

Insurance Document Automation Market Primer

Industry Background

The insurance industry consists of many different products focused on different areas including auto and home (property and casualty), professional (liability and indemnification), life insurance, and health insurance. While all of these sectors have core processes that are based upon complex unstructured information, health insurance arguably is at the top when it comes to the number of processes and the complexity of information.

The interplay between healthcare providers (hospitals, large practices, contractors, labs, pharmacies, and small practices), patients, and payers is complex, heavily regulated, and expensive. And despite efforts by the government and private industry alike to standardize and “digitize”, the main processes have undergone very little transformation. Adoption of HER/EMR software is fragmented, use of fax machines to share data still represents a large “data channel” and standardization is very limited.

While we do expect to see progress for data and process standards adoption, it will be slow and painful, allowing Parascript to offer a “digital bridge” between the current painful manual processes and a future where data is highly standardized and easily shareable. Parascript is pursuing several core processes within the health insurance sector and one within the P&C sector.

Key Aspects to Understand with Health Insurance

There are several areas that underpin health insurance processes that are important to understand, most of them deal with data and compliance. On the data side, insurance processes deal with many different and complex data, much of it unstructured.

Plan contracts. The health plan is the core agreement between that “coordinates” the patient/provider/payer relationship. There are two primary groups of plans: those between the payer and provider and those between the payer and employer (or individual). The plans on the provider side consist of a combination of service-level reimbursement information often in tabular form and contract language that stipulates the terms under which providers are paid. On the employer side, plan contracts are constructed as tabular or prose-like data that outlines the various services and that are covered and their costs. The ability to quickly review plan data is a major problem.

Medical Charts (aka records), individual service encounters (individual records) and superbills. This group of documents records individual “service encounters” and provides documentation used in service delivery and payment. Medical charts represent all individual medical records for an individual patient. Each record often corresponds to one encounter and can include many different documents including what are called

“progress notes”. Increasingly the data from records is stored in an electronic medical record system. The superbill is the form that a provider uses to identify what services were delivered, often in the form of medical codes.

Claims Forms. The claim itself is the way in which providers bill insurance companies. Sometimes individual patients complete claims forms in situations where the provider does not bill insurance companies directly. A claim often includes supporting documentation that provides the underlying rationale for any particular service rendered.

Health Payment Remittance/Explanation of Payment (EOP). Not to be confused with the EOB which is sent to patients after a claim is processed to explain what was covered under their health plan, the EOP is a remittance document sent to providers that explains what was paid. EOP documents are often roll-ups of a number of different claims for one or more patients.

Attachments. “Attachments” is a word assigned to the category of supporting documentation that is often included as part of a prior authorization or claim submission. The most common type of attachment is a medical record/service encounter that details the patient condition along with any medical data (e.g. lab reports) and a prescribed treatment recommendation.

Key Processes within Insurance

When it comes to compliance, either with regulations or internal policies, the fact that there are three parties often involved makes maintaining compliance an expensive headache. And to make matters worse, the processes often rely upon expensive trained medical professionals who must review medical records, treatment plans, and cross reference those with standards of care and health plan benefits to arrive at a high quality decision. The following outline several processes by category that often require analysis of complex information, ordered from the relatively simple (less complex data and less reliance upon expensive staff) to more complex and expensive.

Claims and Revenue Cycle Management

There are a number of processes and therefore market entry points within the entire claims-to-payment cycle. This includes the processes associated with an insurer receiving and adjudicating a claim and the processes associated with receiving and reconciling the payment from the health insurance payer.

Plan and Contract Analysis

A major effort for the entire cycle is to automate as much as the process as possible with rules-based engines that take claims and compare them with the health plan and provider contracts that dictate what services are covered and how much is paid for each service (and under what circumstances). Yet since the actual rules that govern this automation are stored within complex contracts and summary benefits documents, there is a lot of effort to onboard a company or a provider by insurance companies, 3rd party administrators, and receivables processors. This effort is mostly confined to parsing these documents in order to locate and extract this complex data so that it can be entered into a system that controls the actual processing of claims and payment.

