

# INTERNATIONAL MEDICAL UNDERWRITING APPROACHES AND THE IMPACT ON PROFITABILITY

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## **Abstract**

The rapidly growing economies around the world are presenting tremendous opportunities for the insurance industry in numerous countries. However, differences in regulation and competitive market practices dictate different levels of sophistication in international medical underwriting. Medical underwriting is the process of considering a wide range of information to better predict the expected costs for a potential applicant or group of applicants. The current international approaches to medical underwriting include an extensive use of riders to limit coverage for specific conditions, reliance upon medical professional judgment for rating purposes, and application of life insurance underwriting guidelines or US medical underwriting guidelines. While the use of these methods could be justified by the fact that these might be the only available tools for international underwriters, the reality of inappropriateness of their use for medical rating purposes remains unchanged. It is important for underwriters around the world to understand the costs of using inferior methods. Although it might be less expensive initially to use such methods, the costs due to adverse selection by applicants and underestimation of medical costs can be extreme. It is critical that an insurer use underwriting tools at least as good as its competitors, or else it may attract undesirable risks, and lose its competitive edge.

## **Keywords**

Medical insurance, medical underwriting, underwriting guidelines, international medical underwriting, rider effectiveness, medical coverage, medical risk, adverse selection, underwriting tools, regulatory environments.

## INTRODUCTION

The rapidly growing economies around the world are presenting tremendous opportunities for the insurance industry in numerous countries. As this expansionary process continues, the need for more sophisticated and accurate insurance tools becomes more apparent, especially in the countries where insurance mechanisms are still in the developmental stage. Differences in regulation and competitive market practices dictate different levels of sophistication in medical underwriting. One practice which might be adequate in one country could be disastrous if used in another. However, using more sophisticated tools than the competition can give insurers distinct advantages in the risks they acquire.

Medical underwriting is the process of considering a wide range of information to better predict the expected costs for a potential applicant or group of applicants. This information is usually gathered from a medical questionnaire completed by the applicant, or by gaining access to the applicant's medical records and health history. Through this process, an insurer can gather information that may help predict the expected costs for each applicant. If it is determined that an applicant will have excessive costs, different underwriting tools may be used for the applicant. This allows an insurer to cover those individuals they perceive as good risks, while avoiding (when possible) the bad risks.

Medical underwriting guidelines are a critical tool that health insurers can use to better understand their risks. The better the understanding of risk, the better an insurer can predict and react to the costs incurred by their target population. While the actual tools underwriters use do not vary significantly around the world, the way they are applied does. Not only that, but the differences in regulatory environments (which are greater for medical than for life coverages), customs, and available information cause insurers to respond differently to the underwriting processes in countries around the world.

The compounding of all these issues leads to a critical problem arising in medical underwriting internationally. This paper will focus on the current international practices that can be addressed (that is, which insurers can control) in order to enable successful underwriting for the insurers around the world. Riders are a common and useful tool for international underwriters, which are sometimes not used to their fullest potential. The more problematic approaches include reliance upon medical professional judgment for rating purposes, and application of life insurance underwriting guidelines or US medical underwriting guidelines for local health underwriting.

## DISCUSSION

To understand the differences in the application of the underwriting tools around the world, it is important to understand the various regulatory environments that might encourage these differences. Regulations strongly affect the ways that insurers can operate, and can often bring about undesirable consequences in the form of adverse selection. For instance, in the United States, the laws for individual coverage do not limit what tools underwriters can use in assessing risk and pricing coverage if an applicant does not have current, continuous medical coverage. For applicants with current and continuous coverage, the only tool available to underwriters is

rating class. For small group coverage, the federal law limits the issue of riders, pre-existing condition limitations for those with continuous medical coverage, and the rate variation from one employer to another.

In the United Kingdom, limitations on underwriting for supplemental coverage are minimal due to the coverage under the national healthcare system.

The regulatory environment for individual coverage in Brazil currently encourages strong adverse selection, which has been harmful to the insurers operating in the market. Federal law limits the way an insurer can rate the risk for disclosed condition. The only rating action insurers may take for individual coverage is to exclude pre-existing conditions for up to 24 months. They must charge all individual applicants the same price. This allows the sick applicants to pay low premiums and have full coverage after the 24 month waiting period is over. As well, insurers who offer small group coverage are forced to offer individual coverage as well.

