

Strategic Foresight Insights from the Robert Wood Johnson Foundation's Future Trend-Sensing Workshop

November 2019

Exploring the Future of Nursing

On 30 July 2019, a daylong workshop was held at the National Academies of Sciences, Engineering and Medicine. Sponsored by the Robert Wood Johnson Foundation's Pioneer Portfolio, the workshop, which was led by Futurist Amy Webb of the [Future Today Institute](#) (FTI) produced a broad range of emerging signals and trends, a list of uncertainties and recommendations.

The purpose of this day-long workshop was to support a national cadre of leaders to inform their assessment of the capacity of the nursing profession to meet the anticipated health and social care demands from 2020 to 2030. Workshop participants learned more about the future of Artificial Intelligence, learned about and utilized strategic foresight tools, and spent time sharing and categorizing signals of the future in an effort to derive emerging trends that may affect the future of nursing. The group then began developing scenarios detailing plausible future outcomes.

Futurism is not an exact science, but it can help decision makers see the future more clearly. This document, which was created by the Robert Wood Johnson Foundation is a tool to help The Future of Nursing committee members think more expansively about the future of nursing, health and health care. In this document, we present a list of candidate *trends* that may be important to the future of nursing. These trends were distilled by staff at the Robert Wood Johnson Foundation trained in strategic foresight after applying FTI's CIPHER methodology¹ to the set of signals that were collected during the workshop². This document also includes a set of *questions* to help committee members and others adopt a futurist mindset, and a set of *scenarios* (stories) based on the trends to help committee members step into and imagine possible futures.

As the leader of the Pioneer Portfolio of the Robert Wood Johnson Foundation, I look forward to receiving feedback from committee members to prioritize a learning agenda to understand how emerging trends will affect the work of nurses and other health care professionals working within and outside of the formal health care system.

Lori Melichar
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¹ CIPHER is a methodology developed and used by the Future Today Institute to identify hidden patterns within aggregated sets of signals.

² It is important to note that these candidate trends are not evidence based, and our understanding of the impact of these potential influences on the future of nursing varies according to the quality of the information, or "signals" collected during the workshop. We don't know if these are actually trends or if they are trending in the direction suggested, or whether these trends will continue. Further, this is by no means an exhaustive list all trends likely to affect the future of nursing, health and health care.

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10 trends³ that may be important to the Future of Nursing

1. Increasing prevalence and severity of climate-change related illnesses.
2. Increasing variation in local and state legislation and regulation that affects health.
3. More demand for “on-demand” health care.
4. More information from algorithms for nurses to consider in care decisions.
5. AI powered algorithms increasingly being used by government agencies to determine eligibility and prioritize resource allocation.
6. Increasing amount of information being shared by and about people without their consent.
7. More opportunities for nurses to make decisions that have ethical implications.
8. More/emerging vaping-related health complications to address.
9. Increasing use of robots in care delivery.
10. Decreasing reliance on traditional health institutions.

³ This candidate list of “trends” were derived from signals collected from workshop participants, using the CIPHER methodology of the Future Today Institute.

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Envisioning the Future

In five, ten, and fifty years:

Future of Work

- Who employs nurses?
- When and where do nurses work?
- What new services will nurses provide?
- With whom do nurses work?
- Who is a nurse?

Future of Technology

- What care will computers and robots provide that nurses cannot?
- How will nurses be trained to interact with technology?
- What might computers do that nurses should be doing instead?
- How will technology affect health equity?
- What can a nurse do that artificial intelligence cannot?

Future of Health Care Industry/Business

- Will health insurance still exist?
- How will be nurses paid?
- What will be the business case for nursing?

Future of Health Care Needs

- What care will people need?
- When we say “continuum of care” in the future, what will that mean?
- What new health challenges will people have?
- What will be the biggest challenges to health equity?
- What will patients expect that they do not now?

Future of Health Care Delivery

- Where will nurses work?
- Where are nurses most valuable?
- Where will nurses no longer work?

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Future Scenarios

Below are a set of five scenarios, or stories, meant to draw on some of the signals that were uncovered during the workshop and intended to stretch the time horizon of the committee members who are gathered to think about the future of nursing.

Nurses drive a specially equipped car that is full of lab equipment

Lucia handed her son one final cotton ball for the finishing touches on his weather diorama and told her daughter it was almost time to catch the bus. Lucia walked outside of her door and smiled when she saw the Uber Med car parked in her driveway. "Just on time, like always," she chuckled to herself. She jumped into the back and couldn't help but marvel at how much her life had changed in the last few years.

