



AMERICAN ACADEMY of ACTUARIES

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Comments to the National Council of Insurance Legislators
Special Committee on Race in Insurance Underwriting
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Chairman Breslin, and distinguished members of the NCOIL Special Committee on Race in Insurance Underwriting, I am pleased to appear before you, albeit virtually, today to lead off presentations from the American Academy of Actuaries.

The Academy is the national professional association for actuaries from all practice areas in the U.S. whose mission is to serve the public and the U.S. actuarial profession. The Academy is nonpartisan, objective, and independent. It assists public policymakers on all levels by providing actuarial expertise on risk and financial security issues. The Academy also sets qualification, practice, and professionalism standards for actuaries in the United States.

In a moment you will also hear from my Academy colleagues, Lauren Cavanaugh and Mary Bahna-Nolan on practice-specific concerns related to your charge. But first, I would like to discuss some of the work and exploratory discussion undertaken by the Academy's Data Science and Analytics Committee, which I chair.

Data Science and Analytics Committee Genesis

The need for a Data Science and Analytic Committee resulted from the work of the Academy's Big Data Task Force, which was charged to

1. Understand the impact of big data and algorithms on the role of the actuary,
2. Examine the framework of professional standards to provide guidance for working with these new tools.
3. Work with policymakers and regulators to address issues related to their use.

The efforts of task force produced a monograph titled, [*Big Data and the Role of the Actuary*](#).

Our Charge

The charge of the Data Science and Analytics Committee to "To further the actuarial profession's involvement in the use of data science, big data, predictive models, and other advanced analytics and modeling capabilities as it relates to actuarial practice. And, to monitor federal legislation and

regulatory activities, and develop comments and papers intended to educate stakeholders and provide guidance to actuaries.”

The Evolution of the Data Scientist

The evolution of the data scientist presents challenges to the actuarial profession. The U.S. Government Accountability Office (GAO) identified a couple of these challenges in the report it issued last year on the benefits and challenges presented by innovative uses of technology. The GAO report states:

- Models are being developed by data scientists who, unlike actuaries, may not fully understand insurance-specific requirements, such as setting premium rates that are not unfairly discriminatory, and may struggle to measure the impact of new variables used in the models.
- Data scientists may be unfamiliar with insurance rules and regulations and may not understand how to communicate their work to state insurance regulators.

Additionally, data scientists may not adhere to a set of professional standards equivalent in scope and moral and ethical values to those of the actuarial profession. A review of professional standards of organizations such as the American Statistical Association (ASA), the Data Science Association, and the Certified Analytics Professional organization reveals significant differences between their professional standards and those of the American Academy of Actuaries.

Data Science and Analytics Committee Big Data & Artificial Intelligence (AI) White Paper

The purpose of the white paper will be:

- Demonstrate the high ethical and professional standards that actuaries operate under to deliver value to insureds using objective actuarial, statistical, and AI methods.
- Discuss the changing nature of actuarial practice and the benefits of big data and predictive algorithms with a growing focus on human behavior to improve risk selection and the customer experience.
- Examine the work of insurers to control for systemic influences and socioeconomics by rigorously examining and eliminating the potential for biases to impact every step of the modeling process.
- Consider the willingness of insurers to work with regulators to resolve big data, algorithm, and AI disparate impact concerns and to promote a positive transformation of the insurance industry.

It is important to explore resolutions that do not hamper the development of technology that works for the benefit of consumers.

Data Science and Analytics Committee Issue Brief:

The Use of Big Data and Algorithms in Actuarial Modeling and the Impacts on Consumers

The issue brief is expected to lay out a road map for working with regulators to resolve issues in the following areas:

- Standards for emerging data sources
- Evolution of actuarial standards of practice
- Ethical issues related to artificial intelligence models
- The reliability and regulation of external data sources
- Controlling for systemic influences and socioeconomics

- Regulatory concerns impacting the work of the actuary
- Impacts of big data to transform the practice of insurance
- Behavioral data science impacts on traditional actuarial practice

On this last point, I would like to share a quote from Sherry Turkle of MIT. She states that “Technology does not just change what we do, it changes who we are.”¹ This statement reminds us that we have to be mindful and watchful of the behavioral effects to technology to shape the data we study and the models built upon that data.

Promoting Social Justice

Insurance alone cannot solve all the social ills in society, but insurance models certainly should not contribute to them. The committee will provide information to actuaries on protecting consumer data to facilitate that algorithms are:

- Appropriately transparent
- Explainable and interpretable
- Free of unfairly discriminatory variables and related proxies
- Based on variables with an appropriate relationship to the risk being insured
- Appropriately granular to guard against unintended disparate impacts to protected classes
- Attended to with human oversight to ensure controls and metrics are in place to monitor the continued fit and appropriateness of models for the purpose they were designed.
- Validated for quality and reliability by actuaries or experts who understand insurance company target markets, product lines, and insurance liabilities.

By providing information in these areas, models can become more accessible for critical review and remediation before being exposed to the public, reducing the likelihood of these models to cause harm.

Health Equity Work Group—Annette James, Chairperson

Finally, because Lauren and Mary in a few moments will be focusing on property/casualty and life actuarial concerns, I would like to spend a moment to relate some of the work the Academy is doing on health equity. While this is an initiative that is being worked on by another group than the one that I chair, I will provide you with just some highlights of this effort; once the Academy has had a chance to publish preliminary outcomes early next year, we can be available to NCOIL to more closely address them with you.

This work has been undertaken to further the U.S. actuarial profession’s commitment to health equity throughout the health care system by looking at current practices that potentially perpetuate or exacerbate adverse health outcomes experienced by people of color and/or historically underrepresented groups. Specifically, the work is organized around issues concerning benefit design, provider contracting/network development, pricing, and population health. Questions that are currently being probed include: Does the use of historical data embed disparities in projections? Are assumptions appropriately determined and applied? And what sorts of analyses should be performed to explicitly identify inequities? So, again we will keep NCOIL apprised of the Academy’s progress on this work as it progresses.

With that, I will conclude my portion of the Academy’s prepared remarks and will now recognize my colleague Lauren Cavanaugh.

¹ Sherry Turkle, Todd Essig & Gillian Isaacs Russell (2017) Afterword: Reclaiming Psychoanalysis: Sherry Turkle in Conversation With the Editors, *Psychoanalytic Perspectives*, 14:2, 237-248, DOI: 0.1080/1551806X.2017.1304122