



AI Demystified: Unlocking True ROI and CDI Excellence

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Our Presenters



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Show of hands:

Do you use AI within your hospital or health system today?

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AI as a Path to Improve Profitability

25%

of health system finance leaders said they have failed to meet their operating margin goals in the past **three years**

36%

of said they view **AI as a priority**

Few

said they viewed AI investments as **margin drivers** in the near to mid-term.

Source: Deloitte, "Health care CFOs are embracing more comprehensive approaches to improve profitability," July 2024

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Breaking Through AI Hype

Today we're going to demystify AI by answering common questions. We'll explain how it can **deliver measurable ROI**, with real examples from UAMS.

1. Why do we even need AI?
2. What does 'AI' really mean?
3. Is AI going to replace my CDI team?
4. How can I evaluate an AI solution?

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About UAMS

- Little Rock, AR
- Public health-sciences university founded in 1879 by eight physicians.
- 6 colleges, 7 institutes, several research centers
- UAMS Medical Center, UAMS Orthopedic and Spine Hospital
- Only Academic Medical Center in the state of Arkansas



Fun fact: UAMS CDI leadership issues a system-wide CDI newsletter called "Concise is Nice!"

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Question #1

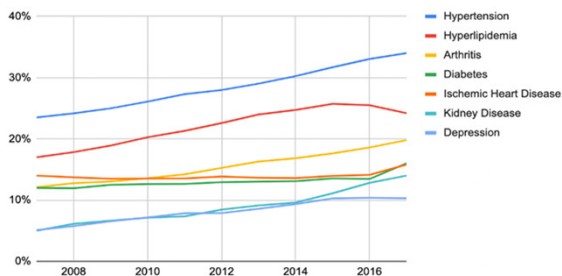
Why AI?

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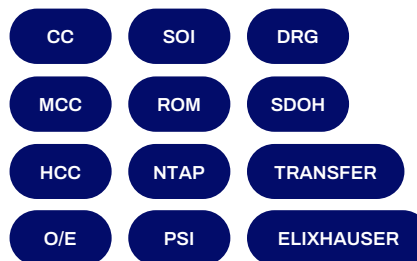
CDI Gets More Complex Every Day

The Red Queen's race: Even best-in-class CDI programs need to constantly evolve to keep pace with growing data .

Patients are getting sicker



More complexity needs to be captured



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Payers Are Investing in Multiple Layers of AI.

It's the Reality.

PROPUBLICA

The rejection of van Terheyden's claim was typical for Cigna, one of the country's largest insurers. The company has built a system that allows its doctors to instantly reject a claim on medical grounds without opening the patient file, leaving people with unexpected bills, according to corporate documents and interviews with former Cigna officials. Over a period of two months last year, Cigna doctors denied over 300,000 requests for payments using this method, spending an average of 1.2 seconds on each case, the documents show. The company has reported it covers or administers health care plans for 18 million people.

Example 'payment integrity' stack for a single payer:



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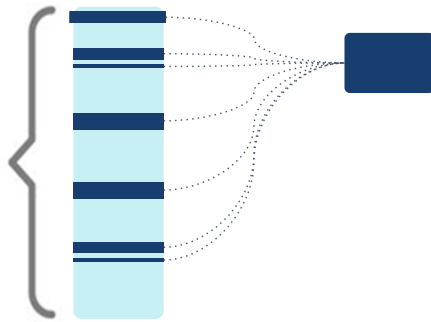
UAMS 2022: The Existing Paradigm

1 Concurrent CDI review: try to cover every chart

2 Prebill CDI + Coding audit: deep dive in priority charts

Initial review with CDI using current tools:

90%+ coverage of DRG charts

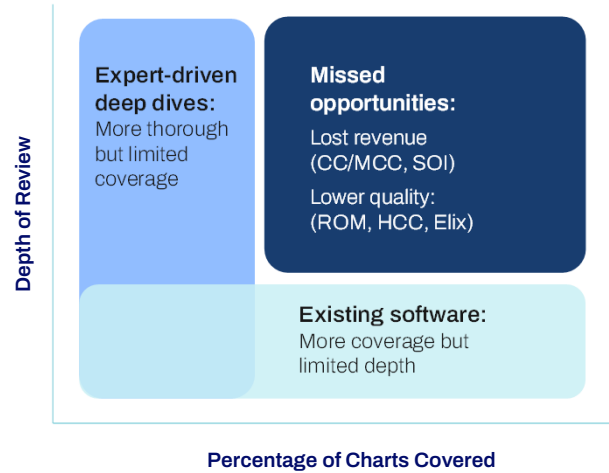


Used EHR rules (DRG, codes) to identify 'priority' charts based on historical patterns.

