

# How Rule-Based Process Automation Is Transforming Patient Access Management



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## Executive Summary

The healthcare registration function has become increasingly complex over the years. What was formerly a simple administrative function for documenting patient demographic and insurance information has exploded to encompass areas of denial management, payment collections and financial counseling. Indeed, much of an organization's operating margin may depend upon the competency and efficiency of registration personnel. With high employee turnover and meager training resources, the discipline now known as "access management" has struggled to keep pace with the growing criticality of its role in overall revenue-cycle management.

Revenue-cycle technologies have evolved to address this formidable complexity challenge. However, navigating the landscape of solutions can be tricky. Vendor approaches range from standalone niche applications to all-in-one bundled solutions involving multiple products and platforms. Organizations with an understanding of the evolution of access-management technologies can greatly decrease the risk of locking themselves into fading technologies and costly maintenance arrangements.

Engaging a "tour guide" to assist in navigating the complex technology landscape can be a great benefit to an organization that wishes to sharpen its vision and shorten its learning curve.

Any structured review of the current state of access-management technologies will inevitably lead to the use of "rule-based process automation" as not only one of the most exciting developments in revenue-cycle technologies but also as the future "technology accelerator" that will transform the revenue-cycle landscape.

## Overview

The access-management industry has historically attempted to balance the challenge of managing an inadequately trained workforce in a high-turnover environment against the increasing complexity of disparate revenue-cycle processes and applications.

Intel co-founder Gordon Moore predicted in the 1960s that the number of transistors on a chip would double every two years. Now known as “Moore’s Law,” this view of innovation and technological progress in healthcare has become almost an expectation of a public that has grown used to news of ever-increasing advances in biotechnology and medical devices. Moreover, U.S. government support of the adoption of electronic medical records portends a transformation in healthcare informatics and ultimately, care delivery. Conversely, advances in healthcare financial information technology have been incremental and far from transformative. Against a backdrop of technological wonders, too much of revenue-cycle management operates with all of the efficiency of mom and pop hardware stores. Nowhere is this truer than in the area of healthcare access management. In an industry already plagued by high employee turnover rates and round-the-clock staffing requirements, the pressure of determining patient payment responsibilities while maintaining acceptable patient throughput presents one of the most difficult staffing challenges in revenue-cycle management. It is common for such departments to experience 20% to 40% turnover rates.

Strong parallels with this situation exist in the hospitality industry. Both industries have the challenge of round-the-clock staffing and draw from similar pools of talent paying roughly the same wages. However, the point of divergence for the hospitality and healthcare industries occurs around the issue of payment complexity. While transactions in the hospitality industry have evolved from the cumbersome, error-prone, manual ledgers of the past to simple electronic retail transactions requiring only the swipe of a credit or debit card, access-management personnel are challenged to serve as the gatekeepers managing access to care without the benefit of critical information on either pricing or payment sources.



Michael Friedberg, in the HCPro book, *Staff Competency in Patient Access*, wrote, "When talking to my colleagues throughout the access community, I've found that the one common challenge—regardless of the size of the hospital, type of hospital or location—is finding, training, motivating and retaining good, qualified staff members to work in patient access."

The training that has been historically required to produce the highest-quality staff has been expensive and time-consuming. Typically, six to twelve months of training have been required to achieve proficiency in all of the core competencies of the "access-management continuum" of services. An example of the content that must be mastered by fully proficient access-management personnel is detailed in Table 1.

Access-Management Competencies	Insurance Competencies	Access Management Information Systems
<ul style="list-style-type: none"> <li>• Age-Specific Registration Approaches</li> <li>• Agencies and Government Regulations</li> <li>• Health Information Management</li> <li>• Healthcare Finance</li> <li>• Service Excellence</li> <li>• Patient Flow Management and Control</li> <li>• Front-End Collections</li> <li>• Financial Clearance</li> <li>• Financial Counseling</li> </ul>	<ul style="list-style-type: none"> <li>• Commercial Insurance</li> <li>• Managed Care: HMOs, PPOs and POS Plans</li> <li>• Medicare and Medicare Replacement Plans</li> <li>• Medicare Supplemental Plans</li> <li>• Medicare Medical Necessity Determination</li> <li>• Medicare Secondary Payer</li> <li>• Worker's Compensation</li> <li>• Liability Coverage</li> <li>• Disability Plans</li> </ul>	<ul style="list-style-type: none"> <li>• Registration Applications</li> <li>• Address Verification</li> <li>• Enterprise Scheduling</li> <li>• Medicare Medical Necessity</li> <li>• Electronic and Web-Based Insurance Verification</li> <li>• Payment Estimation</li> <li>• Propensity to Pay and Financial Counseling</li> <li>• Forms Automation</li> <li>• Document Imaging</li> <li>• Patient Self-Service Technologies</li> </ul>

Table 1

## The Evolution of Access-Management Technology

A wide array of access-management technologies has evolved through several generations of products to address the complexity gap.

