

Assess reasons for continuing antibiotics in persons with positive respiratory viruses PCR in the emergency room.

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BACKGROUND:

Respiratory tract infections remain one of the major reasons for inappropriate antibiotic usage. The multiplex PCR respiratory viral panel improves the diagnostic ability of viral causes of RTI and have been advocated as a useful stewardship tool. We sought to evaluate factors leading to continued antibiotic following a positive respiratory viral PCR and to evaluate the impact of a targeted antimicrobial stewardship intervention on antibiotic use.

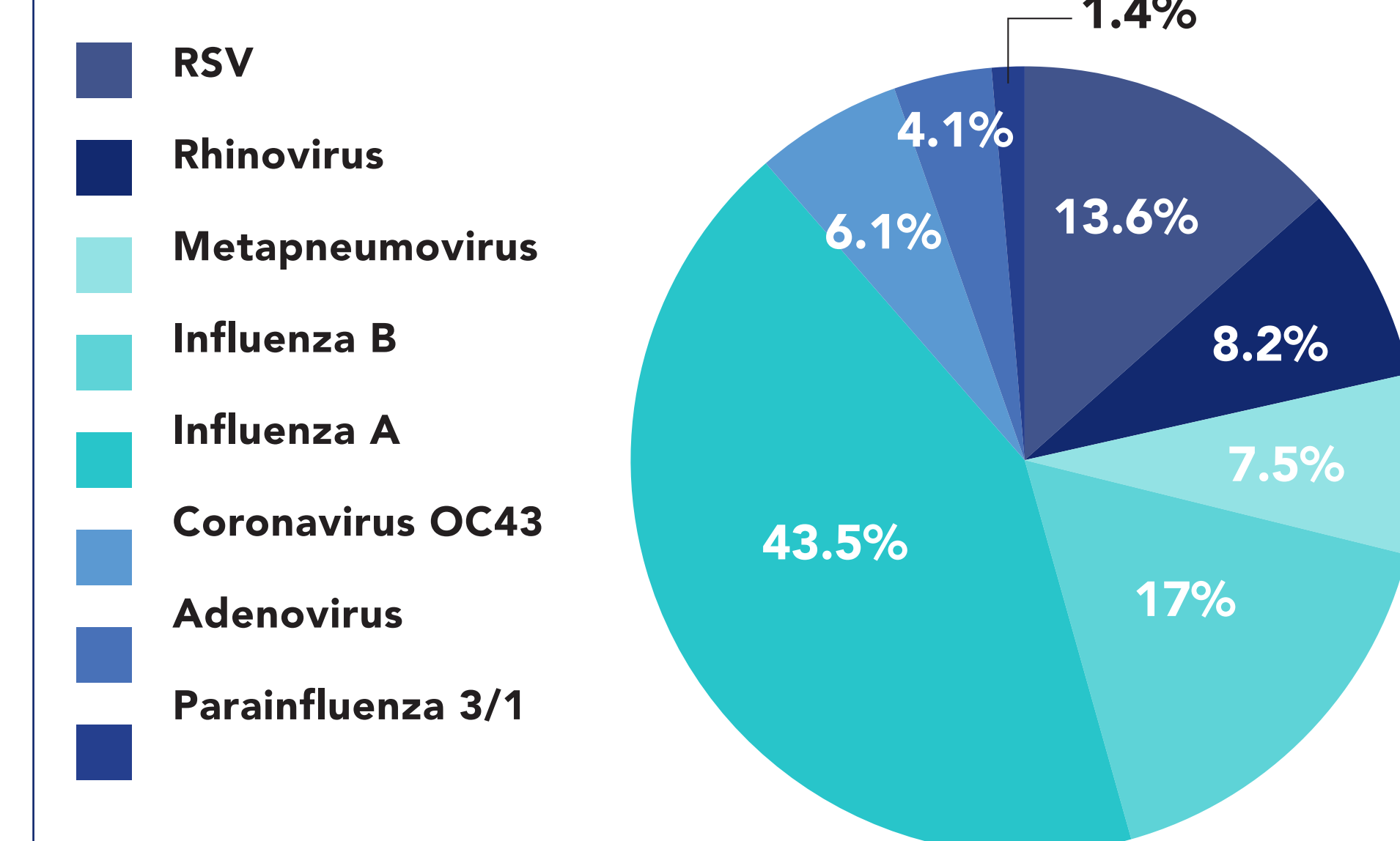
METHODS:

In this Quasi experimental study, adult patients presenting to the emergency department at the royal Victoria hospital with positive respiratory PCR from January 13, 2020 to February 27, 2020 were reviewed. Patient demographics, clinical, comorbidities, laboratory and radiology reports, antibiotic and antiviral usage before and after test were recorded. For patients without microbiological or radiological evidence of bacterial infection, a standard questionnaire was administered to treating physician. Antibiotic prescribing rate before and following a positive PCR and antibiotic discontinuation following ASP questionnaire was tracked.

