CEJ Comments

Accelerated Underwriting (A) Working Group

Ad Hoc Drafting Subgroup

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Resources

New York Circular No. 1

Abbreviated Summary of Presentations

National Association of Insurance Commissioners (NAIC) Principles on Artificial Intelligence (AI)

Casualty Actuarial and Statistical (C) Task Force Regulatory Review of Predictive Models White Paper

Introduction

In 2019, the NAIC established an accelerated underwriting working group to consider the use of external data and data analytics in accelerated life insurance underwriting, including consideration of the ongoing work of the Life Actuarial (A) Task Force on the issue and, if appropriate, draft guidance for the states. A more detailed procedural background can be found in the appendix. This paper is the output of over a year’s work by regulators to understand the current state of the industry and its use of accelerated underwriting. It summarizes what has been learned over the past year, contextualizes that learning and the topic of accelerated underwriting within other NAIC work and standard regulatory product evaluation processes, and makes recommendations for regulators and insurers when evaluating accelerated underwriting.

CEJ Comment: The NAIC started examining AUW prior to the 2019, first at the Life Actuarial Task Force. The introduction should discuss the work of the NAIC to develop the principles for artificial intelligence and the recommendations should both reference and attempt to implement those principles.

CEJ Comment: As noted in our comment letter, insurers utilize predictive models, like AUW, for a variety of reasons – speed the transaction, improve the customer experience, reduce the number of consumers who fail to complete the application process, write more business, reach new consumers, improve customer segmentation, lower costs and improve profitability. From the regulator’s perspective, the alleged benefits of AUW – or any big data / AI application – are interesting, but not relevant to the consumer protection issues arising from the big data / AI application. A regulator’s responsibility is to ensure the AUW practices comply with the law – whether or not the regulator perceives benefits to consumers or not. We suggest the paper remove gratuitous praise of the life insurers or AUW, particularly when such statements are simply the assertions of industry or industry-funded parties.

What is Accelerated Underwriting?

Throughout this paper, we use the term accelerated underwriting in life insurance. We propose the following as a definition:

Accelerated underwriting is life insurers’ application of big data, artificial intelligence and machine learning to life insurance underwriting. What distinguishes AUW from traditional life insurance underwriting is the use of non-traditional, non-medical data using predicative models or machine learning algorithms.

CEJ Comment: The definition, and the discussion in the paragraph below, suffers from the following ajor problems. First, traditional life insurance underwriting has not always required blood work, urine analysis, doctor’s notes or a physical examination. Life insurers have sold a variety of products without these types of data for many years. Second, insurers have used for many years predictive models to better analyze traditional medical data. The algorithms insurers developed to more quickly underwrite and more precisely price / segment life insurance products using traditional medical data are not new and are not AUW. What distinguishes AUW from other life insurers underwriting algorithms is the use of non-traditional, non-medical data. Third, the definition should be an objective description of what distinguishes AUW from non-AUW practices and should not be the marketing slogans of life insurers for AUW.

To understand accelerated underwriting in life insurance, it helps to understand underwriting in general and how it functions. Life insurance underwriting is the process of classifying applicants into risk categories to determine the appropriate rate to charge for transferring the financial risk associated with insuring the applicant. Traditional life insurance underwriting involves assessing the applicant’s physical health, usually through blood work, urine analysis, doctor’s notes, and a physical exam. Once this information is collected, an underwriter determines whether an applicant is eligible for coverage and the risk class to which that individual belongs. In addition to traditional underwriting and accelerated underwriting, there is also a process called simplified underwriting, or simplified issue. Simplified underwriting relies on very limited information (typically the applicant’s sex and age) and little, if any, additional information. Generally, there is no risk classification beyond age, gender, and possibly smoker status. Due to the limited information collected about an applicant with simplified underwriting, the expected mortality is higher than with traditional or accelerated underwriting, and the price reflects that mortality.[[1]](#footnote-2)

