



Can A.I. and Machine Learning Boost Your Lab's Collections & Revenue?

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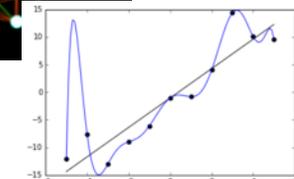
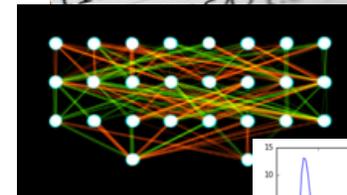


Agenda

- What is artificial intelligence?
- Why are AI and machine learning relevant to revenue cycle management?
- Practical RCM AI implementation
- Case studies
 1. Segment and Prioritize Accounts Receivable
 2. Auto-Analyze KPI Bad Performance Root Causes
 3. Expect Price Management
- Beyond the case studies — what's next for AI in RCM

What Is AI and ML? What about Predictive Analytics?

- AI refers to any technique that enables computers to mimic human intelligence
 - Broad field with a long history of successes and failures
- Current wave of AI is driven by the availability of data
- Machine learning (ML) is a subset of AI and is the science of getting computers to act without having to be explicitly programmed
 - It does this by analyzing data and discovering patterns, under the guidance of data scientists
 - These patterns create a model by which yields insight into the data and its relationships
- Predictive analytics
 - Once a model is “trained” we can use it to predict outcomes



Boiling the Ocean: AI for Healthcare

- We all know healthcare is ripe for improvement, and AI proponents see opportunity everywhere
- Despite the challenges, we do expect to see success in many areas, especially where the challenges are data centric
 - Precision medicine
 - Population health
 - Device monitoring
- It's attractive to want to go after the hardest problems
 - Have a huge, often global impact potential
 - Highest risk, largest investment
- If it's already difficult for humans, maybe we don't understand the problem well enough to train a machine



<https://healthitanalytics.com/news/10-high-value-use-cases-for-predictive-analytics-in-healthcare>
<https://healthitanalytics.com/resources/topic/clinical-analytics>

What About AI for RCM?

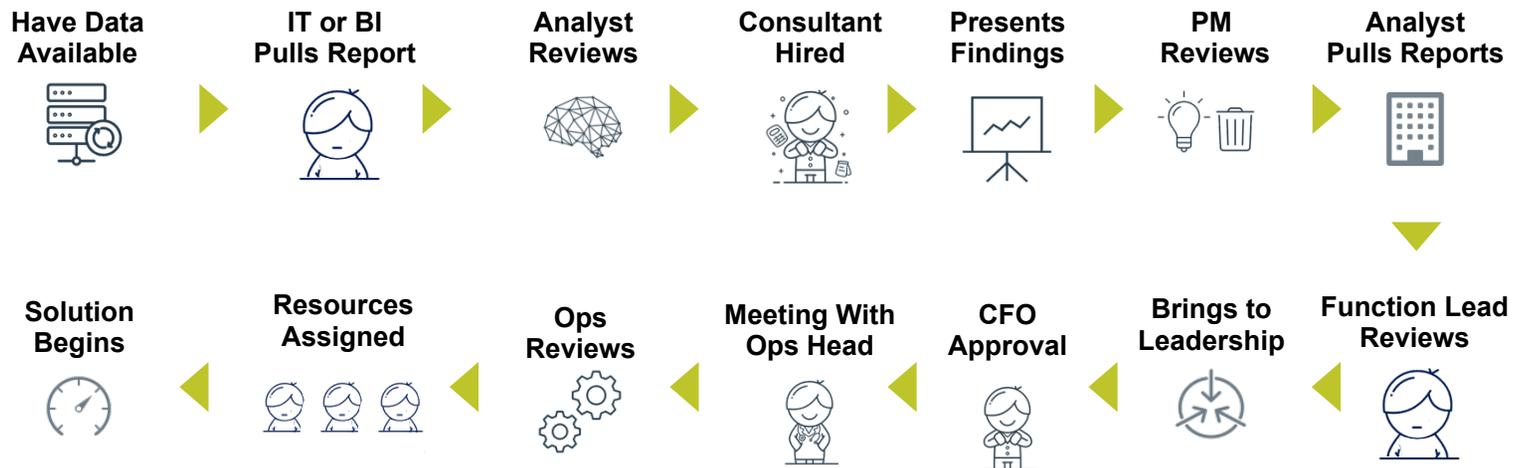
- RCM is a good place to begin a modest AI investment
 - Financial analysis is a well tested application of Machine Learning
 - Insight drives actions with a direct line to lab financial performance
 - Optimizations can drive down labor expense
- Even with a good fit there are significant risks to execution
- Data quality is very important – garbage in, garbage out
 - Poor data quality leads to inaccurate conclusions
 - If the source RCM system has good data quality and integrity, little data preparation or transformation is needed
- Need data scientists who are also RCM experts
 - What are the right questions
 - What is the most relevant data



