

# Artificial Intelligence is transforming healthcare operations

Artificial intelligence (AI) has the potential to revolutionize the way physicians treat patients and deliver care. But while AI exhibits great promise, many of its practical health care applications are at an early stage. However, one area of AI — natural language processing (NLP) — is having a transformative impact today, and the case for using NLP to improve the revenue cycle is strong.

The right NLP technology can automate complex, time-consuming processes to dramatically increase efficiency and accuracy in critical areas. For example, intelligent automation can power comprehensive clinical documentation improvement and coding — and do it earlier in the revenue cycle — supporting accuracy, efficiency and revenue integrity. But not all NLP is created equal. Clinically intelligent natural language processing will have far-reaching organizational impact.

## **NLP for health care finds meaning in medical records**

Clinical documentation provides the fuel by which health care organizations drive much of their 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 can automatically review electronic patient records for relevant data to help ensure that clinical documentation is complete, so that the NLP-assigned codes are accurate.

NLP engines that have been developed specifically for health care — we'll call them clinically intelligent NLP — are focused on clinical concepts and on using artificial intelligence to correlate interrelated medical documentation. This automation can pinpoint diagnoses, along with related conditions and procedures, required to accurately code the care provided. The information 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 NLP so valuable. The most sophisticated clinically intelligent NLP technologies can identify documentation gaps by understanding not only what is in the record, but what is missing. As a result, clinicians can receive valuable feedback to improve documentation at the point of care.

The power to review every record and identify every case with potential documentation deficiencies and/or quality events is an unprecedented capability of clinically intelligent NLP. This "automated case-finding" helps hospitals and health systems pinpoint and address more documentation issues — at the point of care — enabling more complete and accurate NLP coding, reimbursement and reporting.

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

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## Clinically intelligent NLP 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 the reimbursement process or stop it altogether. 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 and Medicaid Services (CMS) is public information, and the related ratings and penalties can shape community perception of the health care provider.

Intelligent automation that identifies documentation gaps and enables documentation improvement at the point of care supports accurate quality reporting, as well as accurate coding and efficient downstream revenue cycle processes that ultimately lead to appropriate revenue capture.

## Clinically intelligent NLP reduces resource constraints

In the ICD-10 era, coding is more complex, and documentation specificity has greater impact. Common practice for documentation improvement has been to focus 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 percent 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. Clinically intelligent 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, NLP 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 utilize their talents better. NLP 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 their 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. With NLP assistance, only the cases that truly need improvement are brought

### Unlocking unstructured data

The ability of artificial intelligence to fully understand both the structured and unstructured data in medical records is critical to effective documentation review. Most of the information in the record is unstructured, meaning 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 and 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, the ability to handle a variety of different formats and narrative structures places as few constraints as possible on those providing the source documentation.

to physicians' attention, allowing them to effect change earlier, at the point of care. Due to improved documentation, organizations capture more appropriate revenue with reporting that accurately reflects the care provided and appropriately reflects quality metrics.

### AI signals a future of better care and better health

If AI in the form of NLP 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 be finding evidence of care that's being missed or indications that a treatment protocol may not be the most effective. Clinically intelligent NLP applied to decision support and evidence-based medicine could help providers improve outcomes and save lives.

While technology and data quality doesn't yet support NLP finding gaps in care, the industry is pointed in this direction. As the technology makes its way there, other uses for NLP will emerge. This intelligence will be employed for clinical validation to assess if the clinical evidence found in medical record documentation supports the assigned diagnosis or treatment. Clinically intelligent NLP will identify gaps in evidence rather than gaps in the diagnosis. NLP will also be used to streamline the medical necessity review process, both in the first-level determination by providers and in second-level review by payers.

As health care leaders see both the current and future benefits of NLP, the technology will continue to improve. NLP's influence on complete and accurate documentation could be a catalyst for continuous quality improvement. And that's good news for every stakeholder in health care.

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To learn more about clinically intelligent NLP:

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