SORS: Transforming the health system into an open ended prospective clinical study by using artificial intelligence on clinical Big Data/real world data

Objectives

Abstract: Because of the continuous decrease of sequencing prices the GA4GH has estimated that by 2023 over 80% of sequencing will be done in a clinical environment. In addition, more than two decades of generalized digitalization of health systems is generating an immense repository of clinical big data. Moreover, in coming years wearable devices will be mainstream for monitoring chronic patients and the elder, producing an enormous amount of health and life style data. On the other hand, the field of artificial intelligence has experienced an enormous activity in the last years, releasing a plethora of new methods or new versions of classical ones, able to find patterns in large datasets, to produce classifications using highly dimensionality data or to derive predictors of unprecedented precision. All this together offer an unprecedented opportunity to analyze this wealth of real world data (RWD) to generate new biomedical knowledge with an enormous translational potential. However, several obstacles preclude the direct exploitation of this data. Firstly, most of this data are highly sensitive and are consequently affected by data protection laws and regulations, which impose severe regulations to its use, especially outside of the health system. Moreover, much of this data are contained in unconnected silos in a non-homogeneous format. Here we will comment some initiatives to integrate genomic and clinical data within the Andalusian Public Health System and to make a systematic exploitation to generate new biomedical knowledge using artificial intelligence.

Foundation from the Andalusian Public Health System (SSPA) since 2017, with the mission of introducing and facilitating the use of genomic data in the clinics as well as setting the grounds for the exploitation of the clinical big data stored by the SSPA. Dr. Dopazo's background includes a BSc in Chemistry and a PhD in Biology (University of Valencia, 1989) and his most recent appointments were: director of the Computational Genomics Department at CIPF, Valencia (2005-2016), head of the Bioinformatics group at the CNIO, Madrid (2000-2005) and head of the Glaxo Wellcome bioinformatics team, Madrid (1995-2000). He has published more than 300 papers in international peer-reviewed journals, reaching an h-index of 63. Dr. Dopazo's interests revolve around functional genomics, systems biology as well as development of algorithms and software for the analysis of high-throughput genomic data and its application to personalized and precision medicine and drug discovery. He is also actively working in artificial intelligence methodologies applied to the generation of knowledge from large clinical databases. He has promoted genomic initiatives such as the Medical Genome Project, the first local genomic project in Spain (2010-2013), and has participated in numerous national and international initiatives and consortia (e.g. MAQC, ELIXIR, etc.).

Speakers

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