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*Building Better Solutions*

## Health Claims Processing in the US



## Executive Summary

There is no single method for processing health claims. In fact, system vendors and health plans would argue the uniqueness of their particular system and its advantages over others: the security of a port of entry into a mainframe system, the customization associated with service oriented architecture (SOA), etc. Despite system differences, there are common architectural features one would find in any good health claims processing system.

A system should have its data and processing criteria stored in tables. Although the database type will vary (i.e., DB2, IMS/DB, Oracle DBMS), claims data, provider information, member information, etc., are almost invariably already stored within tables. This is very important for regulatory and business reporting purposes. Simply put, in order to effectively mine data, the data must be logically stored within a series of tables. While the claims data will likely be stored in tables, the processing logic will not necessarily be stored in tables. It is not uncommon to find "hard-coded" logic in some of the older claims adjudication modules; some of these are still in use today. Storing processing criteria in tables provides the health plan with greater flexibility and improved response time in handling customer issues by removing the IT department from the plan of benefits configuration process.

A system must have a fully developed set of reporting tools to couple with the table storage. These reporting tools do not need to be complex to be effective. The focus needs to be on providing upper management with the data compiling power needed to drive and support strategic business decisions, giving end users flexibility to find the data they need to identify and correct processing issues, providing mandatory information to regulatory agencies, and providing customers with information to help them make better treatment decisions to lower health care costs.

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### CLAIM SYSTEM FEATURES

- Data and processing criteria stored in tables
  - Fully developed set of reporting tools
  - Robust processing engine
  - Configurable access to data
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A system should have a robust processing engine with a high auto-adjudication rate. Manual processing is expensive, and the failure to promptly adjudicate properly payable claims adds to the health plan's exposure and increases frustration among plan participants.

A system must be configurable by each business unit, so each health plan employee is able to efficiently access needed information on customized screens without having to spend time navigating. This is one of the better attributes of an SOA, but mainframe systems can be manipulated into providing the right data without requiring the IT department to create new CICS screens.

Table storage is of primary importance for two reasons. First, the effectiveness of the processing engine will be negated if users cannot quickly edit tables to modify plan or benefits criteria. Second, no matter how much detail is paid to accurately programming the processing engine, some claims will not be processed. Table storage facilitates the implementation of reporting tools to help the health plan to more easily identify those claims.

Legacy systems used by some of the larger health plans have processing logic hard-coded in the claims engine. The reason is simple: three or so decades ago, when the mainframe

systems were first implemented to process health claims, there was not a need for sophisticated customization. The product offerings were not as complex and large employers were not integrated into the process to the extent that they would demand customized benefit options. In order to cater to larger employer-sponsored benefit plans, the health plan needs to be able to customize offerings without negatively impacting the benefits for other plans which function correctly.

## Health Claims Processing Overview

The following health claims processing overview is not an exhaustive view of any particular system; rather, it is a summary of the processing procedures one would expect to find being used by a health plan. "Provider" will be used to generally refer to any professional (physician, specialty clinic, etc.) or institutional (hospital, long-term care, etc.) entity. "Insured" is used to refer to a health plan participant. Although the terms can be distinctive, in practice insured is used interchangeably with participant, subscriber, member, and beneficiary.

### Loading a Claim to the System

The submission process begins with the treatment of a medical condition. A health plan will have to have alternate processes to accept health claims either submitted in electronic form by a provider, in paper form by a provider, or in paper form by an insured. Electronic submissions have been standardized under HIPAA regulations dealing with Electronic Data Interchange transactions. As long as the claim is submitted in the standardized electronic format, the health plan will be able to automatically adjudicate the claim.

