2022 Fall member retreat

Fireside chat:
Automation, AI and analytics as a means for strategic resource allocation

Justin Roepe
Solution Strategist and Revenue Cycle Expert
Waystar
What is the most recent function to which your organization has attempted AI? (Respond with one-word answers).
Join me in a conversation:

Justin Roepe
Solution Strategist and Revenue Cycle Expert
Waystar

• With nearly 21 years of healthcare experience, Justin has spent most of his time in revenue cycle.
• As a subject matter expertise for front and back-end solutions that are part of the Waystar unified platform, Justin has extensive experience on solutions that leverage Artificial Intelligence, Robotic Process Automation, Crowd Sourcing and Rules Engine technologies that generate increased productivity, accuracy and cost reductions.
• Prior to Waystar, Mr. Roepe worked for a premier healthcare consulting firm with an emphasis on data intelligence, analytics, revenue cycle, performance improvement and RCM optimization.
• Justin is an active member of the Georgia HFMA chapter and has served in various roles for more than 16 years along with being a board member for two local non-profits.
• He holds a bachelor’s and master’s degree in Healthcare Administration and is a graduate of Harvard Business Analytics Program, part of Harvard Business School.
What is automation and AI?
Clarifying the terminology

<table>
<thead>
<tr>
<th>Innovation</th>
<th>Automation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Innovation:</strong>&lt;br&gt;The process of introducing a new idea, system or process.</td>
<td><strong>Automation:</strong>&lt;br&gt;The process of making that idea, system or process function without direct human intervention.</td>
</tr>
</tbody>
</table>

Innovation tends to be strategic in nature, whereas automation is often more tactical and focuses on repetitive activities.

<table>
<thead>
<tr>
<th>Artificial Intelligence</th>
<th>Robotic Process Automation</th>
</tr>
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<tbody>
<tr>
<td><strong>Artificial Intelligence (AI):</strong>&lt;br&gt;a branch of computer science dealing with the simulation of intelligent behavior in computers.</td>
<td><strong>Robotic Process Automation (RPA):</strong>&lt;br&gt;a process to automate a repeatable, deterministic, rule-based task.</td>
</tr>
</tbody>
</table>

The capability to imitate intelligent human behavior encompasses numerous technologies that “learn” or alter their behavior based upon data processing.

Requires a familiar, practiced and documented process to attain automation benefits.
A holistic view of intelligent automation in healthcare

RPA BOTs
Attended and unattended bots completing manual and routine tasks and processes

Chat BOTs
Knowledge and support delivered via text conversations and online live chat

Workflow / Process Improvements
Data or ticket routing based on business rules and flow allowing faster service

Artificial Intelligence / Machine Learning
Adapt to information and adjust processes to solve problems

API / Test Automation / IAAS
Scripting and tools to accelerate development initiatives

Revenue Cycle

Clinical Ops

Business Ops / IT

Staff / HR
What does automation look like?

1. **REpetitive**
   - Look up records
   - Copy/paste values
   - Data entry/form filling

2. **Rules-based**
   - If this then that
   - Where [these] criteria are present, do...
   - When [this] happens, do...

3. **Mid-to High Value**
   - Dozens of items added to a work queue/worklist each day
   - Work is actively prioritized because it can’t all get touched

4. **Prone to Human Error**
   - Tiny details matter
   - Long/complex processes
   - Difficult to fix or must start all over when errors happen

The state of automation and AI in revenue cycle
Average importance of revenue cycle initiatives in 2022 (1-10 scale)
Healthcare Business Insights Annual Study
(10 as most important)

Outsourcing/insourcing
Improving telehealth processes
Case management/utilization review
Payer relations and accountability
Price transparency (NSA, estimation)
Staff satisfaction and engagement
Analytics
Automation
Revenue Integrity
Cost reduction
Professional revenue cycle
Cyberattack response preparedness
Remote work optimization
Artificial intelligence
Vendor optimization
Denials management and prevention
Hiring and retention
Patient experience improvement
Pre-service (POS collections, pre-auths)

n = 61 health systems, representing 371 hospitals
These same priorities shift as net revenue grows

Organizations with $1 billion > $2.5 billion net revenue

- Analytics: 9.4
- Improving the patient experience: 9.4
- Automation: 9.4
- Denial management and prevention: 9.1
- Staff satisfaction and engagement: 9
- Payer relations and accountability: 8.8
- Hiring and retention: 8.6
- Cost reduction: 8.5
- Case management/utilization review: 8.3

\[ n = 12 \text{ health systems, representing 95 hospitals} \]

Organizations with > $2.5 billion net revenue

- Analytics: 9.8
- Automation: 9.6
- Improving the patient experience: 9.4
- Pre-service improvement (POS...): 9.2
- Cost reduction: 9.2
- Denials management and prevention: 9.1
- Hiring and retention: 9.1
- Price transparency (NSA, estimation): 8.9
- Professional revenue cycle oversight: 8.8
- Payer relations and accountability: 8.8

\[ n = 13 \text{ health systems, representing 191 hospitals} \]
Conclusions:

The importance placed on AI and automation has gone down from last year.