CEJ Comment: Underwriting is the process of selecting and classifying exposures. It involves the decision to accept or reject an applicant as well as determining what price to chare those applicants who are acceptable. Traditional life insurance underwriting does involve assessing an applicant’s physical health, but has not always involved blood work, urine analysis and a physical exam. Insurers have long sold products without these requirements and have developed algorithms and tools to more quickly access and analyze applicant’s medical information. Again, the point is that the sharp dichotomy between traditional underwriting and AUW is not accurate. In addition, it is not helpful to provide guidance on the unique issues that arise with AUW – namely the issues associated non-traditional, non-medical data used in a big data / AI application.

In addition to collecting an applicant’s medical history, the types of data typically collected for use in accelerated underwriting rely upon multiple variables that are components or data points in predicative models or machine learning algorithms. Examples of the variables used by some accelerated underwriting models include: smart phone apps, consumer activity wearables, claim acceleration tools, individual consumer risk development systems, purchasing history, behavior learned through cell phone usage and social media. An insurer may, or may not collect all this data from an applicant.

CEJ Comment: This paragraph fails to mention the most commonly used types of data used in AUW predictive models – consumer credit, public records and motor vehicle reports. In addition, what distinguishes AUW from traditional approaches is how these non-medical data are used. While traditional underwriting may have looked at these data sources for use in a rules-based approach – i.e., decline coverage if there is a recent bankruptcy or recent conviction for driving under the influence – AUW utilizes big data / AI to produce a more granular analysis and score – such as a mortality score.

Accelerated underwriting, may be limited to certain applicants applying for certain life insurance products. The exact parameters of the application of accelerated underwriting varies by insurer.

CEJ Comment: While insurers assert that AUW is not used to deny an application, it is unclear if that is the case. Further, AUW may result in pricing for some individuals that, while technically not a denial, are so expensive as to be a denial. We would suggest another source for the claims that underwriters are using AUW for different types of products. The article cited refers to one managing general agent.

Generally, the gist of the prior paragraph is that insurers vary in their use of AUW – the sophistication and intensity of use and the products to which it is applied – and the use of AUW is growing. It is unclear what purpose is served by the unattributed speculation in the last paragraph.

Industry stakeholder represented to the Working Group learned that life insurers use accelerated underwriting in two primary ways: 1) Accelerated underwriting is used to “triage” applicants, where unsuccessful applicants are re-routed to traditional underwriting, and successful ones continue through the accelerated underwriting process; or 2) Accelerated underwriting is used to create a score for an applicant to then be put into different risk categories. Accelerated underwriting employs a predictive model or machine learning algorithm, which is tested and modified via back-testing. The program learns from its mistakes to improve itself, using an underwriter’s feedback. It evolves over time. In fact, most accelerated underwriting algorithms used in life insurance are in their second or third generation. The COVID-19 pandemic sped up the adoption of accelerated underwriting in the industry as both consumers and insurers looked for options to purchase and write policies that relied more on technology and involved less in-person contact.

CEJ Comment: We suggest that the prior paragraph is a good place to reference the NAIC principles for artificial intelligence and the common concerns about big data / AI applications, such as bias data, biased models and bias modelers. Further, the paragraph states the claims about how AUW is used as fact as opposed to representations by industry parties. T

CEJ Comment: It is unclear what the source or basis are for the claims in this paragraph. As the article cited in a prior paragraph indicates, with some AUW applications, some decisions are fully automated. An underwriting decision that occurs within seconds cannot involve a human review. Per the article: “After underwriting, which is often instant or the same day, the applicant will get a decision. If approved, insureds can choose to activate their coverage without agent involvement.” There are clearly some AUW applications that do not involve a human underwriter for the specific transaction.

CEJ Comment: As mentioned above and in the attached comments, it is a given that insurers expect benefits from the use of a predictive model or they wouldn’t be using it. This paragraph regurgitates insurers’ marketing of AI to regulators and serves no purpose in a paper intended to provide guidance to regulators regarding consumer protection issues related to AUW.

