NOVEMBER 2025
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Selección Vida

ICLAM 2025
facing the challenges of a changing world

Artificial intelligence in risk selection

ICLAM 2025 FACING THE CHALLENGES OF A CHANGING WORLD

Attending the ICLAM 2025 conference in Estoril provided substantive and multidimensional insights, especially for those of us who address the challenges of insurance medicine on a daily basis in a rapidly changing world. Professionals from more than thirty countries gathered there, united by the conviction that insurance medicine should not only protect public health, but also proactively anticipate and strategically transform it.

The first-day programme opened with a comprehensive analysis of the ageing and longevity from a medical, social and economic perspectives. The initioal session articulated a fundamental question: while life expectancy continues to rise, are those years being lived with optimal quality of life and functional autonomy? The future of longevity is inevitably shifting toward demographic profiles characterized by declining birth rates and increased life accumulation, generating an inherent tension between frailty and healthy ageing. **David Sinclair** opened the debate by presenting a framework for how biomedical research seeks to realign that gap, while **Jay Olshansky** contributed his vision of the true scientific frontiers of ageing: after decades of exploration, biological forces still persist and that limits the significant extension of human life.

According to his perspective, achieving the famous 'expansion of life expectancy' will require the development of new pharmacological and biotechnological interventions capable of surpassing current paradigms.

The following round table prompted a deliberation on ageing beyond the biological. We had to ask ourselves how to modify metabolic, lifestyle, and social factors to construct pathways towards active longevity. **Charles Bark** introduced an application designed to enhance health monitoring and frailty prevention in older adults, focusing on proactive intervention rather than reaction. The discussion was lively, questioning whether our insurance industry is prepared to integrate the paradigm shift from medicine focused on chronic disease management to medicine focused on well-being and deterioration prevention.

The programme then moved to an unavoidable topic: cancer as a mounting challenge for medicine, underwriting, and insurance coverage models. **Miguel Barbosa** delivered an update on clinical oncology, which evolved into a comprehensive session on epidemiological decoding, stratification, and treatments with fewer adverse effects; the emphasis was clearly on breast cancer and the efficacy of staging to outline coverage and personalized care. **Adela Osman** entered into the field of regulatory and technical ramifications of ICD-O coding system. The transition from ICD-10 to ICD-11 has modified critical definitions, creating a series of challenges for the industry to maintain a clear comprehension of human impact on diagnosis's, beyond simple technical classification. If insurers do not understand the depth of the diagnosis, they run the risk of depersonalizing the offered product, moving away from their essential mission: to truly protect people.

The conference was not limited to formal presentations. **Michael Lo** presented an analysis on youth insurance, with a focus on autism and the complexity of current diagnoses, and the escalating concern of overdiagnosis. We know that misdiagnosis can have serious repercussions on coverage and treatment provisions, making it essential to refine underwriting and medical assessment protocols. **Bill Bosany**, through his intervention raised the dilemma of whether technologies such as AI and digital platforms can replace the 'human element' of our work. While algorithms allow us to profile risks and customize products with remarkable accuracy, he reminded us that empathy, discernment, and active listening skills are irreplaceable. Insurers, therefore, must leverage risk assessment and predictive models without overlooking the individualized support that each insured person deserves.

Matthew Proctor proposed reassessment of the role of critical illness products, advancing the premise that, in insurance, 'less can indeed be more'. He reviewed the protection gap: that invisible discrepancy between contractual coverage and the actual needs of the policyholder at the moment os a medical event. Following current medical advances, this gap fluctuates and evolves, compelling the industry to optimize, rationalize an periodically recalibrate coverage, ensuring the continuity of insurability over time. This approach ultimately allows policyholders to benefit from substantively effective protection, adapted to the changes in their health and lifestyle.

Tobias Schiergens invited participants to reflect on an increasingly concerning epidemiological shift: malignancies traditionally associated with old age that are now being diagnosed in individuals under fifty. Epidemiological data necessitates a re-evaluation of metabolic risk factors, early environmental exposures, and to consider the need of customizing assessments and coverages based on regional and

individual profiles. Beyond incidence and mortality statistics, the key question is how the insurance industry can proactively anticipate these trends and truly protect those who are exposed. **Eric Raymond** offered a note of optimism by analyzing advances in personalized therapies, with records of reduced mortality in breast cancer thanks to early diagnosis and innovative treatments. However, the actuarial projection is alarming: by 2070, there could be more than four million new breast cancer cases annually. The challenge lies in responding with agile products and a comprehensive perspective on the Right to be Forgotten and the risks of coverage discontinuity.

