

# An Interactive Interface to Explore Patient Venipunctures at a University Hospital

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## Introduction

During a hospitalization, patients routinely receive blood draws (i.e. venipunctures) in the course of diagnosis and treatment of their conditions. Even though venipunctures impact patient care and hospital expenditures, integrated aggregate data on the patients receiving blood draws, the personnel performing the blood draws and overall trends in volume are not currently available to decision makers at the University of Colorado Hospital.

The University of Colorado SOM NavLab seeks to address this issue by developing a clinician-usable interface which will allow clinical leaders to examine the number and timing of venipunctures done to patients.

## Data

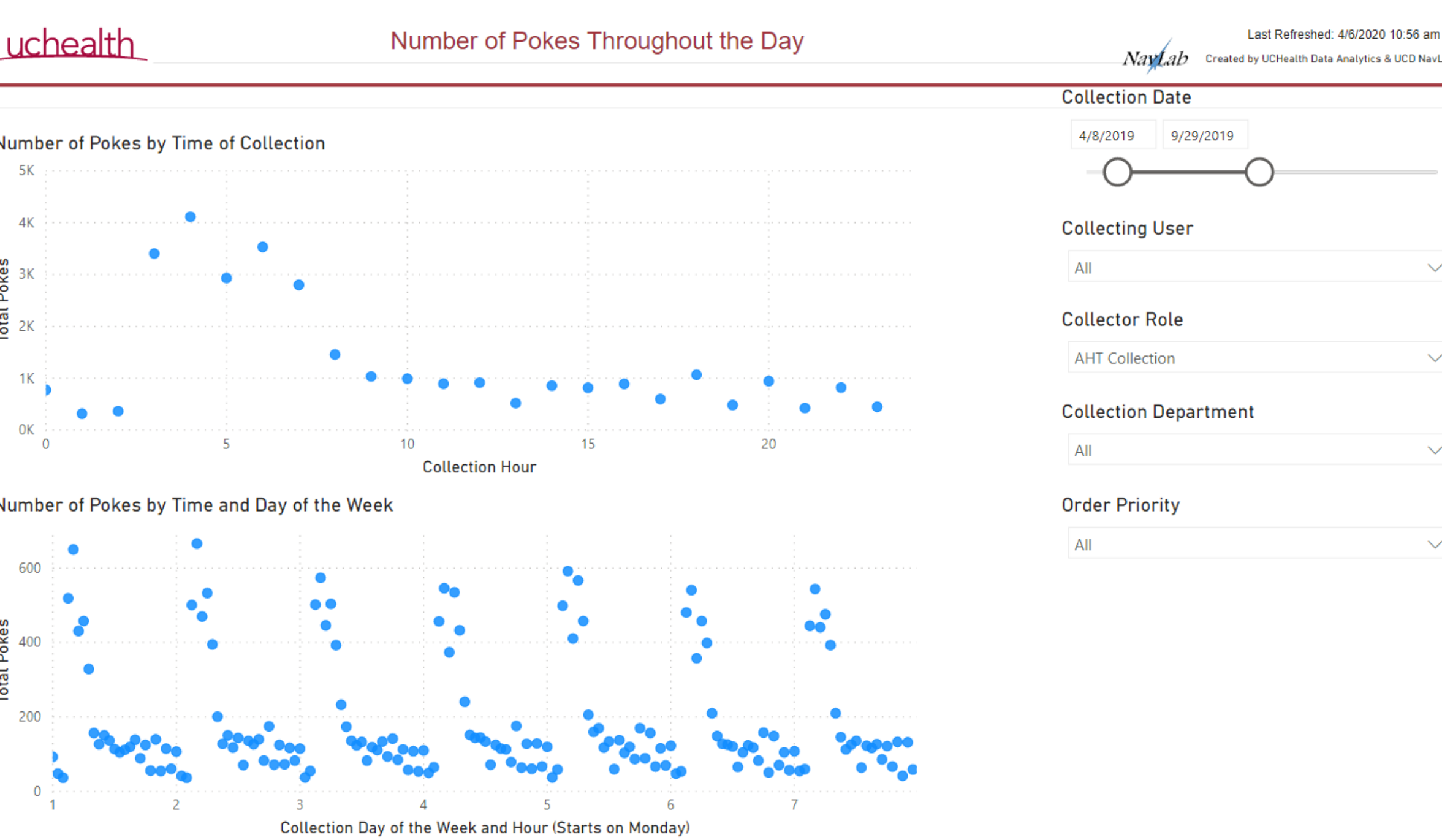
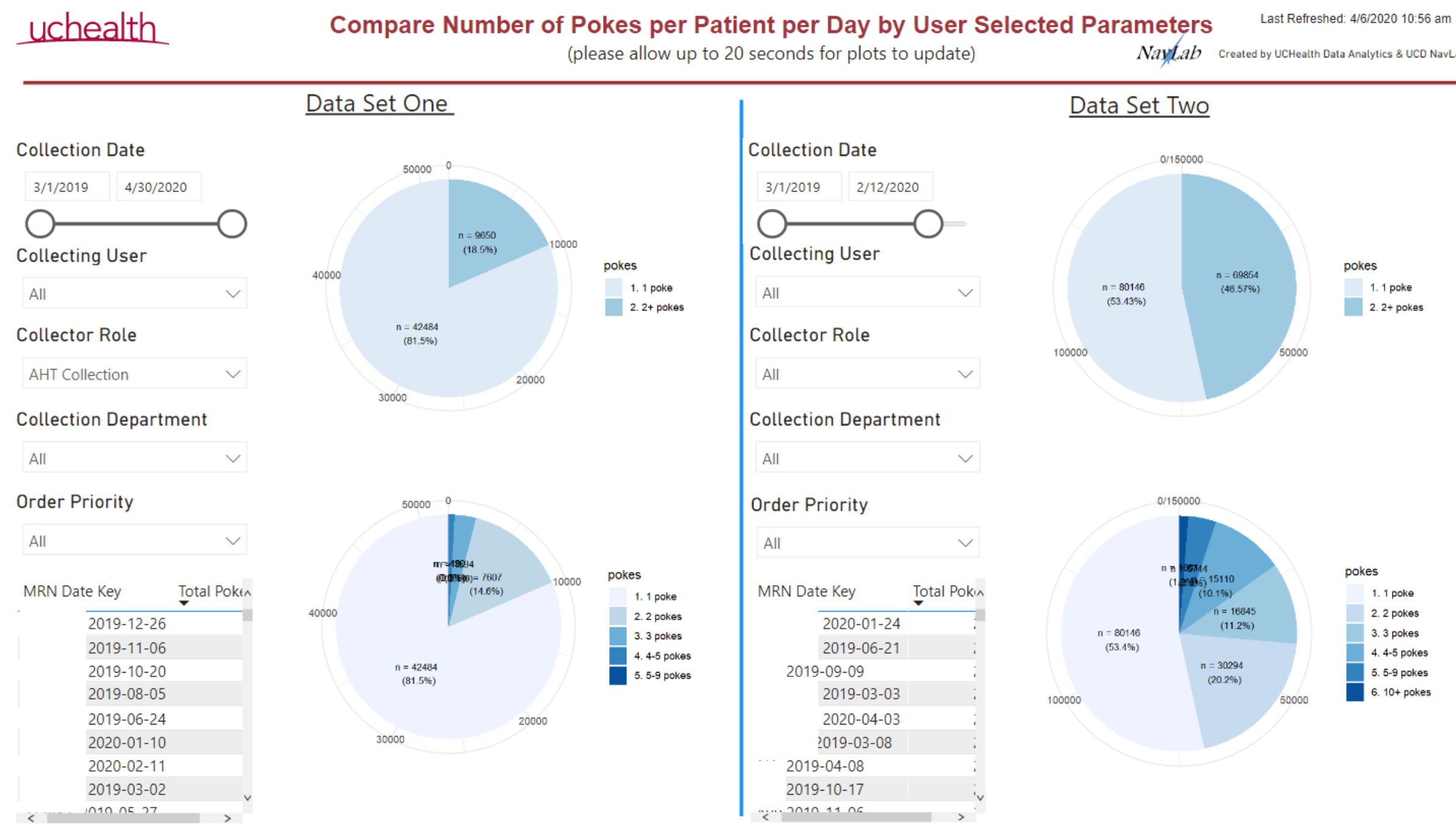
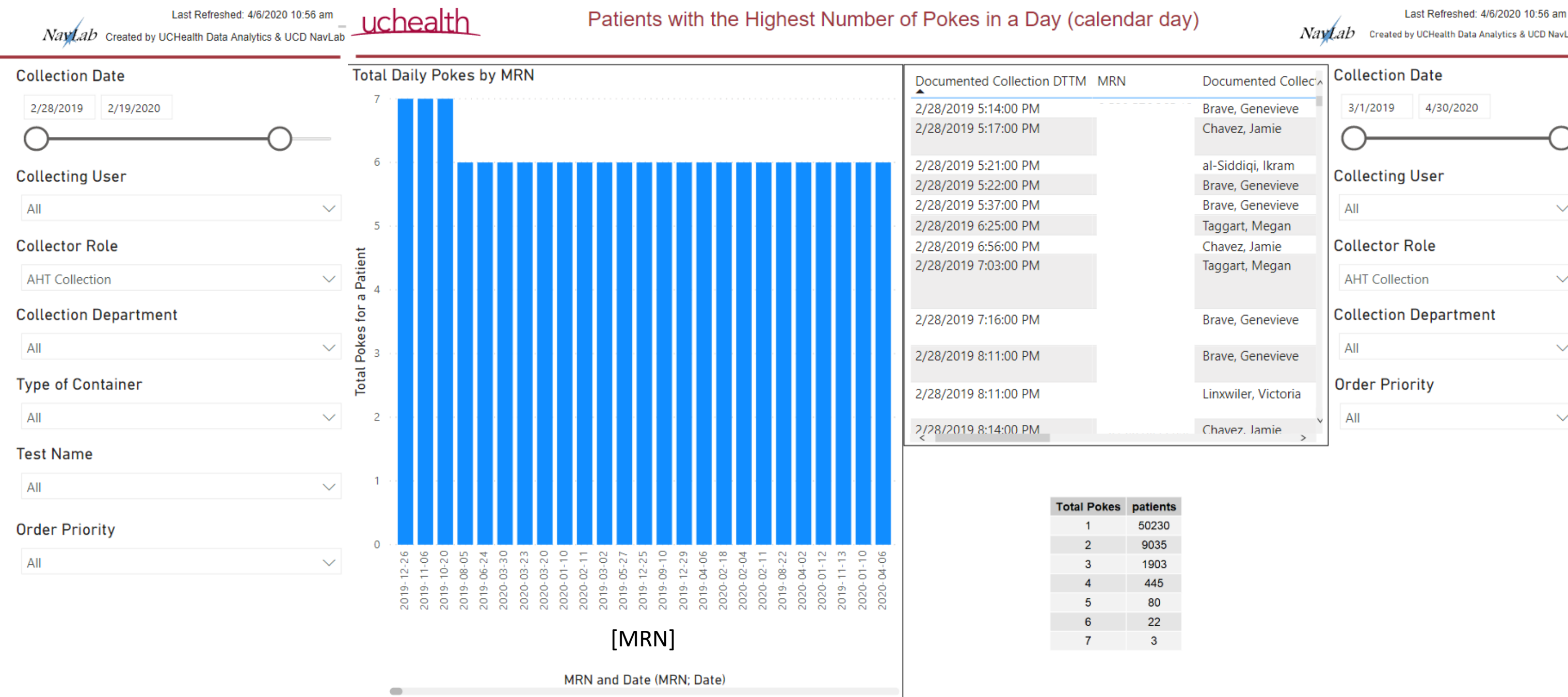
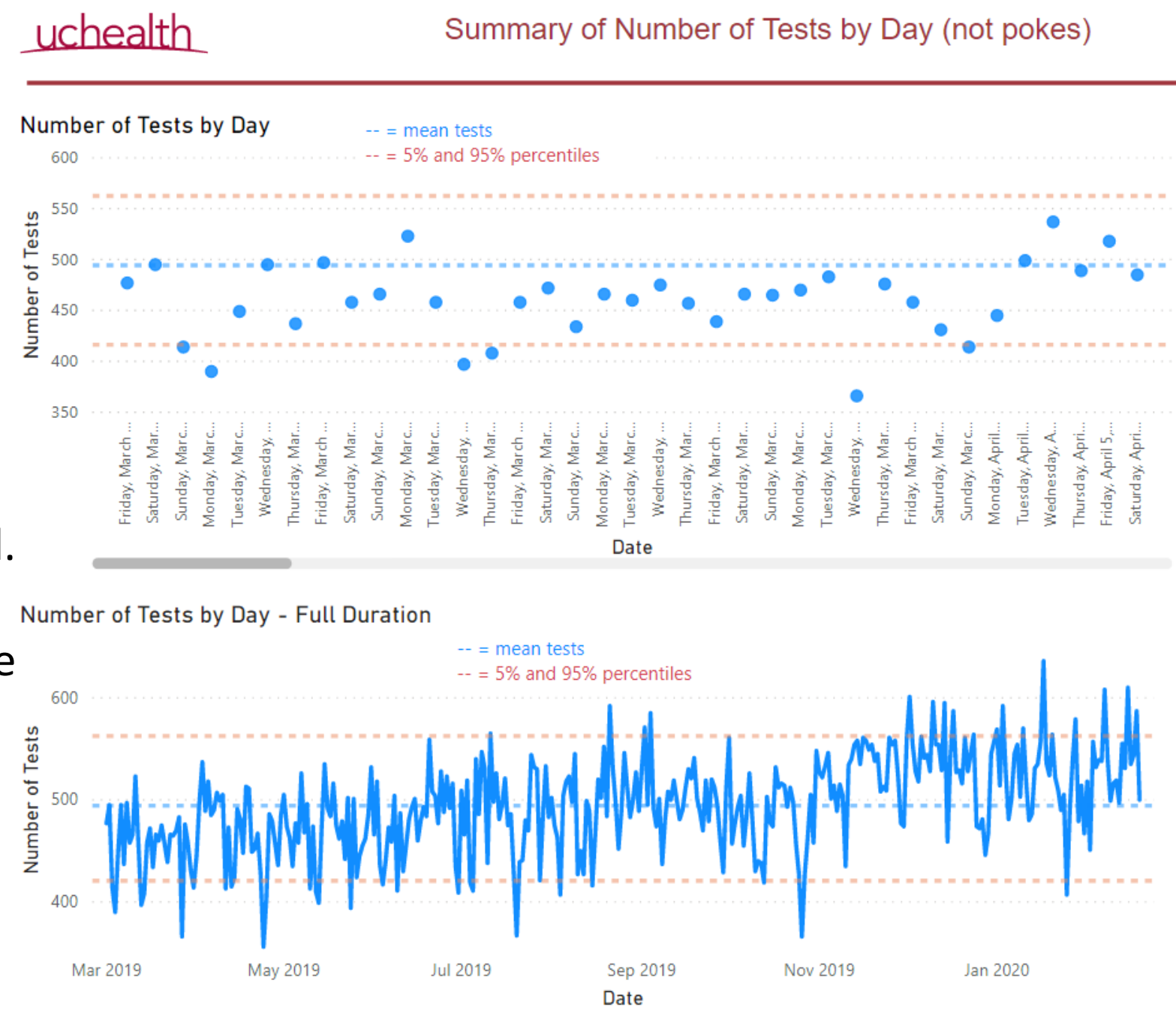
This study was performed at the University of Colorado Hospital, including inpatient data between March 2019 and April 2020. All inpatient venipunctures were potentially candidates to be included in the interface.

Data was sourced using the Clarity tabulation of the EPIC Electronic Health Record including all tests done on inpatient venipuncture blood draws between March 2019 and April 2020. From consultation with the Ancillary Health Technician leadership, tests were collapsed into individual patient draws in a five-minute rolling window. This was done to allow many potential tests from one draw to be correctly subset into a single draw. Individual patient sticks were then aggregated to yield the number during a calendar day per-patient, as well as totals by the collecting user.

## Analysis Methods

Aggregated data was transferred from R to Microsoft Power BI for visualization and dissemination. Summaries of data including daily tracking of number of tests and sticks, sticks by patient, sticks by user, and comparisons of sticks between groups were built within Power BI.

Updates to the completed Power BI will be automated using stored commands within EPIC and R to load updated data into the report.



## Conclusions

Excessive venipunctures can impact patient satisfaction and hospital resources. To address this problem in a data-driven way data must be presented to decision makers. The University of Colorado NavLab produced a Power BI report which allows clinicians and leadership to examine data on their own in a dynamic way with informative visualizations of the data.

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