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Title: Prediction models for individual diagnosis & prognosis

Abstract:

A prediction model is usually a mathematical equation or an algorithm that estimates the likelihood of or risk of the presence (diagnosis) or future occurrence (prognosis) of a particular outcome. Risk prediction models are commonly used for risk stratification in various areas including cancer research. Building a risk prediction model (whether for diagnostic or prognostic purposes) involves several steps including developing, evaluating, validating, or updating a model. In addition, communicating prediction models effectively is essential for integrating prediction models into clinical practice and supporting clinical decision-making.

In this talk, I will take you through a case study of building prediction models for the diagnosis of prostate cancer. I will demonstrate a decision-making tool I developed to inform the need for a prostate biopsy using clinical risk factors and novel serum biomarkers. And lastly, I will introduce my 'DynNom' R package that facilitates the development of such decision-making tools for a variety of linear and non-linear models. It will improve the transparency of a prediction model, making the research reproducible, and facilitating its implementation in practice.