Support for New Applicant UW Rating Models for Individual Lines of Business

Nebraska DOI Rates & Forms Division
Effective Date: April 1, 2020
Scope: Individual Major Medical Markets.

This Guideline provides direction to insurers and their vendors submitting support for health plan rate filings that utilize the insurers or vendor's new business underwriting (UW) rating models. It outlines appropriate supporting information that should be provided by the insurer and/or vendor within a rate filing submission when the rating development includes or depends on one or more UW models that are used to rate new applicants. If the new applicant underwriting rating process involves the use of any GLM models, then support for each GLM model involved in the process should be provided in compliance with the Department's separate guideline for GLM models "Rate Filing Support for GLM and Complex Models in Health Rate Filings.pdf", which is posted in SERFF under Nebraska Filing Rules.

This support should be provided within the Actuarial Memorandum section on the SERFF Supporting Documentation tab in support of the Actuarial Memorandum.

New Applicant Underwriting (UW) Model Support

(A) Describe each UW model used in the rate filing to set debit points and risk scores for new applicants, and address at least the following issues:

1) Describe the model's role in the rating process, and provide the reasons why the model is an appropriate choice for that role.

2) Indicate if multiple UW models are used in the model (i.e...Separate models for pharmacy, medical, other service categories); Provide a chart indicating how the UW models are related in the process.

3) Disclose reliance on data and models supplied by others, and state reliance on the outside actuary or expert who is responsible for developing or maintaining the model. Provide reliance letters from outside actuaries or experts in which they state the level of responsibility that they are assuming, and in which they indicate the degree to which they are responsible for how results from the UW model are being applied in rate setting in conjunction with other rating factors being used in the rate filing.

4) Identify the software used to build and fit the model to the data. If an outside proprietary model is being used, then identify the vendor and the model settings/assumptions used, and indicate the degree to which the company may modify model parameters.

5) If the filing includes first-time use of an UW model, an update to a prior model or replacement with a different model, then identify and explain the changes in calculations from the prior filing. Measure and describe the rating impacts on policies due to the changes, and describe the process used by management to mitigate or get comfortable with those impacts to members.

(B) Describe and Summarize the Data Sources Used to Develop the UW Model.

Identify all data sources used to develop the model, list the data elements in each source, and identify the data elements selected for use in the model. Provide a summary of the data:

i) Medical claims experience, diagnosis codes, procedure codes, and other claim code information; Summarized claims allowed and paid amounts, pmpms, utilizations per 1,000, should be provided by at least major service categories (IP, OP, Physician, other).

ii) Pharmacy claims experience, generic, brand, specialty drugs, summarize utilization and unit costs.

iii) Clinical data obtained from providers or provided by interviews with the applicant;

iv) Demographic data (age, gender, geographic area…) provided by applicants on the applications or in follow-up communications;

v) Personal data (Height/Weight, tobacco usage status…) provided by applicants on the applications or in follow-up communications;

vi) Any other data inputs used for calculating debit points and risk scoring a new applicant.

(C) Provide a listing of Data and Experience Inputs Into the Model for the Plan Being Rated.

1) Identify applicant's data and experience that is input into the UW model for scoring.
   List all data items that are used to develop an applicant's debit points and risk score, such as:

   i) Conditions indicated by the applicant from their application or follow-up communications, or other sources;

   ii) Prescription drug information indicated by the applicant from their application, from interviews, from internet prescription drug history services, other sources;

   iii) Clinical data obtained from the applicant, from providers, from claims experience, other;

   iv) Demographic data provided by applicants on the applications or in follow-up communications;

   v) All other data inputs used for calculating debit points and risk scoring a new applicant.

2) Describe any procedures or filters that had the effect of excluding or adjusting any of the observed data prior to the model fitting process. Adjustments or modifications made to the data would include deletion of anomalous observations, techniques to deal with missing data, etc. Provide reasons for each such adjustments and modifications.

(D) Provide Model Calculations Used to Determine Debit Points by Condition and Personal Characteristics.

1) Provide all algorithms and calculations that are used to develop debit points and risk scores for each applicant. Demonstrate how conditions, prescription drug use, personal information and all information inputs from Section C above are converted into debit points. Include all formulas used in the calculation process.

2) Provide tables of debit points by condition, personal characteristics (age, height /weight, tobacco usage status, other).

3) Provide Drug to Condition conversion tables that are used to identify what conditions are indicated for each prescription drug.

4) Define what the Debit Points and Risk Score factors mean in terms of expected future costs or risk level. Such as "Debit points assigned represent the estimated average cost for the first 12 months of coverage for an individual with a given condition relative to those without the condition".

(E) Describe the Use of Model Outputs in the Rating System.

1) Indicate how the model outputs are used within the rating system. Show calculations for how debit points are converted to rating model risk scores.

2) Indicate what calculations, judgments and adjustments, if any, were made before applying the model outputs in the rating system.

3) Indicate how Model Outputs used in rating the plan are being applied alongside other rating variables so as to not double count member's future expected claims. Describe the process that was used, either within the UW model, or in the process of applying outputs and rating factors together, to ensure the outputs and rating factors have been combined appropriately for all rating cells.

4) Provide the details of any directions or instructions that the outside vendor provided to the rate filing actuary regarding how the model should be operated, and how results from the model may be used in rate filings. Summarize directions and procedures from the UW Guidelines that the operator of the model uses when underwriting an individual and assigning debit points and risk scores based on the individual's health conditions or personal characteristics (weight, smoking status, other…).

(F) Describe the methods that were used to assess the predictive value and statistical significance of the model and its estimates of future costs for new applicants.

(G) Indicate whether the new applicant underwriting rating process involves the use of any GLM models, or other complex models (Machine Learning, Neural networks, Decision Trees, Non-Linear Regression, Other complex model).
Support for each GLM and complex model involved should also be provided in compliance with the Department's separate guideline for GLM models "Rate Filing Support for GLM and Complex Models in Health Rate Filings.pdf", which is posted in SERFF under Nebraska Filing Rules.