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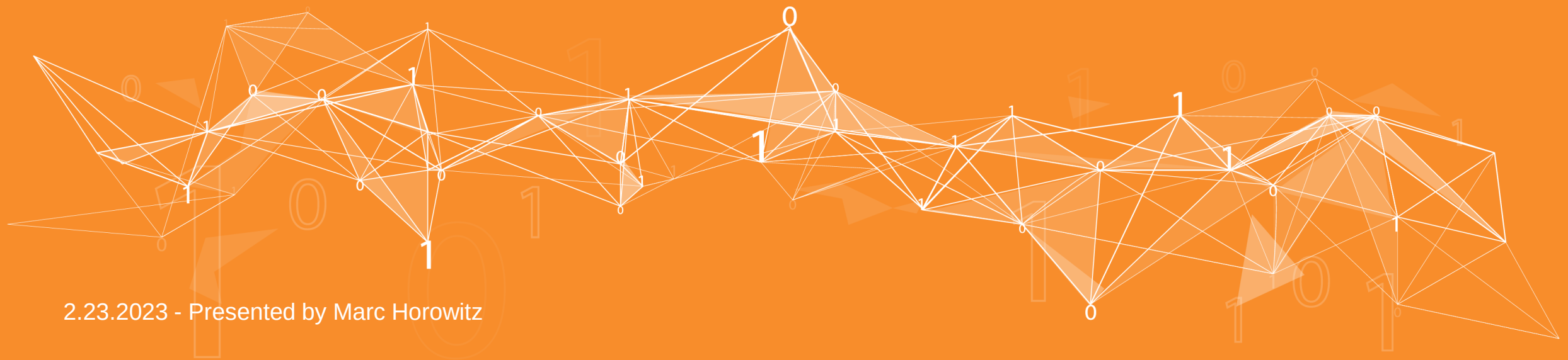
AI for Revenue Cycle:

Closing the healthcare revenue gap with Clinical Natural Language Processing (CNLP)

HFMA Winter Conference - Houston, TX



2.23.2023 - Presented by Marc Horowitz

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Intro/background
Health system challenges