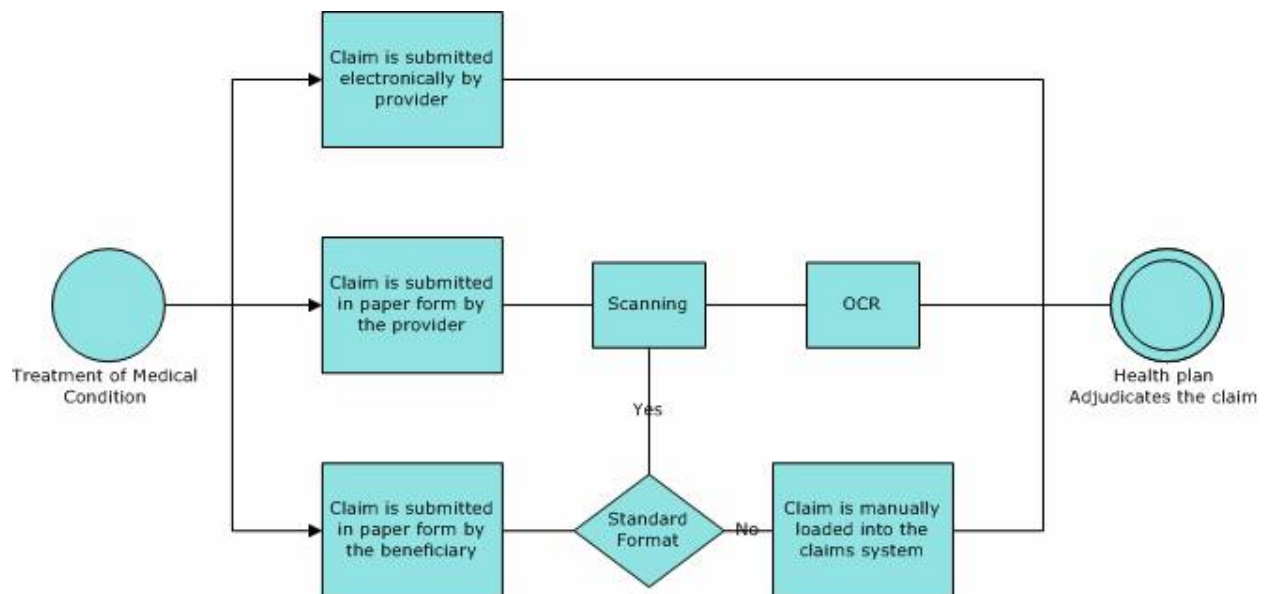


Figure 1. Submission of a Health Claim

This does not mean that the health plan will actually pay the claim. The electronic format could be proper, but there could be a number of reasons for the health plan to deny payment or suspend processing. For example, the provider could have entered the wrong patient information, or a diagnosis code could conflict with a treatment code. If that is the case, the adjudication process will reject the claim, requiring the provider to resubmit. In a scenario involving a suspended claim, the health plan may need prior approval or medical records before further adjudication of the suspended claim can occur.

Most providers will submit paper claims using a HCFA-1500 form, available at <http://www.dol.gov/esa/regs/compliance/owcp/OWCP-1500.pdf>. Hospitals, outpatient clinics, and ambulatory surgery centers will typically submit claims using a UB-92 form, available at <http://www.dol.gov/esa/regs/compliance/owcp/UB-92.pdf>. With these federally

standardized formats, scanning and optical character recognition (OCR) functions utilized by health plans to process paper submissions will experience low rates of rejection. Claims that cannot be read by the OCR software must be manually loaded on to the claims system.

The manner of submission of the claim will likely vary based on whether the treating provider is “in-network” or “out-of-network.” An in-network provider is a provider that has entered into a contract with the health plan to provide services to plan participants for a predetermined set of rates or a method of calculating those rates. An out-of-network provider has not entered into a contract with the health plan. In-network providers will submit claims directly to the health plan. Because there would not be a contract covering payments to out-of-network providers, an out-of-network provider may or may not submit a claim directly to the health plan. The insured is ultimately responsible for submitting claims for treatments by out-of-network providers.

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### EDI TRANSACTIONS

- 837 – Medical claims, including professional, institutional, and dental
  - 835 – Electronic remittances (e.g. refunds from providers to insurers)
  - 834 – Benefits enrollment
  - 820 – Payroll deduction and premium payment
  - 278 – Requests for health services review
  - 276-277 – Claim status inquiry and response
  - 270-271 – Eligibility inquiry and response
- 

Health plans may vary in their process for paper submissions, but they will generally provide a form with fields to capture the basic identifying information for the beneficiary and will require a copy of a detailed bill from the provider. Because the health plan’s form will likely be completed by hand and the bill from the provider’s office will be in a non-standardized format, submissions from beneficiaries will need to be manually loaded on to the claims system.

### Adjudicating the Claim

After the claim is loaded on to the claims processing system, it still needs to be adjudicated. The adjudication process involves numerous gateways the claim must go through before becoming payable. The claim will either pass all of the way through the processing logic, or it will be denied at one of the gateway/decision points in the processing logic.

The processing logic, or system logic, is the code stored in the claims processing engine. For a mainframe system, the processing logic will typically be written in COBOL. For client/server systems, the code will be written in any number of computer languages. The adjudication process is the process of passing the claim through the processing logic until the claim is settled (paid or denied).

There are four main components to the adjudication process. The adjudication process begins with a determination of whether or not the patient is eligible for benefits. Next, the adjudication process will determine whether the particular plan of benefits covers the patient’s treatment. Then, the adjudication process will evaluate the status of the provider. Finally, the adjudication process will determine the payment obligations of the health plan and the insured.

For the first process components in the diagram below, the claim must actually pass through a number of hurdles before proceeding to the next step. In determining whether or

not the patient is eligible for benefits, the system logic must match the patient identification criteria from the claim, including identification number, date of birth, and sex, with the membership enrollment data for the health plan. The start and termination dates of coverage are also compared with the date of service for the claim. The enrollment verification will ultimately attempt to match the patient with a particular Plan of Benefits administered by the health plan.

