Clinically intelligent NLP: Driving a future of better health care operations

Artificial intelligence (AI) has the potential to help health systems advance population health, care delivery and operations. By bringing together extensive amounts of curated data, in-depth expertise and advanced algorithms, AI can create the analytic insights and process efficiencies needed to improve decision-making and revolutionize the way physicians treat patients. It can provide solutions to financial and resource challenges facing health systems and health care providers.

Embedding AI in business areas like revenue cycle operations adds exponential value and improves accurate reimbursement. One area of AI — natural language processing (NLP) — is already having a transformative impact on the revenue cycle.

But not all products with NLP are created equal. Clinically intelligent NLP can automate complex, time-consuming processes that rely on clinical knowledge and reasoning to dramatically increase efficiency and accuracy in critical areas of the revenue cycle. It interacts with medical necessity reviews, comprehensive clinical documentation improvement and coding — and does so earlier in the revenue cycle — to support accuracy, efficiency and revenue integrity. For these reasons, clinically intelligent technologies will have far-reaching organizational impact.

NLP designed for health care finds meaning in medical records

Clinical documentation provides the fuel that drives health care operations. Patient interactions with providers are often brief, and when they leave a provider's care, the only lasting evidence of the patient encounter resides in the medical record documentation. NLP technology developed specifically for health care focuses on clinical concepts and uses artificial intelligence to correlate interrelated medical documentation.

Unlike standard NLP capabilities, clinical NLP can automatically review electronic patient records for diagnoses and related conditions to facilitate more complete clinical documentation and recommend appropriate patient status and accurate medical codes.

The information chronicled in patient-provider interactions is also necessary for appropriate reimbursement, quality initiatives and other critical health care operations. But understanding what was documented in a record is only part of what makes clinical NLP so valuable. The most sophisticated of these technologies can identify documentation gaps by understanding not only what is in the record, but what is likely missing. This provides clinicians valuable feedback to improve their documentation at the point of care.

The power to review every record and identify cases with potential patient status errors and documentation deficiencies, including quality events and clinical validation risk, is an unprecedented capability of a clinically intelligent NLP. Hospitals and health systems can pinpoint and address more documentation issues sooner, enabling precise medical necessity determinations and more complete coding. The result — more accurate reimbursement and reporting.

Additionally, medical necessity review processes become more streamlined for both case managers and physician advisors. This frees them to operate at the top of their clinical licenses, rather than spending their time on administrative work.

When combined with clinical models and rules engines, NLP technology can capture and "understand" the context and meaning implicit in medical records, apply evidence-based criteria, and thoroughly review millions of clinical documents every day.

Clinically intelligent technologies automate utilization management to refocus efforts on care

AI-powered utilization review solutions can automatically review 100% of medical records to both accelerate and improve the accuracy of initial sorting of cases into those which are clearly inpatient, those which are clearly observation, and those which require a physician advisor review. Automating the initial case sorting can save case managers hours of work each week. Time can then be reallocated to higher-impact responsibilities, such as readmission prevention and supporting value-based care objectives.

The ability of clinical NLP to more accurately identify the cases that truly require physician advisor review better aligns resources to those critical cases. It also serves up risk factors and patient treatment information to physician advisors, eliminating the need to comb through voluminous records that have only grown over the past decade. This can help accelerate physician advisor reviews by up to 30%. Faster reviews leave more time for physician advisors to conduct important peer-to-peer reviews, which can have a significant impact on accurate reimbursement and help avoid improper denials.

Intelligent automation relieves reimbursement challenges

Complete, timely and accurate documentation is essential for accurate reimbursement. Documentation gaps can lead to inaccurate coding that may diminish revenue and slow or stop the reimbursement process. Chasing down deficiencies in documentation can impact cash flow. Claim denials resulting from inaccurate or incomplete documentation are costly to rework.

