Identifying potential treatment populations for antiviral medications: an analysis of BlueKC Medicare patients at risk of severe COVID-19

Results



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Background

Numerous studies have shown significant clinical and economic burden to society, patients, and health plans from COVID-19. While the pandemic ended in May 2023, these infections continue to be a leading cause of morbidity and mortality, with seasonal fluctuations like other viral infections. With the full FDA approval of the antiviral Paxlovid in May 2023, health plans are now looking to gain insight into the possible financial impact of COVID-19 treatment. As government supply of Paxlovid is utilized or expires, treatment costs shift to the health plan and members. With any budget projection for new medications, as well as the nuances specific to COVID-19, health plans will need to balance treatment cost versus medical cost avoidance. For this project, we seek to quantify Medicare members based on various risk factors and risk factor burden (dosing guidelines) that may lead to severe COVID-19, requiring oral antiviral medication. Additionally, we will identify our Medicare members who were hospitalized with COVID-19 in 2022 to determine if they presented with similar risk factors. Lastly, we will survey our providers to evaluate prescriber perceptions, awareness, and preferences of prescribing oral antiviral medications to treat COVID-19.

Objectives

- Analyze risk factors of progression to severe COVID-19 disease using 2022 claims data from the BlueKC Medicare population.
- Cross-reference these risk factors with BlueKC Medicare members who were hospitalized for COVID-19.
- Evaluate prescriber perceptions of these risk factors in conjunction with Paxlovid prescribing.

Methods

- For 2022, in the Medicare population, medical claims were pulled for members who had any ICD-10 codes related to risk factors for progression to severe COVID-19 to quantify those risk factors.
- Those risk factors were then cross referenced with Medicare members who also had a hospitalization for COVID-19.
- To assess prescriber attitudes towards Paxlovid a brief survey was sent to 25,000 provider email addresses and mailed to 5,000 physical addresses.

Table 1. Demographics and Clinical Characteristics

Characteristic	Overall n=25844	Hosp for CoV n=3839 (14.9%)	Not Hosp n=22006 (85.1%)	Diff	95% CI	P value
Age* in years, mean (SD)	73.5 (8.2)	75.3 (9.3)	73.2 (8)	2.1	1.8 to 2.4	<0.001
Male* (%)	11733 (45.4)	1816 (47.3)	9917 (45.1)	2.2%	0.52% to 3.9%	0.011
Age category >75 years (%)	9778 (37.8)	1885 (49.1)	7893 (35.9)	13.2%	11.5% to 14.9%	<0.001
RF Count, median (IQR)	3 (2)	4 (2)	3 (2)	1	_	<0.001
Cardiovascular disease (%)	2197 (8.5)	1086 (28.3)	1111 (5)	23.2%	22% to 25%	<0.001
Chronic kidney disease (%)	5046 (19.5)	1328 (34.6)	3718 (16.9)	17.7%	16.1% to 19.3%	<0.001
Chronic lung disease (%)	4295 (16.6)	1211 (31.5)	3084 (14)	17.5%	16% to 19.1%	<0.001
At least 5 risk factors (%)	3586 (13.9)	1341 (34.9)	2245 (10.2)	24.7%	23.2% to 26.3%	<0.001

^{*} One patient was missing age and had sex listed as unknown

Figure 1. CoV-19 risk factor prevalence in patients hosp. vs not for CoV-19 infection in 2022 (n=25844)