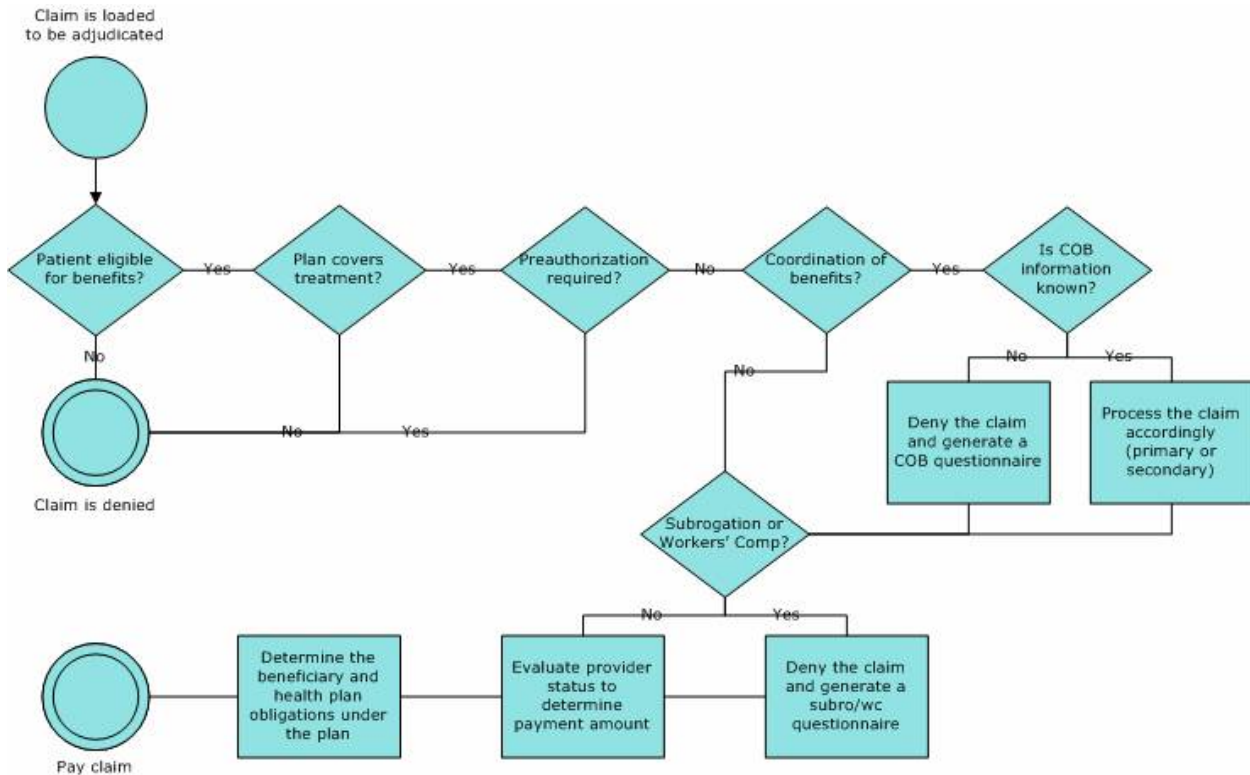


Figure 2. Adjudication of a Health Claim

If the patient is determined to be an eligible insured, the plan number associated with the patient’s enrollment data is referenced to a coverage table to determine whether or not the particular type of service is covered under the beneficiary’s plan of benefits. The processing logic will match the claim criteria with the benefits and exclusions in the plan of benefits.

With all of the coverage options available to groups seeking coverage, a large health plan will have many thousands of coverage configurations to reference within its system. Some larger employers may sponsor coverage options requiring hundreds of sub-groups. The plethora of funding options makes hard-coding benefits into the system logic impractical.

Customization of offerings is often driven by employers. A plan of benefits is going to be insured or self-funded. An insured plan is funded by premium contributions, where the participants are only responsible for the premiums and their out of pocket contributions for each claim and the health plan covers any amounts exceeding the participant contributions. A self-funded plan is funded by contributions from the participants and the employer or organization sponsoring the plan. If the claims incurred by the participants exceed the contributions collected, the participants, or more likely the employer, will be responsible for funding the difference. Employer-sponsored benefit plans are often administered by health plans. Where a health plan offers an administrative services only (ASO) option, it will

process claims for an administrative fee. The funding responsibilities remain with the employer. Competition to provide administrative services to large employer-sponsored benefit plans is high, and health plans must be able to customize offerings to cater to those benefit plans.

Once the type of treatment is determined to be covered under the plan of benefits, the system processing will run through a series of exceptions to determine if the claim should be denied for a reason other than a benefit selection under the plan of benefits. These exceptions include a preauthorization requirement for treatment, the potential for dual coverage, or a potential subrogation or workers' compensation recovery.

