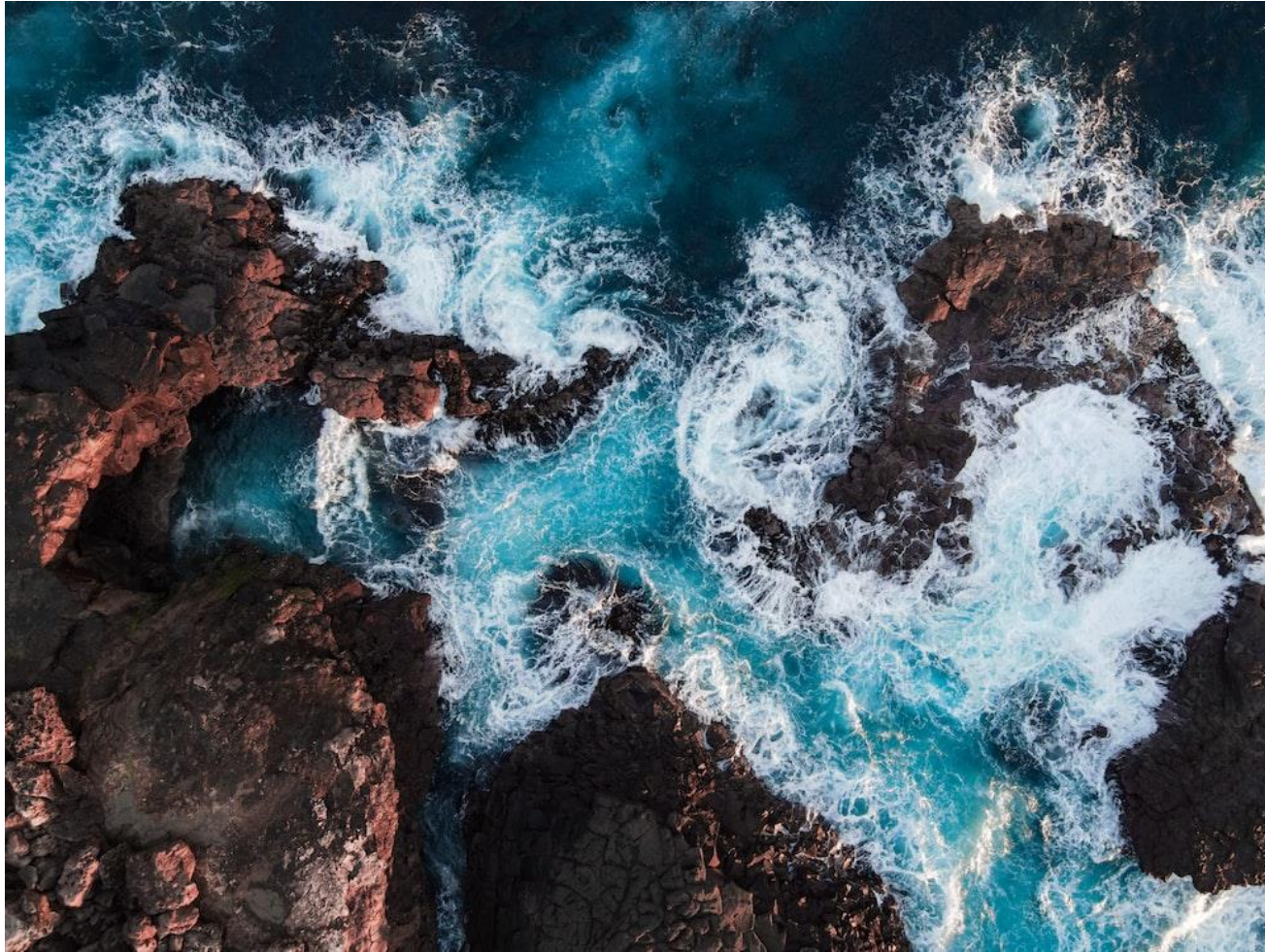


Risky Business

A Bird's Eye View of Life Insurance Risks

October 2023



Executive Summary

Underwriting involving pricing various levels of risk: medical, non-medical, financial, business relationship, process, enterprise, strategy, compliance, legal, reputational, personal, data, long-tail financial risk, and economic.

Many risk assessments discussions have focused on mortality and financial risks using both traditional and non-traditional quantitative (data) tools.

This presentation attempts to focus on a broader range of risks using a more qualitative approach. The goal is increased awareness of all potential risks encompassed in underwriting process.