What is NLP?
Myth buster

Revenue cycle
Challenge and opportunity

Q&A
Questions from the floor

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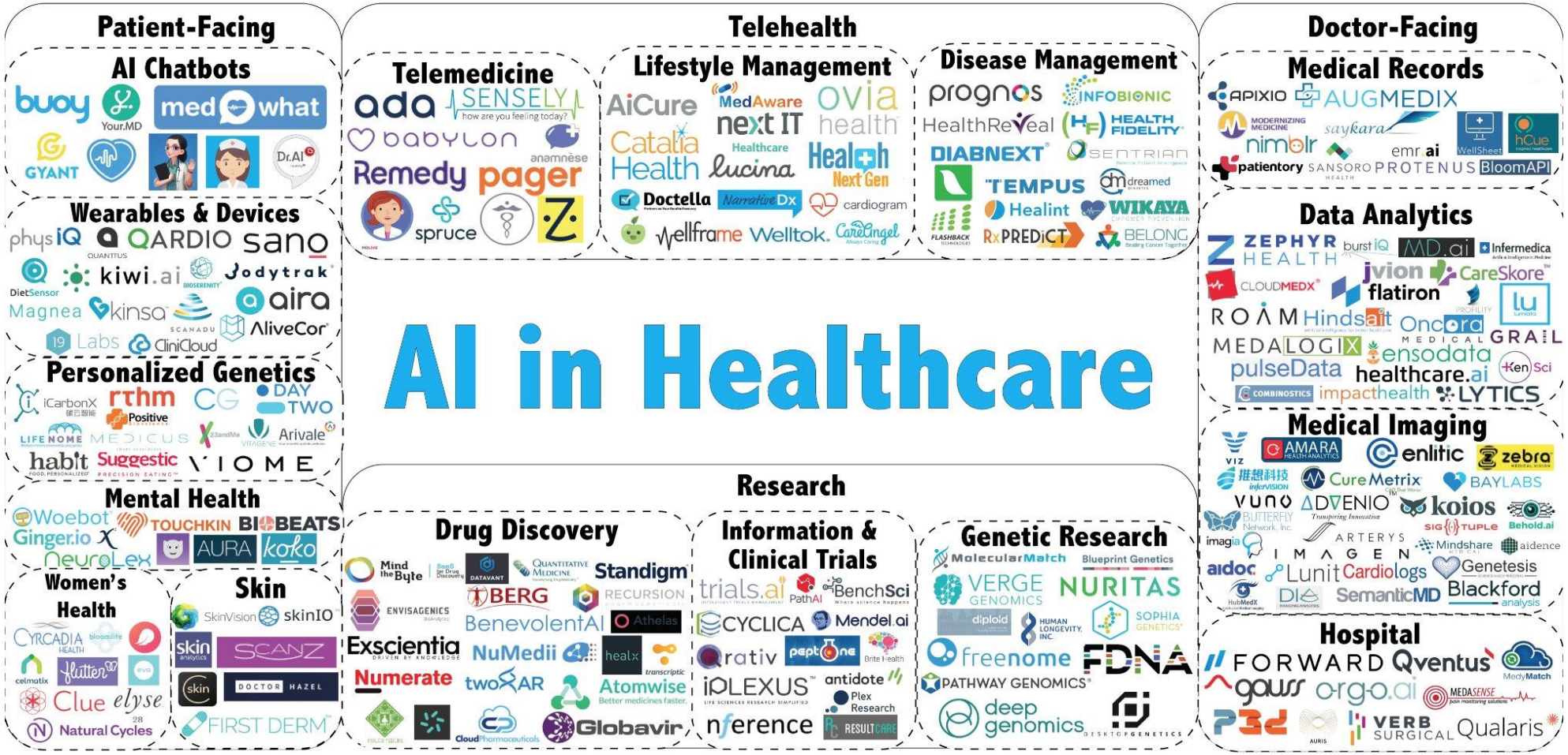
The market for AI solutions is accelerating rapidly



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Healthcare is at a critical juncture

2

Workforce challenges persist.

- The great retirement, burnout, workers exiting the profession. 1 in 5 workers quit during Covid.

3

Healthcare is more costly to deliver.

- Workforce issues, supply-chain price increases & rising cost of drugs.

1

Health system margins under intense pressure.

- 50% of hospitals with a -neg margin in 22, as growth in expenses outpaced revenue increases.

4

A healthcare data tsunami…

- 30% of the world's data
- Growing at 36% CAGR

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AI for Revenue Cycle

Real World Evidence

Population Health

Rare Disease

Northwell Health℠

AstraZeneca

PREMIER

NHS

ALEXION

CNLP Solutions Spanning 4 Diverse Sectors

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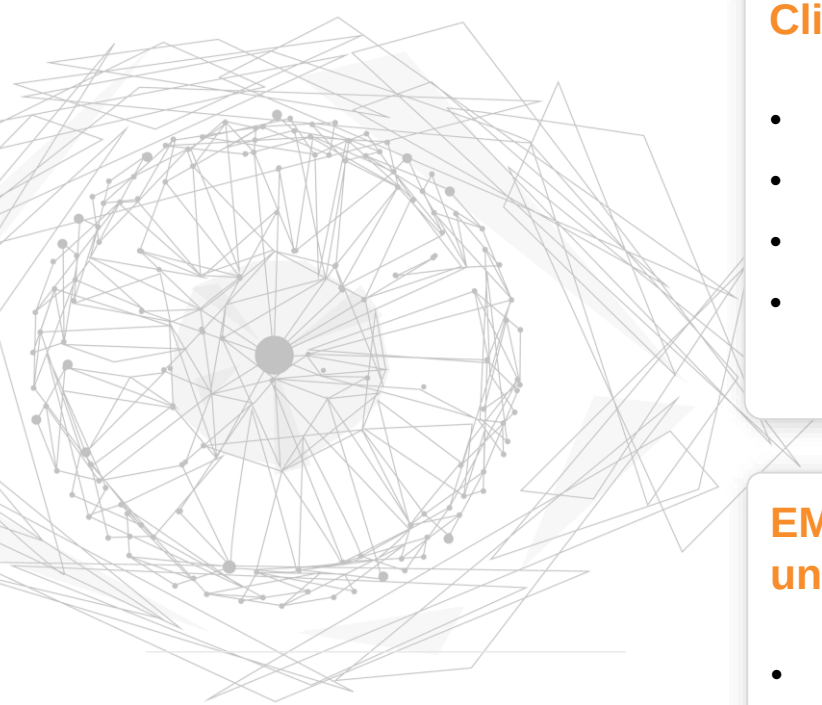
Clinical Natural Language Processing (CNLP)

