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How SSM Health Leverages AI Technology to Combat Clinician Burnout

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Ann Cappellari, MD, Chief Medical Information Officer, SSM Health

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> *"It's absolutely my belief that in the next couple of years this idea of ambient documentation will change medicine and patient and human interactions for the better."*
>
> **— Ann Cappellari, MD, Chief Medical Information Officer, SSM Health**

Dr. Ann Cappellari began the session on SSM Health's adoption of the Nuance Dragon Ambient eXperience (DAX), and the artificial intelligence (AI) journey in general, with two examples: a personal anecdote about being triple-booked for an appointment with a busy orthopedist and a real-life schedule of one SSM Health provider. This "day in the life" featured 40 patient appointments, "and you can bet that gap between 11:40 a.m. and 1 p.m. isn't spent having a leisurely lunch," she noted.

Physicians are burned out, and one big contributor is documentation: the time-consuming task of entering notes into the organization's electronic health record (EHR). It has become a rising focus in healthcare, according to Cappellari. For example, the National Academy of Medicine's national plan for health workforce well-being has a special focus on administrative burden, and the National Library of Medicine has a goal to reduce the time spent on documentation by 75% by 2025.

Innovations like AI and ambient documentation can play a pivotal role in making things better. "What if when you walked out of your clinic room, documentation was just done—you didn't touch the keyboard?" she posed.

Technologies with Transformative Potential

With ambient documentation, Cappellari explained, "documentation is happening from things that are occurring around you, and you don't have to take active participation in that initial creation."

Such tools have their building blocks in voice recognition software, a process during which a clinician speaks into a wired microphone or phone and words immediately appear in real time in the EHR.

It's been an ongoing evolution of technologies and capabilities, Cappellari explained: "Clinical documentation in large language learning models and voice recognition techniques for documentation have been around for years and were very clunky at the beginning."

Then machine learning entered the picture. "When you're using data and algorithms to imitate the way humans learn, it gradually improves your accuracy," she said. "When you use more complex language models, you get into the world of generative AI."

Such advancements have been made possible by the overall digital transformation in the world in the past few decades. "The Internet of Things, the cloud, and just Wi-Fi and mobility change what you can do and where and the manner in

which you're documenting—so you can be more efficient and do things on the fly," Cappellari said. "There are now pieces in place that allow us to really do amazing things—automatically and easily and with good accuracy."

But What about AI's Risks?

Because advancements in AI are happening so rapidly, organizations need to keep up with guidance related to safety, Cappellari said. She mentioned that *The New England Journal of Medicine* has recently published articles about ChatGPT and that the U.S. Food and Drug Administration (FDA) has released a proposed regulatory framework related to AI/machine learning software and medical devices.

She also talked about the different levels of risk involved when using AI technology.

- **Risk related to changing an AI tool's performance:** One example is training an AI tool with increasing amounts of the same type of data—for example, information from patient visits. Here you're just trying to make a tool better and work faster in the same environment, so "it shouldn't be a huge risk," Cappellari said.

- **Risk related to changing an AI tool's inputs:** This involves inputting new types of data into an AI tool's training, like conversations from the grocery store in addition to recordings from patient visits. "You're in a less controlled setting, and you have to watch how your output changes based on that," Cappellari warned.

- **Risk related to changing an AI tool's intended use:** This risk occurs when an AI tool originally intended for documentation is applied to a completely different purpose like diagnoses. This is what organizations really need to be careful about, Cappellari cautioned.

Bringing Ambient AI into the Physician Workflow

Cappellari gave a high-level overview of how the Nuance Dragon Ambient eXperience (DAX) works. A documentation recording "goes through some AI algorithms, then it hits a human who tees up that note and makes it better, then sends it back to the provider for a note output," she explained.

In the next evolution, she said, "you start with your recording and now it knows enough that you can take the human out of the picture."

