

**CHENNAI – PONDICHERRY**

**POPULATION HEALTH MANAGEMENT EXPLOITING MACHINE LEARNING ALGORITHMS TO IDENTIFY HIGH-RISK PATIENTS**

**ABSTRACT:**

Population aging and the increase of chronic conditions incidence and prevalence produce a higher risk of hospitalization or death. This is particularly high for patients with multimorbidity leading to a great consumption of resources. Identifying as soon as possible high-risk patients becomes an important challenge to improve health care service provision and to reduce costs. Nowadays, population health management, based on intelligent models, can be used to assess the risk and identify these "complex" patients. The aim of this study is to validate machine learning algorithms (Naïve Bayes, Cart, C5.0, Conditional Inference Tree, Random Forest, Artificial Neural Network and LASSO) to predict the risk of hospitalization or death starting from administrative and socio-economics data. The study involved the residents in the Local Health Unit of Central Tuscany.