IDENTIFICATION:
Morbidity and mortality are increased in the elderly or high-risk population and pneumonia and influenza vaccinations have proven to decrease the mortality and morbidity of these populations. Studies have indicated that pneumococcal infection causes an estimated 40,000 deaths annually in the United States, accounting for more deaths than any other vaccine-preventable bacterial disease. Approximately half of these deaths potentially could have been prevented through the use of vaccine. Similarly, influenza has caused multiple deaths which could have also have been prevented through use of a vaccine. The Joint Commission and the Center for Medicare and Medicaid Services instituted core measures geared to improve the vaccination rates of high-risk patients (those admitted with pneumonia). These measures dictate that screening and vaccination should occur for high-risk patients 65 years or older for pneumococcal vaccine and patients aged 50 years or older for influenza vaccine during the influenza season, with some notable inclusion exceptions for patients with certain co-morbid conditions.

As a large academic institution, we needed to develop an automated process for:
- identifying high-risk patients,
- screening patients for vaccination status,
- administering the vaccination when appropriate,
- documenting vaccination status in the electronic medical record.

Our FY07 Pneumococcal Core Measures results documented 74% compliance with pneumococcal vaccination and 67% compliance with influenza vaccination.

PROCESS:
During the past several months, we used Lean Sigma processes, including PDSA and failure mode analyses, to automate and streamline the screening and vaccination processes. Additionally, we developed a weekly deficiency report that allows individual follow-up with providers and nursing units with identified deficiencies.

SOLUTION:
A vaccination policy was developed in the Spring 2008 and implemented in September 2008 in the Department of Medicine (DOM). Education of all DOM nursing staff and all medical staff occurred prior to implementation. The goal of the policy was to screen and administer pneumococcal or influenza vaccine to all at risk adult inpatients per guidelines of the Center for Disease Control (CDC) and Advisory Committee on Immunization Practices (ACIP).

Specifically, the Department of Medicine implemented an electronic vaccine screening order-set as a part of all non-ICU admission order-sets. With these electronic smart order-sets, the prescriber answers several prescriber screening questions and initiates the vaccine screening
protocol with a conditional vaccine order when appropriate. The nurse then implements the protocol by completing the nurse screening questions and administering the vaccine. Additionally, if the patient is not eligible or refuses, the nurse is responsible for documenting this reason for not administering the vaccine.

The JHH Information Systems Department developed processes to transfer the electronic patient record (EPR) historical vaccination documentation, from both the inpatient and outpatient clinic settings, to the Physician Order Entry (POE) system, thereby decreasing several steps incumbent upon the nurse to find historical vaccination documentation.

The latest phase of the project has been to develop automated reports for a Quality Improvement Specialist. The Specialist uses the weekly report to drill down on non-compliant cases and provide feedback to the Assistant Director of Nursing and the Vice-Chair of Clinical Operations to follow up with nurses and prescribers who have non-compliant documentation.

The next phases of the project include:

- Revision to the POE Physician order screen to avoid compliance documentation issues. An example is allowing providers to document upfront any relevant known vaccination history.
- Roll-out to other specialty services.

As of quarter 4 CY08, we improved the pneumococcal vaccination rate to 85% and the influenza vaccination rate to 88%. The Vaccination Task Force meets monthly to review results and discuss new strategies to improve the vaccination of all appropriate high-risk patients.