Parascript software, using natural language processing and abilities to parse complex tables, enables these organizations to turn a very complex, time-consuming process into a much quicker, more reliable workflow. Using Parascript as “assistive automation” to perform data preparation, all needed data is identified and presented to trained staff who then verify and export it to their systems reducing work by more than 50%. New providers and companies can be onboarded in days, not weeks, and at significantly reduced costs.

Health Claims Adjudication

The industry is embracing a concept called “auto-adjudication” that allows a payer to quickly evaluate a health claim against provider or employer plan parameters in order to process a claim without human intervention. In order to achieve auto-adjudication, claims must be submitted in a structured EDI format, must be submitted correctly, and the corresponding plan data must be encoded within a rules engine. From there, claims data can be routed based upon the EDI data, quickly verified against the claims rules engine and completed. If the claim is not submitted correctly, error codes can be sent back to the provider allowing a corrected claim to be submitted. Best practices are to have an auto adjudication rate of 85% or better and some payers have rates as high as 95%.

But then there are the claims that are not submitted via EDI or they are non-standard claims, or the plan parameters against which the claim is submitted doesn’t exist in a structured rules engine. All of these problems lead to a very expensive and time-consuming process. If EDI is not involved, the claim is typically received via fax which makes application of OCR very unreliable. Often only 10%-15% of faxed claims can be processed reliably via OCR meaning claims data must be manually entered. If the claim is non-standard, then supplemental information is required, often delivered in the form of unstructured, document-based information again meaning that manual intervention is required to parse the documents and record needed data. And if the plan data is not within a rules engine, you get it: manual processes must be employed. Even though these problem claims only represent about 15% of all processed claims, they represent an outsized cost, not only in hard dollars but in client satisfaction.

Parascript software enables payers to process these claims with high levels of automation. Our claims processing technology can handle even the poorest quality claims forms using virtual drop-out that outputs claims data close to the quality level of red drop-out. From there, built in data location, extraction, and validation automates the data entry process with high levels of accuracy. For any supplemental documentation, our text analysis, including NLP-capabilities, locates relevant data, making the review process much more efficient. And to close the loop for automation, our plan analysis capabilities enables highly-efficient plan transcription workflows that turn unstructured contract information into structured data that is easily imported into adjudication engines.

Revenue Cycle Management

On the other end, after a claim is processed, providers need to be paid. And the bulk of that payment comes as a complex remittance document called an Explanation of Payment (EOP) which resembles an EOB. The typical process involves hand-keying the EOP data into RCM software that balances and verifies payment against the provider contract data that was initially converted (from plan and contract analysis).

Parascript software is pre-trained to parse complex EOP documents and, along with pre-trained claims and check processing, enables a high degree of automation reducing the amount of time to intake payment from payers.

Prior Authorization

From the AMA “Prior authorization (PA) is a process requiring health care providers (physicians, pharmacists, medical groups and hospitals) to obtain advance approval from health plans before a prescription medication or medical service is delivered to the patient. While health plans and benefit managers contend that PA programs are important to control costs, providers often find these programs to be burdensome and barriers to the delivery of necessary patient care.”

The net result is that PA is not going anywhere but efforts are being taken to make the process easier on providers and more-efficient for payers. This is because 73% of providers report that they usually have to wait 1 business day or longer.

The upshot? A study by Health Affairs revealed that when the time is converted to dollars, practices spent an average of \$68,274 per physician per year interacting with health plans. That equates to \$31B annually.

Ultimately “easy” for providers means a continued reliance on documents and fax, especially for medical service PA. An AMA survey revealed that phone (64%) and fax (47%) were used most-often while only 22% of providers reported that their HER systems support electronic PA. And “efficient” for payers means use of automation.

