



Patient-level prediction #2:
Amongst patients at GP presenting with
virus or associated symptoms
with/without pneumonia who are sent
home, who are most likely to require
hospitalization in next 30d?

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Background

A large proportion of patients presenting with symptoms will be sent home

Some of these patients will go on to experience disease progression

This model can act as a safety net for a clinician and reassurance for patient.



Methods

T1: Visit with COVID or Influenza or flu-like symptoms and with NO pneumonia and NO admission

T2: same as T1 except WITH pneumonia

O1: Hospitalizations with pneumonia or ARDS or sepsis or AKI requiring intensive services

O2: Hospitalizations with pneumonia or ARDS or sepsis or AKI requiring intensive services or resulting in death in 30d

TAR: 2-30d



Preliminary results

Analysis	Dev	Val	T	O	Model	TAR start	TAR end	AUC	AUPRC	T Size	O Count	O Incidence (%)
Analysis_1	optumDod	optumDod	[COVID ID14 v1] GP/OP/ER visits of patients presenting with Covid flu or flu-like symptoms with pneumonia and no admission	[COVID19 ID27 V1] Hospitalizations with pneumonia or ARDS or sepsis or AKI requiring intensive services or resulting in death in 30d	Lasso Logistic Regression	2	30	0.75216	0.03286	25282	115	0.45487
Analysis_2	optumDod	optumDod	[COVID ID15 v1] GP/OP/ER visits of patients presenting with Covid flu or flu-like symptoms with no pneumonia and no admission	[COVID19 ID27 V1] Hospitalizations with pneumonia or ARDS or sepsis or AKI requiring intensive services or resulting in death in 30d	Lasso Logistic Regression	2	30	0.8643	0.03104	74826	109	0.14567
Analysis_3	optumDod	optumDod	[COVID ID14 v1] GP/OP/ER visits of patients presenting with Covid flu or flu-like symptoms with pneumonia and no admission	[COVID19 ID26 V1] Hospitalizations with pneumonia or ARDS or sepsis or AKI	Lasso Logistic Regression	2	30	0.72116	0.08942	25283	827	3.27097
Analysis_4	optumDod	optumDod	[COVID ID15 v1] GP/OP/ER visits of patients presenting with Covid flu or flu-like symptoms with no pneumonia and no admission	[COVID19 ID26 V1] Hospitalizations with pneumonia or ARDS or sepsis or AKI	Lasso Logistic Regression	2	30	0.8374	0.1153	74826	788	1.0531
			[COVID ID14 v1] GP/OP/ER visits of	[COVID19 ID27 V1] Hospitalizations with	Lasso							



Discussion and next steps

COVID-19 validation and external validation

Model parsimonisation

Tool creation

– how can we best present the model for application?

Model dissemination