The cost of these technologies and the expertise needed to ensure they are successful may have hindered their use in times of razor thin margins and decreased staff.

However, we do see a lot of organizations using this time strategically for these implementations as a measure in retaining, upskilling, and supporting your core staff in place today.

The truth is: AI/automation is one solution that can either apply to or affect every challenge on this list.

<table>
<thead>
<tr>
<th>Application/Impacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denials management and prevention ✔</td>
</tr>
<tr>
<td>Hiring and retention ✔</td>
</tr>
<tr>
<td>Patient experience improvement ✔</td>
</tr>
<tr>
<td>Analytics ✔</td>
</tr>
<tr>
<td>Staff satisfaction and engagement ✔</td>
</tr>
<tr>
<td>Price transparency (NSA, estimation) ✔</td>
</tr>
<tr>
<td>Payer relations and accountability ✔</td>
</tr>
<tr>
<td>Pre-service (POS collections, pre-authorized) ✔</td>
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<tr>
<td>Remote work optimization ✔</td>
</tr>
<tr>
<td>Vendor optimization ✔</td>
</tr>
<tr>
<td>Improving telehealth processes ✔</td>
</tr>
<tr>
<td>Outsourcing/insourcing ✔</td>
</tr>
</tbody>
</table>
## Organizations automating revenue cycle functions (2020)

**Healthcare Business Insights Annual Study**

<table>
<thead>
<tr>
<th>Function</th>
<th>Automation Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insurance verification/eligibility</td>
<td>54.50%</td>
</tr>
<tr>
<td>Payment posting</td>
<td>50.90%</td>
</tr>
<tr>
<td>Claim submission</td>
<td>50.00%</td>
</tr>
<tr>
<td>Bill pay</td>
<td>47.30%</td>
</tr>
<tr>
<td>Charge capture</td>
<td>38.20%</td>
</tr>
<tr>
<td>Claims statusing</td>
<td>37.30%</td>
</tr>
<tr>
<td>Coding</td>
<td>35.50%</td>
</tr>
<tr>
<td>Productivity monitoring</td>
<td>31.80%</td>
</tr>
<tr>
<td>Document imaging/indexing</td>
<td>30.00%</td>
</tr>
<tr>
<td>Price estimation</td>
<td>29.10%</td>
</tr>
<tr>
<td>Pre-authorizations</td>
<td>24.50%</td>
</tr>
<tr>
<td>Presumptive charity</td>
<td>23.60%</td>
</tr>
<tr>
<td>Scheduling</td>
<td>22.70%</td>
</tr>
<tr>
<td>Transcription</td>
<td>21.80%</td>
</tr>
<tr>
<td>Insurance follow-up</td>
<td>20.00%</td>
</tr>
<tr>
<td>CDI</td>
<td>20.00%</td>
</tr>
<tr>
<td>Patient refunds</td>
<td>17.30%</td>
</tr>
<tr>
<td>Release of information</td>
<td>17.30%</td>
</tr>
<tr>
<td>Insurer refunds</td>
<td>14.50%</td>
</tr>
<tr>
<td>Chargemaster</td>
<td>13.60%</td>
</tr>
<tr>
<td>Self-pay statement customization</td>
<td>11.80%</td>
</tr>
</tbody>
</table>

*Note: n = 55 health systems, representing 200 hospitals*
Organizations using AI for revenue cycle functions (2020)

Healthcare Business Insights Annual Study

AI implemented  Was being considered for 2020-21

<table>
<thead>
<tr>
<th>Function</th>
<th>2020 (%)</th>
<th>2020 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insurance follow-up</td>
<td>12.70%</td>
<td>12.70%</td>
</tr>
<tr>
<td>Claims statusing</td>
<td>11.80%</td>
<td>15.50%</td>
</tr>
<tr>
<td>Coding</td>
<td>9.10%</td>
<td>12.70%</td>
</tr>
<tr>
<td>CDI</td>
<td>9.10%</td>
<td>19.10%</td>
</tr>
<tr>
<td>Charge capture</td>
<td>7.30%</td>
<td>9.10%</td>
</tr>
<tr>
<td>Price estimation</td>
<td>7.30%</td>
<td>26.40%</td>
</tr>
<tr>
<td>Bill pay</td>
<td>6.40%</td>
<td>10.00%</td>
</tr>
<tr>
<td>Productivity monitoring</td>
<td>5.50%</td>
<td>20.90%</td>
</tr>
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<tr>
<td>Patient refunds</td>
<td>3.70%</td>
<td>17.30%</td>
</tr>
<tr>
<td>Self-pay statement customization</td>
<td>3.60%</td>
<td>13.60%</td>
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<td>3.60%</td>
<td>20.00%</td>
</tr>
<tr>
<td>Insurer refunds</td>
<td>1.80%</td>
<td>16.40%</td>
</tr>
<tr>
<td>Release of information</td>
<td>1.80%</td>
<td>7.30%</td>
</tr>
</tbody>
</table>