Keeping these risks in mind may help round out approaches to evaluating specific new business cases, in force business, underwriting processes, requirements, and understanding context of underwriting philosophy and guidelines.

Introduction



What is Risk? The chance of economic loss to the subjects of an insurance contract- includes the degree of probability of such loss.



Why do insurance companies need risk to make money? Without risk, clients would not be willing to pay premiums to cover potential future economic loss. Companies also take substantial **risks to achieve investment return. A larger asset base and pool of risks allows for accepting larger risks on individual cases-**

Law of Large Numbers: Actual results approximate Expected (priced) results.



Pricing Risk- It needs to assess how likely a prospective buyer is to trigger the conditional payment and extend that risk based on the length of the policy.

This is where insurance [underwriting](#) is critical. Without good underwriting, the insurance company would charge some customers too much and others too little for assuming risk. This could **price out the least risky customers**, eventually causing rates to increase even further.

What Does an Underwriter Really Do?



Identify & Prioritize ALL relevant risks to make a decision that balance the needs of all stakeholders:



Company shareholders



Customers



Business Partners



Employees



Regulators

What are Outcomes of Underwriting?



Place risk into Bucket, or Position to “Hit through Wicket” that represented expected outcomes for large risk group that most resembles risk being assessed.



Objective is to place risk on the correct slope for future durations to prevent excess medium and long-tail risk



Prevent Early Claims by mitigating high-risk scenarios and anti-selection



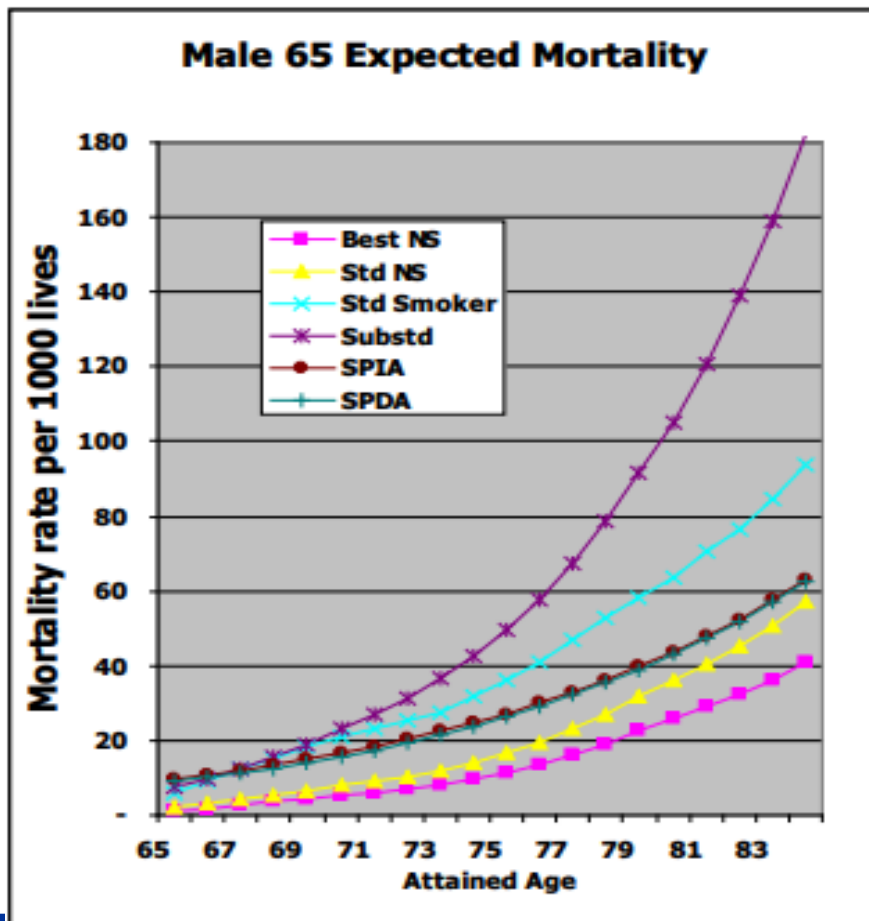
Attract favorable risks to pool



Less expected Underwriting evidence- less precise risk classification priced for. (Generally lower UW expense assumption as well). Good idea to find out expected level of ‘slippage’ from Pricing Actuaries

Mortality Curve

Mortality Curve



Underwriting Impact

- UW places risk on mortality curve for risk
- Curve describes risk of death at each attained age
- In early years, curves are similar
- Differences become more striking at later durations
- Underpriced risk impacts profitability for each duration

[Mortality Comparisons in the Older Age Financial Services Market \(soa.org\)](#)- 2011

What are Outcomes of Underwriting?

