

Adopted by the Life Insurance and Annuities (A) Committee on August 14, 2024
Adopted by the Accelerated Underwriting (A) Working Group on August 6, 2024

Accelerated Underwriting in Life Insurance Regulatory Guidance and Considerations

The Accelerated Underwriting (A) Working Group offers the following regulatory guidance for state Departments of Insurance (DOIs) to use when reviewing life insurer's use of accelerated underwriting programs. The regulatory guidance is designed to provide a framework for regulators to reference and is divided into three areas of focus: A) regulatory considerations; B) strategies for review; and C) requests for information.

Regulators should ensure that accelerated underwriting programs are fair, transparent, safe, and secure and in compliance with existing law. Making sure that the use of accelerated underwriting is fair to consumers is important because its use impacts the availability, access, and affordability of life insurance to consumers. Ensuring that insurers use accelerated underwriting in a transparent manner is important because consumers should understand what personal data is being accessed by insurers and how that data is being used. Insurers accessing sensitive consumer data have a duty to secure that data to protect consumers from the harm of unauthorized disclosure. And finally, it is critical that insurers' use of accelerated underwriting is in compliance with all applicable insurance laws and regulations.

A "Background" section has been included starting on page 5 to explain the history of the development of this regulatory guidance. A chronological list of the work product from other NAIC groups addressing similar or overlapping issues related to accelerated underwriting also has been included. While this entire body of work at the NAIC has influenced this guidance document, in the interest of clarity in this rapidly evolving area, this guidance document includes specific references to the definitions from other work product on which the regulatory guidance relies.

Regulatory Guidance

A) Regulatory Considerations

The AUWG developed the following regulatory factors for DOIs to consider when reviewing a life insurer's use of Accelerated Underwriting¹ programs:

1. Data inputs are transparent, accurate, reliable, and the data itself is evaluated for potential unfair discrimination.
2. External data sources, Algorithms² or Predictive Models³ are based on sound actuarial principles, including a rational explanation why a rating variable or combination of variables is correlated to expected loss or expense, and why that correlation is consistent with the expected direction of the relationship.⁴
3. Predictive Models or Machine Learning⁵ Algorithm(s) within Accelerated Underwriting accurately assess and price risk.
4. Predictive Models or Machine Learning Algorithm(s) achieve an outcome that is not unfairly discriminatory.
5. Reason(s) for an Adverse Underwriting Decision,⁶ along with information upon which the insurer based its Adverse Underwriting Decision, are provided to the consumer in language understandable by the typical consumer and consistent with applicable state and federal laws and regulations.
6. The insurer establishes and follows written procedures to protect the consumer's privacy and the consumer's data and provides a description of these procedures consistent with applicable state and federal laws and regulations to the consumer at the time of authorization.
7. The insurer has a mechanism in place to correct mistakes confirmed by records if found in consumer data.
8. The insurer has a process in place to assist a consumer in contacting the originator of a record that the consumer believes to be incorrect.

¹ For purposes of this Regulatory Guidance, "Accelerated Underwriting" has the meaning set forth in the Life and Annuity Market Conduct Annual Statement (MCAS). See page 6 below "From 2022."

² For purposes of this Regulatory Guidance, "Algorithm" has the meaning set forth in the AI Model Bulletin (See Appendix 4).

³ For purposes of this Regulatory Guidance, "Predictive Model" has the meaning set forth in the AI Model Bulletin (See Appendix 4).

⁴ For clarity and consistency, this bullet borrows language from the Casualty Actuarial and Statistical (C) Task Force *Regulatory Review of Predictive Models White Paper* to describe this concept, replacing the language from the Accelerated Underwriting Educational Paper recommendation, which said: "External data sources, algorithms or predictive models are based on sound actuarial principles, including a valid explanation or rationale for any claimed correlation or causal connection."

⁵ For purposes of this Regulatory Guidance, "Machine Learning" has the meaning set forth in the AI Model Bulletin (See Appendix 4).

⁶ For purposes of this Regulatory Guidance, "Adverse Underwriting Decision" has the meaning articulated in the most recent draft of Model #674, which came from [Model #670](#) and is consistent with the Fair Credit Reporting Act.

8. The insurer will produce information upon request as part of regular filing submission reviews or market conduct examinations or actions.
9. The insurer has procedures in place to address consumer notice requirements and use/restrictions on consumer data, consistent with applicable state and federal laws and regulations.

B) Strategies for Review

Using the regulatory considerations in A. above as a baseline for review, DOIs may consider the following:

1. Review a life insurer's underwriting programs/guidelines to confirm the proper use of data elements.
2. Request a life insurer provide Accelerated Underwriting data sources, Predictive Models, and Algorithms or summaries for analysis.
3. Request a life insurer provide additional information about how a particular Predictive Model or Machine Learning Algorithm is used in an Accelerated Underwriting program.
4. Request a life insurer provide information about source data used as part of its Accelerated Underwriting programs regardless of whether the data or score is provided by a third party or via a model.
5. Request a life insurer provide information about its auditing of data sets, Predictive Models, and Machine Learning Algorithms to ensure they are accurate, reliable, and do not result in unfairly discriminatory outcomes.

C) Requests for Information

The following are examples of questions and requests for information DOIs may want to submit to life insurers when reviewing Accelerated Underwriting programs:

1. What specific external data or information about life insurance applicants is being utilized by the Accelerated Underwriting program?
2. How does the company obtain any external data or information used as part of its life insurance Accelerated Underwriting program?
3. Explain and document in detail how the company discloses to applicants for life insurance what external information is used in its Accelerated Underwriting program and how this external information actually is used in the Accelerated Underwriting program.
4. Ask for a copy of all company disclosures provided to applicants regarding the company's Accelerated Underwriting program.
5. What process or recourse does the company provide to an applicant for life insurance should they receive an Adverse Underwriting decision based on external data or information?
6. What process or recourse does the company provide to applicants for life insurance to correct mistakes in the external data or information?

7. How is external data or information about life applicants utilized, stored after the completion of the underwriting process, and ultimately destroyed?
8. How does the company validate, test, and/or audit data sets, Predictive Models, and Machine Learning Algorithms for accuracy and reliability, and for potential Adverse Consumer Outcomes⁷?
9. Does the company validate, test, and/or audit data sets, Predictive Models, and Machine Learning Algorithms internally or does it utilize a third-party to perform these functions?
10. How does the company ensure that the model(s) it uses are based on sound actuarial principles?
11. How does the company address potential unfair discrimination by ensuring that external consumer data's correlation to risk is not outweighed by any correlation to a protected class(es).

The AUWG offers this guidance to the state DOIs for consideration, while recognizing that there is more work to come. The AUWG anticipates that the work of the other NAIC groups on this topic will lead to additional guidance regarding Accelerated Underwriting in life insurance.

Background

The Accelerated Underwriting Working Group (AUWG) was created by the Life Insurance and Annuities (A) Committee at the NAIC 2019 Summer National Meeting. One of the original charges given to the Working Group was to "... consider the use of external data and data analytics in accelerated life underwriting . . . and, if appropriate, drafting guidance for the states." The Working Group has been considering the effects of accelerated underwriting in life insurance since 2019, and during that time the definitions of artificial intelligence and accelerated underwriting and their use in life insurance has evolved.

A significant portion of the early work of the AUWG benefitted from a multitude of presentations from the life insurance industry, actuarial consulting firms, a machine learning assurance company, and consumer advocate groups. These presentations are summarized in an educational paper (Appendix 1) adopted by the Life Insurance and Annuities (A) Committee at the NAIC 2022 Spring National Meeting.

The educational paper includes recommendations for insurers and regulators designed to ensure new technologies are utilized by life insurers in ways that comply with existing insurance law. While existing insurance laws vary from state to state, the recommendations acknowledge that most states: 1) require life insurance underwriting to be based on expected losses and expenses; 2) require insurers that collect consumer data to maintain that data in secure systems; and 3) prohibit unfair discrimination in insurance underwriting.

The AUWG presents regulatory guidance for State Departments of Insurance (DOIs) when reviewing Accelerated Underwriting programs used by life insurers. The regulatory guidance expounds on the recommendations the AUWG made in its educational paper and provides sample questions and areas for review for DOIs.

Also, the AUWG is making a referral (Appendix 2) to the Market Conduct Examination Guidelines (D) Working Group of the Market Regulation and Consumer Affairs (D) Committee with suggested additions to the NAIC's

⁷ For purposes of this Regulatory Guidance, "Adverse Consumer Outcomes" has the meaning set forth in the Model AI Bulletin (See Appendix 4).

Market Regulation Handbook (MRH). The AUWG has concluded that it would be beneficial to include additional guidance in the NAIC's MRH that addresses questions involving Accelerated Underwriting in life insurance.

There are other NAIC groups working on similar or overlapping issues related to Accelerated Underwriting. The AUWG has considered and incorporated relevant content from the following:

From 2020:

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

On August 14, 2020, the NAIC membership adopted the *NAIC Principles on AI* (AI Principles) (Appendix 3). These AI Principles apply to insurance companies and all persons or entities facilitating the business of insurance that play an active role in the AI system life cycle, including third parties such as rating, data providers and advisory organizations (AI actors). The purpose of the principles is to inform and establish general expectations for AI actors and systems, emphasizing the importance of developing AI systems that are fair and ethical, accountable, compliant with insurance laws and regulations, transparent, and safe, secure, and robust. Both the educational paper and this regulatory guidance and referral rely on the expectations articulated in the AI Principles.⁸

From 2021:

- ***The Casualty Actuarial and Statistical Task Force Regulatory Review of Predictive Models White Paper:***

The NAIC adopted the Casualty Actuarial and Statistical Task Force of Property and Casualty I Committee's *Regulatory Review of Predictive Models White Paper (Regulatory Review White Paper)* on April 14, 2021. The *Regulatory Review White Paper* was issued to help bring more consistency to the art of reviewing predictive models within property/casualty rate filings and make the review process more efficient.

From 2022:

- ***The Market Conduct Annual Statement (MCAS) definition of Accelerated Underwriting***

The Market Conduct Annual Statement (MCAS) (D) Working Group under Market Regulation and Consumer Affairs (D) Committee is the national forum for states to define and revise the Market Conduct Annual Statement (MCAS) data elements and definitions. In 2022, the MCAS Working Group adopted additions to the Life and Annuity MCAS to collect basic information about products subject to Accelerated Underwriting, as well as the types of data the company uses in its Accelerated Underwriting. The MCAS includes the following:

For this MCAS, data should be reported as Accelerated Underwriting when artificial intelligence and/or machine learning which utilizes, in whole or in part, Other Non-medical Third-party Data and/or FCRA Compliant Non-medical Third-party Data in the underwriting of life insurance is applied; including when that data is used in combination with Application Data or Medical Data.

