

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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Poster Presentation

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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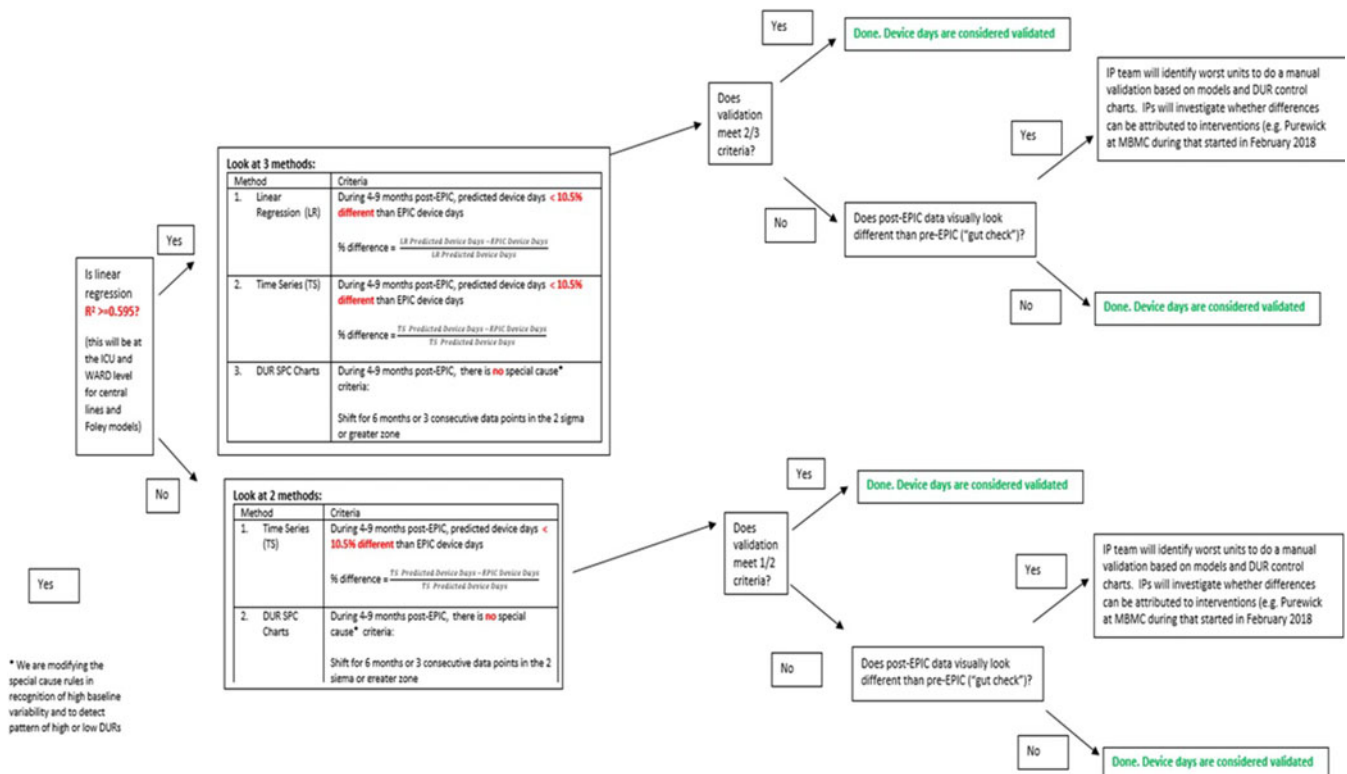


Fig. 1.

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Background: From August 2017 to June 2018, 11 hospitals within a large healthcare system switched from multiple different electronic medical records (EMRs) to 1 EMR. At the time of this transition, the NHSN provided guidelines to validate healthcare-associated infection (HAI) denominators when switching from manual denominator collection to electronic denominator collection, but the NHSN did not give guidelines for validation when switching from 1 EMR to another. We aimed to build a validation process to ensure the accuracy of central-line and urinary catheter days reported to the NHSN after switching EMRs. **Methods:** Our validation process began with a statistical phase followed by a targeted manual validation phase. The statistical phase used 3 prediction methods (linear regression, time series analysis, and statistical process control [SPC] charts) to forecast device days after the EMR switch for units within hospitals. Models were developed using baseline data from the old EMR (January 2015 through the new EMR implementation). Using prespecified criteria for each method to determine discrepancies, we built a decision tree to identify units needing manual validation. Any unit that failed the statistical phase would need to participate in the manual validation phase, using a midnight census and direct visualization of devices. The manual validation process was composed of 14-day blocks. At the end of each block, if manual device days were within $\pm 5\%$ of EMR device days, they were considered validated. Manual validation would be repeated in 14-day blocks until 2 consecutive blocks passed within $\pm 5\%$. **Results:** Overall, 157 units were evaluated for urinary catheter days and central-line days. Among them, 143 units passed the statistical validation test for urinary catheter days and 151 passed for central-line days.

There was no specific pattern when comparing forecasted versus actual device days. The manual validation process for the 20 failing units (14 urinary catheter and 6 central-line units) is ongoing; preliminary results identified issues with missing nursing documentation in the EMR and with inaccurate manual counting of device days. There were no systematic discrepancies associated with the new EMR. **Conclusions:** We developed a novel validation process using statistical prediction methods supplemented with a targeted manual process. This process saved resources by identifying the units that need manual validation. Discrepancies were largely related to nursing documentation, which the infection prevention team addressed with additional training.

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Value of Nontargeted Screening for Highly Resistant Microorganisms: The MOVE Study

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