1967. Predictors of Clinical Respiratory Virus Testing Among Adults Hospitalized with Acute Respiratory Illness (ARI) (2015–2016)  
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Background. There is an ongoing need to determine factors associated with influenza virus testing in adults hospitalized with acute respiratory illness. We aimed to characterize factors associated with influenza virus testing among adults hospitalized with acute respiratory illness (ARI).  
Methods. Adults hospitalized with ARI at four sites between October 1, 2015 and April 30, 2016 were enrolled. Clinical and demographic factors were collected from medical records and patient interview. Logistic regression was used to estimate odds of receiving a clinical test based on age, vaccination status, comorbidities, presentation with influenza-like illness (ILI; defined as fever and cough or sore throat) and other factors.  
Results. Of 895 enrollees, 571 (63%) patients meeting study inclusion criteria received physician-ordered testing. Of these, 53% had a multipathogen panel, 13% had a rapid antigen test, 7% had singleplex PCR, <1% had viral culture, and 27% had multiple tests; influenza infection was detected in 55 (6%) patients. Of 150 influenza cases identified by study testing, 25 (17%) were not tested clinically. Enrollees who did not receive clinical testing were older, had longer time to admission, and were less likely to present with ILI, immunosuppressive disorders (aOR=2.05), non-COPD lung conditions (aOR=1.68), presentation with ILI (aOR=1.03), and admission ≤5 days from symptom onset (aOR=1.89) were positively associated with receiving a clinical test (P < 0.01 for all, Figure 1). After adjusting for these factors, enrollees with influenza vaccination were 37% less likely (aOR=0.63) to receive a clinical test (P < 0.01).  
Conclusion. Patients with ARI who were clinically tested for influenza differed from those not tested. A lower likelihood of testing among influenza positive patients could potentially bias VE estimates upward and requires further evaluation. Clinical testing alone may fail to detect a substantial proportion of influenza cases.  

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1968. A Cross-Sectional Surveillance Study of Acute Respiratory Illness (ARI) in Pregnant Women  
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Background. Among pregnant women, pneumonia is the third-leading cause of death and the most common non-obstetric infection resulting in death. Pregnant women who become infected with influenza have hospitalization rates comparable to non-pregnant women with high-risk medical conditions. Other than influenza, little is known about the consequences of viral-related ARI on the pregnant woman and the fetus. Our objective was to determine the respiratory viruses causing ARI and their clinical outcomes during pregnancy.  
Methods. Pregnant women in their second and third trimester were enrolled prospectively at a Houston clinic between October 1, 2015 and April 30, 2016 during their regular prenatal visits. Pregnant women were enrolled if they reported having symptoms of ARI or were healthy within the preceding two weeks. Nasal-pharyngeal swabs were evaluated for respiratory viruses by real-time PCR. Clinical outcomes and complications of illness were obtained at enrollment and two weeks after the initial visit.  
Results. A total of 155 pregnant women were enrolled. The average age at enrollment was 30.7 years among women with ARI and 29.7 among healthy controls. Average gestational age at enrollment was 26.0 weeks among women with ARI and 26.3 among healthy controls. Among the 91 healthy controls, 10 (11%) tested positive for a respiratory virus, with rhinovirus (n = 6) being the most common of the viruses detected. On the other hand, of the 81 cases of ARI, 51 (63%) tested positive for a virus. The most frequently detected viruses were rhinovirus (n = 22), coronavirus (n = 14), and respiratory syncytial virus (n = 6). Twelve patients reported fever during the course of their ARI. Seventeen ARI patients reported at least one symptom of lower respiratory tract illness (LRTI). Of those patients with LRTI, two reported decreased fetal heart rate and one was hospitalized for her illness.  
Conclusion. Respiratory viruses were frequently detected in pregnant women with ARI. One-third of pregnant women with viral ARI had evidence of LRTI. Hospitalization and non-reassuring fetal heart tones were among the complications reported by pregnant women with LRTI. Viral ARI during pregnancy appears common and is associated with significant morbidity.  
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The use of procalcitonin (PCT) in the management of pneumonia has safely reduced antibiotic durations, chronic obstructive pulmonary disease (COPD) exacerbations. The use of procalcitonin guidance in the management of COPD exacerbations has been shown to decrease antibiotic durations and improve patient outcomes. Further research is needed to determine the optimal use of PCT in the management of COPD exacerbations.

