Unlocking the Power of NLP In Pathology Casefinding

Presenters: Melanie Rogan, ODS-C
and
Ali Besiso, BHSc, MHI, MBA

Agenda

- ERS Company Overview
- ERS / HLA Global Partnership Overview
- HLA Global Company Overview
- What is NLP?
- Overview of Reportability Solution
- CRStar Work Queue Demonstration
- Conclusion
- Q&A

ERS, a Health Catalyst Company - Overview

- Focused exclusively on our Cancer Registry solution for 35 years
- Focused on Cancer Program Management and Data Analytics
- Partnered with cancer centers to help meet and exceed their goals and objectives
- Dedicated to Quality Management, Statistical Research and Innovation
- An experienced team of ODS-C and software developers with extensive cancer registry and standards expertise

ERS / HLA Global Partnership

- Partnership leverages HLA-Global's award winning clinical NLP technology
- Solution addresses a key need for cancer registries
- Collaboration allows ERS to offer a fully automated pathology reportability solution for casefinding
- Increases efficiency and productivity in the cancer registry vs a manual method
- High accuracy with active learning to improve case identification
- Remarkably cost effective compared to other solutions
- Health systems report a quick ROI

HLA Global Company Overview

- HLA–Global specializes in the Natural Language Processing (NLP) of cancer clinical documents to enable the extraction of relevant cancer data items
- The company was established in 2015 with a sole focus on solving the problem of cancer data identification, analysis, extraction, and coding
- We merge our expertise in Clinical Natural Language Processing, Clinical Data Analytics and Agile Software Engineering methods to produce scalable solutions to solve the needs of healthcare organizations and agencies
- HLA-Global has a successful track record of delivering cancer NLP projects to organizations such as the California Cancer Registry and Centers for Disease Control (CDC)

What is Natural Language Processing (NLP)?

NLP is a technology that gives computers the ability to interpret, analyze, and comprehend human language.

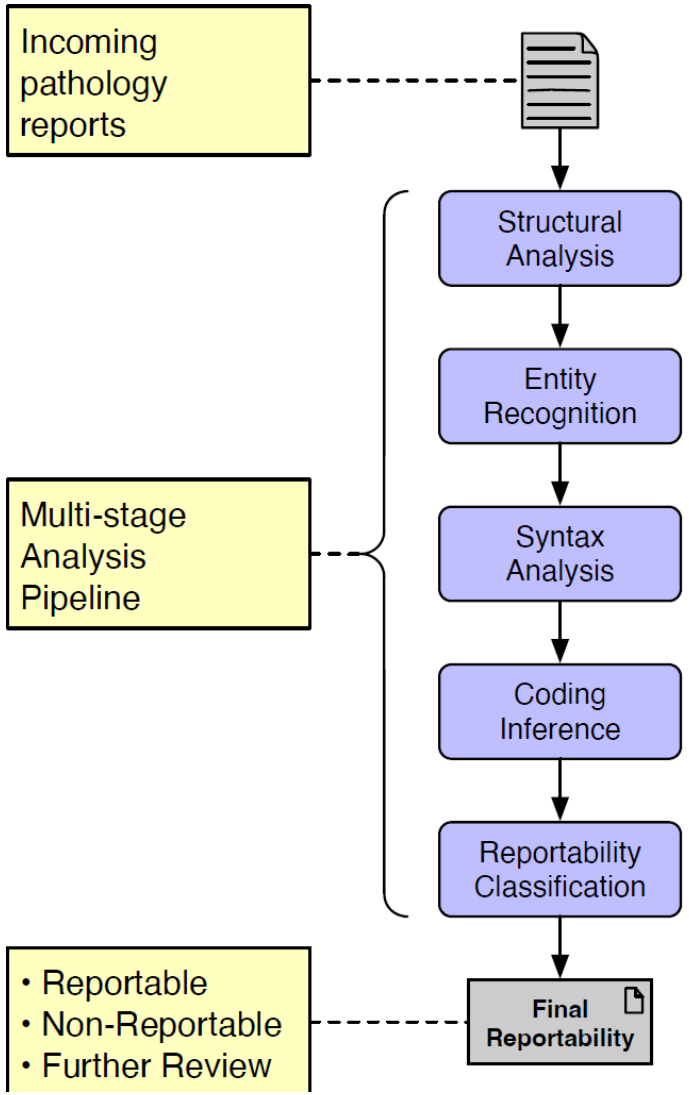
Examples of Types of NLP

1. Text Mining: string analysis of texts
2. Deep Learning: Using string processing and machine learning to classify target content
3. Generative AI: Searching and generating answers using the most common phrases and sentences on the Internet about the topic of your query
4. Statistical NLP – what HLA-Global does (see next slide)

Statistical NLP

HLA-G's Deep Understanding is a Multi-layer Pipeline:

1. Structural Analysis – identifying document sections.
2. Entity recognition – identifying all the clinical concepts referred to in a report no what how expressed.
3. Syntax Analysis – to understand negation (e.g. not a cancer)
4. Coding inference – using coding rules to determine reportability
5. Reportability classification – allocating the appropriate reportability result with the highest confidence.

