REFERENCES

1. McNeely M, Friedman J, Pope E. Generalized petechial eruption induced by parvovirus B19 infection. *J Am Acad Dermatol*. 2005;52(5 Suppl 1):S109–S113.
2. Gutermuth J, Nadas K, Zirbs M, et al. Papular-purpuric gloves and socks syndrome. *Lancet*. 2011;378:198.
3. Harel L, Straussberg I, Zeharia A, et al. Papular purpuric rash due to parvovirus B19 with distribution on the distal extremities and the face. *Clin Infect Dis*. 2002;35:1558–1561.
4. Mage V, Lipsker D, Barbarot S, et al. Different patterns of skin manifestations associated with parvovirus B19 primary infection in adults. *J Am Acad Dermatol*. 2014;71:62–69.

Importance of Local Epidemiology in Prevalence and Resistance of Cystic Fibrosis-related Pathogens

To the Editors:

Recently, Raidt et al[1] published observations of increased prevalence and resistance among pathogens recovered from respiratory specimens of cystic fibrosis (CF) patients during a 10-year-period. The authors performed a retrospective analysis of 94 patients from 2 certified CF centers in Münster, Germany. Examining prevalence and susceptibility data obtained from sputa and deep throat swabs of their CF patients, they compared results from 2001 to those from 2011. Their study documented an increase in key CF-related pathogens, such as *Burkholderia cepacia* complex (0% in 2001 vs. 9.6% in 2011), as well as a rise in multidrug-resistant CF-specific isolates. *Staphylococcus aureus* was the most commonly isolated pathogen, followed by *Pseudomonas aeruginosa.* Among *S. aureus* isolates, methicillin-resistance, along with trimethoprim/sulfamethoxazole-resistance, increased significantly from 0 and 3.8%, respectively, to 9.6 and 13.3%, respectively, between 2001 and 2011. There was also a slight rise in clindamycin-resistance and erythromycin-resistance (17.3 and 22.1%, respectively, in 2001, vs. 26.6 and 32.2%, respectively, in 2011). Among *P. aeruginosa* isolates, a substantial increase in resistance to imipenem (29.4 vs. 43.5%), tobramycin (8.1 vs. 52.6%) and ciprofloxacin (4.4 vs. 23.1%) was noted. The authors argued that awareness of local epidemiology is crucial for developing CF prevention and treatment strategies.

We fully agree with the authors regarding the importance of local epidemiology. Local antibiotic resistance is strongly affected by local antibiotic prescription policies, so individual CF centers should analyze their local data and not rely on regional or national data. We performed a similar retrospective analysis of microbiology data from 52 CF patients treated between January 2003 and December 2008 at the Center for Pediatrics and Adolescent Medicine's certified CF center in Freiburg, Germany (see Table, Supplemental Digital Content 1, http://links.lww.com/INF/C305). Respiratory specimens from sputa, deep throat swabs, tracheal aspirates and bronchoalveolar lavages were cultured for CF-specific pathogens using standard culture techniques. To account for the influence of antibiotic treatment on pathogen susceptibility, we took CF-specific respiratory pathogens detected from CF patients for the first time (first isolate = FI) during the 6-year period and compared them with the last specimen obtained during the study period (last isolate = LI). In our cohort, *S. aureus* and *P. aeruginosa* were the 2 most common pathogens detected [prevalence of 33.4% (459/1373) and 16.8% (230/1373) of culture-positive specimens, respectively]. During the study period, the prevalence of both pathogens did not rise. We compared the evolution of antibiotic resistance on an individual patient level between 35 *S. aureus* FI and 38 *S. aureus* LI, and between 22 *P. aeruginosa* FI and 24 *P. aeruginosa* LI. Like Raidt et al,[1] we observed an increase in Methicillin-resistant *S. aureus* (0% FI vs. 9.2% LI), but no increase in *S. aureus* resistance to trimethoprim/sulfamethoxazole (2.9% FI vs. 0% LI), clindamycin (17.6% FI vs. 5.3% LI) or erythromycin (17.1% FI vs. 5.4% LI). However, in contrast to findings by Raidt et al,[1] we noted no increase in resistance to imipenem (22.7% FI vs. 33.3% LI), tobramycin (22.7% FI vs. 16.7% LI) and ciprofloxacin (18.2% FI vs. 34.8% LI) among *P. aeruginosa* isolates.

With the limitation of small sample size, our retrospective analysis—unlike that by Raidt et al[1]—did not reveal an increase in multidrug-resistant *S. aureus* and *P. aeruginosa* isolates from CF patients. We conclude that appropriate antimicrobial prescribing should not rely on epidemiologic data from other treatment centers—even those within the same country.

Markus Hufnagel, MD
Stefanie König, MD
Center for Pediatrics and Adolescent Medicine
University Medical Center Freiburg
Freiburg im Breisgau, Germany

Christian Theilacker, MD
Division of Infectious Diseases and Hospital Epidemiology
University Hospital Basel
Basel, Switzerland

REFERENCE

1. Raidt L, Idelevich EA, Dübbers A, et al. Increased prevalence and resistance of important pathogens recovered from respiratory specimens of cystic fibrosis patients during a decade. *Pediatr Infect Dis J*. 2015;34:700–705.

The authors have no funding or conflicts of interest to disclose.

Address for correspondence: Markus Hufnagel, MD; markus.hufnagel@uniklinik-freiburg.de.

Supplemental digital content is available for this article. Direct URL citations appear in the printed text and are provided in the HTML and PDF versions of this article on the journal's website (www.pidj.com).

ISSN: 0891-3668/15/3502-0229
DOI: 10.1097/INF.0000000000000982

***Table**:* Prevalence of cystic fibrosis-related pathogens isolated from respiratory specimens of 52 cystic fibrosis patients over a six-year period between 2003 and 2008 (n = 1,373 specimens).

Pathogen	2003	2004	2005	2006	2007	2008
Staphylococcus aureus (%)	38.3	35.0	31.8	22.0	38.0	33.9
Pseudomonas aeruginosa (%)	19.6	19.3	20.2	13.5	11.8	16.8
Haemophilus influenzae (%)	11.2	13.2	13.6	12.5	10.1	11.6
Burkholderia cepacia complex (%)	0.0	0.0	0.0	0.0	3.8	1.5
Stenotrophomonas maltophilia (%)	2.8	1.5	3.0	3.0	1.3	1.2
Alcaligenes xylosoxidans (%)	0.0	0.5	1.0	0.5	0.0	0.0
Ralstonia species (%)	0.0	0.0	0.0	0.0	0.0	0.3
Aspergillus species (%)	3.3	0.5	2.5	10.0	10.1	13.1
Scedosporium species (%)	0.0	0.0	0.0	0.5	0.0	0.0
All CF-related pathogens (n)	161	138	143	124	178	257
Culture-negative specimens (n)	53	59	55	76	59	70
All respiratory specimens (n)	214	197	198	200	237	327