EXECUTIVE INSIGHTS

IMPROVING CARE

ARTIFICIAL INTELLIGENCE AND THE FUTURE OF NURSING

Using technology to improve patient care and staff efficiency

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ARTIFICIAL INTELLIGENCE AND THE FUTURE OF NURSING: Using technology to improve patient care and staff efficiency

Artificial intelligence, predictive analytics and remote monitoring tools hold great promise in health care. Some of these tools go a long way in supporting clinicians, especially during the pandemic. However, the wrong tool can easily overburden nurses with unnecessary alerts, and some models need to be continuously updated to remain helpful. This virtual executive dialogue convened nurse executives to share their insights on best practices for the evolving role technology plays in augmenting and supporting nursing practice in 2022 and beyond.

KEY FINDINGS

1. When choosing new AI tools, **clinical leaders benefited most from simple, easy-to-use software** that **could fit easily into their current nursing workflow** rather than tools that placed added administrative burdens on caregivers.

2. To avoid overwhelming clinicians, some leaders reconsidered their informatics structures and **meticulously analyzed and retooled their AI models**.

3. Remote monitoring tools have **helped resource-strapped hospitals monitor patients** and redeploy nurses as needed, and some leaders find that artificial intelligence (AI) tools have **helped with nurse retention**.

4. While AI and predictive analytics tools can help clinical teams anticipate risks in specific populations and can forecast patient surge, **they do not replace nurses' critical thinking**.

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MODERATOR *(Terese Thrall, American Organization for Nursing Leadership)*: **What are some of the innovative ways that you use artificial intelligence to support your nurses?**

JACALYN LIEBOWITZ *(Adventist Health)*: We are using a software called KATE (from Mednition) in our emergency department (ED). It acts as a safety net and helps with clinician accuracy especially for high-risk conditions. If a patient is classified as a triage level-three, the system may say, "Wait a minute. This patient is really a two." I'm pulling them forward faster, sooner.

AI really helped as we were looking to bring new nursing graduates into the emergency room setting.

ERIC WALLIS *(Henry Ford West Bloomfield (Mich.) Hospital)*: We've tried to make sure that we're leveraging our electronic medical record (EMR) platform as much as we can, in addition to using other technologies. We're also assessing how artificial intelligence and predictive analytics help support our nurses, especially when it comes to changes in a patient's condition that might not be visible in a micro event. EMRs, on the other hand, have a longer view of a patient's condition and can see substantive changes. Sometimes, with predictive analytics, you run the risk of bombarding nurses with too much information. You can overwhelm them with alerts.

ANN SZAPOR *(Memorial Hermann Greater Heights Hospital)*: We use a sepsis alert system, and it automatically sends out alerts to nurses. It's very effective in the ED, but when it comes to the inpatient setting, sometimes it creates a lot of alerts for patients that we already know have sepsis.

It creates an extra workload for the nurses, but for the most part has been successful in helping us improve our metrics.

ADAM WINEBARGER *(Sinai Hospital of Baltimore)*: We're a Cerner enterprise and we used the Rothman Index to identify patient deterioration. We realized that we had lost some key buy-in, particularly on the physician side. We just started integrating a predictive analytics solution within our EMR. So far, it's going well.

We have a lot of care management staff that work virtually, and they used the Rothman Index during our most recent surge to look at people who were stable for a period and identified those patients for an earlier discharge than we might have previously considered. Our staff were able to do that virtually. They also had enough information to initiate discharge conversations with physicians instead of having to wait on the physician.

"AI really helped as we were looking to bring new nursing graduates into the emergency room setting."

— Jacalyn Liebowitz — Adventist Health

Our solution looks at nursing documentation and a patient's physiological profile. It creates alerts and classifies a patient's risk based on both the nursing documentation and what's inputted, whether it be lab values or nutritional status.

