# CoViD-19, necesidad y oportunidad para el avance de la IA en Sanidad.

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The COVID19 pandemic has fostered the interest in telemedicine and, more generally, telehealth. SDG has invested significant resources to design and develop an integrated framework to support telehealth for the COVID19 and as well as for other pathologies. The framework consists of an app for smartphone which allows anamnestic questions, tele-measurement of vital signs (sPO2, HR, HRV, Respiratory Frequency and forthcoming BP), a dashboard for the medical doctor and a cloud platform for data storage and computing infrastructure. The solution SDG DocDot has been pointed out as best practice by WHO and Forbes, and it has been selected and personalised for Generali Insurance, as well as being currently tested by two Brazilian companies. Data has a threefold usage, (1) for the medical doctor or care facility, (2) for the patients/users and (3) for scientific uses. The latter is the focus of our presentation. Anonymized data consists of the sequence of measurements taken by each subject. The challenge is to draw useful information from observational data, with irregular inter-times between subsequent measurements and under unknown conditions. Despite these limitations, the richness of data comes from the repeated measurements which can still provide real-life patterns of vital conditions. A number of techniques are used to extract information and insights from the data. A topological data analysis method applied to sequence data is used to produce a network of clusters and highlight anomalies to be investigated. A special type of analysis based on spectral projection applied to a Laplacian matrix representation of sequences is currently the object of research of a PhD student in Industrial Mathematics in cooperation between SDG and the Instituto Superior Tecnico of Lisbon. The aim is to support inference from the gathered data.