AI Can Help Reduce the Time to Insight & Solution

Think about the current manual effort and the amount of resources dedicated to identifying issues and how to solve them.

Manual Process Improvement



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AI Process Improvement



RCM Optimization Approaches

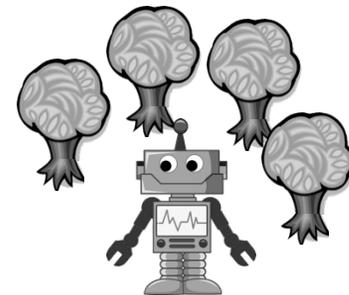
Automate operational data analysis to reduce manual efforts, increase speed and drive interoperability of insights across RCM functions.



Manual data analysis is like chopping a tree with an axe. Very labor intensive, time consuming and the tree often times lands in different spots each time



With Etyon, it is like having one person with a chainsaw, able to cut down multiple trees in less time, with less effort, with precision accuracy



With too much robotic automation, implementation becomes burdensome on time and resources, and issues can sometimes become “self-fulfilling”

RCM Focus Areas



Denials & Root Cause Management

Automatically identify and mitigate upstream root-causes that are causing your most impactful issues.



Insurance Collections

Predict, segment, assign, and prioritize your A/R based on an account's potential cost-benefit outcome.



Patient Collections

Assess patient payment risk without FICO scores and segment receivables by engagement tactic.



Labor & Productivity

Understand claim touch efficiency and staffing alignment while measuring overall performance.



Financial Forecasting

Ensure cash forecasts, volumes, auditable reports, and reserve methodologies are appropriately managed.



Report Enhancement

Automatically build reporting elements that enhance the way that you report and analyze your data.



Three Dos and Donts of Practical RCM AI Implementation



Great AI Technology and Millions of Dollars Won't Solve Your Problems

Even with the best technology and the largest of resource allocations, your organization is still at risk of losing its shirt on any new AI investment.

IBM Watson + MD Anderson

- ✓ Started in late 2013 under lots of PR and fanfare
- ✓ \$62M total project cost, with an even bigger budget
- ✓ \$200 - \$1000 cost per patient
- ✓ Supercomputer trained on thousands of patient outcomes
- ✓ Some of the best computing infrastructure in the world
- ✓ Jeopardy champion
- ✓ Hired high-priced consultants
- ✓ Successful Pilot Stage
- ***Project dropped after 4 years***



<https://www.statnews.com/2017/09/05/watson-ibm-cancer/>

<https://www.beckershospitalreview.com/healthcare-information-technology/5-things-to-know-about-the-md-anderson-ibm-watson-breakup.html>

#1 Don't Let the Hype Outweigh Your Organization's Readiness

Innovating for innovation's sake can lead to wasted dollars and resources. Find practical ways to use AI as a means rather than an end.