From text to computable meaning



1 Clinical stories

- Discharge summary
- Visit summary
- Physician notes
- Radiology report

2 EMR is 80% unstructured data

- NLP is a specialized kind of AI
- Linguistic analysis of free text looking for key concepts

3 Specialized tools required

- Misspellings, abbreviations, uncertainty, negation, must be analysed to deliver valuable output

4 Healthcare is not a simple domain

- “The patient denies breathlessness”
- “Pt has a cough”
- “FH of IHD”

5 High accuracy & speed

- Decades of R&D have delivered reliable operational systems at scale.
- From hours of clinical time to milliseconds of machine time.
- System extracts computable data from millions of documents.
- RCM team time saved and reach extended.

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OUR EXPERTISE AND KNOWLEDGE

Patented core IP developed over **10 years of R&D**

1.5 billion possible SNOMED expressions representing clinical ideas and concepts

1 million documents per hour processed

4 billion words of medical English used to train the system

500,000 synonyms, acronyms and mis-spellings understood by CLiX®

THE RESULTS

350% more patients at risk were identified

Deep phenotyping for rare disease completed **in approx. 1 minute**

Equivalent to **100 clinician years** of manual review

10x increase in cohort yield

Rapid roll out 13 hospitals in 12 weeks in a major US health system

Co-morbidity review for CDI **20 to 30 times faster** with CLiX®

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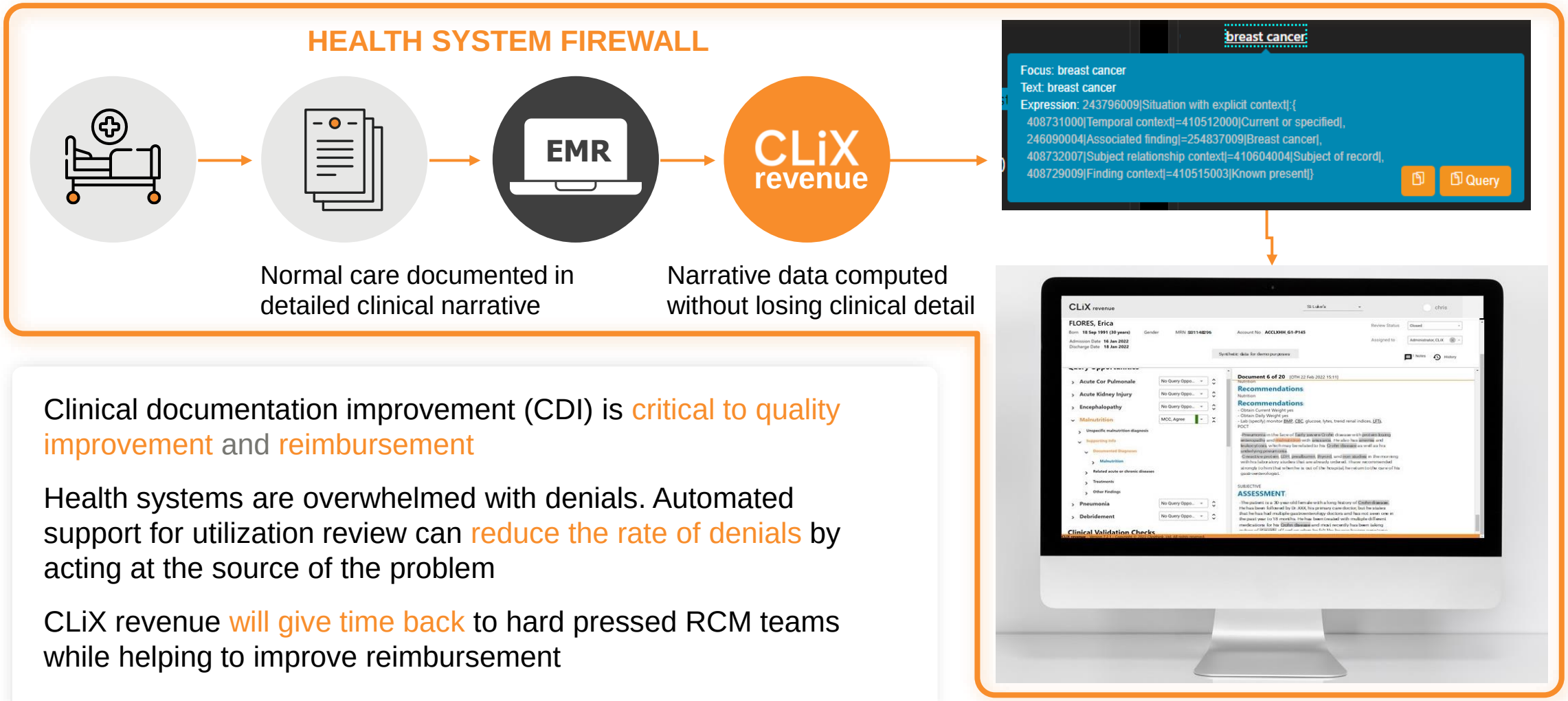
CLiX revenue complements existing coding solutions



