# Decision Support and Centralized Pharmacy Consultation for Nirmatrelvir-Ritonavir Prescribing in an Academic Health System—a Model to Promote Drug Access and Reduce Provider Burden

## BACKGROUND

The Food and Drug Administration's Emergency Use Authorization (EUA) of nirmatrelvir-ritonavir created opportunities to treat COVID-19 effectively in the ambulatory setting.[1] This has posed challenges for clinicians, including limited drug supply, narrow time window to initiate treatment, drug-drug interactions (DDIs), and the need for EUA documentation. To address these challenges, we aimed to facilitate the delivery of this medication through a decision support and pharmacy consultation service.

## METHODS

A team of clinicians, pharmacists, and designers developed the program from January 2022 to its implementation in February 2022. The process begins when clinicians become aware of a positive COVID-19 PCR result report, or receive outreach from a patient with COVID symptoms and a positive home antigen test.

First, a "Paxlovid Screener" order helps prescribers determine if their patient is a candidate for nirmatrelvir-ritonavir. If prescribing is not absolutely contraindicated, a best practice advisory (BPA) fires within our EHR. Based on the patient's medications, assessment of DDI guides the prescriber regarding whether pharmacy consultation is advised. Links to resources on DDI and area pharmacies stocking the drug are embedded within the BPA workflow for prescribers who elect to proceed without pharmacy assistance.

Prescribers note the number of days since symptoms began in order for the pharmacist to gauge the urgency of follow-up based on the eligibility window. If no high-risk interactions are found, the pharmacist confirms which pharmacy closest to the patient has the product in stock, and pends the nirmatrelvir-ritonavir order. Guidance is provided on which of the patients' medications should be withheld or dose adjusted during treatment, as well as renal dose adjustment if necessary. If a high-risk DDI is identified, the pharmacist can recommend alternative treatment options (Figs. 1 and 2).

The prescriber is reminded to provide the patient with a copy of the nirmatrelvir-ritonavir EUA fact sheet (https://www.fda.gov/media/155051/download). Once recommendations, risks, and benefits are discussed and the patient agrees to treatment, the prescriber signs and sends the prescription to the selected pharmacy. A team-based office workflow can further limit provider burden.

Provider and patient awareness of nirmatrelvir-ritonavir was recognized as pivotal to project efficacy. Tip sheets flowed through health system communication channels. Our EHR portal was used to promote awareness of nirmatrelvir-ritonavir to patients, stressing the importance of early testing and outreach to primary care providers.
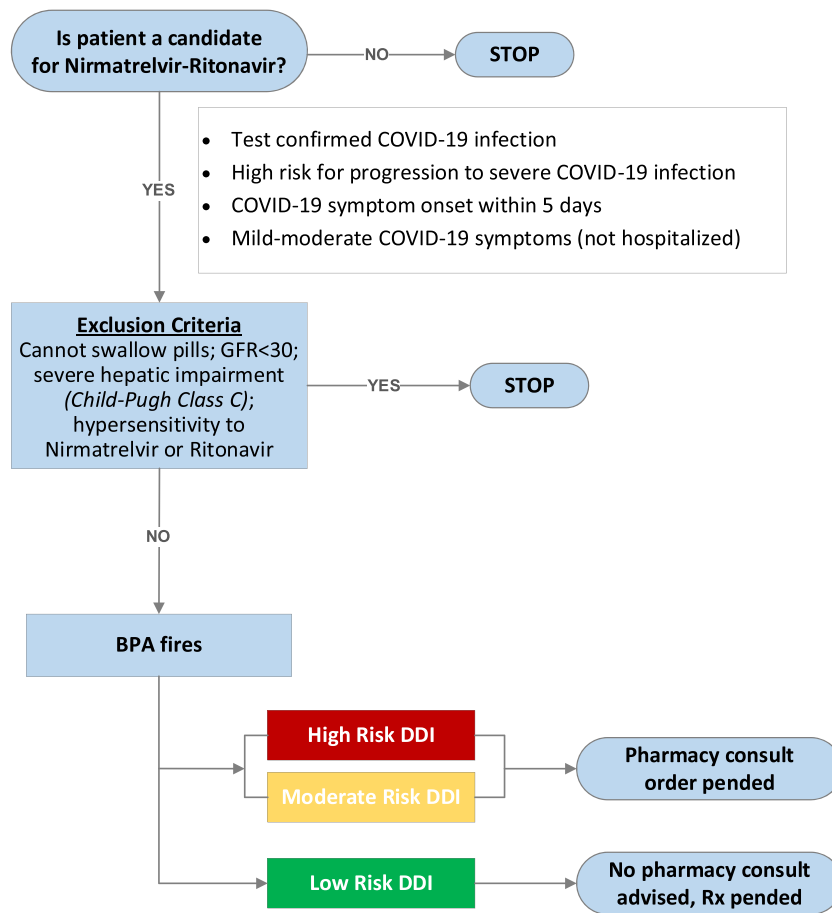
**Fig. 1 The BPA workflow.**

## RESULTS

In total, 1023 nirmatrelvir-ritonavir orders were placed in the health system from January to April 2022; 833 since decision support implementation in February 2022. This resulted in 118 pharmacy consultations, 20 recommendations not to prescribe, and 64 recommendations to prescribe with interventions. Due to DDI, 70% of interventions involved holding standing medications; 17% involved dose reductions of standing medication; and in 13%, only monitoring was recommended. More than 90% of pharmacy consults were requested by primary care clinicians.