The AUWG believes that the MCAS definition is consistent with the more detailed definition of Accelerated Underwriting that informed the educational paper.⁹ Given that the AUWG regulatory guidance is contemplated

⁸ The AUWG relied on the NAIC's AI Principles for the recommendations contained in its educational paper and believes that these AI Principles, coupled with the NAIC model references listed in the MRH Section F. Underwriting and Rating of Chapter 20—General Examination Standards, and Section F. Underwriting and Rating of Chapter 23—Conducting the Life and Annuity Examination, form the basis for additional examination review criteria that focus on Accelerated Underwriting in life insurance.

⁹ AUWG's educational paper adopted the following definition: "Accelerated underwriting (AU) is the use of big data, artificial intelligence, and machine learning to underwrite life insurance in an expedited manner. The process generally uses predictive models and machine learning algorithms to analyze applicant data, which may include the use of non-traditional, non-medical data, provided either by the applicant directly or obtained through external sources. The process is typically used to replace

for use by insurance departments during market conduct reviews and for inclusion in the MRH, the AUWG uses the MCAS definition for purposes of its regulatory guidance document to avoid any unintended confusion.

From 2023¹⁰:

- **NAIC Model Bulletin: Use of Artificial Intelligence Systems by Insurers**

On December 4, 2023, the NAIC adopted the *NAIC Model Bulletin: Use of Artificial Intelligence Systems by Insurers* (AI Model Bulletin) (Appendix 4). The bulletin, when issued by a Department of Insurance: 1) reminds insurers that decisions or actions made or supported by AI must comply with all applicable insurance laws and regulations; 2) sets forth expectations as to how insurers will govern the development/acquisition and use of AI technologies and systems; and 3) also advises insurers of the type of information and documentation that the Department may request during an investigation or examination of any insurer regarding its use of AI technologies and systems.

The regulatory guidance follows the AI Model Bulletin. Specifically, the considerations, expectations, and questions about Accelerated Underwriting in life insurance contained in the regulatory guidance follow the expectations articulated in the first sentence of the AI Model Bulletin: “that decisions or actions impacting consumers that are made or supported by advanced analytical and computational technologies, including Artificial Intelligence (AI) Systems (as defined [in the bulletin]), must comply with all applicable insurance laws and regulations.” The defined terms in the AI Model Bulletin also apply to the AUWG regulatory guidance.

Big Data and AI (H) Working Group 2023 Life Artificial Intelligence/Machine Learning Survey

The 2023 Life Artificial Intelligence/Machine Learning Survey (Life AI/ML Survey) was conducted to inform the work of the Big Data and Artificial Intelligence (H) Working Group in support of its charge to:

Research the use of big data and artificial intelligence (AI) in the business of insurance, and evaluate existing regulatory frameworks for overseeing and monitoring their use. Present findings and recommended next steps, if any, to the Innovation and Technology (EX) Task Force, which may include model governance for the use of big data and AI for the insurance industry.

The results of the survey, summarized in a *Nov. 30, 2023 memorandum* (Appendix 5) and in the summary results chart (Appendix 6), confirm the importance of the development of regulatory guidance specific to the use of Accelerated Underwriting in life insurance.

In 2024 and ongoing...

- **Third-Party Data and Models (H) Task Force**

all or part of traditional underwriting in life insurance and to allow some applicants to have certain medical requirements waived, such as paramedical exams and fluid collection.”

¹⁰ In 2023, Draft Model and Data Questions were developed and exposed for comment by the Big Data and AI (H) Working Group to help regulators assess whether, to what extent, and in what capacity AI and ML algorithms were used in insurer operations. The Questions are intended to help regulators perform regulatory oversight during an investigation or as related to rate model reviews. The document includes a spreadsheet to gather responses in a structured format. An initial draft was exposed for comment in 2023, however, the project was put on hold to focus efforts on developing the AI Model Bulletin.

In 2024, the Third-Party Data and Models (H) Task Force was formed. The Task Force is charged to:

- A. Develop and propose a framework for the regulatory oversight of third-party data and predictive models.
- B. Monitor and report on state, federal, and international activities related to governmental oversight and regulation of third-party data and model vendors and their products and services. Provide recommendations to the Innovation, Cybersecurity, and Technology (H) Committee regarding responses to such activities.

The goal of this Task Force is to develop and propose an optimal regulatory framework for the regulatory oversight of third-party data and predictive models. The proposed regulatory framework may require new or modification of adopted model laws or regulations in 2025. The Third-Party Data and Models (H) Task Force will coordinate with other Innovation, Cybersecurity, and Technology (H) Committee activities and forums and place emphasis on transparency during the process.

- **Artificial Intelligence Systems Evaluation and Training Collaboration Forum**

The Innovation, Cybersecurity, and Technology (H) Committee established the concept of Collaboration Forums (CFs) as platforms for multiple NAIC groups to work together to identify and address foundational issues and develop a common framework that can inform the various workstreams across the NAIC Committee structure. CFs typically result in a series of events which may include webinars, or in-person components intended to advance an important policy matter.

An emerging CF is the Artificial Intelligence Systems Evaluation and Training Collaboration Forum, which includes several working groups and task force leads coming together for the purpose of developing exam standards for insurers using AI. The CF is also planning to oversee the development of AI training for regulators. The AUWG leadership is involved in this CF and in this role will help ensure that there is consistency around this topic across all lines of insurance.

- **The Privacy Protections (H) Working Group under the Innovation, Cybersecurity and Technology (H) Committee**

The Privacy Protections (H) Working Group is working on replacing the NAIC's Insurance Information and Privacy Protection Model Act (#670) and the Privacy of Consumer Financial and Health Information Regulation (#672) with one new model, *Consumer Privacy Protections Model Law* (#674). Model #674 is intended to address issues confronting state insurance regulators applying current model law and regulation requirements to consumer privacy notifications relative to insurance companies, insurance producers, and their third-party vendors access to consumer data via the internet, telematics, and other data tracking technology used in complex algorithms, including machine learning (ML) and artificial intelligence (AI). Although this group is addressing a unique set of issues, it will require coordination, especially with regard to definitions.

The AUWG supports the NAIC further developing regulatory guidance regarding the use of artificial intelligence in the insurance industry to help DOIs appropriately monitor the use of Accelerated Underwriting programs used by life insurers. As noted above, there is work currently underway which will inform future efforts on this topic.

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Accelerated Underwriting (A) Working Group
Ad Hoc Drafting Subgroup

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Resources

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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 National Association of Insurance Commissioners (NAIC) established the Accelerated Underwriting (A) 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. In addition, the 2021 charges of the Special Committee on Race and Insurance direct the working group to include an assessment of and recommendations, as necessary, regarding the impact of accelerated underwriting on minority populations. 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 the Working Group has 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.

Accelerated underwriting in life insurance may provide potential benefits to both consumers and insurers, if applied in a fair and non-discriminatory manner. In order to fairly deliver the benefits of more convenient and cost-effective processes, regulators and insurers should be guided by current law related to fair trade practices and unfair discrimination. Regulators and insurers should also continue to monitor accelerated underwriting practices as they develop and update, when necessary, relevant laws to adapt to these developing practices to avoid unfair trade practices and unfairly discriminatory practices. Much of the discussion in this paper is framed in these general terms. The Working Group believes the charge to specifically address the impact on minority populations is included in these terms. Future work products of the Working Group may address the charge from the Special Committee on Race and Insurance in more detail.

What is Accelerated Underwriting?

Throughout this paper, we use the term accelerated underwriting in life insurance. For purposes of this paper, we based our work on the following definition:

Accelerated underwriting is the use of big data, artificial intelligence, and machine learning to underwrite life insurance in an expedited manner. The process generally uses predictive models and machine learning algorithms to analyze applicant data, which may include the use of non-traditional, non-medical data, provided either by the applicant directly or obtained through external sources. The process is typically used to replace all or part of traditional underwriting in life insurance and to allow some applications to have certain medical requirements waived, such as paramedical exams and fluid collection.

Predictive models examine data sets for patterns to predict and assign the risk category, e.g., a model developer enters data points (potentially hundreds of thousands), and the model finds patterns and identifies future

predictions of risk and assigns an insured to a risk category.¹ Machine learning algorithms are a process or set of rules executed to solve an equation², e.g., a life insurance underwriter uses a set of rules to place an individual insured in a particular risk category. The ‘learning’ part of machine learning means that those programs change how they process data over time, much as humans change how they process data by learning. Machine learning often falls into two groups: supervised or unsupervised. The difference between the two is whether the program is directed to analyze patterns or is self-automated.

Predictive models or machine learning trains a system to make judgments when exposed to data that is unfamiliar to serve as a substitute for human-centric decision making. These are both subcategories of artificial intelligence, which should not be confused with a static rule-based algorithm.

Life insurance underwriting is the process of determining eligibility and 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, along with other financial and behavioral elements, then determining whether an applicant is eligible for coverage and the risk class to which that individual belongs. Accelerated underwriting relies both on traditional and non-traditional, non-medical data used within predictive models or machine learning algorithms to perform some of the tasks of an underwriter. The exact parameters of the application of accelerated underwriting vary by insurer.

Presentations made to the Working Group indicated that life insurers use accelerated underwriting in primarily two 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 rate applicants based on risk categories.

Most predictive or machine learning algorithms used in life insurance underwriting 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. This has highlighted the need for ongoing monitoring of the machine learning algorithms—both their development and their uses in the marketplace.

Presentations made to the Working Group indicated that adverse underwriting decisions are sometimes reviewed by human underwriters. Companies presenting to the Working Group stated that the accelerated underwriting process is less cumbersome, costs less than traditional underwriting, it expedites the process and requires less

¹ For a more detailed discussion of predictive models in property and casualty insurance, see the Casualty Actuarial and Statistical (C) Task Force Regulatory Review of Predictive Models White Paper, Adopted by the Property and Casualty Insurance (C) Committee on Dec. 8, 2020.

