

[Feinberg Home](#) > [Office of Research](#) > [News & Podcasts](#) > [Podcast](#) > [Wireless Technology in the NICU with John A. Rogers, PhD, and Amy Paller, MD](#)

News & Podcasts

[News & Podcasts Overview](#)

[Newsletter](#)

[Podcast](#) ▾

[Podcasts](#)

[Podcast Archive](#)

[Videos](#)

[People](#)

Wireless Technology in the NICU with John A. Rogers, PhD, and Amy Paller, MD

Northwestern's John A. Rogers, PhD, and Amy Paller, MD, have just published a study in the journal *Science* that shows how ultra-thin, electronic sensors developed in Rogers' lab have the potential to make NICUs wireless.



"Parents) love the idea of getting rid of the wires. They love the idea of being able to hold the baby and have that skin-to-skin contact that we know is not wonderful for bonding, but also lowers the risk of lung and liver and infectious issues in these neonates."

— [Amy Paller, MD](#)

- Chair, Department of Dermatology
- Director, Northwestern University Skin Disease Research Center
- Walter J. Hamlin Professor of Dermatology
- Professor of Pediatrics
- Attending Physician, Ann & Robert H. Lurie Children's Hospital of Chicago
- Attending Physician, Northwestern Medicine

Episode Summary

An exciting new study at Northwestern and the Ann and Robert H. Lurie Children's Hospital of Chicago could soon change the way we care for babies in neonatal intensive care units.



Right now, when you walk into a NICU, one of the first things you hear is the beeping of machines and some of the first things you see are wires. The babies are typically covered in wires connected to machines, monitoring their vital signs. They're essential but can damage fragile newborn skin, make changing diapers and feedings cumbersome and disrupt skin-to-skin snuggling that helps new parents and babies bond.

Northwestern's John Rogers, PhD, and Amy Paller, MD, published a study in the journal *Science* that shows how ultra-thin, electronic sensors developed in Rogers' lab have the potential to make NICUs wireless.

John Rogers: "We were aware of the kind of wired-based systems that are needed in NICUs and the hazards and the deficiencies associated with that approach and so it seemed like a good match (for our technology). But in order to do anything in a realistic or impactful level, you really have to team up with the experts."

Soon after he arrived at Northwestern in 2016, he teamed up with Paller and pediatricians and nurses at the Ann and Robert H. Lurie Children's Hospital of Chicago and Northwestern Medicine's Prentice Hospital to investigate a way to use his wireless devices in the NICU.

Their goal was to replicate the gold standard of clinical care, which includes many leads and wires to monitor babies' vital signs. But gaining access to this patient population took time, a series of approvals and training of nurses and pediatricians working in the NICU.

Amy Paller: "We must make sure that we're doing everything very safely with these babies, and you have to test these new devices against the traditional wire device. It's important to have both on at the same time, and this can be challenging, particularly when we're talking about young premature babies who don't have very much surface area."

However, Paller says recruiting families to be involved in the study was not difficult.

Amy Paller: "(Parents) love the idea of getting rid of the wires. They love the idea of being able to hold the baby and have that skin-to-skin contact that we know is not just wonderful for bonding, but also lowers the risk of lung and liver and infectious issues in these neonates."

Results, published in *Science*, concluded that the wireless sensors provided data as precise and accurate as that from traditional monitoring systems. The wireless patches also are gentler on a newborn's fragile skin and allow for more skin-to-skin contact with the parent. Existing sensors must be attached with adhesives that can scar and blister premature newborns' skin.

The study included data from more than 20 babies. Since then, the team has conducted successful tests in more than 70 babies in the NICU.

The sensors, which are clear, waterproof, reusable and can be worn in X-ray and MRI machines are also more economical than the traditional technology, costing \$10 to \$15 per device. Rogers plans to also test these devices in the developing world, where traditional monitoring isn't available. That project will be funded through the Bill & Melinda Gates Foundation and the Save the Children Foundation.

John Rogers: "(We plan) to distribute these devices into the developing world: India, Pakistan and Zambia in particular. The target, and we're on track for this, is to deploy 20,000 units into those three countries through 2019 using support from the Gates Foundation and the Save the Children Foundation. It is very exciting."

This is just the beginning of how Rogers' technology could be used in medicine, Paller says.

Amy Paller: "(The technology) is really truly going to transform care both inpatient and outpatient."

Subscribe to Feinberg School of Medicine podcasts here:

[iTunes](#)

[SoundCloud](#)

[Spotify](#)

[Google Play Music](#)



[Publications](#)

[Training](#)

[Cores](#)

[News & Podcasts](#)

[Events](#)

[Support](#)

[Northwestern University](#)
[Feinberg School of Medicine](#)

[Giving](#)

Social Media Center



420 E. Superior St.
Chicago, IL 60611

312-503-1499

[Email Us](#)

For Clinical Trials

885-NU-Study

[Email the Clinical Trials Team](#)

Northwestern
University

© 2021 Northwestern University

[Contact Northwestern University](#)

[Careers](#)

[Disclaimer](#)

[Campus Emergency Information](#)

[University Policies](#)

[Report an Accessibility Issue](#)

