The PDCA improvement methodology enhanced with specifics from Lean and Six Sigma, was used to identify opportunities to improve the efficiency and effectiveness of the RN Initial Nursing Admission Assessment process by identifying and reducing variation and waste. The RN Initial Nursing Admission Assessment is comprised of three components: patient history, physical assessment, and risk screens.

The admission assessment provides data for managing the patient's stay by establishing the plan of care. In 2009, the paper assessment form was recreated electronically for the new electronic medical record (EMR). Following conversion, the completion of the admission assessment was found to be inconsistent and the process fragmented. The flow map of the current state revealed that the electronic admission assessment did not support the nurse's workflow, creating inefficiency and waste. It was also found that the admission assessment process was not standardized within facilities or across the system. The enhanced PDCA process identified the problem and solution. The patient history was removed from the RN Initial Nursing Admission Assessment.

This project was undertaken at an integrated health care system in Southern California, treating nearly 500,000 patients annually across five hospital campuses, an ambulatory care network of clinics, physician offices, outpatient centers and home health care services. The group would like to acknowledge the clinical nursing staff and local university faculty for their integral support of this critical initiative.

**Project Overview**

- **PLAN – DEFINE**
  - Obtained the Voice of the Customer (VOC) with representation from clinical staff across five acute care facilities and all clinical units. The findings included the following:
    - Nursing history was identified as a non-value added task.
    - Nurses use the Physician History & Physical (H&P) for pertinent patient information.
    - Disease states are better identified during the review of the medications the patient is currently taking (Medication Reconciliation process).

- **PLAN – MEASURE**
  - USD Engineering students collected the data for the Value Stream Map.
  - The map revealed potential opportunity related to the documentation process.
  - Current state “As-is” map revealed that the EMR did not support the nursing admission workflow.
  - The nurse performs the admission assessment using a system's sequence, e.g., neurological history, assessment and risk; cardiology history, assessment and risk, etc.
  - The EMR was built from a process sequence (e.g. all system history, all system assessment and all system risk).
  - Stratification Tree was used to identify the variables that might impact performance of the initial nursing admission assessment process.

- **PLAN – ANALYSIS**
  - The RN Initial Admission Assessment policy requires the assessment be done within 12 hours of admission. Since the RN prefers the MD H&P we had to determine if the MD H&P was available within the policy timeframe. It was determined that 90% of MD H&Ps are available to the nurse within 10 hrs of the patient’s admission, well within the policy timeframe.
  - Regression analysis was used to identify if years of experience, age, number of patients assigned to the nurse at time of admission or total number of patients assigned to the nurse during the nurse's shift had an impact on documentation timeliness of the admission assessment. Analysis revealed the number of patients the nurse was assigned to at the time of admission had a statistically significant impact on timeliness of completing the initial assessment (<0.1). The more patients, the longer the time to complete.
  - Prioritization matrix was used for solution identification.
  - A Failure Mode and Effects Analysis (FMEA) was done to determine the risk of removing the nursing history.

- **DO – IMPROVE**
  - The nursing history was a task to be done. The nursing history was not used by healthcare providers. The more pertinent MD H&P and medication process was used to identify pertinent information about the patient. Therefore, the task was identified as waste and contributed to process inefficiency.
  - A “future” process map was completed in which the nursing history was eliminated from the admission assessment.

- **CHECK – CONTROL**
  - Pilot Study Outcomes
    - T-Test showed a significant difference between the means of relevant problems identified through the admission process (p<0.01). Revised process identified more problems.
    - The revised process yielded more pertinent information during the admission process as the nurses reported less focus on the task of obtaining a history and more time interacting with the patient.
    - There was a 40% reduction in the number of ‘clicks’ needed for EMR documentation.

**ACT – CONTROL**

- Implementation
  - Based on the results of the pilot, the nursing history was removed system wide.
  - Prior to implementation, critical metrics were calculated at each hospital to validate that this was a universal problem, thus improving the strength of buy-in.
  - Feedback and questions were accepted and resolved.
  - Communication of the project and findings which led to the decision to remove the nursing history occurred at Nurse Practice Council, leadership, quality and education meetings at each hospital.
  - The improvement included the removal of process redundancies, accurate identification of patient problems and an appropriate and viable plan of care which drives improved patient outcomes.

- Post-implementation nurse survey:
  - 92% satisfied with the revised RN Initial Admission Assessment, sans nursing history
  - 77% noted an improvement to the admission process

**Outcomes**

PDCA improvement methodology enhanced with Lean and Six Sigma in the redesign of the initial nursing assessment process:

- Provided detailed methodology to manage and improve a complex process.
- Identified the true root cause of problems with the process.
- Facilitated nursing staff ability to let go of a sacred cow.
- Promoted acceptance across multiple campuses.
- Enhanced acceptance by initial doublers.