In Hong Kong, insurers do not cover chronic conditions at all unless the condition was previously disclosed on a medical application. Underwriters may choose to accept or decline coverage. These regulatory limitations strongly discourage applicants with medical conditions from lapsing their current coverages.

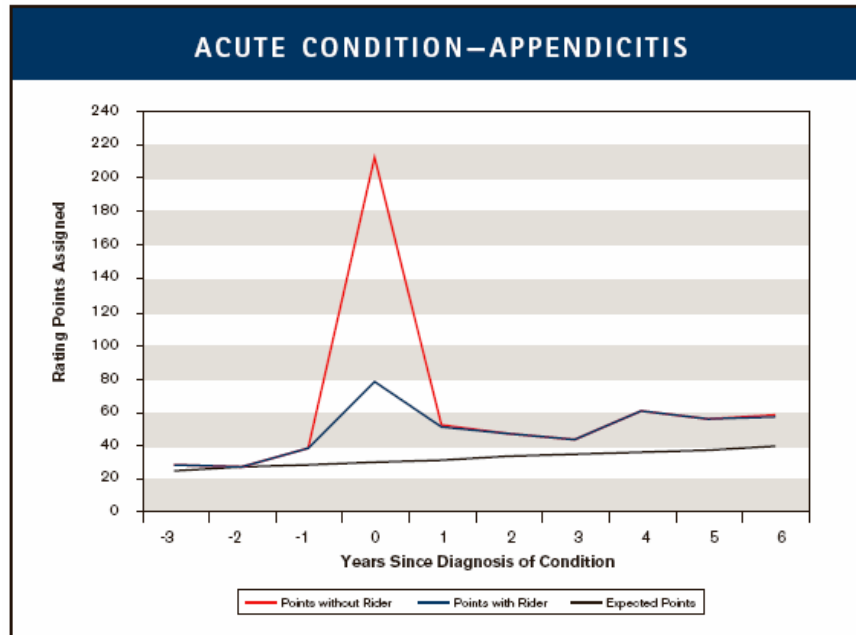
A common tool that is available to most international insurers is the use of riders. A rider is an attachment to a policy that modifies its conditions by expanding or restricting benefits or excluding certain conditions from coverage. Not only do riders reduce premiums to an affordable level for the applicants, they also reduce risk for the insurer by eliminating high-variance cost conditions. A rider that excludes a particular class of treatments can be permanent or temporary, depending on the condition, and can be very effective in reducing costs. In the US, insurers may only apply riders for individual applicants. In Brazil, using the right riders is the only way insurers can differentiate between risks.

However, riders are not always a good way to reduce costs. Before the application of riders, it is critical to gain extensive understanding of which riders are effective and ineffective. First of all, there is no reason to exclude conditions for which the rider has shown ineffective in reducing costs, since additional coverage could attract potential clients and thus present a competitive advantage to the insurer. As well, if an insurer is not aware that a particular rider does not effectively reduce costs, it is possible they will issue the rider and reduce the premium they charge, without receiving any reduction in claim cost. Secondly, rider usage can be used as a competitive tool because insurers offering different riders may attract different risks.

The effectiveness of the rider usage is directly related to the particular condition under consideration. The following illustrations were developed through extensive analysis of US medical claims data. The claims database consists of seven years of data, five million people per year, and 340,000 members present during all seven years. This database is the same one that is used to develop the Milliman *Medical Underwriting Guidelines*. Figure 1 shows the costs associated with appendicitis, an inflammation of the appendix that is commonly treated with surgery. For this acute condition, the costs will recede rapidly after the diagnosis. If the rider

were applied in the year of diagnosis, it would remove enough cost such that the coverage for the applicant can now be written.