Figure 1: Natural Conversation, Ambient AI, Complete Clinical Note
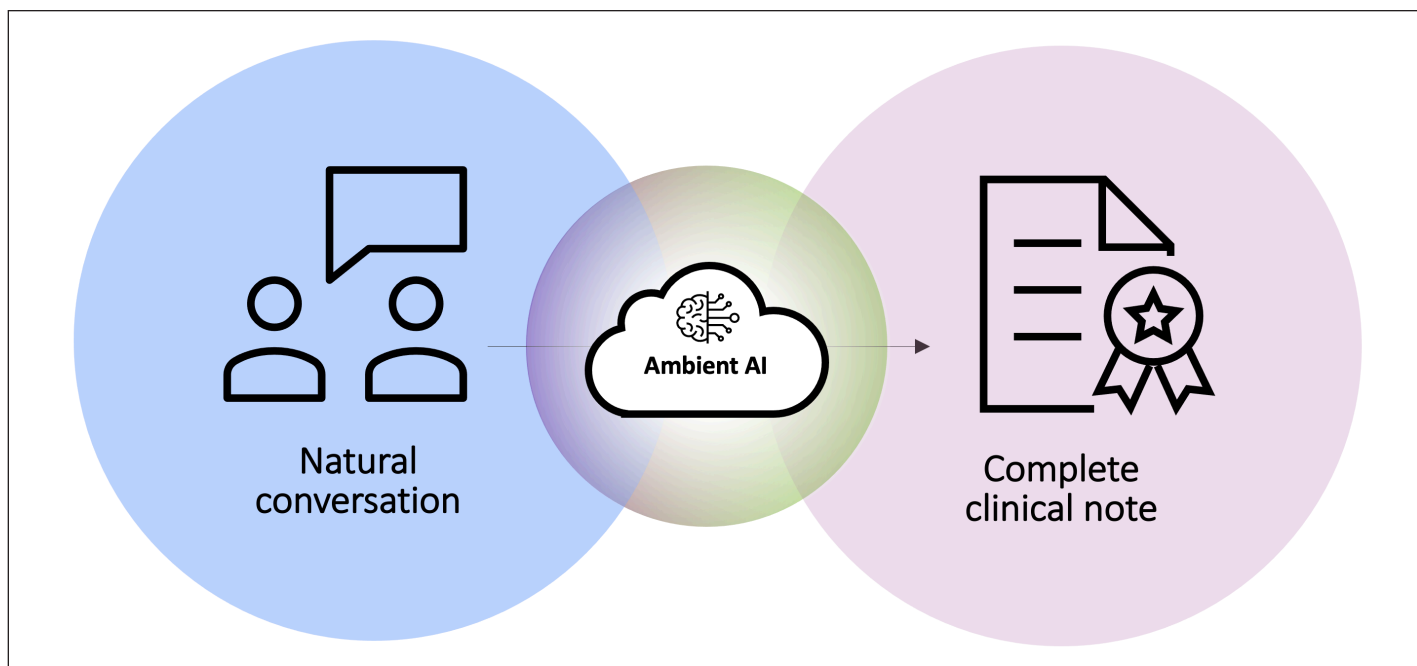
"With the technology exponentially improving, we can start to go from just any doc out of the box using the ambience and go to documentation without multiple steps of training. And that really is becoming a game changer," she said.

Cappellari said that SSM Health is currently using the full range of documentation technologies and strategies listed below, with the aim to shift usage more and more usage toward ambient documentation:

- Dictation with transcription service
- Human scribe
- Voice recognition (VR) dictation at a computer or phone direct into the EHR
- Ambient documentation with a human scribe
- Ambient documentation with AI

Human scribes can add a level of safety and assurance when adopting ambient documentation. But where

