

Leveraging Artificial Intelligence in Day to Day Revenue Cycle Operations

Healthcare Summit 2018:
Simplifying Healthcare

September 19, 2018 10:45am

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Susan Searcy

Rachel VonDielingen

Your Presenters



Blake Evans
Senior Manager

Blake leads Crowe's Revenue Cycle Management operational team. Blake has over 10 years of healthcare experience within several hospital systems, focusing primarily on patient access and other revenue cycle-related roles.



Susan Searcy
Exec Dir Rev Cycle
UnityPoint Health



Rachel VonDielingen
Senior Manager

Rachel leads Crowe's Exceptions Resolution (ExR) solution which utilizes machine learning and artificial intelligence to automate resolutions in the revenue cycle. Rachel has success in improving net revenue for healthcare organizations through process redesign, technology implementation, and performance monitoring.

- Understand how the market is moving in the direction of increased automation
- Review current applications of artificial intelligence in the revenue cycle and their benefits
- Cover strategies to identify opportunities to utilize artificial intelligence within traditional operations.

Agenda

Disruption

Artificial Intelligence

RPA "Bots"

Automation

Automation in the Headlines

EXPERT AUTOMATION IN THE NEWS

MORE THAN 100,000 LEGAL ROLES TO BECOME AUTOMATED
March 15, 2016
FT
FINANCIAL TIMES

THE ASSOCIATED PRESS WILL USE AUTOMATED WRITING TO COVER THE MINOR LEAGUES
June 30, 2016
Poynter.
A global leader in news and information

THE FUTURE OF FINANCE: MORE DATA, FEWER PEOPLE
May 2, 2017
Institutional Investor

YOUR NEXT JOB INTERVIEW COULD BE WITH A RECRUITER BOT
May 16, 2017
CNN tech

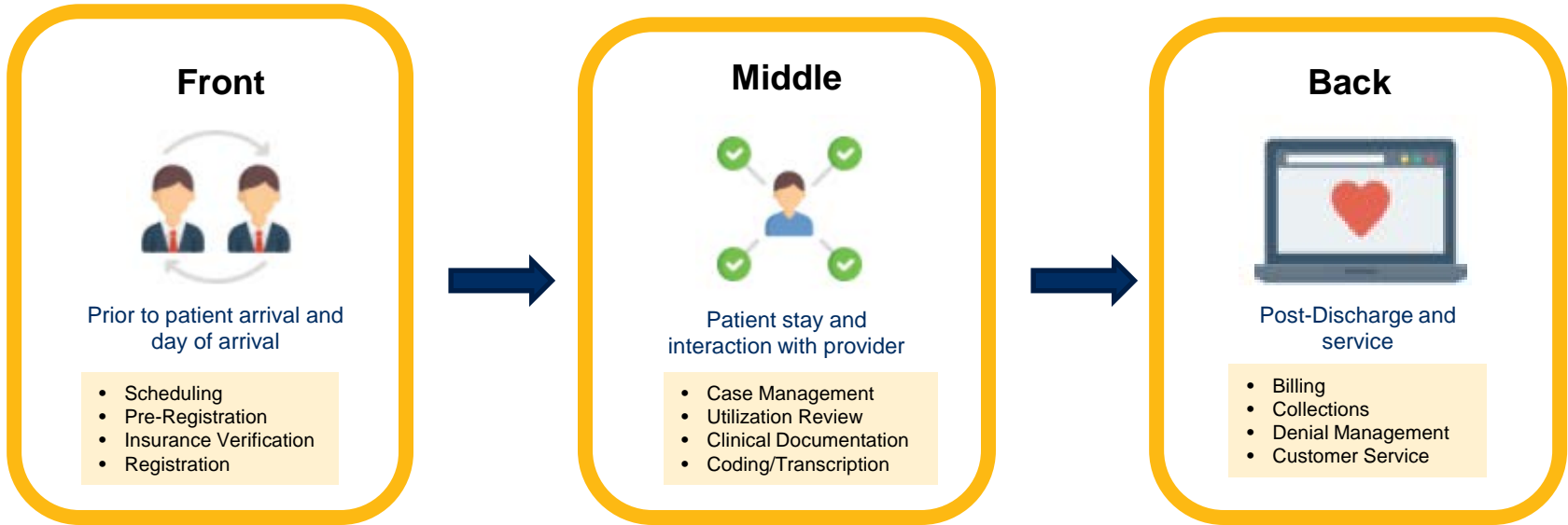
AUTOMATION, AI, AND THE FUTURE OF AUDIT AND COMPLIANCE
May 22, 2017
COMPLIANCE WEEK
THE GLOBAL INFORMATION SERVICE ON CORPORATE GOVERNANCE, RISK, AND COMPLIANCE