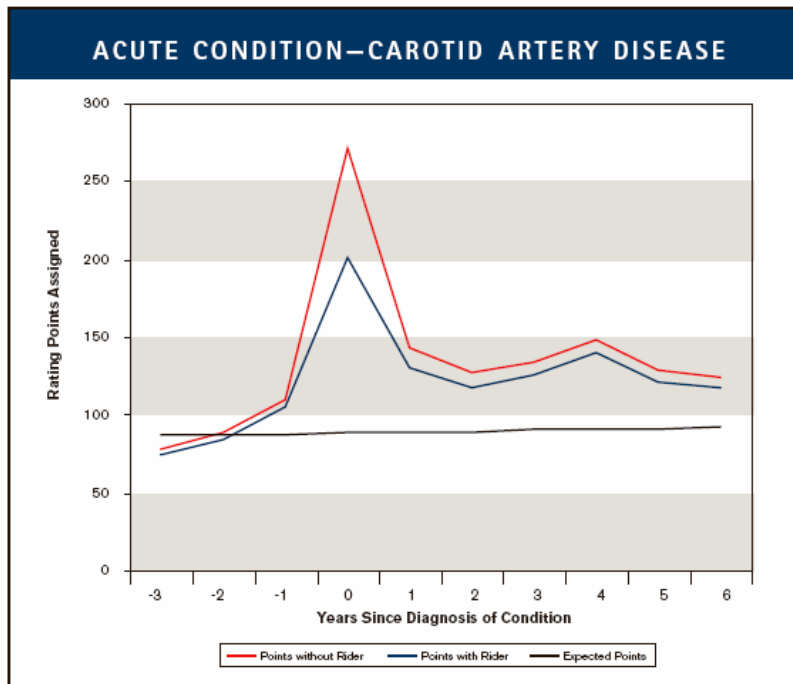
FIGURE 1



Rider Assumed: Appendicitis and related treatment

The next exhibit presents points assigned for an acute condition for which riders may not be very effective. Figure 2 shows the costs related to Carotid Artery Disease, or the narrowing of the carotid arteries. The costs do decrease after diagnosis, but remain at an elevated level. In this case, the rider does not remove very much of the cost. It is likely that the insurer would still elect to deny coverage for this condition, if possible.

FIGURE 2



Rider Assumed: Treatment of cerebrovascular disease

Different insurers use different underwriting methods for making their rating decisions. While it is common in the US to use underwriting guidelines that are specifically designed for medical coverages, it is not common internationally. Outside of the US, some of the common methods that underwriters use are applying life insurance underwriting guidelines, judgment from relevant professionals, and the use of versions of US medical guidelines (both recent and outdated). While the use of these methods could be justified by the fact that these might be the only available tools for international underwriters, the reality of inappropriateness of their use for medical rating purposes remains unchanged.

#### Use of life insurance underwriting guidelines

It is common for insurers to use life insurance guidelines for underwriting medical coverage. Since the appropriate medical guidelines are not available, life insurance guidelines are often available to be used instead, since they are more readily available. There are significant differences in life and medical risks that should be taken into consideration. Life insurance risk is based on increased mortality, whereas medical coverage risk is based on increased cost of medical care. For example, if an insured has a chronic condition, such as arthritis, he or she may still live an average lifespan, but would incur higher than average medical costs. A life insurance underwriting guideline might rate this applicant as an average cost risk. However, for medical underwriting, he or she should be rated higher.

To better understand the consequences of using life insurance underwriting guidelines to rate these conditions, we used a life underwriting manual from a prominent global reinsurer to see what ratings it would recommend for several of these conditions. We then compared these life debit points to the Milliman *Medical Underwriting Guidelines* points. Table 1 below presents a

comparison of approximate medical and life underwriting ratings for the year of diagnosis, without exclusionary riders. Note that while all of these conditions would be given high ratings in medical underwriting, they would not for life underwriting.

**TABLE 1**

Condition	Medical Rating	Life Rating
Appendicitis	210	Standard
Sciatica	80	Standard
Cataracts	140	Standard
Osteoarthritis	100	Standard to +25 points

At this point, the flaw of the approach should be obvious. The extreme costs due to adverse selection by applicants and underestimation of the medical costs due to inaccuracy in underwriting are not the only worries of such underwriter. The competitive disadvantage for this insurer can become drastic if a competitor is using a better underwriting tool.

