USING MACHINE LEARNING TO PREDICT PHARMACEUTICAL INTERVENTIONS IN A HOSPITAL SETTING

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BACKGROUND AND IMPORTANCE

Can AI help?!

AIM AND OBJECTIVES

Train a deep learning model able to predict the probability that a prescription requires a pharmaceutical intervention

MATERIALS

CDSS data extraction:
- Administrative data
- Biological data
- Clinical data
- Prescriptions (Rx)
- Pharmaceutical interventions (PIs)

METHODS

Deep neural network model - multisource input (text, numerical and categorical data)

OUTPUT

Prediction score (Rx requires PI)

Accuracy= 0.74
Precision= 0.73
Recall= 0.75
F1-score= 0.74

So far, preliminary results show predictive performance close to the current state of the art. The integration of all data is likely to further improve the performance of the model.

CONCLUSION AND RELEVANCE

- Detection of high risk prescriptions thanks to deep learning and previous data validated by clinical pharmacists
- Technical assistance for medication review
- Great potential that has to be confirmed in further studies (technical, real-life use, impacts evaluation)