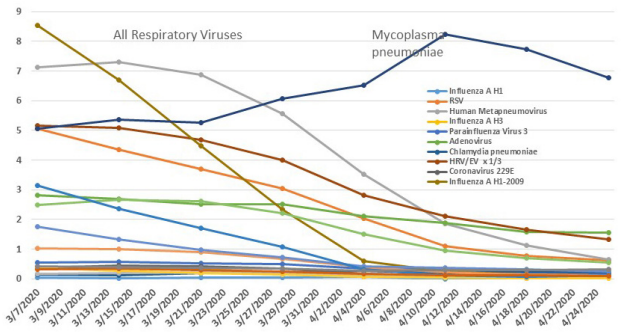

Weekly percentage positive rates are shown, with the Rhinovirus/Enterovirus rate divided by 3 and the M. pneumoniae rate multiplied by 10 to fit on the same scale.

Methods. We used the percentage positivity rates from BioFire Syndromic Trends and from GenMark Diagnostics to examine the post lockdown response of M. pneumoniae versus other respiratory viruses on the Respiratory Virus Panel (RP 2.0)

Results. As has been reported (Nawrocki J., et al, OFID 2021) and as shown in Figure 1, there was a rapid drop in the positivity rate for all enveloped respiratory viruses by 85.6% from an average rate of 2.014% positive for the week ending 3/14/20 to 0.29% for the week ending 4/18/20, while the positivity rate for M. pneumoniae actually increased by 44% from 0.536 % to 0.772%. The increase in M. pneumoniae positivity rate from its baseline of 0.51 ± 0.38 between 1/25/20 - 3/21/20 vs 0.71 ± 0.09 between 3/28/20 - 4/25/20 was significantly higher by t test, p=0.00574. Data from GenMark was available only monthly but also showed an upward rise from march to April, 2020.

Conclusion. It is well documented that M. pneumoniae is transmitted through respiratory mechanisms, yet lockdown measures sufficient to dramatically reduce ordinary respiratory virus transmission had no comparable effect on transmission of Mycoplasma pneumoniae. It is also well known that M. pneumoniae persists in the respiratory tract as long as months after an infection. Therefore, it is possible that this reservoir continued to be a source of transmission for M. pneumoniae, even though lockdown measures effectively interrupted the enveloped respiratory viruses.

Disclosures. **Kenneth Rand, M.D., BioFire Diagnostics** (Advisor or Review Panel member, Research Grant or Support)

1308. Activity of Cefiderocol and Comparators against Gram-negative Isolates from US Patients Hospitalized with Pneumonia

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Session: P-73. Respiratory Infections - Bacterial

Background. Cefiderocol (CFDC) is a novel siderophore-conjugated cephalosporin with broad activity against Gram-negative (GN) bacteria, including carbapenem-resistant isolates, and non-fermentative organisms. CFDC is approved by the FDA for complicated urinary tract infection (cUTI), hospital-acquired bacterial pneumonia, and ventilator-associated bacterial pneumonia. In this study, we analyzed the susceptibility of CFDC and comparators against aerobic nonfastidious GN isolates collected from US patients hospitalized with pneumonia (PHP) in 2020 as a part of the SENTRY Antimicrobial Surveillance Program.

Methods. A total of 1,877 Gram-negative isolates were consecutively collected from PHP in 27 US hospitals during 2020. Susceptibility (S) testing was performed using the CLSI broth microdilution method. CFDC was tested in iron-depleted Mueller-Hinton broth. CLSI or FDA (2021) breakpoints were used. Both CLSI and FDA (2021) interpretations are shown in the table. Carbapenem-resistant *Enterobacterales* (CRE, nonsusceptible to imipenem and/or meropenem) and extensively drug resistant (XDR, susceptible to ≤ 2 drug classes) phenotype isolates were analyzed.

Results. The most common GN organism isolated from PHP was *Pseudomonas aeruginosa* (PSA, n=570), followed by *Klebsiella pneumoniae* (n=239). The %S and $MIC_{50/90}$ values of CFDC for both CLSI and FDA breakpoints and comparators are shown in the table for all organisms and resistant subsets. For *Enterobacterales*, all tested drugs had >99%S. The 18 CRE isolates had 94.4%S to CFDC and ceftazidime-avibactam. CFDC was the most active antimicrobial tested against PSA (99.3/98.4%S, CLSI/FDA) and XDR PSA (94.6/93.2%). CFDC had the highest %S against *Acinetobacter baumannii-calcoaceticus* species complex (ABC, 97.0/93.1%S, CLSI/FDA), XDR ABC (94.6/93.2%), and against *Stenotrophomonas maltophilia* (SM; 100.0/97.1%S, CLSI 2020/2022).