“What Went Wrong”

- Contracting didn't pass proper audits
- Budget did not align with spending
- Had to spend \$30M+ on consulting groups to organize and ensure its implementation

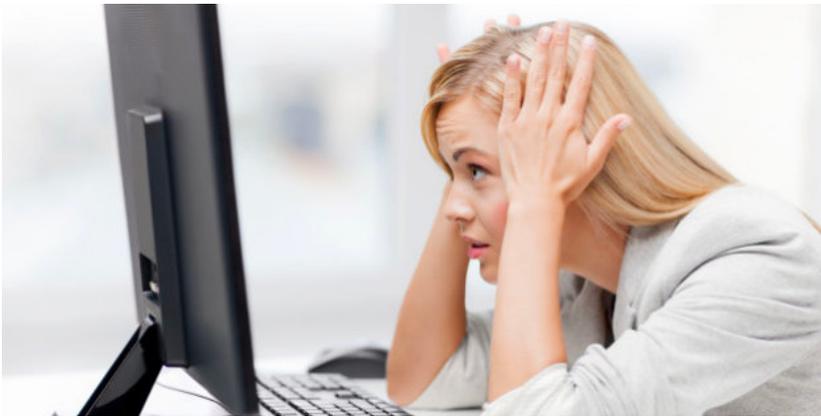
How To Avoid In the RCM

- Don't rush your operation's “fit” evaluation
- If you are not ready — it's okay to wait
- Finish “block & tackle” RCM projects first

<https://www.utsystem.edu/sites/default/files/documents/UT%20System%20Administration%20Special%20Review%20of%20Procurement%20Procedures%20Related%20to%20UTMDACC%20Oncology%20Expert%20Advisor%20Project/ut-system-administration-special-review-procurement-procedures-related-utmdacc-oncology-expert-advis.pdf>

#2 Don't Immediately Jump to Implementing More Bolt-On Software

More platforms, log ins, training, IT dependencies, user interfaces, data specifications, etc. can cause more harm than good — make sure the vendor can work with your core workflow system



“What Went Wrong”

- Didn't sync well with their EMR system
- Had to train staff on how to use new system
- Still had to prove outcomes

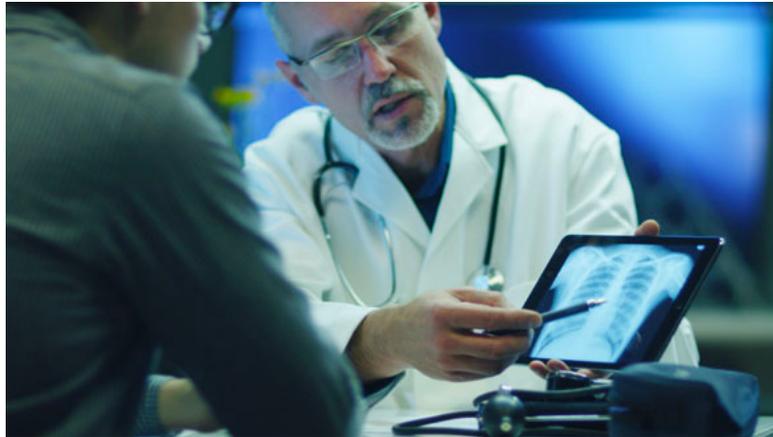
How To Avoid In the RCM

- It must not add more “screens” to your workflow
- RCM is highly dependent on correct data integration
- Make sure that the outputs are digestible for the audience

<https://www.statnews.com/2017/09/05/watson-ibm-cancer/>

#3 Do Make Sure that the AI Solves a Specific Use Case & ROI

AI must be assigned to solving a specific problem that will generate meaningful and measurable return that is above and beyond manual effort



“What Went Wrong”

- Switched use cases (cancer types) mid-way
- Use cases required higher scrutiny (patient-related)
- Could the patient have afforded the extra charge?

How To Avoid In the RCM

- Focus RCM projects on those where you need the most help
- Choose projects where everyone is on-board (at first)
- Test the product before fully investing



Case Studies



Case Study 1: Segment and Prioritize Accounts Receivable

Facility Name,Flag: Pro/Tech, Patient Type Group,Flag: PAS, Flag: PFC, Reporting Month, Fin Class, Service Line, Txn Type, Fl