and how should organizations incorporate them into operations? "It's just a matter of what you can do with your workforce," Cappellari said.
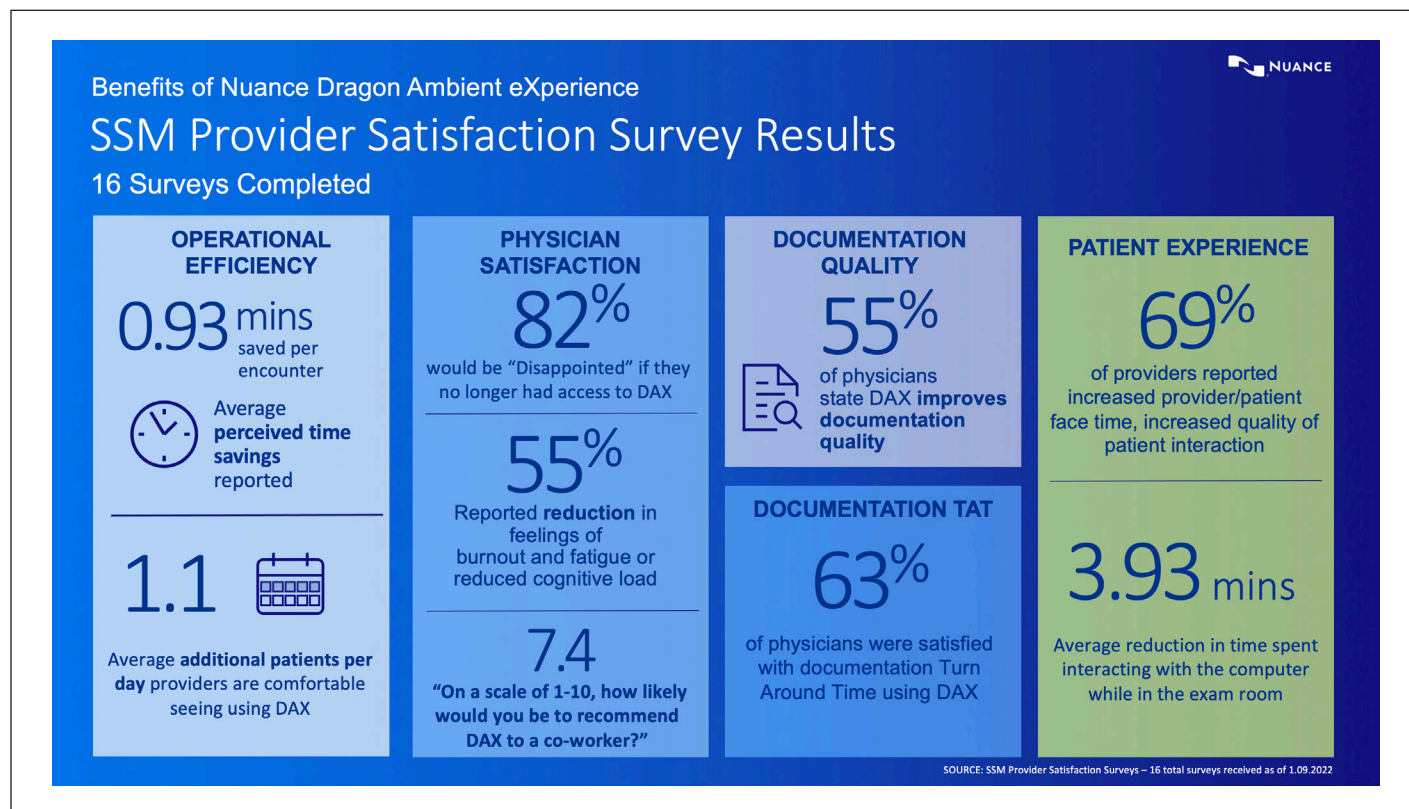
SSM Health uses virtual scribes for ambient documentation and enlists students and early career professionals for this role, bringing them into departments where they also have the opportunity multitask and cross-train.

Yet these scribes usually only stay in this position for about a year. "It's a jumping stone to nursing school or medical school or pharmacy school," Cappellari explained. "And it's just a tough workforce to maintain because you have to retrain to provider preferences, and sometimes it's just a lot of administrative work."

What impact has the new technology been making so far?

A provider survey showed positive results in operational efficiency, physician satisfaction, documentation accuracy, and patient experience, Cappellari said.

Figure 2: SSM Health Provider Survey Results

Benefits of Nuance Dragon Ambient eXperience

SSM Provider Satisfaction Survey Results

16 Surveys Completed

OPERATIONAL EFFICIENCY

0.93 mins saved per encounter

Average **perceived time savings** reported

1.1 Average **additional patients per day** providers are comfortable seeing using DAX

PHYSICIAN SATISFACTION

82% would be "Disappointed" if they no longer had access to DAX

55% Reported **reduction** in feelings of burnout and fatigue or reduced cognitive load

7.4 "On a scale of 1-10, how likely would you be to recommend DAX to a co-worker?"

