



ARTIFICIAL INTELLIGENCE & IMAGE ANALYSIS

## Healthcare Data Management Solutions:

*Intelligently Lift & Index Complex Data,  
Including Cursive Handwriting & Columnar Data*

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**F**or the past several years, A2iA, Artificial Intelligence and Image Analysis, has been focusing its attention on delivering a product for lifting and indexing data from medical records, billing claims, and administrative paperwork such as admittance / discharge forms. These complex documents need specific solutions to address their multifaceted challenges, and A2iA's advanced technology is designed to do just that— take your document management solution to the next level. By operating the world's largest research center dedicated to automatic document processing, with a focus on unstructured content, A2iA is proactive in its developments. And, with these resources at our fingertips, A2iA is able to improve its core, proprietary toolkits based on the needs of its users and today's changing environment.

A2iA, the worldwide leading developer of handwritten and machine printed text recognition, information extraction, and intelligent document classification technology, is adept in lifting and indexing critical data from complex healthcare documents ranging from handwritten doctor's notes to Explanation of Benefits (EOBs), to the associated payments and billing documents. Award-winning, proven, and named a trend-setting product for three-consecutive years by a leading industry publication, A2iA delivers results for meaningful use and compliance, as well as increased back-end productivity, all while maintaining patient confidentiality and privacy.

This document discusses how A2iA's technology can be applied to the healthcare market and the benefits seen throughout the organization. By helping to achieve a more streamlined workflow, A2iA provides tangible results to practices and providers alike.

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**S**ince reform and regulation has stirred the healthcare industry, it has become an even more complex environment, though the goal is to streamline healthcare processes to ensure enhanced customer care by *lessening* the complexity of its current processes. In the wake of healthcare reform, healthcare IT has been forced to comply with new regulations regarding all aspects of healthcare, including those pertaining to increased efficiencies for Electronic Health Records/Electronic Medical Records (EHR/EMR) and Revenue Cycle Management (RCM) processes. Healthcare IT needs have shifted to include emphasis on meaningful use of patient data and the availability and recovery of data to increase overall productivity and enhance patient care. The HITECH Act, Health Information Technology for Economic and Clinical Health, the piece of the American Recovery and Reinvestment Act of 2009 intended to increase the use of Electronic Health Records (EHR) by providers, is composed of three stages with the last proposed for 2015; the end goal is to streamline the entire healthcare system. Providers and healthcare facilities must focus on implementing solutions that will meet their needs today and in the future, while maximizing existing spending to see a savings on their bottom line.



## Turn Patient Information into Actionable Data: Intelligently Lift and Index Complex Data, Including Cursive Handwriting.

Meaningful use is a term familiar to the healthcare industry since the federally mandated HITECH Act was announced to be in place as early as 2011. Obtaining meaningful use through healthcare IT is a given, but how do you achieve meaningful use that generates cost-savings, and meets EHR efficiency standards fit for compliance today, as well as in the future?

According to a recent study, between 5 and 15 percent of a provider's time is spent reading health information, and 50 percent of a record clerk's time is spent looking for information. Meaningful use of healthcare information includes simple patient record retrieval through accurate archiving. In order to achieve meaningful use of patient information, data must be intelligently lifted and properly indexed—including the cursive handwriting from the patient records. But as the government mandates that paper be eliminated, consider: How will complex, data and records become electronic? Will privacy be maintained or will a third-party be required to key the information? And once in electronic format, how will staff and providers retrieve information? Is it searchable, reportable, and flexible?



*A2iA DocumentReader™*, a proprietary toolkit designed especially for lifting and indexing complex data including cursive handwriting such as that commonly found within the medical field, can be integrated directly into Electronic Health Records (EHR) solutions to provide a meaningful use element and eliminate many of the pain points associated with unstructured, complex documents. Using artificial intelligence to intelligently lift and index critical

According to a Harvard study, a healthcare provider is 75% more likely to have to settle a malpractice suit if they still have paper in the office after their transition to an EMR system.

information from provider notes, patient records, administrative forms, and lab results, practices can convert this data into electronic format and index it automatically, with little to no human intervention. Reduce the need for office staff to key information and maintain privacy—complex data is given the same level of flexibility as printed or digital information, and can become part of a database, electronic patient record, billing system, or wherever the medical facility deems necessary.