² The Big Data and Artificial Intelligence (EX) Working Group developed a survey to conduct analysis on private passenger automobile (PPA) insurers’ use and governance of big data, as used in an artificial intelligence (AI) and machine learning (ML) system. The survey is being conducted under the examination authority of Connecticut, Illinois, Iowa, Louisiana, Nevada, North Dakota, Pennsylvania, Rhode Island, and Wisconsin. This analysis will help inform the Working Group in completing its long-term goals of developing guidance and recommendations to update the existing regulatory framework for the use of big data and AI, including how to monitor and oversee the industry’s compliance with the NAIC’s AI principles. The survey work may be expanded to other lines of insurance as needed, such as life insurance and homeowners insurance. For the purposes of the survey only, AI/ML is defined as, “an automated process in which a system begins recognizing patterns without being specifically programmed to achieve a pre-determined result.” This is different from a standard algorithm that consists of a process or set of rules executed to solve an equation or problem in a pre-determined fashion, and evolving algorithms are considered a subset of AI/ML.

consumer involvement in the purchase, improves the underwriting experience for consumers, shortens issue times, and increases policy acceptance rates.³

General Discussion of Issues and Recommendations

Life insurers reliance on an increasingly automated underwriting process that uses non-traditional, non-medical data presents new regulatory challenges. Regulators must ensure that the process is **fair, transparent, and secure**. With regard to accelerated underwriting in life insurance, this concern pertains to input data, the predictive model or machine learning algorithm, and the results of the process. One particular challenge is the potential for **unfair discrimination**. Due to the fact accelerated underwriting relies on non-traditional, non-medical data and predictive models or machine learning algorithms, it may lead to unexpected or unfairly discriminatory outcomes even though the input data may not be overtly discriminatory. It is critical to test the conclusions up front, on the back end, as well as, randomly, to ensure the machine learning algorithm does not produce unfairly discriminatory ratings or ones that are not actuarially sound. Testing can also be important in determining if a machine learning algorithm is accurate across demographic categories. Such scrutiny is especially important when behavioral data is utilized. Behavioral data may include gym membership, one's profession, marital status, family size, grocery shopping habits, wearable technology, and credit attributes. Although medical data has a scientific linkage with mortality, behavioral data may lead to questionable conclusions without reasonable explanation.

Recommendations

Consistent with the Artificial Intelligence Principles approved by the NAIC in 2020⁴, the use of accelerated underwriting in life insurance should be fair and transparent to regulators, consumers, and policymakers. Companies must operate in compliance with applicable laws, and the process and data companies use need to be secure. To accomplish these objectives, regulators should dialogue with consumers, life insurers, and third-party vendors to determine if consumer data is being used in problematic or unfair ways or generating unfair outcomes.

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

- Take steps to ensure data inputs are transparent, accurate, reliable, and the data itself does not have any unfair bias.
- Ensure that the use of external data sources, algorithms or predictive models are based on sound actuarial principles with a valid explanation or rationale for any claimed correlation or causal connection.
- Ensure that the predictive models or machine learning algorithm within accelerated underwriting has an intended outcome and that outcome is being achieved.
- Ensure that the predictive models or machine learning algorithm achieve an outcome that is not unfairly discriminatory.

³ Presentations to Accelerated Underwriting (A) Working Group between Dec. 8, 2018, and Sept. 24, 2020.

⁴ See National Association of Insurance Commissioners (NAIC) Principles on Artificial Intelligence (AI) – Fair and Ethical a. AI actors should respect the rule of law throughout the AI life cycle. This includes, but is not limited to, insurance laws and regulations, such as those relating to trade practices, unfair discrimination, access to insurance, underwriting, privacy, consumer protection and eligibility practices, rate making standards, advertising decisions, claims practices, and solvency. b. Consistent with the risk-based foundation of insurance, AI actors should proactively engage in responsible stewardship of trustworthy AI in pursuit of beneficial outcomes for consumers and to avoid proxy discrimination against protected classes. AI systems should not be designed to harm or deceive people and should be implemented in a manner that avoids harmful or unintended consequences and corrects and remediates for such consequences when they occur.

- Be able to provide the reason(s) for an adverse underwriting decision, whether the decision is based on data subject to FCRA or not, 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 filing submissions reviews or market conduct examinations.

Input data

Predictive models or machine learning algorithms within the accelerated underwriting process rely heavily on data and multiple variables. Examples of the variables used by some accelerated underwriting models include customer disclosures, prescription history, digital health records, credit attributes, medical information bureau data, public records, motor vehicle reports, smartphone apps, consumer activity wearables, claim acceleration tools, individual consumer risk development systems, purchasing history, behavior learned through cell phone usage, and social media. Because accelerated underwriting relies on predictive models or machine learning algorithms that use non-traditional, non-medical data, it may lead to unexpected or unfairly discriminatory outcomes, even though the input data may be facially neutral.

Traditional Data

Traditional data used in life insurance underwriting includes data collected through a traditional underwriting process. This data may include the following:

- Application data, e.g., medical records, prescription questions, vocation questions, financial profile
- Tele-interview
- Medical records
- Data from the MIB (formerly known as Medical Information Bureau) ⁵
- Data from Motor Vehicle Records
- Prescription drug history
- Public records, e.g., criminal records, bankruptcy records, civil litigation, etc.
- Paramedical or medical exam, including EKG's in some instances
- Fluids, e.g., blood, urine, swab/saliva test to determine tobacco usage
- Financial and tax information

Considerations for use of Traditional Data

- Traditional data has a long and established history in the life insurance industry. Carriers, producers, and consumers are generally familiar with the process.
- Traditional data has a history of usage by insurance carriers. Trained underwriters and producers have years of experience and often understand the process well.
- The relationship of the traditional data elements to the risk is well established and consumers generally understand how most of the elements impact their risk classification or premium charged.

⁵ This data is subject to the Fair Credit Reporting Act (FCRA).

- State statutes and case laws were developed based on the use of traditional data containing consumer protections created under the assumption that this was the type of data collected or reviewed during an underwriting process.
- Presentations made to the Working Group represented that time and costs associated with obtaining and reviewing traditional data are significant.

Non-traditional Data

Non-traditional data used in life insurance underwriting may include the following:

- Public records, e.g., assessor data, genealogy records, court filings, voter information
- Property/casualty data from adjacent carrier(s)
- Marketing and social data, e.g., shopping habits, mortgage amount/lender, occupation and education, and social media, etc.
- Professional licenses
- Biometric data, e.g., voice analysis, facial analysis, and other analytics based on personal physical features and characteristics
- Wearable devices

Considerations for use of Non-traditional Data

- Per Actuarial Standard of Practice (ASOP) No. 12, an actuary needs to demonstrate that a relationship between a risk characteristic and an expected outcome exists. This standard applies for any data used, traditional or non-traditional. Consumers may not generally understand how non-traditional data elements impact their risk classification or premium charged.
- As additional rating factors are introduced via insurance scores or with specific data elements, disparate impact across and between demographic groups may be introduced or amplified.
- Non-traditional data may not have the same consumer protections as FCRA and traditional data. For example:
 - There may not be a clear path for consumers to know how data affected their application and how inaccurate data may be corrected.
 - The type and purpose of data accessed are not required to be disclosed to the consumer.
 - There may be privacy concerns about the extent of the use of non-traditional data.

FCRA Data

Some data⁷ used in traditional and accelerated underwriting is subject to the federal Fair Credit Reporting Act (FCRA), which protects the privacy of consumer report information. If an insurer uses data subject to FCRA in its underwriting, applicants:

- (1) Have a right to be told if this information is used to deny insurance or take other adverse action⁸,
- (2) Have the ability to request the data a consumer reporting agency is providing to an insurer, and
- (3) Have the right to ask a consumer reporting agency to correct any errors in the data.

⁷ FCRA applies to consumer reports. Please see 15 U.S. Code § 1681a(d).

⁸ FCRA defines adverse action, in part, as “a denial or cancellation of an increase in any charge for, or a reduction or other adverse or unfavorable change in the terms of coverage or amount of, any insurance, existing or applied for, in connection with the underwriting of insurance[.]” 15 U.S. Code § 1681a(k).

Considerations for use of data subject to FCRA:

- FCRA data is readily available.
- FCRA data is updated regularly.
- FCRA data is already used in life and property/casualty lines of business.
- There is existing regulation and oversight by the Federal Trade Commission (FTC) and Consumer Financial Protection Bureau (CFPB).
- Not all FCRA data is useful/ relevant to life insurance underwriting.
- If there is a dispute about the accuracy of FCRA data, a consumer has to obtain additional information and formally dispute these findings.
- FCRA data is extensive and accessing such data may result in access to non-usable credit attributes. In other words, significantly more data may be collected than is needed to determine risk.
- As additional rating factors are introduced via insurance scores or with specific data elements, unfair discrimination, including disparate impact, may be introduced or amplified.

Recommendations

Existing regulations apply to accelerated underwriting programs in the same way as traditional underwriting programs. State Departments of Insurance (DOIs) have broad regulatory authority to make inquiries into the processes and procedures of life insurers in order to investigate potential unfair trade practices. Complaints about underwriting practices are opportunities for DOIs to review a life insurer's use of accelerated underwriting and data collection methods. Additional DOI actions may include market conduct and on-site examinations as appropriate under existing authority.

Specifically, examiners may:

- Review the life insurer's underwriting practices and underwriting guidelines during an examination or upon initial submission of the policy rates and forms and confirm the proper use of the data elements.
- Request that explanation provided to the consumer for any negative action taken by the life insurer adequately informs the consumer as to why a particular action was taken without the consumer having to make additional inquiries.
- Request information about source data regardless of whether the data or score is provided by a third party.

Form and rate reviewers may:

- Request that the life insurer provides information about how a predictive model or machine learning algorithm will be used.
- Consider requiring the filing of models used to analyze data.
- Consider questioning the extent to which data elements correlate to applicant risk.
- Request information about source data regardless of whether the data or score is provided by a third party.

Life insurers and third-party vendors have a responsibility to understand the data they are using. To accomplish this, life insurers should conduct post-issue audits and data analysis and make these audits and analysis available to regulators upon request. For example, analyses such as evaluating claims and lapse rates may be helpful. Life insurers and third-party vendors should ensure data inputs are accurate and reliable.

Life insurers and third-party vendors should ensure that the external data sources, algorithms, or predictive models are developed with sufficient internal controls and oversight and based on sound actuarial principles with a valid explanation or rationale for any claimed correlation and causal connection.

Data Privacy

Data privacy—a consumer’s ability to retain control over what data can be shared about them and with whom—is not a concern unique to accelerated underwriting in life insurance. Protecting consumer privacy is an issue across all lines of insurance and is the subject of the NAIC Privacy Protections (D) Working Group, formed in 2019 under the parent committee of Market Regulation and Consumer Affairs (D) Committee.

