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Collaborative study: The protective value of Medical Data

Patient encounters with healthcare providers generate standardized billing codes for diagnoses, procedures, symptoms, and durable medical equipment, such as home oxygen. Milliman IntelliScript's Medical Data product aggregates medical billing codes from a broad range of sources for use in the evaluation of insurance applicants' key health conditions. The data, going back up to seven years, is FCRA-compliant and is used by many life insurance carriers for underwriting and claims investigation.

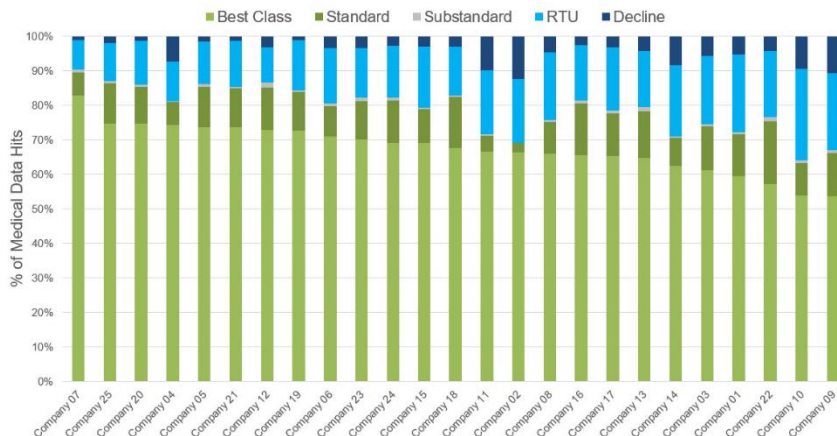
The purpose of this study was to evaluate the protective value offered by IntelliScript's Medical Data product and the types of risks/impairments that it helps identify.

We studied 25,000 applicants across 25 carriers

Milliman provided 1,000 Medical Data "hits" across each of 25 different carriers, representing a range of products, distribution channels, and target markets. Applicant ages ranged from 0 to 90. Prescription Data was also provided where it was available.

Protective value was measured in terms of debits relative to best class (i.e., Medical Data provided protective value any time there were adverse findings that would have changed the risk class to anything but best class). The amount of protective value depends on the frequency and severity of the adverse findings from Medical Data, which can vary significantly from one company or program to another (see Figure 1).

Figure 1 – Medical Data protective value – frequency & severity of adverse findings



It's important to note that this definition of protective value does not represent unique protective value (i.e., where Medical Data was the only source of adverse findings). We could not calculate the unique protective value since we did not have data for the other underwriting information to identify areas of overlap.

In terms of the expected mortality benefit of using Medical Data, the impact is driven by the unique protective value and is influenced by a number of things:

- The risk profile of the applicant pool, including a carrier's target market and distribution channel
- Other underwriting requirements that may be used (and the overlap with Medical Data findings)
- A carrier's specific rule calibrations
- Variations in the use of Medical Data, for example whether it is being used on all applications or reflexively

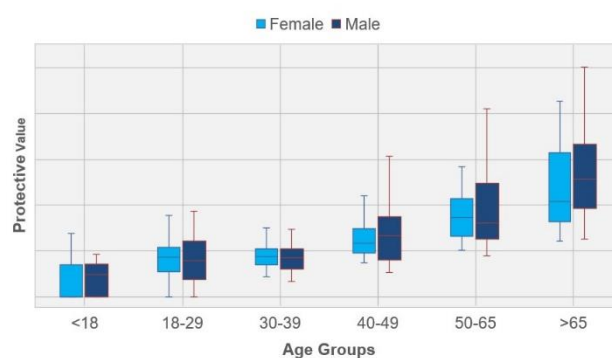
Results support the notion that carriers that have higher risk applicant pools will likely see more protective value. If you are interested in understanding the mortality benefit for your program, Hannover Re can help evaluate the sources of unique protective value and the expected benefit.

“Hit rates”—the percentage of all applicants for whom records are found—are currently over 75% for most carriers. The average hit includes over 200 codes, representing a valuable source of information on applicants. It's worth noting that not all Medical Data “hits” have adverse findings or rule messages that fire. In these cases the data may be related to regular preventive care or procedures that can be viewed a positive signal for risk evaluation.