At various points during this part of the adjudication process, the claim will be subjected to audit passes to verify the validity of the claim. Auditing steps include checking the consistency of data related to the patient history and patient demographics, checking for the existence of a duplicate service, and comparing the diagnosis codes with the procedure codes for the claim.

Keep in mind that the adjudication of a claim is an automated process. Although the process can be broken down into separate steps referencing different data sources, the code is read in a seamless, step-wise manner for claims that adjudicate to payment. For the points in the process where the adjudication of the claim is interrupted (e.g. Coordination of Benefits (COB) issue) or the claim is denied due to an ambiguous cause of injury (e.g. subrogation), the health plan needs to be aware of regulatory requirements that could give rise to liability exposure.

For instance, Department of Labor regulations establish certain timeframes for fully adjudicating a claim. In summary, a health plan has 30 days (extendable to 45 days) to accept or deny a claim. The health plan may receive the claim and deny it for a COB issue, sending out a questionnaire inquiring about any other medical coverage the insured may have. The insured may wait until the 30 or 45 days are nearly over before returning the questionnaire, indicating that the insured did not have additional coverage.

The claim would resume its adjudication process and is again suspended, this time for subrogation purposes due to an accident-related diagnosis code. The system would generate an accident questionnaire, which would not reach the insured until after the 30- or 45-day period has elapsed. That is a problem for the health plan.

At this point, the accident questionnaire and a contemporaneously generated explanation of benefits (EOB) are sent to the insured. The standard language printed on an EOB for a given denial does not typically change based on how the claim was processed at previous points along the adjudication process. As a result, the language on the EOB in this example is likely conflicting with the DOL mandated start of an appeal period. Under the DOL regulations, there is no way to properly extend the adjudication process beyond a 45-day period before the 180-day appeal timeframe begins. Failure to fully adjudicate a claim

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### DOL SOURCE LAW

- Title 29 of the Code of Federal Regulations § 2520.503-1
- DOL is directed by ERISA to establish regulations

### DOL CLAIM PROCESSING REQUIREMENTS

- Final adjudication needs to be made within 30 days
  - If additional information is needed, this can be extended to 45 days
  - Once the decision is final, notify beneficiary of 180-day appeal time
  - The extension and the appeal notification can be provided in the initial explanation of benefits
-

within the 45-day period is a violation of the DOL regulations. A claim must either be paid or denied within that timeframe.

This situation would not be so tragic but for the Employee Retirement Income Security Act (ERISA) and its enablement of an attorney fee award for a violation of a DOL regulation. ERISA is the Federal law designed to protect pension plans, employee benefit plans, and group health plans. ERISA provides the Department of Labor with the authority to issue regulations dealing with health plans. It also enables plan participants to sue to force health plans to pay claims that should be paid. Being told to pay a claim that would otherwise be payable does not affect the health plan; it places the health plan in the position in which it should have been. Suing a health plan just to pay a claim, especially a claim for a small amount, would also not be economically feasible. The attorney's fees would likely exceed the health plan's contribution for the claim, unless the claim was for a very large amount (exceeding \$100,000).

Querying the individual business units responsible for the various steps along the adjudication process may not expose a system design issue like this scenario. To properly evaluate the entirety of the system, an IT consulting team really should be enlisted.

The next steps in adjudicating a claim determine payment obligations for the claim. In the provider's submission, detailing the charges associated with individual procedures, it will include a total charge for the entire treatment. The health plan, however, will have a separate pricing strategy, which will vary depending on the type of coverage associated with the claim.

Benefits	In-network	Out-of-network
Annual Deductible	\$500 Individual / \$1,500 Family	\$5,000 Individual / \$15,000 Family
Annual Out-of-Pocket Maximum	\$1,500 Individual / \$3,000 Family	\$7,500 Individual / \$15,000 Family
Co-Insurance/Co-Pay	80%	60%
Primary Care Physician Services	\$25 Primary Care \$80 Specialist	Deductible, 60%
Other Physician Services	Deductible, 80%	Deductible, 60%
Preventive Care (In-network coverage only) Mammograms, Pap Smear, Prostate Screening, Well Child to Age 6, Physicals	\$25 Copay, then 100%	0%
Hospital / Skilled Nursing Facility Charges	\$100 Copay, 80%	\$500 Copay, 60%
Outpatient Facility Charges	Deductible, 80%	Deductible, 60%
Emergency Room	Deductible, 80%	Deductible, 60%
Ambulance	Deductible, 80%	Deductible, 80%
Other Services Outpatient Facility, Home Health, Physical Therapy, Mental Health	Deductible, 80%	Deductible, 60%
Prescriptions	\$10 (Generic) / \$25 (Preferred) / \$60 (Non-Preferred)	
Lifetime Maximum	\$1,000,000	

Table 1. Representative Benefit Structure

Whether a claim is submitted for an in-network or out-of-network provider, the health plan is going to establish an approved amount for the claim. The method for determining the approved charge will vary, but it will typically be based on the usual and customary charges found in the provider's region for the treatment. A provider may, however, have specially contracted rates, which would require cross-referencing to the data source for that provider.