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**Understand how the
revenue cycle is
moving in the direction
of increased
automation**



Automation Solutions within RCM



- **Patient's insurance coverage and benefits are verified by EDI transactions and RPA-Enabled "Bots"**

- **Authorizations and pre-certifications obtained** (auto validation of authorization needs)

- **Initial notification of patient admission (276/277)**

- **Auto combining of consecutive accounts**
- **Auto Assignment of necessary ICD, CPT, DRG, and/or HCPCS Codes**

- **Workload Prioritization (e.g predicting success on denial resolution)**
- **Automated Resolution on Pre-determined Accounts (e.g credit balances)**
- **Intelligent Third Party Call Management (e.g awaiting payer representative)**

The Evolution of Process Improvement

CRAFT

Determine best resolutions paths (via best performers, plus other organization data) to establish standards of performance



STANDARDIZE

Institute best practice pathways into work processes (via education, new monitoring structures) and align performance management metrics

SYSTEMIZE

Integrate best practice resolution pathways into (technology) workflows, including predictive analytics for clustered accounts (e.g. write-offs)



AUTOMATE

Transition to automated (no touch) work steps within resolution pathways, with defined group to manage / update the “machine” for continuous improvement

About UnityPoint Health

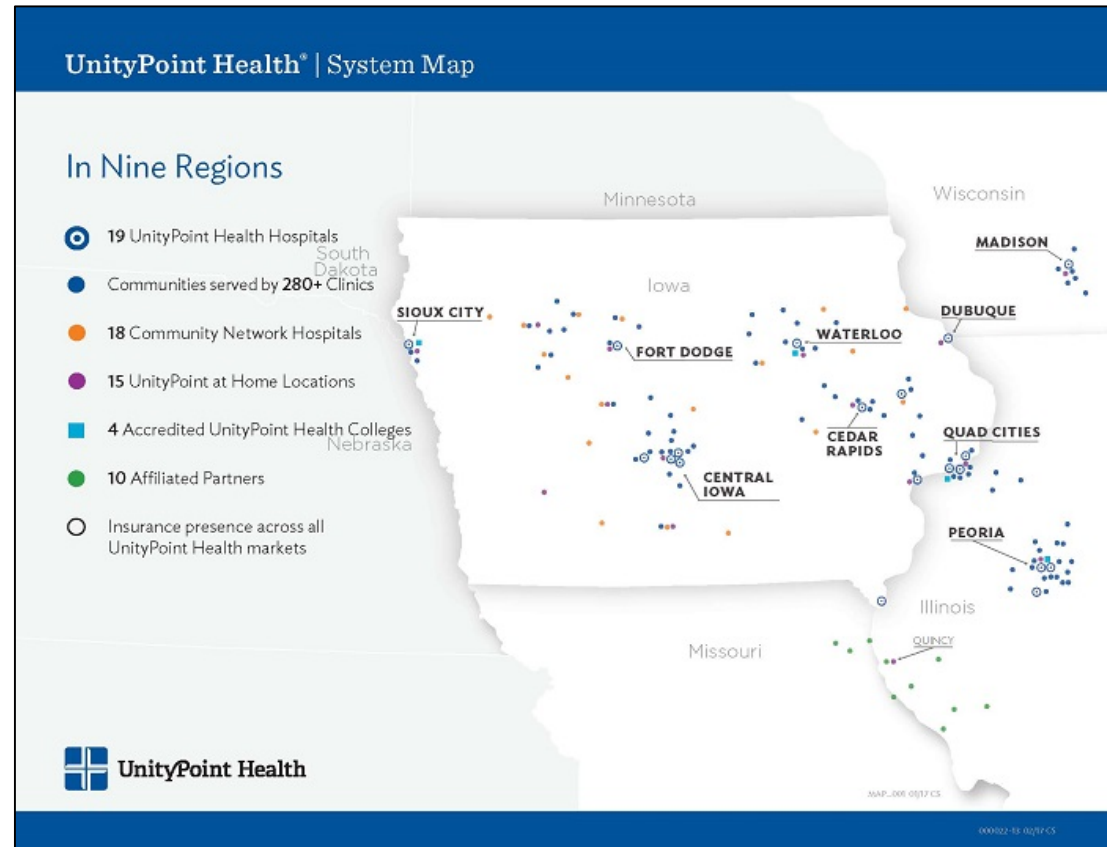


Overview

- **9 Regions**
- **13th Largest Non for Profit in the US**
- **19 UnityPoint Health Hospitals**
