# Patient Risk Assessments × Deep 6 AI

## Utilizing Deep 6 AI to identify COPD exacerbations in unstructured EHR data

- A client needed to develop an algorithm to identify patients at risk for chronic obstructive pulmonary disease (COPD) exacerbations via structured and unstructured electronic health record (EHR) data to help clinicians optimize treatments
- Utilizing Deep 6 AI helped the client identify patients more precisely than existing algorithms that use claims data alone

### Leveraging AI and Natural Language Processing (NLP) for Data Collection

- Deep 6 AI software, AI, and NLP were used to query structured and unstructured EHR data to identify COPD exacerbations
- Rutgers' RWJBarnabas Health (RWJBH) EHR data were used to refine the algorithm by iterating on different combinations of the following criteria:
  - COPD diagnosis
  - Smoking history or white blood cell/eosinophil count
  - Modified Medical Research Council (mMRC) >2 dyspnea
  - COPD Assessment Test (CAT) score, pulmonary function test, or select comorbidities

### Real-World Evidence Leads to Real-World Outcomes

- 30.7% of patients in Rutgers' RWJBH COPD cohort had a history of an exacerbation
- The final algorithm included the following criteria found in structured and unstructured data: 2 instances of COPD diagnosis; evidence of smoking history; pack years available; AND eosinophil count or pulmonary function test or relevant comorbidity or mention of an exacerbation

*"Our study offers the opportunity to apply AI and NLP to structured and unstructured EHR data to predict COPD disease severity and exacerbation risk. This approach could obviate the need to document the CAT or mMRC tools in the chart and more precisely identify patients at risk for exacerbations than models that use claims data."*

**–Reynold A. Panettieri, Jr, MD,**
Director, Rutgers Institute for Translational Medicine & Science