Once the approved amount has been determined, the health plan will need to determine how much of the approved amount it is obligated to pay the provider. Whether the claim is



from an in-network or out-of-network provider, the health plan's obligation will be based upon the allowed amount. Under a Preferred Provider Organization (PPO) plan, the health plan will usually pay a greater percentage of the allowed amount for an in-network provider (e.g. 70-80%) than an out-of-network provider (e.g. 50-60%).

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## ACMEHEALTHPLAN

*Your Choice for Good Health*

May 18, 2006

MR JOHN SMITH  
1234 MAIN STREET  
NEW YORK, NY 09178

### Explanation of Benefits

*(This is not a bill)*

**POLICY INFORMATION**

Patient: JIMMY SMITH  
 Identification No.: ABC123456789  
 Subscriber: JOHN SMITH  
 Annual Deductible: \$500.00  
 Deductible Satisfied: \$500.00  
 Out of Pocket Max.: \$1,500.00  
 OOP Contribution: \$10.00

**CLAIM INFORMATION**

	CLAIM	CLAIM	CLAIM
Provider:	GENERAL HOSP		
Network Status:	IN NETWORK		
Date of Service:	05/08/2006		
Type of Service:	SURGERY		
Total Charge:	\$625.00		
Allowed Amount:	\$550.00		
Plan's Contribution:	\$40.00		
Patient's Obligation:	\$510.00		
Deductible:	\$500.00		
Coinsurance:	\$10.00		

Patient's Obligation includes satisfaction of \$500.00 of the Annual Deductible and \$10.00 for Coinsurance/Out of Pocket.

Please refer to the definitions and remarks on the reverse side of this form for further explanation.

If you disagree with the Plan's payment obligations for this claim, you have 180 days from the date listed above to submit a written appeal request to the address indicated on the reverse side of this form. Please refer to you Plan of Benefits for additional information regarding your appeal rights.

*If you have questions regarding this Explanation of Benefits, please contact customer service at (800) 555-1234.*

FORM - UF-52383-0

Figure 3. Sample Explanation of Benefits

The health plan's payment obligations will only begin after the beneficiary has met the yearly deductible. The allowed amount will be reduced by the amount to be applied toward the deductible, and then the percentages will be calculated. For an out-of-network provider, the beneficiary will be obligated to pay the difference between the allowed amount and the total charge submitted by the provider.

Once the payment amounts have been determined, the health plan will generate an explanation of benefits for the beneficiary, detailing the payment obligations or any reasons for denial of payment. The health plan will submit payment directly to an in-network provider and will pay the beneficiary for payments for an out-of-network provider.

### Table Storage

The IT department does not need to be the gatekeeper for all modifications. In a dynamic industry, where health plan, groups, and providers are constantly looking for ways to reduce costs, the health plan's processing system needs to be nimble enough for business units to make accommodations when issues arise. With all of the regulatory and economic pressures facing business units at health plans, systems need to be properly architected so that systems do not limit sound or necessary business changes.

