

# Analysis of drug interactions related to the initiation of Nirmatrelvir/Ritonavir in a geriatric population

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## Background

Drug induced iatrogenesis causes approximately 130.000 hospitalisations and 10.000 deaths annually, with a higher incidence within the geriatric population, which often has multiple medication and comorbidities

The combination of Nirmatrelvir/Ritonavir (NR) is prescribed for non-oxygeno requiring SARS-CoV-2 infections at high risk of progressing to severe forms. Ritonavir is a **potent inhibitor** of cytochrome P450-3A4 and can cause drug interactions.

## Objectives

This project aims to evaluate the proportion of NR prescriptions that led to pharmaceutical interventions (PIs) in a geriatric population.

## Methods

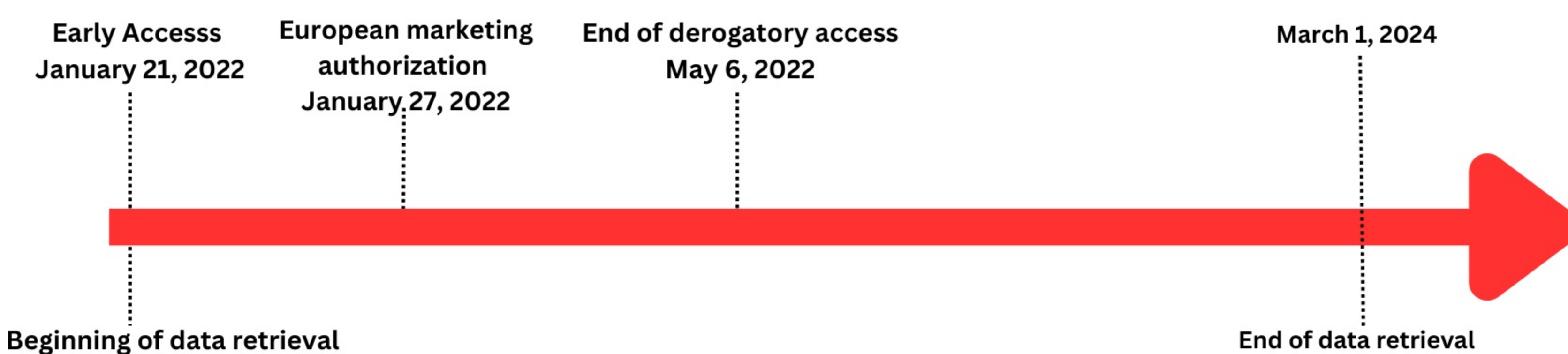


Fig 1: Evolution of NR's status in France in relation to the project timeline

## Data extraction :

Prescription Software  
Dxcare™

Demographics  
Comorbidities  
Number and types of PIs  
Indications

Study : Retrospective, Monocentric, Observational

## Results

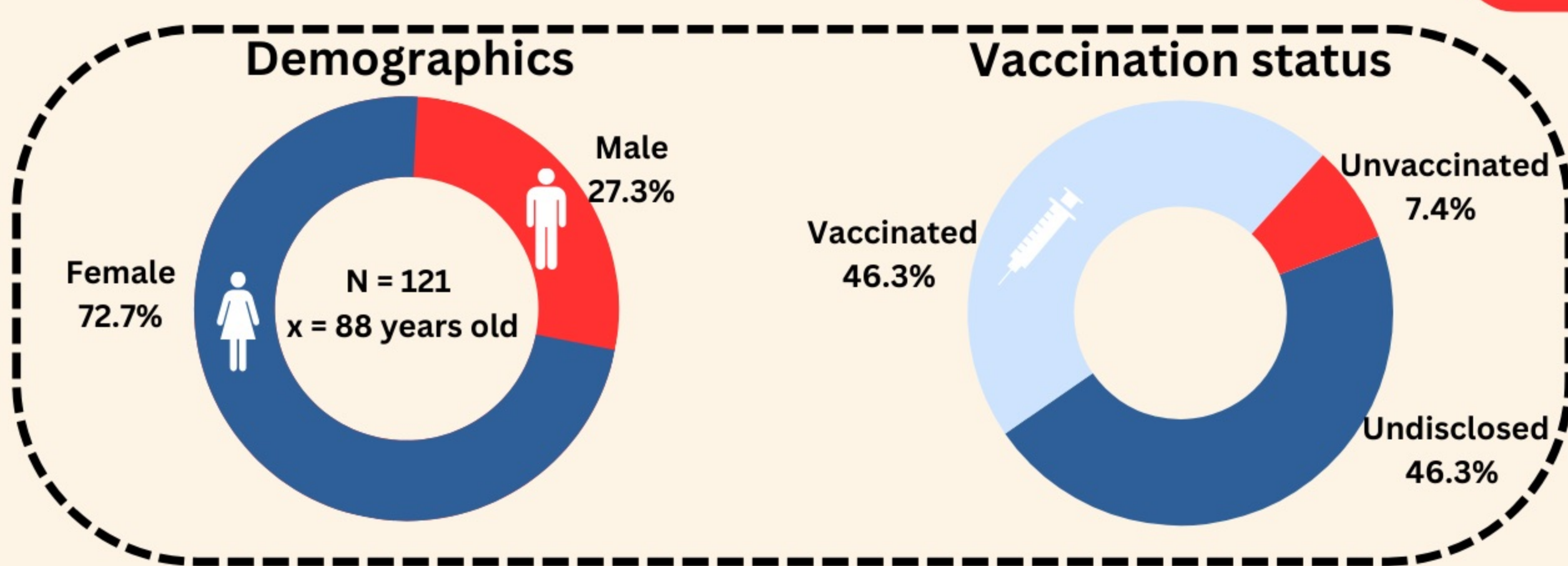


Fig 2: Population description

In order to be eligible for NR, patients need to have at least one comorbidity (see fig 3), need to not have received oxygen therapy and need to have tested positive within five days.

Among the 121 patients that received NR, 15.8 % (n=19) were not eligible.