Auditor-level CDI and Coding then review the charts.

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**Prioritization
assumes that
many priority
charts do not
have findings...**



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10s of CCs and MCCs

A few charts

**1000s of possible
diagnoses**

Can be anywhere!

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Legacy Tools May Help with Prioritization... But Don't Alleviate Manual Work



Client CDI specialists

Prioritization

AI

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CDI Teams Need a Paradigm Shift

More people to do things



Enable your people to do more things!

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Question #2

What is AI?

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What is AI?

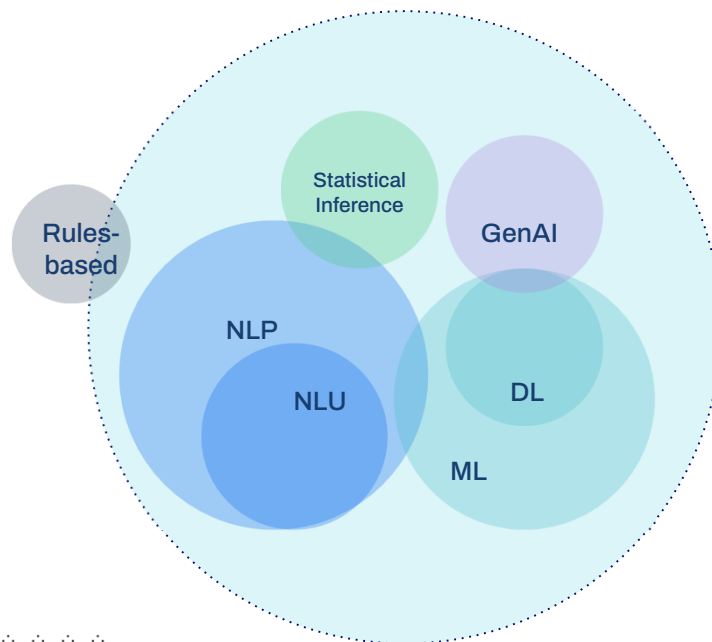
“Computer programs that engage in tasks that are currently more satisfactorily performed by human beings because they require high-level mental processes such as: **perceptual learning, memory organization and critical reasoning.**”

- John McCarthy (MIT, 1955)

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A Simpler Definition

AI: algorithms that can perform tasks require *intelligence*, like understanding languages, recognizing images, or making decisions using data.



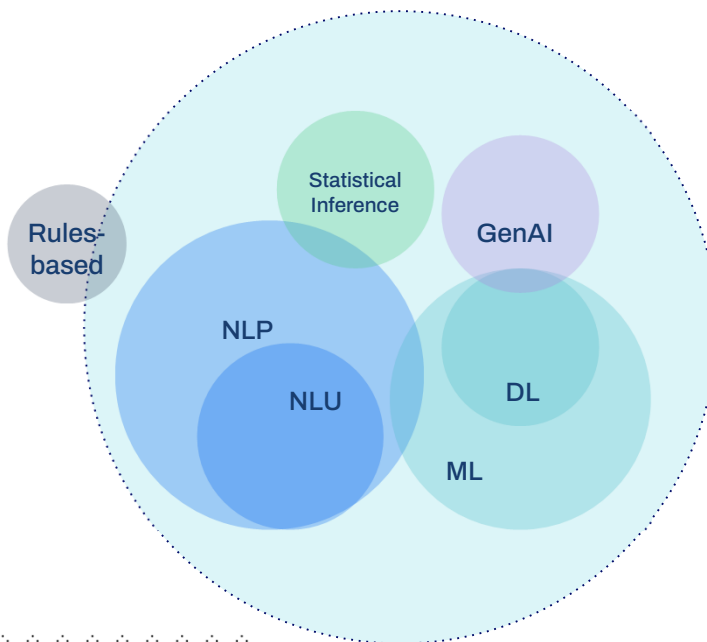
But It Depends Who You Ask

Unlike USDA-governed food labels, there is **no restriction** on what companies can call their technology.