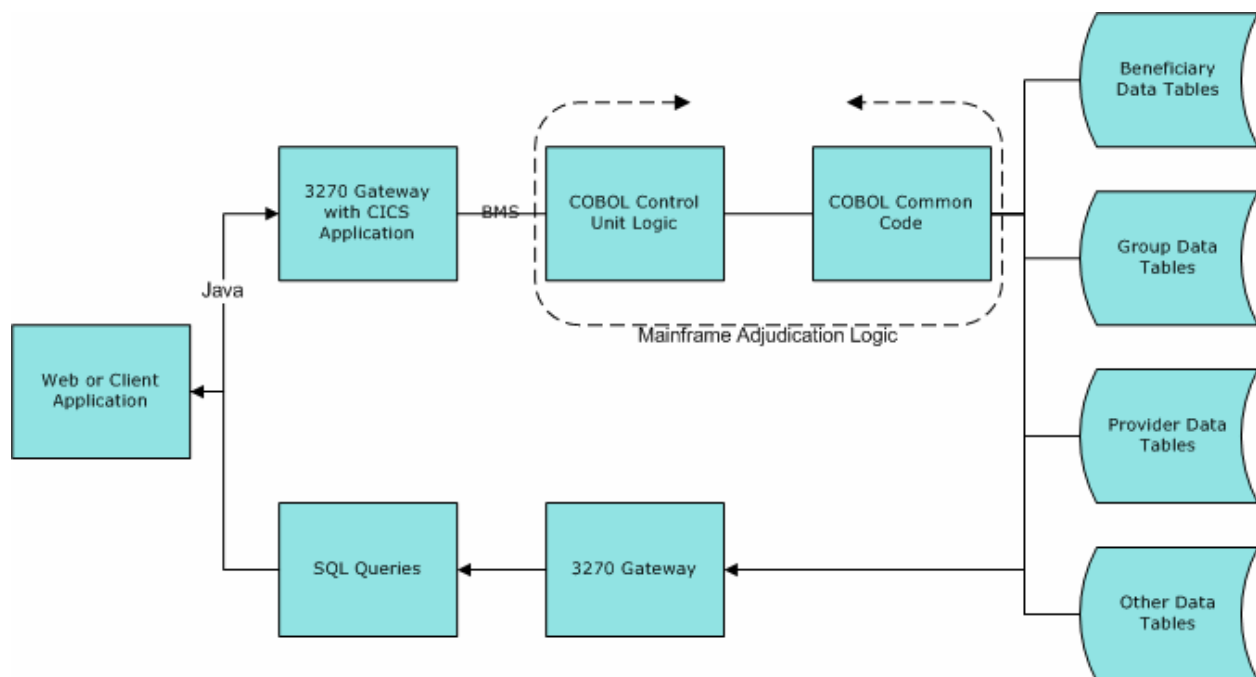


Figure 4. Mainframe Access Schematic

Take into account the third-party recovery functions. Subrogation or workers' compensation cases are primarily identified by generating an accident questionnaire for a claim with a traumatic diagnosis code. If a beneficiary is treated for a back injury, the claims system will generate a questionnaire to inquire the beneficiary about the cause of the injury. Although a back injury could occur in a number of ways, it is also a common injury in an auto- or work-related accident.

Diagnosis codes can be hard-coded into the system logic, but they will more preferably be loaded onto an easy-to-amend table. Hard-coded logic requires IT department intervention to change. To add or remove a diagnosis code from a table can be simpler than completing a change request form to enlist the IT department's assistance.

Aside from the additional resources consumed in making changes to system logic, this scenario is even more problematic in light of the human element. Often times, the more difficult a process is, the less likely it will be initiated. Rather than a diagnosis code relating

to a back injury, consider the diagnosis code for mesothelioma, an asbestos-related cancer. With the asbestos litigation that has taken place over the last two decades and the work-related potential of asbestos exposure, including mesothelioma within list of accident-related diagnosis codes would seem prudent.

Suppose a major employer enlisting administrative services from the health plan calls customer service to report the failure to suspend processing for a treatment for mesothelioma. After initially assuming that a processing error occurred, the noticeable absence of mesothelioma from the diagnosis code list is discovered.

The business unit employee balances the potential outcome: a struggle to push a system change versus the chance of a missed recovery a couple of years down the road. With a system that stores diagnosis codes in a table, the omission is easily corrected. With a system that has diagnosis codes embedded in the system logic, the omission is ignored. Changes need to be easy, or they will not be made.

Table storage in and of itself is simple. In the third-party recovery scenario, all of the diagnosis codes will logically be located within the same table. Not all data will be grouped so well. Consider a health plan that began with a regional focus, where location of the claim was not particularly relevant, and migrated to a national business model. If a Federal court decision interpreted a law affecting the health plan's processing requirements for claims within that particular geographical area, the health plan would need to be able to discern the claims from that geographical area and process them accordingly.

If the health plan's data is efficiently stored in tables, adding the geographic component to the adjudication process would be simplified. To add further complexity, imagine that the court decision only affected claims from groups headquartered within the circuit and not claims from providers within the circuit. With table storage of criteria, adjusting the adjudication process to target employer locations instead of provider locations requires a redirection rather than an overhaul of the process.

Table storage also enables a health plan to perform crosswalking to adapt to regulatory changes. For instance, HIPAA legislation requires providers to adopt a National Provider Identifier (NPI). To replace the provider numbers within the system would be difficult and very time consuming. The process is simplified by setting up a table to cross-reference the new NPIs with the health plan's legacy provider numbers.

This process could be complicated depending on the health plan's consistency when it assigned legacy numbers. Some additional interpretation may be necessary depending on the context of the claim. Of course, if the table storage was very efficient, replacing the legacy provider numbers would be a more readily accomplishable task.

### Reporting Capabilities

Sophisticated reporting capabilities are required throughout the healthcare industry, and health plans have accumulated vast stores of claims data that, when properly analyzed, could be used to benefit the entire healthcare value chain.

Effective reporting does not just provide health plan executives with summary information to sway and support strategic decisions; it can also enable operating units to ensure that

properly payable claims not go unprocessed, ineligible beneficiaries not remain active, and billing and collections functions work off of current snapshot information.