General Discussion of Issues and Recommendations

While life insurers have long used predictive models for underwriting, the predictive models prior to AUW speeded and intensified the use of traditional medical data. What distinguishes AUW from traditional underwriting is the use of non-traditional, non-medical personal consumer information in predictive models. Today's accelerated underwriting is using multiple variables that are components or data points in an advanced algorithm. The use of new, non-regulated data sources and complex algorithms presents new regulatory challenges common to most insurers’ big data / AI / Machine Learning applications. These challenges are described in the NAIC’s Princples for Artificial Intelligence and include whether the data and algorithms are Fair and Ethical, Accountable (to regulators and consumers), Compliant, Transparent and Secure, Safe and Robust. As is typical, the technology has moved ahead of state regulation. While differences in process have evolved, the concern the regulators have is the same as with all underwriting -- whether or not the process is **fair, transparent and secure.** With regard to accelerated underwriting in life insurance, this pertains to input data, output data, the algorithm and the results of the process.

CEJ Comment: We appreciate the discussion of consumer protection issues. We ask the working group to consider our earlier comments about how AUW differs from traditional underwriting.

Insurers’ increasing use of consumer data in accelerated underwriting presents regulatory challenges. One particular challenge is the potential for **unfair discrimination**. Some companies believe a person’s behavior has a strong correlation with mortality risk. This behavioral data includes gym membership, one’s profession, marital status, family size, grocery shopping habits, wearable technology and credit scores. Although medical data may have scientific linkage with mortality, behavioral data may lead to questionable conclusions as correlation may be confused with causation.

For example, a high-income individual is perceived as someone who has excellent medical care. However, a high-income individual may also have the resources for illegal drug use or other dangerous habits or hobbies. A healthy young couple, on the other hand, may not have the disposable income to join a gym, however, they may exercise on their own. In either case, the lack of a gym membership or lower income may not indicate an increased mortality risk.

Recommendations

Life insurers’ use of AUW should comply with the NAIC’s Principles for Artificial Intelligence. To accomplish this, the NAIC should develop the regulatory guidance necessary to

* Ensure that regulators have the necessary authorities and tools;
* Ensure a level competitive playing field among insurers; and
* Ensure minimum consumer protections,

CEJ Comment: The paragraph mentions some but not all of the NAIC AI principles. We suggest that AUW should comply with all the principles. We also suggest that regulatory guidance – in the form of a model guideline or model law – is clearly needed. As set out in our attached comments, the actions needed to protect consumers are obvious and straight-forward. It is also clear that some of these actions require either guidance to regulators for how to use existing authorities or new authorities to be able to implement the AI principles.

Insurers and other parties involved in accelerated underwriting in life insurance should:

* Take steps to ensure data inputs are accurate and reliable.
* Ensure that the external data sources, algorithms or predictive models are based on sound actuarial principles with a valid explanation or rationale for any claimed correlation and causal connection.
* Be able to provide the reason(s) for any adverse underwriting decision to the consumer and all information upon which the insurer based its adverse underwriting decision.
* Take steps to protect consumer privacy and ensure consumer data is secure.
* Have a mechanism in place to correct mistakes if found.
* Produce information upon request as part of regular rate and policy reviews or market conduct examinations.

CEJ Comment: While these requirements comprise a significant part of the consumer protection needs associated with insurers’ use of AUW, it is not a complete list – see our attached comments. Further, it is unclear how dialogue with stakeholders will cause these actions to happen. Respectfully, the NAIC has been engaged in dialogue with insurers for five or more years on AUW. Surely, the time has come to memorialize the best practices in regulatory guidance.

The remainder of this paper delves into some specific topics and provides more detailed recommendations about those topics.

[Additional sections to be released for comment at a later date.]