#### Use of professional judgment

Another common practice is the use of professional medical judgment for underwriting purposes. In Asia, for example, many insurers hire physicians to review medical applications and apply their own judgment to determine an applicant's rating. While this may be very inexpensive depending on the economic conditions and salary levels in the particular country, it is not optimal for setting accurate ratings. It is likely that judgment based ratings will be significantly biased, because the information used is based on the physician's personal experience. Two physicians could rate the same condition very differently. It is also more difficult to be consistent between cases if the ratings are based on individual judgment. In our experience, it is likely the physician will be familiar with the symptoms and treatments for particular conditions: it is less likely that they are familiar with the total medical costs for these procedures. It is also more difficult to legally defend any underwriting decisions made based solely on judgment.

#### Use of US medical underwriting guidelines

The use of US medical underwriting guidelines for countries other than the US is also a fairly common practice. There are number of problems with this technique. It is obvious that factors such as demographics, prevalent local conditions and diseases, delivery of healthcare patterns, and many other aspects of healthcare vary substantially between the Unites States and other countries. For instance, in some regions of the world, certain conditions and diseases are much more common (or on the contrary, inexistent) than in the US. Some countries have different patterns of care than the US, which leads to different costs for the same conditions, driven by the treatment followed for each condition. There are differences in marginal cost levels between the US and other countries. For example, if outpatient care is very expensive in the US but relatively less expensive in Mexico then a condition that is primarily outpatient will be relatively lower cost in Mexico than in the US. Also, certain conditions are treated very differently in the

US than in other countries, which leads to numerous discrepancies in ratings for the particular condition.

Many international underwriters are not only using US guidelines, but are using very old US guidelines. The use of old versions of the US medical guidelines only magnifies the problems discussed above. Not only there is little correspondence between the actual local healthcare experiences and the US model, but in this case the information in the guidelines is outdated as well. The old versions do not reflect current medical technological and scientific advancements, or any other amendments to the healthcare system, neither positive nor negative.

The most legally defensible and relevant tool to use for medical underwriting should be evidence-based and should be appropriate for medical risks. Such ratings have to be developed through extensive data work, actuarial judgment, and clinical expertise. In the US, for example, Milliman has developed two very useful tools for medical underwriting - the Milliman *Small Group Medical Underwriting Guidelines* and the Milliman *Individual Medical Underwriting Guidelines*. These tools provide underwriters with evidence-based information to use when setting premiums for particular risks. These underwriting guidelines have specific data-based rating suggestions for approximately 700 conditions, as well as incorporate a significant variability in costs over time. For example, a fracture patient may incur high medical costs over the course of a few months, but a cardiac patient could have elevated costs for several years.

Underwriting guidelines for other countries can be developed using such evidence-based guidelines as a base, especially if the extensive amount of data is not available. When developing guidelines specific to other countries, it is important to recognize the differences in relative costs of services (for example, prescription drugs are a greater percentage of costs in many countries than in the U.S), as well as number of other factors. Here are some key changes that should be considered:

- *Distribution of care.* Recognize that the target country has different patterns of care than the US, which lead to different costs for the same conditions. This will determine what the overall distribution of Inpatient, Outpatient, Physician, Drugs, or Other cost is in the target country, and adjust each condition accordingly.
- *Marginal cost levels.* There are differences in marginal cost levels between the US and most other countries. For example, if outpatient care is very expensive in the US but relatively less expensive in the target country, then a condition that is primarily outpatient will be relatively lower cost in locally than in the US.
- *Population mix adjustments.* The US commercial insurance coverage is primarily for working age (under 65 years old) population. Account for the differences in the country's composition of the covered population.
- *Travel.* In certain countries, patients with very serious conditions will often travel internationally for care. The costs for these conditions should be adjusted for differences in covered medical costs because of where the care was delivered.

- *Differences in specific treatment patterns.* Rating should be adjusted to reflect the differences in treatment for some conditions in the local country. In general, adjustments for place of services capture most of these differences.

## CONCLUSION

While underwriters in many parts of the world do not use evidence-based medical underwriting guidelines when making underwriting decisions, it is important for them to understand the costs of using inferior methods. While it might be less expensive initially to use judgment or life underwriting guidelines, the costs due to adverse selection by applicants and underestimation of medical costs can be extreme. It is critical that an insurer use underwriting tools at least as good as its competitors, or else it may attract undesirable risks. If an insurer uses a better underwriting tool than its competitors, it can give the insurer a competitive advantage, not only by attracting desirable risks, but by also more accurately underwriting the risks that are undertaken.

## BIBLIOGRAPHIES

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