MARGARET SCHEAFFEL *(Carilion Franklin Memorial Hospital)*: We also use the Rothman Index for patient acuity. We found it worked best when driven by nurses. We have some good stories of preventing premature transfers and/or discharges.

We found that the alert systems really helped our clinical administrator to troubleshoot at the bedside. That extra set of eyes has helped us and assisted in the perception of a safety culture.

We also use an AI tool to predict falls and readmissions. It considers social factors and psychosocial factors, to identify those at higher risk for falls.

DONNA SUMMERS *(Henry Ford Health System)*: We have used our predictive models to anticipate risk of intensive care unit (ICU) readmission. We use it

for capacity predictions as well as to see who we could move out of our ICUs. This was especially helpful during COVID-19 surges.

MODERATOR: How do you stop false alerts?

SUMMERS: It's very meticulous, detailed work that we must just keep an eye on constantly. Part of it is just in the original testing and making sure that we set the thresholds at a place that give us positive results.

It takes continual analysis to see how our model performs. We're working with Epic right now to do some updates to the sepsis model specifically. We're also asking to engage with them more on the deterioration index so that we are not over-alerting our nurses.

WALLIS: We have a nursing advisory council that works with Donna's team to discuss their experiences with the EMR and other tools.

That mixture of analytics and real-time feedback from a group of bedside clinicians and educators and others in a structured format really makes a difference.

DAVE HANSON *(Society of Critical Care Medicine)*: I previously served as the chief nursing informatics officer (CNIO) for Providence St. Joseph Health in Los Angeles County. During my time there, we made sure that when alerts fired, they were accurate and sensitive to that patient population. It really required us to rethink how we structured informatics and nursing practice. And clinicians became experts in informatics and informatics became reacquainted with clinical practice again. When those alerts fire, they need to be accurate and timely and not burdensome to the caregiver.

LIEBOWITZ: Data is so powerful. We were able to show our nurses that if they followed the alerts that KATE gave them — which weren't onerous — their accuracy improved 21%. They loved being able to know that and it was empowering to take that information and utilize it as a marketing tool for nurses.

For instance, we let nurses know that they would have AI support to make them more comfortable and supported. That tactic boosted our ER nurse retention by 30% in one instance.

"That mixture of analytics and real-time feedback from a group of bedside clinicians and educators and others in a structured format really makes a difference."

— Eric Wallis —
Henry Ford Health System

SCHEAFFEL: We implemented a virtual sitting system enterprise wide. In our geriatric and high-stroke unit, our falls decreased markedly.

These cameras replace the need for a physical person. You do have to come up with your own sitting criteria, but it helps provide a safe care environment.

JENNIFER MARTIN *(Carilion Clinic)*: Before, you needed a certain number of bodies to sit with those patients and remind them to stay in the bed. Now, with the camera, you can spread that out. You can have one person watching seven or eight patients.

SZAPOR: We use the telemonitoring system as well. In addition to the patient safety features, it has really helped us from a resource perspective because we only need one person to be dedicated to the visual monitoring of the patients. It has allowed us to keep our personal care assistants working on the units instead of sitting with those patients.

LIEBOWITZ: Has anybody used this type of technology for more than sitting?

SZAPOR: We are using a very similar robot for ICU patients. We had ICU overflow into our intensive

medical unit, and those rooms don't have glass doors. Without the monitoring, the staff and the physicians couldn't see the patients.

Some critical care nurses even monitored patients from home. They alerted the nurses on the floor to changing vital signs, for example. That really helped us a lot from a resource perspective, especially on the days that we had to increase our ratios.

MODERATOR: What key features do you look for when you're looking for an artificial intelligence solution for your system?

LIEBOWITZ: It must fit into our existing current nursing workflow. If we must redesign our workflow, we are fighting an uphill battle.

SUMMERS: It must be simple. All these bells and whistles people want to throw at these problems, they just create complexity.

