Macrolide use among patients with asthma and chronic obstructive pulmonary disease. A drug-utilization and prediction study

INTRO:
• Clinical trials have shown improvement in health outcomes during macrolide-use among patients with asthma, COPD and asthma-COPD overlap (ACO). Does this translate into increased use among these patient-groups?
• How well can macrolide-use be predicted?
• What are predictive factors for macrolide use?

METHODS
• Retrospective population-based cohort study on the Integrated Primary Care Information (IPCI) database, mapped to OMOP-CDM.
• Asthma, COPD and ACO were defined according to AsthmaCOPDtreatmentPatterns study package.
• Study period: 1 Jan. 2010 - 30 June 2021
• Incidence calculation was performed by an adapted version of the drug-utilization-study package for ranitidine.
• Prediction modeling was performed with Least Absolute Shrinkage and Selection Operator (LASSO) for each cohort by utilizing the PatientLevelPrediction-package with default covariate-settings.

RESULTS
• Study population: 96,793 asthma, 33,212 COPD and 15,159 ACO patients.
• There is an overall decrease in use for all macrolides in all patient groups.
• Macrolide-use was the highest among ACO, followed by COPD and asthma. The use was higher in all groups compared to the general IPCI-population. (Figure 1)
• The LASSO models show relatively low discrimination for the prediction of macrolide use. (Table 1 on the right)
• The strongest predictors for macrolide-use among asthma, COPD and ACO were: "disease due to alphaherpesvirinae", "antibacterials for systemic use" and "very potent corticosteroids in combination with antibiotics".

Macrolide use for asthma and COPD patients decreased in recent years. LASSO models show low discriminative values.