

Digital Transformation of Sylvester Comprehensive Cancer Center Research Lab: A Work in Progress

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Background

Sylvester Comprehensive Cancer Center (SCCC) Research Lab is the central hub for research sample requests and processing. Customized to research requirements, nearly all requests and documentation are on paper. Previously, Research Lab staff would photocopy each paper three times to store in the Research Lab study visit folder, to invoice and long-term storage respectively. When replying to sample queries, Research Lab attached scanned documents to the email reply using the document saved on Research Lab staff's local computer.

These replicative processes took time away from sample processing and shipping; while the feeling of "chasing paper" was overwhelming and saving copies on private computers was counterproductive. Therefore, SCCC Research Lab started a project to transition documentation into electronic formats. We aimed to improve efficiency by decreasing the paper burden and implement a "data at your fingertips" model.

Methods:

Research Lab created a workflow of activities prior to and after sample collection and identified high-impact, paper-based processes to transition to electronic formats.

Since sample information and delivery tracking need to be relayed to the sponsor, the first change was to provide sample information to the research teams within 24- 48 hours of the study visit. In late April 2021, Research Lab incorporated scanning of completed sample documents (phlebotomy collection requisition, sponsor manifest documents and shipping tracking label or Research Lab document denoting storage for future batch shipping) onto a SCCC Research Lab shared server divided into folders by protocol. In addition, Research Lab uploaded logs of temperatures, calibrations and laboratory reference ranges onto the shared server. This location was selected over proprietary cloud-based storage because the server is saved twice a day and the SCCC IT department can immediately retrieve prior saved versions in the event of accidental deletion, which would be difficult with proprietary storage services. All research teams were given access to the Research Lab folders.

Metrics analyzed were the number of queries to the Research Lab sent from the Clinical Research teams over a one-year period and evaluated satisfaction with a survey.

