

# How to Marry Robotics and Analytics to Generate Real Value :

**Robots can't help if they don't know what  
to do**

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# Introduction – Peter Angerhofer

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2014- Colburn Hill Group

2004-2014 Accretive Health (R1)

2001-2003 Deloitte Consulting

1998-2001 APM/CSC

1991-1996 – U.S. Senate, House of Representatives

*MBA, Kellogg School of Management (1998)*

*BA, Political Science, American University (1991)*



# Agenda

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- Introduction
- Analytics Framework
- Current use of Metrics and Analytics
- RPA in AR Management
- Conclusion

# Mystery Men

- Superheroes with marginally useful superpowers
  - The Bowler, a superheroine with good bowling skills
  - The Shoveler, a quarry worker-turned-superhero that wields a shovel
  - Invisible Boy, a superhero who can only become invisible if nobody is looking
  - The Sphinx, a mysterious superhero who can use his mind to cut guns in half
  - Mr. Furious, a superhero that often gets enraged



# Data Analytics Superpowers

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- Investigate variances, unusual increases in A/R days, or other performance metrics
- Generate uniformity and create a high degree of trust in the data
- Credentialing is “very difficult process to manage, measure, and improve” but analytics can help identify which claims are being held

*How to resolve the claim populations that analytics identify?*

# Robotics Superpowers

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- Reduce manual data entry: aggregate data stored across multiple systems
- Automate simple claim denials: Work denials that follow a step-by-step process
- Speed up data processing for insurance claims and avoid errors.

*How to identify claim populations that meet those criteria?*

# How to create value

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## Value

Equals

Knowing what to do (analytics)  
+  
The ability to do it (automation)

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# Purpose of analytics

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- To isolate areas of ambiguity
- To separate component parts of a process
- To suggest or identify steps to improve the process or process outcomes