Clinical documentation improvement (CDI) is critical to quality improvement and reimbursement

Health systems are overwhelmed with denials. Automated support for utilization review can reduce the rate of denials by acting at the source of the problem

CLiX revenue will give time back to hard pressed RCM teams while helping to improve reimbursement

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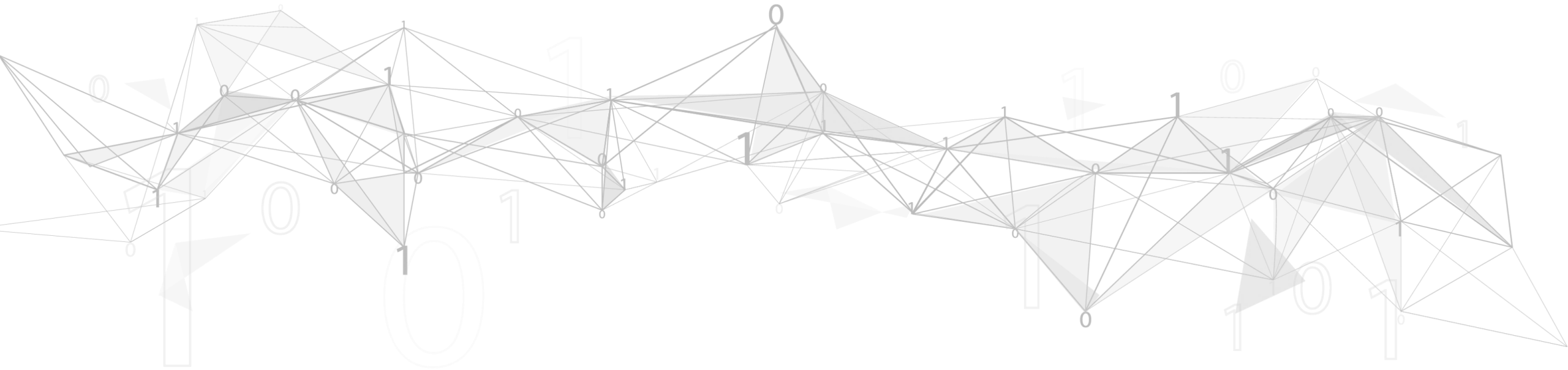

