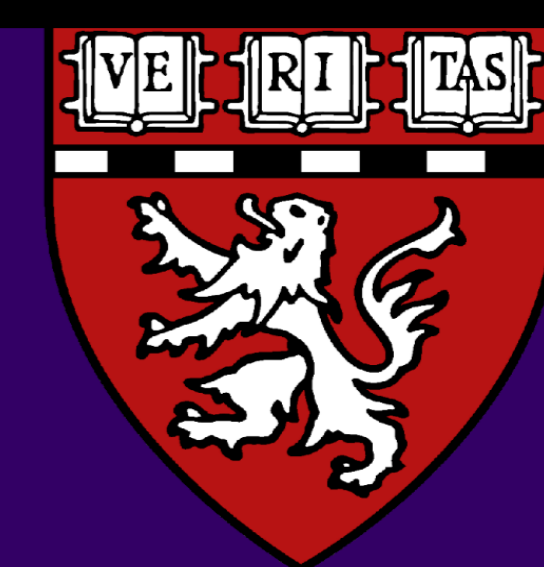




# Visualizing Patient Safety Impact of Collection Error

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## Background

Collection errors for clinical pathology lab tests continue to be a major source of patient safety risk and inefficiency. Improving labeling error rate has been a safety goal set by the Joint Commission for several concurrent years<sup>1</sup>. Patient harm ranges from the inconvenience of having to return to the medical center for specimen recollection to a mismatched blood in tube, which can lead to transfusion errors and physical harm. To partner with treating clinical teams, our phlebotomy manager sent out a spreadsheet containing the previous month's collection errors across the BI hospital network. However, because of underreporting and design inadequacies, clinical partners were unable to gauge perspective, such as error trends or comparison of patient safety impact on their units to the performance on other units, making it difficult to initiate change. Our estimates showed that two thirds, or approximately 450 errors per month were collected via alternative methods, were not recorded in the spreadsheet, and therefore were not being fed back to the floors.

## Materials & Methods

In the design phase of this project, we prioritized ease of use and included as many interactive elements as possible. Image A is the front page, which shows trends in the number of patients affected by month and unit. We also highlighted the option to view all error details by double clicking the right-hand values.

The people icons shown on images A and C were also included to increase visibility and accountability, emphasizing that one error affects at least one patient, regardless of harm incurred. Designing icons of our representative community was also integral to making this dashboard all-user friendly. Tabs include:

- *Unit Drilldown* – Images A and B. Shows total errors by month and unit.
- *Unit Data* – Only available once unit is selected from tab in Image C. Comes pre-formatted as a table, only containing relevant columns from the raw data.
- *Unit Monthly* – Image C. Unit errors shown by service levels, error type, source.
- *High Level Monthly* – Total errors shown by service levels, error type, source.
- *FAQ Page* – Accessible through linked images on all other tabs.
- *Error by Site* – Color codes error to compare units within same service type.
- *Data* – Standardized category options with as little free text, including:
  - ✓ the date and medical record number columns are formatted text, only allowing dates in 2019 and text 7 strings long, respectively.
  - ✓ the location, error type, and source columns feature drop-down lists and therefore can only contain pre-selected responses.
  - ✓ the only free text columns are those for the collector identification, because each unit IDs labels and requisitions differently, and comments.

## Results

The first release of the dashboard in early Feb. 2019 was met with new clarity and excitement on data performance. Clinical partners and pathology team members praised its design, organization, and ease of access to individually important data.

## Next Steps

Though the design phase was successful, the dashboard has many opportunities to expand and eventually be used for goal setting and monitoring. Its purpose is to reduce the number of errors through visibility and awareness of errors, though the act of retraining or educating staff lies with each of the unit managers. The Quality Improvement team will continue to monitor the effectiveness of the dashboard with outreach surveys or focus groups. The next phase of the project is to standardize the process of collection error recording within each clinical pathology lab subset. Currently there is little or no feedback loop closure for these errors, largely in hematology and the blood bank, whose collection errors are not noted at lab control. It is important that we feedback these errors as well so the unit leaders have a true perspective of and goal for collection errors.