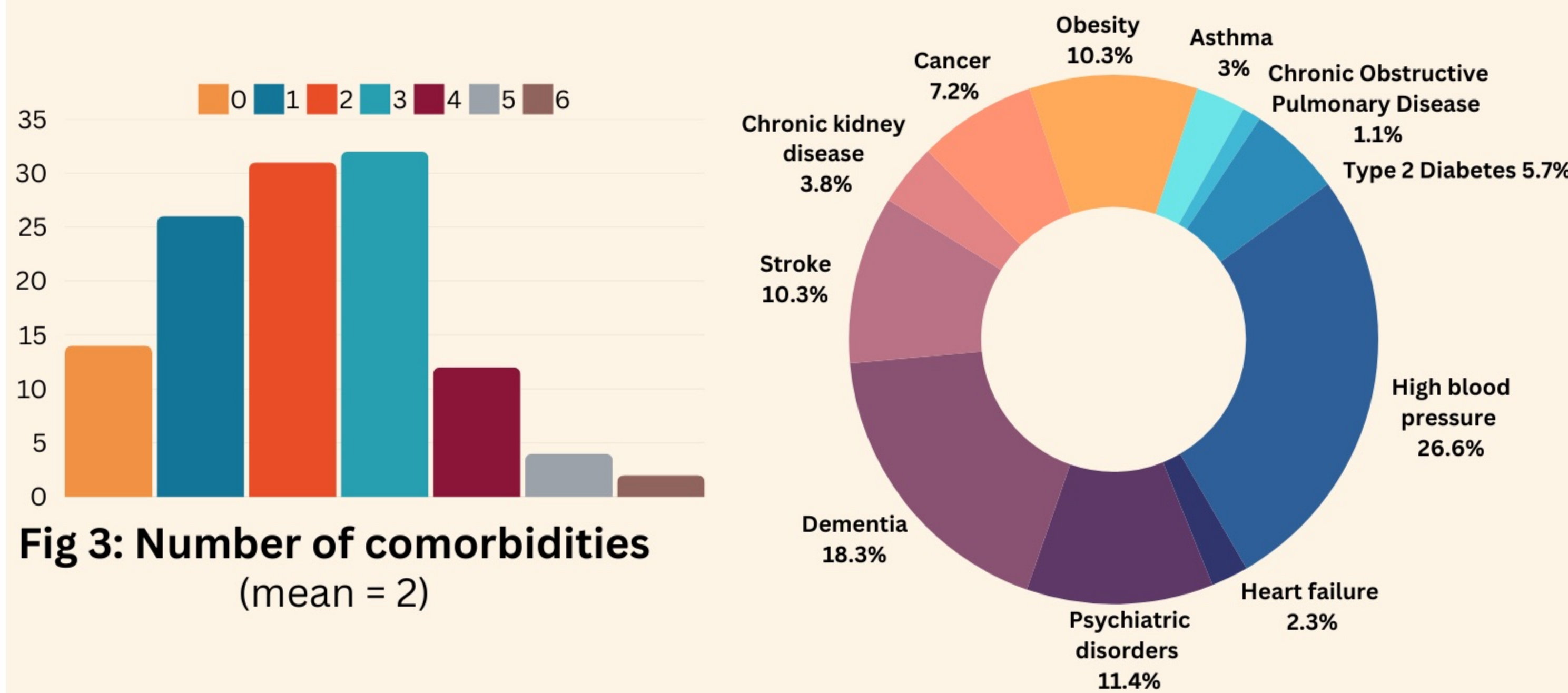


Fig 3: Number of comorbidities (mean = 2)

