

Title

## **EHR Data Analytics-Opportunities and Challenges**

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Speaker/Company

**Atreyee Bhattacharyya, IFOA AI & Automation in Life and Health Working Party**

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Abstract

In recent times there has been an increased availability of digital medical data. Much of the valuable data is stored as electronic health records (EHR), which contain a vast amount of information on patients' medical history, data from treatments, diagnoses, prescriptions and test results. In this presentation, we discuss how the availability of this EHR data presents huge opportunities in areas such as development of data-driven precision medicines, more efficient healthcare, patients having increased control on their health outcome etc. We then talk through what the EHR data means for health insurance and how actuaries can use EHR data to produce more accurate predictive underwriting models. They can also better predict the expected cost of claims with the additional insights from EHR data and can integrate personalised digital health advice for customers. However, while EHR data open up a number of opportunities, they also present a number of challenges for analytics. Some of these challenges include the unstructured nature of data, high dimensionality of data, heterogeneity of data, quality of data etc. We discuss how different AI/ML techniques such as NLP can help address these challenges and the predictive analytics that follows. We also touch upon other broader challenges such as interoperability issues and how these can be addressed e.g. through the implementation of FHIR.

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Biography

Atreyee Bhattacharyya is the chairperson of the Institute and Faculty of Actuaries' AI and Automation in life and healthcare working party. She has actively contributed to the paper that the working party has produced on the application of AI and automation in life and health insurance.

Atreyee currently works at Reinsurance Group of America (RGA) as a Health Actuary within Global Health. She is responsible for supporting and overseeing the health actuarial team in the Middle East region and for delivering global actuarial projects for digital health and control of claims leakage. In her role she is also supporting growth of global pricing tools with advanced capability of modelling techniques. Prior to joining RGA, Atreyee worked for Bupa where she managed the SME pricing team. Before her time in Bupa, Atreyee worked for Vitality in the technical pricing team where she worked closely with the data science team. Her role involved extensive modelling using both traditional actuarial methods, such as GLM, and machine learning methods such as random forest and gradient boosting using R and Python. Atreyee has also worked with various external datasets such as US surety data, credit score data and wellness data from wearable devices and looked at how the inputs from these data sources can predict health and hence the expected cost of claims.

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Atreyee was a speaker in the first EAA conference in 2020. She has also presented in the Digital Actuary Virtual Summit, 2020 and Discovery Actuarial Conference in the years 2016 and 2017.

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