



OFFICE OF THE ACTUARY

CLAIMS CREDIBILITY GUIDELINES

The Office of the Actuary (OACT) at the Centers for Medicare & Medicaid Services (CMS) provides guidelines for full credibility, as used in the Medicare Advantage (MA) and Part D bid pricing tools (BPTs). We provide this guidance as a resource to certifying actuaries, not as a requirement. The guidelines below apply to the pricing of projected allowed claim costs (the Allowed PMPM in the BPTs), excluding claims for enrollees classified with end-stage renal disease (ESRD) in MA BPTs. This guidance is effective April 5, 2013 as follows:

Full credibility of allowed claim cost experience:

* excluding claims for enrollees classified with ESRD in MA BPTs

Base Period Member Months	
MA BPTs*	Part D BPTs
24,000	18,000

Background

OACT has provided claims credibility guidance since the introduction of the BPTs. The initial guidelines for full credibility were developed prior to 2006. At that time, an analysis of Medicare Part A and Part B claims from calendar year 2002 was used as a proxy to develop the credibility guideline for MA BPTs. The guideline for Part D BPTs was set relative to the MA guideline based on expectations established by OACT.

Given that there was sufficient actual experience since the implementation of Part D, OACT decided to reevaluate the guidelines in 2012 using more recent experience.

We expect to repeat this process every five years.

Synopsis of the Methodology

Based on an application of classical credibility theory, the determination of full credibility depends on the assumed variation in the claim experience. Our goal is to determine the number of individuals in a group that are needed to have a probability, P , of being within a percentage, k , relative to the expected claim amount. OACT has chosen values of $P = 95\%$ and $k = 10\%$.

We model the distribution of claim amounts using the following statistical formula and the *Central Limit Theorem*:

Aggregate claims for a group of n individuals $= \sum_{i=1}^n X_i \xrightarrow{d} N(n \times \mu, n \times \sigma^2)$, where

X_i is the annual allowed claim cost amount with mean (μ) and variance (σ^2) for an individual, calculated on a per capita basis. X_i is assumed to be independently and identically distributed for each individual. We calculated the mean and variance from historical claim experience from Parts A and B combined (as a proxy for MA) and separately for Part D. We excluded MA experience for both end-stage renal disease status and hospice status. For Part D experience, we excluded employer or union-only group waiver plans. We reviewed five calendar years of experience from 2007 through 2011 for consistency and trends over time,

n is the number of individuals in the group, and

$N(n \times \mu, n \times \sigma^2)$ denotes the *Normal* distribution with mean, $n \times \mu$, and variance, $n \times \sigma^2$.

Given our definitions and assumptions above, we solve for the following probability:

$$\text{Probability} [(1-k) \times n \times \mu \leq \sum_{i=1}^n X_i \leq (1+k) \times n \times \mu] = 95\%$$

By symmetry of both the *Normal* distribution and our probability statement, we can write the following relationship:

$$n \times \mu \times k = \sqrt{n} \times \sigma \times z_{0.975}, \text{ where}$$

$z_{0.975}$ is the z-score for the 97.5th percentile of the standard Normal distribution ($z_{0.975} \approx 1.960$).

Substituting for the known variables and solving for n produces the following equation:

$$n = \left(\frac{1.96 \times \sigma}{0.1 \times \mu} \right)^2$$

Since n is defined on a per capita basis (per enrollee regardless of the number of months enrolled during the year), we convert the final result to member months by multiplying n by an assumed average number of months of exposure per enrollee per year.

Results Based on Recent Experience

A summary of the results based on actual calendar year experience is as follows:

Year	Parts A and B combined as a proxy for MA			Part D		
	σ/μ	Average Monthly Exposure	Full Credibility*	σ/μ	Average Monthly Exposure	Full Credibility*
2011	2.51	11.1	26,865	2.02	11.3	17,713
2010	2.45	11.1	25,596	1.86	11.3	15,018
2009	2.45	11.1	25,596	1.75	11.3	13,294
2008	2.33	11.1	23,150	1.68	11.2	12,144
2007	2.30	11.1	22,557	1.58	11.2	10,741

$$* \text{ Full Credibility in Member Months} = \text{Average Monthly Exposure} \times \left(\frac{1.96 \times \sigma}{0.1 \times \mu} \right)^2$$

The results for MA in consideration of the preceding guideline (24,000 member months) do not demonstrate enough support to change the guideline for full credibility. OACT will continue to maintain the full credibility guideline for MA BPTs at 24,000 base period member months.

The results for Part D indicate a significant and constant increase in the full credibility limit, becoming greater than the preceding guideline (12,000 member months). This outcome is driven by consistently greater increases in σ (at a rate of 8% to 12% annually) as compared to increases in μ (at a rate of 1% to 4% annually). While increases may continue to occur, OACT expects that the ratio, σ/μ , will stabilize for Part D claims. In order to minimize the risk of overestimating the full credibility guideline for Part D BPTs and to minimize the degree of change from the preceding guideline, OACT will use a full credibility guideline approximately equal to the maximum value during the experience period, specifically 18,000 base period member months.