Another Novel Viral Respiratory Pathogen?
Gaynor AM, Nissen MD, Whiley DM, et al. Identification of a novel polyomavirus from patients with acute respiratory tract infections. PLoS Pathogens 2007;3:595–603.

After failing to detect nucleic acid of known respiratory viruses in a nasopharyngeal aspirate specimen obtained from a 3-year-old child who had been hospitalized in Brisbane, Australia, with pneumonia, Gaynor and colleagues, in a search for novel viral pathogens, randomly amplified and cloned total nucleic acid from the specimen. They then sequenced a 384-well plate of clones using a universal primer. This yielded multiple reads, 6 of which were of sequences of a single virus. Further evaluation of these sequences demonstrated homology (albeit limited) to known polyomaviruses, with the closest relationship being to KI, a polyomavirus that had recently been recovered from respiratory tract samples from individuals with respiratory symptoms [1]. The newly discovered virus was designated WU, in keeping with the practice of naming polyomaviruses with 2-letter designations (e.g., KI, JC, and BK). Phylogenetic analysis demonstrated that WU and KI are divergent from other known polyomaviruses and define a novel branch within this family.

WU was detected by PCR in 37 (3.0%) of 1245 respiratory specimens collected in Brisbane in 2003 and in 5 (1.2%) of 410 upper respiratory samples collected in St. Louis, Missouri, as well as in 1 of 480 bronchoalveolar lavage samples obtained mostly from adults, also in St. Louis. In Brisbane, the samples yielding WU were obtained from individuals aged from 4 months to 53 years, although 33 of the 37 specimens were obtained from persons aged ≤3 years. At least 3 of the 4 adults in whom WU was detected were significantly immunocompromised, and the fourth had cirrhosis and was undergoing mechanically ventilation.

WU was the only virus recovered from 12 patients, whereas at least 1 additional virus was detected in the other 25 patients; these included rhinovirus (in 15 patients) and human bocavirus (in 10 patients). Three viruses were detected in 6 samples, and 1 sample contained 4 viruses (WU, bocavirus, rhinovirus, and adenovirus). All 6 samples from St. Louis that contained WU yielded evidence of the presence of an additional virus. Overall, 72% of the samples that contained WU had evidence of coinfection with ≥1 additional virus. Because the BK and JC polyomaviruses are commonly found in urine specimens, 501 urine samples obtained from renal transplant recipients in St. Louis and 226 samples obtained from patients in Brisbane were screened by PCR; none contained WU.

These findings suggest—but do not prove—that this novel polyomavirus has a role in respiratory tract infection. The very high frequency of detection of additional viruses, which were detected in almost three-fourths of the patients, complicates the analysis. Nonetheless, the frequency of its detection in individuals (especially young children with respiratory symptoms) in 2 geographically distinct areas highly suggests that it is a cause of human disease. In the meantime, we can expect the continued identification of additional novel viruses as candidate human respiratory pathogens and can add WU, along with the recently identified rhinovirus HRV-QPM [2], to the list of viruses identified in respiratory tract specimens since 2001: human metapneumovirus, severe acute respiratory syndrome coronavirus, coronaviruses NL63 and HKU1, human bocavirus, KI polyomavirus, and now HRV-QPM (rhinovirus) and WU polyomavirus.

References
1. Allander T, Andreasson K, Gupta S, et al. Identification of a third human polyomavirus. J Virol 2007;81:4130–6.
2. McErlean P, Shackelton LA, Lambert SB, et al. Characterization of a newly identified human rhinovirus, HRV-QPM, discovered in infants with bronchiolitis. J Clin Virol 2007;39:67–75.

Antibiotic Treatment of Community-Acquired Methicillin-Resistant Staphylococcus aureus (MRSA) Skin and Soft-Tissue Infections (SSTIs)
Ruhe JJ, Menon A. Tetracyclines as an oral treatment option for patients with community-onset methicillin-resistant Staphylococcus aureus skin and soft-tissue infections. Antimicrob Agents Chemother 2007;51:3298–303.

The role of antibiotics in the treatment of uncomplicated SSTI due to community-acquired MRSA has been a matter of dispute. Early reports suggested that incision and drainage of cutaneous abscesses due to community-acquired MRSA was sufficient, at least for abscesses of relatively small size. Newer, more convincing evidence, however, appears to indicate that antibiotic treatment does matter.

Ruhe and colleagues retrospectively examined the records of 282 patients with 282 episodes of SSTI due to MRSA who presented either to the emergency department or to the outpatient clinic at 2 medical centers during the period 2002–2007. Three-fourths of patients had abscesses, 13% had furuncles or carbuncles, and 12% had cellulitis with a purulent focus. The median lesion maximum diameter was 4 cm (range, 3–5 cm). Incision and drainage procedures were performed for 91% of episodes with abscess, furuncles, or carbuncles and for 66% of the other episodes. For 90 episodes (32%), patients received doxycycline (n = 87) or minocycline (n = 3), whereas a β-lactam
antibiotic was provided for the remaining episodes. During the years of the study, 94%–96% of isolates were found to be susceptible to tetracycline.