She used to leave home before her kids woke up and battled traffic on her way to her job at the emergency room. As a nurse, she pulled 12 hour shifts regularly and felt like most of her time was running from fire to fire. The most disappointing part was seeing the same patients over and over again for chronic diseases. It seemed like they only came in when things were at a crisis point.

She smiled at how silly that all seemed now and started reading her first patient of the day's chart. An eight-year-old with asthma needed a better medicine regimen to lower his emergency inhaler use. In minutes, they were pulling up in the patient's driveway. It always surprised her how efficient the driving routes were.

She was welcomed at the door by the patient, Elijah. His mom said from the kitchen "I'm so glad I could get a time before his bus arrives, thanks for coming." They sat at the kitchen table and Lucia talked with Elijah about his symptoms and checked his breathing. She also took some blood and went to the Uber Med car mini-lab to run a quick test to check his biomarkers and make sure this was asthma and not an allergy flare up. When she returned, she noticed he started coughing more when his mom was frying bacon and she encouraged her to use the oven fan and consider lower saturated fat meals for breakfast. Lucia said her own kids rebelled against bacon-free breakfasts until she found some new recipes on the Boom Breakfast blog.

She adjusted Elijah's medicine and informed the family that the Amazon drone would be delivering the new prescription in about 30 minutes. The appointment took just 15 minutes, but she felt like she made a real difference. Off to the next one.

Culturally competent mental health services through your phone

Andre paces back and forth in his office. Today was supposed to be a game changer for his career. The successful completion of a complex project followed by a presentation in front of the CEO showcasing his results. An opportunity for his peers to finally recognize his abilities.

Instead his co-workers tried to redirect him when he was in the elevator, joking: "Are you sure you want the 12th floor? That's the executive level." Then the CEO's executive assistant told him he had to wait until the CEO was done meeting with someone about a critical project. After he gently informed her that he was in fact the person that had led the critical project, she mumbled some half-baked explanation that there had been some miscommunication about who was giving the presentation. He then gave the presentation of his life about how he has saved the company millions of dollars and all the CEO said is how articulate he sounded. Ugh.

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His Apple Watch starts buzzing and encourages him to use his meditation app because his biomarkers are off the charts. He laughs and thinks, "I probably need more than meditation at this moment." He takes a deep breath and pulls up the Insight app. He sees his provider Marcus is available for a video call. All of the providers on the app are trained psychiatric nurses but he likes Marcus the best because he's also Black and worked at a Fortune 500 company for a number of years before going back to school to become a nurse. During his last call, Marcus told him that racial discrimination can cause chronic stress and can cause post-traumatic stress disorder in extreme cases.

Suddenly, he sees Marcus' smiling face on his screen. He says "Looks like you are having a tough day Andre, what's going on?"

Precision Comfort for Nurses and Patients

Mia was just starting her shift as an ICU nurse. She felt a little like a football player getting ready for a game as she put on her posture-correcting wearable device, muscle monitor, and medical information watch. Even her shoes and scrubs measured movement and comfort. At first, she bristled at all of this new technology but then she noticed how much better she felt at the end of a long shift. No more sore back and exhausted mind.

Her watch was telling her it was time to check on Mrs. Patel, who had had a heart attack yesterday. She went through her rounds based on when her watch sent her to a room. The algorithm in the watch balanced urgency of medical need and a whole series of patient's comfort needs. There was no more waking up a patient in the middle of the night to take blood pressure. Vitals were constantly being monitored by the clients' own set of wearables and Mia's job was to go in when the monitors suggested something was off.

Walking into the room, she could see that Mrs. Patel had adjusted the lights to a soft pink and changed her wall screen into a Hawaiian beach scene. She could hear quiet wave noises in the background. Mia asked, "How did you sleep last night?" Mrs. Patel said, "Surprisingly, better than at home. Does the hospital gift shop sell these fancy beach screens?" Mia said, "No, it's a little too big to put in a gift bag. Let's go over these test results."

Quantified Nursing

Susan heard a knock at the door. "I wonder who that could be," she thought. In response to her thoughts, an image of a rolling robot emerged on the white wall in front of her. "It's 7 am" Susan heard through her earphones as she placed her Amazon glasses on her table and prepared to greet her guest. "Alexa, allow entry" she voiced.

A square white robot rolled into the kitchen. "Good morning Susan" it said, "I'm Pete. Is Sam here?"