- ⇒ **First Generation:** First-generation solutions tended to be standalone or client-server applications designed to address growing access-management demands for eligibility verification and registration data quality assurance. Patient payment calculators tended to be self-developed by hospital information technology departments while address verification and financial assistance were mostly outsourced to costly private vendors. Major admission, discharge and transfer (ADT) systems already allowed user-defined "required" data-entry fields to be established. Emerging add-on registration data quality systems began to track unpopulated data fields. While these solutions did advance the existing state, little integration existed between the first generation of solutions and hospital ADT systems beyond error prompts. Solutions tended to generate batch error reports that required downstream analysis and rework to resolve.
  
- ⇒ **Second Generation:** The next generation delivered similar functionality to that of the first generation via web-based platforms that broadened general availability. Add-on registration quality systems began to apply user-defined rules and user prompts. Add-on Medicare medical necessity compliance systems began to emerge. Standalone address verification capabilities became available, but they were lacking integration and were dependent upon user initiative for the most effective operation. Financial counseling systems also became more widely available but they too were dependent on user initiative due to the lack of integrated workflow rules.

⇒ **Third Generation:** The third generation of solutions finally began to address integration issues. Integration solutions ranged from in-house vendor development of bundled suites of products to vendor partnerships and co-development relationships. Additionally, use of HIPAA X12 270 and 271 eligibility transactions began to increase along with increasing integration with contract-management and propensity-to-pay systems. Financial counseling systems expanded capabilities in order to address propensity-to-pay issues. To follow the evolution of front-end, revenue-cycle solutions, see Table 2.



**Evolution of Front-End Revenue-Cycle Solutions**

	First Generation (Niche Apps)	Second Generation (Web-based Apps)	Third Generation (Integrated)
Eligibility Verification	<p><b>Features:</b> System interface with ADT systems via direct connections. Benefits loaded directly to ADT benefit screens or COLD fed to document imaging systems.</p> <p><b>Issues:</b> Only five to ten major payers per region. Payers control level of benefit detail. Much telephone verification is still necessary.</p>	<p><b>Features:</b> High level of benefit detail. Connectivity without cumbersome IT setup.</p> <p><b>Issues:</b> Availability payer dependent. Multiple sign-ons needed to access multiple websites. No standard benefit format. No interfaces with hospital ADT systems. Manual data entry required to update ADT systems.</p>	<p><b>Features:</b> HIPAA X 12 benefits available in real time. Benefits also pulled from websites to expand availability. Benefit detail normalized across payers. Interfaces update hospital ADT systems. Interfaces to payment calculators.</p> <p><b>Issues:</b> Too few organizations demanding 270 or 271 eligibility transactions.</p>
Address Verification	<p><b>Features:</b> Some vendors begin to offer manual returned mail processing and analysis.</p> <p><b>Issues:</b> Expensive and inefficient. Much rework needed. Otherwise performed manually via patient ID, Haines Directory or Business Offices rejections.</p>	<p><b>Features:</b> Desktop address verification now available via US Postal Service connections.</p> <p><b>Issues:</b> User dependent, no ADT system integration—users neither prompted nor required to verify addresses. Users not required to update ADT systems.</p>	<p><b>Features:</b> HIPAA X 12 demographics available as well as USPS connections and Lexis Nexis connections. Integration with ADT systems available as well as alerts that discrepancies exist.</p>
Patient Pay Calculation	<p><b>Features:</b> Hospitals self-develop patient-pay calculators based on charge master or DRG.</p> <p><b>Issues:</b> Lack of integration with existing contracts caused over-collection issues and refunds. Collection limited to self-pay deposits and co-pay.</p>	<p><b>Features:</b> Web-based patient pay calculators now available for some services.</p> <p><b>Issues:</b> Lack of integration with hospital ADT or contract management systems leads to “guestimation” rather than “estimation.”</p>	<p><b>Features:</b> Integration with contract management systems to provide accurate calculations. Connections to e-cashiering applications emerge including e-checking. Integration to contract management systems increase for better estimates.</p> <p><b>Issues:</b> “Guestimators” still too prevalent.</p>
Financial Assistance	<p><b>Features:</b> Manual administration of program by “specialist” counselors using personal judgments.</p> <p><b>Issues:</b> Lack of integration with existing systems. Status determinations cumbersome for both patients and hospital stakeholders.</p>	<p><b>Features:</b> Financial counseling programs become more automated. Registrars can refer patients electronically. Counselors work from referral work lists.</p> <p><b>Issues:</b> Lack of referral rules, referrals at registrar discretion. Prone to audit fairness issues.</p>	<p><b>Features:</b> Assistance applications pre-completed from ADT demographic information. Referrals and authorizations are rule-based.</p> <p><b>Issues:</b> Too few organizations are aware of current capabilities. Too few organizations demanding integration.</p>
Data Integration QA	<p><b>Features:</b> Free-standing systems available with hospital-defined edits.</p> <p><b>Issues:</b> Poor implementation due to billing—only focus on quality. Little integration with ADT systems for edits of updates.</p>	<p><b>Features:</b> Ability to update systems based upon user-defined rules.</p> <p><b>Issues:</b> Lack of comprehensive quality policies lead to poor application ROI.</p>	<p><b>Features:</b> Uses X12 eligibility transactions as a component of variance analysis. Analyses form via imaging system integration. Analyses insurance data via imaged form/ID comparisons.</p> <p><b>Issues:</b> Too few organizations are aware of current capabilities. Not demanding integration.</p>