Example:

Offer Standard or Preferred

Risk is Standard now but has high likelihood of trending better within 5 years based on stabilizing/improving risk factors:

1. Consider Preferred now to win case with *expectation* risk will improve in near term. Caution- may be *cumulatively* underpriced in years 1-5 if risk improved. Risk may never improve and be underpriced for all durations.
2. Offer Standard and require proof of improvement for rating reconsideration. Biggest risk is losing business on more favorable risks and placing worse risks. The overall pool may deteriorate in years 2+ as policies lapse or are replaced.

Consider: Mortality give-up has lower impact on Permanent coverage because pricing assumptions encompass many risks (inflation, interest rates, admin costs) vs primarily mortality & lapse risk for Term. These pricing assumptions do not apply to reinsurers who are paid by Yearly Renewal Term rates.

What are NOT outcomes of Underwriting



Predict life expectancy for life risk- UW is geared toward identifying risk of death for each policy duration during expected lifetime of policy



Attempt to Individualize life expectancy of Risk- relies of Law of Large Numbers



Gain high level of precision- Probabilistic (chance) not Deterministic (all data known beforehand)



Seek to classify using guidelines that rely on correlation rather than presumed causation of mortality (actuarially- based evidence). For example, using zip codes to make risk selection decisions may provide high correlation and predictive value of mortality/lapse rates, it clearly constitutes proxy discrimination

What are NOT outcomes of Underwriting

Fairness and
Transparency
are critical in
setting
Underwriting
Guidelines
and Practices.

- Unfair Discrimination: when similar risks are treated differently.
- Disparate Impact: seemingly neutral practices disproportionately impact a protected class
- Proxy Variable: measurable variables able to take place of ones that are difficult to measure
- Proxy Discrimination: intentional use of neutral factor (e.g. race) for purpose of discriminating against a consumer
- Appearance of Proxy Discrimination is tantamount to actual Proxy Discrimination- example: Algorithm that is a “Black Box”- Transparency and ability to explain adverse decision is critical

Underwriting is a Craft

Requires analytic and artistic skill

Art vs Science- guidelines/rules

Profession vs Trade- broad vs specialized skills

Continuous On The Job training- Underwriter has unique set of experiences

Underwriting evolves as:

- Tools and available data change
- Markets and Demand change
- Health care system changes
- Regulatory (political) environment changes
- Risk tolerance changes: interest rates, general economy, securities market, alternative assets

Underwriting is Risk Management

- Identify all risks
- Measure relevant risks that have true impact on overall economic outcome during policy lifetime and impact future business flow
- Primary goal is to prevent unexpected (unpriced) volatility- strategies
 - Limit dollar or risk type exposure (e.g Aviation, Older Age)
 - Construct relatively predictable and homogenous risk pool
 - Optimize spread of risk- Law of Large Numbers
 - Risk sharing
 - Adopt symmetric view of risk that takes into account potential opportunity cost of not accepting/placing risks
- Note: each company has its own degree of risk tolerance

Underwriting is a Marketing & Sales Function



Right Price when considering and prioritizing all risks of the case



Right Customer Experience



Right Communication



Right Data



Right Segmentation



Right Marketing Tools



Right balance between growing top line and protecting bottom line



Right collaboration with both Sales and Pricing

List of Risks to Identify

Risks

- Medical
- Non-Medical
- Financial
- Process
 - Reliable
 - Scalable
 - Cost Effective
 - Customer Experience

Examples of Data Sources

Clinical medicine, Mortality Studies

Reliable studies-expert sources (SOA)

Internal data, Industry (LIMRA)

Internal (pilots), Industry (Reinsurer)

List of Risks to Identify

Risks	Examples of Data Sources
Enterprise Strategy	Sr. Leadership w/input from SMEs
Compliance	Internal, ACLI, Regulators
Reputational	Legal, PR Dept, Compliance, AML
Data	Data Scientists, Actuarial, IT, Legal
Long-Tail Financial Risk	CFO, Corporate Risk Management, Reinsurers

