

higher odds of developing secondary infections and expiring during their hospital stay. There were similar durations of antimicrobial therapy and treatment outcomes.  
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### 342. Secondary Infections following Tocilizumab for Treatment of COVID-19 Pneumonia

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**Session:** P-14. COVID-19 Complications, Co-infections, and Clinical Outcomes

**Background.** Guidelines recommend use of tocilizumab (TCZ), an inhibitor of pro-inflammatory IL-6 signaling, for hospitalized patients with progressive severe or critical Coronavirus disease 2019 (COVID-19). The incidence of infectious complications following the use of TCZ for COVID-19 has not been well-described.

**Methods.** We conducted a retrospective, observational matched cohort study of severely ill, hospitalized adult patients with confirmed COVID-19 who were treated with TCZ between 2/24/2021 and 6/1/2021. The intervention group, comprised of patients who received a single dose of TCZ, was matched based on c-reactive protein (CRP) and fraction of inspired oxygen (FiO<sub>2</sub>) with a control group who did not receive TCZ, and were hospitalized between 10/12/2020 and 3/6/2021. The primary outcome of the study was diagnosis of a bacterial or fungal infection after day 3 of the index hospitalization. Secondary outcomes included all-cause mortality during the study period and length of stay.

**Results.** 75 patients who received TCZ were identified during the study period, and matched 1:1 with 75 control patients. Baseline CRP and FiO<sub>2</sub> were similar between groups, while the median age in the TCZ group was younger (61 versus 71 years), reflecting the epidemiology of the outbreak during the TCZ and control study periods. 15 bacterial and fungal infections were identified in the TCZ group (20.0%) and 4 (5.3%) infections in the control group (p = 0.012). The majority of infections in both groups were bacterial, with a disproportionate number of bloodstream infections in the TCZ group [7 (9.3%) vs 2(2.6%); p = 0.166]. 28 patients (37.3%) died in the TCZ group compared to 39 (52.0%) in the matched control (p = 0.068). Median time to discharge was similar between TCZ and control patients (11 versus 12 days; 95% CI -2,2).

**Conclusion.** Secondary infections in adult patients with severe and critical COVID-19 were more common in patients who had received TCZ. Prospective studies are needed to confirm and further describe this association.

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### 343. RURAL-COVID-19 Trial: Retrospective Analysis of COVID-19 Coinfections in Hospitalized Urban and Rural Adults

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**Session:** P-14. COVID-19 Complications, Co-infections, and Clinical Outcomes

**Background.** The impact of COVID-19 in rural communities has been well described. However, little is known regarding differences in coinfections among COVID-19 patients in rural vs. urban settings. Our primary objective is to evaluate community acquired coinfection (CACo) rates (< 72 hrs from admission) and healthcare-associated infection (HAI) rates (> 72 hrs from admission) in these populations. Secondary objectives include use of empiric antibiotics, pathogen prevalence, and patient outcomes.

**Methods.** Retrospective analysis of the first 255 adult patients admitted to a tertiary medical center with symptomatic COVID-19 and confirmed by PCR. Rural and urban categories were determined using patient address and county census data. Isolated pathogens were individually evaluated and considered coinfections if the patient met predetermined criteria.

