

At UTHSC, W.C. Handy's cornet symbolizes innovation, team science

By Jane Roberts

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Charisse Madlock-Brown's specialty is health informatics, the growing use of big data in medicine that someday soon will tell the world what underlying conditions were most fatal in COVID-19 or how drugs those patients were on when they got to the hospital complicated their treatment.

None of this is known. The details — and countless more — are in the tens of thousands of electronic medical records COVID-19 is generating in hospitals across the nation.

Madlock-Brown, an assistant professor at University of Tennessee Health Science Center, has just received a National Institutes of Health grant — her first — to drill down in the records of 70 million patients, looking at those with two or more underlying conditions, how often they occur, in what combination and what it costs to treat them.

“We’re looking at the challenges they have complying to everything they’re being told and also understanding what might come next.”

The grant, nearly \$500,000 over three years, is not big by UTHSC standards. But it tells a story the campus has been writing quietly since 2015 when Steven Goodman took the job of vice chancellor for research.

The way he sees it, the most exciting research happens “at the juncture of different disciplines.”

Goodman, who arrived here from his previous post as vice president of research and dean of the college of graduate studies at State University of New York Upstate Medical University, had \$5 million UTHSC gave him as part of his recruitment package.



He took most of it — plus \$500,000 the U.S. Department of Commerce added because it liked the way he was thinking — and created an award for UTHSC professors who reached across disciplines to work with others, including other universities.

In his first walk on Beale Street as a Memphis resident, Goodman saw the statue of W.C. Handy holding out his fabled cornet — a brass instrument resembling a trumpet — and smiled to himself.

Charisse Madlock-Brown

“I knew that I was going to call these the CORNET awards,” he said. “In order to apply for one, you have to cross a boundary, and it has to be new science.”



Construction at UTHSC continues as the campus expands. (Daily Memphian file)

CORNET is an acronym, of sorts, for Collaborative Research Network. The idea, Goodman's brainchild, was to stimulate innovative, team-based research and give those fresh ideas enough seed money to generate data. Those findings, Goodman theorized, would lead to larger, national grants down the road.

He smiles and nods when he tells the story.

"When I was coming up — I'm a very senior scientist — most science was done within your own individual lab. If there was any collaboration, it was with the person next door. That, that's not the world we live in today. I think that the CORNET Award reflects the world we live in today."

For a campus trying to increase outside investment in its research, the story is much larger. Last fall in his state of the university address, Chancellor Steve Schwab said his goal was for the campus to be in the top 25% of health science centers in the nation and included the metrics to do it.

In research, it means attracting tens of millions more in outside funding a year. In 2019, UTHSC surpassed \$100 million in research investment for the first time. Top-tier schools have at least \$150 million.

In four years, Goodman and his team of judges have given out about 45 CORNET Awards worth a combined \$1.8 million.

The investment has produced \$19.6 million in national awards.

"That's the eleven-fold return on investment. And then the amazing part is that return on investment just keeps growing and growing every time we get new awards," he said with a grin.

"Probably the next time you hear from us, we will have broken the \$20 million barrier."

Each award is at least \$50,000 and can easily be more if other universities or groups are involved.

The money, which initially came mostly from Goodman's recruitment package, now is what the chancellor allocates from his budget.

Goodman's job is meting out the resource, whatever it is each year, to honor the most innovative work.

Madlock-Brown is the picture of how the story gets personal. She got her Ph.D. at age 33 after working in several other fields, including earning a master's degree in library science. She felt like a late-bloomer, plus she was also now a new assistant professor.

“That’s at a time when you’re really trying to think, ‘Can I really do this because it’s very sink or swim, publish or perish,’” she said. “Even though you’ve got your Ph.D., you’re like. ‘Yes, but I’m still not a researcher.’”



Steve Goodman

A year and half later, Madlock-Brown and her cross-disciplinary team from internal medicine had its own CORNET Award, the first batch awarded in 2016. It was an immediate reward for getting interested in team science.

“But it also gave me seed money to build out this compute cluster that I can use for a lot of different projects and that I can configure and use my own way. I not only use it for analytics, I also use it to store databases that I manage. So that’s hugely helpful. I can do rapid queries. Whereas, before I would have to wait like hours. It’s helping me speed up a lot of the research I’m doing.”

If there is another bonus for her, it’s that her NIH award is an R15, which is grant-speak for funds awarded to colleges that typically don’t bring in big research dollars.

Her division, the College of Health Professions, brings in less than \$6 million a year from NIH, she said.

“One of the things they want to see is not only are you going to do innovative research but that it is going to help other research flourish in your college. And to do that, you’re going to be able to expose students to research.

“I have the tools that allow students who don’t have that training to kind of get up to speed on big data research because it’s an easy to-use interface. I’ve set all of the complicated stuff up in the back end. So, from their perspective, it just looks like regular coding,” she said.

“So, actually, whether they’re going to do research at a hospital or in academia, they now have tools they normally wouldn’t know anything about or feel comfortable using.”

That matters to her.

But she knows her own story best. Her eyes dance, even in a Zoom interview, when she talks about CORNET’s effect on her career.

“It gives an opportunity to young investigators. We know that in science usually the rich get richer. When you’ve already had grants, you can get grants from NIH.

“It’s hard for young investigators to get started and feel confident. I remember when I told my Ph.D. adviser about receiving the CORNET Award. ‘Charisse, that’s really great. A lot of times those internal awards are just as competitive as NIH, so you getting it really shows you got something going.’

“That made me believe,” she says. “Oh, my God, I can do this. I can get an NIH award.”