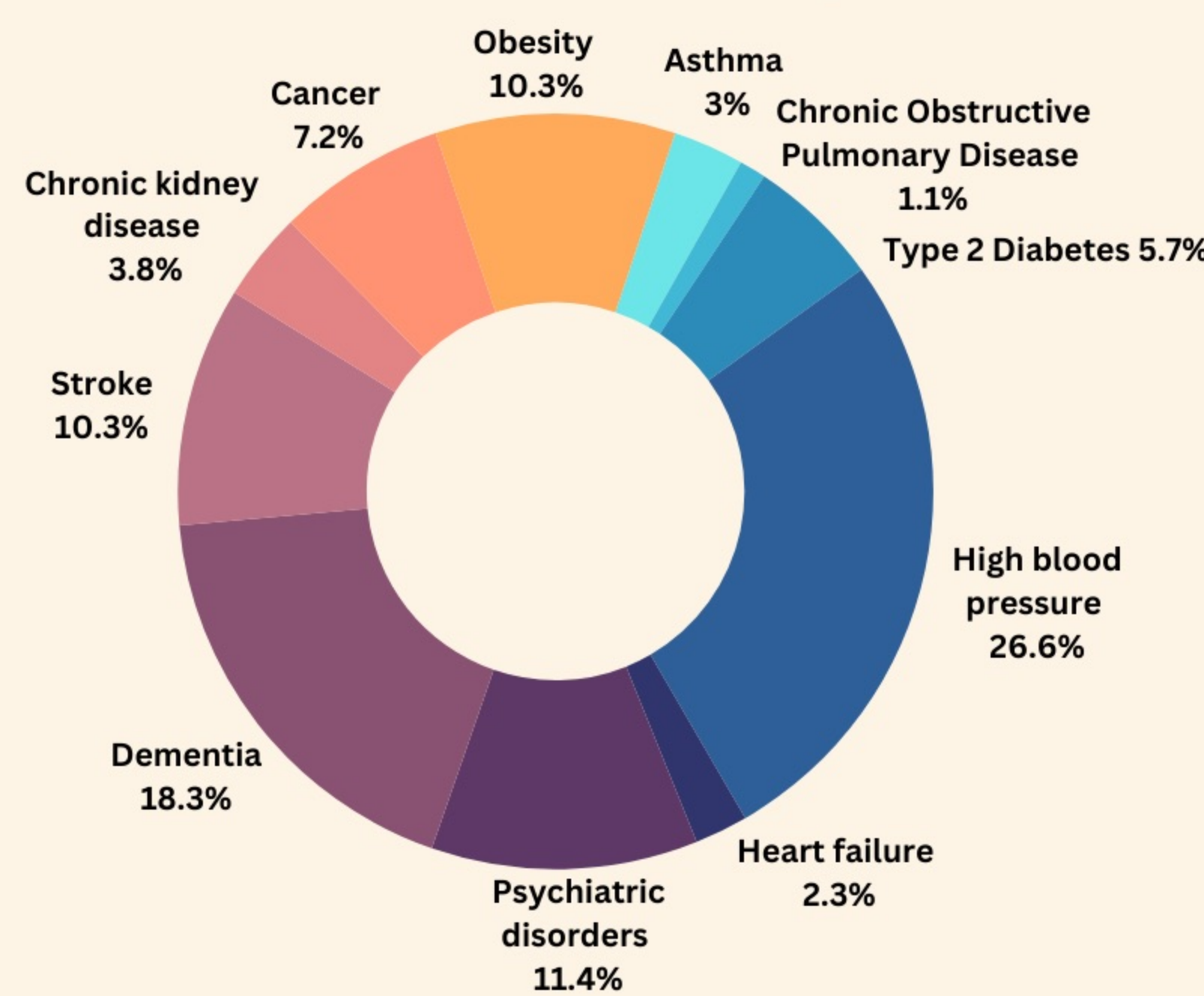


Fig 4: Type of comorbidities

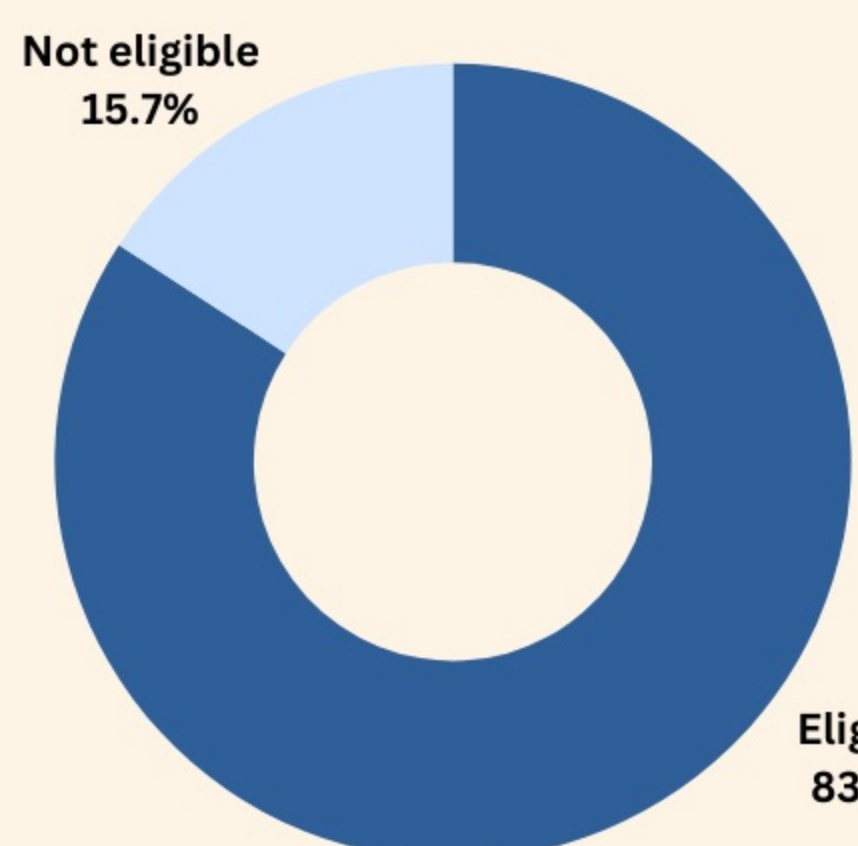


Fig 5: Patient eligibility

A total of 15.8% were not eligible

- 14 had no comorbidities .
- 6 had received oxygen therapy.
- 3 had tested positive for SARS-Cov-2 for more than 5 days.

