

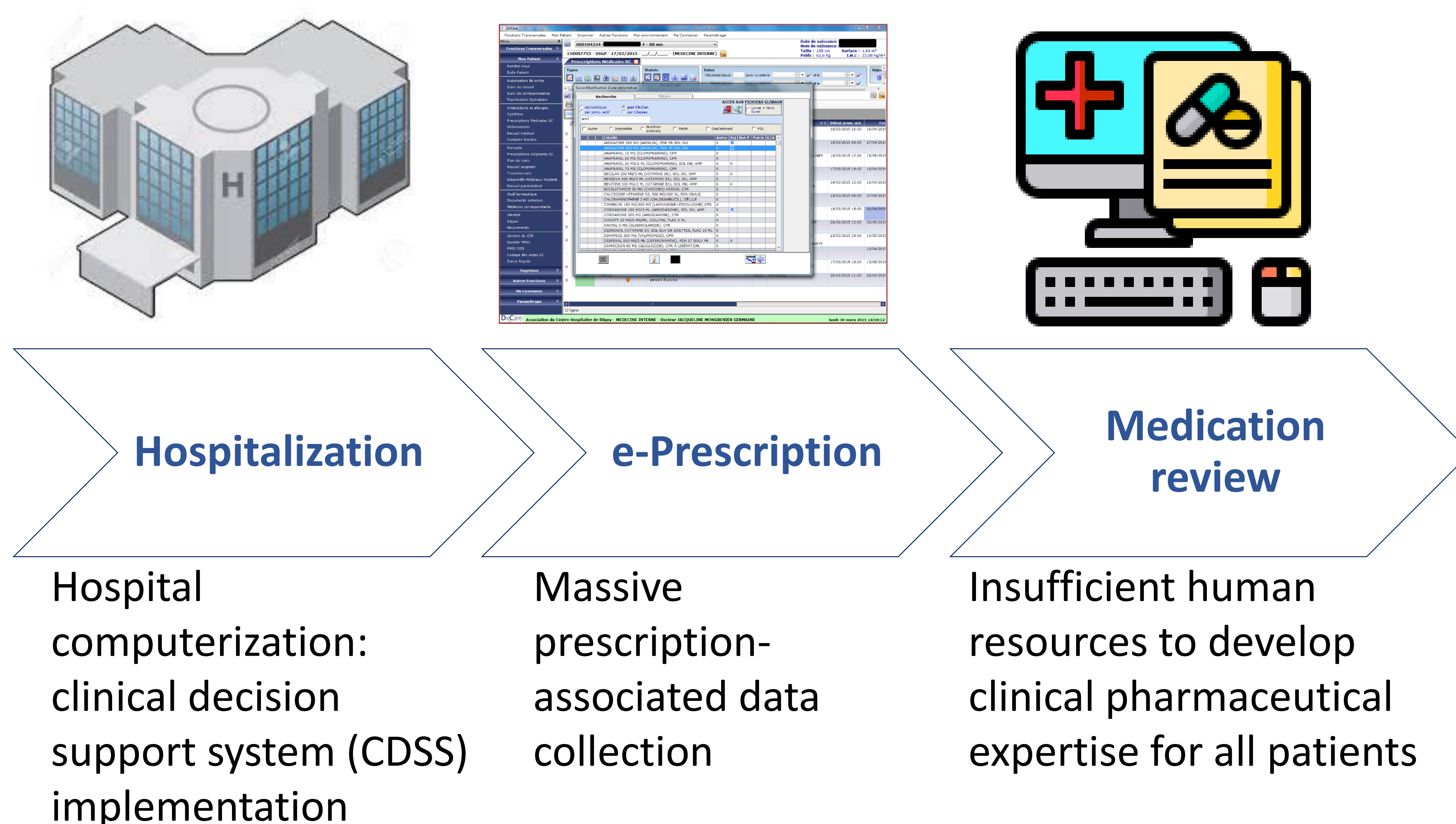
USING MACHINE LEARNING TO PREDICT PHARMACEUTICAL INTERVENTIONS IN A HOSPITAL SETTING

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BACKGROUND AND IMPORTANCE



AIM AND OBJECTIVES

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



CONCLUSION AND RELEVANCE

INPUT

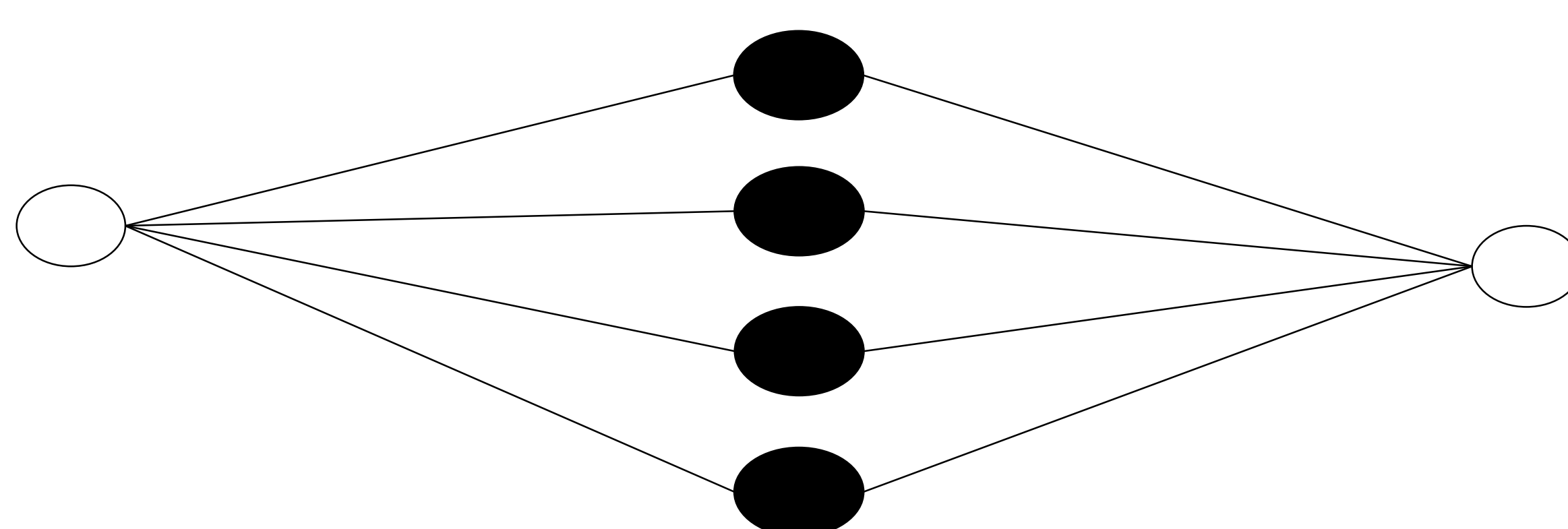


220 906 Rx
31 905 PIs

CDSS data extraction:

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

CLASSIFICATION



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

- 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)

So far, preliminary results show predictive performance close to the current state of the art.¹ The integration of all data is likely to further improve the performance of the model.

1: Corny J, Rajkumar A, Martin O, et al. A machine learning-based clinical decision support system to identify prescriptions with a high risk of medication error. J Am Med Inform Assoc. 2020 Nov 1;27(11):1688-1694. doi: 10.1093/jamia/ocaa154. PMID: 32984901; PMCID: PMC7671619.