"She's here but still asleep. She doesn't have to catch the AUTO-mobile until 8am," Susan explained.

"Ok, her permissions allow me to talk to you about her numbers."

"Is there anything I should be worried about?" asked Susan.

Pete reassured her. "Worried? No. We catch emerging health challenges very early so there's almost always a way to address them."

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"What's Sam's challenge?" Susan asked, feeling a lump in her throat and pressing a button on her bracelet to produce a shock in her brain to help her listen attentively.

"Our analysis of the data we collected from her glasses, clothing, toilet, chair, bed and mirror leads us to predict that Sam is in the very early stages of depression. Generally, for cases like these, we adjust the situation remotely, but we know that you have a preference for face-to-robot communication, so I thought I would stop by."

"Hmmm, I did notice that she was eating less and going to her room earlier in the evening. Does it look serious?"

"Not yet. Our data suggest that, for the kind of depression she is trending towards, some simple adjustments will get her back on track. Our plan is to load her night aroma with stress releasing scents. The bubble gum flavor she selected is likely tricking her brain into thinking it will receive sugar, and keeping her stimulated. We have turned her bracelet blue so that her friends and teachers understand that they should keep an eye on her and give her a little extra attention. We've altered her news feed to stories that make her happy. Her homework will get a little easier to help her feel challenged, yet in control of her outcomes, and we have increased her treadmill requirements. She'll have to spend a bit more time walking before watching her shows."

"Should we be thinking about medication?"

"My supervisor, nurse Mike doesn't think that's warranted yet, but we have been monitoring her stool samples so that if and when that is warranted, we'll be ready to send personalized specifications to your in-home dispensary machine."

"Ok, do you have any advice for me?"

"I would suggest that you tell Alexa not to play music from channel 63 for a while until we get this back on track. Your lights will adjust in rooms where Sam is hanging out to help her get to bed earlier at night, and I would suggest you plan a beach weekend vacation sometime soon. We'll send you a beach umbrella that will let in just the right amount of sun to elevate Sam's mood."

Susan sighed and put her glasses back on so that she might look at the color blue for a couple of minutes. Pete remained in the room.

"Oh, I forgot to say "thank you!" she exclaimed, and Pete turned around and left her home.

She grabbed the breakfast meal the Medi-Fridge prepared for Sam and placed it on the table.

"Morning mom!" she heard from behind her.

Susan turned, smiling at her beloved daughter, and took off her glasses and headphones so they could talk.

Polymathic nurses making patients healthier and happier

Jay fell into her couch after a long day and visit with her mom. Her aging mom lived in an assisted living facility about 50 miles away. Jay loved her mom, but every time she visited and listened to her mom talk about missing her daily walks outside or making herself a cup of tea the guilt of having to leave her in a place she clearly hated nagged at her for weeks after.

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Sitting on her couch, Jay remembered a story that a fellow nurse, working in geriatrics, had told about a building owner in the northeastern U.S. who had transformed her building and its services so aging residents could stay in their homes.

Educated as both a city planner and a geriatric nurse, Jay knew she would have to consider all the city regulations to scale such a model. She made a bee-line to the computer the next morning and opened the AI-as-a-service app.

“Good morning Jay. How can I assist you?”

“Hey there Alsha — I want to design a city that will help seniors stay in their homes as they age.”

Alsha parsed through all the literature published on age-related illness, architecture, and city planning as well as the city's data on its structures. Each structure from homes to train tracks were outfitted with sensors that provided real-time information on elevator issues, early pest issues, asbestos, and more.

Jay poured herself a cup of coffee and when she returned to her desk she scanned through what Alsha had found. In front of her was a list with details of city policies and ordinances that might help or challenge her efforts, each with examples of projects related to the specific regulation and to her project.

Next Jay viewed the building design options that Alsha found from the literature that would be most conducive to creating healthier spaces for aging seniors.

“Alsha...it seems like a lot of these buildings wouldn't really give seniors the independence they want. I want to prioritize happiness over safety.”

“My mistake let me provide some new options.”

Satisfied with the new options, Jay looked at the next tab and found a map of the best locations to build new affordable residential units--most were near schools and some were within schools! Clearly, Jay and Alsha both understood the value of bringing different age groups in a community together. The map also included which buildings needed to be retrofitted.

“Thanks so much Alsha!” Jay was grateful for the quick information and scheduled a meeting at the hospital to talk to her nursing team about the plan starting to form in her head.

ABOUT THE ROBERT WOOD JOHNSON FOUNDATION

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