*To make a decision*

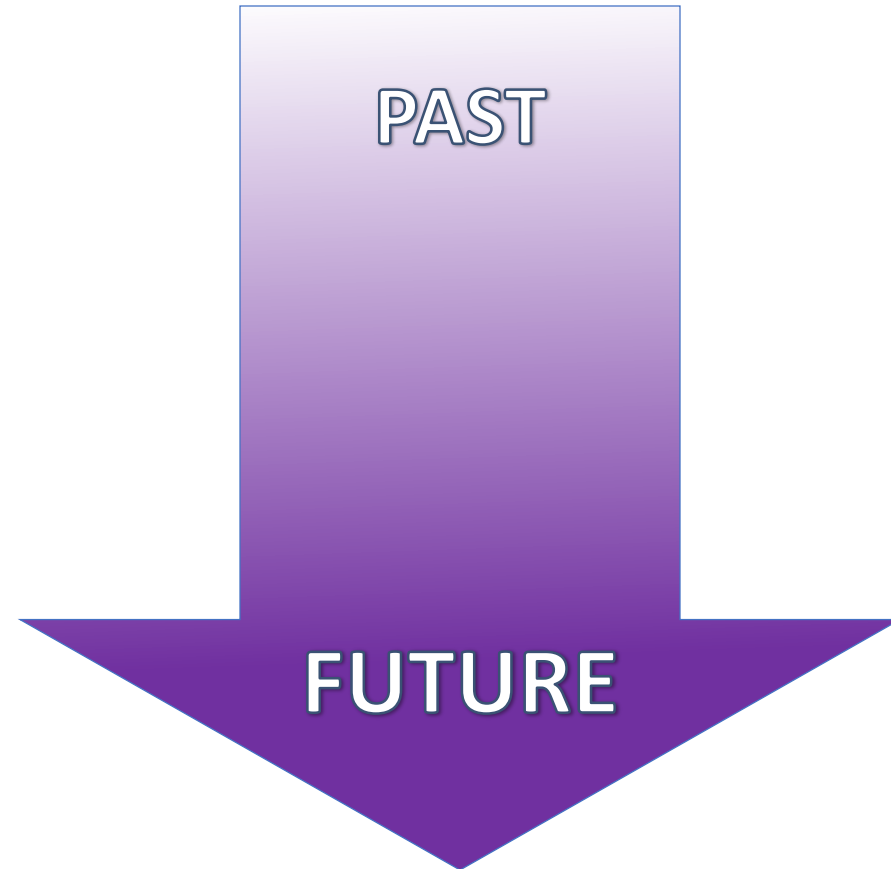
# Analytics Framework

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Descriptive Analytics

Predictive Analytics

Prescriptive Analytics



# Descriptive

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Descriptive analytics describe a sample or population

*On average, Americans send and receive twice as many text messages as phone calls (Nielsen Mobile)*

*Based on past experience, Descriptive Analytics tell the story of what happened*

# Predictive

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Predictive analytics use past history to draw conclusions about future outcomes

*If you typically charge between \$1,000 and \$2,000 per month and there's suddenly a \$4,500 charge, the company may well refuse the transaction. (Motley Fool)*

*Predictive Analytics don't generally reflect changes in process or behavior*

# Prescriptive

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Prescriptive Analytics are intended to suggest the best course of action in a given situation

*...by taking in seismic data, well log data, production data, and other related data sets to prescribe specific recipes for how and where to drill, complete, and produce wells in order to optimize recovery, minimize cost, and reduce environmental footprint. (Oil and Gas Investor)*

*Prescriptive Analytics use current information to guide the next actions taken*

# Decision Making

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Descriptive Analytics	<i>Requires interpretation</i>
Predictive Analytics	<i>Based on history, not present</i>
Prescriptive Analytics	<i>Suggests specific action</i>

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# Common Metrics

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- Pre-Registration Rate
- Service Authorization Rate
- Conversion Rate for Uninsured
- POS Cash Collection
- Net Days in A/R
- % AR Aged 90 days and greater
- DNFB
- Bad Debt Write Off %
- Cash Collection
- Case Mix Index
- Write Off

## POP QUIZ!!!

Are these metrics...  
Descriptive?  
Predictive?  
Prescriptive?



# Challenges with Common RC Metrics

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- Mostly Descriptive
  - Leading indicators, but historically facing
- Significant lag to recognize changes
  - Writeoffs may be years later
- May be contradictory or misleading
  - DNFB reduction could increase % of AR >90 days