DOCUMENTATION QUALITY

55% of physicians state DAX **improves documentation quality**

DOCUMENTATION TAT

63% of physicians were satisfied with documentation Turn Around Time using DAX

PATIENT EXPERIENCE

69% of providers reported increased provider/patient face time, increased quality of patient interaction

3.93 mins Average reduction in time spent interacting with the computer while in the exam room

SOURCE: SSM Provider Satisfaction Surveys – 16 total surveys received as of 1.09.2022

She also shared testimonials from SSM Health providers who incorporated DAX into their daily work. One, Dr. Robert Greytak, said he'd spent years dictating documentation from 7 pm to 9 pm after a busy day of seeing patients.

"If I got home early or even on weekends, I was usually too exhausted to do anything, such as spending quality family time, taking care of my health (exercise), and on weekends I would sleep a lot," he said. "I now feel like I have a life. Not just long work hours and sleeping. I am grateful that SSM, by allowing us to use DAX, cares about us as people to improve our quality of life."

Another SSM Health provider, Dr. Timothy Axe, called DAX a "game-changer for improving quality of life. I feel I have more focused time on the patient and not the computer."

Cappellari cautioned that ambient documentation solutions are not "implement and walk away. If you don't do a continued iteration on how providers are doing (Are they improving themselves? How are they releasing these tools to build capacity?), you will reach a point of 'okay-ness' but not exceptionalness."

Q&A

Q: *What specialties have been using the DAX tool so far?*

A: SSM Health initially introduced DAX into orthopedics, podiatry, EMT, ophthalmology, and dermatology—specialties with "one-issue visits, where we can really teach the AI and machine learning to read and answer for notes," Cappellari said. As the tool evolves, SSM Health plans to expand into areas with a heavier documentation burden, such as family medicine, internist, and the primary care world.

Q: *How does SSM Health decide which providers are a good fit for ambient documentation?*

A: Cappellari talked about the "small and mighty team" working on DAX at SSM Health: herself, roughly half a dozen clinic directors/managers, and a provider from the informatics team. The DAX team has met regularly for the past few years and is working to formalize the process of choosing providers.

Currently, the process includes using data and analytics to choose potential providers and then partnering with interested providers to implement ambient documentation. A DAX team member interviews providers about their documentation struggles, patterns, and styles and discusses how ambient documentation works, including what it means to have a scribe.

Cappellari stressed the importance of "curating" these providers. "I can't speak strongly enough for understanding how the solution works, understanding how providers work and marrying that to make it successful," she said.

SSM Health is currently working to formalize the process. This includes using Epic signal data to track how providers are spending their time and developing a "provider burnout dashboard," which can help identify providers who might benefit from documentation aids.

Q: *How long does it take for providers to adopt ambient documentation?*

A: Because SSM Health has had voice recognition for quite a while, speech recognition was "an upgrade to the next best thing" with "very quick" adoption. Using ambient documentation, however, "takes some learning," Cappellari said.

As SSM Health introduced DAX into the physician workflow, timeframes for provider adoption went from months to weeks at most. Working closely with a dedicated technology vendor support person and a clinic manager ensures a smoother process, Cappellari said, calling clinic managers "golden" as a go-between for connecting providers with the technology.

Q: *Does SSM Health use note templates, and if so, does the ambient technology work with these templates?*

A: Cappellari said that SSM Health has seen several benefits from ambient documentation, including:

- Less provider burden and burnout

- Higher provider satisfaction

- Power as a recruiting tool for new providers, who increasingly have been asking for the use of AI technology for documentation

Using increased capacity to gauge ROI can be tricky, however, Cappellari said. Some visits, like primary care visits, are generally more complicated than others, like an orthopedic follow-up. And "jamming more patients into a clinician's schedule" may not address the core issue of provider burnout.

"Happy providers make happy clinic staff make happy patients," she said. "Documentation solutions is absolutely a strategy that has benefited us in a provider satisfaction."

Q: *How does SSM Health evaluate different offerings in the marketplace and benchmark its own solution against others?*

A: Cappellari said that at this early stage, it's mostly "water cooler talk" at industry meetings with people who are doing this work. "There aren't a lot of apples-to-apples comparisons in the ambient world, even for solutions that have a human scribe," she said, adding that she anticipates advances related to GPT to accelerate this.

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