The Working Group’s charge is to review the state insurance privacy protections regarding the collection, use, and disclosure of information gathered in connection with insurance transactions, and make recommended changes, as needed, to certain NAIC models and other existing federal or state statutes.⁹

The primary focus of the Working Group is on the six consumer data privacy rights or types of consumer data privacy protections identified in the NAIC’s Member adopted *Strategy for Consumer Data Privacy Protections* policy statement. The secondary focus is on issues such as notice requirements and standards, disclosure of information collected, disclosure of shared information, requirements to disclose sources of information, requirements to disclose business purposes, and a requirement to disclose third party involvement. The current assignments for the Working Group are intended to create a framework for the policy statement: defining the parameters of these consumer rights by offering suggested definitions, examples of consumer risks, and what may not be protected in federal laws or not covered under NAIC Model laws.

The Privacy Protections Working Group’s policy statement will address the following consumer privacy rights:¹⁰

- 1) Right to opt-out of data sharing
- 2) Right to opt-in of data sharing
- 3) Right to correct information
- 4) Right to delete information
- 5) Right to data portability

⁹ The Working Group has focused its reviews on the Insurance Information and Privacy Protection Model Act #670, and the Privacy of Consumer Financial and Health Information Regulation Model Act #672 – both drafted in response to the enactment of GLBA, and #668 – the Insurance Data Security Model Act, enacted in 2019/20. With a great deal of research assistance from NAIC Legal Staff, the Working Group prepared a gap analysis – upon which it continues to work. The Working Group is also reviewing the consumer data privacy protections other than those already in these models, such as the numerous provisions contained in federal acts such as the Fair Credit Reporting Act {FCRA}, the Gramm-Leach Bliley Act {GLBA}, the Health Insurance Portability and Affordability Act {HIPAA}, Electronic Health Records {EHR}, etc. The Working Group is also analyzing the various provisions of recently enacted legislation, such as California’s Consumer Privacy Act {CCPA} and its Consumer Data Privacy Regulation {CCPR}, Virginia’s and Colorado’s recently enacted Consumer Privacy Protection laws, certain provisions of the European General Data Protection Regulation {GDPR}, the NAIC’s Record Retention Model Regulation and the NAIC’s Unfair Claims Practice Model Act {UCPA}. There are a lot of jurisdictional issues that remain to be sorted through.

¹⁰ For purposes of the Working Group’s paper, the use of the term “right” should be read as a basic protection, or, denoting access to making a request and not as a guarantee of having the requested right acted upon in the manner as the consumer requests.

6) Right to restrict the use of data¹¹

The Accelerated Underwriting (A) Working Group will continue to watch the work of this group. If at any point issues unique to accelerated underwriting arise, we will endeavor to address them in a future work product.

¹¹ for purposes of the Working Group's paper there is a distinction between an individual's data and information that results from the use of this data, *e.g.*, the insurance score that results from the use of an algorithm.

Appendix A: 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).¹²

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 overlap with 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, and the 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 Brocket¹³), 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.

¹² See NAIC Proceedings – Spring 2019, Innovation and Technology (EX) Task Force, Attachment Two.

¹³ Gus Wortham Chair in Risk Management and Insurance at the University of Texas at Austin and Editor, North American Actuarial Journal.

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.

Appendix B: Machine Learning/ Artificial Intelligence Definition in 6/24/21 Draft Big Data and Artificial Intelligence (EX) Working Group Survey on private passenger automobile (PPA) insurers' use and governance of big data.

Artificial Intelligence/Machine Learning (AI/ML)

AI/ML describes an automated process in which a system begins recognizing patterns without being specifically programmed to achieve a pre-determined result. This is different from a standard algorithm in that an algorithm is a process or set of rules executed to solve an equation or problem in a pre-determined fashion. Evolving algorithms are considered a subset of AI/ML.

Artificial Intelligence / Machine Learning Systems include:

- Systems that adapt and adjust to new data and experience without manual human intervention.
- Systems that arrive at results for which the outcomes and the stepwise approach toward the outcomes were not configured in advance by a human programmer.
- Systems that dynamically respond to conditions in the external environment without the specific nature of such responses being known in advance to the designers of the systems.
- Systems that utilize neural networks and/or deep-learning algorithms, such as supervised, semi-supervised, and unsupervised learning algorithms.
- Systems that engage in automatic speech recognition, facial recognition, image recognition, text recognition, natural language processing, generation of customer-specific recommendations, automated customer communications (e.g., chatbots with non-preprogrammed prompts), autonomous or semi-autonomous vehicle operation or data gathering, or any other approach that does not require either preprogramming or a manual human intervention in every instance of an action or decision.
- Systems that automatically generate adaptive responses based on interactions with a consumer or third party.
- Systems that determine which data elements to rely upon, in a non-preprogrammed fashion, among a variety of possible alternatives.

Artificial Intelligence / Machine Learning Systems are not:

- Static “scorecards” that deterministically map consumer or other risk characteristics to treatments or decisions. (However, an AI/ML system may use the output of such static “scorecards” as input data for the AI/ML system to consider.)
- Systems with solely preprogrammed decision rules (e.g., “If A, then B” applied invariably in all situations).
- Tables of point or factor assignments in rating plans.
- Static rate making and/or predictive modeling methodologies, including linear regression, generalized linear modeling (GLM), or generalized additive modeling (GAM). Purely informational static databases, such as databases used to obtain reference amounts for claim settlements, or static databases pertaining to consumer characteristics or experience, regardless of the

amount of information in the database. However, if AI/ML is used to create a static predictive model, that AI/ML system is considered within the scope of this survey.

- Deterministic “phone trees” that navigate consumers through pre-recorded voice prompts.
- Any approach that an insurer could have realistically utilized in the year 2000 or prior.

AI/ML Use Descriptions and/or Explanations

- **Underwriting: AI/ML Uses**
 - Automated Approval: Approving an application without human intervention on that particular application.
 - Automated Denial: Denying an application without human intervention on that particular application.
 - Underwriting Tier Determination: Decisions regarding the criteria to use to establish specific named or numbered categories (called tiers) which utilize combinations of attributes that affect an insurer’s underwriting decision.
 - Company Placement: Decisions regarding which of several affiliated companies within an insurance group will accept an individual risk.
 - Input into Non-Automated Approval Decision: Providing data, analysis, or recommendations regarding a decision to approve an application in a situation where a human decision-maker still has the ability and responsibility to affirmatively consider this information and make a decision independently of the AI/ML system. In this situation, the AI/ML system cannot automatically approve the application, and protocols exist that ensure that each recommendation from the AI/ML system is actively reviewed and not adopted by default.
 - Input into Non-Automated Denial Decision: Providing data, analysis, or recommendations regarding a decision to deny an application in a situation where a human decision-maker still has the ability and responsibility to affirmatively consider this information and make a decision independently of the AI/ML system. In this situation, the AI/ML system cannot automatically deny the application, and protocols exist that ensure that each recommendation from the AI/ML system is actively reviewed and not adopted by default.
 - Automate Processing Thru the Agency Channel: Enabling agencies to receive certain information about applicants automatically without specifically requesting that information and/or to provide quotes to the applicants and/or recommend a decision regarding the application to the agent without being based on preprogrammed decision rules.

Adopted by the Life Insurance and Annuities (A) Committee on August 14, 2024
Adopted by the Accelerated Underwriting (A) Working Group on August 6, 2024

MEMORANDUM

TO: **Market Conduct Examination Guidelines (D) Working Group** of the Market Regulation and Consumer Affairs (D) Committee

FROM: Accelerated Underwriting (A) Working Group of the Life Insurance and Annuities (A) Committee

DATE:

RE: Suggested additions to the NAIC's *Market Regulation Handbook* addressing accelerated underwriting in life insurance

The Accelerated Underwriting Working Group (AUWG) was created by the Life Insurance and Annuities (A) Committee at the NAIC 2019 Summer National Meeting to "... consider the use of external data and data analytics in accelerated life underwriting, including consideration of the ongoing work of the Life Actuarial (A) Task Force on the issue and, if appropriate, drafting guidance for the states." The AUWG drafted an educational paper that was adopted by the Life Insurance and Annuities (A) Committee on April 7, 2022. During this same time frame, various groups at the NAIC continued to work on related issues and develop work product.¹ Notably, on December 4, 2023, the NAIC adopted the *NAIC Model Bulletin: Use of Artificial Intelligence Systems by Insurers* (AI Model Bulletin). The AUWG also continued its work drafting the *Accelerated Underwriting in Life Insurance Regulatory Guidance* (Regulatory Guidance) for the states reviewing life insurers' use of accelerated underwriting. This Regulatory Guidance was adopted by the AUWG on [insert date] and by the Life Insurance and Annuities (A) Committee on [insert date].

In developing the Regulatory Guidance, the AUWG realized that additional guidance addressing accelerated underwriting in life insurance in the NAIC's *Market Regulation Handbook* (MRH) would provide examiners with critical tools to use when looking at the underwriting activities of life insurers. Specific guidance pertaining to accelerated underwriting in the MRH is necessary to alert the market conduct examiner to the novel data and processes utilized by life insurers in accelerated underwriting.

Existing laws and regulations apply to accelerated underwriting programs in the same way as traditional underwriting programs. DOIs have broad authority to examine the processes and procedures of life insurers to determine if their accelerated underwriting programs comply with the statutes and regulations of the department. The AI Model Bulletin also advises insurers of the type of information and documentation that insurance departments may request under existing regulatory authority during an investigation or examination regarding its use of AI Systems, which includes accelerated underwriting in life insurance. In particular, the state equivalent to the following NAIC Models provide legislative authority for specific inquiry into insurer practices involving AI Systems, including accelerated underwriting in life insurance:

Unfair Trade Practices Act (#880) defines practices that constitute unfair methods of competition or unfair or deceptive acts and practices and prohibits the trade practices so defined or determined.

¹ See list of related work product in the Background section of the *Accelerated Underwriting in Life Insurance Regulatory Guidance* document.

Unfair Claims Settlement Practices Model Act (#900) sets forth standards for the investigation and disposition of claims arising under policies or certificates of insurance.

Corporate Governance Annual Disclosure Model Act (#305): requires insurers to report on governance practices and to provide a summary of the Insurer's corporate governance structure, policies, and practices. The content, form, and filing requirements for a Corporate Governance Annual Disclosure (CGAD) are set forth in the Corporate Governance Annual Disclosure Model Regulation (#306)

The AUWG recommends that the Market Conduct Examination Guidelines (D) Working Group utilize the Regulatory Guidance to update the MRH. The Regulatory Guidance is designed to provide a framework for regulators to reference when reviewing insurers' use of accelerated underwriting and is divided into three areas of focus: A) regulatory considerations; B) strategies for review; and C) requests for information. Section C, in particular, contains questions that could be incorporated into the MRH. The AUWG looks forward to working with and will be available to assist the Market Conduct Examination Guidelines (D) Working Group in drafting the recommended changes to the MRH.