The prior authorization process starts with a form. There are standards for some forms which makes it easier to begin the process, especially for prescriptions. But many PA requests involve medical services that require data to support the request which significantly slows the process down due to the need for a trained medical professional to review the request and make a decision. Part of the key to an efficient review is not only the ability to quickly find the relevant data, but to review the request against the patient’s health plan benefits.

Parascript technology greatly improves the efficiency, throughput, and precision of the PA process by automating as much of the data entry process as possible and finding relevant data needed by medical professionals to process a request. Form data is easily processed and imported into the insurer’s systems and key information contained within complex documents is analyzed and presented to the reviewer to provide a painless and efficient analysis of the request.

For more information, see <https://www.ama-assn.org/practice-management/sustainability/prior-authorization-practice-resources>

Supporting Processes including Auditing and Compliance

Auditing

Ensuring proper care according to established standards of care is difficult to achieve when there are so many moving parts. Collection and analysis of provider data is even more difficult but the benefits are enormous. Insurers can compare provider performance, ensure diagnoses, treatment, and outcomes meet expectations, and reduce risk that results from poor performance.

Even with attempts to standardize data sets used for compliance with quality of care standards such as HEDIS, the reality is that the most useful data (and also often the data with the most detail) is always hard to identify and analyze; most of it is stored as highly-variable patient charts including notes and other unstructured information, making associated processes involved with locating and reviewing the information a difficult, costly, and error-prone process. The review process itself, which uses highly-skilled medical professionals is rife with tedium; the right documents must be located and then expensive staff hours are spent combing through pages of information looking for relevant data.

There is an entire cottage industry around servicing data collection needs and another industry around assisting with analysis. All of it is based upon manual processes.

With Parascript technology, large portions of a group of highly-manual processes can be automated to a high percentage. The process first starts with what is called “record extraction” or “record retrieval” where selected patient charts are split into individual records. Parascript software can automate over 90% of chart-splitting tasks removing a significant amount of data preparation. In the process, service dates are also identified for each record. Once individual records are created, analysis and review can begin. Text of each record can be analyzed, looking for key phrases that indicate conditions, diagnoses, and treatment plans.

To find out more, you can search Google for terms “medical record retrieval”. Also see: <https://www.changehealthcare.com/solutions/clinical-review/medical-record-retrieval>

Independent Medical Review

We are still researching how medical review services are related to auditing, but it appears that there are commonalities regarding the process of data preparation, primarily with “medical record retrieval”. There is a trade group dedicated to the organizations that provide services for medical review. For more information see www.nairo.org.

Other Insurance-related Processes

Workers Compensation Claims Adjudication

Workers compensation is technically part of P&C insurance, but is related in that the claim is associated with one or more medical conditions largely from on the job injuries. And unlike health claims which have benefited from standardization pushed by CMS, workers compensation processes are unique to each insurer. Different forms along with highly-variable supplemental documentation means that the majority of WC

claims are manually processed. Adding to the complexity is that fact that many claims involve litigation, largely due to denied claims or due to potential negligence leading to the injury. When litigation is involved, the process requirements are expanded to handle legal documentation, first identifying it and then locating specific metadata. Much of this data is unstructured where traditional document analysis using patterns or keywords is not available.

Parascript software enables high levels of automation for adjudication of these claims. First through document automation, the form data can be easily located, automating data entry. Next, advanced text analysis can identify key required information within unstructured data, either enabling unattended automation of data review or a highly-efficient review process.

The Problem with Document-Oriented Processes

The problems associated with the above processes are the same standard issues associated with any complex process that is core to a business: manually working with document-oriented data is slow, error-prone, and costly. The higher the throughput required, the more staff are needed. But this increases costs and likely increases errors as well. When it comes to health-related data, the process is more complex and expensive due to the wide range of data, often in unstructured form, that must be processed. And the level of training required to review claims often means medical professionals are involved.