- Communities served by 280+ Physician Clinics
- 18 Community Network Hospitals
- 15 UnityPoint at Home Locations
- 4 Accredited Colleges or and/or Allied Health Fields
- 10 Affiliated Partners

Stats *

- Licensed/Staffed Beds: 3,788/2,879
- Admissions: 155,334
- Births: 20,641
- Yearly Patient Visits: 5.6 Million
- **Total Employees: 30,961**
- **Total Operating Revenue: \$3.9 Billion**



Why is there Increased Pressure to Move to Automation?

- 1. Continued Pressures on Cost Controls**
- 2. Appetite for Scalability**
- 3. Consistency of Process Supports Net Revenue Projections**
- 4. Reducing Net Revenue Leakage Due to Human Error**
- 5. Enabling a 24/7 Workforce**
- 6. A Technological Tipping Point**

The Collector of the Future

Machine Learning
augmented brain
power



Scientific
Process
Methodology



Validation and
Reinforcement
Learning



RPA, Rules, and
Automation of
process



Current Applications of Artificial Intelligence in the Revenue Cycle and the Benefits



Credit Balance Resolution

The Traditional Method of Resolving Credit Balances

Account Number	Posting Date ID	Transaction Description	Transaction Type	Transaction Amount	Account Balance	Total Charges
*****4941	12/14/2013	SELF PAY PAYMENT	PAYMENT	(19.34)	(19.34)	1,008.50
*****4941	1/2/2014	AETNA TRSCARE PAYMENT	PAYMENT	(506.91)	(19.34)	1,008.50
*****4941	1/2/2014	AETNA TRSCARE ADJ	CONTRACTUAL	(501.59)	(19.34)	1,008.50

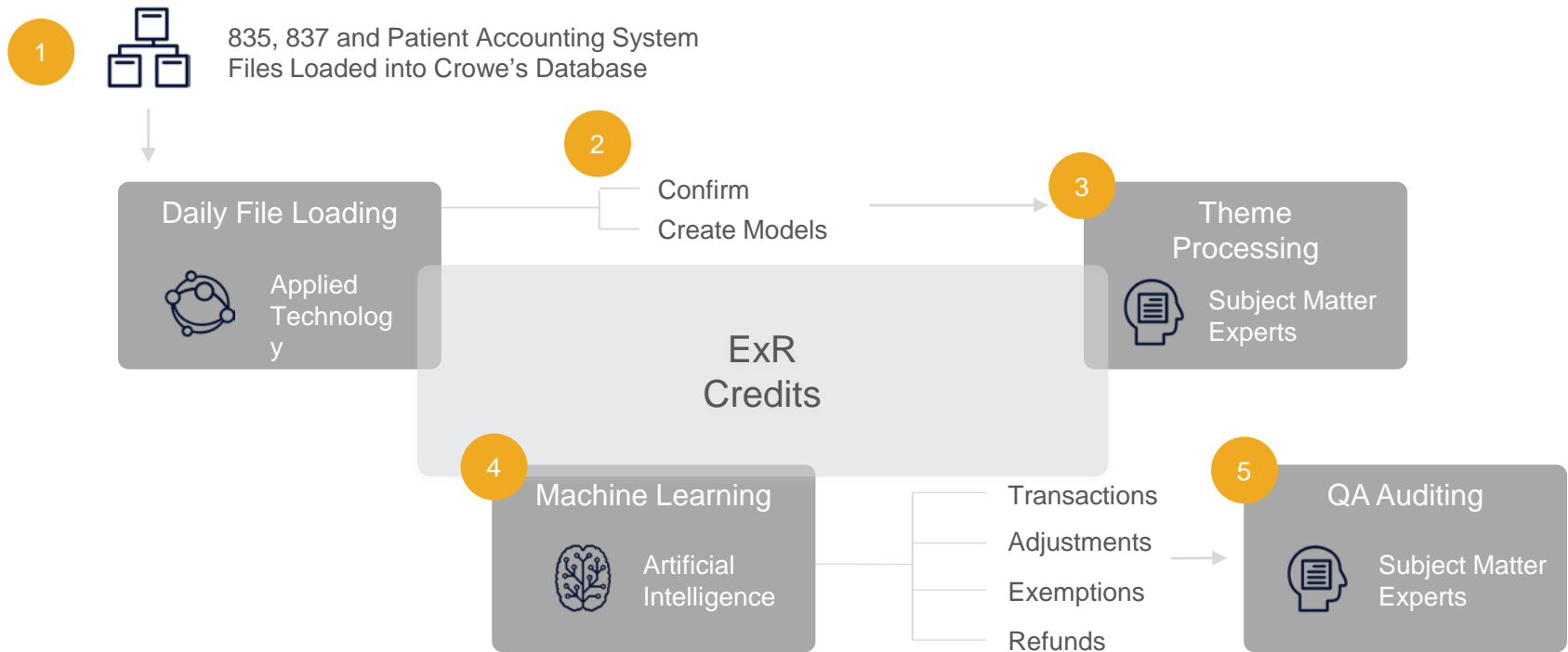
Account Number	Claim Status	Claim ID	Remit Dat	Total Charges	Total Payment	Total Cont	Total Denial	PR
*****4941	1 – Process as Primary	116453900	12/24/2013	1,008.50	506.91	501.59	-	-