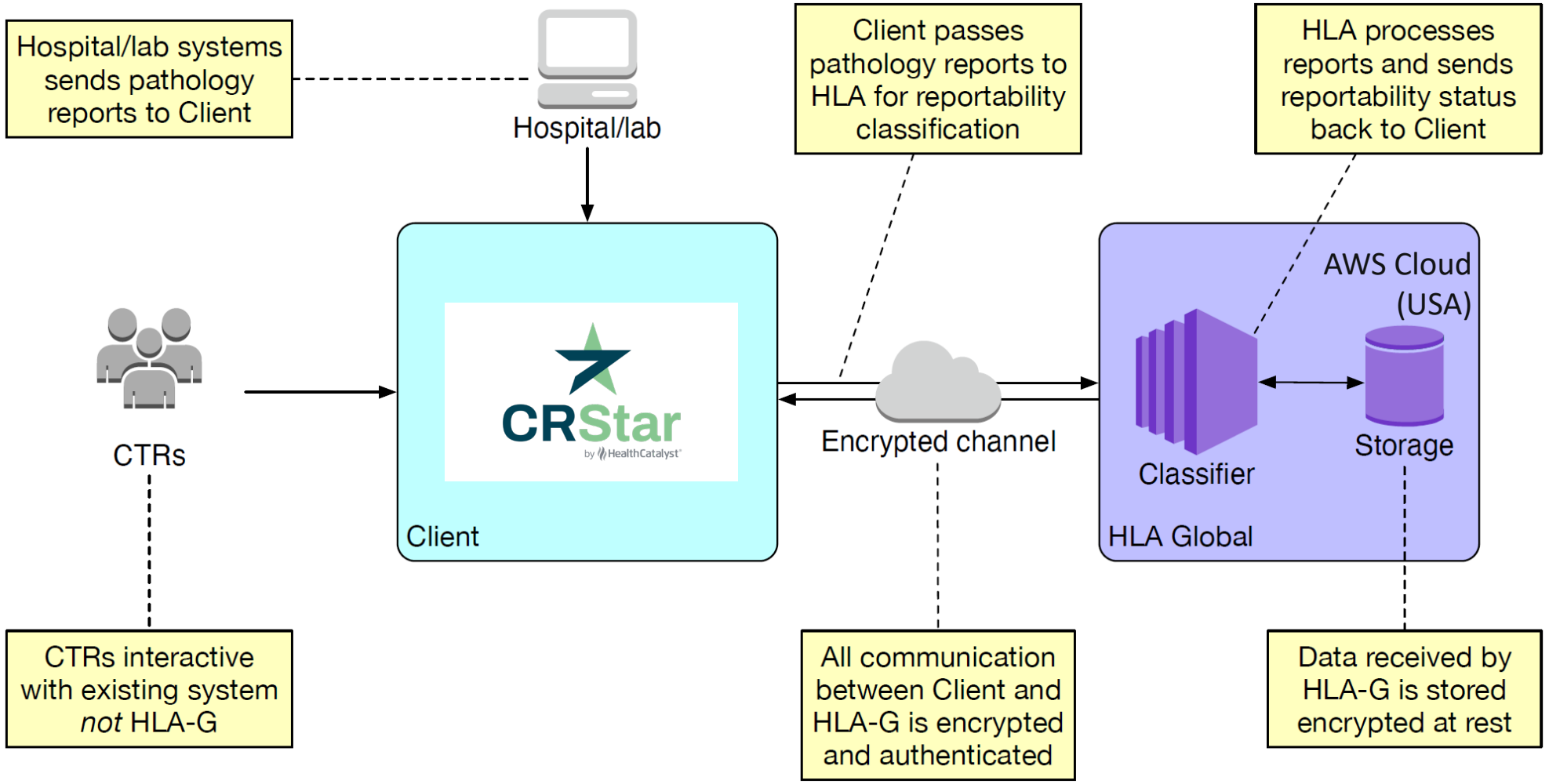


NLP Reportability Solution Overview

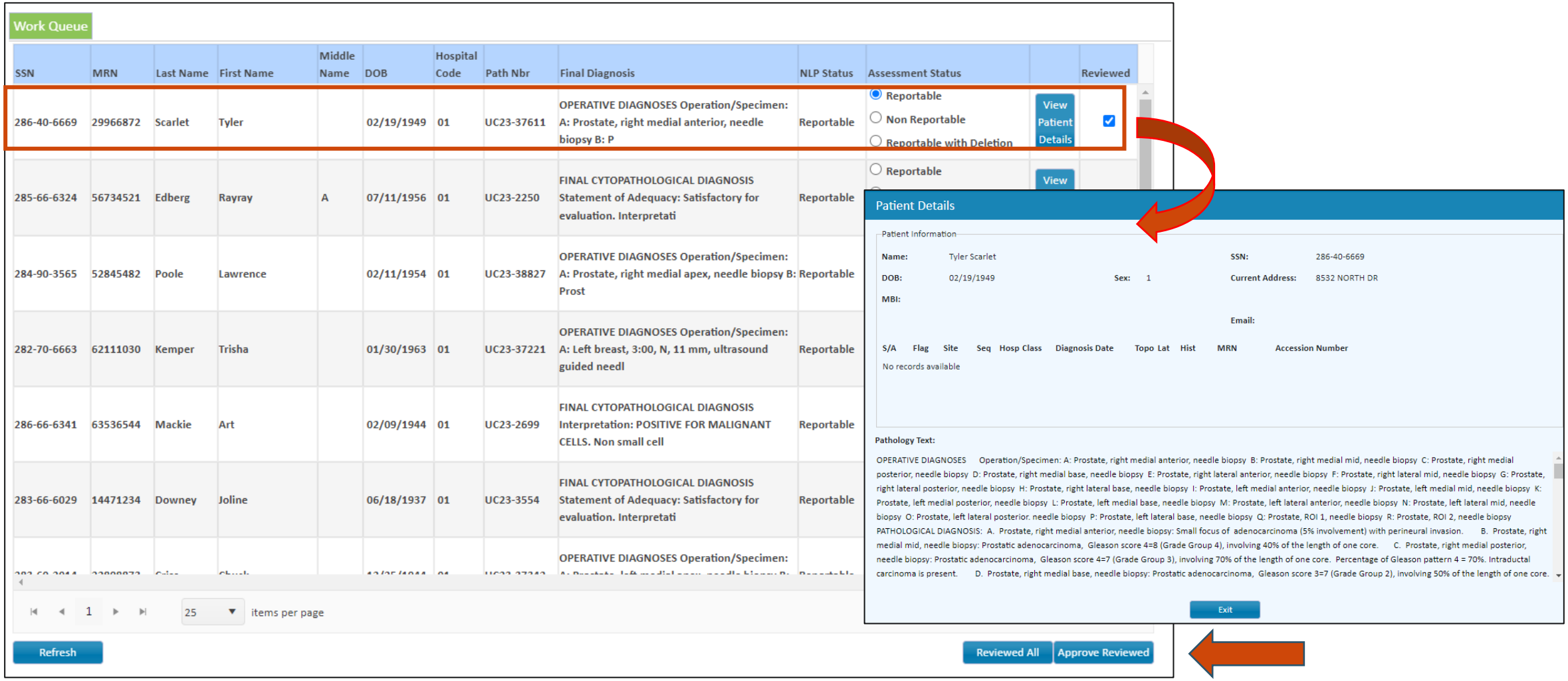
The HLA-Global Reportability Service is a document processing service that analyzes electronic pathology reports that are in free text format. It extracts information to determine the properties of cancer to identify its reportability status:

Reportable	The report contains a reportable cancer
Non-Reportable	The report contains a non-reportable cancer (or is not a cancer report)
Needs Further Review	The report requires further manual analysis

