

UW Health: Resident makes adaptive crayons for people with developmental disabilities

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MADISON, Wis. – In 2025, a dusty plastic tub of crayons on a shelf sparked an idea in Dr. Amber McKenna’s mind to help improve the lives of people living with developmental disabilities.

The idea may have fully come to life in 2026, but it really began four years earlier.

In 2022, McKenna, now a physical medicine and rehabilitation resident at UW Health, was in her first residency program at Louisiana State University Health Shreveport, and as an activity to do with her best friend and her kids, she had the idea to use molds to melt wax and make fun-shaped crayons.

With hundreds of crayons left over her friend suggested she take them to work and hand them out to kids at the hospital where she was doing a pediatrics residency.

The hospital team loved the idea so much, that when McKenna moved to Wisconsin, she left her supplies with medical students there and the program continued.

McKenna joined the Physical Medicine and Rehabilitation Residency in 2023. As part of the program, she participated in an away rotation at the Central Wisconsin Center in Madison, which is an intermediate- to long-term care facility for people with developmental disabilities like Down syndrome. One day, McKenna noticed a dusty plastic tub of crayons on the shelf and asked the recreational therapist she was working with if the kids ever played with the crayons.

“She said, ‘no not really,’ and I said, ‘I think I have a solution,’” McKenna said.

Children with developmental disabilities generally struggle in two ways to hold crayons, either they have high muscle tone, which means their hand muscles are really tight or stuck, and low muscle tone, which is when the hands are loose. People with high tone hands require a crayon that is smaller and can fit in spaces between fingers, while those with low tone hands would utilize a larger crayon that requires less strength to hold, McKenna said.

She wanted to create crayons shaped to better suit the needs of kids and adults with developmental disabilities.

McKenna wanted to donate crayons to Central Wisconsin Center and GiGi's Playhouse in Madison, which provides therapeutic, educational and career training programs for people with Down syndrome, but together they serve hundreds of people. So, in 2023, she was able to secure a grant from the American Osteopathic College of Physical Medicine and Rehabilitation to pay for the crayons and molds.

This also meant recruiting help from her fellow residents to peel crayons, sort them by color into plastic bags and break them into two pieces so they could fit in the molds.

Together they made about 3,500 adaptive crayons, completing the task this month and delivering them to Gigi's Playhouse on March 6. The goal is for each child at GiGi's to receive four crayons, and around 800 more would be available for the art teacher to use. The remaining roughly 1,100 crayons would be donated to Central Wisconsin Center.

Separate from the grant, McKenna began working with Dr. Kimberly Arndt, physical medicine and rehabilitation physician at Central Wisconsin Center, on a self-funded research study to determine what crayon size and shape would function best for each type of muscle tone.

Arndt also happens to be the mother of Alexa, an 11-year-old girl with Down syndrome. She has noticed the difference they have made for her daughter, Kimberly said.

"You can see when Alexa is holding something really small, she is working super hard and it's not easy to replicate the same shapes," she said. "With these, because they are bigger, her hand is relaxed and she can more easily color and she can color for longer, which is pretty cool."

Mom isn't the only one who thinks the crayons are great, according to Alexa, her favorite colors being pink and green.

"They're easier to grab and hold on to," she said. "I do love drawing, different shapes and colors; I like to write a lot."

Improving the lives of kids is important, joyful and rewarding for McKenna, but the crayons have additional meaning because of her father, Jeremiah McKenna, who died of cancer in 2017, her second year of medical school.

To honor her dad, she started a foundation called the Pensili Foundation. Initially, the foundation collected school and medical supplies for the Louisiana State University Health Shreveport School of Medicine's Kenyan global health outreach program, but when the COVID-19 pandemic hit, they could no longer do that. So, her crayon-making became a main focus of the foundation. The foundation's goal is simply to bring a smile to someone's face, which is what her dad tried to do with everyone he met, Amber said, and the crayon project continuing in Wisconsin is a perfect example of that.

"To see a kid color with these crayons is so much fun," she said. "I feel like when I see a kid coloring with these crayons, I have a moment with my dad."