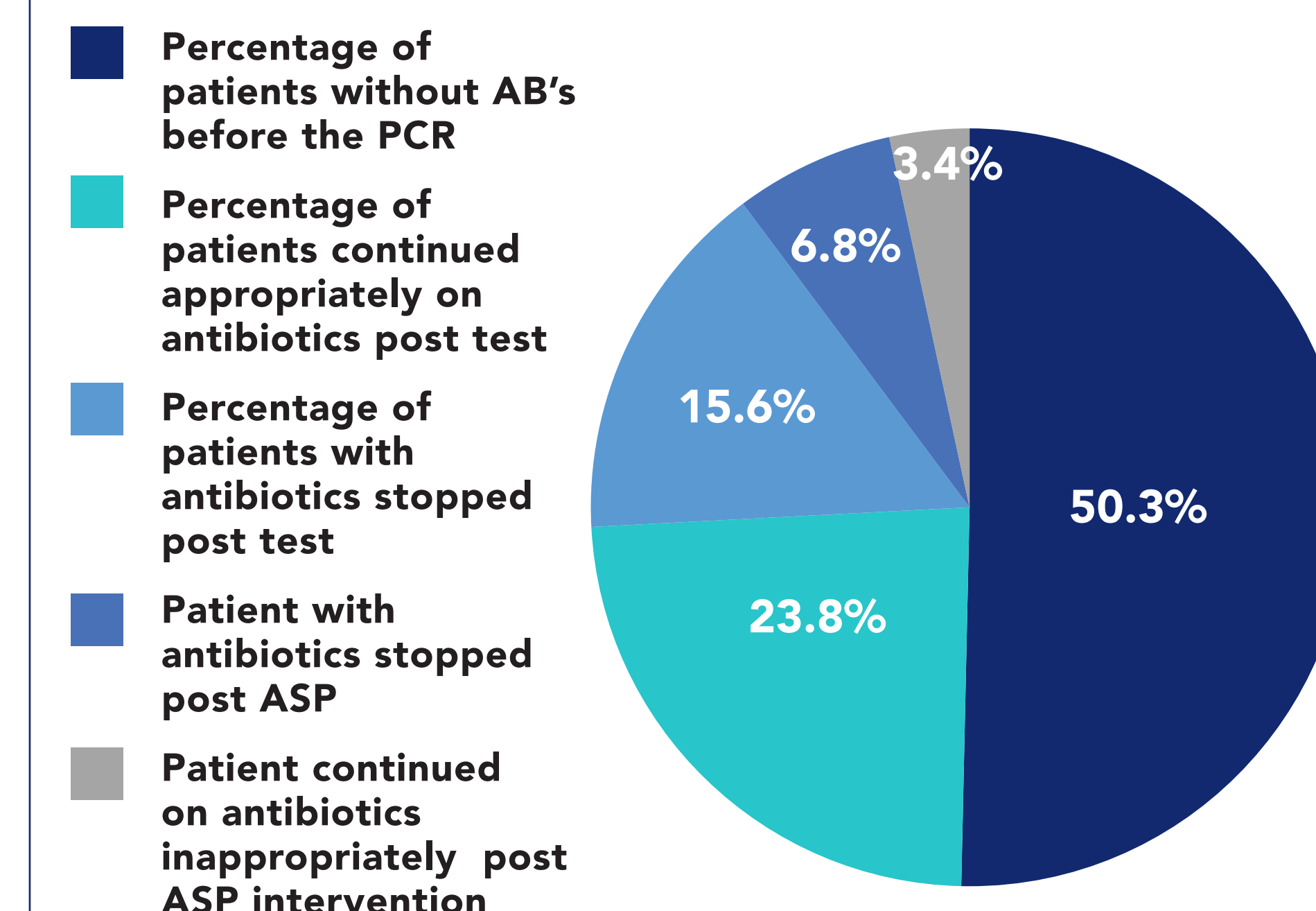
RESULTS:

During the study period, 147 adult patients presented to the emergency department with positive respiratory PCR. Among the study population, antibiotic prescription rate was 49% prior to test result. Influenza was the most common respiratory virus isolated (89/147). Following the respiratory viral PCR, antibiotics were stopped in 31% by the treating physician. Main reasons for antibiotic continuation included concurrent bacterial infection 19/50 (pneumonia 12/50), febrile neutropenia (7/30), COPD exacerbation 5/50 and hemodynamic instability (5/50). Antibiotics were continued without obvious indications in 15 patients and were targeted for intervention. Overall 66% (10/15) of ASP interventions were accepted and antibiotics discontinued. In total, antibiotics were discontinued in 45% of patients in whom they were initiated pretest result.

ISOLATED VIRUS %



ANTIMICROBIAL USE %



VARIABLE (%)

RISK FACTORS	Observed Sample Size*	Antibiotics Continued	Antibiotics Discontinued
COPD	22	16 (72.7)	6 (27.3)
Febrile neutropenia	8	7 (87.5)	1 (12.5)
Solid organ transplant	7	5 (71.4)	2 (28.6)
BMT	3	2 (66.7)	1 (33.3)
Active hematologic malignancy	9	7 (77.8)	2 (22.2)
Solid malignancy,	11	10 (90.9)	1 (9.1)
Chemotherapy immunotherapy	10	9 (90.0)	1 (10.0)
Ongoing steroid use	15	10 (66.7)	5 (33.3)
Hypogammaglobulinemia	9	9 (100.0)	0 (0.0)
Male	29	19 (65.5)	10 (34.5)
Female	44	31 (70.5)	13 (29.5)

*Observed sample size: count of people with the risk factor and that were on at least one antibiotic before the result of the PCR

DEMOGRAPHIC RISK FACTORS (%)

Age (years), mean ± SD	60.3 ± 20.4
Male	68 (46.3)
HISTORY OF DISEASE (%)	
COPD	35 (23.8)
ILD	5 (3.4)
Febrile neutropenia	8 (5.4)
Solid organ transplant	10 (6.8)
BMT	9 (6.1)
Active hematologic malignancy	14 (9.6)
Solid malignancy	20 (13.6)
Chemotherapy immunotherapy	19 (12.9)
Ongoing steroid use	24 (16.3)
Hypogammaglobulinemia	13 (8.8)

CONCLUSION:

This study shows that positive respiratory virus PCR is very useful as it led to discontinuation of antibiotics by treating physician in 31% and further 13% by an antibiotic stewardship intervention. Adding a stewardship intervention after test result further adds reduction to antibiotic usage.