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Specific approaches

(e.g. 'antibiotics');

- Convolutional neural networks
- Transformers
- Decision trees
- Support vector machines
- Bayesian networks

Categories

(e.g. 'inpatient');

- Machine learning
- Deep learning
- Natural language processing

Marketing terms

(e.g. 'personalized medicine');

- Generative AI
- Natural language 'understanding'

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Even within a specific approach, there are vast differences in technique



2019: Used **'transformers'** to categorize certain medical terms



2023: Used **'transformers'** to create ChatGPT

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AI Myth vs. Reality

Myth	Reality
There is a single "best" approach.	The best approach (or combination) depends on the problem.
If two companies both use "NLU," that means they have the same technology.	NLP itself has many different methodologies that can achieve very different results.
Company [X] says they do "AI" so they do "AI."	AI systems take significant expertise to build.

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But no matter the approach, there is at least one core principle that you can use:

The model's *ceiling* is determined by the data provided.

Guess the letter

—

Guess the letter

“Statistics”

E	11.1607%
A	8.4966%
R	7.5809%
I	7.5448%
O	7.1635%
T	6.9509%
N	6.6544%
S	5.7351%
L	5.4893%
C	4.5388%
U	3.6308%
D	3.3844%
P	3.1671%

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Guess the letter

f o _____

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“NLP”

Guess the letter

f o

E	foe
A	foa
R	for
I	foi
O	foo
T	fot
N	fon
S	fos
L	fol
...	...
G	fog
B	fob
X	fox

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Guess the letter

The quick brown

f o

*jumps over
the lazy dog*

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“LLM”

Guess the letter

The quick brown

f o

jumps over
the lazy dog

oornaini.com
<https://oornaini.com/the-quick-brown-fox-jumps-over-the-lazy-dog/>

The quick brown fox jumps over a lazy dog

The quick brown fox jumps over a lazy dog is the most famous pangram in English, that is the most short sentence in which all the 26 letters of the alphabet ...

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Wikipedia
https://simple.wikipedia.org/wiki/The_quick_brown_fox_jumps_over_the_lazy_dog

The quick brown fox jumps over the lazy dog

"The quick brown fox jumps over the lazy dog" is an English-language pangram. This is a sentence that contains all of the letters of the alphabet.

Central Intelligence Agency (gov)
<https://www.cia.gov/abbottabad-compound/PDF>

The quick brown fox jumps over the lazy dog

The quick brown fox jumps over the lazy dog. The quick brown fox jumps over the lazy dog. The quick brown fox jumps over the lazy dog. The quick brown fox.

2 pages

Nycgovparks.org
<https://www.nycgovparks.org/parks/history>

Quick Brown Fox Triangle Highlights

"The quick brown fox jumps over the lazy dog." This famous sentence contains every letter of the alphabet, and is used by companies worldwide to demonstrate ...

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The Data

Statistical: “focus on DRG 870”
Priority list: A person must do all the review

NLP: “what’s written”
Great for CAC and Coding. But what if the physician doesn’t write anything...or writes too much?

ML / DL: “what happened”
The ‘facts of the case’, but difficult to do well

The Approach

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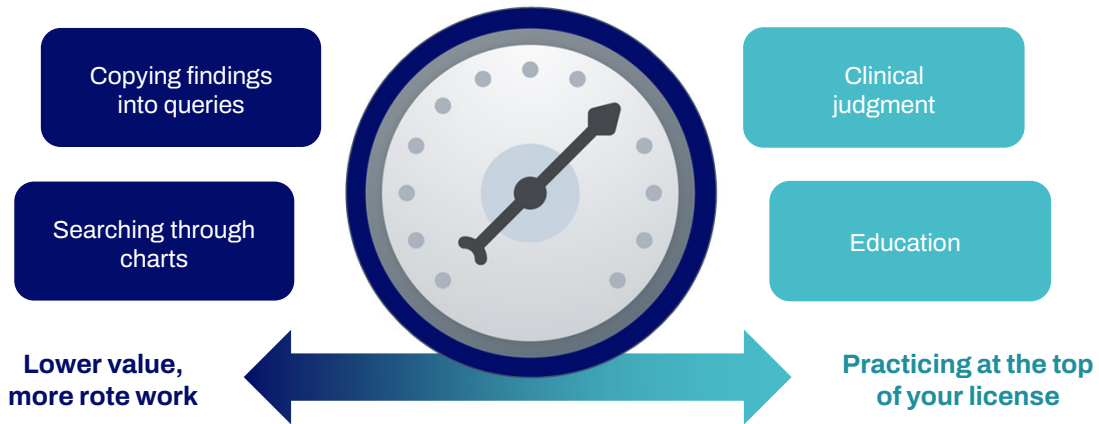
**The AI approaches depend on
the data provided.**

**With more data and better models, AI is able
to understand more and more context.**

Question #3

Is AI going to replace my CDI team?