APPENDIX 3

Adopted by the Executive (EX) Committee and Plenary, Aug. 14, 2020

Adopted by the Executive (EX) Committee, Aug. 13, 2020

Adopted by the Innovation and Technology (EX) Task Force, Aug. 7, 2020

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

RECOMMENDS that insurance companies and all persons or entities facilitating the business of insurance that play an active role in the AI system life cycle, including third parties such as rating, data providers and advisory organizations (hereafter referred to as “AI actors”) promote, consider, monitor and uphold the following principles according to their respective roles; and

THIS DOCUMENT is intended to establish consistent high-level guiding principles for AI actors. These principles are guidance and do not carry the weight of law or impose any legal liability. This guidance can serve to inform and establish general expectations for AI actors and systems emphasizing the importance of accountability, compliance, transparency, and safe, secure, fair and robust outputs.

Further, **THIS DOCUMENT**

Should be used to assist regulators and NAIC committees addressing insurance-specific AI applications. The level of regulatory oversight may vary based on the risk and impact to the consumer. These principles should be interpreted and applied in a manner that accommodates the nature and pace of change in the use of AI by the insurance industry and promotes innovation, while protecting the consumer.

Fair and Ethical

- a. AI actors should respect the rule of law throughout the AI life cycle. This includes, but is not limited to, insurance laws and regulations, such as those relating to trade practices, unfair discrimination, access to insurance, underwriting, privacy, consumer protection and eligibility practices, ratemaking standards, advertising decisions, claims practices, and solvency.
- b. Consistent with the risk-based foundation of insurance, AI actors should proactively engage in responsible stewardship of trustworthy AI in pursuit of beneficial outcomes for consumers and to avoid proxy discrimination against protected classes. AI systems should not be designed to harm or deceive people and should be implemented in a manner that avoids harmful or unintended consequences and corrects and remediates for such consequences when they occur.

Accountable

- a. AI actors should be accountable for ensuring that AI systems operate in compliance with these principles consistent with the actors' roles, within the appropriate context and evolving technologies. Any AI system should be compliant with legal requirements governing its use of data and algorithms during its phase of the insurance life cycle. Data supporting the final outcome of an AI application should be retained and be able to be produced in accordance with applicable insurance laws and regulations in each jurisdiction. AI actors should be responsible for the creation, implementation and impacts of any AI system, even if the impacts are unintended. AI actors should implement mechanisms and safeguards consistent with the degree and nature of the risks posed by AI to ensure all applicable laws and regulations are followed, including ongoing (human or otherwise) monitoring and, when appropriate, human intervention.

Compliant

- a. AI actors must have the knowledge and resources in place to comply with all applicable insurance laws and regulations. AI actors must recognize that insurance is primarily regulated by the individual states and territories of the United States as well as by the federal government, and that AI systems must comply with the insurance laws and regulations within each individual jurisdiction. Compliance is required whether the violation is intentional or unintentional. Compliance with legal requirements is an ongoing process. Thus, any AI system that is deployed must be consistent with applicable laws and safeguards against outcomes that are either unfairly discriminatory or otherwise violate legal standards, including privacy and data security laws and regulations.

Transparent

- a. For the purpose of improving the public's confidence in AI, AI actors should commit to transparency and responsible disclosures regarding AI systems to relevant stakeholders. AI actors must have the ability to protect confidentiality of proprietary algorithms, provided adherence to individual state law and regulations in all states where AI is deployed can be demonstrated. These proactive disclosures include revealing the kind of data being used, the purpose of the data in the AI system and consequences for all stakeholders.
- b. Consistent with applicable laws and regulations, stakeholders (which includes regulators and consumers) should have a way to inquire about, review and seek recourse for AI-driven insurance decisions. This information should be easy-to-understand and describe the factors that lead to the prediction, recommendation or decision. This information may be presented differently and should be appropriate for applicable stakeholders.

Secure, Safe and Robust

- a. AI systems should be robust, secure and safe throughout the entire life cycle so that in conditions of normal or reasonably foreseeable use, or adverse conditions, they can function in compliance with applicable laws and regulations. To this end, AI actors should ensure a reasonable level of traceability in relation to datasets, processes and decisions made during the AI system life cycle. AI actors should enable analysis of the AI system's outcomes, responses and other insurance-related inquiries, as appropriate in keeping with applicable industry best practices and legal requirements.
- b. AI actors should, based on their roles, the situational context and their ability to act, apply a systematic risk management approach to each phase of the AI system life cycle on a continuous basis to address risks related to AI systems, including privacy, digital security and unfair discrimination as defined by applicable laws and regulations.

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APPENDIX 4

Draft: 12/2/2023

Adopted by Executive (EX) Committee and Plenary, December 4, 2023

Adopted by the Innovation, Cybersecurity, and Technology (H) Committee, December 1, 2023

NAIC MODEL BULLETIN:

USE OF ARTIFICIAL INTELLIGENCE SYSTEMS BY INSURERS

TO: All Insurers Licensed to Do Business In (*Insert Name of Jurisdiction*) (“Insurers”)

FROM: [Department/Commissioner]

DATE: [Insert]

RE: The Use of Artificial Intelligence Systems in Insurance

This bulletin is issued by the [] (Department) to remind all Insurers that hold certificates of authority to do business in the state that decisions or actions impacting consumers that are made or supported by advanced analytical and computational technologies, including Artificial Intelligence (AI) Systems (as defined below), must comply with all applicable insurance laws and regulations. This includes those laws that address unfair trade practices and unfair discrimination. This bulletin sets forth the Department’s expectations as to how Insurers will govern the development/acquisition and use of certain AI technologies, including the AI Systems described herein. This bulletin also advises Insurers of the type of information and documentation that the Department may request during an investigation or examination of any Insurer regarding its use of such technologies and AI Systems.

SECTION 1: INTRODUCTION, BACKGROUND, AND LEGISLATIVE AUTHORITY

Background

AI is transforming the insurance industry. AI techniques are deployed across all stages of the insurance life cycle, including product development, marketing, sales and distribution, underwriting and pricing, policy servicing, claim management, and fraud detection.

AI may facilitate the development of innovative products, improve consumer interface and service, simplify and automate processes, and promote efficiency and accuracy. However, AI, including AI Systems, can present unique risks to consumers, including the potential for inaccuracy, unfair discrimination, data vulnerability, and lack of transparency and explainability. Insurers should take actions to minimize these risks.

The Department encourages the development and use of innovation and AI Systems that contribute to safe and stable insurance markets. However, the Department expects that decisions made and actions taken by Insurers using AI Systems will comply with all applicable federal and state laws and regulations.

The Department recognizes the *Principles of Artificial Intelligence* that the NAIC adopted in 2020 as an appropriate source of guidance for Insurers as they develop and use AI systems. Those principles emphasize the importance of the fairness and ethical use of AI; accountability; compliance with state laws and regulations; transparency; and a safe, secure, fair, and robust system. These fundamental principles should guide Insurers in their development and use of AI Systems and underlie the expectations set forth in this bulletin.

Legislative Authority

The regulatory expectations and oversight considerations set forth in Section 3 and Section 4 of this bulletin rely on the following laws and regulations:

- **Unfair Trade Practices Model Act (#880)**: The *Unfair Trade Practices Act* [insert citation to state statute or regulation corresponding to Model #880] (UTPA), regulates trade practices in insurance by: 1) defining practices that constitute unfair methods of competition or unfair or deceptive acts and practices; and 2) prohibiting the trade practices so defined or determined.
- **Unfair Claims Settlement Practices Model Act (#900)**: The *Unfair Claims Settlement Practices Act*, [insert citation to state statute or regulation corresponding to Model #900] (UCSPA), sets forth standards for the investigation and disposition of claims arising under policies or certificates of insurance issued to residents of [insert state].

Actions taken by Insurers in the state must not violate the UTPA or the UCSPA, regardless of the methods the Insurer used to determine or support its actions. As discussed below, Insurers are expected to adopt practices, including governance frameworks and risk management protocols, that are designed to ensure that the use of AI Systems does not result in: 1) unfair trade practices, as defined in []; or 2) unfair claims settlement practices, as defined in [].

- **Corporate Governance Annual Disclosure Model Act (#305)**: The *Corporate Governance Annual Disclosure Act* [insert citation to state statute or regulation corresponding to Model #305] (CGAD), requires Insurers to report on governance practices and to provide a summary of the Insurer's corporate governance structure, policies, and practices. The content, form, and filing requirements for CGAD information are set forth in the *Corporate Governance Annual Disclosure Model Regulation* (#306) [insert citation to state statute or regulation corresponding to Model #306] (CGAD-R).

The requirements of CGAD and CGAD-R apply to elements of the Insurer's corporate governance framework that address the Insurer's use of AI Systems to support actions and decisions that impact consumers.

- **Property and Casualty Model Rating Law (#1780)**: The *Property and Casualty Model Rating Law*, [insert citation to state statute or regulation corresponding to the Model #1780], requires that property/casualty (P/C) insurance rates not be excessive, inadequate, or unfairly discriminatory.

The requirements of [] apply regardless of the methodology that the Insurer used to develop rates, rating rules, and rating plans subject to those provisions. That means that an Insurer is responsible for assuring that rates, rating rules, and rating plans that are developed using AI techniques and Predictive Models that rely on data and Machine Learning do not result in excessive, inadequate, or unfairly discriminatory insurance rates with respect to all forms of casualty insurance—including fidelity, surety, and guaranty bond—and to all forms of property insurance—including fire, marine, and inland marine insurance, and any combination of any of the foregoing.

- **Market Conduct Surveillance Model Law (#693)**: The *Market Conduct Surveillance Model Law* [insert citation to state statute or regulation corresponding to Model #693] establishes the framework pursuant to which the Department conducts market conduct actions. These are comprised of the full range of activities that the Department may initiate to assess and address the market practices of Insurers, beginning with market analysis and extending to targeted examinations. Market conduct actions are separate from, but may result from, individual complaints made by consumers asserting illegal practices by Insurers.

An Insurer’s conduct in the state, including its use of AI Systems to make or support actions and decisions that impact consumers, is subject to investigation, including market conduct actions. Section 4 of this bulletin provides guidance on the kinds of information and documents that the Department may request in the context of an AI-focused investigation, including a market conduct action.

