INTELLIGENT CLINICAL DATA EXTRACTION:

FOR LABS

What is Intelligent Clinical Data Extraction for Labs?

The Extract Systems Platform is a software solution that accurately captures faxed, scanned, and other non-interfaced data, as discrete data elements. This intelligent data extraction empowers faster analysis and increased accessibility of lab results across the enterprise. Extract's data capture process is electronic, which reduces errors and redundancy inherent in paper-based workflows.

How does it work?

Once a lab result report is received via eFax or scanned manually, the report is processed using an Optical Character Recognition (OCR) engine to ensure the highest image quality. The image is then analyzed by Extract's extensive library of production-tested rules to locate the data elements and values that have been pre-defined for a particular document type. These rules are based on machine learning and advanced logic that includes text, label, and pattern recognition, as well as context and database lookups. The highly functional, easy-to-use interface streamlines data entry and compliance. Invalid, high, and low data ranges are automatically flagged for evaluation.

ACCURATELY CAPTURES FAXED, SCANNED, AND OTHER NON-INTERFACED CLINICAL LABORATORY DATA, AS DISCRETE DATA ELEMENTS.

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Strategic benefits of using Extract:

There are number of strategic benefits that are routinely mentioned by customers as key investment rationale.
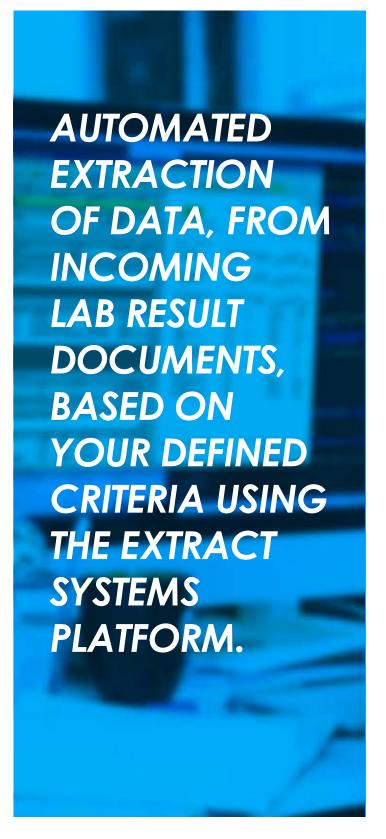
DATA QUALITY AND COMPLETENESS

Extract can accurately identify over **80% of the clinically-actionable data** trapped inside faxed lab result documents, eliminating the vast majority of manual data entry, and instead requiring only data validation and error-correction with the aid of a rapid verification and error-correction interface. The results themselves, units, reference ranges, resulting agency, physician and additional fields, are captured directly from the faxed document and resulted into the EMR. Results and original source documents will be routed via HL7 messages and will be appropriately linked to orders in the EMR without needing to be routed to the HIM department. Accurate, structured, clinical data in the EMR not only improves access for clinicians, but also enables exchanging information with outside providers, registries, agencies, and patients.

CARE QUALITY

Clinicians will see improved and quicker access to patient data in the EMR and will no longer have to pour through lengthy unstructured scanned and paper documents. Reducing preparation time for each patient visit can increase face-to-face time with patients to help improve care quality. Having important test results in discrete, structured fields will enable clinicians to analyze and trend the results to drive more informed clinical decisions. In addition, the decision support tools within your EMR will be more effective at guiding your clinical diagnosis and patient assessments.

PATIENT SAFETY

Extract alleviates the strain of manual data entry, allowing staff to focus their data entry efforts on error-checking and correction to ensure data captured from unstructured clinical documents is 100% accurate. As a standard part of the process, Extract validates the result values, units, and reference ranges to alert verifiers to invalid data prior to it being filed into the EMR. Additionally, Extract easily facilitates additional QA processes for reviewing a random percentage of documents or documents with specific results or from specific users in addition to the first

AUTOMATED EXTRACTION OF DATA, FROM INCOMING LAB RESULT DOCUMENTS, BASED ON YOUR DEFINED CRITERIA USING THE EXTRACT SYSTEMS PLATFORM.

verification step.

SPEED OF ACCESS TO CRITICAL INFORMATION

Extract, most of the time, significantly reduces the time it takes for lab results and associated source documents to reach the EMR after the fax has been received. This empowers the patient's care team to act more responsively when abnormal results are encountered and also allows clinicians across the enterprise to make more informed decisions for their patients. Data is entered discretely, just like it is interfaced, so that automated alerts and other notifications can be used in the EMR to support clinicians awareness of critical information becoming available.