Main Hospital_Tech_Emergency_Y,Y,Nov-17,Blue Cross_Emergency Services_Payment_INS PMT,N,-20045.89
Main Hospital_Tech_Outpatient,N,N,May-18,Medicare_Occupational Therapy Series_Payment_INS PMT,N,-70.06
Main Hospital_Tech_Outpatient,Y,Y,Sep-17,Other_Physical Therapy Series_Payment_INS PMT,N,-376.97
Main Hospital_Tech_Outpatient,N/A,N/A,Dec-18,MANAGED CARE_LPCH PATIENT_Payment_INS PMT,N,0.00
Main Hospital_Pro_Outpatient,N,N,Jun-18,MANAGED CARE_Outpatient,Debit Adjustment_INS PMT,N,0.00
Valley Care Hospital_Tech_Emergency,N,Y,Dec-18,Other_Emergency Services_Payment_INS PMT,N,-67424.06
Main Hospital_Tech_Outpatient,N,Y,Mar-18,Blue Shield_Dermatology Series_Payment_INS PMT,N,-5794.86
Main Hospital_Tech_Outpatient,Y,Y,Dec-17,Medicare_Outpatient_Payment_INS PMT,N,-697798.56
Main Hospital_Tech_Outpatient,Y,N,Apr-18,MANAGED CARE_BMT Series_Payment_INS PMT,N,-1861985.95
Valley Care Hospital_Tech_Outpatient,N,Y,Jan-19,Blue Cross_OP Surgery/Procedure_Payment_INS PMT,N,327.36
Valley Care Hospital_Tech_Outpatient,N,Y,May-18,Blue Shield_OP Surgery/Procedure_Payment_INS PMT,N,-25733.94
Main Hospital_Tech_Outpatient,N,N,Aug-18,Blue Cross_Referred Specimen_Payment_INS PMT,N,-4677.98
Main Hospital_Tech_Outpatient,Y,Y,Jul-18,MEDICARE MANAGED CARE_Oncology Series_Payment_INS PMT,N,-42604.68
Main Hospital_Tech_Outpatient,N,N,Jan-19,MEDICARE MANAGED CARE_Institutional_Payment_INS PMT,N,0.00
Main Hospital_Tech_Inpatient,N,N,Nov-18,Blue Cross_Inpatient_Payment_INS PMT,N,191939.62
Valley Care Hospital_Tech_Outpatient,N,N,Dec-18,MEDICARE MANAGED CARE_Cardiac Therapy Series_Payment_INS PMT,N,123.08
Main Hospital_Tech_Outpatient,Y,Y,Oct-17,Other_Hematology Series_Payment_INS PMT,N,-14845.02
Main Hospital_Pro_Outpatient,Y,Y,Dec-18,Other_Outpatient_Payment_INS PMT,N,-14845.02
Main Hospital_Tech_Inpatient,N,N,Sep-17,Blue Shield_Inpatient_Payment_INS PMT,N,-178749.79

Automatic Worklist

#1	12342353	Authorization
#2	65487474	Medical Nec.
#3	34556445	Non-Covered

“John should next work this Medical Necessity-Medicare claim in the next 7 days in order to realize a \$1007 return on investment.”

Problem

- Didn't know how much leaving on table
- Didn't know what to focus on/denied
- Manually creating worklist/cherry-picking

Solution

- Map, hierarchy, and integrate denial data
- Flag problems, predict outcomes, and grade risk
- Assign most “liquid” accounts to the right person at the right time

Benefits

- Properly forecasted true predicted payments on open accounts
- Increased collections by 25% in first month
- Decreased touch rate by 17% on average for worst denials over first quarter

Case Study 2: Auto-Analyze KPI Bad Performance Root Causes



"Automated-Consultant"

"Larger than average billed accessions for procedure 88123 that are covered by UHC PPO plans, when billed with diagnosis code R10.42 and rendered by Dr. Pat Jones are increasingly being denied for Authorization issues which are resulting in non-payments, accounting for a loss of \$350 in payment per Accession, for a total of \$1,583,129 on an annual basis. **See page 174 in the Solution Toolkit for ways to fix.**"

Problem

- Couldn't get past the low-hanging fruit
- Analysis took much of their administrative resources
- Visibility into problems wasn't very detailed