Documentation deficiencies and incomplete coding pose an even greater threat to revenue today than they did a few years ago. New risk-based models have introduced intricate rules that impact documentation, coding and reimbursement. As payment models shift, reimbursement is also tied to quality events that must be accurately reported based on what is reflected in clinical documentation. In addition to revenue, quality reporting to the Centers for Medicare & Medicaid Services (CMS) is public information, and the related ratings and penalties can shape community perception of the health care provider.

Intelligent automation applies clinical NLP to identify documentation gaps, potential quality events and cases at risk for clinical validation denials — at the point of care. Clinically intelligent AI solutions assess the clinical evidence in medical records to determine if it supports diagnosis and treatment.

This proactive verification assists providers to resolve documentation deficiencies to avoid increasing trends in clinical validation denials, and reduces resources needed to address those denials. This results in more complete coding and efficient downstream revenue cycle processes that ultimately lead to appropriate revenue capture and accurate quality reporting.

Clinically intelligent NLP reduces resource constraints

Coding is complex with multiple coding systems, including ICD-10, CPT® and HCPCS, each with intricate guidelines for specific code selection, combinations and sequencing that depend upon the completeness and accuracy of the clinical documentation. Often documentation improvement has focused only on certain payers or care categories. There is simply too much data to manually review every case. Hiring staff to review all patient records to find potential deficiencies — while patients are still hospitalized — would be prohibitively inefficient and expensive.

Most providers are unable to accomplish 100% manual record review, so documentation deficiencies can go unnoticed while staff spends time reviewing only a small subset of records, many with no issues to address. Clinical NLP can review medical records more quickly and thoroughly than traditional, manual programs to identify what may be missing and to assign appropriate codes.

What does this mean for the people whose job it is to review documentation and assign codes? Automation often brings with it fears of job security. But rather than threatening jobs, technology powered by clinical intelligence helps everyone involved in the revenue cycle by processing enormous amounts of information with a high level of precision to help them work smarter and better utilize their talents. Such technology can accomplish the necessary and detailed work that is challenging to address due to the sheer volume and complexity of health information data.

Clinically intelligent NLP reveals important documentation issues to clinicians

Clinicians focus on providing patient care. Accurately documenting that care requires time away from patients and can seem burdensome. However, generating the revenue that allows physicians to practice does depend on documentation, creating a natural tension between care providers and those running the business.

Clinically intelligent NLP helps ease some of that tension. The technology can find documentation in need of change and provide the reason physician clarification is needed, linking to related evidence within the record. NLP assistance narrows the cases that are brought to physicians' attention to those cases that are most likely to need improvement, allowing physicians to effect change at the point of care. With improved documentation, organizations accurately capture revenue with reporting that accurately reflects the care provided and appropriately reflects quality metrics.

Unlocking unstructured data

The ability of artificial intelligence to understand both the structured and unstructured data in medical records is critical to effective and efficient documentation review. Most of the information in the record is unstructured, meaning it's recorded as free-form narrative about the patient's care.

Clinically intelligent NLP unlocks the unstructured content to provide the structured data elements, including the diagnoses, procedures, findings, labs, drugs and outcomes that comprise complete and accurate clinical documentation. Data from unstructured sources complement the structured data to create a more complete picture of a patient's health. At the same time, clinical intelligent NLP has the ability to handle a variety of different formats and narrative structures places as few constraints as possible on the clinicians who write the source documentation.

AI signals a future of better care and better health

If AI in the form of a clinically rich NLP model with logic can find gaps in documentation, could it also find gaps in care? The answer is yes. The clinical indicators that are currently used to find evidence of complications and comorbidities could also find evidence of care that's overlooked, or indications that a treatment protocol may not be the most effective. Clinically intelligent AI applied to decision support and evidence-based medicine could help providers improve outcomes and save lives.

As health care leaders see both the current and future benefits of advanced clinical NLP, technology as a whole will continue to improve. And that's good news for every health care stakeholder.

To learn more about clinically intelligent NLP:
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