CLINICIAN SATISFACTION

Clinical staff at all levels routinely express frustration with the increasing demands of data entry and searching through paper or electronic documents attached to the patient record to find small, but valuable details to make the right clinical decisions. Extract reduces clinician time spent on searching, opening, processing and comprehending documents and also allows them to trend lab results in the EMR alongside other key data points. The EMR is also better able to guide clinicians down the right path with discrete data.

EMR ADOPTION

Implementing an EMR system is only half the challenge. The success of an EMR project can be measured by the extent to which it is used by clinicians and medical staff. Ensuring the EMR provides easy access to accurate, discrete patient information will help to drive high levels of user adoption by making the EMR the single source of truth for each patient. If physicians have to wade through PDF attachments with dense unstructured text, they'll likely be dissatisfied with their EMR experience.

COMPLIANCE

Automating the collection of comprehensive lab result data (including units, reference ranges, resulting agency, etc.) ensures compliance and reporting requirements of each specialty for CLIA, CAP, or other government bodies is met. Automating the routing, handling, and storage of documents within the organization helps to ensure patient privacy is maintained for HIPAA compliance. All user actions taken within Extract are audited for reporting purposes.

ANALYTICS AND REPORTING

Discrete structured data clearly allows clinical analysis and decision support within the EMR. It also paves the path for improved quality, operational, and QAPI reporting and analytics as well as automatic submission of data to national registries using functionality provided in by your EMR vendor. In addition to clinical reporting, the use of Extract provides you with the unique ability to report on the faxed lab data itself: time spent entering external labs, accuracy of automatic population, number of faxes coming from each agency, and more.

MORE AND BETTER DATA FOR CLINICAL QUALITY MEASURES AND RESEARCH

An easy side-benefit of capturing all relevant clinical laboratory results as discrete data in a patient's record is the ability to use this data for quality reports, population health initiatives and ultimately for research.

OTHER BENEFITS

- *Very significant reduction of paper usage (especially if you leverage a fax server).*

- *Automatic upload of the source document to your Document Management System and linkage to the source order without HIM involvement.*

- *Reduction in total time spent per entry field.*

- *Potential reallocation reduction in FTE dedicated to the discrete data entry process.*

- *Workflow standardization across departments/ users entering the data.*

- *Reduction in time for external labs to be resulted in the EMR.*

Cost benefits of using Extract:

It is common for potential users of the Extract Systems Platform to desire a reduction or reallocation of resources as a result of implementing this solution. While this is sometimes a side-effect of the software, it is not often the primary benefit. It is also rarely the primary cost savings of leveraging Extract, due to the huge impact of the software on patient safety, clinician time/happiness, data quality, compliance, and the other strategic benefits listed in the previous section. Each of these benefits most often has more financial impact than the reallocation of a resource who is currently entering lab results into the system.

While it is hard to tie specific numbers to these benefits, we have created some tools for assisting you in calculating your annual cost savings by using Extract. In order to calculate a cost savings specific to your organization, you will need to provide your Extract contact with the following pieces of information:

1. Volume (in pages or documents) of lab results being faxed to your organization.

2. What percentage of the faxed lab results are currently manually entered into the system?
(*Please include information on whether or not users currently enter units, reference ranges, resulting lab, ordering physician, etc.*)

3. About how many combined hours are spent on the manual entry of external lab results per day?

4. If the answer to the previous questions is greater than 0, are you aware of your current data entry error rate based on existing QA processes?

5. What is the current amount of time that generally passes between when a fax is received and when the results are entered into the EMR or other downstream system?

6. How many FTEs are employed by the impacted departments and what are the average fully-loaded salaries of each role? For each of these roles:
Nurse // Doctor // Data Abstractor // MA/CA

7. Does your organization have a defined monetary cost per data entry error?

8. A ballpark estimate of about how much time is currently being spent tracking down, reviewing, and managing the existing scanned lab result documents by these groups of users
Nurses // MAs/CAs // Physicians // Others

IF YOU ARE UNABLE TO COLLECT ANY OR ALL OF NUMBERS 4-8, WE CAN STILL CALCULATE YOUR ESTIMATED COST SAVINGS USING INDUSTRY AVERAGES. PLEASE REACH OUT TO YOUR EXTRACT CONTACT TO WORK THROUGH THAT PROCESS.

NOTE: YOUR CURRENT VOLUME IS REQUIRED TO FACILITATE THE PROCESS.

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