WALLIS: Before we go looking for a third-party system, we first ask the question, can our existing EMR, Epic do this? If you can gain on simplicity because you're sticking with one solution, it might be worth it in the trade off.

HANSON: When thinking about bringing in a new piece of AI it's important to consider what data exists around caregiver or end-user satisfaction.

MODERATOR: What are other top concerns related to implementing artificial intelligence solutions for clinical and operational nursing practice?

SCHEAFFEL: As we move forward, moderating change for our front-line staff who are burnt out is going to be key. The more we gather data embedded in our EMR, the more likely there will be a change affecting front-line staff, whether it's a policy, a procedure, practice or workflow change.

SUMMERS: We have many AI predictive models in our system that are providing information, but I don't know that anybody's acting on them at all because we've never actually operationalized them in a way that fit our patient and our clinician needs. It is challenging to connect that. And you're right, even if we try to fit it in with their workflows, it is still a change.

"When thinking about bringing in a new piece of AI it's important to consider what data exists around caregiver or end-user satisfaction."

— Dave Hanson — Society of Critical Care Medicine

SZAPOR: The visual aspects of patient privacy matter, too. We are piloting remote nursing documentation. Many patients really aren't comfortable with it.

MARTIN: What we're seeing in nursing practice is, "But the computer said to do this." Well, maybe the computer didn't have it right; maybe the AI didn't have it quite right. Nurses still need to think critically.

LIEBOWITZ: I am concerned about the accuracy of the information that's coming through. If you are constantly getting false alerts, the clinicians are going to start filtering them out.

We need AI that is going to continually learn from us. If I don't act on an alert, I need the AI to take my feedback and build that into its self-learning mechanism.

SUMMERS: That is right. Why can't the model itself learn?

DEENA BRECHER *(Mednition)*: AI can learn. That's something, as health care providers and health care leaders, we need to be able to demand from our vendors.

WALLIS: In addition to your education folks, having from the beginning communications with folks who are going to help craft the internal messaging around this change is a critical part of success.

MODERATOR: What kind of outcomes would lead you to evaluate and implement an AI solution?

HANSON: We looked at improvement in clinical patient outcomes. We really needed to see, for example, a decrease in the incidents of hospital-acquired conditions or patient falls.

SUMMERS: If we over-alert our nurses, none of our models work.

One of the data points that we've seen, because we've put a lot of attention on alerts in general, is in one quarter we were getting about 550,000 alerts to all our nurses. And we have dropped that to about 80,000. If we don't keep our eyes on this and we keep adding more AI and alerts, we will not be successful.

I look at which ones are firing the most and we clean them up. You don't drop that much without a lot of low hanging fruit, which just tells me that our designs and our functionality are not very good.

MODERATOR: What do you wish you would have known before you implemented your AI solutions?

WALLIS: Sometimes you just have to stop and ask "Is this really solving a problem I have? Or are we creating a solution for a new problem that I don't have today?"

WINEBARGER: You must involve the front-line staff at the very beginning and engage people that can either get onboard or dissent quickly. And I'm not referring to our educators or clinical nurse specialists, but our actual front-line bedside nurses.

WALLIS: Even when we choose a solution, we tend to see demos that show all the amazing things that a piece of technology or an AI can do. But often we don't fully implement those capabilities. We pick and choose. And then, we're left wondering why we didn't get the outcome that we expected.

If we're going to invest in a piece of technology or a piece of AI, we should use it as it was intended, because you're not going to get the value out of it if you only partially dip your toe in.

"Don't underestimate the impact of change, even small change on the bedside staff. When you roll out a new tool, make sure to support your staff."

— Ann Szapor — Memorial Hermann Greater Heights Hospital

SZAPOR: Don't underestimate the impact of change, even small change on the bedside staff. When you roll out a new tool, make sure to support your staff. Also, be sensitive to your environment. If it's not the right time to implement a new system, then don't do it. For the system to work, you must have all your ducks in a row. ●

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