Conclusion. CFDC was highly active against US GN isolates from PHP, including CRE, XDR PSA and ABC, as well as SM. These *in vitro* results suggest that CFDC may be an important option for the treatment of PHP caused by GN organisms, particularly for pathogens which have few treatment options.

Table. Susceptibilities of cefiderocol and comparators tested against 1,877 isolates from US patients hospitalized with pneumonia

Organism/ Antimicrobial (number of isolate)	mg/L		CLSI/FDA[a]
	MIC_{50}	MIC_{90}	%S
Enterobacterales (1,005)			
Cefiderocol	0.12	0.5	99.7/ 99.7 [b]
Imipenem-relebactam	0.12	0.5	99.4 [c]
Meropenem-vaborbactam	0.03	0.06	99.8
Ceftazidime-avibactam	0.12	0.5	99.9
CRE (18)			
Cefiderocol	0.5	4	94.4/ 94.4 [b]
Imipenem-relebactam	0.12	>8	83.3 [c]
Meropenem-vaborbactam	0.03	8	88.9
Ceftazidime-avibactam	1	8	94.4
P. aeruginosa (570)			
Cefiderocol	0.12	0.5	99.3/ 98.4 [b]
Imipenem-relebactam	0.25	2	97.2
Ceftazidime-avibactam	2	8	95.8
Ceftolozane-tazobactam	0.5	2	96.8
XDR (74)			
Cefiderocol	0.12	1	94.6/ 93.2 [b]
Imipenem-relebactam	2	4	81.1
Ceftazidime-avibactam	8	32	73.0
Ceftolozane-tazobactam	2	16	78.4
A. baumannii-calcoaceticus spp. complex (101)			
Cefiderocol	0.25	1	97.0/ 93.1 [b]
Imipenem-relebactam	0.25	>8	59.4
XDR (35)			
Cefiderocol	0.25	2	94.3/ 88.6 [b]
Imipenem-relebactam	>8	>8	5.7
S. maltophilia (138)			
Cefiderocol	0.12	0.5	100.0/ 97.1 [b]
Ceftazidime	>32	>32	10.9
Levofloxacin	1	8	79.6
Trimethoprim-sulfamethoxazole	1	4	99.3

[a] Criteria as published by CLSI and FDA (2021).

[b] CLSI and FDA cefiderocol breakpoints shown are:
Enterobacterales, CLSI/FDA breakpoints (≤4/8/≥16 mg/L);
Pseudomonas aeruginosa, CLSI (≤4/8/≥16 mg/L) and FDA breakpoints (≤1/2/≥4 mg/L):
Acinetobacter species, CLSI (≤4/8/≥16 mg/L) and FDA breakpoints (≤1/2/≥4 mg/L);
Stenotrophomonas maltophilia, CLSI 2020 breakpoints (≤4/8/≥16 mg/L) and CLSI 2022 breakpoints (≤1/-/≥2 mg/L).

[c] Imipenem-relebactam breakpoints have been applied to all *Enterobacterales* other than *Morganella*, *Proteus*, and *Providencia*