At the Boston event, attendees noted most recently using AI for:
- Eligibility
- Scheduling
- IVR
- Posting

n = 55 health systems, representing 200 hospitals
Barriers to automation
Healthcare Business Insights Poll (2020)

- Unclear ROI: 46%
- Lack of internal expertise: 40%
- System/IT limitations: 50%
- Trust in vendor/tech: 35%
- Effect on staff: 15%
- Other: 15%
- External partner resistance: 9%
The value of moving away from manual efforts

<table>
<thead>
<tr>
<th>Type of effort</th>
<th>Cost of manual effort</th>
<th>Cost of electronic effort</th>
<th>Cost savings per effort</th>
<th>Time savings per effort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligibility + benefit verification</td>
<td>$11.52</td>
<td>$0.95</td>
<td>$10.57</td>
<td>21 minutes</td>
</tr>
<tr>
<td>Prior authorization</td>
<td>$10.95</td>
<td>$3.43</td>
<td>$7.52</td>
<td>16 minutes</td>
</tr>
<tr>
<td>Claim submission</td>
<td>$3.96</td>
<td>$1.04</td>
<td>$2.92</td>
<td>6 minutes</td>
</tr>
<tr>
<td>Claim attachments</td>
<td>$4.43</td>
<td>$1.33</td>
<td>$3.10</td>
<td>6 minutes</td>
</tr>
<tr>
<td>Claim status inquiries</td>
<td>$13.66</td>
<td>$1.54</td>
<td>$12.12</td>
<td>22 minutes</td>
</tr>
<tr>
<td>Claim payments</td>
<td>$3.64</td>
<td>$1.68</td>
<td>$1.96</td>
<td>4 minutes</td>
</tr>
</tbody>
</table>

Not all electronic transactions are “automated”—values listed above only increase by leveraging purpose-built automation to further simplify efforts, saving even more time and money.

Expected benefits of automation

1. Reduction of time-consuming, manual administrative tasks
2. Allows redeployment of staff to perform more complex, skilled tasks
3. Improves employee satisfaction with more engagement
4. Eliminates human error and increases data standardization
5. Decrease turnaround times for accounts in work queues
6. Creates a 24/7 virtual workforce
7. Reduces cost and increases speed of repetitive, transactional processes
Did COVID-19 cause you to reprioritize processes to be automated?

- Yes: 82%
- Planned to: 7%
- No: 11%

Error rates or implementation challenges caused a discontinuation in automation or AI applications

- Yes: 40%
- No: 60%

n = 28 health systems, representing 128 hospitals

n = 15 health systems, representing 99 hospitals
Effective automation relies on structured and defined governance
This is why setting up a governance structure becomes so valuable

Organizations including AI/automation governance within revenue cycle
Healthcare Business Insights survey data (2022)

More of your revenue cycles govern AI/automation applications than it does:

- Utilization management/review
- The patient experience
- IT specialists/system development
- Home health, hospice or SNFs
- Case management

n = 59 health systems, representing 272 hospitals
First comes automation selection:

1. Rules-based and repetitive
2. Structured
3. High volume
4. Peaks and valleys of work
5. Opportunity to process off-hours
6. Prone to human error
7. Cost savings
8. Not subject to ongoing optimization

Outcome: Suitable processes to deploy automations

Then comes development:

- Establish governance structure
- Develop strategic framework tied to workforce management
- Identify & inventory process opportunities viable for automation
- Document current state through process mapping
- Select an automation technology or vendor
- Conduct proof of concept
- Ensure a strong change management structure

How to move forward
However, not all automation is the same

**General purpose automation**
- Basic data movement
- Define + maintain “bots”
- High-volume, low-value tasks

**Purpose-built automation**
- Augmented intelligence
- Designed for specific use case
- High-volume, high-value tasks
Factors for AI + automation success

Technology

Data + model democratization has made building technology incorporating AI much more accessible

Data quantity

Performance of ML + deep learning models are proportional to the size of the dataset used to train the model

Knowledge

Models cannot be trained on data alone … accurate interpretation of process variations requires deep subject matter expertise
Evaluating processes for RPA and/or AI

- Meet with department directors to explain RPA or AI, example use cases, and ask them to brainstorm applicable tasks
  - Give feedback on feasibility, objectives, etc. AND narrow down based on ease of implementation, cost/savings, etc.