# Predictive Analytics

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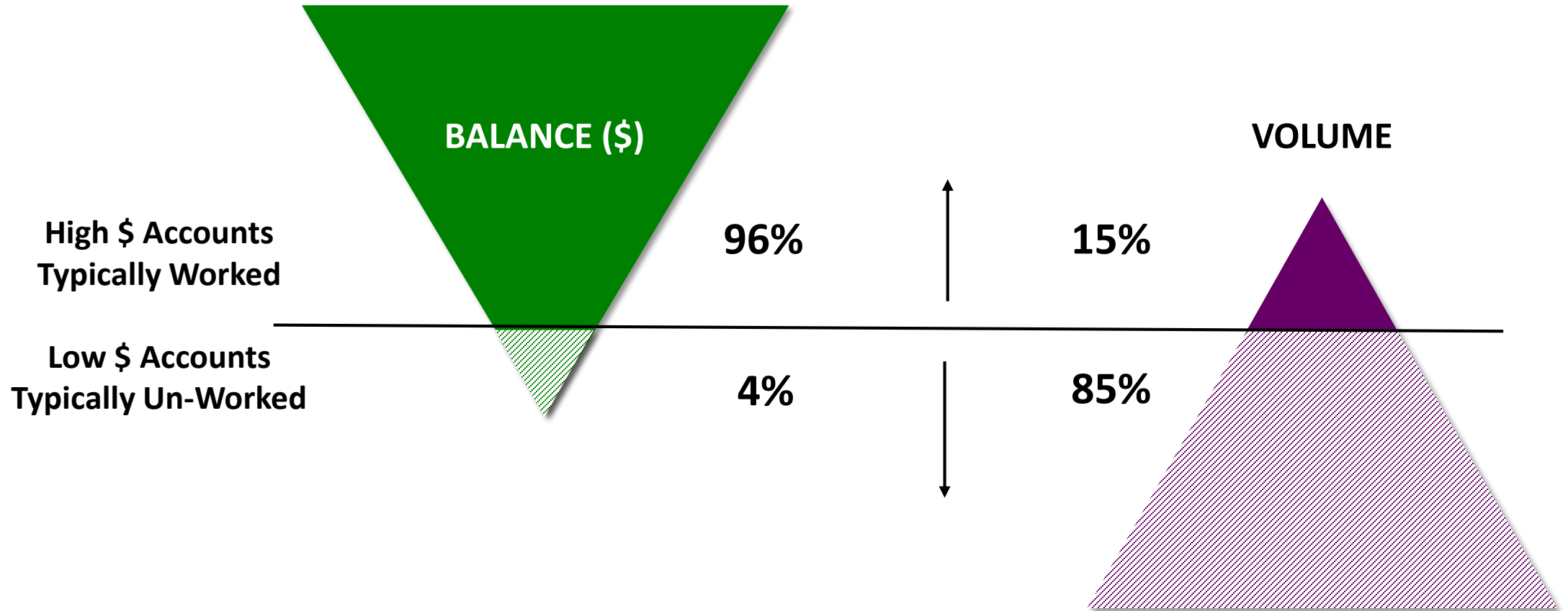
- Denials Management
  - Which Denials are worth working?
- If regression is based on past experience, may not have full context
  - Auth denials are written off if no # available in billing system
  - Auth numbers may be in CM or PB system

# Things about your AR...

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# You aren't working most of your AR



# 40% of your AR has no cash value

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- Posting Errors such as missed contractals
- Claims that have passed filing or appeal limits
- Denials like bundled charges which will not be paid

# 25% of your AR has a simple solution

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- Claim was never sent to primary payer
- Claim was never sent to secondary payer
- Balance was never moved to next payer

# The next claim is a coin flip

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Missed Contractual?  
Or Authorization Denial?  
Or Late Charge?  
Or Registration Error?  
Or...

*Staff have to make a decision on how to approach  
follow up*

# Most staff time spent working claims is wasted



Type of Account	Time Allocation	Action	Research
		40.0%	60.0%
Non-Collectable	40%		
Simple Claims	25%		
Complex Claims	35%		

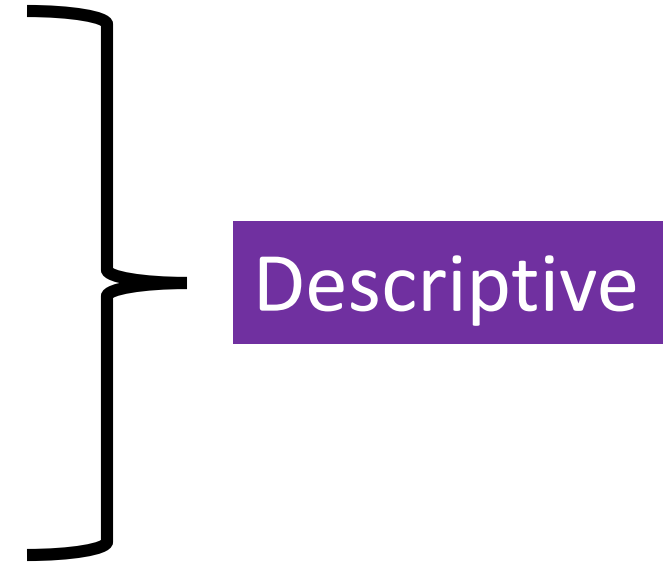
?