## References

i: The Join Commission NPSG.01.01.01

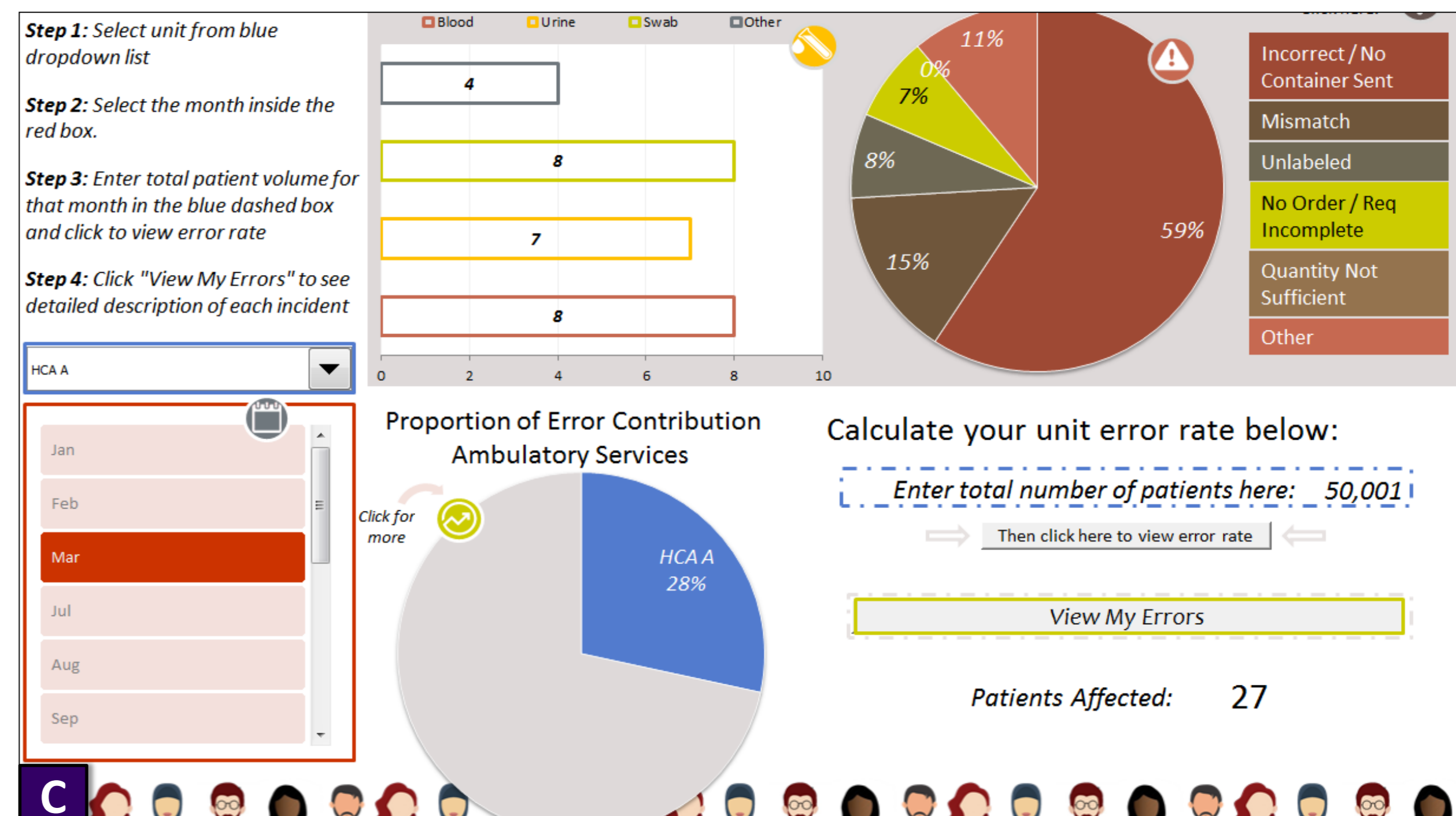
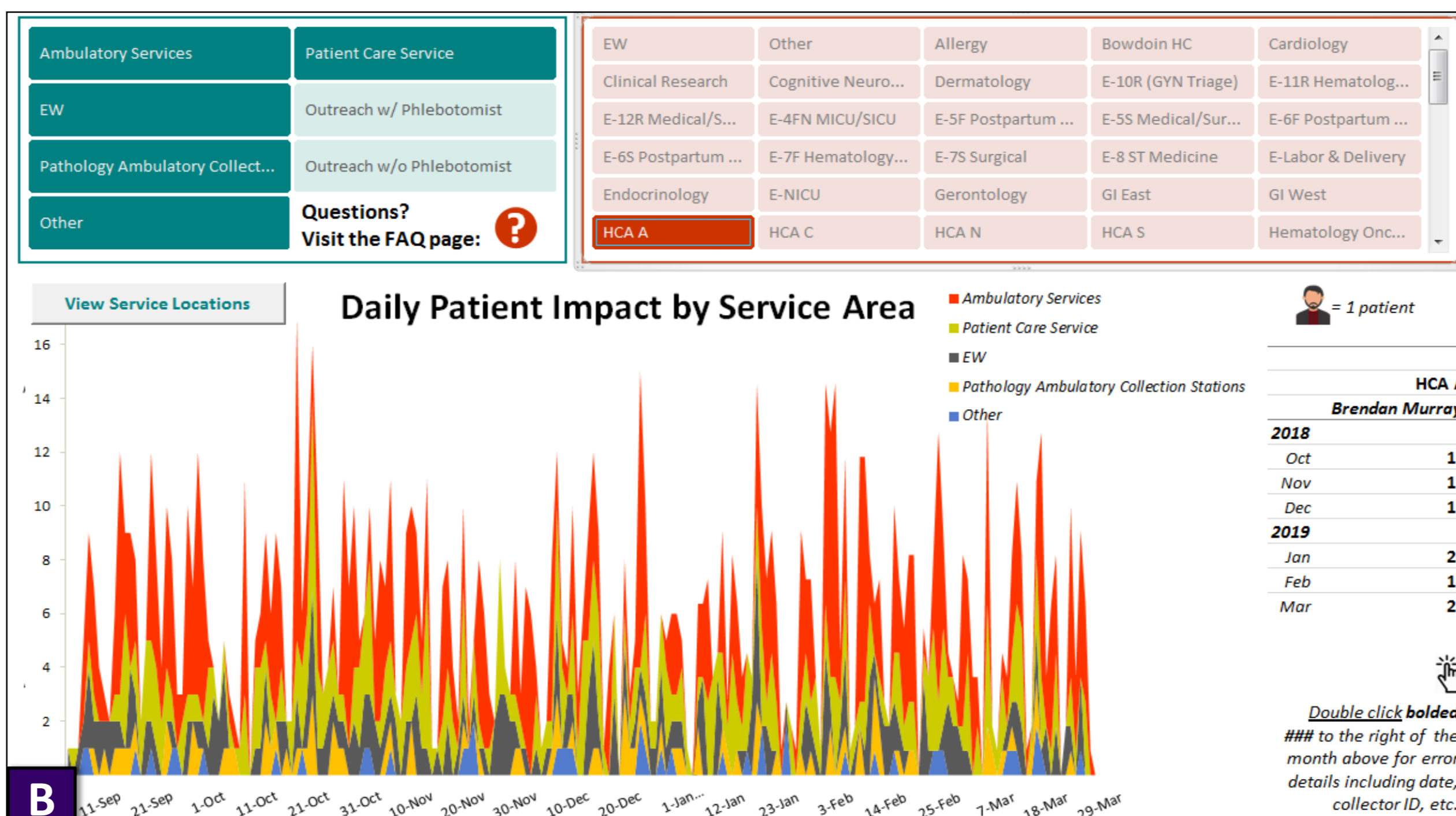
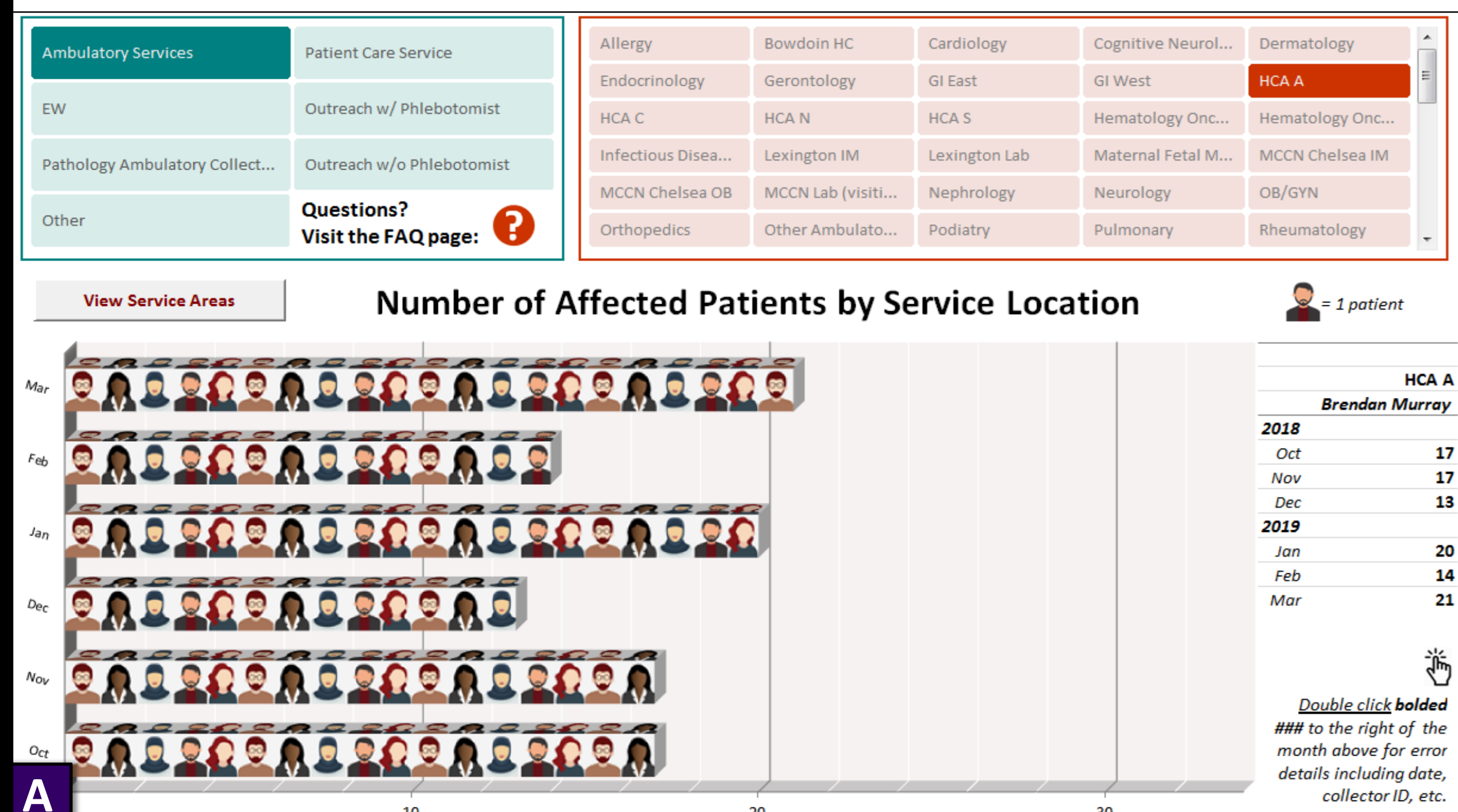


Image A shows the dashboard front page on which the user can narrow unit choices using the green buttons and then select the desired unit to visualize the number of patients affected in the bar chart. They can also view a different, more generalized chart by clicking the grey button with red text, shown in image B. Image C shows a unit's individual errors by its proportion of the corresponding service area errors, specimen type, and collection error type.