Protective value by age & gender

Not surprisingly, we found that protective value increased with age. For the purposes of this study, we focused on ages 18 to 65 (represented 45 – 90% of records, depending on the carrier). Protective value was fairly similar for both females and males (see Figure 2).

Figure 2 – Protective value by age & gender



Drilling down into the protective value

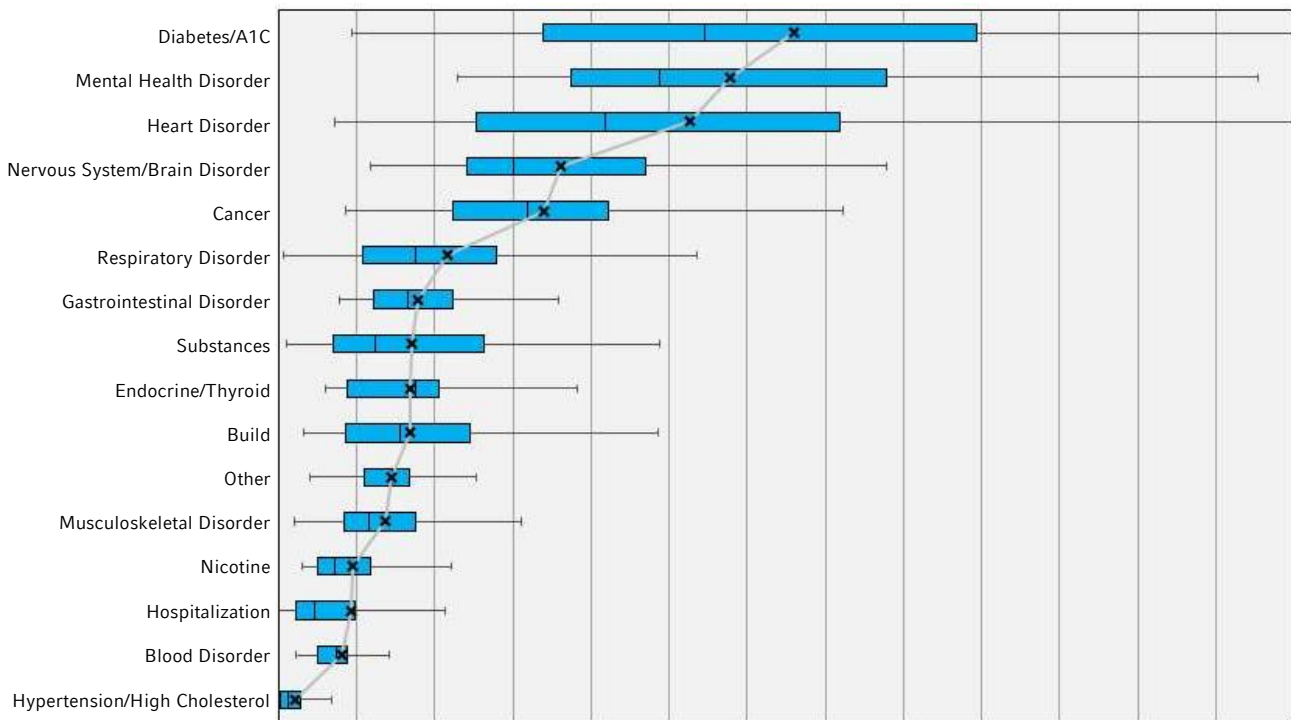
Medical Data provided significant protective value across multiple categories of health conditions and risk factors, notably:

- Diabetes
- Mental health disorders
- Heart disorders
- Neurological disorders
- Cancer
- Substance abuse
- Tobacco use

These categories are significant because they can be difficult to underwrite and/or especially relevant in certain markets. These represent examples of debits that could be otherwise missed in accelerated or simplified issue programs.