Table 2

## Technology Accelerators

Surveys show that core technologies are in place in a growing number of hospitals. In a 2005 HIMSS Analytics™ analysis, 3,830 hospitals or 95.5% of the sample had either installed software to provide electronic transactions for eligibility, authorizations and referrals or signed a contract to do so.

Yet even with third-generation technologies in place, access-management personnel are challenged to determine the following when registering and admitting patients:

- The payer source
- Insurance benefits, requirements and exclusions
- Patient out-of-pocket payment responsibilities after insurance
- Patient's propensity to pay and financial counseling needs

## Determining Payer Sources

Hospitals may submit claims to hundreds of payers. In the current era of increasing managed care, many payers have some form of pre-certification requirement that must be satisfied or payment will be denied. The misidentification of insurance payers can lead to "subscriber not found" soft denials that waste time and wreck receivables management. Costly rework can rectify some issues. However, untimely rework can result in "past timely filing" hard denials that represent a permanent cash loss to an organization.

## Determining Benefits, Requirements and Exclusions

Determining the right payer is only the beginning of the challenge. Best-practice organizations know that an insurance eligibility response of "active" says little about final payment. Coverage levels vary from plan to plan as do certification requirements. Eligibility system acquisition does not address the issue of inadequately trained personnel who cannot identify the specific payers and services that require pre-certification.

Jim Collins in *Good to Great*, Harper Business, 2001, posits that "when used right, technology becomes an accelerator of momentum ... ." While the basic building blocks required to resolve the complexity gap are now largely in place, the "accelerator" that would enable their most seamless and effective use has been missing.

## Determining Patient Payment Responsibility

Increased insurance cost-sharing now means that most patients will have some degree of payment responsibility after their insurance pays. Eligibility systems identify co-payment and deductibles but co-insurance cannot be determined without charge and contract rate information.

## Determining Propensity to Pay and Financial Counseling Needs

The ability to accurately estimate patient payment responsibility is a prerequisite to collecting pre-service and time-of-service cash. What if a patient claims an inability to pay? Even seasoned financial-counseling staff is prone to subjective decision-making regarding who does or doesn't qualify for assistance.

These are just a few of the issues that third-generation technologies will not fully address without both a transformational vision of what is now possible and the technology accelerators to implement that vision.



## Rule-Based Process Automation

### The Next Generation

With the possibility of multiple logins and limited integration, the ever-expanding array of access-management solutions in the marketplace today can too often have the effect of increasing rather than decreasing the complexity confronting registration personnel. While the overall toolkit of solutions has increased, the goal of retail-like simplicity can still seem as distant as ever. However, the industry is entering a fourth generation with the advent of technologies that promise to weave together the disparate array of access-management solutions and finally close the complexity gap. Key among such solutions is a robust rules capability. HIMSS Analytics defines rules capability as:

“A rules-engine environment that provides medical necessity checking rules for scheduling and registration functions for determining claims attachments needed to avoid payers pending claims payment, and to ensure all required claims information to mitigate rejections or denials of claims on a business-to-business (B2B) basis.”