# Decisions require information

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- Confirm balance and Payer
- Review history and read comments
- Review charges and any previous adjustments or payments
- Review EOBs



*“The last claim with these characteristics got paid when I...”*



# AR Management Summary

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- Mostly Descriptive Analysis
- Staff required to do lots of research
- Staff time can get focused on no- or low-value claims
- Staff required to interpret information and make decisions on next steps

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## 2 Goals of AR Analytics

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- Avoid the Coin flip
  - Present claims that need follow up
- Make decisions about next steps
  - What is wrong with the claim
  - What to do about it

# How Staff Evaluate Claims

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- Aged Trial Balance or Workqueues
- Claim Editor Reports
- Transactions (Charges, Corrections, Payments, Writeoffs, Adjustments, Contractuals)
- 835/837
- Notes/Comments

# Staff Thinking

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## EXAMPLE

*Current balance of \$50 is in Third Party FSC*

*AND*

*835 indicates a patient balance of \$50*

*AND*

*No Bill to Patient*

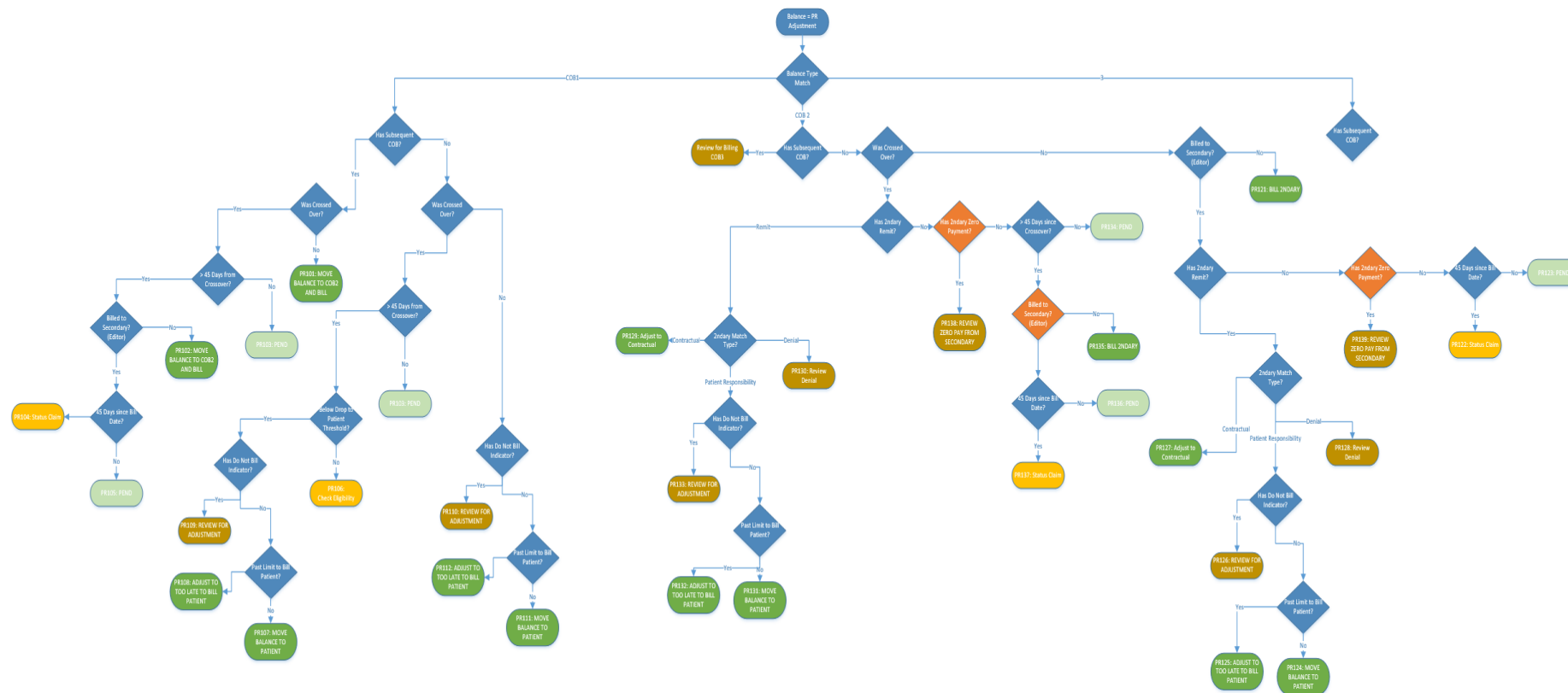
*and*

*No Patient Payment on Account*

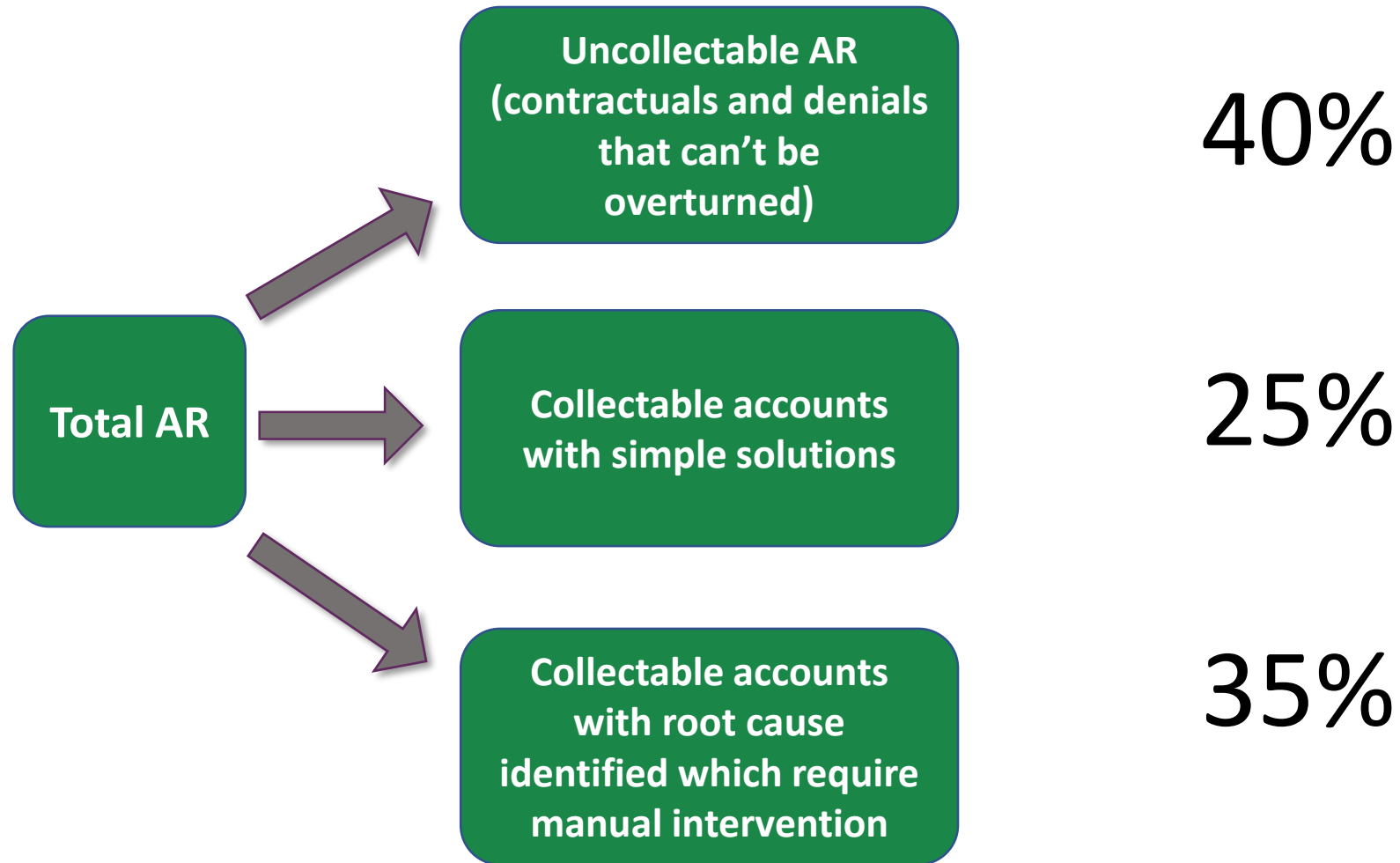
Correlate what is known about a claim to draw conclusions about defects and next steps