The power behind *A2iA DocumentReader* is its proprietary IWR- Intelligent Word Recognition technology. With the ability to lift whole words or keywords despite the way in which they are written – machine print, handprint, and even cursive, this toolkit provides the value-add necessary to make your solution stand out and delivers a recognizable ROI to the medical facility. And, with the ability to locate and lift alpha, numeric, and alpha-numeric fields, it is especially useful when lifting and indexing patient information by identifying data, such as an insurance number, Social Security number, or provider ID.

### **A2iA's Proprietary IWR**

A2iA's proprietary IWR, Intelligent Word Recognition, technology lies at the core of the company's software toolkits. IWR recognizes entire handwritten words similarly to that of a human, matching them to a user-defined dictionary. Instead of looking at words letter-by-letter, IWR performs a deeper analysis and allows users to recognize, classify and index all cursive and complex documents with the same level of flexibility as printed or digital data.

Industry analysts have explained that the best use for IWR is to eliminate a high percentage of the manual entry of handwritten data and run-on handprint fields that otherwise could be keyed only by humans.

Fast and accurate indexing is critical in healthcare and is necessary to meet meaningful use requirements as set forth by government regulations. Able to index documents by layout *and* content, similarly to the way a human would, A2iA's advanced technology automatically indexes individual documents, or entire patient records as one, with little to no manual intervention. This is not a template/rules based classification, it is intelligent classification based on artificial intelligence.

*A2iA DocumentReader* can also realize that a group of documents together can have a different meaning than a single document on its own. A subject matter can be better determined to aid classification-- What should be included? What is included? What is missing? For example: lab results, HIPPA consent forms and provider notes may be required in a patient's record; if one is missing the record is deemed incomplete.

### **Maintain unsurpassed customer care with A2iA**

- Reduce the need for third party keyers: maintain patient confidentiality.
- Lift and index virtually any type of information from forms, medical notes, and patient records, including cursive, handwritten data.
- Provide immediate access to patient information: automatically route documents to the appropriate departments within a medical facility.
- Index data and records for storage and archival.

According to May 2009 findings by the Bureau of Labor Statistics, the median annual salary for a medical records clerk is approximately \$31,000. Incorporating A2iA into your EHR application as you move towards an electronic facility can help achieve meaningful use and can eliminate nearly all human intervention, allowing you to maintain privacy but still cut costs, and deploy healthcare personnel elsewhere for more efficient operations.





## Effective Revenue Cycle Management: Speed the Processing of Complex Documents, Collect Patient Fees and Make a Profit

Improving your Revenue Cycle Management (RCM) solution can seem overwhelming with the variety of billing and claim documents, complex Explanation of Benefits (EOBs) and various payment documents that accompany them. A2iA's proprietary recognition toolkits integrate seamlessly and allow your application to locate and lift complex columnar data and route critical information to proper locations. Streamline your RCM process and empower your performance from front-end to back-end processing.

Explanation of Benefits

PO Box 12345  
Any City, Any State 12345

PROVIDER # 2454545  
DATE 02/03/2008  
CHECKLEFT # 891000101002  
AMOUNT \$1,007.36  
CARRIER 2095

REF	PROV	SERV DATE	POS	NOS	PROC	MONS	BILLED	ALLOWED	DEFECT	COINS	GR-PC	AMT	PROV PD		
NAME	DAVIS, LESLIE				HIC 387438477A	ACCT 27			IGN 2	ASG Y	NQA	MA01 MA18			
2454545	01/08/08	1 79502					800.00	640.00	0.00	128.00	C045	160.00	912.00		
2454545	01/08/08	1 83718					41.00	32.80	0.00	6.56	C045	8.20	26.24		
2454545	01/08/08	1 10120					132.00	105.60	0.00	21.12	C045	26.40	94.48		
PT RESP	116.16	CLAIM TOTALS					973.00	778.40	0.00	155.68		154.60	622.72		
CLAIM INFORMATION FORWARDED TO: AARP(12345)															
NAME	SMITH, TOMMY				HIC 887658983A	ACCT 3			IGN 1	ASG Y	NQA	MA01 MA18			
2454545	01/08/08	1 71950					30.00	0.00	104.00	C045	130.00	416.00			
2454545	01/08/08	1 83721					30.40	0.00	6.08	C045	7.60	24.32			
2454545	01/08/08	1 82956					30.40	0.00	6.08	C045	7.60	24.32			
PT RESP	116.16	CLAIM TOTALS					90.80	0.00	116.16		145.20	484.94			
CLAIM INFORMATION FORWARDED TO: AARP(12345)															
TOTAL CLAIMS	2	TOTAL CHARGES	6	TOTAL BILLED	\$1,659.00	TOTAL ALLOWED	\$1,359.20	TOTAL COINS	\$277.84	TOTAL RCAMT	\$339.60	TOTAL PRIV ADJ	\$0.00	TOTAL PROV PD	\$1,087.36

