

Patient who suffer for Cystic Fibrosis (CF) have a lot of problems in their lives. For avoid that this patient have to follow a specific treatment which, in some moment, can be difficult. Because of that, nowadays is using Machine Learning (ML) techniques to improve the care of the patient with CF. Taking advantage of high-quality data including many variables and longitudinal biomarkers of thousands of patients over long periods of time, ML technique is helping in the clinical work, as it do a personalized approach to patient management with this disease. ML-based models can guide personalized decisions through individual-level predictions on: whether the patient at hand is likely to have an exacerbation, whether a specific new treatment is likely to be effective for that patient, what is the relative probability of their different competing risk, whether a proactive clinical intervention and clinical visit is needed, etc.

In conclusion, the use of ML-based model helps medical personnel improving the care of these patients [1]. For that, clinicians must follow this order that will help them making different predictions (**Figure 1.**): Risk prediction, prediction the trajectory of the individual patient to understand better the disease, predict competing risk, predict which treatment is more suitable for an individual given their particular characteristics, predictions about the patients' health and progress including recommendations (for example alternative of diet and exercise or alert the patient and medical personnel when further action or consultation is needed), and finally doing predictions to discover the clinical significance of specific characteristics that were not previously understood to be important.

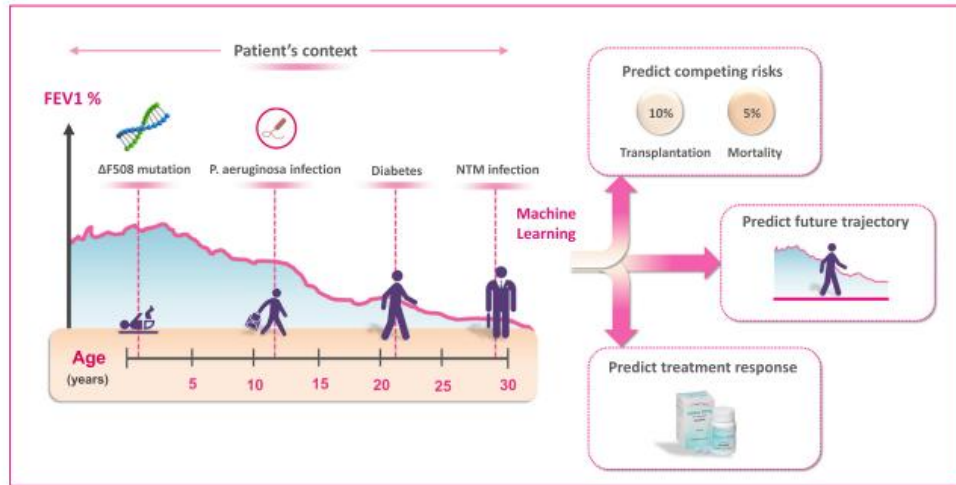


Figure 1. Use of Machine Learning (ML) in health.

[1] LeCun Y, Bengio Y, Hinton G. Deep learning. Nature 2015;521(7553):436