## DISCUSSION

Our process helped clinicians assess patient eligibility swiftly, prescribe safely, and determine where nirmatrelvir-ritonavir can be most efficiently obtained. A centralized system can limit strain on practice sites that are disproportionately challenged by staffing shortages. Clinical decision support has previously been shown to improve clinician prescribing behavior and patient outcomes,[2,3] and systems that improve efficiency and foster teamwork have been credited with reducing clinician burnout.[4]
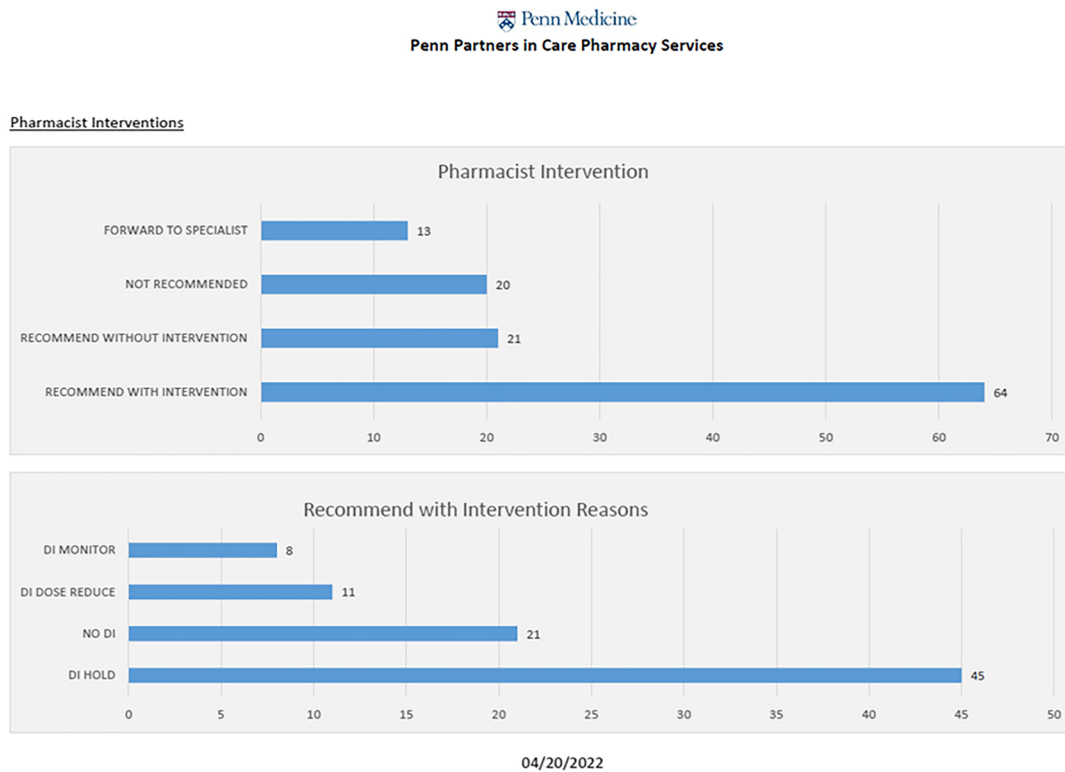
**Fig. 2 Pharmacist interventions.**

We faced several challenges. It was important to achieve buy-in from key stakeholders including clinical, operational, and pharmacy leaders, along with information technology specialists. The workflow required a straightforward electronic health record (EHR) build, limiting "clicks," and keeping the process easy for clinicians to navigate. Furthermore, we sought to make the most effective use of a limited pharmacist workforce. For those clinicians who prefer to prescribe nirmatrelvir-ritonavir without pharmacy assistance, the workflow empowers them with links to DDI and pharmacy locator resources, along with an option to change course and elect pharmacy assistance later in the prescribing process.

## CONCLUSION

Decision support for nirmatrelvir-ritonavir prescribing, including a pharmacy consultation option, has provided assistance for clinicians, particularly in primary care, aiming to provide care for COVID-19 patients at high risk of clinical deterioration. A rapid innovation process allowed us to bring these tools to our clinicians soon after the emergency approval of nirmatrelvir-ritonavir. Going forward, comparison of demographic prescribing patterns to case prevalence may reveal opportunities to improve equitable access to current and future complex therapeutics for COVID-19.

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**Declarations:**

**Conflict of Interest:** The authors declare that they do not have a conflict of interest.

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