**Appendix: Additional Procedural Background**

At the 2019 NAIC Summer National Meeting, the Life Insurance and Annuities (A) Committee discussed a referral it had received from the Big Data (EX) Working Group. The Big Data Working Group had discussed the use of predictive models in accelerated underwriting in life insurance, instead of medical examinations and the collection of fluids. The Big Data Working Group agreed that the issue would be most appropriately addressed by the life insurance subject matter experts and voted to refer the issue of the use of external data and data analytics in accelerated underwriting in life insurance to the Life Insurance and Annuities (A) Committee (Committee).[[2]](#footnote-5)

The Committee discussed the referral and acknowledged that there are a multitude of issues surrounding insurers use of data models and data analytics; issues that extend into many areas of insurance and implicate the work of several groups at the NAIC. In addition to the Big Data (EX) Working Group, there is the Innovation and Technology (EX) Task Force, the Artificial Intelligence (EX) Working Group, the Casualty Actuarial and Statistical (C) Task Force andthe Privacy Protections (D) Working Group. The Life Actuarial Task Force was also looking at the use of accelerated underwriting in life insurance from an actuarial perspective, including looking at any potential impact on insurer solvency.

The Committee agreed that an effort to delve into accelerated underwriting in life insurance would need to be narrowly focused, while taking into account the work of these other NAIC groups touching on the same topic.

Robert Muriel (IL) chaired the Working Group and Grace Arnold (MN) was the vice chair. The following were Working Group members: Jason Lapham (CO); Russ Gibson (IA); Rich Piazza (LA); Cynthia Amann (MO); Rhonda Ahrens and Laura Arp (NE); Ross Hartley and Chris Aufenthie (ND); Lori Barron (OH); Elizabeth Kelleher Dwyer (RI); Lichiou Lee (WA); Mark Afable (WI). In January 2021, Commissioner Afable became chair of the Working Group and the rest of the membership remained the same.

The Working Group met for the first time on Oct 2, 2019 and developed a work plan to accomplish its charge. The work plan contemplated the Accelerated Underwriting (A) Working Group progressing through three phases with the goal of completing its charge by the 2020 Fall National Meeting. The first phase was focused on information-gathering. The second phase focused on identifying the issues and deciding on a work product, with the final phase devoted to drafting.

During the information gathering phase the Working Group heard 15 presentations from varying stakeholders, including an academic (Professor Patrick Brocket[[3]](#footnote-6)), insurance companies, consulting firms (Deloitte and Milliman), a consumer advocate (Birny Birnbaum—CEJ), the American Academy of Actuaries, lawyers from 2 Illinois law firms (Foley & Lardner and Edelson),  a machine learning assurance company (Monitaur), and a data analytics company (Verisk). Several of the presentations were held in regulator-only meetings when requested by presenters in order to share proprietary and confidential company-specific information.

Regulators from the Working Group volunteered to participate in two ad hoc groups to tackle the second and third phases of its work plan: There was an ad hoc NAIC liaison group to ensure awareness of and coordination with any work, including guidelines or protocols, developed by other NAIC groups, past and present, that related to the Working Group. There was also an ad hoc drafting group that agreed to take the information gathered, identify issues, recommend and draft a work product for review and approval by the Working Group.

In November 2020, the ad hoc drafting group shared with the Accelerated Underwriting (A) Working Group, a proposed draft outline for an educational report exploring accelerated underwriting in life insurance to provide guidance to regulators, industry, and consumer advocates and other stakeholders. In February 2021, the ad hoc groups merged.

1. August 2018, Emerging Underwriting Methodologies and their Impact on Mortality Experience Delphi Study, From Society of Actuaries, Methods 3.1.1, page 9 [↑](#footnote-ref-2)
2. *See* NAIC Proceedings – Spring 2019, Innovation and Technology (EX) Task Force, Attachment Two. [↑](#footnote-ref-5)
3. Gus Wortham Chair in Risk Management and Insurance at the University of Texas at Austin and Editor, North American Actuarial Journal. [↑](#footnote-ref-6)