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CIO INSIGHTS

DISRUPTING THE CIO COMFORT ZONE TO INNOVATE AND TRANSFORM HOW BEHAVIORAL HEALTH CLINICS USE ELECTRONIC HEALTH RECORDS

BY WES WILLIAMS, VP & CIO, MENTAL HEALTH CENTER OF DENVER

A CIO's charge is to keep an organization running smoothly. CIOs are evaluated on crucial tasks such as providing a secure and reliable information infrastructure, maintaining enterprise applications, and reporting clean, reliable information back to the business.

Visionary CIOs know that technology also holds the promise of disruptive innovation.

Ironically, the very person responsible for order must also serve as an agent of change and transformation for the business. As the CIO of the Mental Health Center of Denver, a private, not-for-profit community mental health center, I took a risk to help fundamentally change how we access information in our electronic health record (EHR). Through the process, I've learned valuable lessons as to why investing in innovation is one of a CIO's most important responsibilities.

Going Beyond Digitization

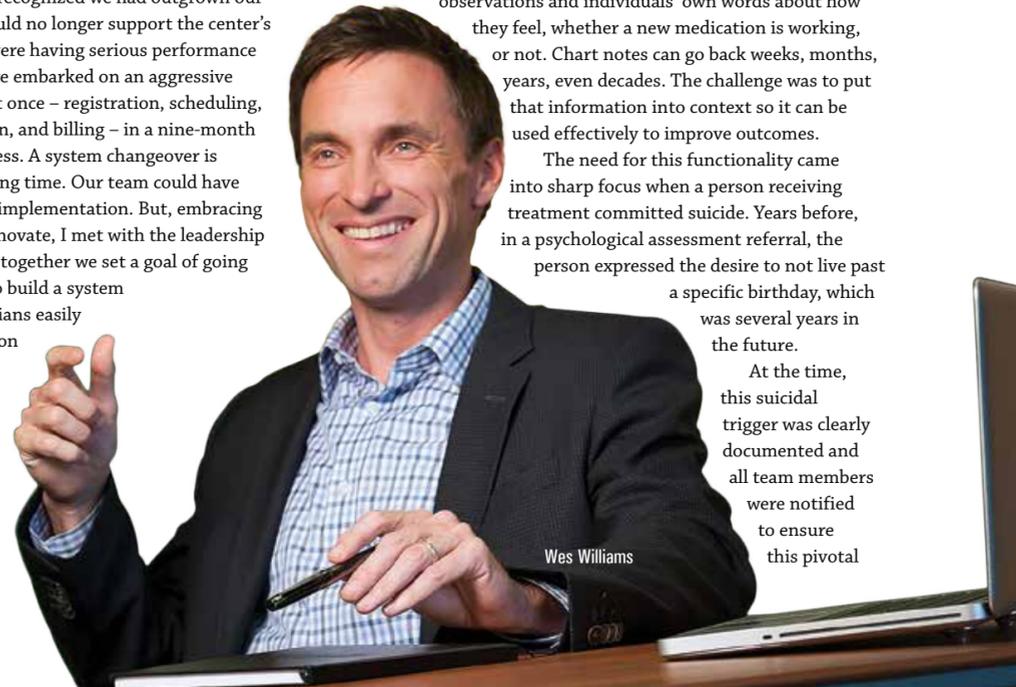
Several years ago, we recognized we had outgrown our legacy EHR, which could no longer support the center's growth. Because we were having serious performance and stability issues, we embarked on an aggressive plan to replace it all at once – registration, scheduling, clinical documentation, and billing – in a nine-month implementation process. A system changeover is an intensely challenging time. Our team could have focused solely on the implementation. But, embracing the opportunity to innovate, I met with the leadership team from Netsmart; together we set a goal of going beyond digitization to build a system that would help clinicians easily find crucial information that can get buried in years of clinical documentation. This will be a game changer for how clinicians use EHRs to provide clinical care.