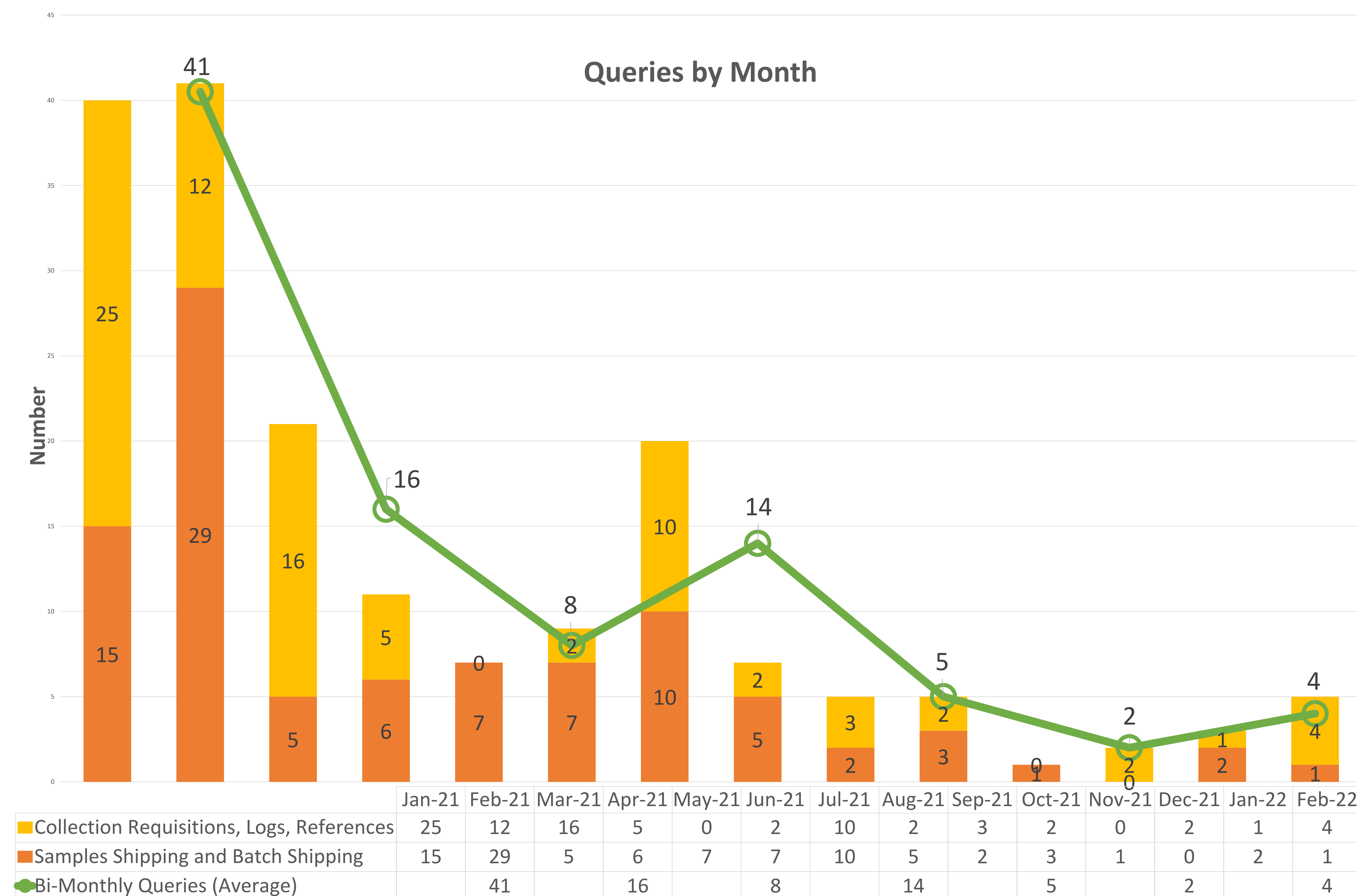
Results

We reviewed the number of queries from January 2021 until February 2022. We combined the query types into two groups. The first group were of queries about sample collection requisitions, Research Lab logs and references (yellow bars) . The second group were of queries related to sample shipping and batch shipping (orange bars) .

From January to February 2021 there were a mean of 41 queries sent to Research Lab per month. In March – April 2021: mean 16 queries a month, May – June 2021: mean 8 queries a month, July – August 2021: mean 14 queries a month, September – October 2021: mean 5 queries a month, November – December 2021: mean 2 queries a month and January – February 2022: mean 4 queries a month were sent to Research Lab

Comparing February 2021 to August 2021, there was a 66% decrease in queries. Comparing August 2021 to Feb 2022, there was a 71% decrease in queries. Over the one-year period, February 2021 to February 2022, there was a 90% decrease in queries sent to Research Lab.

With the satisfaction survey, it was discovered only 25% of the 2021 research team remained in March 2022 due COVID-workforce changes, thus it was not analyzed because it would not be representative.



Discussion and Conclusion

By scanning protocol related paper documents (phlebotomy collection requisitions, sponsor manifests, shipping labels etc.) and uploading them onto an accessible server, the number of queries sent to Research Lab has markedly decreased.

There was a notable uptick of queries in July 2021 because of two monitoring events asking for protocol visit dates in 2019 and 2020 which was prior to the start of Research Lab's scanning processes.

We presume that sponsor queries continue at a steady level every month, but the research personnel can find the answers for these queries themselves by accessing Research Lab documents without forwarding email to Research Lab. This improves the research team's time utilization and efficiency. Our changes to provide immediate data access have been very effective.

Future Efforts

SCCC Research Lab has successfully started its digital transformation and we have already made additional improvements. We have:

- implemented a quality control form with Adobe certified signature to document the research kit reception process.
- created a document repository for frequently requested Research Lab documents.
- provided view-only access to stored samples freezer inventory for the batch samples queries.

In the future, we plan on:

- installing a lab management system for direct scheduling and itemizing Research Lab processes.
- Installing a university-available inventory system to keep track of ordered research kit and supply stockroom.
- Using the electronic medical record for a research draw order and have a customized schedule to view patient appointments and arrivals since we are expanding research process into our Network sites.