Document Automation Vendor Approaches

For health claims, the problem is mostly viewed from the basis of the CMS-1500 form, and not the supporting documentation that often accompanies these claim submissions. Additionally, even though black-white claims of poor quality represent an inordinate % of these non-EDI claims, few vendors, if any are able to adequately deal with the wide range of quality issues rendering most claims a 100% data entry procedure.

When it comes to the complexity of documents associated with WC, HEDIS, and PA, there is no strong automation vendor that provides a high level of performance. Most solutions focus on the workflow and give short shrift to the automation of document information. And as the complexity and cost of the process goes up, fewer vendors have a truly automated solution.

Solution Differentiation

It's all about Achieving Low-cost

Parascript differentiates itself primarily using Smart Learning, which utilizes a variety of ML algorithms, each designed to offer the highest levels of performance for a given task. This includes classification, separation of documents within a single file, the ability to locate form-based, semi-structured, and (soon) unstructured data. We also can utilize truly unique capabilities such as our computer vision-based signature location and verification as well as customized routines to locate and analyze notary stamps and other traditionally non-text information.

The result is a single document automation platform that can process all data required to support lending-related processes.

Lastly, all of this is encompassed in a system that is specifically designed to produce reliable confidence scores which enable levels of STP much higher than what other vendors can achieve. And we can provide this automation at processing levels typically higher than competing vendors. So: easier to configure, easier to deploy, more reliable data for STP, and faster throughput.

Key Enabling Capabilities

Parascript software uses all of the information on any document in order to analyze and automate any task. Included in key capabilities includes advanced deep learning algorithms that automate document identification using both text and visual analysis. The software can also identify attributes that indicate the borders of documents allowing for automated bursting of documents from a single PDF or TIFF file.

Advanced text analysis including NLP, is also used to parse information in order to identify key data. Algorithms are able to parse structured forms, semi-structured data as in explanation of payment documents and even unstructured documents such as health plan contracts and patient records.

Target Buyers

Records Retrieval and Compliance Analytics/HEDIS Service Providers

There are a number of companies that provide services to health plans to support compliance analytics inclusive of HEDIS support and independent medical review. Some provide turnkey solutions while others provide point services such as medical chart retrieval services. These companies include Veradigm, SS&C, Outsource Strategies Intl, ScanStat Technologies, Reveleer, Datafied, and Diameter Health. A simple Google search of HEDIS Medical Chart Retrieval yields a number of targets.

Workers Compensation

The primary targets for automation of workers compensation processes are the P&C insurers themselves along with service providers to those insurers. Most of the processes involved with WC processing, especially WC claims that go to litigation are processed 100% manually. This is largely due to the highly-variant documents involved which include court-filed documents and correspondence.

Prior Authorization

The primary targets for PA automation are the payers themselves. While there are current efforts to make the PA process entirely digital, most of the progress has been made on prescription PA requests leaving more-complex referrals to specialists and other physical treatment PA requests as a 100% manual process.

Health Claims Adjudication

Many payers have outsourced the remaining claims that cannot be auto-adjudicated, meaning that the likely targets for aiding with improving claims processing efficiency are BPOs.

Health Plan Analysis

Most health plan data is a key enabling part of the auto-adjudication process largely due to the standardization of retail health plans. But a large number of companies are self-insured under customized health plans meaning that the ability to use auto-adjudication rules engines is based upon the ability to manually review each contract and/or summary of benefits in order to translate contract language or data in complex tabular form into simple structured data. According to the Kaiser Family Foundation, 17% of employees who receive healthcare coverage at small firms and 83% of employees at larger firms are enrolled in a company plan that is based on some type of self-funded plan design. Other data states that over 60% of non-government employees have a health plan administered by a 3rd party administrator. Targets for this automation are the third party plan administrators such as Sedwick. This [link](#) provides a list of TPA companies.

The other side of plan administration involves what is called Revenue Cycle Management which includes Claims and Contract Management on behalf of medical service providers. These include companies such as Experian Health that receive EOP documents, claims, and sometimes payments and reconcile payment with the remittance and their contracts.