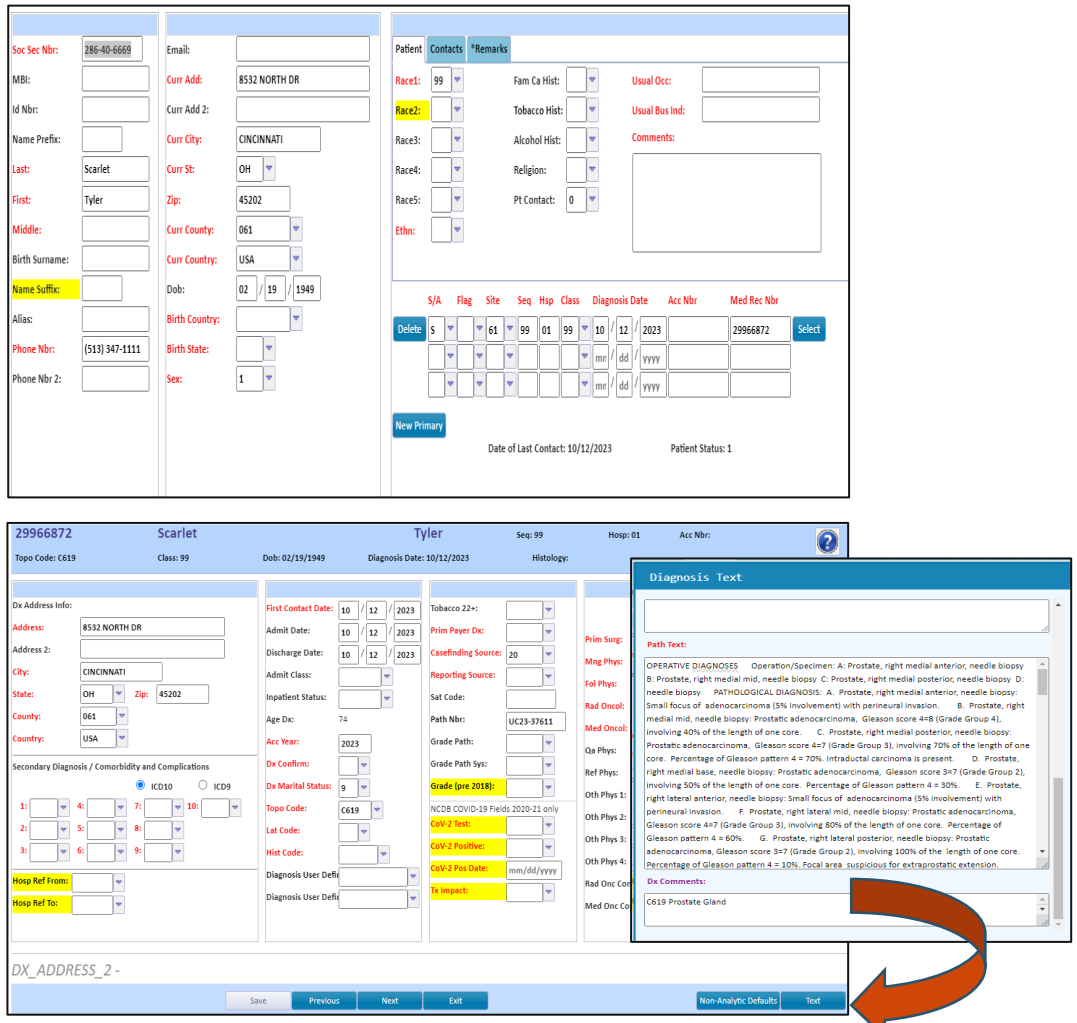
NLP Reportability Solution Overview



CRStar Work Queue



CRStar Suspense File



- Patient Demographics
- Site
- Hospital
- Diagnosis Date
- Medical Record Number
- First Contact Date
- Admit Date
- Discharge Date
- Casefinding Source
- Pathology Number
- Pathology Text
- Diagnosis Comments (topography code and description)

The Broader Picture

- Precision Cancer Registries
  - Advocated by the CDC at NAACCR2023
- Computer assisted coding for productivity gain
- Automated case identification
  - Pathology
  - Radiology
  - EHR
- Synoptic report – data item extraction

In Conclusion

- The NLP reportability solution for pathology addresses a key need for cancer registries
- High accuracy with active learning to improve case identification
- This fully automated solution increases efficiency and productivity and helps drive concurrency
- Registries will see remarkable cost effectiveness compared to other solutions
- Health systems report a quick ROI

Come see us in Indianapolis April 24-27, 2024

Stop by Booth # 201, 300 (ERS/CRStar)
and
210 (HLA-Global)

Q&A

Contact Us

Melanie Rogan, ODS-C

Director, Growth and Strategic Services

ERS, a Health Catalyst Company

melanie.rogan@healthcatalyst.com

www.mycrstar.com

Ali Besiso, BHSc, MBA

Managing Director

Health Language Analytics (HLA)

ali.besiso@healthla.com.au

www.hla-global.com