On the second day, **Jeffrey Barrett** presented a truly groundbreaking progress in the field of blood analysis: Nightingale, a finger-prick test capable of forecasting health trajectories and the development of chronic diseases over the next decade. Could these advanced detection technologies facilitate truly preventive and proactive medicine, where insurance becomes a tool that guides rather than merely indemnifying post-event? Supported by data from the British Biobank, the session demonstrated that personalized, low-cost prevention may soon become feasible for millions of users.

Mental health then assumed prominence in the debate: **Karsten Filzmaier** analyzed neurodevelopmental variations such as ADHD and autism, especially in adulthood, highlighting the implications of these diagnoses on attention, exhaustion, and the risk concomitant with other mental pathologies. Should we modify underwriting questionnaires? Is it time to incorporate more comprehensive questions to prospectively anticipate and protect vulnerable policyholders? The conclusion suggested that progress depends on an open dialogue between behavioral science, medicine, and the insurance industry.

Will Trump offered an insightful view of the practical implementation of behavioral science in insurance, illustrating how subtle alterations in questions or procedures can optimize the policyholder experience. By modifying perception and interaction, customers enhance participation, disclose information with greater confidence, and achieve superior outcomes. The key is not only achieving desired results, but the human and transparent methodology that cultivates enduring relationships of trust.

THE RIGHT TO BE FORGOTTEN

The discussion regarding The Right to Be Forgotten constituted one of the most ethically topics of the conference. Schould cancer survivors have the right to exclude their medical histories excluded from underwriting process? John Turner examined various international teams legislative initiatives, analyzing comparative approaches in France, Belgium, and Portugal. The underlying question is whether similar rights should be extended to other patient cohorts and how to effectively disseminate data on advances in cancer outcomes to mitigate the perpetuation of stigma and exclusion. What emerged with clarity was the imperative for the insurance sector to communicate, disclose successful outcomes, and share optimal underwriting protocols without compromising the focus on human-centric processes.

The final day was entirely devoted to health data, big data analytics and artificial intelligence, topics that today seem designed to spark both enthusiasm and concern in the insurance sector. Paulo Pinho explored the path to connecting and leveraging electronic health data, highlighting the immense possibilities in terms of efficiency, prediction and prevention, but also the technological and legal challenges we face. **Emoke**

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>
> **David Lu. Swiss Re**

Posan illustrated the advance of AI in cardiology, demonstrating how algorithms applied to electrocardiograms already make it possible to predict heart failure and personalize strategies now enables early prediction and the personalization of clinical strategies.

Craig Rhodes shared his direct experience in the operationalization of AI to reduce waiting lists, containing rising costs, and optimizing data managment and patients. His message was clear: technology can and should be regarded as an ally in the enhancement of care, though its technical and human challenges should not be understated.

In the section dedicated to the clinical management of obesity, **Daniel Tong** analyzed the evolution of insurance coverage for metabolic surgery and its relationship with novel pharmacological interventions for weight management, such as GLP-1 agonists. **David Lu** provided Swiss Re’s institutional perspective, presenting empirical evidence and corporate experiences in adapting coverage to new pharmacological treatments. If health insurance wants to achieve optimal efficacy and maintain a human-centric approach, it must integrate population profile shifts and ensure product offerings are precisely calibrated to these emerging requirements.

Michael Osterholm captured the audience’s attention with his analysis of emerging public health risks and the barriers to implement preventive policies in different areas. The topic of persistent COVID was rigorously analyzed by **Tim Meagher**, who described the diagnostic challenges, long-term sequelae, and impact on morbidity and mortality. He connected all in a practical way to the implications for claims and the design of life insurance coverage. **Sandra Mitic**, with her presentation ‘Go with Your Gut,’ provided a comprehensive literature review of the importance of the microbiome and its role in complex diseases, reminding us that insurance medicine must remain attuned to not only obvious risks, but also those arising from frontier research.

Elyssa Del Valle brought an innovative perspective on hepatic risk stratification in younger women, linking alcohol consumption and metabolic deterioration to rising rates of liver disease across both developed and developing countries. Identifying these trends and warning signs at the underwriting stage can protect companies and, above all, individuals, before destructive claims and catastrophic personal outcomes arise.

At the close of the conference, a shared perception prevailed: insurance medicine is transforming, expanding, and becoming more humanized, driven by technology and data. But at every step, we are reminded of the need to maintain a human-centred, ethical, and holistic approach: insurance must transcend mere coverage, advancing toward a model based on prevention, equity, and comprehensive individual support. This is the strategic mandate left by ICLAM 2025, an invitation to a more innovative, connected, and humane insurance medicine, where science serves as the cornerstone of its evolution.

