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## Climate services to reduce human health impact associated with environmental risk factors exposure.

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*Introduction* - Climate change impact reduction can be achieved by exposure reduction and improved health care management. Adaptation strategies can be designed based on sustainable urban-infrastructure planning and warning systems (Banwell, 2018). The H2020 Insurance Project aimed to help the health insurance sector to understand the relation between the air quality, climate extremes and health conditions in a given population, quantifying potential losses associated with the current and future climate risk. Potential climate services were identified. Considering the rising demand for adaptation solutions in a climate change context, we present two test cases, applied for EU Projects (H2020 Insurance - Germany and CAMS/AIRE SALUD - Chile), to illustrate the potential of air quality and meteorological modeling for climate change adaptation.

*Methods and Results* -

**H2020 Insurance - Health DEMO (<https://h2020insurance.oasishub.co/>):** Most of the sector has no detailed information regarding the baseline impact of air pollution or weather extreme events (i.e. heatwaves), neither the projection losses in the future climate. H2020-Insurance Health Work Package showcased a Risk/Impact assessment based on high-resolution air quality and meteorological databases integrated with morbidity/mortality data and provided present/future climate impact on health.

District-specific climate relative risk for COPD hospital admissions in Berlin and Potsdam, considering the period between 2012-2016. The attributable morbidity and the associated cost were calculated for the present condition. Climate change projections on air quality and heat exposure were computed and the potential future losses estimated. In parallel, a clinical trial demonstrated how specific counteracting measures (establish ideal room temperatures, telemedicine to monitor the domestic environment, etc.) can help to reduce the hospital stay and shorten recovery time.

**CAMS Project - AIRE SALUD ([www.airesalud.cl](http://www.airesalud.cl)):** For contexts, whereas risk awareness is built and strong, forecast systems are key resources to alert the population and give recommendations to reduce exposure. The AIRE SALUD system is based on a geospatial analysis of medical consultations in public emergencies recorded between 2011 and 2018 by the Department of Health Statistics and Information (DEIS) of the Ministry of Health of Chile. This integrates demographic data, socioeconomic vulnerability factors, participatory web data flows, and atmospheric variables, and allowed the development of geostatistical/machine learning algorithms to predict the increase in respiratory infections in the Santiago Metropolitan Region with a week of anticipation, with a confidence level of over 87%.

*Conclusion* - The applications described present potential as a decision-making tool for adaptation plans in urban areas, improving population resilience and/or giving support on healthcare infrastructure planning strategy.