# Systematize Staff Decisions

Evaluate each account for: collectability, root cause defect, timing of next follow up, next required action

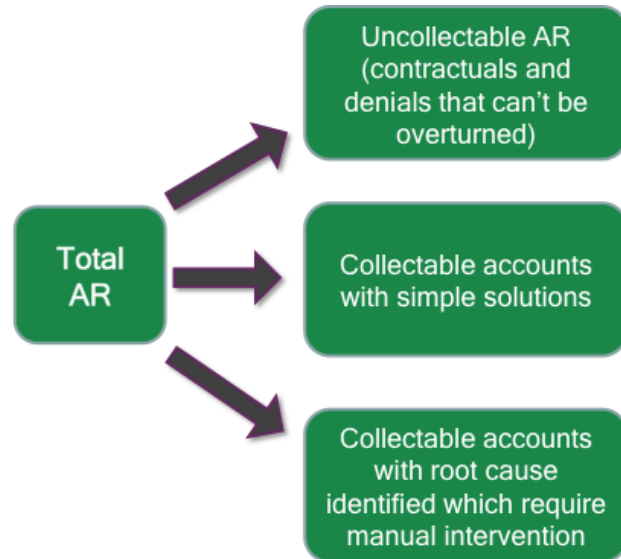


# Root Cause Analysis





# Root Cause Analysis



- No Coin flip
- No Human Error
- Detailed insight on every claim

Allows for systemic decision making – managerial choices about how to work each claim category