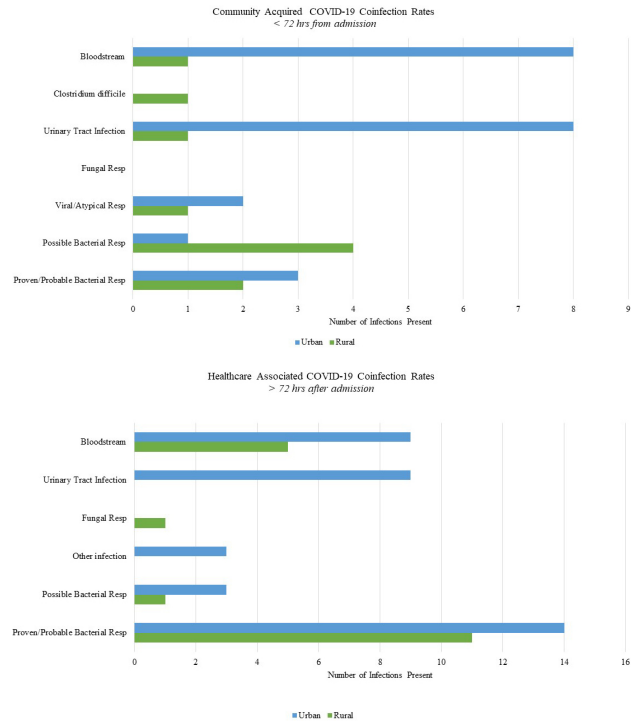
Predetermined Coinfection Criteria

Coinfection Type	Criteria*
Bacterial Respiratory Coinfections	Pathogen identified on respiratory culture and: 1. Temp >38C or <36C AND WBC >= 1200 2. Clinical imaging (only on CT) consistent with bacterial infection 3. Requiring supplemental oxygen 4. Producing purulent sputum (at least moderate: PMNs on sputum gram stain) Proven: meets all 4 of the criteria Probable: meets 3 of the criteria Possible: meets 2 of the criteria
	Viral/atypical respiratory coinfection
Blood Stream Infection	1. Organism(s) recovered from blood culture and deemed not to be a contaminant
Urinary Tract Infection	Must include all of the following: 1. Pathogen identified on urine culture 2. Pyuria (>10 WBC/HPF) on microscopy 3. Signs/symptoms of UTI, unless altered mental status or history unavailable
	Clostridioides difficile infection

Adaptation from "Criteria for Adjudication of Co-infections Considered Present at the Time of Admission" from a similar retrospective cohort of COVID-19 patients by Jans Hopkins (Karaba et al, 2020).

**Results.** The rates of CACo for rural (n = 90) and urban (n = 165) residents were 11.1% and 13.3%, respectively. Non-respiratory coinfections, such as bloodstream and urinary tract infections, were more common in urban residents; however, empiric antibiotics were started in 75.1% of all subjects. *Methicillin susceptible staphylococcus aureus* and *Escherichia coli* were the most common pathogens isolated on admission

in both populations. HAI rates were 13.3% in the rural residents vs 13.9% in the urban residents with *Methicillin resistant staphylococcus aureus* as the most common respiratory pathogen, although *Pseudomonas aeruginosa* was the most prevalent overall pathogen. There was no significant difference in hospital length of stay or 30-day all-cause mortality among both populations.



### Patient Outcomes Among Rural and Urban Populations

Hospital Length of Stay	Rural Mean Days (Median)	Urban Mean Days (Median)	p-value
Discharged	9.72 (7)	8.9 (6)	0.151
Expired	12 (11.5)	11.61 (8.5)	0.8245
End Organ Damage	Rural n (%)	Urban n (%)	p-value
No End Organ Damage	45 (50)	88 (53.33)	0.6941
Acute Respiratory Distress Syndrome	31 (34.44)	45 (27.27)	0.2533
Acute Kidney Injury	27 (30)	50 (30.3)	1
New Onset Hemodialysis	11 (12.22)	9 (5.45)	0.0853
Acute Liver Injury	6 (6.67)	14 (8.48)	0.808
Day 30 Outcomes	Rural n (%)	Urban n (%)	p-value
Discharged to Home	54 (60)	78 (47.27)	0.0662
Discharged to SNF/LTAC	13 (14.44)	36 (21.82)	0.1843
Discharged, but re-hospitalized	3 (3.33)	12 (7.27)	0.2701
Hospitalized, not in ICU	4 (4.44)	3 (1.82)	0.2471
In ICU, not intubated	1 (1.11)	2 (1.21)	1
In ICU, intubated	3 (3.33)	5 (3.03)	1
Expired	12 (13.33)	28 (16.97)	0.4775

SNF: Skilled Nursing Facility  
 LTAC: Long-term Acute Care Facility  
 ICU: Intensive Care Unit

**Conclusion.** There was no significant difference in the rate of CACo or HAI among rural or urban populations. Despite the high rate of antibiotic use to empirically cover community acquired respiratory infections at the start of the pandemic, only 1.9% of the subjects had a possible or proven respiratory coinfection on admission. Despite prior research showing worse outcomes for rural populations with COVID-19, our data demonstrates that coinfection rates and patient outcomes were similar among these populations when receiving medical care at an academic hospital.

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### 344. Prevalence and Impact of Post-Acute Sequelae of COVID-19 Among People Experiencing Homelessness in King County, WA Between September 2020 - May 2021

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**Session:** P-14. COVID-19 Complications, Co-infections, and Clinical Outcomes

**Background.** Homeless shelters are high risk settings for SARS-CoV-2 transmission. People experiencing homelessness (PEH) have high rates of chronic illness, and have been disproportionately affected by COVID-19. The burden of post-acute sequelae of COVID-19 (PASC) in PEH has not been well-studied and PEH may be uniquely affected due to barriers to medical care and the potential exacerbation of existing threats to health, housing, employment, and self-care.