4 out of those 19 patients had multiple reasons for not being eligible

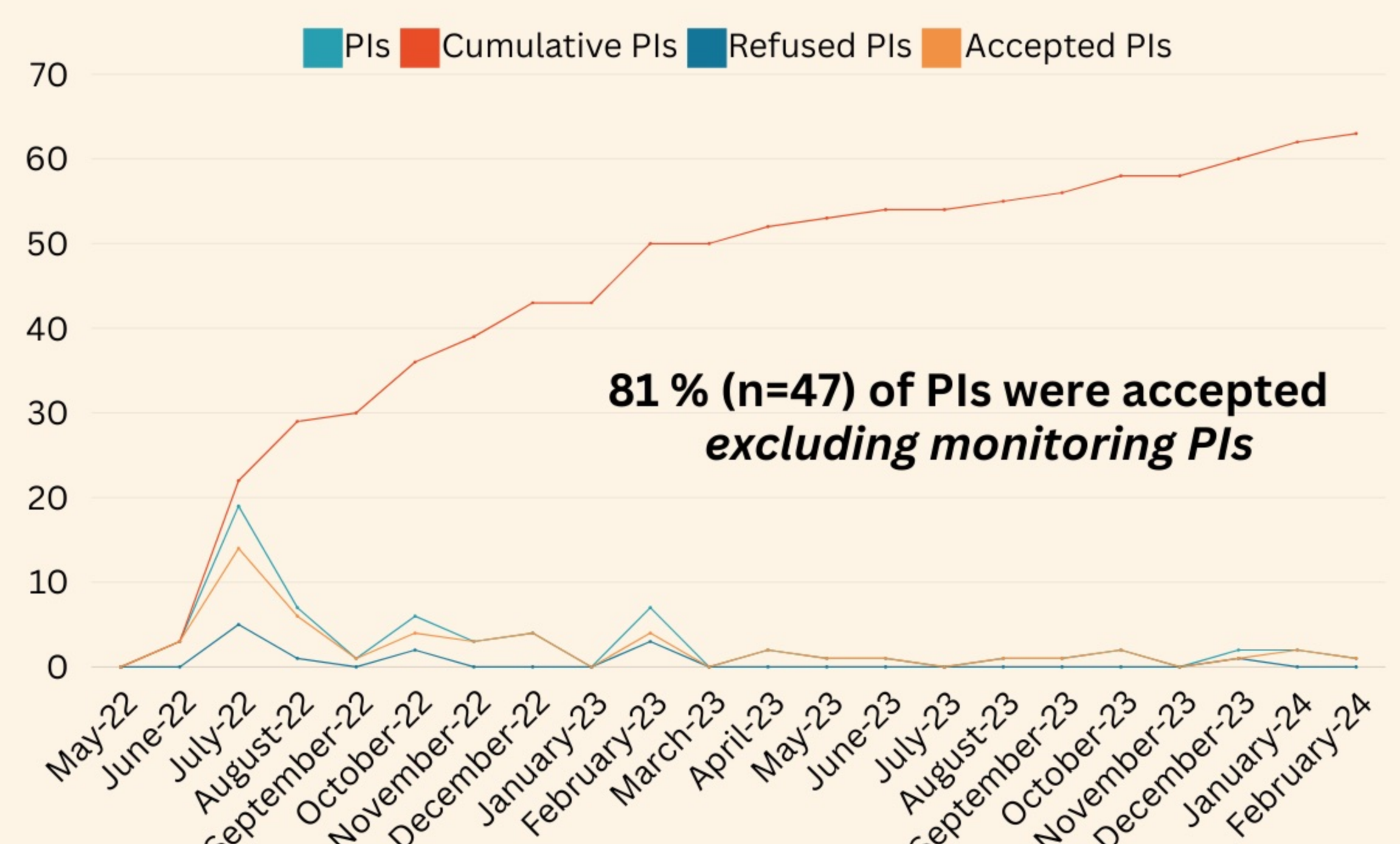


Fig 6: Number of PIs

Table 1: PI description

	Dosage	Interactions	Initiation	Monitoring
PIs	28 (44%)	28 (44%)	2 (3%)	5 (8%)
Refused	8 (28%)	3 (11%)	0	ND
Accepted	20 (72%)	25 (92%)	2 (100%)	ND