4 Check for open debit balance for same patient...

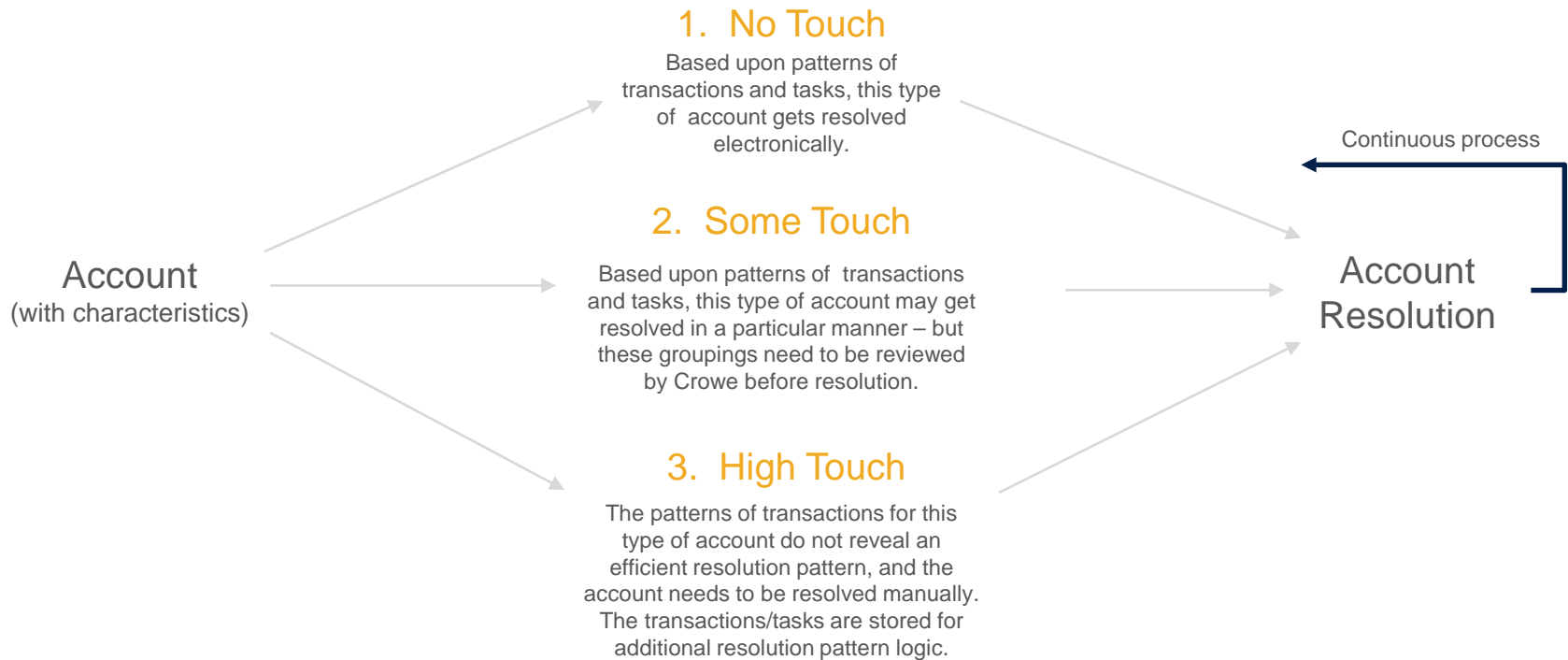
- Open debit – transfer patient dollars
- No open debit – send to A/P for refund

Completing this process manually takes approximately **15 minutes per account**

What Does it Look Like for Crowe?