ARTIFICIAL INTELLIGENCE IN RISK SELECTION

Artificial Intelligence (AI) is fundamentally redefining the foundation of risk selection in the health insurance sector, enabling more precise, rapid, and individualized assessment of potential policyholders.

From a medical standpoint, AI enables a deep integration of clinical, historical, and behavioral data, generating ethical, technical, and operational considerations that demand expert oversight.

TRADITIONAL RISK SELECTION VERSUS AI

Historically, medical risk selection relied on standarized forms, interviews, physical medical examinations, and manual review of medical records. These methodologies tend to be resource-heavy, time-intensive, and inherently prone to cognitive bias. Such constraints limited insurers' capacity to customize premiums and coverage without incurring unacceptable levels of risk. The advent of Artificial Intelligence constitutes a paradigm shift: algorithms that process massive data sets, identify latent patterns, and learn continuously, enabling substantially more precise and dynamic risk selection.

One of AI substantial contributions is its capacity to conduct holistic analyses medical records, demographic data, lifestyle habits, and electronic health records. Advanced systems can extract clinically actionable insights from heterogeneous sources -clinical records, laboratory results, pharmacological records, and monitoring devices (wearables, mobile applications)- all in near-real time.

AI identifies trends that humans, due to inherent cognitive constraints, might overlook, such as heightened risk factors, the advent of novel pathologies, patterns of disproportionate utilization of healthcare services,

and the forecasting of adverse medical events. This capability empowers insurers to continuously calibrate their risk models, personalizing premiums and conditions for each policyholder with unparalleled precision.

AUTOMATION AND REDUCTION OF HUMAN ERROR

Process automation has emerged as a critical domain in which AI offers undeniable advantages. AI systems can algorithmically review applications, claims, and accident settlements, reducing repetitive administrative tasks for medical personnel and significantly minimizing human procedural errors.

The policy underwriting process, which once demanded weeks, is now condensed to mere minutes: AI driven algorithms are capable of rapidly analyzing clinical and behavioural datasets, accurately assessing Risk profiles.. This process liberatesevaluatonrs from routine tasks, allowing them to focus on medically complex cases requiring expert interpretation.

DISEASE ASSESSMENT AND PREDICTION

Predictive models powered by machine learning allow for the prospective anticipation of diseases and risk assessment through the analysis of accumulated data. These models they can quantify the susceptibility to diabetes, hypertension, cardiovascular disease, or cancer by incorporating genetic factors, lifestyle, family history, and clinical biomarkers. Such predictive capabilities enable insurers to implement proactive prevention protocols, enhance the long-term health of the insured, and design specific preventive medical programs. By facilitating earlier interventions and more accurate insurance product design, predictive modelling aligns health coverage with evolving demographic and epidemiological dynamics.

INSURANCE PERSONALISATION

AI technology enables the radical individualization of health insurance coverage and pricing, adapting conditions according to the insured's actuarial risk profile. AI algorithms account not only current health status, but also for projected pathophysiological evolution of each customer. Premiums become more equitable and customized to each individual's medical reality. Policyholders who exhibit consistent adherence to treatments and healthy habits can be rewarded with preferential conditions and enhanced product access. Through dynamic, data-driven pricing, insurance evolves from a reactive indemnity model to a preventive and participatory system that promotes wellness.

FRAUD DETECTION AND PREVENTION

Healthcare fraud remains one of the most persistent challenges in the insurance industry. AI algorithms enhance detection capacity by analysing millions of transactions and identifying behavioral or statistical anomalies beyond human analytical reach.

AI cross-verify medical bills, diagnoses, and procedures for irregularities, minimizing the economic loss attributable to fraud. This not only protects legitimate policyholders and maintains the fiscal sustainability of insurance products.

ADVANTAGES FOR DOCTORS AND INSURERS

From a medical point of view, AI augments clinical decision-making by providing processed data, robust risk stratification models, and automated alerts for high-risk insured individuals. This facilitates resource prioritization, allows for targeted clinical research, and ensures the delivery of more appropriate care.

For insurers, AI translates into improved operational efficiency, shorter response times, enhanced customer loyalty, and superior claims management. Access to real-time data and predictive analytics fundamentally transforms insurance portfolio management, rendering it more efficient and flexible.

