McGovern Medical School, Houston, Texas; 1Memorial Hermann Hospital, Houston, Texas; 2Division of Infectious Diseases, Department of Internal Medicine, McGovern Medical School, Houston, Texas

Session: 225. Clinical Practice Issues: HIV, Sepsis, QI, Diagnosis Saturday, October 6, 2018: 12:30 PM

Background. Diagnostic tests are a crucial part of clinical care. However, they can often result in unnecessary testing with no patient impact. Diagnostic stewardship seeks to modify the process of ordering, performing and reporting diagnostic tests to improve resource utilization and patient outcomes. We have identified infectious diseases viral molecular tests that are meant for outpatient management that are often ordered during a hospital stay. Our objective was to quantify how often these tests were ordered and acted upon, as well as the cost associated with them.

Methods. HIV quantitative PCR, HIV genotype and HCV genotype were selected as the target tests to be evaluated in this study. We measured the number of times these tests performed at Memorial Hermann Hospital TMC from January to December 2017. The individual and total cost of these tests were calculated. We sampled charts to determine whether the test had been ordered during or after the hospitalization.

Results. During the study period, a total of 512 HIV viral loads, 29 HIV genotypes, and 58 Hepatitis C genotypes were ordered. The total expense on the HIV viral load tests was $43,228, total expense on HIV genotypes was $8,669, and for Hepatitis C genotype was $43,935. Our chart sampling showed that HIV viral load was not acted on in 65% of the time, HIV genotype test was not acted on in 62% of the time and HCV genotype was not acted on 50% of the time.

Conclusion. Three molecular viral tests that were acted upon less than 50% of the time they were ordered, collectively added an expense of $94,852 over the course of a year. A diagnostic stewardship program based on education and selective restriction of diagnostic testing may result in avoidance of unnecessary testing and substantial savings.

Disclosures. All authors: No reported disclosures.

1917. Diagnostic Errors in Bacterial Osteomyelitis in Children Yuki Oita, MD1; Yuta Atahara, MD, PhD; Hiroshi Hara, MD2; and Yaho Horihoshi, MD3,1; General Pediatrics, Tokyo Metropolitan Children’s Medical Center, Tokyo, Japan; 2Infectious Diseases, Tokyo Metropolitan Children’s Medical Center, Tokyo, Japan; 3General Pediatrics/Nephrology, Tokyo Metropolitan Children’s Medical Center, Tokyo, Japan

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Background. Delayed or erroneous diagnoses of bacterial infections may cause adverse outcomes in children. Bacterial osteomyelitis has a low incidence, is only infrequently encountered by primary care pediatrics, and has obscure symptoms in children that make an early and accurate diagnosis challenging. The aim of this study was to determine the incidence and causes of diagnostic errors in pediatric patients in whom bacterial osteomyelitis was finally diagnosed.

Methods. Children who received a definitive diagnosis of acute or chronic bacterial osteomyelitis were enrolled at Tokyo Metropolitan Children’s Medical Center between April 2010 and September 2017. The initial diagnoses were retrospectively reviewed by two pediatricians to evaluate the incidence of misdiagnosis and the types of diagnostic error involved, such as system-related and cognitive errors. Each type of error was subcategorized into associated factors including patient, task, team, organizational management, and individual factors, work conditions, and flaws in data gathering, information processing, and verification. The cumulative results for each pediatrician were averaged. A kappa statistic was calculated to assess interobserver agreement.

Results. The total incidence of misdiagnosis of bacterial osteomyelitis was 36% (27/74) and 19% (14/74) in acute and chronic osteomyelitis, respectively. The main type of diagnostic error was cognitive (89.3%). The number of subcategorized factors was 2.5 per diagnostic error. In cases of diagnostic errors, the associated factors were flaws in data processing, data gathering, and verification, at 20 (30.2%), 15 (22.6%), and 17 (26.4%) cases, respectively. Internal Medicine, Raritan Bay Medical Center, Perth Amboy, New Jersey; 2Raritan Bay Medical Center, Perth Amboy, New Jersey; 3ID Care, Old Bridge, New Jersey; 4ID Care, Hillsborough, New Jersey

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Background. Today’s physician must deal with data from traditional tests, as well as from new sources like smart phones and texting, the electronic medical record (EMR), septic shock and sepsis “bundles,” and the availability of PCR for the rapid identification of organisms, all in an environment of antibiotic stewardship programs. We need to assess which methods of data collection are meaningful and efficient, and which can be modified.

