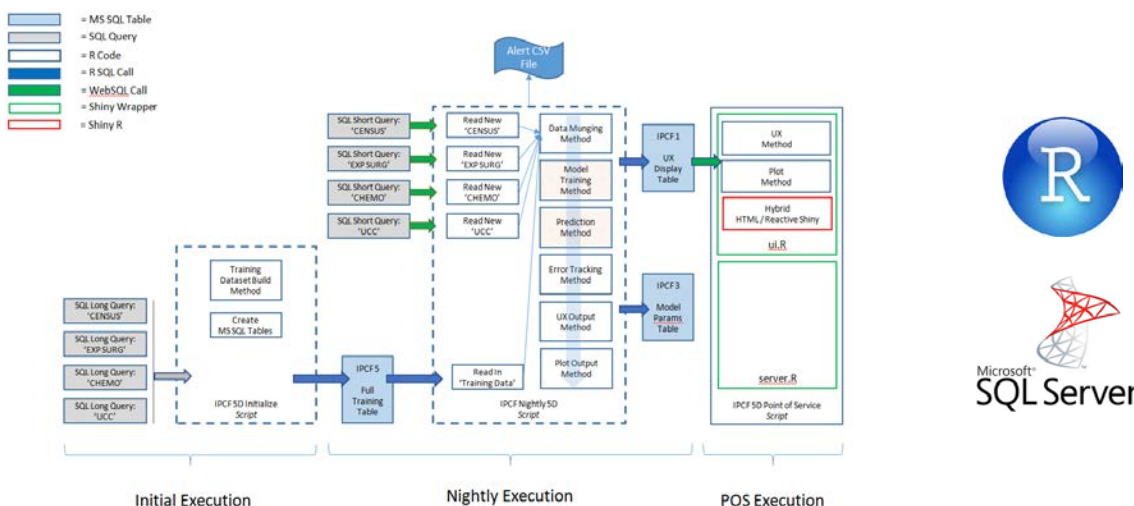
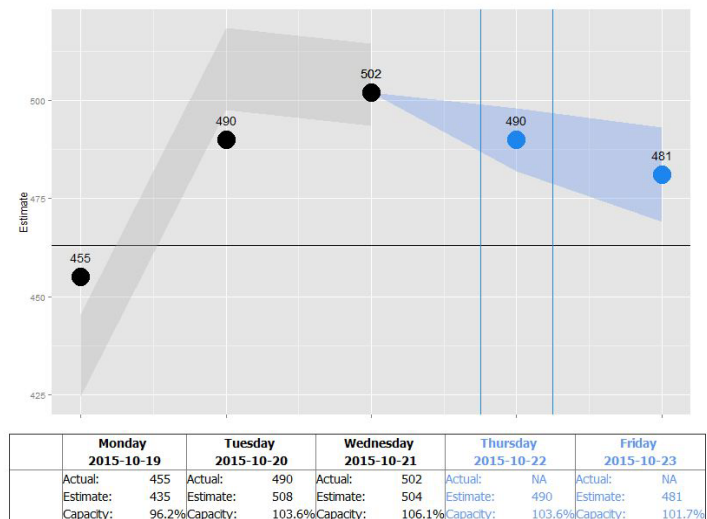


The **inpatient hospital** at Memorial Sloan Kettering is a 473-bed facility used for our patients' acute care needs, such as bone marrow transplants, recovery from surgery, or symptom management. The hospital is very busy, with an average utilization of 85% (147,000 patient days) in 2014. The **census** is the count of the number of patients in-hospital at any given time; it is highly variable, with many days coming close to full occupancy. On high census days, the Department of Nursing and the hospital's Patient Flow team activate measures such as increased staffing.

In order to provide advance warning of high census days, and thereby improve the effectiveness of Patient Flow plans, the **Strategy Analytics** team created a predictive model called the **Inpatient Census Forecaster (IPCF)**. Using autoregressive census trends, as well as prospective information on planned surgeries and chemotherapy procedures, the IPCF is able to provide forecasts of the census up to 5 days in advance.

The IPCF is composed of a SQL Server **data pipeline** (to automatically query and process data on a nightly basis), a **statistical model** built in R, and a **front-end** leveraging Shiny and HTML.



Using the IPCF allows Nursing, Patient Flow, and leadership to see up-to-date predictions of the census (plus feature data and historical performance) and better plan for the upcoming week.

The Strategy Analytics team at Memorial Sloan Kettering Cancer Center empowers hospital leadership to make better decisions. Learn more about our work and find open positions at:

careers.mskcc.org/strategy