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Research Grant or Support; IHMA (Individual(s) Involved: Self): Research Grant or Support; Janssen Research & Development (Individual(s) Involved: Self): Research Grant or Support; Johnson & Johnson (Individual(s) Involved: Self): Research Grant or Support; Kaleido Biosceinces (Individual(s) Involved: Self): Research Grant or Support; KBP Biosciences (Individual(s) Involved: Self): Research Grant or Support; Luminex (Individual(s) Involved: Self): Research Grant or Support; Matrivax (Individual(s) Involved: Self): Research Grant or Support; Mayo Clinic (Individual(s) Involved: Self): Research Grant or Support; Medpace (Individual(s) Involved: Self): Research Grant or Support; Meiji Seika Pharma Co., Ltd. (Individual(s) Involved: Self): Research Grant or Support; Melinta (Individual(s) Involved: Self): Research Grant or Support; Menarini (Individual(s) Involved: Self): Research Grant or Support; Merck (Individual(s) Involved: Self): Research Grant or Support; Meridian Bioscience Inc. (Individual(s) Involved: Self): Research Grant or Support; Micromyx (Individual(s) Involved: Self): Research Grant or Support; MicuRx (Individual(s) Involved: Self): Research Grant or Support; N8 Medical (Individual(s) Involved: Self): Research Grant or Support; Nabriva (Individual(s) Involved: Self): Research Grant or Support; National Institutes of Health (Individual(s) Involved: Self): Research Grant or Support; National University of Singapore (Individual(s) Involved: Self): Research Grant or Support; North Bristol NHS Trust (Individual(s) Involved: Self): Research Grant or Support; Novome Biotechnologies (Individual(s) Involved: Self): Research Grant or Support; Paratek (Individual(s) Involved: Self): Research Grant or Support; Pfizer (Individual(s) Involved: Self): Research Grant or Support; Prokaryotics Inc. (Individual(s) Involved: Self): Research Grant or Support; QPEX Biopharma (Individual(s) Involved: Self): Research Grant or Support; Rhode Island Hospital (Individual(s) Involved: Self): Research Grant or Support; RIHML (Individual(s) Involved: Self): Research Grant or Support; Roche (Individual(s) Involved: Self): Research Grant or Support; Roivant (Individual(s) Involved: Self): Research Grant or Support; Salvat (Individual(s) Involved: Self): Research Grant or Support; Scynexis (Individual(s) Involved: Self): Research Grant or Support; SeLux Diagnostics (Individual(s) Involved: Self): Research Grant or Support; Shionogi (Individual(s) Involved: Self): Research Grant or Support; Specific Diagnostics (Individual(s) Involved: Self): Research Grant or Support; Spero (Individual(s) Involved: Self): Research Grant or Support; SuperTrans Medical LT (Individual(s) Involved: Self): Research Grant or Support; T2 Biosystems (Individual(s) Involved: Self): Research Grant or Support; The University of Queensland (Individual(s) Involved: Self): Research Grant or Support; Thermo Fisher Scientific (Individual(s) Involved: Self): Research Grant or Support; Tufts Medical Center (Individual(s) Involved: Self): Research Grant or Support; Universite de Sherbrooke (Individual(s) Involved: Self): Research Grant or Support; University of Iowa (Individual(s) Involved: Self): Research Grant or Support; University of Iowa Hospitals and Clinics (Individual(s) Involved: Self): Research Grant or Support; University of Wisconsin (Individual(s) Involved: Self): Research Grant or Support; UNT System College of Pharmacy (Individual(s) Involved: Self): Research Grant or Support; URMC (Individual(s) Involved: Self): Research Grant or Support; UT Southwestern (Individual(s) Involved: Self): Research Grant or Support; VenatoRx (Individual(s) Involved: Self): Research Grant or Support; Viosera Therapeutics (Individual(s) Involved: Self): Research Grant or Support; Wayne State University (Individual(s) Involved: Self): Research Grant or Support

1309. Incidence and Epidemiology of Invasive Pneumococcal Disease due to Serotype 3 in South-Central Ontario

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Toronto Invasive Bacterial Diseases Network

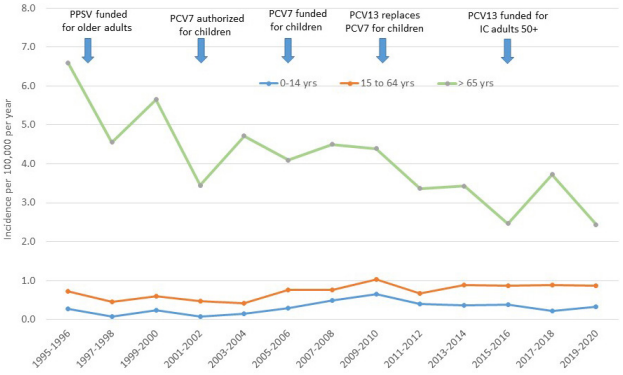
Session: P-73. Respiratory Infections - Bacterial

Background. In our population, the most common serotype (ST) of *S. pneumoniae* causing invasive pneumococcal disease (IPD) is now ST 3. We undertook an analysis of population based surveillance for IPD to examine the incidence and epidemiology of ST 3 disease over the last 25 years.