Beyond the internal uses, effectively mined data can be used to distinguish effective treatment providers, which will help plan beneficiaries avoid ineffective and inefficient providers and help providers recognize and adopt best practices among other providers.

Upper management needs to be able to respond quickly to external pressures. To respond effectively, they must have on-time access, which is easy to sort and compile, to all claims processing data in order to make sound decisions for the direction of the health plan. When the older systems in use by large health plans were initially developed, reporting capabilities were not the foremost consideration. In most situations, an IT department can push selected data to the user by querying the system data. There will typically be a periodic static report set up that the user can access to view the selected data. However, if the user wants to select different data, the IT department needs to be enlisted to create a new static report.

The IT report creation process is not sufficient to meet executive reporting needs. Upper management needs an executive information system, which includes a dashboard for recurring data needs and allows for interactive, parameter driven queries, to access current information with the ability to select, filter, sort, and compile systems data on the fly.

Similarly, business units need to be able to select, filter, sort, and compile system data impacting the customers. This is especially important for contact with plan representatives. If a representative from an employer-sponsored plan calls to ask about pending claims for the plan, the customer service representative needs to be able to access that data. If there are HIPAA concerns regarding some of the solicited data, then the reporting tool needs to be programmed to filter the questionable data.

The system data can be an education tool for the health plan's customers, including the plan participants and employers. Claims data can and should be effectively compiled to let customers know how much medical procedures cost and which providers care provide the most effective care. Health plans can direct customers to the best valued care by sharing claims data.

### Robust Processing Engine

The robustness of a processing engine is determined by its capability to auto-adjudicate a high percentage of claims and to be able to accept changes to coverage without excessive programming changes.

#### REPORTING NEEDS

- Executive: Upper management requires macroscopic data analysis to quantify inefficiencies and assist in recognizing opportunities
- Operations: Fielding and responding to customer service calls is not enough. To reduce risk, health plans must proactively identify and adjudicate claims that should be processed
- Customers: As the employer and beneficiary shares of the healthcare burden continue to grow, customers need more information to respond. Getting health plan data in the hands of its customers can facilitate cost reductions.

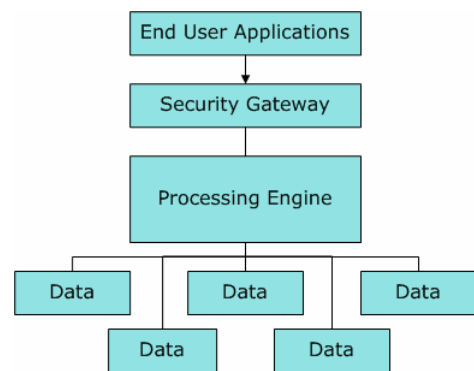


Figure 5. Claims Processing Engine

As long as the data, including processing criteria, are organized in tables, the reporting process can be written outside of the mainframe processing logic. Note that the above diagram can apply to non-mainframe processing systems. The Mainframe Adjudication Logic would be replaced by the claims processing engine, and the 3270 Gateway would be replaced by different type of security gateway.

### Configurable Access to Data

The evolution of a health plan's claims processing system, especially in a mainframe environment, will result in countless screens through which a health plan employee must navigate in order to accomplish a task. The screens may each only contain one data element or one entry field that the employee needs for the task. To process a single claim, the user may need to navigate through a series of claim summary screens before arriving at the input screens. Data input screens may span several more screens. The user will have to perform the same process on hundreds of claims each day.

Navigating screens on a mainframe system can be further complicated by the existence of separate systems maintained by the health plan. For example, financial information, including information on payments made between the health plan and employers sponsoring benefit plans or between the health plan and providers, may be stored on one or more separate systems. There will also likely be a system storing older information purged off of the active systems. These separate systems will store information separately, whether the information is stored in a dedicated set of tables or, as the case may be for purged information, stored on optical discs or tapes.

In a mainframe system, information is traditionally accessed through CICS screens. CICS (Customer Information Control System) is an IBM system encompassing the servers and connections that enable a user to access information stored within the system. A CICS screen is a selection of data elements from the system displayed to the user at one time. CICS screens are usually written for a broad range of users, so each user will need to sort through multiple screens to view all of the information needed to perform a task. Screens can be customized to pull specific information required by a business unit, but customization requires intervention from the IT department, and there will be limitations if the needed information spans multiple systems.

To get the optimum efficiency out of a user, the user should only have to go to one application. As discussed above, the IT department could customize CICS screens for particular users; however, not all of the data sources used by a department would be accessible through the mainframe. Whether used for minor applications or central to the business unit's functions, departments will typically maintain non-mainframe data stores, such as Access databases or Excel spreadsheets, to preserve information.