Account Resolution with Machine Learning



0-30 Days Aged Credit Population: Machine Learning (ML) Results (Sample Results)

Resolution Type	% of Volume	% of Dollars	Volume	Amount
Adjustment Errors	50.01%	71.40%	991	\$2,742,630
Patient Refund	35.60%	10.30%	705	\$395,645
Patient Refund and Adjustment Error	8.69%	5.51%	172	\$211,651
Insurance Refund	2.27%	1.57%	45	\$60,307
Insurance Refund and Adjustment Error	1.17%	4.28%	23	\$164,404
Medicare/Medicaid Refund	0.91%	0.71%	18	\$27,273
Medicare/Medicaid Refund and Adjustment Error	0.78%	6.06%	15	\$232,778
Other Government Refund	0.45%	0.12%	9	\$4,609
Other Government Refund and Adjustment Error	0.06%	0.04%	1	\$1,536
Multiple Refunds	0.06%	0.01%	1	\$384
Total	100%	100%	1,981	\$3,841,218

Total credit balance population aged 0-30 days:

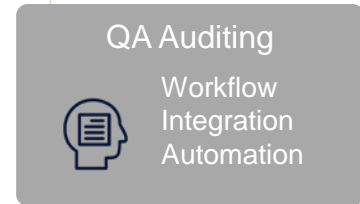
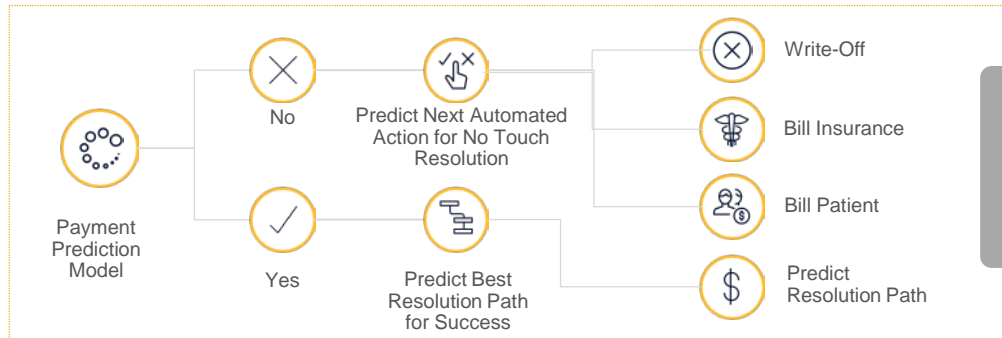
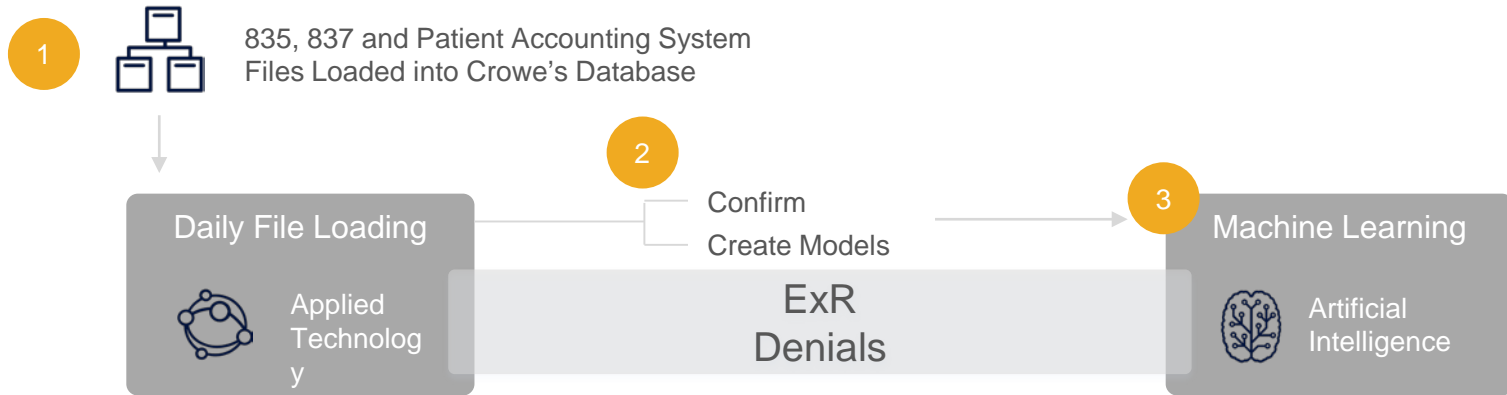
- 3,374 accounts for \$9,562,172 in outstanding liability