ETHICAL IMPLICATIONS AND RISKS

However, the implementation of AI in insurance medicine is not without critical governance challenges:

- Risk of Algorithmic Bias: Algorithms can inadvertently reinforce racial, socioeconomic, or health-based biases if they are not rigorously designed and audited. It is essential that models are subject to transparency audits to preclude injustices in the selection and denial of coverage.
- Erosion of Humanization: Excessive automation can engender a perception of depersonalization and distrust on the part of policyholders, particularly when automated systems deny benefits without considering individual clinical context.
- Data Sovereignty and Security: Massive data usage of personal data demands rigorous privacy protocols to ensure compliance with medical confidentiality and data protection regulations.

TELEMEDICINE AND ASSISTED DIAGNOSTICS

Telemedicine and AI-assisted diagnostics have fundamentally altered access to medical consultations in the insurance context. Video consultations managed by medical chatbots allow for symptom triage, procedure authorization, and patient monitoring, optimizing clinical workflow efficiency.

- Chatbots can guide policyholders through service navigation, schedule appointments, furnish preliminary differential assessments, and refer them to the appropriate specialists.
- AI-supported remote monitoring enhances the longitudinal follow-up of patients with chronic diseases, reducing risk and adjusting medical coverage in a near-real-time capacity.

TECHNICAL AND REGULATORY CHALLENGES FOR THE FUTURE

For AI to be effective in medical risk selection, it is paramount to advance the interoperability of clinical data, enhance predictive algorithms, and ensure

the ethical and legal governance of the technology. Collaboration between clinicians, data scientists, and regulatory bodies will be pivotal in the coming years to develop robust, auditable, and socially equitable models. Risk management and privacy frameworks must evolve in parallel with technological progress, preventing technical progress working under exclusionary practices based on algorithmic decision-making. Novel regulatory mechanisms and control systems will be necessary to ensure that AI benefits both insurers and insured parties, thereby maintaining public trust and equitable access to healthcare.

USE CASE: PERSONALISED SELECTION AND PRICING

Let's consider a scenario where an insurer receives a health insurance application from a new customer. The integrated AI system accesses various data streams: electronic medical records, demographic data, and lifestyle metrics (captured by wearables and health applications). The system analyzes these parameters in minutes:

- It identifies a family history of diabetes and obesity.
- It analyzes the level of physical activity documented by the applicant's smartwatch.
- It verifies compliance with prescribed medication and frequency of medical check-ups.

The AI generates a quantifiable risk index and a projection regarding the possible onset of chronic diseases, referencing thousands of records and statistical patterns. The outcome is a personalized policy proposal: if they maintain healthy habits and comply with regular check-ups. The insurer mitigates the exposure to high-cost claims, accurately identifies the required customer coverage, and can offer incentives for health optimization.

LIFE CONFERENCE

On 24 September, Nacional de Reaseguros hosted its annual Life Insurance Conference in Madrid, convening representatives from thirty-five carriers to discuss major innovations in risk evaluation and insurance medicine. The event featured the presentation of the Yggdrasil Decision Engine, the official launch of the publication "The History of Medicine in Insurance," and a historical exhibition exploring the development of European insurance systems.

Marcos Acosta, Director of Life Insurance, opened the conference by emphasizing Nacional Re's leadership in technological innovation within the Spanish reinsurance sector, tracing the evolution of proprietary instruments from the Da Vinci Risk Manual to the newly developed Yggdrasil Decision Engine.

Miguel Ángel Pinilla, Head of Risk Selection, delivered a detailed technical exposition of Yggdrasil's architecture, describing its six automated pricing mechanisms, security modules, role-based access systems, and key operational benefits. His presentation concluded with practical case studies illustrating integration into underwriting practice.

Dr. Pedro Gargantilla introduced the book "Historia de la Medicina de los Seguros" (History of Insurance Medicine), providing a chronological overview from antiquity to the challenges of the 21st century, including milestones in the evolution of medical underwriting and the sociocultural context of early insurance systems.The programme concluded with Sina Plietzsch, Head of Innovation and New Business at Versicherungsforen Leipzig, who presented her strategic perspective on trend analysis and its role in shaping industry policy. Drawing on topics such as Artificial Intelligence, longevity, and changing gender dynamics, she emphasized the sector's responsibility to anticipate structural transformations and align innovation with societal evolution.

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Depósito legal:M-344-97

SELECCIÓN VIDA is a publication edited by the Personal Lines Department of **NACIONAL DE REASEGUROS, S.A.** in collaboration with Doctor Pedro Gargantilla.
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