20 percent structured data and 80 percent narrative text

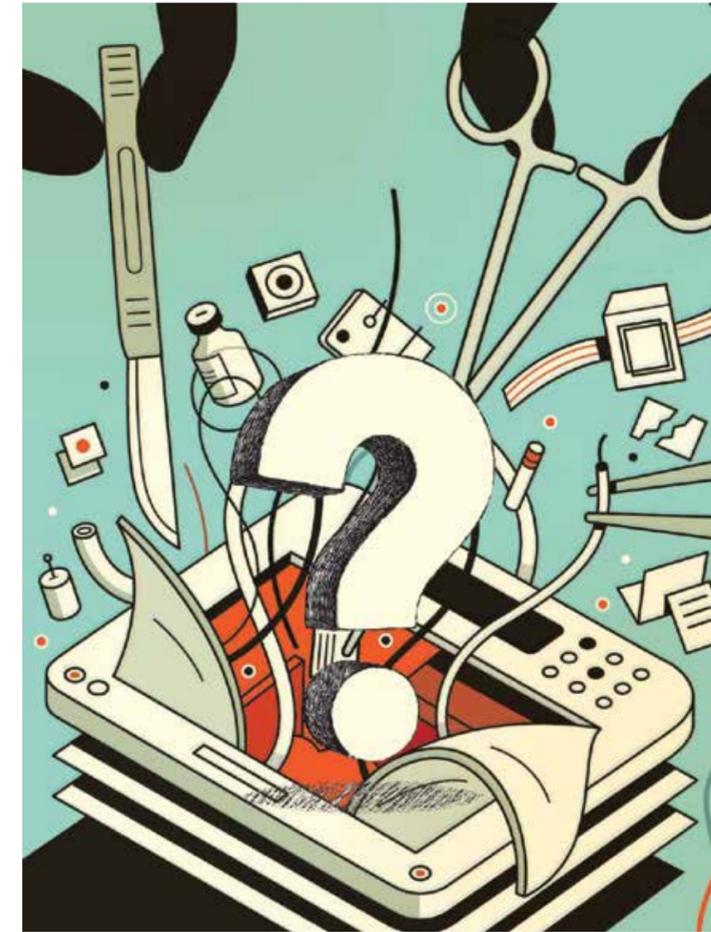
Industry estimates are that 20 percent of a health record is structured healthcare data, "check the box"-type information stored in data fields that are easily queried, analyzed, and fed back to the clinician. The remaining 80 percent of a health record is in narrative text; notes and assessments from physicians, nurses, therapists, and case managers. This valuable information tells the story of an individual's condition and treatment. As the narrative data accumulates, it becomes harder and harder to access. Many clinicians admit to only reading the previous session note when reviewing a chart because they don't have time to do more.

Value of narrative to behavioral health providers

For behavioral care providers, unstructured data can be vital to treatment. There is much to be gleaned from clinicians' observations and individuals' own words about how they feel, whether a new medication is working, or not. Chart notes can go back weeks, months, years, even decades. The challenge was to put that information into context so it can be used effectively to improve outcomes. The need for this functionality came into sharp focus when a person receiving treatment committed suicide. Years before, in a psychological assessment referral, the person expressed the desire to not live past a specific birthday, which was several years in the future. At the time, this suicidal trigger was clearly documented and all team members were notified to ensure this pivotal



Wes Williams



information was in the hands of everyone treating this person.

However, over the course of several years, the individual changed care teams and the information – by then several years old – wasn't readily accessible in the record. Tragically, on the birthday cited in the original assessment, the person died by suicide.

Natural language processing (NLP) could have helped mitigate this risk by highlighting this person's history of suicidality and easily surfacing the individual triggers that had been documented years before.

A New Way to Retrieve Clinical Information

We ended up partnering with two companies, Netsmart Technologies and InterSystems, to build out a solution where NLP is used to index the narrative data in the clinical record. Commonly-used phrases and key terms are promoted on word clouds and timeline views of a person's chart; clinicians can also search for terms. Each concept from the narrative text is linked to related concepts and can also be viewed in the context of the original note. We are currently testing the user interface,

getting feedback from potential pilot users. When introducing a novel technology, it is sometimes hard to anticipate how people will want to use it.

Lessons Learned

The key takeaways from initiating a disruptive and transformative organizational change are:

- Take the Initiative. Most organizations value small, incremental improvements and rarely ask for transformation. The CIO has the technical expertise to imagine "what if" and create a better way. Don't wait to be asked. Take the lead.
- Strike a Balance. Our day-to-day tasks are critical to the organization and account for about 90 percent of our time. Organizations will not support "unnecessary" innovation if other responsibilities aren't met. Pace yourself.



IT'S CRUCIAL TO BREAK OUT FROM THE EVERYDAY EXPECTATIONS TO IMAGINE A BETTER WAY. EMBRACE DISRUPTION TO TRANSFORM YOUR ORGANIZATION



- Don't Go At It Alone. Find a strong partner as we did with Netsmart and InterSystems. Our shared vision helped propel the project forward.

CIOs need to ensure the smooth everyday working of our organization. It's our most important duty. But it's also crucial to break out from the everyday expectations to imagine a better way. Embrace disruption to transform your organization. **CA**