ML and ZBA Analysis identifies 59% of the accounts and 40% of dollars

- This is 1,981 accounts that do not need touched by credit balance staff
Equates to an FTE Savings of 4.28

Denials Management Resolution

How is it Different : New Process



How is it Different : New Process

1



835, 837 and Patient Accounting System Files Loaded into Crowe's Database

Daily File Loading

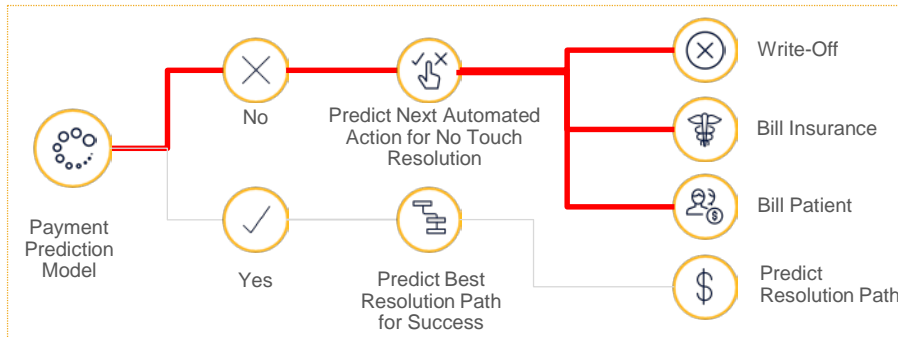
Applied Technology

Confirm
Create Models

Machine Learning

Artificial Intelligence

ExR
Denials



QA Auditing

Workflow Integration Automation

Denials – No Payment Predicted

PREDICTION	NO PAYMENT TRANSACTION	PAYMENT TRANSACTION	Grand Total	Volume %	Accuracy
LOW PROBABILITY	3,947	3,492	7,439	9.8%	
NO PAYMENT	36,491	1,741	38,232	50.2%	95.4%
PAYMENT	2,615	27,834	30,449	40.0%	91.4%
Grand Total	43,053	33,067	76,120	100.0%	93.7%