SECTION 2: DEFINITIONS

For the purposes of this bulletin the following terms are defined¹:

“Adverse Consumer Outcome” refers to a decision by an Insurer that is subject to insurance regulatory standards enforced by the Department that adversely impacts the consumer in a manner that violates those standards.

“Algorithm” means a clearly specified mathematical process for computation; a set of rules that, if followed, will give a prescribed result.

“AI System” is a machine-based system that can, for a given set of objectives, generate outputs such as predictions, recommendations, content (such as text, images, videos, or sounds), or other output influencing decisions made in real or virtual environments. AI Systems are designed to operate with varying levels of autonomy.

“Artificial Intelligence (AI)” refers to a branch of computer science that uses data processing systems that perform functions normally associated with human intelligence, such as reasoning, learning, and self-improvement, or the capability of a device to perform functions that are normally associated with human intelligence such as reasoning, learning, and self-improvement. This definition considers machine learning to be a subset of artificial intelligence.

“Degree of Potential Harm to Consumers” refers to the severity of adverse economic impact that a consumer might experience as a result of an Adverse Consumer Outcome.

“Generative Artificial Intelligence (Generative AI)” refers to a class of AI Systems that generate content in the form of data, text, images, sounds, or video, that is similar to, but not a direct copy of, pre-existing data or content.

“Machine Learning (ML)” Refers to a field within artificial intelligence that focuses on the ability of computers to learn from provided data without being explicitly programmed.

“Model Drift” refers to the decay of a model’s performance over time arising from underlying changes such as the definitions, distributions, and/or statistical properties between the data used to train the model and the data on which it is deployed.

“Predictive Model” refers to the mining of historic data using algorithms and/or machine learning to identify patterns and predict outcomes that can be used to make or support the making of decisions.

“Third Party” for purposes of this bulletin means an organization other than the Insurer that provides services, data, or other resources related to AI.

¹ Drafting note: Individual states may have adopted definitions for terms that are included in the model bulletin that may be different from the definitions set forth herein.

SECTION 3: REGULATORY GUIDANCE AND EXPECTATIONS

Decisions subject to regulatory oversight that are made by Insurers using AI Systems must comply with the legal and regulatory standards that apply to those decisions, including unfair trade practice laws. These standards require, at a minimum, that decisions made by Insurers are not inaccurate, arbitrary, capricious, or unfairly discriminatory. Compliance with these standards is required regardless of the tools and methods Insurers use to make such decisions. However, because, in the absence of proper controls, AI has the potential to increase the risk of inaccurate, arbitrary, capricious, or unfairly discriminatory outcomes for consumers, it is important that Insurers adopt and implement controls specifically related to their use of AI that are designed to mitigate the risk of Adverse Consumer Outcomes.

Consistent therewith, all Insurers authorized to do business in this state are expected to develop, implement, and maintain a written program (an “AIS Program”) for the responsible use of AI Systems that make, or support decisions related to regulated insurance practices. The AIS Program should be designed to mitigate the risk of Adverse Consumer Outcomes, including, at a minimum, the statutory provisions set forth in Section 1 of this bulletin.

The Department recognizes that robust governance, risk management controls, and internal audit functions play a core role in mitigating the risk that decisions driven by AI Systems will violate unfair trade practice laws and other applicable existing legal standards. The Department also encourages the development and use of verification and testing methods to identify errors and bias in Predictive Models and AI Systems, as well as the potential for unfair discrimination in the decisions and outcomes resulting from the use of Predictive Models and AI Systems.

The controls and processes that an Insurer adopts and implements as part of its AIS Program should be reflective of, and commensurate with, the Insurer’s own assessment of the degree and nature of risk posed to consumers by the AI Systems that it uses, considering: (i) the nature of the decisions being made, informed, or supported using the AI System; (ii) the type and Degree of Potential Harm to Consumers resulting from the use of AI Systems; (iii) the extent to which humans are involved in the final decision-making process; (iv) the transparency and explainability of outcomes to the impacted consumer; and (v) the extent and scope of the insurer’s use or reliance on data, Predictive Models, and AI Systems from third parties. Similarly, controls and processes should be commensurate with both the risk of Adverse Consumer Outcomes and the Degree of Potential Harm to Consumers.

As discussed in Section 4, the decisions made as a result of an Insurer’s use of AI Systems are subject to the Department’s examination to determine that the reliance on AI Systems are compliant with all applicable existing legal standards governing the conduct of the Insurer.

AIS Program Guidelines

1.0 General Guidelines

1.1 The AIS Program should be designed to mitigate the risk that the Insurer’s use of an AI System will result in Adverse Consumer Outcomes.

1.2 The AIS Program should address governance, risk management controls, and internal audit functions.

1.3 The AIS Program should vest responsibility for the development, implementation, monitoring, and oversight of the AIS Program and for setting the Insurer’s strategy for AI Systems with senior management accountable to the board or an appropriate committee of the board.

1.4 The AIS Program should be tailored to and proportionate with the Insurer’s use and reliance on AI and AI Systems. Controls and procedures should be focused on the mitigation of Adverse Consumer Outcomes and the scope of the controls and procedures applicable to a given AI System use case should reflect and align with the Degree of Potential Harm to Consumers with respect to that use case.

1.5 The AIS Program may be independent of or part of the Insurer’s existing Enterprise Risk Management (ERM) program. The AIS Program may adopt, incorporate, or rely upon, in whole or in part, a framework or standards developed by an official third-party standard organization, such as the National Institute of Standards and Technology (NIST) Artificial Intelligence Risk Management Framework, Version 1.0.

1.6 The AIS Program should address the use of AI Systems across the insurance life cycle, including areas such as product development and design, marketing, use, underwriting, rating and pricing, case management, claim administration and payment, and fraud detection.

1.7 The AIS Program should address all phases of an AI System’s life cycle, including design, development, validation, implementation (both systems and business), use, on-going monitoring, updating and retirement.

1.8 The AIS Program should address the AI Systems used with respect to regulated insurance practices whether developed by the Insurer or a third-party vendor.

1.9 The AIS Program should include processes and procedures providing notice to impacted consumers that AI Systems are in use and provide access to appropriate levels of information based on the phase of the insurance life cycle in which the AI Systems are being used.

2.0 Governance

The AIS Program should include a governance framework for the oversight of AI Systems used by the Insurer. Governance should prioritize transparency, fairness, and accountability in the design and implementation of the AI Systems, recognizing that proprietary and trade secret information must be protected. An Insurer may consider adopting new internal governance structures or rely on the Insurer’s existing governance structures; however, in developing its governance framework, the Insurer should consider addressing the following items:

2.1 The policies, processes, and procedures, including risk management and internal controls, to be followed at each stage of an AI System life cycle, from proposed development to retirement.

2.2 The requirements adopted by the Insurer to document compliance with the AIS Program policies, processes, procedures, and standards. Documentation requirements should be developed with Section 4 in mind.

2.3 The Insurer’s internal AI System governance accountability structure, such as:

- a) The formation of centralized, federated, or otherwise constituted committees comprised of representatives from appropriate disciplines and units within the Insurer, such as business units, product specialists, actuarial, data science and analytics, underwriting, claims, compliance, and legal.

- b) Scope of responsibility and authority, chains of command, and decisional hierarchies.
- c) The independence of decision-makers and lines of defense at successive stages of the AI System life cycle.
- d) Monitoring, auditing, escalation, and reporting protocols and requirements.
- e) Development and implementation of ongoing training and supervision of personnel.

2.4 Specifically with respect to Predictive Models: the Insurer's processes and procedures for designing, developing, verifying, deploying, using, updating, and monitoring Predictive Models, including a description of methods used to detect and address errors, performance issues, outliers, or unfair discrimination in the insurance practices resulting from the use of the Predictive Model.

3.0 Risk Management and Internal Controls

The AIS Program should document the Insurer's risk identification, mitigation, and management framework and internal controls for AI Systems generally and at each stage of the AI System life cycle. Risk management and internal controls should address the following items:

3.1 The oversight and approval process for the development, adoption, or acquisition of AI Systems, as well as the identification of constraints and controls on automation and design to align and balance function with risk.

3.2 Data practices and accountability procedures, including data currency, lineage, quality, integrity, bias analysis and minimization, and suitability.

3.3 Management and oversight of Predictive Models (including algorithms used therein), including:

- a) Inventories and descriptions of the Predictive Models.
- b) Detailed documentation of the development and use of the Predictive Models.
- c) Assessments such as interpretability, repeatability, robustness, regular tuning, reproducibility, traceability, model drift, and the auditability of these measurements where appropriate.

3.4 Validating, testing, and retesting as necessary to assess the generalization of AI System outputs upon implementation, including the suitability of the data used to develop, train, validate and audit the model. Validation can take the form of comparing model performance on unseen data available at the time of model development to the performance observed on data post-implementation, measuring performance against expert review, or other methods.

3.5 The protection of non-public information, particularly consumer information, including unauthorized access to the Predictive Models themselves.

3.6 Data and record retention.

3.7 Specifically with respect to Predictive Models: a narrative description of the model’s intended goals and objectives and how the model is developed and validated to ensure that the AI Systems that rely on such models correctly and efficiently predict or implement those goals and objectives.

4.0 Third-Party AI Systems and Data

Each AIS Program should address the Insurer’s process for acquiring, using, or relying on (i) third-party data to develop AI Systems; and (ii) AI Systems developed by a third party, which may include, as appropriate, the establishment of standards, policies, procedures, and protocols relating to the following considerations:

4.1 Due diligence and the methods employed by the Insurer to assess the third party and its data or AI Systems acquired from the third party to ensure that decisions made or supported from such AI Systems that could lead to Adverse Consumer Outcomes will meet the legal standards imposed on the Insurer itself.

4.2 Where appropriate and available, the inclusion of terms in contracts with third parties that:

- a) Provide audit rights and/or entitle the Insurer to receive audit reports by qualified auditing entities.
- b) Require the third party to cooperate with the Insurer with regard to regulatory inquiries and investigations related to the Insurer’s use of the third-party’s product or services.

4.3 The performance of contractual rights regarding audits and/or other activities to confirm the third-party’s compliance with contractual and, where applicable, regulatory requirements.

SECTION 4: REGULATORY OVERSIGHT AND EXAMINATION CONSIDERATIONS

The Department’s regulatory oversight of Insurers includes oversight of an Insurer’s conduct in the state, including its use of AI Systems to make or support decisions that impact consumers. Regardless of the existence or scope of a written AIS Program, in the context of an investigation or market conduct action, an Insurer can expect to be asked about its development, deployment, and use of AI Systems, or any specific Predictive Model, AI System or application and its outcomes (including Adverse Consumer Outcomes) from the use of those AI Systems, as well as any other information or documentation deemed relevant by the Department.