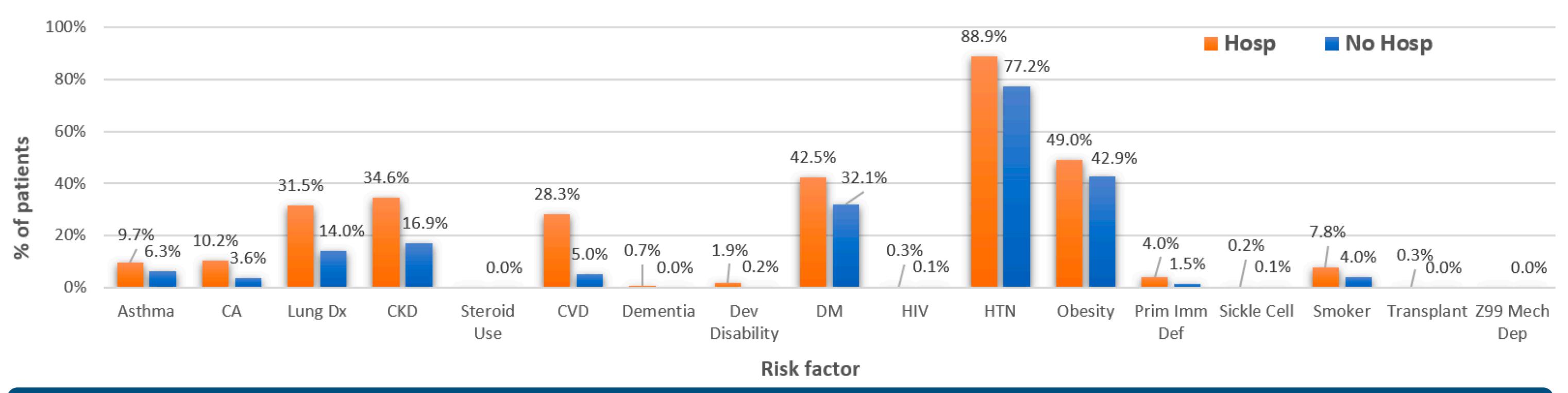
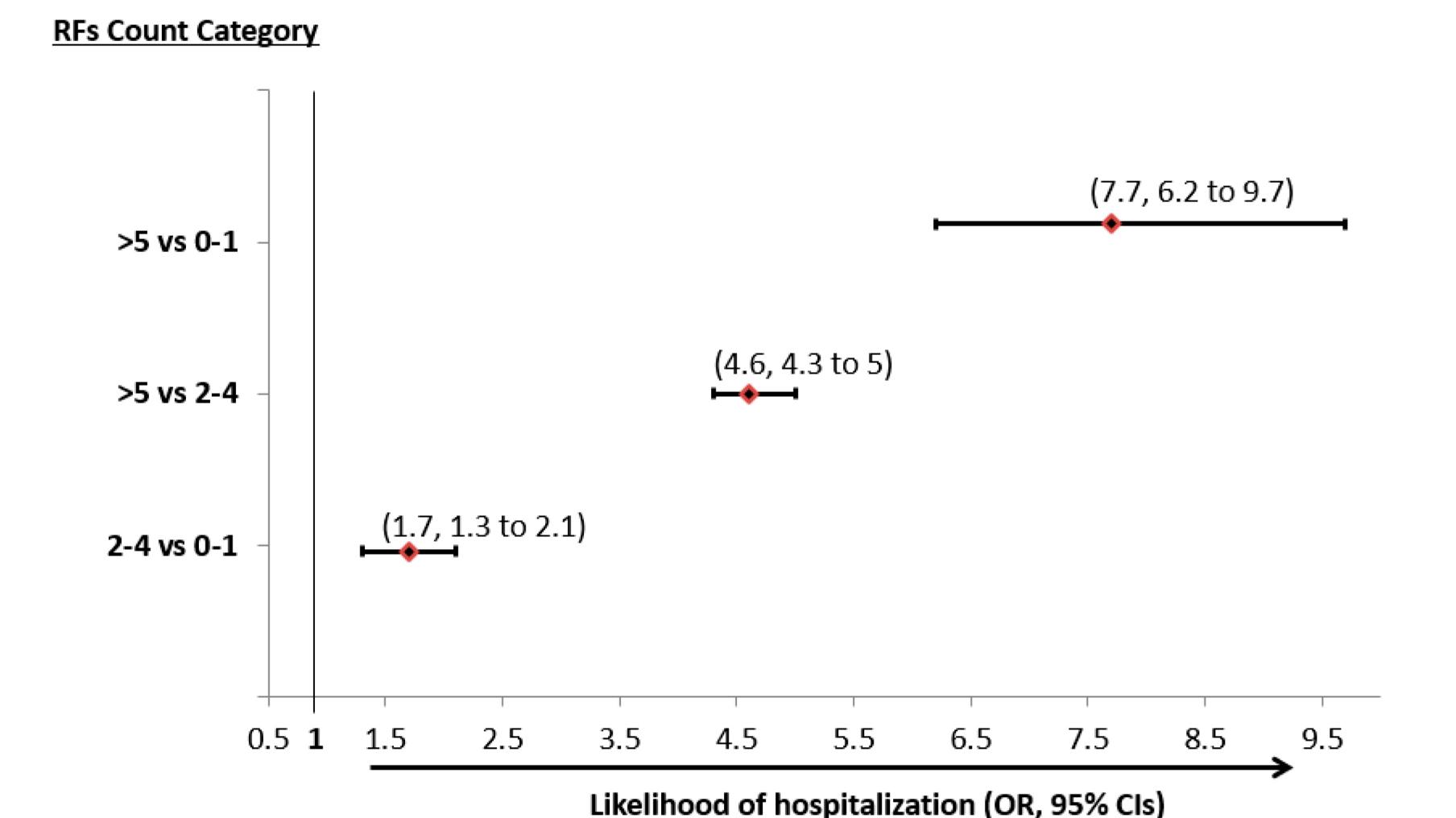


