



Electronic Lab Notebooks in Practice

INDIANA UNIVERSITY

SCHOOL OF MEDICINE

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Introduction

Electronic lab notebooks (ELNs) are increasingly being adopted by research institutions for lab data organization, sharing, and preservation, as well as physical lab space efficiency. LabArchives, one popular ELN product, has been in use at the Indiana University School of Medicine since 2019.

Librarians serve as site administrators for LabArchives at IUSM and have collected monthly reports since April 2019. Prior to this project, total notebooks had been the only metric reported. Our goal was to gain new insight into how LabArchives usage has changed over time, and to identify ways to improve user support.

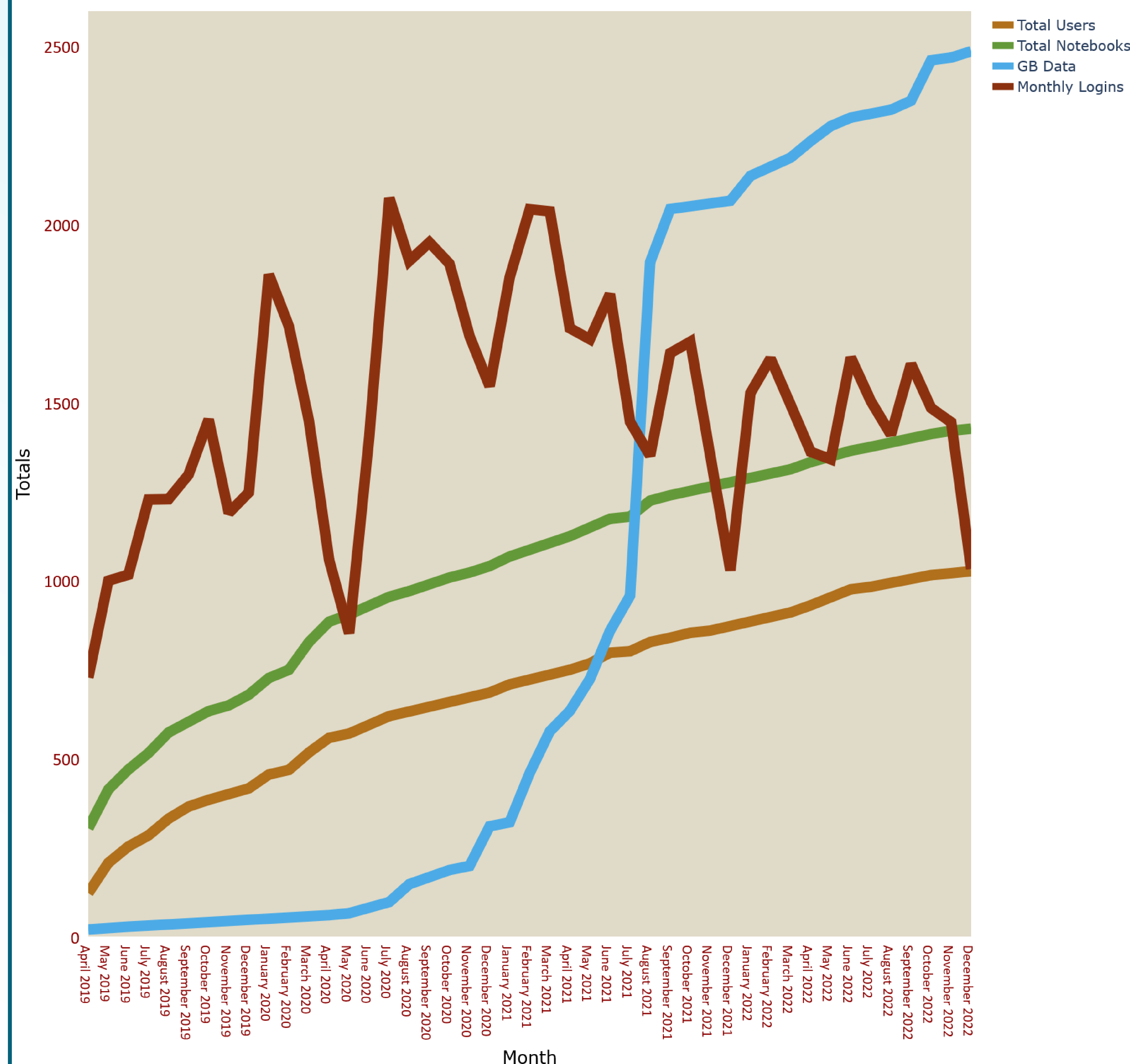
Methodology

- Using the monthly reports, we identified variables to add to our summary statistics.
- We wrote a Python script that would loop through all directories and subdirectories, retrieve the desired values, sort by date, and then output a line graph. Code:

https://github.com/firbolg/Lab_Archives_Usage

- Next, we modified the script in a Google Colaboratory notebook so we would have a reproducible process for future reporting. Colab Notebook: <https://colab.research.google.com/drive/1dlfbZYs4paRXqJjAkcOISKeBzX50sdXz?usp=sharing>
- We used email addresses from the monthly reports to identify our heaviest LabArchives users by department (sampled from August & December 2022).
- We interviewed ten users from different departments about their electronic lab notebooks use in practice.

LabArchives Usage Metrics



Results

Metrics:

- Steady correlative growth in users and electronic lab notebook creation over time
- Drop in use during the transition to remote work (Spring 2020).
- Drop in logins each December.
- Increase in data stored in LabArchives in the past two years (now at 2.5 TB with <1k users).

Interviews:

- ELNs function on a spectrum from daily task recorders in some labs to a data curation platform in others.
- ELNs are being used to streamline publication preparation workflows.
- Only one interviewee reported lab-to-lab communication on ELN methods and usage.
- No clear cause for data storage increase on LabArchives was identified.
- No one interviewed indicated using their ELN as an external data sharing mechanism (sharing within institutional teams only).
- Half of our interviewees (n=5) expressed interest in improving general data management practices.

Conclusion

- Lab staff size may influence how heavily ELNs are used, because internal protocol and template development appear to be popular on larger teams.
- We can address lab staff size in our introductory LabArchives workshop in future instruction.
- We can incorporate additional perspectives on data across the life cycle into future instruction.
- Opportunity exists for the medical library to invite heavy ELN users to share techniques through introductory community of practice programming.