# Turn decisions into action through RPA



Software that is  
“trained” to  
replicate the  
actions of a  
human user

# RPA Application



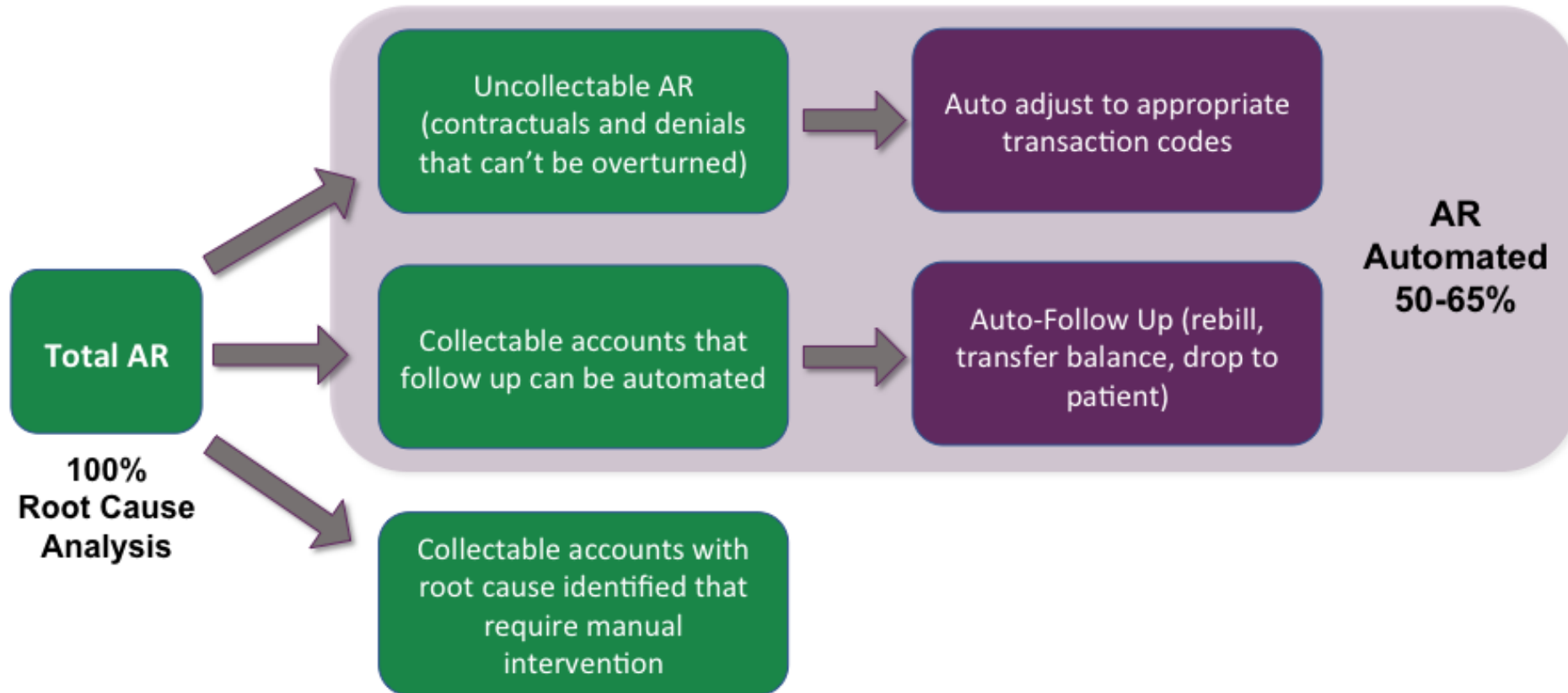
A screenshot of a web browser window. The browser's address bar shows "OAS/Gold Client". The main content area is a grey rectangle containing a white box with the Cerner logo (a stylized 'S' with green and blue waves) and the text "Cerner" in blue. Below this, the text "OAS/Gold" is displayed in blue, followed by a thick blue horizontal bar. A mouse cursor is visible over the white box. The Windows taskbar is visible at the bottom, showing various application icons and the system tray with the time "12:53 PM" and date "9/13/2019".