Figure 2. Count of CoV-19 risk factors in patients hosp. vs not for CoV-19 infection in 2022 (n=25844)



Figure 3. Odds of CoV-19 hospitalization by risk factor count category in 2022 (n=25844)



Discussion

- Overall, 14.9% of BlueKC's Medicare population were hospitalized for COVID-19 in 2022.
- The overall median risk factor count was 3, which was the same for patients not hospitalized for COVID-19, compared to the hospitalized patients who had a median of 4 risk factors.
- With each increase in risk factor count category, there is approximately a 3 times greater likelihood of being hospitalized. Patients with 5 or more risk factors had 7.7 times higher odds of hospitalization that individuals with 0 or 1 risk factor (Figure 3).
- The top 3 risk factors with the largest difference in hospitalization rates were CVD (23.2%), CKD (17.7%), and CLD (17.5%) (Table 1).
- Though there were more females hospitalized than males, this may be due to there being more women enrolled in the health plan, and a larger number of women living over the age of 75.
- Patients over 75 years accounted for nearly half (49.1%) of all COVID-19 hospitalizations, despite this group only comprising 37.8% of the Medicare population (Table 1).
- It is also important to note that 95.2% of BlueKC Medicare members have at least 2 risk factors for severe COVID-19.
- Of the 30,000 provider surveys distributed, there were no responses over 60 days. This could be due to numerous factors: summer season, lack of interest in topic, no incentive, time constraints, low levels of engagement through BlueKC newsletter.
- Results from this project can inform health plans on the financial impact anticipated from COVID-19 as well as educational efforts to improve recognition of populations at high risk of severe infection and guide development of preventative strategies.

Future Directions

- These findings make it evident that opportunities for cost avoidance are abundant
- Stratify population according to age and risk factor for MTM intervention. For example, focus first on members > 75 who have CKD, CLD or CVD. Then move on to <75 with same risk factors, etc.
- Educate members on importance of vaccinations. Capitalize on this message to encourage getting other seasonal vaccines as well.
- Educate members on importance of testing and how to obtain free test kits.
- Educate members on what to do if they test positive. Encourage them to reach out to their physician to discuss treatment options.
- Compare hospitalization data with other social vulnerability indices and SDOH data to target vaccine campaigns in areas where there is a lack of access to care.
- Consider hosting vaccination clinics at community centers or on-site health fairs in vulnerable zip codes.

Limitations

- Data were collected from submitted claims for MA members in 2022, discrepancies may exist depending on the accuracy of billed CPT and ICD-10 codes.
- The analysis was not designed to assign weight to any one particular risk factor.
- Due to lack of provider engagement with the survey, we were unable to analyze patterns of Paxlovid prescribing.
- This analysis did not look at length of stay or costs associated with hospitalizations. The data was intended to provide insight into the risk factors within our own Medicare membership for targeted prevention strategies.
- Vaccination status was not included in scope of analysis.
- Paxlovid utilization was not evaluated in hospitalized vs nonhospitalized.

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