Methods. The Toronto Invasive Bacterial Diseases Network has performed population-based surveillance for IPD in Toronto/Peel region (pop'n 4.5M) since 1995. All sterile site isolates of *S. pneumoniae* are reported to a central study laboratory, isolates are serotyped, and clinical and vaccination data are collected via patient and physician interview and chart review. Population data are obtained from Statistics Canada.

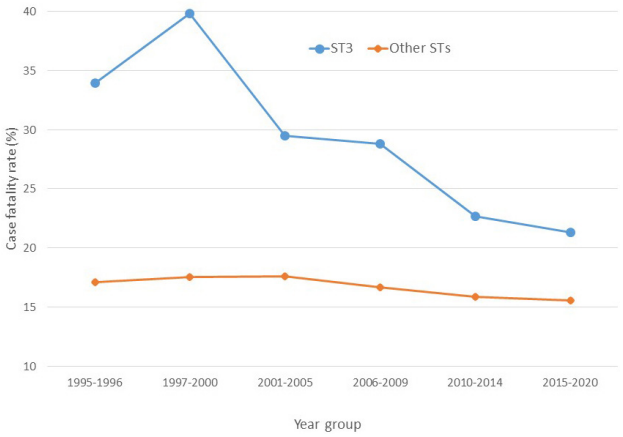
Results. From 1995-2020, 11032 episodes of IPD occurred; 10015 had STs available, and 10484 clinical data. Overall, ST 3 comprised 9.2% of cases (N=931). Compared to other patients with IPD, those with ST 3 IPD were older (median age 65 vs. 58.5, P< .001), more likely to have underlying lung (22.7% v 16.0%, P< .0001) and cardiac (21.7 v 18.4, P=.02) disease and less likely to be immunocompromised (IC) (23.1% v 29.0% P< .0001). ST3 episodes were more likely to be pneumonia (81% v 65%), less likely to be bacteremia without focus (7.6% v 18.9%), and more likely to require ICU admission (42.3% v 25.1%) and to die (27.1% v 16.6%). In multivariable analysis, patients with ST 3 disease remained more likely to die (OR 1.65; 95%CI1.3-2.0). Over time, the proportion of patients with ST 3 IPD who were nursing home (NH) residents (18/171 in 1995-2000 vs. 4/215 in 2016-2020, P=.0002), and who were IC (46/169 in 1995-2000 vs 39/204 in 2016-2020, P=.007) decreased significantly; in IPD due to other STs, the proportion who were NH residents declined, but the proportion IC increased significantly. The case fatality rate (CFR) declined significantly in IPD due to ST3 but not other STs (Figure 1). Changes in incidence are shown in Figure 2.

Figure 2: Incidence of serotype 3 IPD over time, Toronto/Peel, 1995-2020



The incidence of ST3 IPD in children and adults under 65 did not change significantly from 1995/96 to 2019/20. In older adults, the annual incidence of disease declined from 4.98 per 100,000 per year in 1995-2000 to 3.53 per 100,000 per year in 2001-2010 (IRR 0.71, 95%CI 0.56-0.90), then to 2.23 per 100,000 per year in 2011-2020 (IRR compared to 2001-2010 0.63, 95%CI 0.50-0.79)

FIgure 2: Case fatality rate of IPD due to serotype 3 and other serotypes over time, 1995-2020, Toronto-Peel



The case fatality rate of IPD due to ST3 declined from 37.6% (56/149) in 1995-2000 to 50/235 (21.3%) in 2015-2020 (P<.0001). The CFR in other serotypes did not change.

Conclusion. The epidemiology of IPD due to ST3 has changed significantly over time and the CFR has declined. The incidence of ST3 disease in children and younger adults has not changed significantly, although the power to detect change is low in children. In older adults the incidence of ST3 disease declined significantly after PPV23 introduction in 1995/6 and again after PCV13 introduction for children.

Disclosures. **All Authors**: No reported disclosures

1310. Provider and Facility Variation in Empiric Broad-Spectrum Antibiotic Use for Hospitalization Pneumonia: A Mixed Methods Study of Veterans Affairs Facilities

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Session: P-73. Respiratory Infections - Bacterial

Background. We previously found widespread variation in the empiric use of antibiotics against methicillin-resistant *Staph aureus* (anti-MRSA) and *Pseudomonas aeruginosa* (anti-PAER) for patients hospitalized for pneumonia. To explore this