Automated EZLink Data Extractor Tool

Developed by Kunz, Leigh & Associates

Background

- CSHCS had been storing all of their medical records in EZLink a Covisint Product

- In late 2013, it was announced that Community Health Automated Medicaid Processing System Document Management Portal (CHAMPS DMP) would replace EZLink functional capabilities.

- Although there is currently access to EZLink, the costs are high and access will eventually discontinue.

Problem – Data Migration & Access to Data

- Covisint was unable to offer a viable solution to migrate the data to CHAMPS DMP.

- Burdens the Local Health Departments with slow and costly manual processes to access Covisint Legacy Patient Data & places client data at risk.
  - Prone to Human Error and could lead to potential PHI Issues if data isn't copied correctly.
  - Requires user to manually navigate through folders, copy/paste information, and download data for clients that have legacy data.
  - Data is not organized in any meaningful way
  - Data is not accessible through a query
  - Data linking is not possible
  - Moving data into another system is not possible without processing and sometimes adjusting.

Approach: Business Process Review

- A Business Process Review was conducted to measure the resource and processing time Burdon* of State CSHCS Staff in manually transferring the data from EZLink to CHAMPS DMP.

- The study helped understand the existing processes and quantify the time needed to access and transfer client information.

- An Automated Extractor Tool was then developed to address the problem and reduce the burden of State CSHCS staff.

- The tool's performance was then measured to determine the value of the solution.

* - The scope of the Business Process review is limited to only the processing time efficiency and does not include other factors such as resource utilization, Cost of Quality, Risk, and other contributors to the final cost calculation.
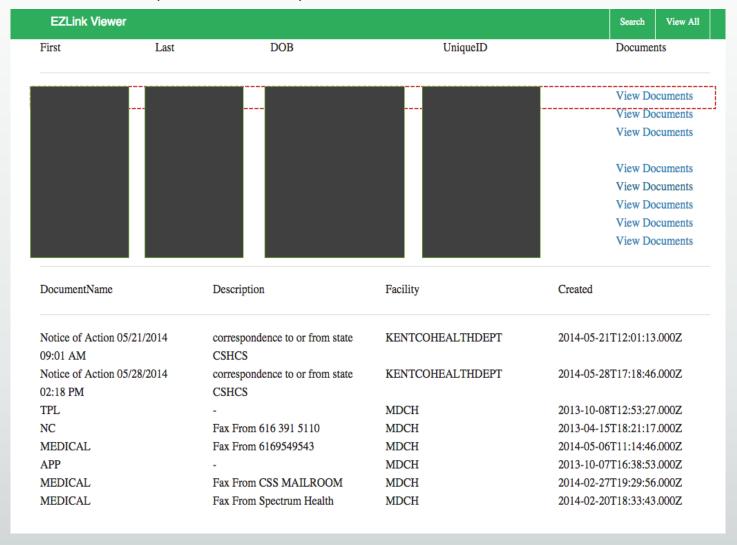
Measuring the Manual Process:

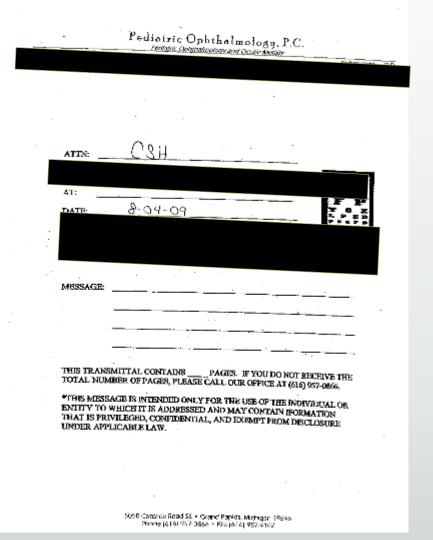| Task	Time per task (seconds)	Average # of times executed per Client	Total Time per Client (seconds)	Total Time per Client (minutes)
Client Data	105	1	105	1.8
PDF w/ metadata	131	5	655	10.9
Audit trail	60	12	720	12.0
Folder	30	2	60	1.0
Total			1540 sec	25.7 min

Solution: Automated Data Extraction Tool

1) Imitates a user in order to log on to the system. Automates the same process a user would follow if they were to manually back up the data.

2) Downloads patient and document data for each patient in a given list

3) Uses multiple threads to download more than one patients simultaneously

4) Keeps a detailed log of info and errors so a problem can be addressed should one occur. Ensures no patients are missed.

5) Can be trusted to run over an extended time period. If stopped picks up where it left off to avoid downloading existing data.

Front End (Metadata)

Front End (Document)

Using the data

- All documents are in PDF or TIFF format

- All metadata currently stored in mongoDB
  - Can be exported to JSON format

- We are able to put put the data into the following formats
  - Relational Database (Oracle/SQL)
  - CSV
  - Directly to EHR System

Extractor Tool Solution Value*

Calculation:

	Per Client				Per 1000 Clients			
	Manual			Automated	Manual		Automatic	
Task	Avg # Times Executed per client	Seconds per task	Total Sec	Sec	Sec	Hours	Sec	Hours
Patient Data	1	105	105		105,000	29		
PDF With metadata	5	131	655		655,000	182		
Audit Trail	12	60	720		720,000	200		
Folder	2	30	60		60,000	17		
Total			1540	2	1,540,000	428	2000	0.56

* - Value is expected to exceed this calculation since the study was limited to only the processing time efficiency and does not include other contributors to the final value of using automation over this manual process such as Cost of Quality, Risk, and Client satisfaction.

Extractor Tool Solution Value*

Bottom Line: 76,900 % improvement

	Per Client	Per 1000 Clients
Auto Data Extraction Tool	2 sec	34 Min
Manually	26 Min	11 Weeks

* - Value is expected to exceed this calculation since the study was limited to only the processing time efficiency and does not include other contributors to the final value of using automation over this manual process such as Cost of Quality, Risk, and Client satisfaction.

Questions and Comments?

For more information contact:

Justin Shaulis, KL&A
Phone: (517) 803-3217
Email: j.shaulis@kunzleigh.com
shaulisj@michigan.gov