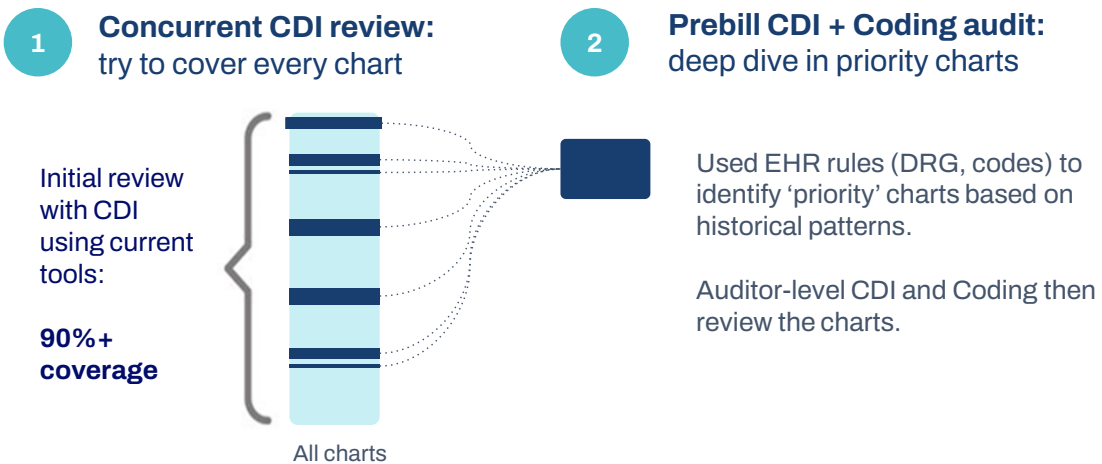
AI: A Tool That Aids (Not Replaces) CDI



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The Existing Paradigm



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10s of CCs and MCCs

1000s of possible diagnoses

A few charts

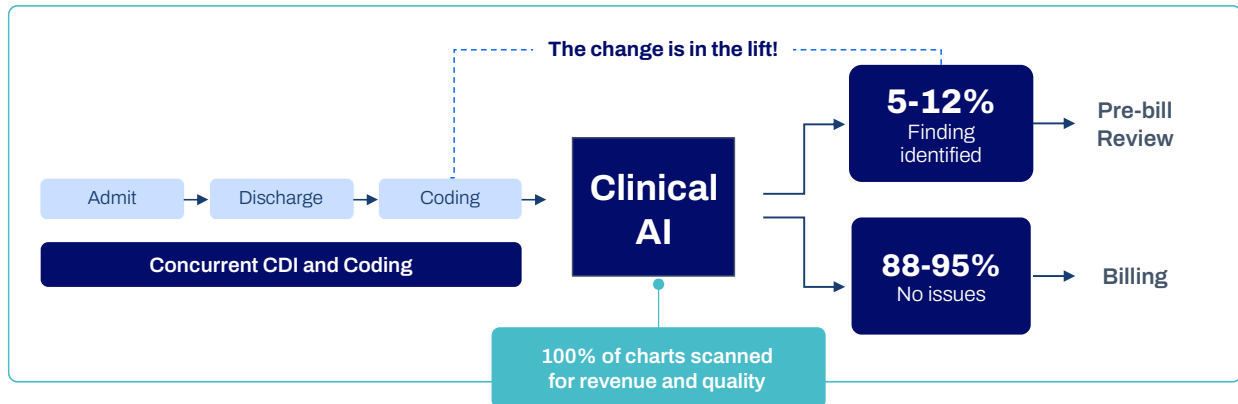
Can be anywhere!

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AI as a QA Process for CDI

Increases the accuracy, quality and value of healthcare information by transforming data into actionable insights with AI.



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Example

ABO isoimmunization, Neonatal hypoglycemia

ABO isoimmunization

- Hemolytic anemia
- Hyperbilirubinemia
- Treatment with phototherapy

Neonatal hypoglycemia

Glucose < 30 mg/dL in first 24 hours of life; or < 45 mg/dL thereafter

- Most newborns have no issues, thus, not effective to manually review each case
- AI helps us scan all cases, but review only positive findings

Example

Immunodeficiency due to drugs

Drugs that can be associated with immunodeficiency

- Corticosteroids
- Chemotherapy
- Immunosuppressants
- Targeted therapies
- Antiseizure medications

AI helps identify rare conditions that are less universally known across all clinical staff.