- Visually document the process steps

- Communicate early with staff, even as these technologies are first being explored to stave rumors/concern
  - Also, ask them to think about every task they do – can they contribute to the conversation?

- Think simple: “if X, then Y,” “If not X, then Z” scenarios
  - Chart out all the “exceptions”– are there too many or are they too situational?

- What is the root cause of the current inefficiency?

- Is it a highly manual, repetitive task?
- Does it represent significant volume that is hard to manage?
- Will it reduce staff work queues or hours spent? Or is it a source of staff frustration?
- Will it eliminate account or work “touches”? 
- Is it measurable?
- Will it reduce the work conducted by a vendor or contracted staff?
Use cases and case study examples
### Use cases for AI + automation in the revenue cycle

Use cases for AI and machine learning in the revenue cycle today are prevalent and continue to grow ...

<table>
<thead>
<tr>
<th>Use Case</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Eligibility Verification</strong></td>
<td>Use of RPA to augment missing data from X12 in order to return richer, more accurate benefit information as well as identify potentially missing insurance coverage</td>
</tr>
<tr>
<td><strong>2. Estimation of Patient Responsibility</strong></td>
<td>Use of machine learning to identify payer adjudication rules and RPA to retrieve real-time updates on patient financial responsibility and deliver truly accurate patient estimates</td>
</tr>
<tr>
<td><strong>3. Prior Authorizations</strong></td>
<td>Use of machine learning to identify upcoming services requiring authorization + RPA to initiate and follow up on authorization requests</td>
</tr>
<tr>
<td><strong>4. Patient Payment Optimization</strong></td>
<td>Use of predictive analytics to provide tailored payment options and automated identification of charity determination while delivering personalized communications to drive self-service payments</td>
</tr>
<tr>
<td><strong>5. Revenue Integrity</strong></td>
<td>Use of machine learning to identify accounts with a high probability of missing charges and DRG anomalies to maximize revenue opportunities</td>
</tr>
<tr>
<td><strong>6. Claim Status Checks</strong></td>
<td>Predictive analytics to optimize when to check status of claims, use of RPA to retrieve updated claims status information, and AI to normalize each payer’s unique remark codes and auto-assign disposition codes</td>
</tr>
<tr>
<td><strong>7. Denial Management</strong></td>
<td>Predictive analytics to identify those denials most likely to be successfully appealed in order to guide workflow</td>
</tr>
<tr>
<td><strong>8. Payment Posting/Reconciliation</strong></td>
<td>Automated matching of claims to remits, posting of payer and patient payments, including remit splitting and identification of missing payments as well as reconciliation of all payments</td>
</tr>
</tbody>
</table>
Case study: driving down cost to collect by 50%

Results:
- Cost to collect reduction
- 50% reduction over time
- 14% reduction in past 5 years

Integrated, non-profit health system with more than 35 hospitals and 1,200 care locations
Case study: cost benefit of automation

Integrated, non-profit health system with more than 35 hospitals and 1,200 care locations
Parting thoughts
Trending adoption of automation

68% of health system executives believe that further investment is needed in intelligent automation (IA) programs to advance their overall enterprise goals.

75% of organizations intend to restructure their revenue cycle operations in response to shifting business dynamics caused by the pandemic.

30% lower operational costs by end of 2024, according to Gartner estimate.

Parting advice and key takeaways

It’s not about FTE reduction
• While RPA may help to pick up monotonous tasks from live staff members, this has not resulted in the elimination of positions
  – Thus far, solutions are allowing leadership to reallocate staff hours from “mindless” tasks to focus on more meaningful work
  – So, have a reallocation plan in place!

AI should not be the immediate answer
• First identify the root cause – is there a different staff, workflow, or technological error that needs to be fixed or optimized first?
• It’s also possible your EHR may be able to help automate certain elements of a process as well—supplement with AI from there

Ease into it if you or your organization needs to
• Approach methodically: evaluate how to automate with existing systems first, then venture into a use case for RPA, then add machine learning to that process, and so on

Get all the right people in the same room, and on the same page
• Revenue cycle, IT, accounting, security—but also subject matters expert on both process and technology

Further standardization may need to occur as preparation
• You may be aligned in systems utilized, but do you have similar workflows? Are you operating as a whole or as separate silos?
Thank you

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