Insurers should expect those inquiries to include (but not be limited to) the Insurer’s governance framework, risk management, and internal controls (including the considerations identified in Section 3). In addition to conducting a review of any of the items listed in this Bulletin, a regulator may also ask questions regarding any specific model, AI System, or its application, including requests for the following types of information and/or documentation:

1. Information and Documentation Relating to AI System Governance, Risk Management, and Use Protocols

1.1. Information and documentation related to or evidencing the Insurer’s AIS Program, including:

- a) The written AIS Program.
- b) Information and documentation relating to or evidencing the adoption of the AIS Program.

- c) The scope of the Insurer's AIS Program, including any AI Systems and technologies not included in or addressed by the AIS Program.
- d) How the AIS Program is tailored to and proportionate with the Insurer's use and reliance on AI Systems, the risk of Adverse Consumer Outcomes, and the Degree of Potential Harm to Consumers.
- e) The policies, procedures, guidance, training materials, and other information relating to the adoption, implementation, maintenance, monitoring, and oversight of the Insurer's AIS Program, including:
 - i. Processes and procedures for the development, adoption, or acquisition of AI Systems, such as:
 - (1) Identification of constraints and controls on automation and design.
 - (2) Data governance and controls, any practices related to data lineage, quality, integrity, bias analysis and minimization, suitability, and Data Currency.
 - ii. Processes and procedures related to the management and oversight of Predictive Models, including measurements, standards, or thresholds adopted or used by the Insurer in the development, validation, and oversight of models and AI Systems.
 - iii. Protection of non-public information, particularly consumer information, including unauthorized access to Predictive Models themselves.

1.2. Information and documentation relating to the Insurer's pre-acquisition/pre-use diligence, monitoring, oversight, and auditing of data or AI Systems developed by a third party.

1.3. Information and documentation relating to or evidencing the Insurer's implementation and compliance with its AIS Program, including documents relating to the Insurer's monitoring and audit activities respecting compliance, such as:

- a) Documentation relating to or evidencing the formation and ongoing operation of the Insurer's coordinating bodies for the development, use, and oversight of AI Systems.
- b) Documentation related to data practices and accountability procedures, including data lineage, quality, integrity, bias analysis and minimization, suitability, and Data Currency.
- c) Management and oversight of Predictive Models and AI Systems, including:
 - i. The Insurer's inventories and descriptions of Predictive Models, and AI Systems used by the Insurer to make or support decisions that can result in Adverse Consumer Outcomes.
 - ii. As to any specific Predictive Model or AI System that is the subject of investigation or examination:
 - (1) Documentation of compliance with all applicable AI Program policies, protocols, and procedures in the development, use, and oversight of Predictive Models and AI Systems deployed by the Insurer.

- (2) Information about data used in the development and oversight of the specific model or AI System, including the data source, provenance, data lineage, quality, integrity, bias analysis and minimization, suitability, and Data Currency.
- (3) Information related to the techniques, measurements, thresholds, and similar controls used by the Insurer.
- d) Documentation related to validation, testing, and auditing, including evaluation of Model Drift to assess the reliability of outputs that influence the decisions made based on Predictive Models. Note that the nature of validation, testing, and auditing should be reflective of the underlying components of the AI System, whether based on Predictive Models or Generative AI.

2. Third-Party AI Systems and Data

In addition, if the investigation or examination concerns data, Predictive Models, or AI Systems collected or developed in whole or in part by third parties, the Insurer should also expect the Department to request the following additional types of information and documentation.

- 2.1 Due diligence conducted on third parties and their data, models, or AI Systems.
- 2.2 Contracts with third-party AI System, model, or data vendors, including terms relating to representations, warranties, data security and privacy, data sourcing, intellectual property rights, confidentiality and disclosures, and/or cooperation with regulators.
- 2.3 Audits and/or confirmation processes performed regarding third-party compliance with contractual and, where applicable, regulatory obligations.
- 2.4 Documentation pertaining to validation, testing, and auditing, including evaluation of Model Drift.

The Department recognizes that Insurers may demonstrate their compliance with the laws that regulate their conduct in the state in their use of AI Systems through alternative means, including through practices that differ from those described in this bulletin. The goal of the bulletin is not to prescribe specific practices or to prescribe specific documentation requirements. Rather, the goal is to ensure that Insurers in the state are aware of the Department's expectations as to how AI Systems will be governed and managed and of the kinds of information and documents about an Insurer's AI Systems that the department expects an Insurer to produce when requested.

As in all cases, investigations and market conduct actions may be performed using procedures that vary in nature, extent, and timing in accordance with regulatory judgment. Work performed may include inquiry, examination of company documentation, or any of the continuum of market actions described in the NAIC's *Market Regulation Handbook*. These activities may involve the use of contracted specialists with relevant subject matter expertise. Nothing in this bulletin limits the authority of the Department to conduct any regulatory investigation, examination, or enforcement action relative to any act or omission of any Insurer that the Department is authorized to perform.

APPENDIX 5



MEMORANDUM

To: Superintendent Elizabeth Kelleher Dwyer,
Chair of the Big Data and Artificial Intelligence (H) Working Group

From: Commissioner Kevin Gaffney, Chair of Workstream One (Surveys) of the Big Data and Artificial Intelligence (H) Working Group

Cc: Fourteen-State Subject Matter Expert Group; Kris DeFrain (NAIC)

Date: November 30, 2023

Re: 2023 Life Artificial Intelligence (AI)/Machine Learning (ML) Survey Analysis

The 2023 Life Artificial Intelligence/Machine Learning Survey (Life AI/ML Survey) was conducted to inform the work of the Big Data and Artificial Intelligence (H) Working Group in support of its charge to:

Research the use of big data and artificial intelligence (AI) in the business of insurance, and evaluate existing regulatory frameworks for overseeing and monitoring their use. Present findings and recommended next steps, if any, to the Innovation and Technology (EX) Task Force, which may include model governance for the use of big data and AI for the insurance industry.

The survey was conducted under the market examination authorities of 14 requesting states (Colorado, Connecticut, Illinois, Iowa, Louisiana, Minnesota, Nebraska, North Dakota, Oregon, Pennsylvania, Rhode Island, Vermont, Virginia, and Wisconsin) and completed by insurers who actively write Life insurance in at least one of the participating states and 1) have at least \$250 million in national life insurance premium for 2021, 2) covered at least 10,000 lives by issuing term insurance in 2021, or 3) is an identified InsurTech company. Note this survey is limited to the application of AI/ML in life insurance products only, excluding annuities. The following subject matter experts (SMEs) represented the fourteen states:

CO: Jason Lapham
CT: Paul Lombardo
IL: Erica Weyhenmeyer
IA: Jared Kirby
LA: Nichole Torblaa
MN: Fred Andersen
NE: Director Eric Dunning
ND: Ross Hartley
OR: Brian Fjeldheim
PA: Shannen Logue
RI: Matt Gendron

VT: Commissioner Kevin Gaffney
VA: Eric Lowe
WI: Lauren Van Buren

This memorandum contains the SMEs' summary of the survey analysis, key takeaways, and some recommendations for next steps. The SMEs also approved public distribution of the attached NAIC staff's survey analysis, which provides more detail about the survey results.

SURVEY ANALYSIS SUMMARY

Artificial Intelligence/Machine Learning Model Use by Companies

In contrast to the Private Passenger Auto and Home AI/ML Surveys, this survey intentionally includes Generalized Linear Models (GLMs) and Generalized Additive Models (GAMs) as types of AI models in scope, so the data should be interpreted as applying to insurers' predictive models including these model types. Out of 161 companies¹ completing the survey, 94 companies currently use, plan to use, or plan to explore using AI/machine learning (ML) as defined for this survey. This equates to 58% of reporting companies. For comparison, 88% of the companies responding to the PPA Survey and 70% of the companies responding to the Home Survey reported they currently use, plan to use, or plan to explore using AI/ML (where AI/ML algorithms were defined as *excluding* GLMs and GAMs).

Among the total number of AI/ML models that have been implemented by life insurers responding to this survey, 36% were used for Marketing and 34% were used in Underwriting, while only 18% were used for Pricing and 11% were used for Risk Management.

Of the 67 companies that indicated they had no plans to use or explore the use of AI/ML, the most common reason stated by 48 companies (72%) was "no compelling business reason." The second and third most common reasons stated by 31 companies (46%) each, reported "lack of resources and expertise," and "reliance on legacy systems requiring IT, data, and technology upgrades." Note that these responses are not mutually exclusive as multiple reasons may be applicable.

The following highlights the predominant uses, the levels of decision-making, and how often models are developed in-house or externally by insurer operation.

MODELS BY INSURER OPERATION

Marketing

Uses: For marketing life insurance products, companies reported currently using AI/ML models mostly for target online advertising (24 companies), followed by provisions of offers to existing customers (21 companies), identification of recipients of mail or phone advertising (19 companies), and identification of potential customer groups (18 companies). Other uses include other marketing-related functions (11 companies), demand modeling (9 companies), and direct online sales (7 companies).

Level of decision-making: A majority of the total AI/ML models reported for Marketing *augmented* human decision-making, however approximately 40% of the AI/ML models used for target online advertising were *automated*, and 60% of the models used for other marketing-related functions were used to *support* human decision-making.

¹ A total of 179 companies were selected to participate in the survey. Of those, 2 companies submitted incomplete surveys and 16 companies were exempt.

In-house or third-party: While a slight majority (56%) of the models reported for Marketing in total were developed by a third party, 76% of the models used for identification of recipients of mail or phone advertising, and 75% of the models used for provisions of offers to existing customers were developed internally.

Types of models: A wide variety of model types used for Marketing purposes were reported. The two most popular techniques were regression/regularization-based methods (which likely refer to GLMs), and ensemble methods (which combine several, usually machine learning, modeling types to achieve better performance).

Pricing and Underwriting

Uses: In pricing and underwriting, companies reported currently using AI/ML models mostly to reduce time to issue (35 companies), but 29 companies each also reported using models for automated approval/denial decisions and assigning a risk class through underwriting, and 25 companies reported using models for non-automated approval/denial decisions.

Level of decision-making: Almost half (48%) of the AI/ML models in total reported for Pricing and Underwriting uses were *automated*.