Ten percent of patients experienced treatment failure, with 23 requiring a second incision and drainage procedure and 5 requiring hospital admission. In contrast to previous reports, the size of the lesion was not associated with outcome. Logistic regression analysis identified receipt of a β-lactam antibiotic as the only clinical predictor of treatment failure (adjusted OR, 3.94; 95% CI, 1.28–12.15). Subgroup analysis that included only the 225 episodes in which incision and drainage were performed at presentation confirmed that β-lactam antibiotic therapy was significantly associated with treatment failure.

These results are consistent with those of several other recent studies that have found that administration of an antibiotic that inhibits the growth of MRSA improves outcomes, even in patients who have undergone incision and drainage. For example, in a similar retrospective study of 531 episodes of community-acquired MRSA SSTI, most of which were treated with incision and drainage, Ruhe et al. [1] found treatment failure rates of 5% among patients who received an antibiotic active against the pathogen and 13% among those who received an antibiotic without activity (P = .01). There has been little study of which antibiotic with activity against MRSA is optimum.

Although Ruhe and colleagues provide evidence of the benefit of doxycycline for the treatment of SSTI due to antibiotic-susceptible MRSA, alternative antibiotic choices may be considered. In a small, prospective, open-label trial, outpatients with SSTI were randomized to receive treatment with either trimethoprim-sulfamethoxazole (160 mg/800 mg) or doxycycline (100 mg), each given twice daily for 7 days [2]. Although there was not a statistically significant difference in outcome, all 3 treatment failures occurred among the 14 patients who received trimethoprim-sulfamethoxazole, for a treatment failure rate of 21%. The optimal antibiotic choice thus awaits results of future clinical trials with sample sizes sufficient to allow for definitive answers. One problem, however, is that community-acquired MRSA is a moving target, and that, in some geographical areas, it has acquired additional antibiotic-resistance determinants. An additional factor that must be considered in future trials is the potential benefit of effective antibiotic therapy on the prevention or delay of recurrences of infection.

References

1. Ruhe JJ, Smith N, Bradsher RW, Menon A. Community-onset methicillin-resistant Staphylococcus aureus skin and soft-tissue infection: impact of antimicrobial therapy on outcome. Clin Infect Dis 2007; 44:777–84.

A. Cenizal MJ, Skiest D, Luber S, et al. Prospective randomized trial of empiric therapy with trimethoprim-sulfamethoxazole or doxycycline for outpatient skin and soft tissue infections in an area of high prevalence of methicillin-resistant Staphylococcus aureus. Antimicrob Agents Chemother 2007; 51:2628–30.

Gonorrhea and Chlamydia in the United States

Datta SD, Sternberg M, Johnson RE, Berman S. Gonorrhea and chlamydia in the United States among persons 14 to 39 years of age, 1999 to 2002. Ann Intern Med 2007; 147:89–96.

The most frequently reported notifiable disease in the United States is infection with Chlamydia trachomatis, with Neisseria gonorrhoeae infection placing second. Urine specimens were obtained from 6632 participants (age, 14–39 years) during the 1999–2002 in the National Health and Examination Survey; ligase chain reaction detected a prevalence of chlamydial infection of 2.2% (95% CI, 1.8%–2.8%) and a prevalence of gonorrheal infection of 0.24% (95% CI, 0.16%–0.38%). The prevalence of chlamydial infection was similar in male and female subjects but peaked at the ages of 14–19 years in female subjects and 14–29 years in male subjects. The prevalence was higher among non-Hispanic black subjects (6.4%) than among non-Hispanic white subjects (1.5%). The prevalence of gonorrheal infection was also higher in non-Hispanic blacks (1.2% vs. 0.07%). Forty-six percent of individuals with gonorrheal infection were coinfected with C. trachomatis. It should be noted that the test used in this survey targets a portion of a cryptic plasmid in C. trachomatis that has been lost by some isolates in Sweden, leading to false-negative results [1]. Although this is not likely to have affected the results of this study, it is an issue that may have to be addressed in the future.

The authors point out that these data support current recommendations for screening sexually active females aged ≤25 years for chlamydial infection and for coadministration of treatment for C. trachomatis infection in patients with gonorrheal infection, unless the former has been ruled out [2]. The following is a summary of current recommendations for screening [2]:

- Screen for chlamydial infection in all sexually active, nonpregnant, young women (age, ≤24 years) and in older, nonpregnant women who are at increased risk.
- Screen for chlamydial infection in all pregnant women aged ≤24 years and in older, pregnant women who are at increased risk.
- Do not routinely screen for chlamydial infection in women aged ≥25 years, regardless of whether they are pregnant, if they are not at increased risk.
- Current evidence is insufficient to assess the balance of benefits and harms of screening for chlamydial infection in men.

References

1. Deresinski S. In the literature: Chlamydia trachomatis finds a way to evade diagnosis. Clin Infect Dis 2007; 45:v–vi.

2. Screening for chlamydial infection: US Preventive Services Task Force Recommendation Statement. Ann Intern Med 2007; 147:128–34.