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Band / Child / Other

Davy Crockett

DOB SS#  
 -15      #44-44-4444

Street Residence Address  
 8000 Frontier Street

Wife / Mother / Other

Mary Crockett

DOB SS#

Street Residence Address

*Extract Systems was implemented to detect and extract unstructured clinical information embedded in paper/text documents, including synoptic pathology reports.*

# A MAJOR NATIONAL CANCER INSTITUTE CASE STUDY



# EXTRACT SYSTEMS' SOFTWARE HELPED A NATIONAL CANCER INSTITUTE ACHIEVE SEMANTIC INTEROPERABILITY.

## BACKGROUND:

Establishing a clinical data warehouse is crucial for health care centers. There have been proven benefits such as tracking patient information and diagnosis, cost decreases, prognostic accuracy improvements, and providing better physician to patient care.

## Challenges:

### VAST AMOUNTS OF UNSTRUCTURED DATA:

After setting out to build a clinical data warehouse, they found that many of their documents and data were either in an unstructured or semi-structured format. Many of these reports were not generated within the health care center. These incoming paper faxes and documents were typically scanned and then attached to the patient's specific record.

If these documents or data were not received from an outside consultant or lab via paper, they could only be exported as HL7 messages with unstructured text strings, which is difficult for most databases to interpret.

The two main types of reports they received were pathology reports and genomic sequencing reports, which aid in pathology staging and synoptic cancer reporting. In order to provide better quality of care, these reports needed to be complete and accurate.

## Extract Solution:

### ACTION:

They contracted Extract Systems to implement their automated data extraction software to capture and normalize important information from paper-based documents and save the data to their clinical data warehouse. This extracted information has 99% or higher post-verification accuracy and can be uploaded into discrete fields in their clinical data warehouse.

### RESULTS:

**THEIR VISION:** Use the Extract Platform to capture the necessary data to accurately follow The College of American Pathologists guidelines for the diagnosis of cancer.

***"WE DID A PERFORMANCE ASSESSMENT, USING OVER 200 PATHOLOGY REPORTS, 26 GENETIC ANALYSIS REPORTS, AND 164 SYNOPTIC TUMOR FORMS; EXTRACT FOUND 18,530 DATA ELEMENTS WITH A 96.6% ACCURACY.***

***WE ARE SO HAPPY WITH THE RESULTS."***

***ASSOCIATE DIRECTOR  
BIOMEDICAL IMAGING***

**CLICK TO READ A SCIENTIFIC JOURNAL WRITTEN BY THIS NCI ABOUT THE IMPLEMENTATION OF THE EXTRACT SOLUTION, "ROADMAP TO A COMPREHENSIVE CLINICAL DATA WAREHOUSE FOR PRECISION MEDICINE APPLICATIONS IN ONCOLOGY"**

<http://bit.ly/2sbLglw>

After implementing Extract, they have been able to capture more than **500 data elements** from pathology reports and historic gene sequencing reports automatically, with a **96.65% accuracy rating**.

They worked side-by-side with Extract to configure rules established by the software to find the information they needed. This information was then normalized to allow it to be more valuable in a clinical data warehouse. The software dynamically changed what it was looking for based on the type of synoptic report it was reading such as: breast, prostate and melanoma.

## Benefits:

Extract takes unstructured data and turns it into very useful, structured data. 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. ***This takes pressure off of the QA team, allowing them to focus only on the highest quality data.***

## Software Detail:

### THE EXTRACT SYSTEMS PLATFORM:

Extract's intelligent platform can find data like a human would; fast, accurate, and the documents can be unstructured. Whether extracting data from unstructured medical records, purchase orders, or government documents, our platform gets the job done quickly and accurately. Not only can we automatically extract information, but we can also pre-validate it when possible, and output the data into a final destination of your organization's choosing, enabling easier search capabilities.

*"AFTER IMPLEMENTING EXTRACT'S WORKFLOW, WE HAVE 80% OF OUR DATA ALREADY AUTOMATICALLY POPULATED FOR ALL THE SPECIMENS THAT WE COLLECTED FOR OUR PROTOCOL."*