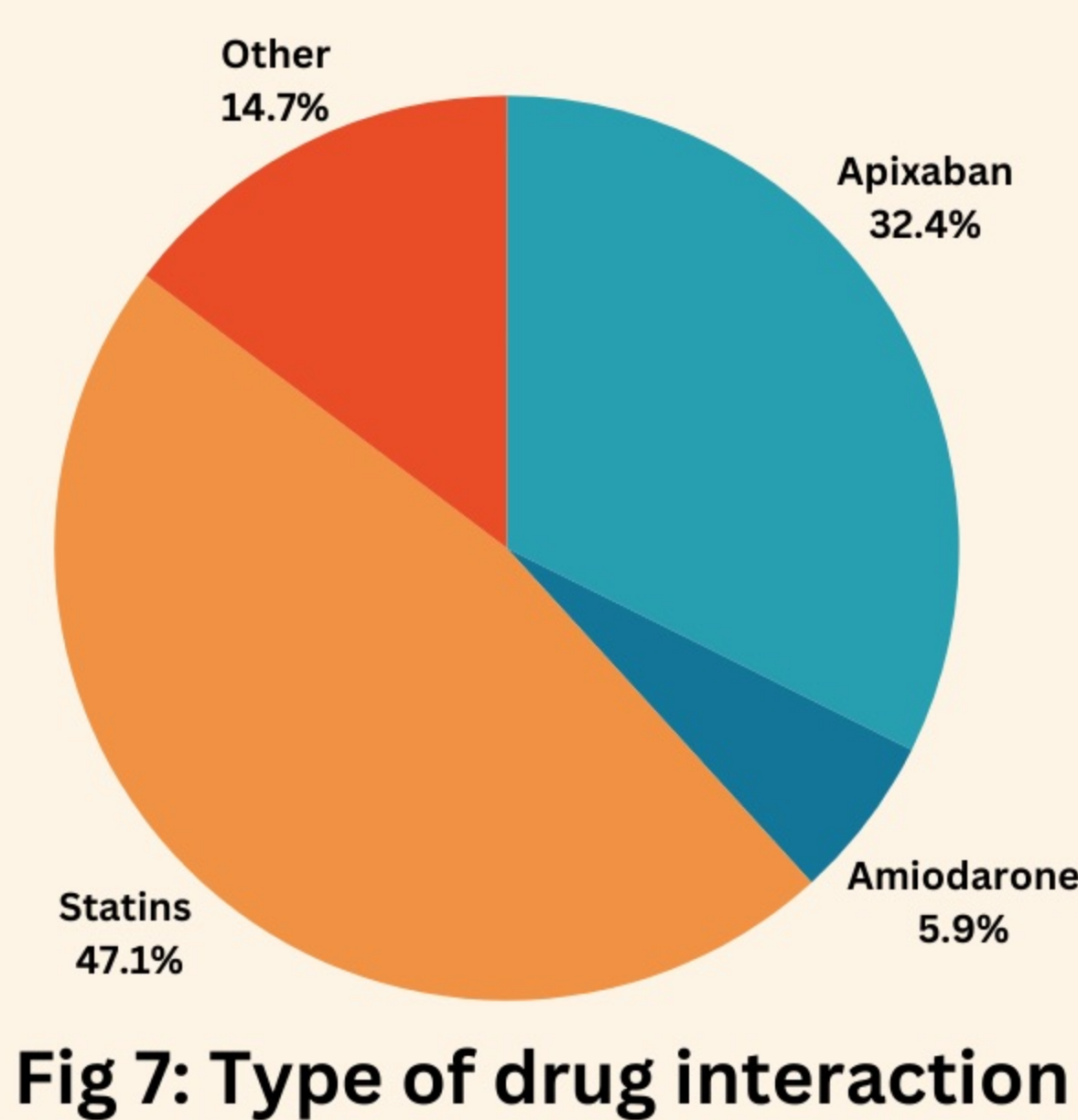


Fig 7: Type of drug interaction

49 prescriptions resulted in at least one PI, totaling 63 PIs. The focus of this study being drug induced iatrogenesis, data concerning the type of drug interactions was collected.

- Statins : increased risk of liver damage or rhabdomyolysis.
- Apixaban : increased risk of bleeding.
- Amiodarone : increased risk of arhythmia.

## Discussion :

The number of PIs is underestimated as some interventions were conducted orally and not recorded. Many patients had an undisclosed vaccination status, which could be a factor in the prescription of NR. Concerning the initiation PI : the data only includes the PIs that were accepted. Concerning the dosage adjustment of NR : geriatricians used the COCKROFT and GAULT formula in order to calculate kidney function, whereas pharmacists used the CKD EPI formula. This discrepancy may justify refused dosage related PIs. More than 2/3 of PIs were made during the first 6 months of the drug's use, which seems to indicate a learning period for prescribers. This accounts for n=8 (14%) refused PIs.

## Conclusion :

This study shows that NR prescriptions generated a significant amount of PIs which were largely accepted. This highlights the crucial role of pharmacists in ensuring treatment safety. Finally appropriate prescription of NR is essential considering the high costs of the treatment

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