Linguamatics Health for quality measures

In a perfect world, all the data we need for HEDIS® quality measurement would exist in one vendor's electronic health record (EHR), in a structured format, accurately captured 100% of the time, easily extractable, and ready to aggregate and submit. But in the world of healthcare, quality measurement data collection and reporting is far from perfect. Powerful natural language processing (NLP) solutions such as Linguamatics Health enable quality measures to be extracted automatically from clinical documentation, streamlining the collection of data.

Patients move from provider to provider, health system to health system and, more often, from payer to payer. The process of transferring health records from one organization to another results in an abundance of scanned documents, Continuity of Care Documents (CCDs) in XML format, and historical information relayed by patients and/or in unstructured clinician notes. In fact, 80% of the medical record exists in an unstructured format, in text notes or scanned documents. Ignoring these notes often results in reduced performance on quality measures.

Measuring population management

HEDIS® (Healthcare Effectiveness Data Information Set) was created in 1991 to enable the health of patient populations to be assessed consistently,[1] and has since matured as a means of comparing health plan to health plan, and provider to provider. Over the years, measures have been tweaked, perfected, or dropped, and additional populations included. NCQA's Committee on Performance Measurement, a broad-based group representing employers, consumers, insurance companies, and others, debates and decides collectively on the content of HEDIS®.[2] Many of the measures can now be captured electronically via structured data forms or collected through surveys. However, one study found that EHR-derived quality measures can undercount practice performance when compared to a manual review of electronic charts.[3] Many institutions still rely on manual chart review to abstract key information. This is a time consuming and painful process for the analysts and abstractors doing the work.

NLP streamlines chart review

Several HEDIS® measures comprise a combination of structured and unstructured data. The Comprehensive Diabetes Care measure includes lab results for A1C and nephropathy screening, blood pressure from vital signs, and ACE/ARB therapy from the medications list. Determining if the patient has had a dilated eye exam, or has evidence of retinopathy or nephropathy (ESRD, CKD, kidney transplant), often requires an extensive search through unstructured clinical notes. While HEDIS® measures form the foundation of quality measurement, exceptional Population Health Management involves looking at social determinants and co-morbid conditions, to ensure the patient is receiving appropriate follow-up care. Linguamatics Health, powered by I2E, can bring together data from many sources, as shown below, and gather insights hidden in text notes or scanned documents such as physician/nurse/case/care manager notes, diagnostic testing reports, imaging reports, pathology reports, oncology notes, or maternity delivery notes.

Figure 1: The dashboard shows population metrics from diabetes patients that have all been extracted from patient notes using Linguamatics Health's powerful NLP capabilities.
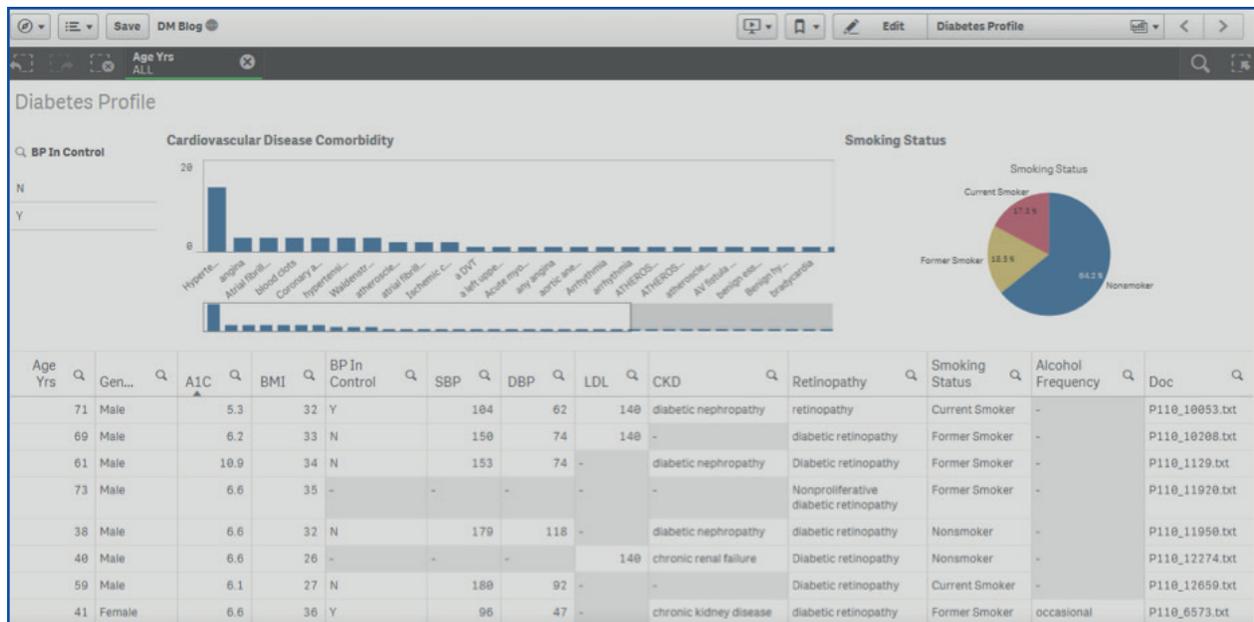
Other issues like heart failure, as shown below, require the analysis of the ejection fraction just to determine if the patient has heart failure and should be included in the heart failure population, or needs to be added to the problem list. Contraindications or allergies to ACE/ARBs and beta-blockers need to be determined in order to exclude ineligible patients from the measure. Ejection fractions are rarely found in a structured field; problem lists are rarely 100% accurate, and patients can be missed.

