



HF REVEAL NLP

HF REVEAL NLP Applications:

Risk Adjustment

- Discover all documented conditions and capture risk accurately
- Increase coder productivity and efficiency
- Generate clinical suspects
- Identify clinical documentation improvement (CDI) opportunities

Population Health Management

- Engage physicians with actionable care gaps
- Optimize ROI through better member stratification

Quality

- Support clinical decision making in high-risk care management pathways
- Identify and capture quality metric gaps and compliance

Compliance

- Ensure coded conditions have substantiating evidence documented



“We chose to partner with Health Fidelity because of the qualifications of its team, its substantial experience with our engine, and its vision for natural language processing as an essential technology to empower and advance healthcare.”

Dr. Carol Friedman, Professor, Department of Biomedical Informatics at Columbia University Medical Center

Background

The digitization of healthcare has created an explosion of data stemming from increased EHR adoption, smart devices, and a world of new healthcare software applications. Much of this data is unstructured, such as free-text physician notes entered or transcribed in an EHR, which is estimated to make up 70-80% of available healthcare data. Historically, unstructured data could not be analyzed without someone reading through the content and manually documenting important medical information contained within it. Human language, also known as “natural language,” is very complex and embodies an enormous amount of expressiveness, variety, ambiguity, and vagueness. The core of natural language processing (NLP) technology is to interpret human language in an automated way and allow organizations to systematically analyze large volumes of unstructured data with high accuracy and efficiency. With the volume of unstructured data increasing, healthcare organizations are turning to NLP to leverage their data to improve clinical and financial outcomes.

Health Fidelity’s REVEAL NLP

HF REVEAL is a sophisticated healthcare NLP engine which licenses the MedLEE NLP infrastructure built by Dr. Carol Friedman, an award-winning inventor for advancements in digitizing health data and information from Columbia University’s Department of Biomedical Informatics – an organization with decades of cutting-edge research in healthcare NLP.

This partnership has enabled HF REVEAL to be trained and refined with millions of actual patient medical records. A strong clinical pedigree is an important factor in NLP engine output quality; medical language is full of specialized terminology and jargon, so healthcare NLP engines must be trained and validated using clinical data to ensure the accuracy and applicability of its analysis. Typical commercial organizations do not have access to these large proprietary patient data sets and deep informatics knowledge, an advantage exclusive to HF REVEAL.

HF REVEAL also provides the greatest depth and breadth of industry standard terminology support, including SNOMED, ICD-10, RxNorm, and LOINC. HF REVEAL organizes its output along an easy-to-understand clinical model for robust information retrieval and integration.

HF REVEAL’s rich heritage assures clients that our technology is scalable, viable, and uniquely fine-tuned for healthcare applications where realizing the full potential of clinical insights are mission-critical.

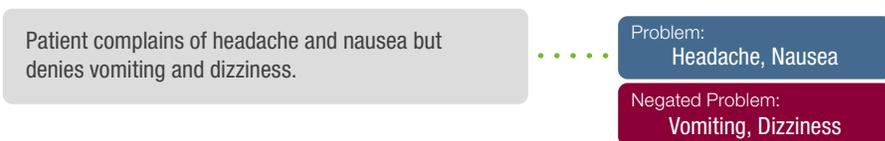
How HF REVEAL Interprets Unstructured Clinical Data

HF REVEAL is much more sophisticated than simple taxonomy and text-mining methods because of its ability to understand the complexities of human language – including grammar, syntax, context, and intent. It can convert unstructured data in medical narratives into a structured extraction of clinically relevant findings such as problems/diagnoses, procedures, medications, immunizations, allergies, observations, and lab results. HF REVEAL is a high-powered NLP engine that includes a robust ontology and grammar model to interpret clinical language and filter out false positives. Here are some examples of the complexities in clinical language that HF REVEAL is designed to handle:

Contextual Attribute Assignment – identifies clinical problems (i.e., diagnoses) and assigns attributes such as duration, location, disease course, severity, and acuity. In addition to diagnoses, HF REVEAL can identify other clinical concepts such as medical procedures and events, and form similar associations.



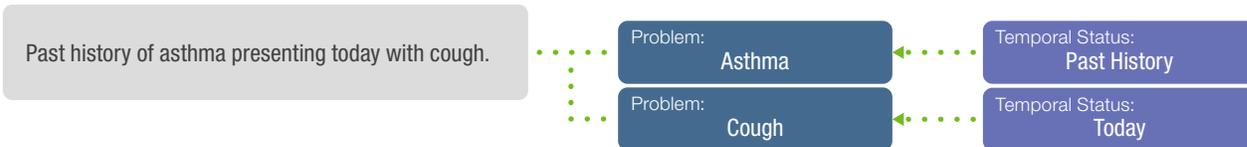
Negation – interprets grammar to understand which clinical problems were actually experienced by the patient versus which ones were not experienced.



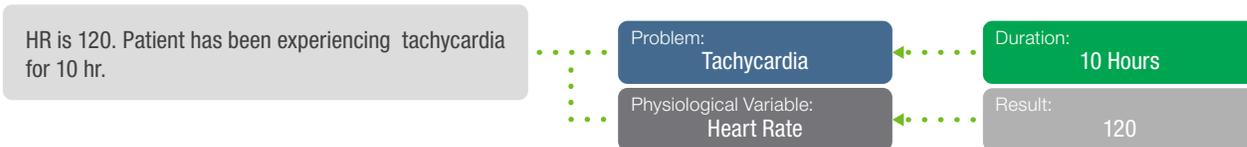
Certainty – assigns a level of certainty to clinical problems and findings based on the statement's definitiveness.



Temporality – understands the timing of problems, findings, procedures, and events.



Word Sense Disambiguation – removes uncertainty of meaning from ambiguous words using context and syntax (e.g., “HR” as hours vs. heart rate).



HF REVEAL Utilization Measurement

3
Million+

Client Lives Supported
on our Platform

>95%
Average

Correct Risk Category
Capture Rate

43
Million+

Client Clinical Records
Processed