Introducing CLiX revenue

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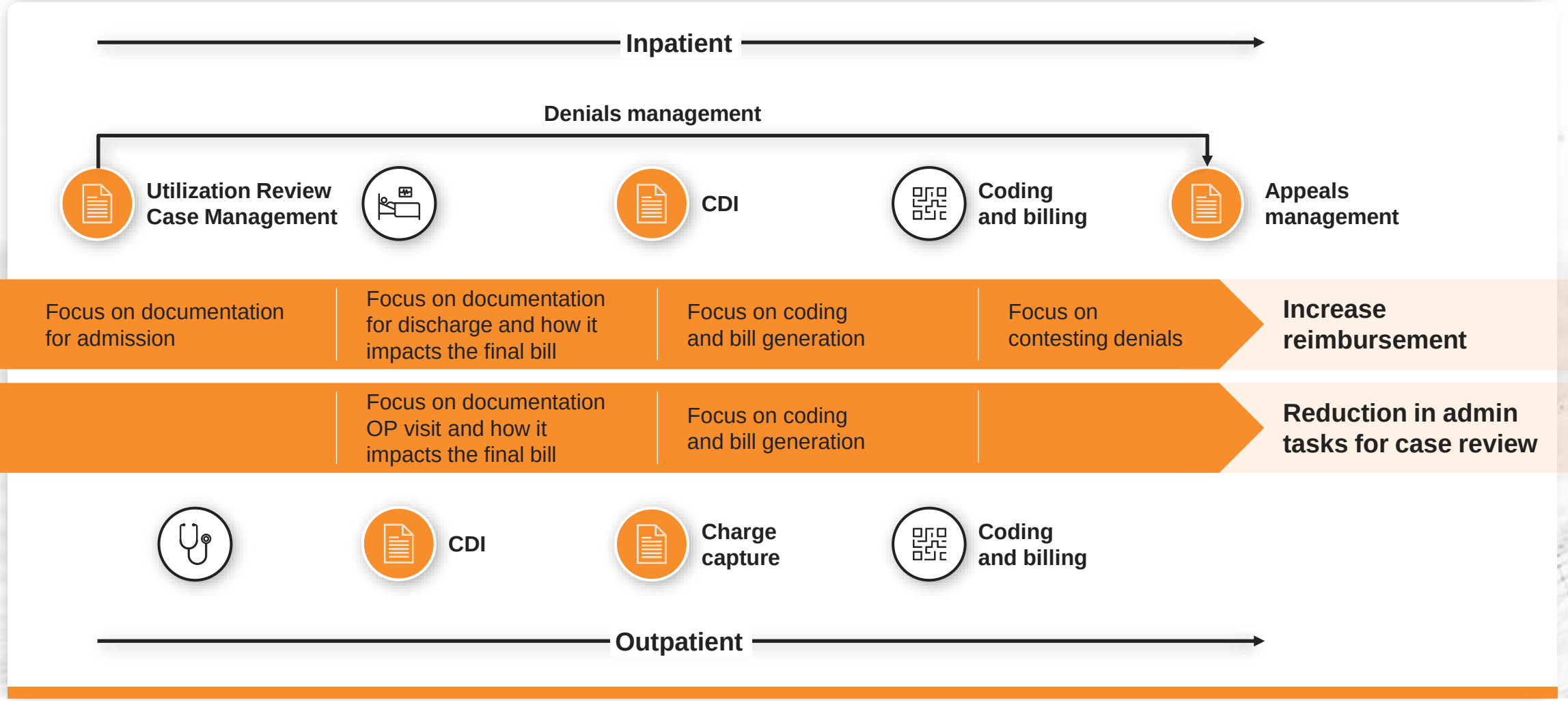
CLiX revenue – impact on RCM process



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Common documentation deficiencies

There is evidence and treatment for a diagnosis but not documented by the clinician

The diagnosis documented by the physician lacks specificity

There is a documented diagnosis but the clinical evidence to support it is lacking

There is a documented diagnosis but there is no evidence of the condition being treated

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How does CLiX revenue help?

