

Empowering healthcare insurance with precision medicine



Healthcare insurance is in desperate need of reform, the current “one-fits-all“-Diagnosed-Related-Groups (DRG) reimbursement codes aren’t cost effective, and with modern AI technologies healthcare insurance has the potential to offer something much more personalized. With populations growing and aging, the potential upside for smarter health insurance is massive. The global market for health and medical insurance reached \$1.1 trillion in 2016 and the market is estimated to reach \$1.6 trillion in 2020, Massive Analytic Limited (MAL) believes that by embracing smarter AI driven approaches to insurance this can grow even faster. Executives must embrace precision medicine to enable better support for their insured patients and therefore reap greater benefits for the healthcare system and society as a whole.

This starts by promoting and offering incentives for prevention first, and following a data driven approach to evaluating treatments and predicting outcomes. Achieving this means health insurance funds would have differentiated reimbursement schemes and could therefore provide more bespoke cover. But how can this be achieved? Some examples are connecting to clinical pathways and outcomes, assessing the effectiveness of individual drug treatments, checking the likelihood of

specific conditions with genetic markers and rewarding healthy diets and exercise, by doing this it’s possible to more accurately measure the outcome for patients and reduce future risks.

Precision medicine reduces costs per case and across an entire year has the potential for massive savings for healthcare providers, and most importantly it carries benefits for the patients themselves too.

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Oscar:DataScience For Precision Healthcare Insurance

MAL believes healthcare insurers can be the main driver for the better performance of hospital and health systems by supporting the move towards precision medicine. In order to transition to a system with value-based outcomes, the new taxonomy of diseases facilitated by precision medicine requires a precise and individual reimbursement for every patient and every hospital system.

The solution is MAL's 'First-of-a-Kind' end-to-end Precision Health Insurance Computational Workflow based on its award-winning Oscar:DataScience (Oscar) platform. Precision healthcare insurance requires careful measurement of a variety of conditions, treatments, outcomes and results and therefore requires the use of many different data sources. Oscar's precision medicine workflow is designed to ingest all manner of medical data automatically and then analyse it with its AI technology Artificial Precognition (AP). More than this AP's use of the mathematics of uncertainty uniquely gives Oscar the capability to use precognition, to precognise and therefore predict the best plans and outcomes for patients. Thus enabling health insurers to personalise their offerings to clients and measure the outcomes in the smartest most data driven way possible.

Oscar has pedigree in the insurance sector having been used by business and pricing analysts in automotive insurance broking for telematics data insight, including conversion, loss ratio prediction and driver performance evaluation. Oscar will replace the current "one-fits-all" DRG reimbursement codes with a precision medicine reimbursement scheme. Health insurers will benefit from lower costs, improved performance and see better outcomes from the medical system. AI has improved the performance of almost every kind of industry sector and now medicine will benefit for the advantage of patients and society.



The Only Company Providing End-To-End Precision Health Insurance Capability

MAL is a deep IP technology company, recognised as a leading innovator in AI, multi-modal big data, fully autonomous and robotic systems, advanced control theory and data science. MAL's mission is to underpin digital socioeconomic transformation across its four business lines including 1) Smart Cities Urban Living, Mobility, Precision Agriculture, Automotive 2) Precision Medicine, 3) Defence, Aerospace, Robotics and Security, 4) Banking, Finance & Insurance. MAL's unique AI, Artificial Precognition, addresses

the mathematics of uncertainty in a new and smarter way for far more accurate predictions and better outcomes.

As far as we are aware no other company in the world has the capability to build an end-to-end Precision Health Insurance capability. Moreover Artificial Precognition, is protected by patents in twenty countries and offers clear and unique benefits by providing superior insights and predictions.

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Potential Use Cases



Specific 'pointed solution' use cases where Oscar could enable precision medicine in health insurance:

- Smart algorithms to understand the relationship between treatment design and outcomes
- Better budget management decisions, real world evidence enabled innovative contracting
- Use of devices such as Fitbits or other activity trackers to encourage health insurance customers to exercise more - the more they exercise, the fitter they are and so the cheaper the insurance
- Models built by Artificial Precognition for understanding risk factors better, trying to incentivise behavioural change and making the healthcare system more personalised
- Use of genetic data to help tailor health plans for each person, but not necessarily as a way of pricing policies
- Clinical Data analysis for improved predictable outcomes, health insurers can significantly reduce the cost of care by reducing readmissions, improving outcomes and proactively monitoring patients

MAL's Oscar Automated Precision Health Insurance Computational Workflow will consume the huge amounts of existing clinical and unstructured data to provide clinical insights to health insurance. Areas that can be immediately addressed by big data solutions include:

- Longitudinal analysis of care across patients and diagnoses
- Cluster analysis around influencers on treatment
- Analysing clinical notes (multi-structured data); no longer limited by dimensional sentiment of a relational database
- Analysing click stream data and clinical outcomes; look for patterns, trends to evaluate quality of care

- Other benefits of using Oscar include integrating clinical outcomes with financial information to understand performance

Oscar can also be used to detect fraud, in the US there are claims that insurance fraud costs in the region of \$100-billion-a-year. The United States Government Accountability Office (U.S. GAO) estimates that \$1 out of every \$7 spent on Medicare is lost to fraud and abuse. Areas where Oscar's AI can detect patterns and recognise fraud are:

- Fraudulent services, procedures, and/or supplies billing
- Condition or diagnosis misrepresentation or the identity of the provider recipient
- Providing unnecessary services or ordering unnecessary tests
- Billing separately for procedures that normally are covered by a single fee
- Charging more than once for the same service
- Upcoding: charging for a more complex service than was performed; this usually involves billing for longer or more complex office visits
- Miscoding: using a code number that does not apply to the procedure
- Incentives: receiving payment or other benefit for making a referral



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