Results. There were no differences in mean age (P = 0.17), sex (P = 0.23), or baseline PCT levels (P = 0.24) between the pre-intervention and post-intervention groups. The primary outcome was duration of antibiotic therapy for COPD. Secondary objectives included duration of IV antibiotics, duration of inpatient length of stay (LOS), and 30-day rehospitalization rates.

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Table 1. Treatment duration and outcomes of total cohorts

| Duration of total antibiotics, mean (SD), days | 5.3 (3.2) | 3.0 (2.9) | 0.01 |
| Duration of IV antibiotics, mean (SD), days | 2.5 (2.4) | 1.9 (1.9) | 0.02 |
| Duration 0–1 days, n (%) | 24 (14.5) | 61 (43.8) | 0.001 |
| Duration 2–5 days, n (%) | 73 (44.0) | 48 (34.6) | 0.001 |
| Duration 6–7 days, n (%) | 37 (22.3) | 18 (13.0) | 0.001 |
| Duration 8–10 days, n (%) | 23 (13.8) | 10 (7.2) | 0.001 |
| Duration 11–14 days, n (%) | 8 (4.8) | 2 (1.4) | 0.001 |
| Duration >14 days, n (%) | 1 (0.6) | 1 (0.6) | 1.00 |
| Inpatient LOS, mean (SD), days | 41 (3.9) | 29.2 (9.0) | 0.01 |
| Readmission within 30 days, n (%) | 24 (14.5) | 23 (16.6) | 0.25 |
| Respiratory related 30-day readmission, n (%) | 18 (10.8) | 13 (9.4) | 0.18 |

SD = standard deviation

Discussion. Utilizing PCT guidance in the management of COPD exacerbations decreased both the total duration of antibiotic therapy and hospital LOS without negatively impacting hospital readmissions.

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1972. Measles Morbidity and Mortality in the Developed World are Greater than the Public Perceives

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Background. Measles mortality and morbidity are staggering in the developing world, especially in countries with widespread malnutrition. In the U.S. and other developed countries, individuals at increased risk of measles complications; however, measles is perceived by many as a routine childhood illness of little consequence. Misinformation about alleged risks of measles containing vaccines (MCV) has led to continued endemic and epidemic measles in the developed world.

Methods. Present CDC data and data published by one of us (JDC) are reviewed for measles morbidity and mortality. The categories examined included deaths, encephalitis, subacute sclerosing panencephalitis (SSPE) and post-measles immune amnesia (PMIA). Data are presented as rates per 100,000 per year and are stratified by age, sex and degree of immune competence.

Results. The following approximate numbers per 100,000 cases in immunocompetent persons were determined: deaths – 200; encephalitis – 100; SSPE – 100; PMIA – 12. Rates for death and SSPE were higher in males and in infants. The infant with measles will have an overall risk of a severe outcome (death, SSPE or encephalitis of 1:215). Similarly, the risk in an older child would be 1:379. The risk in males is greater than in females. The risk for death due to PMIA is small; however, the risk of specific diseases such as pneumonia and meningitis are considered.

Conclusion. Measles is endemic and epidemic in Europe, much of Asia, and in Africa. Therefore, importations into the U.S. will continue to occur and non-immune persons will get measles. To prevent the extended morbidity and mortality as described, and to protect those who cannot receive a MCV, extended immunization efforts need to be carried out in the U.S. These efforts include: giving the second dose of a measles, mumps, rubella (MMR) vaccine at 15 months rather than 4-6 years, fill immunization gaps by seeing that they all receive 2 doses of a MCV or have inactivated measles antibodies in the U.S. Measles virus in adults, and discourage travel to measles endemic and epidemic areas by all persons who are not immune (infants < 1 yr of age and persons who have not received 2 doses of vaccine or have evidence of measles serum antibody).

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