Clinical Documentation Improvement: fast and reliable interpretation of electronic clinical narrative to:

1

Raise a **'Physician Query'** to address documentation gaps which might prevent optimal CC/MCC coding => DRG grouping:

- When a specific clinical diagnosis is documented but **no** indications documented to support the diagnosis
- When there are clinical indications of a specific diagnosis, but that diagnosis is **not** explicitly documented

Raise a **'Clinical Validation Check'** with ICD10 coders – closing the loop with the coding process when all the diagnosis and supporting documentation lines up

Physician Office Charge Capture

2

Support for identification of missed charges under Fee for Service arrangements by identifying **evidence** in clinical narrative where bill line items are missing

Denials Prevention

3

Support of pre-authorization for admission to avoid downstream clinical denials by ensuring that e.g. **medical necessity** for admission is fully documented

Retrospective Clinical Appeals Management

4

Support for appealing clinical denials based on finding evidence in the documentation to support an appeal – or to quickly accept a denial and **save valuable time and effort**

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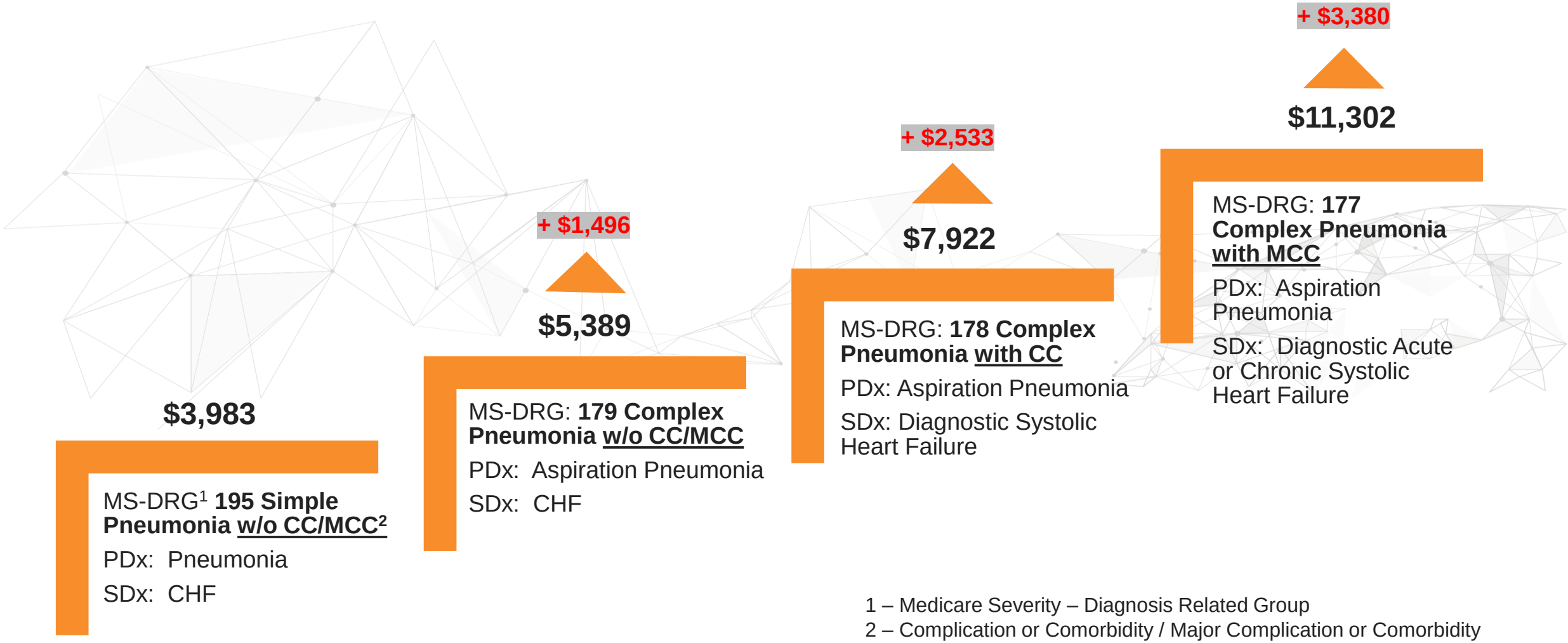
Significance of complete clinical information



1 – Medicare Severity – Diagnosis Related Group
2 – Complication or Comorbidity / Major Complication or Comorbidity