At too many organizations, each application operates in a functional silo. Integration is either too cumbersome, too costly or both. Information is often copied or re-keyed into other systems or stored and manually retrieved on a repetitive basis. Rule-based process-automation systems allow organizations to leverage their investments in existing technologies by applying business rules to actions and results occurring in one or more systems to drive the actions and results of other systems. The overall impact of this rule-driven integration can lead to results far greater than those that could be cumulatively attained from the individual applications.

In fact, **HIMSS Analytics has included “rules capability” as one of the four key components in its index of next-generation, revenue-cycle functions “that improve patient satisfaction and convenience while improving the overall efficiency of the revenue-cycle management process.”**

“A rules-engine environment that provides medical necessity checking rules for scheduling and registration functions for determining claims attachments needed to avoid payers pending claims payment, and to ensure all required claims information to mitigate rejections or denials of claims on a business-to-business (B2B) basis.”

## The Future of Front-End Applications—an Example

One example of how traditional front-end applications can evolve by incorporating new capabilities to overcome the complexity challenge is Intelligent Guidance from Ohio-based Cincom Systems. This technology accelerator gives healthcare organizations and technology providers the ability to embed rule-based process automation within their existing applications and has the potential to transform the entire healthcare revenue cycle by simplifying processes and eliminating errors.

A key differentiator of Intelligent Guidance is its ability to seamlessly integrate with the existing Healthcare Information System (HIS) and other healthcare applications. Once the software is embedded into the chosen applications, it gives organizations the ability to easily create and maintain rules that guide the relevant processes across multiple applications.

This takes the form of on-screen prompts, reminders and intelligent scripts that ensure that operators are guided step by step through even the most complex processes. The technology even corrects mistakes and alerts front-end personnel when the information entered is not consistent with the information held in other ADT systems.

These unique capabilities allow organizations to weave together the heretofore disparate array of access-management solutions to finally close the complexity gap.

## Prevention—A Different Approach to Quality

The prevailing model of quality assurance in third-generation technologies is one where edits are generally applied retrospectively. Reports are then generated and costly rework is performed to fix the identified errors. While many third-generation registration quality assurance systems do provide prospective alerts when predefined edits are breached, they do not have the decision-support capabilities to take complex “if-then” actions to prevent errors altogether.

Intelligent Guidance monitors patient information obtained from the HIS and other applications and interprets it in accordance with the established rules to effectively guide the operator.

The Intelligent Guidance approach to quality delivers vastly increased efficiency by eliminating entire categories of errors and associated rework. This capability creates a greatly reduced requirement for retrospective error reporting.

## Intelligent Guidance: Transforming Vision into Action

Intelligent Guidance transforms the revenue cycle by enabling both healthcare organizations and information-technology solution providers to tap into the previously latent capabilities of existing information systems to implement their own unique revenue-cycle vision. Such vision can emerge and evolve in organizations that persistently challenge the status quo with questions like:

- Why can't my eligibility system use the demographic information we're entering to find a match when we already know the insurance company?
- With so many similar insurance plans out there, why can't my ADT system show our registrar examples of common insurance cards to compare to the one the patient has?
- If my eligibility system can display non-covered services, why can't it warn me when the service I intend to provide is non-covered? Why can't it then automatically estimate the patient's financial responsibility and their propensity to pay?
- When my patient can't afford to pay, why can't my system pre-qualify her for government or other assistance programs?

IMA Consulting has helped organizations to extend their revenue-cycle goals into a transformational vision by using this software as the technology accelerator as in the following examples:

⇒ **Determining Payer Sources: Intelligent Guidance can help identify the right payer by invoking:**

**Intelligent Payer Searches:** With this technology, an organization can take control at the point where a registrar selects an insurance plan and attempts to perform an eligibility check. Using user-defined criteria,

Intelligent Guidance can be used to overcome the barriers that prevent an organization from fully achieving its revenue-cycle vision.

Intelligent Guidance can use as little as a patient's name, date of birth and social security number to identify a potential match on one or more payer files. When a "hit" is returned, the system can use information from the payer response such as ID or Employer Group numbers to determine the correct insurance plan selection in the hospital HIS.

**Intelligent Prompts:** When electronic eligibility is not available, Intelligent Guidance can still provide assistance by flashing an image of an insurance card for the selected plan(s). When the correct card is displayed, Intelligent Guidance can automatically make the correct insurance plan selection for the registrar from the organization's insurance table.

⇒ **Determining Benefits, Requirements and Exclusions: Intelligent Guidance can help prevent payment denials by:**

**Intelligent Gatekeeping:** The guidance technology can support the registration "gate-keeping" function by providing "hard" or "soft" warnings when user-defined pre-certification or payment exclusion rules are breached. Ordered services can be compared to eligibility responses to prohibit the delivery of non-covered services without supervisor approval.

