

# AURORA HEALTH CARE CASE STUDY

*Aurora Health Care discovers the cure for non-interfaced lab results.*

extract 

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# ELIMINATING PAPER DOCUMENTS IS THE FIRST STEP IN MAKING EXTERNAL LAB RESULTS DISCRETE & TRENDABLE.



## BACKGROUND:

Aurora Health Care is an integrated health system including 15 hospitals, more than 150 clinics and a Medical Group of over 2600 primary care and specialty providers serving Eastern Wisconsin and Northern Illinois.

Aurora Health Care, similar to many healthcare systems within the industry, processes a significant number of lab tests performed by external labs. There are several reasons that cause external lab tests to be proceed by Aurora Health Care, but mainly the following:

- Patients referred to Aurora specialists by non-Aurora provider(s)
- Patients preference and convenience
- Patients receiving care from non-Aurora providers

In 2009, Aurora Health Care sought an automated process that could pull data from paper test results and place the data directly into their lab interface. Their goal was to eliminate paper-based results completely, as well as the slow and laborious manual data-entry process.

At first, Aurora Health Care was scanning paper documents and attaching them into the EMR. Although they found a way to eliminate paper documents and have all data stored in one central location, providers were required to open up the attached scanned documents, and spend time reading through the data for the results they needed. They quickly learned that having discrete, trendable lab results in one central location would allow the providers to search results quicker and easier, providing optimal patient care.

## Challenges:

### MANUAL ENTRY:

Previous to Extract, Aurora was using a 100% manual entry process via 'Epic Enter/Edit Results.' This means every order, every test, and every value had to be hand keyed.

### NO FAX WORKFLOW IN PLACE:

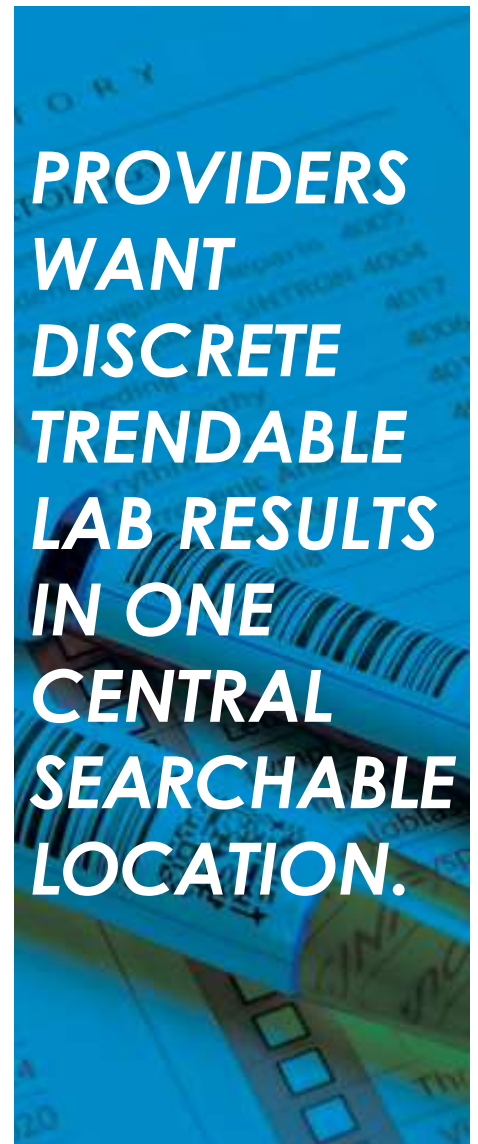
Aurora did not have a standard fax workflow. Instead, they scanned documents into specific users' queues and those users were responsible for the data entry. If a user did not get through all their documents in a given day, it was left in the queue overnight and wouldn't make it into the EMR until it was processed the next day.

### RESOURCES:

Processing paper-based, scanned lab results was extremely demanding and consumed clinical staff's attention and resources.

## AURORA HEALTH CARE CASE STUDY:

Aurora learned that having scanned documents was not enough for their providers. What the providers really wanted was to have discrete, trendable lab results in one central, searchable location.



## DATA NOT TRENDABLE OR SEARCHABLE:

The scanned test result became available in one central location, but it was not an efficient solution for providers to find and trend the results they needed.

# Extract Solution:

## ACTION:

Aurora Health Care partnered with Extract to design an automated clinical data extraction solution to meet requirements and solve the external lab-result dilemma, forming their personally customized platform.

Aurora Health Care's core objectives, that were heavily focused on, while constructing their clinical data extraction solution were to:

- Enhance physician satisfaction and efficiency
- Assure a high quality of entered lab results
- Allow physicians to track and trend all results to improve care for patients
- Decrease manual data entry time and expand the entry of lab results
- Eliminate the need for repeat lab results—decreasing the cost of healthcare
- Meet Wisconsin Collaborative for Healthcare Quality (WCHQ) measures

Based on custom rulesets, the Extract solution automatically identifies actionable clinical data. Depending on Aurora Health Care's custom rulesets, the data gets extracted, structured, pre-validated, and presented to a reviewer. After a reviewer has verified the data, it is automatically sent to fields within the Epic EMR. The data will appear in the same format as the internal lab results, and the physicians are able to search the data for trending results.

## RESULTS:

The entire implementation process went smooth, and the software was easy to learn. Overall, Aurora Health Care saw a 366% increase in documents processing from 2011 to 2016, with over 71,000 documents in seven hubs. With Extract, **Aurora Health Care processed over 189,000 orders with over 1.4 million test components into Epic in 2016 alone.** Extract provided an error rate fewer than 1% which reduced the amount of quality assurance required.

Before Extract, Aurora Health Care's staff was manually entering approximately eight orders per hour and saw a 78% increase in productivity, processing 14.25 orders per hour. Since using Extract, the number of labs have drastically increased, and Extract has maintained a steady hold on automated lab processing.

## NOTABLE RESULTS:

DOCUMENT PROCESSING:  
**366% INCREASE  
IN DOCUMENTS  
PROCESSING**

(2011-2016)

DATA ENTRY TIME:  
**REDUCED BY 40%**

VOLUME:  
**PROCESSED OVER  
189,000 ORDERS  
WITH OVER 1.4  
MILLION TEST  
COMPONENTS  
INTO EPIC**

(2016 ALONE)

ERROR RATE:  
**LESS THAN 1%**

# Benefits:

Physician decisions are no longer delayed because of inefficiencies in paper-based workflows. Physicians no longer have to look through stacks of paper or search scanned images for critical data points. Patients' lab results are in the EMR and accessible to all providers, not just the ordering physician. Extract has reduced data entry staff time by 40%. This has freed up highly trained staff for "human" analytical work, increasing employee satisfaction and retention.

# Definitions:

## **DOCUMENTS:**

One document contains a lab report for one patient, maybe one or more pages, may contain one or more orders.

## **ORDERS:**

Series of lab test components that make up a defined order in Epic (i.e. CBC, BMP, etc.)

## **TEST COMPONENTS:**

These are the actual results with test name, result value, unit of measure, reference range, flag (i.e. RBC, WBC, A1C, etc.)

PRODUCTIVITY AND USAGE STATISTICS ARE PROVIDED IN THE EXTRACT SYSTEMS™ PLATFORM WHICH IS A HUGE BENEFIT. PROVIDERS ARE NOT ORDERING DUPLICATE LAB STUDIES DUE TO AVAILABILITY OF EXTERNAL LAB RESULTS.