Methods. We reviewed a handwritten log of the preliminary demographics of patients with positive blood cultures from a 6-year study period, then confirmed this summary with the financial department, as well as the locations where blood cultures were drawn, and the charges generated. Our data identify those who died, but do not identify the cause of death nor the causative nature of the patient’s bacteremia for mortality.

Results. We found that the majority of orders were for “two sets of blood cultures 80 minutes apart,” but there were multiple orders for one or more additional sets; in many cases, additional cultures were ordered because of temperature elevation or leukocytosis; in other instances, the indication for the blood culture was not clear. The number and prevalence of blood cultures ordered for individual patient encounters came at the discretion of the individual physician. The percentage of positive blood cultures was approximately 5%, of an average 17,000 cultures done per year, with total charges of more than $60 M over a 6-year period. Thus, we have a common test with low sensitivity resulting in a high financial expenditure.

Conclusion. Since data sharing among medical teams is now easier because of new tests and electronic data gathering advances in medicine, it is also easier to assess which traditional patterns of data collection are most effective and which should be avoided. All blood cultures that cannot be clearly justified, must be reviewed. All blood culture order guidelines for local hospital systems should be reviewed. All blood culture order guidelines for local hospital systems should be modified.

Disclosures. All authors: No reported disclosures.

1919. Outpatient Care-Seeking Prior to Acute Respiratory Infection Hospitalization in the United States, 2012–2014 Ashley Fowlkes, MPH1; Jufa Chen, PhD2 and Carrie Reed, DSC, MPH1,2; Influenza Division, Centers for Disease Control and Prevention, Atlanta, Georgia; Centers for Disease Control and Prevention, Atlanta, Georgia

Session: 225. Clinical Practice Issues: HIV, Sepsis, QI, Diagnosis Saturday, October 6, 2018: 12:30 PM

Background. Acute respiratory infection (ARI) diagnoses encompass syndromes such as pneumonia and bronchiolitis, and are among the leading causes of hospitalizations. While outpatient care could present an opportunity to prevent subsequent hospitalization, few studies have measured healthcare utilization preceding hospitalization. We characterized outpatient visits in the 2 weeks prior to ARI hospitalization using commercial insurance and Medicaid claims in MarketScan from 2012 to 2014.

Methods. We included inpatients with an ICD9 discharge diagnosis for ARI (460–466), pneumonia (480–486), or influenza (487–488) and evaluated outpatient records ≤14 days prior to admission, excluding the day of admission. We defined an outpatient visit as health encounters with a reasonable potential for medical care receipt (e.g., medical device delivery). We used the previous 12 months of medical records to define patients’ Charlson Index and health care utilization, including any prior hospitalizations and preventive and ambulatory care sensitive condition (ACSC) visits. Severe outcomes were defined as intensive care unit admission or death. We used multivariable logistic regression stratified by age group to evaluate demographic, clinical, health utilization, and outcome factors associated with outpatient care prior to admission.

Results. We identified 407,096 ARI hospitalizations, among which 60% of patients had ≥1 outpatient visit prior to admission; 36% of visits occurred 1 day prior to admission. Children aged <1 were more likely to have a preceding visit compared with other age groups (67% vs. 57% to 59%, P < 0.001). In all age groups, persons with preventive care and ACSC visits in the past year, a Charlson score ≥1, female sex, non-insured health plans, and salaries ≥40% employment were more likely to have a preceding outpatient visit. Patients with severe outcomes were significantly less likely to have a preceding visit, while specific diagnoses varied by age group (figure).

Conclusion. In a population of insured individuals, only 60% received outpatient care in the 2 weeks prior to ARI hospital admission. A greater understanding of healthcare seeking behaviors for potentially preventable hospitalizations is needed.