Unlock new synergies *with* revenue cycle automation

Health care is ripe for automation. Organizations can replace rote, manual tasks with automated processes to boost efficiencies and redirect staff time toward top-of-license work. In the revenue cycle, both robotic process automation (RPA) and intelligent automation (IA) are deployed to handle repetitive, high-volume tasks. RPA uses rules-based bots to recognize defined inputs and process toward the desired output. IA takes these processes further, using machine learning and natural language processing to replicate more complex thinking and recognize patterns among massive data sets.

Explore how these technologies are implemented throughout the front-end, mid-cycle, and back-end of revenue cycle operations—and determine how your organization can harness automation's potential for future successes.

FRONT END
Pre-provider and patient encounter
Scheduling, pre-registration, insurance verification and prior authorization, registration, and out-of-pocket estimator

MID-CYCLE
The patient-provider encounter
Charge capture, clinical documentation improvement (CDI), and coding

BACK END
Post patient-provider encounter
Claims submission and management, denials, insurance follow-up and adjustments, medical billing and patient payment collections

FRONT END

Before the patient-provider encounter

Robotic process automation is already an established part of front-end revenue cycle automation. However, intelligent automation opportunities using machine learning (ML) and natural language processing (NLP) are emerging as next-level iterations across these functions.

Why it matters: Already seen as a successful addition to insurance verification and prior authorization, IA could transform the input-output nature of RPA bots to a more flexible and dynamic workflow.

KEY FUNCTIONS	OPPORTUNITIES FOR AUTOMATION
Scheduling	RPA can schedule appointments according to diagnosis and provider availability. ML adjusts for workflows, staff schedules, and matching patients with their provider preferences.
Pre-registration	Using RPA, the pre-registration system captures demographic, health, and insurance information. The insurance information flows through the provider's practice management system, then notes the patient's coverage, copayment, or referral details. ML can be implemented to streamline processes even further, learning from prior records to iterate.
Insurance verification and prior authorization	RPA uses pre-programmed paths to obtain data, while ML and NLP analyze patient information and determine coverage levels.
Registration	The registration system uses RPA like the pre-registration does. Computer vision and natural language processing (NLP) are also used to identify, confirm, and automatically pull registration information.
Out-of-pocket estimator	As part of a patient-facing tool, RPA can be used to automate benefits retrieval and estimate out-of-pocket costs for a specific patient. Intelligent automation uses ML and MLP to combine data from charge master, claims history, payer contract terms, and patients' insurance benefits, while also learning from data and improving accuracy over time.

MID-CYCLE

During the patient-provider encounter

Intelligent automation has made impressive strides across mid-cycle functions like charge capture and coding. Particularly exciting in this space are emerging advances in clinical documentation improvement (CDI) using computer-assisted coding (CAC) and intelligent automation.

Why it matters: As a function where RPA is not able to replicate clinical thinking, CDI automation has tremendous potential to reduce human errors and maximize claims reimbursement and revenue.

KEY FUNCTIONS	OPPORTUNITIES FOR AUTOMATION
Charge capture	RPA can render claims from billed procedure codes. Using ML and NLP, charge capture system scans clinical notes and translates them from the patient EHR into the billing workflow.
Clinical documentation improvement	CAC uses ML and NLP to interpret clinician notes, proactively identify cases with potential documentation gaps, and maximize appropriate claims reimbursement and revenue.
Coding	Medical billing codes are applied to a patient's record. RPA bots can assign procedure codes from a list of the terminology of procedures. ML and NLP can be used to verify charges, scrub potential errors, and process files through third-party verifiers before submitting to insurers to determine reimbursement amounts.

BACK END

After the patient-provider encounter

RPA is already well established across back-end processes. Here, emerging advances in intelligent automation are poised to expand efficiencies. ML and NLP already show improved accuracy when implemented across functions like claims submission and billing/collections.

Why it matters: New intelligent automation applications for denials and insurance follow-up can help improve the review process. IA can also better assess the status of and next steps for each claim.

KEY FUNCTIONS	OPPORTUNITIES FOR AUTOMATION
Claims submission and management	RPA bots submit claims after charges are entered. ML and NLP can scrub claims more efficiently than human coders and improve accuracy of claims.
Denials, insurance follow-up, and adjustments	RPA marks which claims were processed or denied after insurance submission and processing. Intelligent automation (via ML and NLP) reviews what claims were accepted or denied, whether more information is needed, and if billing adjustments are needed.
Medical billing and patient payment collections	RPA automates patient invoices and sends payment reminders, while NLP breaks down charges.

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