REASON CODES:

MA01: Initial Part B determination. Medicare carrier or intermediary... with what we approved for these services, you may appeal our decision. To make sure that we are fair to you, we require another... that did not process your initial claim to conduct the review. However, in order to be eligible for a review, you must write to us... months of the date of this notice, unless you have a good reason for being late.

MA18: The claim information is also being forwarded to the patient's supplemental insurer. Send any questions regarding supplemental benefits to them.

C045: Charges exceed your contract's legislated fee arrangement.

1 75552	800.00	640.00	0.0	128.00	C045	160.00
1 83718	41.00	32.80	0.0	6.56	C045	8.20
1 10120	132.00	105.60	0.0	21.12	C045	26.40

Every day, providers face a significant challenge regarding how to process Explanation of Benefits, the remittance paperwork that accompanies payment from insurance carriers. Typically these documents are complex in structure, which makes it very challenging to process them quickly and determine if full payment has been received and the claim can be closed, or if it must be resubmitted. EOB data is used to update the remittance processing system and patient medical records, and since EOBs are often many pages long with multiple patients and services listed, there is traditionally significant data entry involved, leaving opportunity for error, and can be very costly in terms of time and labor required.

Quickly capture this complex data including text, numeric fields, dates, and amounts with *A2iA DocumentReader*. Time is valuable, especially in healthcare-- reduce manual keying, increase your efficiencies and accuracy, index EOBs for archival, allow for successful exports to 835 format, and automatically route them based on eligibility, patient name, or provider ID, for example.

RCM solutions maximize revenue capture and streamline the billing and collection process with A2iA. Claims processing, automatic secondary billing, remittance posting, document image retrieval, contract and denial management, and financial analysis is processed faster, reducing backlog and saving money visible to the bottom line. Medical facilities will see the benefits as documents and payments are processed-- faster and more accurately.



Not only does A2iA enable you to process complex documents, but *A2iA CheckReader™*, a proprietary check processing toolkit, allows medical facilities and providers to obtain payment responsibility in real-time at the point-of-care. With the ability to automatically read freeform cursive handwriting and machine-printed information from both business and personal checks, as well as related payment documents, *A2iA CheckReader* eliminates keying of this information. Better manage patient's receivables and cash flow by bringing transparency to the doctor's office or hospital and simplifying the payment process with an automated workflow. Accept checks immediately after services are rendered and collect payment on-the-spot. Speed the payment and reimbursement process, and detect a fraudulent payment at the point-of-presentment utilizing *A2iA CheckReader's* built in image quality, usability and negotiability features anywhere it is deployed: doctor's offices, hospitals, laboratories, pharmacies, or clinics.

**Advance your RCM solution with A2iA and increase productivity, maximize efficiency, and see visible results on your bottom line.**

- Quickly capture complex data from EOBs including text, numeric fields, dates and dollar amounts, and reduce manual keying.
- Index EOBs for archival, and allow for successful exports to 835 format.
- Obtain payment responsibility in real time at the point-of-care.
- Maximize revenue captured and streamline the billing / collection process.
- Lift critical data from medical billing and insurance claim forms.



From front-end processes such as processing payments and capturing insurance information, all the way to back-end processes including input of charges, billing and case management, A2iA provides a reliable, intelligent solution for your RCM system and serves as a bridge between provider and insurer.

A2iA's software toolkits can be seamlessly integrated into your healthcare solution. Proven to yield tremendous cost savings that ultimately create enormous productivity gains for the providers and facilities that adopt them, A2iA creates a competitive advantage for the user – an automated workflow that maintains patient confidentiality, a reduction of manual labor and a savings visible to the bottom line.