

which 2 outbreaks originated in Los Angeles County, California. Media reports and public awareness during outbreak events can result in large numbers of worried well patients or patients with outbreak mimics seeking medical attention. In densely populated cities, utilizing alternative approaches to in-person physician appointments can be beneficial to decrease both the overburden of healthcare resources as well as the spread of potential virus. During these measles outbreaks, we employed the use of telemedicine visits to facilitate triage and determination of in-person examination and testing needs. **Methods:** During the measles outbreak periods, patients who contacted the patient call center at our institution requesting an appointment for fever, rash, or expressing concerns for acute measles infection were instead routed for a telemedicine visit with a physician. All patients were all seen by the same physician, who was trained in internal medicine and pediatrics. During the telemedicine visit, patients were assessed for signs and symptoms consistent with acute measles based on CDC definition. If there was high enough clinical suspicion to warrant testing for measles, infection prevention coordinated logistics with clinic staff, including ensuring the use of appropriate personal protective equipment (PPE), end-of-day appointment scheduling, and appropriate diagnostic testing. **Results:** During this outbreak timeline, 7 patients were seen through telemedicine visits with ages ranging 13 months to 49 years. Also, 6 patients were scheduled due to a chief complaint of acute rash and 1 was due to a potential exposure to measles. Of 7 patients, 4 had received 1 dose of the MMR vaccine, and the remaining 3 were immune, unvaccinated, or had unknown immunity. The unvaccinated patient was further tested for measles but was IgM negative. Of those with chief complaint of rash, the diagnosis was determined to be some form of nonmeasles viral exanthem, allergic dermatitis/eczema, or hives. The exposed patient was deemed to be asymptomatic. **Conclusions:** During an outbreak, patients presenting to clinics with suspected measles symptoms can cause tremendous disruption, including concerns about exposure of staff and patients, need for contact tracing, and anxiety. Utilizing telemedicine appointments aided the management of patients during this outbreak by shifting physician evaluation outside the clinic. When evaluating suspect measles cases during an outbreak with patients who do not require further levels of care, telemedicine can prove to be useful in reducing the burden of potential exposure to others in the community and to the healthcare system.

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Vaccinating to Prevent Antibiotic Use: Potential Impact of a Group A *Streptococcus* Vaccine on Acute Respiratory Infections

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Background: Group A *Streptococcus* (GAS) causes acute upper respiratory tract infections that are frequently treated with antibiotics. GAS vaccines in development may prevent both disease and outpatient antibiotic prescribing. We estimated (1) the incidences of GAS-attributable pharyngitis, sinusitis, and acute otitis media (AOM) infections in the United States; (2) the proportion of these infections

resulting in antibiotic prescriptions; and (3) the incidence of infection and antibiotic prescribing potentially preventable by vaccination against GAS. **Methods:** We estimated annual rates of US outpatient visits and antibiotic prescriptions for pharyngitis, sinusitis, and AOM using physician office and emergency department visit data in the National Ambulatory Care Survey and National Hospital Ambulatory Medical Care Survey from 2012 to 2015. We supplemented this with visits to other outpatient settings (eg, urgent care) from the 2016 IBM MarketScan Commercial Database. We estimated the proportion of episodes attributable to GAS and to GAS *emm* types targeted by a 30-valent vaccine in development using data from previously conducted etiology studies. We estimated the incidence of disease and antibiotic prescribing preventable by a vaccine meeting the WHO 80% efficacy target for preventing noninvasive GAS disease, with doses administered during infancy and at age 4 years. We estimated the proportion of outpatient antibiotic prescribing preventable by vaccination by dividing estimates by total antibiotic dispensations, estimated from the IQVIA TM dataset. **Results:** Among individuals aged 0–64 years, GAS causes 27.3 (95% CI, 24.6–30.6) ambulatory care visits and 16.4 (95% CI, 14.5–18.6) outpatient antibiotic prescriptions per 1,000 population annually for pharyngitis, sinusitis, and AOM combined, representing 2.1% (95% CI, 1.8%–2.4%) of all outpatient antibiotic prescriptions. Among children aged 3–9 years, GAS-attributable incidence includes 124.4 (95% CI, 109.0–142.1) visits and 77.1 (95% CI, 65.7–90.6) antibiotic prescriptions per 1,000 population annually, representing 8.6% (95% CI, 7.3%–10.1%) of antibiotic prescriptions in this age group. Individual-level direct protection from a 30-valent vaccine meeting the WHO target could prevent 26.0% (95% CI, 24.0%–28.1%) of pharyngitis visits; 17.3% (95% CI, 15.5%–19.5%) of pharyngitis, sinusitis, and AOM visits; and 5.5% (95% CI, 4.7%–6.4%) of outpatient antibiotic prescriptions among children aged 3–9 years. If vaccination eliminated the need for antibiotic treatment of pharyngitis (for which GAS is the only etiology warranting antibiotic treatment), the total effects of vaccination could include the prevention of up to 17.2% (95% CI, 15.0%–19.6%) and 6.8% (95% CI, 6.3%–7.3%) of antibiotic prescriptions among persons 3–9 years and 0–64 years of age, respectively. **Conclusions:** In addition to preventing infections and healthcare visits, an efficacious GAS vaccine could prevent a substantial volume of outpatient antibiotic prescribing in the United States.

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Validation Methodology of Healthcare-Associated Infection Device Day Denominators When Switching Electronic Medical Records

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