The better alternative to a series of CICS screens is to enable the business units to configure screens to gather all of the information the business unit employees need. Health plans have developed non-CICS, customized applications to interface with their systems and serve this purpose. These can be written in any computer language, but the trend is to develop web-based applications written in Java.

These customized applications can be coded to access multiple systems and pull select information back to a single page view in the application. Once the needed information is pulled into one view, the user can quickly make a decision.

Claims processing is repetitive in nature. To process a claim on a mainframe system, the user will navigate through a series of screens. On a particular screen, the user will key information into one or more fields and then press a function key or Enter to send the keyed information to the mainframe. Rather than entering the same commands each time the user wants to process a claim, all of those individual commands should be programmed to execute in one step; the user should be able to click a button to process the claim. The claims processing system does not need to be reprogrammed to permit a click of a button-type claim release. Instead, the interface application can execute a series of commands as though the user were navigating through the system. The order of the commands would be programmed into the application.

Claims System Information		Clear		Department Database Search		
CN: →	<input type="text"/>	<input type="button" value="Get Data"/>	LastName	FirstName	DOA	BenefitsPaid
Name:	<input type="text"/>	<input type="button" value="Find CN"/>			Adjuster	Reviewed
Database ID:	<input type="text"/>					
Claim No.:	<input type="text"/>					
Group No.:	<input type="text"/>					
Process Type:	<input type="text"/>	<input type="button" value="Get Lien"/>				
CN Amount:	<input type="text"/>					
Estimated TC:	<input type="text"/>					
Estimated Lien:	<input type="text"/>					
Date of Accident:	<input type="text"/>					
Create a Control Number for a Claim			Financial System Information			
→	<input type="text"/>	<input type="button" value="Create CN"/>	CN	Patient	Claim No.	Comment
	<input type="checkbox"/> Investigate	<input checked="" type="checkbox"/> Setup				
	<input type="text"/>					
Assign a File to an Adjuster						
<input type="checkbox"/> Subro	<input type="button" value="Assign File"/>	Group Type:	<input type="text"/>			
<input type="checkbox"/> WC	<input type="button" value="Adjuster"/>	File Type:	<input type="text"/>			
<input type="checkbox"/> NCP	<input type="button" value="Search"/>	Estimated Lien:	500.00			
<input type="checkbox"/> INVSU		Last Name:	<input type="text"/>			
<input type="checkbox"/> INVWC		Refund Reason:	<input type="text"/>			
		Process Type:	<input type="text"/>			
Adjuster:	<input type="text"/>	<input type="checkbox"/> Override				
<input type="button" value="Transfer"/>	New Process Type:	<input type="text"/>				
<input type="button" value="Setup"/>	<input type="button" value="Have"/>	New Action Type:	<input type="text"/>			
		New Refund Reason:	<input type="text"/>			
Other Controls						
Load NEG	<input type="button" value="Load Neg"/>	<input type="button" value="Kill CN"/>				
Reactivate CN	<input type="button" value="Unload"/>					
Load Control to Release Claims	<input type="button" value="CT"/>					
System Notes Search						
<input type="button" value="Notes"/>	CN: <input type="text"/>	<input type="button" value="←"/>				

Figure 6. Pulling Data from Different Sources

The application will interface with a mainframe system through a 3270 gateway. 3270 is an IBM portal used to access a mainframe system. Because all commands will continue to be executed through a 3270 gateway, the mainframe will continue to be secure. An application could be written to query and write directly to the tables storing the health plan's data; however, the system would not be as secure and the application would not be able to take advantage of the mainframe programs already in place for adjudicating claims.

Figure 6 depicts an application used to pull information from a variety of systems into one interface. The interface application can simultaneously pull and push data to non-mainframe data stores. Depending on the information displayed, the user would be able to press one or more buttons to perform the user's job functions. Ideally, a broad range of command combinations would be programmed into building blocks (web parts in the case of a web-

based application), and then a business unit would be able to configure the application to suit a particular group of users by selecting building blocks needed by the business unit. Responsibility and control of application changes only affecting a business unit and customizing an application for role-based use within the business unit are things that should be pushed out to the business unit.

The interface applications would not affect the mainframe system any more than the users would by using 3270 emulation software, such as WRQ's Reflection or NetManage's RUMBA. By shifting the responsibility for the front-end to the business units, the IT department would be freed up to focus on system integrity, data storage, and the proper functioning of the processing engine.

Business units define the information needed to execute tasks. The health plan's systems and the interfaces to those systems must be designed so that the business units can control the display of that information. A configurable application will greatly improve efficiency by reducing the time needed to access information and by automating the commands executed by users.

### Denouement

The majority of this paper is focused on health claims processing in a mainframe environment; however, the necessary aspects of a mainframe system are common to all health claims processing systems.

In order to be competitive, a health plan's claims processing systems must have data and processing criteria logically stored in tables, a fully developed set of reporting tools, a robust processing engine, and configurable access to data.

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