/9/2018, and so the fractional month used is $1.0 - 9/30 = 0.7$. This method ensures that a claim that begins before the start of the study and ends after the end of the study will get exactly 108 months of exposure, with fractional months at the beginning and at the end.

Claims Closed During the Study: In this case, claims are exposed from the anniversary of the benefit commencement date to the claim termination date. If the claim described above closed on the 20th of the month, then the last month of exposure would be from the 10th to the 20th, or 11 days. The fractional exposure would be 11/30 or 0.3667. There is special end of month logic, which is described below.

End of Month Logic: If the first day of the Benefit Commencement Period is day 27 or later, then the monthly anniversary of the Benefit Commencement Period is defined relative to the end of the month. For example, consider a claim that began on 1/29/2011. This claim is two days from the end of the month, and so the exposure periods are as follows:

- Month 1: 1/29/11-2/25/11

- Month 2: 2/26/11-3/28/11

- Month 3: 3/29/11-4/27/11

If the Termination Date is on day 27 or later then the exposure is the complement of the missing exposure as defined above. For example, if instead of closing on the 20th of the month, the claim closed on 3/29. The missing exposure is from 3/30 to 4/9, which is 11 days, and so the last month of exposure is $1 - 11/30 = 0.6333$

The following table shows some examples of the calculations:

	Study Begin Date 1/1/2009		Study End Date 12/31/2017			
Date of Disability	3/13/2008	3/13/2009	3/13/2008	3/13/2009	3/13/2009	3/30/2008
Commence Date	6/11/2008	6/11/2009	6/11/2008	6/11/2009	6/11/2009	6/28/2008
Effective EP	90	90	90	90	90	90
Termination Date			4/20/2012	4/29/2012	4/29/2012	4/29/2012
Term Reason	Open	Open	Max	Max	RTW	Open
First Month						
Begin	1/1/2009	6/11/2009	1/1/2009	6/11/2009	6/11/2009	1/1/2009
End	1/10/2009	7/10/2009	1/10/2009	7/10/2009	7/10/2009	1/30/2009
Dur	10	4	10	4	4	10
Exposure	0.333	1.000	0.333	1.000	1.000	0.967
Last Month						
Begin	12/11/2017	12/11/2017	4/10/2012	4/10/2012	4/10/2012	12/29/2017
End	12/31/2017	12/31/2017	4/20/2012	4/29/2012	4/29/2012	12/31/2017
Dur	117	117	49	37	37	117
Exposure	0.667	0.667	0.367	0.633	1.000	0.033
Total Exposure	108.000	114.667	39.700	34.633	35.000	108.000

The Consolidated Database (CDB) includes two date values that reference the calendar date: Calendar Year and Calendar Month. These are determined by the date of the starting day of the exposure month.

The duration in each calendar month is used, along with the other variables, to determine a GLTD2008 expectation. The database values "Expected_Recoveries" and "Expected_Deaths" are found by multiplying the GLTD2008 expected rates by the exposure for that month.

If the claim closed during the study period, the last exposure month will get an actual termination of 1.0 categorized as "Recovery", "Death", "Settlement", "Max_Out", or "Limits" based on the supplied termination codes. If the Termination Date is within 45 days of the Claim Maximum Date (benefit expiration date) then claim is counted as a Max_Out, regardless of the submitted Termination Code.

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