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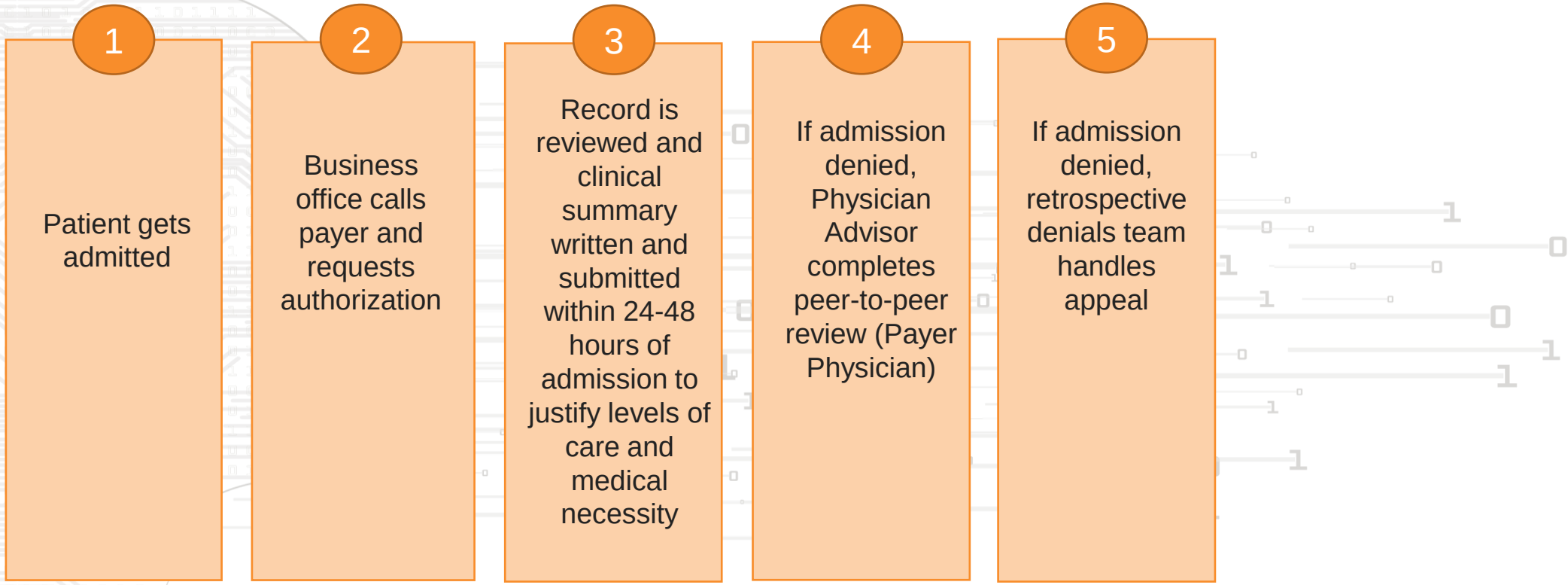
Prospective denials prevention



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CLiX revenue

- Enhance clinical documentation
- Improve charge capture
- Increase denials management throughput
- Boost productivity of revenue cycle capture

Search millions of documents in hours
Produce insights not previously possible for large datasets using manual techniques.

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Illustrated business impact

Use CLiX revenue for four workflows

Clinical Documentation Improvement 1

- Team of 64 Clinical Documentation Specialists (nurses) that support these 9 hospitals
- **GOAL: Generate an additional $21 million in new revenue from CDI efforts.**

Clinical Documentation Improvement for Complex/Specialist 2

- High throughput of residents
- Inaccurate documentation of complex and specialist care
- **GOAL: Use automation to support residents to get the documentation correct first time.**

Denials Prevention Unit 3

- Purpose is to get authorization for admission based on eligibility guidelines and avoid downstream denial
- Team of 35 nurses that perform “clinical submissions” plus 5 physician advisors for peer-to-peer reviews
- 1,500-1,600 admissions for pre-authorization
- **GOAL: Eliminate need to hire 5 nurses and improve the overall quality of the clinical submissions.**

Retrospective Appeals Management 4

- Team of 40 nurses that write retrospective appeal letters plus outsourcing
- Nurses do 5 appeals per day (appeal 100% or ~1,000 appeals per week).
- **GOAL: Eliminate outsourcing of appeals writing.**