Levels of Risk

Level	Example	Impacts
Individual	Lab Value	Discrete mortality
Additive	BMI, DM	Multiple mortality
Synergistic	DM, CAD	Greater than sum
Financial	Income	Lapse, insurable need
Distribution	Gray Market	Anti-Selection
UW Guidelines	Non-competitive	Reduced sales, Bus Quality
Monitoring	Fluid-less Forensics	Slippage Actual/Expected

Putting it Together: Identify & Prioritize



Reliable data



Relevant data



Overall picture in context



Transparency- ability to explain your decision



Relationship of facts to published UW guidelines and standards



Bottom line financial results linked to mortality/lapse/expense expectations



Responsibility to stakeholders

Internal Audit

Reinsurers

UW Leadership including Governance functions

Case Studies

1. Foreign National

2. Algo

3. Medical Claim Records

4. Cannabis

5. Ulcerative Colitis

6. Cardiac Testing
Recommended



Disclaimer: overly aggressive UW decisions may adversely impact mortality results and profitability (especially Preferred categories).



Decisions should always be evidence-based vs exceptions or give-ups



Success of decision depends on UW ability to identify, prioritize, and place facts into context to document a compelling argument for decision

Case Study 1- Foreign National Term Product

Male 41 \$20M Term- plans to convert to Perm in year 3

- Citizen/resident of Spain
- Temporary Visa- considering non-US resident guidelines- TERM NOT AVAILABLE
- Spends 60 days per year in US- moving to US permanently in 2 months
- Verified US assets \$50M
- Owns multiple businesses in US
- Wife and children reside in recently purchased \$6M home in US
- Children enrolled in school for next year

- Per guidelines, no Term insurance available. No active reinsurance treaty for Term coverage for HNW Foreign National

- **What questions do you have?**
- **Would you consider accepting using internal retention based on overall facts?**
- **If so, what justification would you use?**

Case Study 2- Algo-Based Decision

Female 34 \$500,000- no tobacco use history- negative HOS for cotinine

- All risk factors other than AST/ALT ratio 1.2 qualify for best rates
 - Algo score based on AST/ALT ratio limits to Standard rates
 - No history of diabetes, Liver disease, ETOH concerns, or elevated LFTs
-
- Would you hold to Standard rates based on Algo score?
 - Would you consider other actions?

Case Study 3- Medical Claims Records

- Male 42 \$1M
 - BMI 31
 - Part 2- arthritis dx 10/18, no meds, knee replacement 4/23, disability- 'no'
 - Meds: Ondansetron 4/23, Oxycodone 4/23, 5/22, 5/21
 - Sergeant Major in Army
 - Snuff user
 - Medical Claims- "Green" code (no UW action required per guidelines)

 - Concerns: timing of application- 4/5/23 Knee replacement, 4/10/23 application date
- Order APS noting timing?
 - Request clarification from producer that PI has fully recovered?
 - Accept Standard NS as is?

Case Study 4- Cannabis

- Male 29 \$500K- Accelerated UW
 - MJ use 1-3x/week
 - Last office visit 4/22 for “pain/strain”
 - MIB- 4/23 – 281GEN & 909#X#
 - Medical Claims Records- clear
 - Electronic IR- no concerns
- Can we consider without APS?

Case Study 5- Ulcerative Colitis

- Female 58 \$100K- Accelerated
- Ulcerative Colitis- has not seen GI physician in 10 years
- Prior application from 2013 showed no meds for 1 year, intermit flares 2006-09- offered Table 2- not taken
- MCR- clear back to 2017
- Normal LFTs and no weight loss
- Guidelines: for “best case” need normal colonoscopy in past two year
- Can we consider as best case as is?

Case Study 6-

Cardiac testing recommended

- Male 39 \$500,000
 - Htn- avg 3 readings 128/82
 - Severe OSA- daily CPAP verified with compliance report
 - Quit cigarettes 3/22- 20 pack year history
 - Palpitations and Chest pain history
 - 12/21 normal EKG
 - AP notes palps/chest pain likely due to anxiety/caffeine/heart burn related
 - 10/21 CT scan showed 'atherosclerosis'
 - Referred to Cardiology, never went, symptoms resolved
 - 3/23 AP ordered CACS due to young age with atherosclerosis hx
 - No Family history of CAD noted- NTproBNP not completed
- Offer without recommended CACS based on normal EKG?
- Postpone for CACS recommended on 3/23 visit noting young age, smoking history, severe OSA?

Thank you for your time!

QUESTIONS