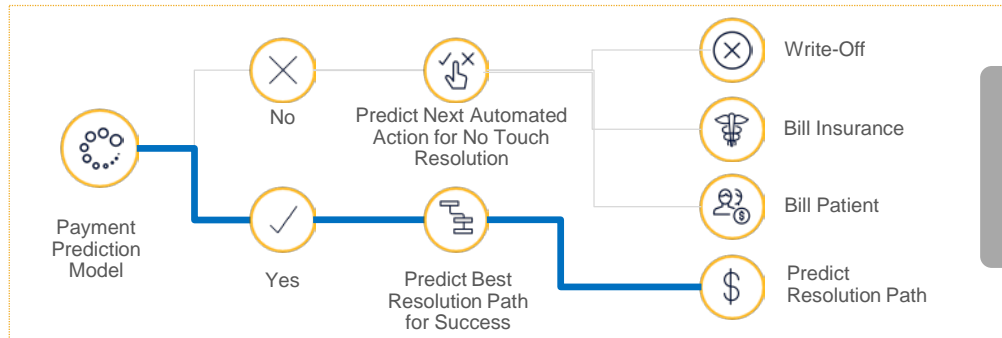
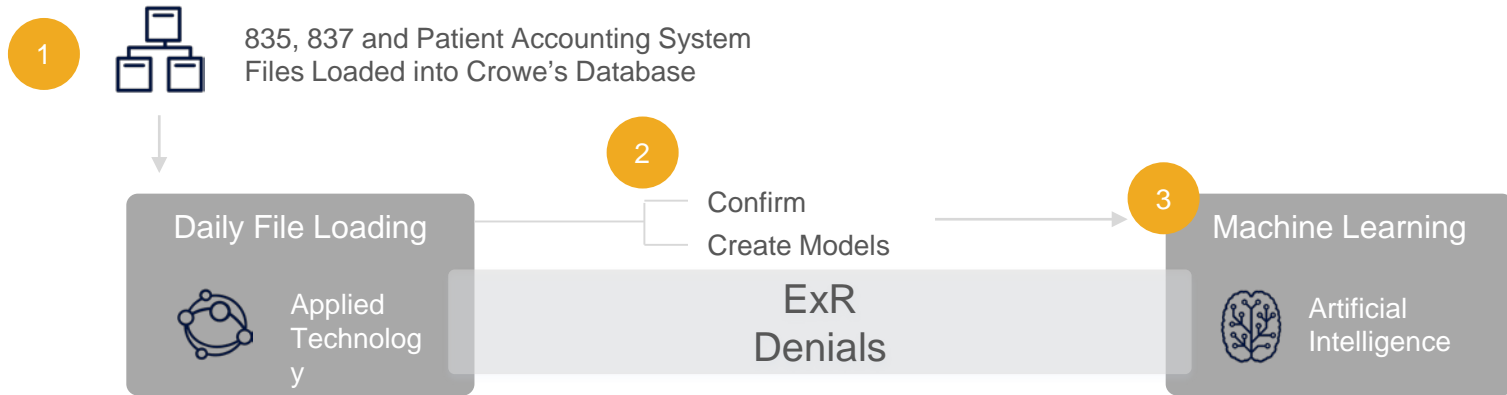
Prediction Breakdown by Payor and Denial Category				
Denial Category	Payor	Total		Accuracy
		Predictions	Correct Prediction	
Request for Information	Medicare	14,102	14,095	99.95%
Duplicate	Medicare	3,279	3,162	96.43%
Non-Covered Services	Blue Cross	3,162	3,056	96.65%
Non-Covered Services	Commercial - Other	2,990	2,911	97.36%
Non-Covered Services	Medicare	2,054	1,903	92.65%
Non-Covered Services	Managed Medicare	1,576	1,484	94.16%
Request for Information	Managed Medicare	874	867	99.20%
Coordination of Benefits	Medicare	821	821	100.00%
Coordination of Benefits	Managed Medicare	747	739	98.93%
All Other	ALL	8,627	7,453	86.39%
Grand Total	Total	38,232	36,491	95.45%

BENEFITS

Median touches per denied claim within the 'no payment' population = 3.5

- Total Touches Required = 43,575
- Average Cost per Touch = \$4.21
- Estimated Cost to Work = \$183,450 (wasted touches)

How is it Different : New Process



QA Auditing
Workflow Integration Automation

Workflow Prioritization: Post Denial Payment Prediction

Success Range	Volume	Denial Amount	Account Balance
0% - 10% Total	4,570	\$24,932,991	\$14,038,133
10% - 20% Total	4,282	\$24,696,219	\$23,980,134
20% - 40% Total	4,288	\$32,701,182	\$14,524,989
40% - 60% Total	7,428	\$60,022,303	\$35,392,485
60% - 80% Total	2,127	\$27,367,246	\$18,070,705
80% - 100% Total	1,567	\$12,545,992	\$9,443,710
Grand Total	24,262	\$182,265,933	\$115,450,157

	Attempt Current Payor Resolution	Send to Next Payor	Send to Patient	Close Account
Volume	1,828	1,371	914	457
Account Balance	\$ 6,317,160	\$ 2,105,720	\$ 3,509,533	\$ 2,105,720
Crowe Value	\$ 912,479	\$ 1,263,432	\$ 1,684,576	\$ -

Denial Workflow

1. Crowe Value determined based on historical post denial collection rates (at the payor level)
2. Optimize collection efforts based on Crowe Value
3. Target accounts for vendor outsourcing (e.g., contingent fee structure on low probability denials)

Strategies to Identify Automation Opportunities Within Your Current Operations



Questions to Ask Yourself

- Is this process data driven? If not, Can it be?
- Is there a substantial amount of manual effort involved?
- Is this process standardized across the organization?
- Are all of the data elements required to define the process available?
- Is there potential to integrate an automated solution? (e.g. Robotic Process Automation)





Thank you