# Challenges of RPA

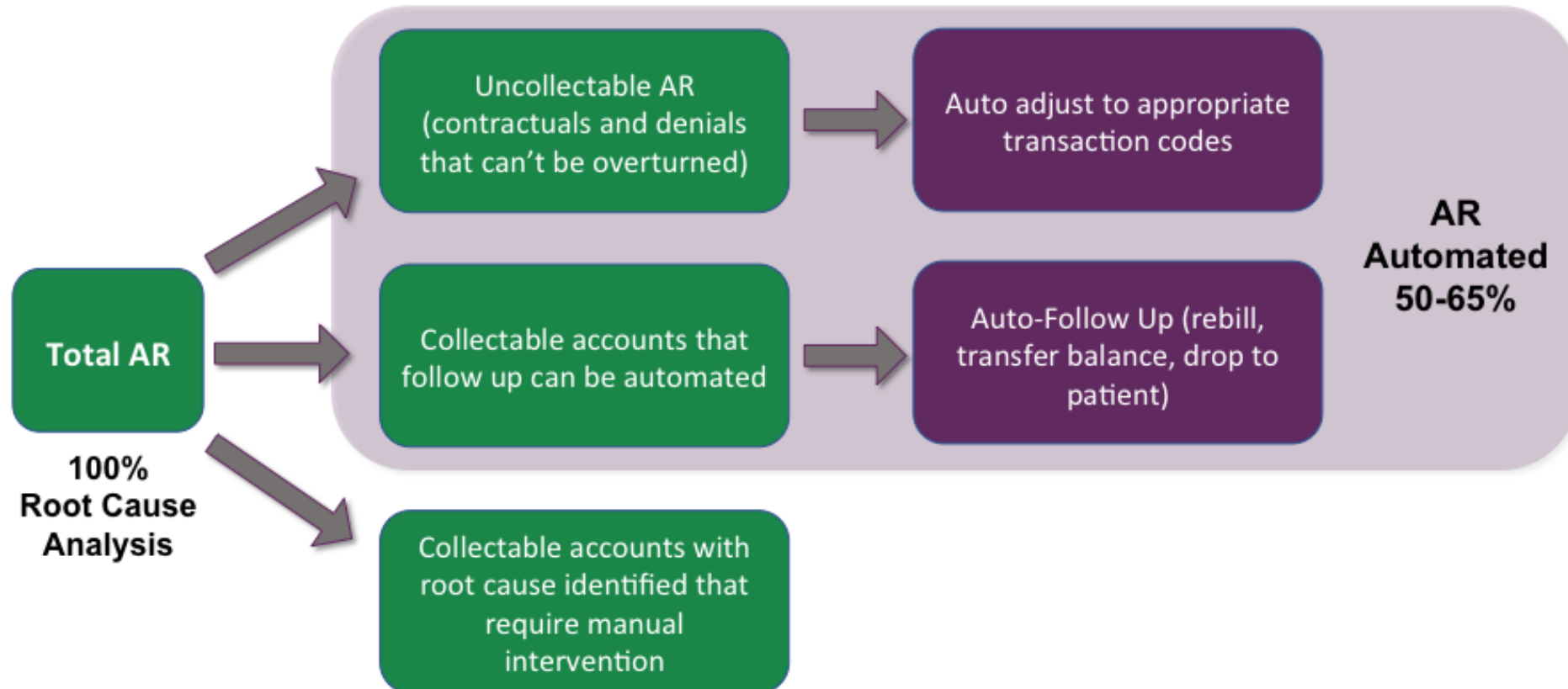
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- Some expertise required – need a business analyst or similar resource
- Need to test thoroughly – performing thousands of the WRONG transaction is a problem
- Need volume – automating a small number of claims may not be worth it

# Automate Simple Tasks



# Give Staff Direction



# Manual Intervention

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Distribute and sequence to users for efficient follow up with prescribed next action

25% identify next step

- Minimize research
- Intelligent Sequencing of claims

10% Unknown

# Post Analytics Follow Up



Type of Action	Type of Account	Volume	Time Allocation	Action	Research
				0.0%	0.0%
Automated	Non-Collectable	40%		0.0%	0.0%
Automated	Simple Claims	25%		0.0%	0.0%
				80.00%	20.00%
Manual	Analytic Suggestions	25%	71%	57.1%	14.3%
				40.0%	60.0%
Manual	Complex Claims	10%	29%	11.4%	17.1%

No Value	31.4%
High Value	68.6%



# Outcomes

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- Staff time moved from non-value add activities to value add activities
- 65% of AR resolved through automation
- 25% of AR expedited through follow up insight
- 400% productivity improvement

Incremental Collections, Accelerated Collections,  
and Reduced AR

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# Conclusions

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- Traditional reliance on Descriptive has been demanding for staff
- Healthcare should shift from Descriptive to Prescriptive Analytics
- Better analytics enables use of automation
- Providing better insight leads to more efficient AR management and therefore lower AR, incremental cash, etc.

# You too can do it!

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The marriage of  
Analytics

+

RPA

makes you a

**Revenue Cycle Superhero**

# Questions?

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