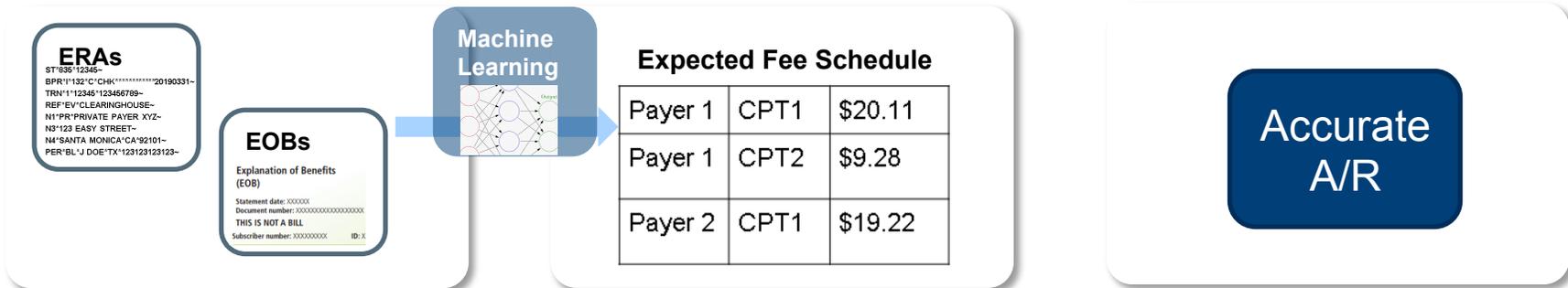
Solution

- Calculate, benchmark, and forecast KPI performance
- Identify the root causes of KPI issues and create a packaged project list, complete with solution toolkit
- "Automated-Consultant"

Benefits

- Reduced need for redundant analysis by ~1.5 FTE
- Increased First Pass Payment Rate by 27%
- Increased contract rates on worst performing procedures on average by 9%

Case Study 3: Expect Price Management



Problem

- When reporting A/R we need an accurate understanding of expected reimbursement
- Lots of contracted rates to accurately maintain
- A/R with Non-Contracted Payers most difficult
- Many Labs/RCM systems use billed price to determine expected payment which inflates expectations

Solution

- Data mining recent reimbursements
- Apply Machine Learning to yield expected fee schedule by payer/ procedure
- Train/Refresh schedules daily

Benefits

- Ability to predict accurate reimbursement
- More accurate assessment of outstanding A/R
- Key ingredient in accurate patient responsibility estimation



Beyond the Case Studies



Driving Analysis into RCM Workflow

1

- Point application of automated analysis and drill down

“John should next work this Medical Necessity-Medicare claim in the next 7 days in order to realize a \$1007 return on investment.”

2

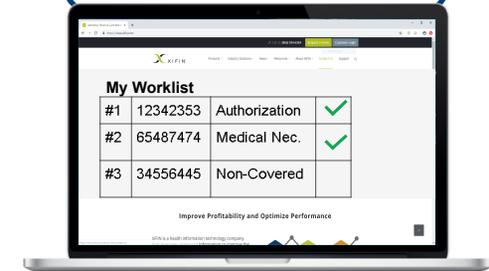
- Repeated/regular automated application of analysis and drill down

Automatic Worklist

#1	12342353	Authorization
#2	65487474	Medical Nec.
#3	34556445	Non-Covered

3

- Workflow automation from automated analysis



Extending RCM AI Beyond Financials

- Continued evolution of areas of successful analytic models into workflow automation
 - Reduced time-to-collection and reduced labor
- Real-time analysis & feedback for RCM workflow actions
 - Recurring patient recognition & patient demographic cleansing
 - Thresholds and warnings for actions with undesirable outcomes
- Precision Medicine Informatics
 - Integrating financial analytics with clinical data to gain insight, make decisions, and improve care and outcomes

The Future of RCM AI, MLE, and Automation

1. AI techniques and solutions will become widely adopted, and the majority will overspend on the new technology
2. Outsource collection vendors will use the technology to improve collection rates and operating costs – and overtime will become the better alternative for organizations who struggle with back-office appeal work and don't adopt the new technology themselves
3. Automated denial prevention will continue to move upstream and attempt to reduce clinical-based errors as much as possible without human intervention
4. The EMR/LIS will be the source/owner of the technology because they have the best chance of affecting the workflow
5. Automated appeal reconciliation within the payer-provider relationship will become more feasible



Questions





Thank You