Example

Acute blood loss anemia

ABLA

- How much was EBL relative to expected for that procedure?
- Treatments, such as transfusion or fluids
- Impact of dilution on H/H
- Other related S/Sx

AI helps us set different thresholds for different scenarios depending on expected blood loss (e.g. OB vs. non-OB cases).

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AI-powered Prebill Validation

Before AI

Second level review of high-priority DRGs

High-level check: DRG reconciliation

CDI staff driven

Post-bill processes

After AI

Every chart is scanned

Every lab, vital sign, note, med, etc. is checked

CDI validates the findings

Pre-bill Clinical AI

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In Summary

- AI helped CDI find things in previously 'low priority' DRGs
- AI helps CDI learn about new clinical concepts
- AI able to account for subtle, situational context

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Question #4

How can I effectively
evaluate an AI solution?

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UAMS AI Solution Evaluation Criteria

Cost:

Evaluate the **real cost**, including staff time, rip-and-replace, IT

Value:

Evaluate the **real value**, and ensure the value is attributable

Risk:

Minimize hospital **financial risk**

UAMS Top Objectives

First and foremost, empower your CDI team by giving them the tools that remove manual review and uncertainty.

Primary



Help CDIS and Medical Coders disambiguate the care provided using underlying clinical data

Secondary



Improved revenue integrity and quality metrics

Identify Champions

A cross-departmental team is key.

Financial

Chief Financial Officer
Vice President of Revenue Cycle

Clinical

Physician Champion
Senior Director, Coding
Director, CDI
Manager, CDI

IT

Director, Business Intelligence
EHR Engineer

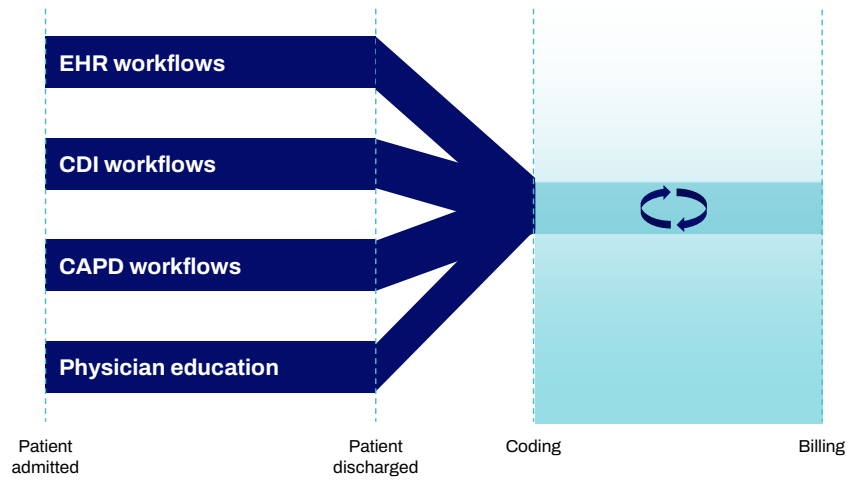
Minimize Financial Risk

Traditional SaaS	100% Contingency
Pay upfront for future value	AP more closely matches AR
Pay whether or not you get value	Pay only for value you capture
Pay the same even if you change	If you improve upstream, you pay less
Multi-year lock-in period	No real lock-in
High risk of vaporware: Wait and see is a rational approach	Vendor cannot exist if empty promises

Traditional CDI Initiatives Are Difficult to Measure



Seek a Solution and Stage That Offers Attributability



Team Impact

AI has not added any significant steps to our workflow.



ROI of AI

AI at the prebill stage delivers a fully attributable ROI.





Building On Our Success With AI

- GenAI for auto-writing Appeals letters
- DRG downgrades
- Expanding as we integrate our newly built facilities – we now have the safety net we need to optimize opportunities as we grow:
 - The Orthopaedic and Spine Hospital, opened spring 2023
 - UAMS Health Family Medical Center, opened spring 2024

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AI Can Empower CDI

AI is not something to fear, but rather a “power tool” for CDI teams to capture all opportunities and reduce administrative burden and burnout.

The world is getting harder

CDI is responsible for more and more, including not just MS-DRG, but quality findings, social determinants of health, and more. Payors are using AI to deny findings.

Empower CDI and Coding

Augment existing workflows: A second pass review can complement concurrent CDI review without replacing people or any rip-and-replace of existing tech or processes.

Minimize Financial Risk

Find new revenue without new resources: AI can enable second pass reviews in today's low-margin, staff-constrained environment.

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Thank you!

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