In-house or third-party: Models used for Pricing and Underwriting were almost evenly split between developed internally (46%) and by third parties (54%). However, over two thirds of the models (68%) used for non-automated approval/denials were developed by third parties. In contrast, over three quarters (77%) of the models developed for other underwriting-related functions were developed internally.

Types of models: A wide variety of model types used for Pricing and Underwriting were reported. As for Marketing, the two most popular techniques again were regression/regularization-based methods, likely referring to GLMs, and ensemble methods, which combine several, usually machine learning, modeling types to achieve better performance.

Risk Management

As noted above, 11% of the total AI/ML models in production were used for risk management. But because this information was provided by only 7 responding companies, it may be misleading to infer broad conclusions about how AI/ML models are currently being used within the life insurance market, the degree of human involvement in decision-making, the sources of model development, and the types of modeling algorithms used.

DATA ELEMENTS BY INSURER OPERATIONS

To gain a better understanding of the types of data used, insurers were asked whether they included any of the following in their AI/ML models: Credit-Based Insurance Score, Financial Credit Score, Other Types of Non-Credit “Score”, Public Records, Demographics, Telematics Type Data, Driving Behavior, Biometrics, Medical, Online Media, and Other Non-Traditional Data Elements.

Among these specific elements:

- Marketing—Demographics data was used in nearly 40% of the AI/ML models by the responding companies, followed by Online Media data which was used in 17% of the models.
 - Demographics data was about equally split between internal and external sources, while Online Media data was nearly all externally sourced.

- Pricing and Underwriting—a wider variety of data elements were used: Medical data was used in 30% of the models, followed by Demographics data (17%), Driving Behavior data (15%), and Credit-Based Insurance Scores (14%).
 - Medical data, Driving Behavior data, and Credit-Based Insurance Scores were almost always externally sourced, while Demographics data was mainly internally sourced.
- Risk Management—Only 7 companies responded that they used any of these specific data elements in their AI/ML models for risk management. The variables that were indicated being used were: Credit-Based Insurance Score, Public Records, Demographics, Driving Behavior, Medical data, and Other Non-Traditional Data Elements.
 - Nearly all these data elements were externally-sourced.

CUSTOMER DATA CORRECTION

Non-Fair Credit Reporting Act (Non-FCRA) Data Disclosures to Consumers

Insurers were asked about their processes for informing consumers about data collection—when and how their data is used, *other than what is required by law* under the Fair Credit Reporting Act. By operational use, 37% reported “yes” for the data used for Marketing, 41% of companies reported “yes” for Pricing and Underwriting, and 23% reported “yes” for Risk Management.

Consumer Opportunity to Challenge or Correct Data

Insurers responded similarly to the question of whether consumers have an opportunity to correct their data that is not included under the FCRA: 34% reported “yes” for the data used for Marketing, 46% of companies reported “yes” for Pricing and Underwriting, and 26% reported “yes” for Risk Management.

GOVERNANCE

The purpose of the model governance questions is to obtain a better understanding of the company’s awareness of specific risk areas tied to selected categories in the NAIC Artificial Intelligence Principles.

Insurers were asked if the following are *documented* in their governance program:

- Fairness and ethics considerations;
- Accountability for data algorithms’ compliance with laws, as well as intended and unintended impacts;
- Appropriate resources and knowledge involved to ensure compliance with laws, including those related to unfair discrimination;
- Ensure transparency with appropriate disclosures, including notice to consumers specific to data being used and methods for appeal and recourse related to inaccurate data; and
- AI systems are secure, safe, and robust, including decision traceability and security and privacy risk protections.

The response rate to these governance questions was extremely low—only three companies provided responses. Of those, two companies answered “yes” that their governance program included the above considerations, while the third company responded “no” to this question.

However, when asked about components documented in Life Insurer Governance Programs, there was a nearly 60% response rate, which was fairly high. Of those responding, 53% reported their governance program includes documented Compliance with Laws and Regulations, 53% have Accountability for Intended or Unintended Impacts, 60% documented the Resources / Knowledge Needed to Ensure Compliance, 62% provide Transparency and Notices to Consumers About Their Data

and Methods for Correction, and 57% reported they document Assurance of Safe, Secure and Robust Systems Including Decision Traceability. 47% of the companies responded they follow guidance from other established standards, such as the Actuarial Standards Board, American Academy of Actuaries, Society of Actuaries, NIST, and others, including the Colorado Division of Insurance and the NAIC.

THIRD-PARTY DATA SOURCES AND MODELS

Insurers identified third-party vendors they use to purchase models and/or data. A very high proportion (94%) of insurers responded that contracts with third parties do not include any conditions that would limit disclosure or otherwise limit transparency to regulators.

Of the 365 total models listed in the survey, 165 (46%) models were developed internally, and 191 (54%) were developed by a third party. There were no models reported developed jointly with a third party. After grouping the similarly-named third parties, there were 59 unique third-party companies listed in the survey who provided the data elements noted in the above Data Elements section that were used in AI/ML models. Marketing has 37 different third parties listed as providing any of these data elements, and Pricing & Underwriting and Risk Management data were each sourced from 15 different third parties. Note that some third-party vendors provided data that were used in more than one insurer operation.

CONCLUSION/NEXT STEPS

The insights gained from the survey will be used to supplement state insurance regulators' knowledge of the current regulatory framework around AI/ML, governance, consumers, and third parties and to evaluate whether any changes should be made to the frameworks.

Following are some potential next steps, including many activities already in progress. This list is not intended to be complete, but it may be helpful as a starting point for discussions and decision-making about what next steps to take at the NAIC:

- Explore Insurer AI/ML model usage and the level of decision-making.
- Evaluate the regulatory framework about the use of third-party models.
- Determine whether additional white papers on best practices would be useful on subjects in the AI/ML space.
- Explore the use of AI/ML at the product level.

Additional information was collected but not documented due to the confidential nature. Regulators may contact Dorothy Andrews, dandrews@naic.org to seek additional, but non-company identifying information. This report is confidential because data was collected in a market conduct examination of the fourteen states and agreed confidentiality protections were applied.

Summary Chart of Life Insurance AI/ML Survey Results

AI/ML Usage Status	Co. CNT	Comments on Survey
Currently Using	76	The following is a summary of the company counts for various uses of AI/ML. Not all the questions applied to every company based on screening questions reflected in the survey. To gain a complete understanding of the responses, you may view the full report on the NAIC website at the link https://content.naic.org/industry/data-call/life .
Planning to Use	8	
Exploring Use	10	
None of the Above	67	
Excluded Companies	18	
Total No. of Companies	179	

Artificial Intelligence/ Machine Learning Areas of Usage

Pricing Assumptions	Co. CNT	Marketing	Co. CNT	Risk Management	Co. CNT
Pricing		Target Online Advertising		Wearable Devices	
Yes	27	Yes	34	Yes	3
No	23	No	60	No	91
Reduced Time to Issue		ID Mail/Phone Ad Recipients		Wellness Initiatives	
Yes	39	Yes	27	Yes	4
No	11	No	67	No	90
Specialty Programs (i.e. Diabetes)		Offers to Existing Customers		Discount Medical Programs	
Yes	N/A	Yes	24	Yes	0
No	N/A	No	70	No	94
Automated Approval/Denial		ID of Potential Customer Groups		Technology to Detect Smoking	
Yes	35	Yes	26	Yes	2
No	14	No	68	No	93
Non-Automated Approval/Denial		Demand Modeling		Disease Detection	
Yes	27	Yes	13	Yes	2
No	23	No	81	No	92
Underwriting Risk Class		Direct Online Sales		Other Risk Management	
Yes	33	Yes	11	Yes	4
No	17	No	83	No	89
Other Underwriting Function		Other Marketing			
Yes	12	Yes	30		
No	37	No	64		

Artificial Intelligence/ Machine Learning Governance Issues (Yes/No)

Transparency Limitation Disclosures		Accountability for Unintended Impacts		Accountability for Intended Impacts	
Pricing & Underwriting	5/80	Pricing & Underwriting	46/49	Pricing & Underwriting	47/47
Marketing	6/77	Marketing	40/55	Marketing	41/53
Risk Management	3/74	Risk Management	27/67	Risk Management	28/65
Algorithmic Compliance with Laws		Transparency for Consumer Appeals		Safe, Secure, Robust AI Practices	
Pricing & Underwriting	47/47	Pricing & Underwriting	56/39	Pricing & Underwriting	49/46

Marketing	42/52	Marketing	39/56	Marketing	44/51
Risk Management	25/68	Risk Management	29/65	Risk Management	26/68

Accountability for Compliance with		Other AI Guidance Followed		Development Source of Guidance*	
Pricing & Underwriting	53/42	Pricing & Underwriting	40/54	Pricing & Underwriting	24/1/17
Marketing	48/47	Marketing	39/55	Marketing	25/2/14
Risk Management	34/00	Risk Management	30/63	Risk Management	19/2/11

NAIC AI Principles - Fair & Ethical		NAIC AI Principles - Accountable		NAIC AI Principles - Compliant	
Pricing & Underwriting	2/1	Pricing & Underwriting	2/1	Pricing & Underwriting	2/1
Marketing	2/1	Marketing	2/1	Marketing	2/1
Risk Management	2/1	Risk Management	2/1	Risk Management	2/1

NAIC AI Principles - Transparent		NAIC AI Principles - Safe/Secure/Robust	
Pricing & Underwriting	2/1	Pricing & Underwriting	2/1
Marketing	2/1	Marketing	2/1
Risk Management	2/1	Risk Management	2/1

**The designation represents Internally Developed/Developed by a Third-Party/Developed by Both*

Commonly Used Artificial Intelligence/ Machine Learning Third-Party Products & Vendors

Pricing Assumptions

CRL
 CURV Scorfe
 Exam One
 Lexis Nexis (incl. MVR)
 Milliman (Medical/Pharmacy)
 Milliman Intelliscript
 Samba Saftey
 State DMV
 TransUnion (Incl. DriverRisk)
 TrueRisk Life Score

Marketing

IXI AssetMix
 AARP Services
 Adobe
 AGS
 Axiom
 Bing & Googel Ads
 Census (Incl. Religion Census)
 Choregraph
 Data Axle
 EASI
 Epsilon
 Experian
 IXI Wealth Complete
 LinkedIn
 Merkle
 Meta/Facebook
 Neustar
 SAS
 Secuian
 The Trade Desk
 TikTok
 TransUnion

Risk Management

Equifax
 Experisn
 Lexis Nexis
 TransUnion
 State DMV
 Fitbit
 Garmin
 Google Fit
 MaoMyFitness
 Oura
 Peleton
 Polar
 Samsung
 Strava
 Whoop