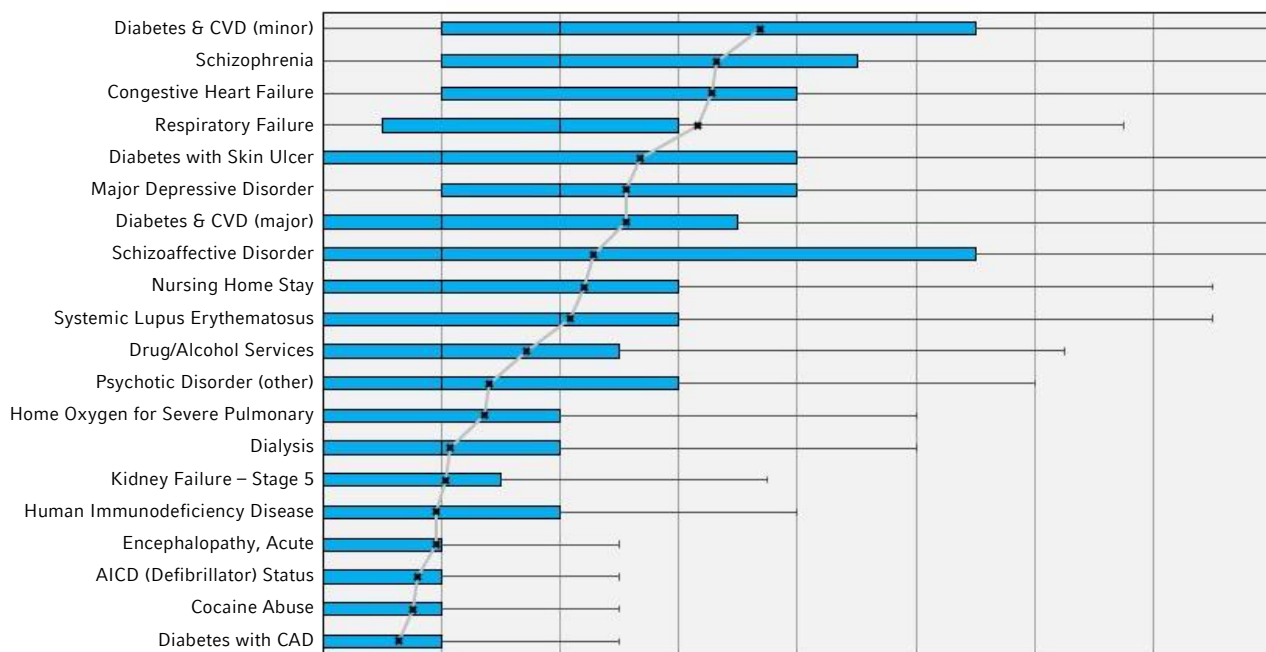
Medical Data can also provide information in areas that would not be available through traditional underwriting tools. The ability to identify important but potentially undetected risks can result in unique protective value even in a traditional underwriting paradigm. (see Figure 3)

Figure 3 – Protective value by category



The list of the most prevalent decline findings includes diabetes, serious mental health disorders, and substance abuse (see Figure 4).

Figure 4 – Medical Data most common causes for declines



Data enabling automation and efficiencies in underwriting

Hannover Re believes that Medical Data can help improve risk selection and provide additional benefit for automated and accelerated underwriting programs. Our philosophy is to enable as many auto-decisions as possible based on the data available, not just refer any case with adverse findings. We want to be selective when it comes to referring cases to underwriters, or ordering additional requirements, since those cases will require additional time, resources, and cost.

Our initial study focused on top-level codes since IRIX rule messages and modifiers help synthesize the very detailed data from a typical hit into a more manageable format for automation. When underwriters want additional detail, it is often available in an easily useable form, resulting in improved protective value and underwriting efficiency.

Conclusions

Hannover Re sees significant protective value in Medical Data and supports its integration across a variety of programs. The protective value and efficiency gains of medical claims data products will inevitably be a function of several factors, including hit rates and the average number of codes per hit, the way data is organized and presented, and the sophistication of the rules engine.

In the time since we performed this study, Medical Data hit rates have increased and data is more complete, so if anything, its protective value is higher now. We intend to continue exploring ways to enhance rules calibration for Medical Data, use in concert with application disclosures and other third-party data such as Prescription Data, and focus on ways to continue increasing automated decisions based on this data.

As insurers continue to shift business models away from full underwriting and paramedical exams towards automation and accelerated underwriting, it seems reasonable to assume that third-party data will play an increasingly important role in risk assessment. Based on this research, and in light of our own experience, we believe that Medical Data provides unique protective value. This is especially true in areas not easily captured with other third-party data, such as mental health, tobacco use, and build.

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