⇒ **Determining Patient Payment Responsibility: Intelligent Guidance can improve front-end collections by:**

**Intelligent Estimation:** Applying and integrating contract management system discounted rates to create accurate co-insurance estimates.

**Intelligent Scripting:** Invoking "patient-friendly" scripts to assist registration staff when requesting patient payments.

**Intelligent Cashiering:** Migrating seamlessly from the intelligent collections script to an organization's electronic cashiering application to process e-checks and credit-card payments.

⇒ **Determining Propensity to Pay and Financial Counseling Needs: Intelligent Guidance can improve financial management and patient satisfaction by:**

**Intelligent Selection:** It can be configured to forward demographic information to propensity-to-pay systems to invoke provider-based financial-assistance determinations.

**Intelligent Pre-Qualification:** It can use current demographic information to pre-fill state medical-assistance and hospital-charity applications. This enables organizations to proactively inform patients of financial-assistance qualification.

These are just a few of the issues that third-generation technologies alone will not fully address without both a transformational vision of what is now possible and the technology accelerator to implement that vision.

## The Future of the Industry

On occasion, technology will emerge that has such a tremendous impact that it can drive the sales of the very platforms that support it. IMA Consulting believes that Intelligent Guidance and similar rule-based process-automation systems promise to be such technologies. Rule-based process-automation systems allow organizations to leverage their investments in existing technologies by applying business rules to actions and results occurring in one or more systems to drive the actions and results of other systems. The overall impact of this rule-driven integration should lead to results far greater than those that could be cumulatively attained from the individual applications. We believe Intelligent Guidance will have the following industry impacts:

⇒ **Lower Labor Costs:**

It will lower labor costs by reducing the time and skill required to excel at the registration function.

⇒ **Increased Technology Adoption:**

It will have the impact of driving third-generation stand-alone application purchases in the way that Microsoft Office drove personal computer sales.

⇒ **Decreased Sales of Bundled Technologies:**

Intelligent Guidance users will be able to resolve today's common connectivity and integration issues to achieve the following benefits:

- Capabilities for full integration between all existing applications
- The ability to use multiple integration modes including HL7 and process scripting functionalities
- The ability to build rules based on outputs or responses from other applications—with or without user intervention or prompts
- The ability to display verbal scripts or other forms of user guidance



These features enable the automation of an organization's full revenue-cycle vision without the purchase of more costly "all-in-one" bundled solutions. While organizations with limited IT support will use bundled services out of necessity, more and more organizations will realize that they can use Intelligent Guidance to leverage and extend their own IT resources. This in turn will create a new level of competition between vendors and challenge IT solution providers to establish partnerships and capabilities that add value beyond what healthcare organizations can achieve themselves. These benefits, however, need not be limited to healthcare-provider organizations alone. Vision-driven information-technology providers also can use IG to extend the capabilities of their own products. In fact, Intelligent Guidance has enabled Provider Advantage Inc., a Beaverton, Oregon-based technology provider, to bring together a comprehensive package of capabilities together under one umbrella. Their solution, Revenue360® uses Intelligent Guidance to weave together a number of disparate products including demographic validation, eligibility verification, price estimation, payment assessment and Medicaid/charity assessment into one comprehensive solution.

## Summary

IMA Consulting believes that rule-based process automation is the pivotal point that marks the fundamental transformation of the revenue-cycle landscape. By serving as the key “technology accelerator” for revenue-cycle processes, it will enable both healthcare organizations and the information-technology providers that support them to more fully realize the potential of integrating the first three generations of access-management technologies to achieve the following benefits:

- ⇒ **Transformation of workflow**
- ⇒ **Vastly increased efficiency**
- ⇒ **Expanded financial screening and controls**
- ⇒ **Improved collections and cash flow**
- ⇒ **Elimination of whole categories of errors**
- ⇒ **Improved regulatory compliance**
- ⇒ **Improved customer service**

Cincom Systems’ Intelligent Guidance is at the forefront of “next-generation” technologies that hold the promise of bringing the simplicity of retail transactions to the world of healthcare. IMA Consulting can provide the vision, metrics and implementation expertise to deliver the promise of next-generation technologies to today’s bottom line.

## More Information

For the latest information about our products and services, please see the following resources:

### Related Websites

<http://www.ima-consulting.com/>

<http://intelligent-guidance.cincom.com/>

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