Figure 2: Linguamatics Health results showing heart failure metrics such as ejection fraction and medication details taken from patient notes, and indicating where individuals are outside their healthy zone.
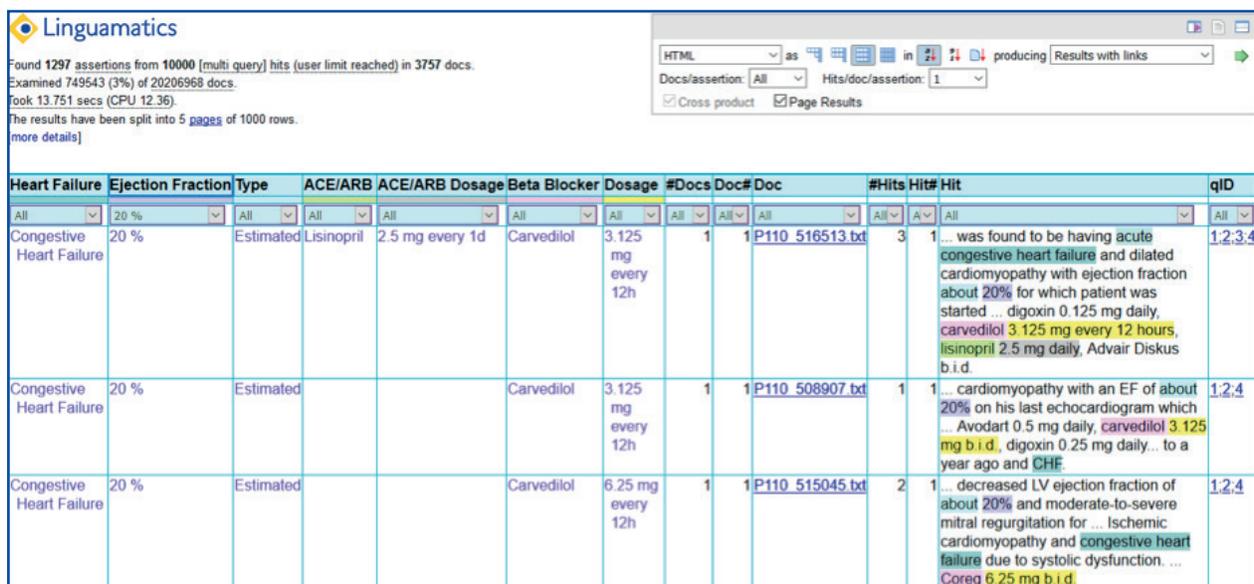
Searching for a "negative diagnosis history," "initial diagnosis date," or measure exclusions can be time consuming if done manually—a chart abstractor has to search the entire chart for the absence of a diagnosis or treatment. In the Use of Spirometry Testing in the Assessment and Diagnosis of COPD measure, the initial date of diagnosis must be determined along with the presence of spirometry testing to confirm diagnosis. In the Use of Imaging Studies for Low Back Pain measure, the chart abstractor must determine if: a) the primary diagnosis is low back pain; b) the patient did not have an imaging study (x-ray, MRI, CT) within 28 days of the diagnosis; and c) there were any exclusions for clinically indicated imaging studies in patients with a diagnosis of the following conditions: cancer, recent trauma, IV drug abuse, neurologic impairment, HIV, spinal infection, major organ transplant, or prolonged use of corticosteroids.

Addressing the growing burden from manual chart review

As HEDIS® matures, more of the measures require documentation of care plans and follow-up that are mostly documented in unstructured notes. In the Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents measure, referrals, plans, and counseling are variable, and more likely to be documented in an unstructured format as a referral to a weight management program or dietary consultation. The same holds true for the Care for Older Adults measure, where the presence of power of attorney or advance directives documents may be present in the chart, while other advanced care planning decisions/discussions are found in the clinician notes.

Linguamatics Health can help gather insights from unstructured text and reduce the amount of manual chart review, enabling focus to be kept on care of the patient.

Why wait?

To understand more about Linguamatics Health for quality measures, contact us at:
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[1] "What is HEDIS?" Available at: http://www.ncqa.org/hedis-quality-measurement/what-is-hedis [accessed 31 July 2017]

[2] HEDIS® 2017. Available at: http://www.ncqa.org/hedis-quality-measurement/hedis-measures/hedis-2017 [accessed 31 July 2017]

[3] Parsons, A. et al (2012) "Validity of electronic health record-derived quality measurement for performance monitoring," Journal of the American Medical Informatics Association, 19(4), pp. 604–9. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3384112/#__sec9title [accessed 31 July 2017]