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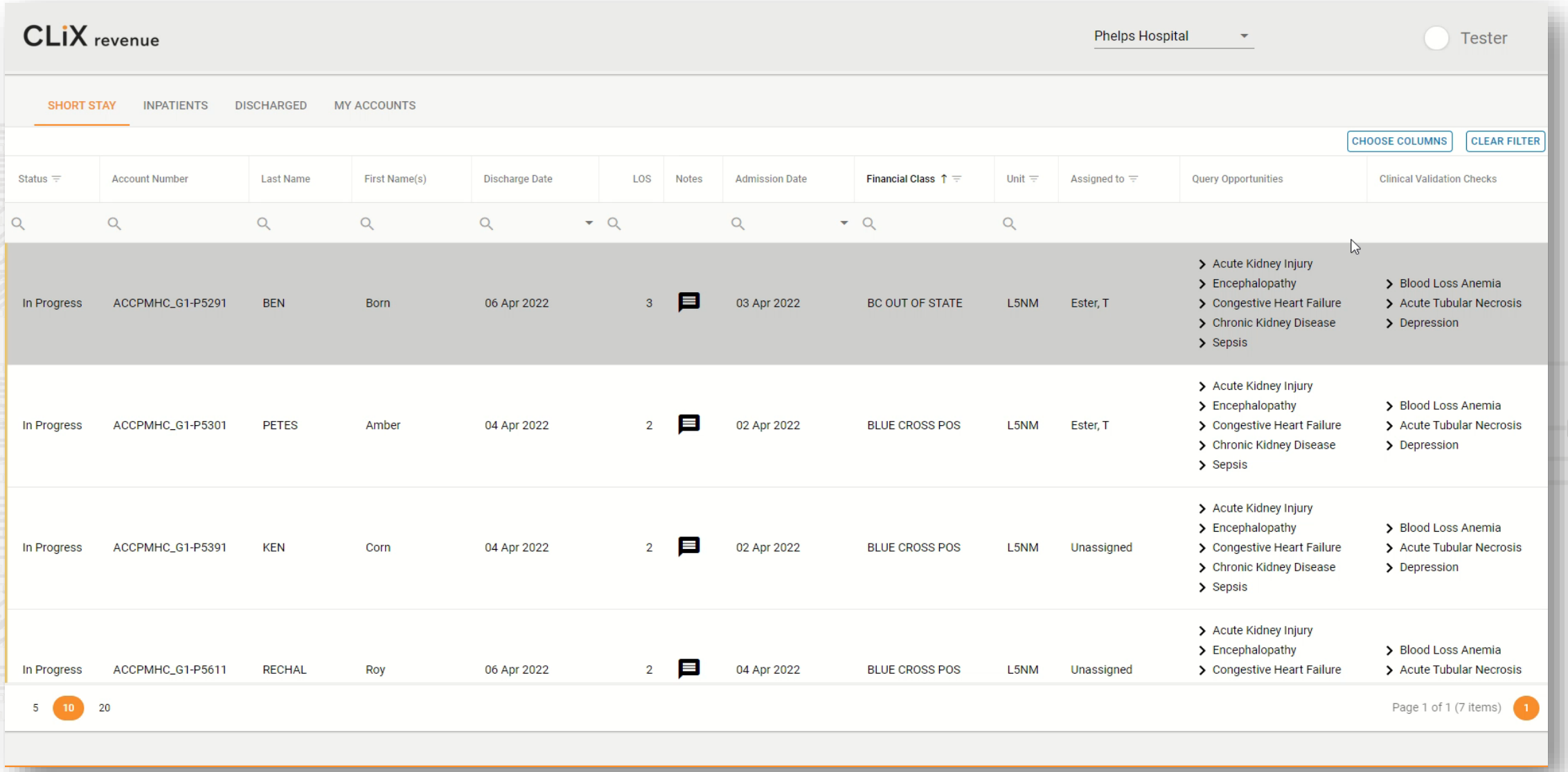

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Q&A

Any questions…

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