

miles per hour. It then proceeded to hit Haiti, the Bahamas. It killed 54 in Haiti, 11 in the Dominican Republic, and 2 in the Bahamas.

The next day, the 26th and the 27th, this hurricane was alternating between Category 1 hurricane and a tropical storm and then back to Category 1. On the 28th of October, Sandy was a Category 1 hurricane and it skirted right up the eastern seaboard.

It was moving parallel to Georgia, South Carolina, and North Carolina. However, on the 29th, it began to move inward towards land on the East Coast of the U.S. as a Category 2 hurricane but then again it weakened to a post-tropical cyclone. So I think the important takeaway here with Sandy is, when it made landfall in the eastern United States on the 29th of October, it was huge.

It was massive, maybe one of the largest hurricanes recorded in U.S. history. And as it began to move into the northeast, at 2:30 that afternoon on the 29th, it hit into the Washington, D.C. area and started to move northward. At 8 p.m. on the 29th, that storm made landfall in Atlantic City, New Jersey with hurricane-force winds of 90 miles per hour.

Now, what some folks might fail to have realized, I know our meteorologists knew, but maybe laypersons didn't that... Well, it was a full moon. And when we have a full moon, the tides are significantly higher. So now we have a hurricane coming into New York Harbor at 90 miles per hour, and New York Harbor isn't that big if you're familiar with that area of the northeast.

With a full moon with high tide, there was a 14-foot wave surge that entered New York Harbor and then would proceed up the Hudson River. Now, the Hudson River is just that—it's not a large river but it's well-known—separates New York and New Jersey. So you had massive flooding on each side of that river, so it meant lower Manhattan and most of New Jersey, especially mid to northern New Jersey took a really severe hit when this hurricane made landfall.

Now, this image that's here, hopefully you can see it, this is the 1 train in New York City, the uptown to the Bronx. And if you're familiar with the underground rail, they have steep elevators that are really... I mean, you're going to the underground so they're really lengthy and at a significant incline or decline, depending on if you're going up or down.

But you could see here this whole train station was flooded. The water has already come up to the very top of the escalators and to the area where people would enter into the station. And like I had mentioned, it impacts populations. If you look at this image on the left, this man carrying his wife on his shoulders... When I first saw this image, I thought he was near the ocean.

He's walking down a street in Hoboken, New Jersey trying to take his wife to safety. And in the photo on the upper right, people being evacuated in boats, again, in Hoboken, New Jersey. The streets were that flooded that they needed to be evacuated via boat. And in the background of that photo, you can see there's an ambulance. That ambulance is

they buy all kinds of, you know, perishable and non-perishable items thinking that they might not be able to get to a store for several days.

And, again, another nine counties in New Jersey were classified in the high-impact area. And then there's the moderate storm severity impact area where you have 100 to 500 people exposed to the surge, \$10 to \$100 million in damage, 4 to 8 inches of rain, and there were 3 counties in New Jersey that fell into that category.

So the overall study aims for this presentation and for our project were to determine if the supply of

These were linear or logistic regression models but the complete set of controls of patient and hospital

between RN staffing and patient outcomes. States need to be more proactive in their efforts to ensure that they have an adequate and flexible nurse workforce.

If we don't know that now during the current COVID-19 pandemic, I don't think we'll ever learn. And the nurse licensure compact model should be adopted by states nationwide to allow for easy transition of state of nurses across geographic areas. Hospitals were struggling, still are, during COVID-19 where they were trying to issue emergent licenses, you know, agencies trying to help with the effort.

But if we hadn't had the compact in place, it would have been so much more easier for nurses to travel from one state to another to help during not only storms that are occurring every year but during our global pandemic. At this time, I'd like to acknowledge my collaborators, Dr. Yin Li who's an assistant professor at Emory University.

She was actually my co-PI and was responsible for a lot of analyses. Dr. Jason Hockenberry was a co-investigator. He's a professor at Yale University. And a special thanks to NCSBN for their ongoing support of nursing research and all of their efforts in practice, regulation, and helping to ensure that we have a healthy and substantial workforce in the United States.

Thank you very much for your time, and all questions are appreciated. Thank you.

- [Dr. Li] Hello, everyone. Thank you very much for watching our presentation, and I'm the co-PI on this project.

And Jeannie can't make it today so I'm here to answer your questions. So let's just give a couple of minutes, and let's see what kind of questions we're looking at. Just so you'll know before any questions, yeah, so I just want to let you know that what we're presenting here today are some preliminary analyses from these projects.

And this is [inaudible] project, and we will have more analyses, results published soon. Let's see. Okay.

Here's your question. "Very interesting use of the data and a creative approach." Thank you. "Do you have intention to apply this approach?" Well, the first approach that we used in this analysis are to calculate the RN FTEs, which is a very traditional or a very commonly used approach to examine the supply of nurses and also the demand of nurses.

And this approach actually is commonly used in projecting nurse supply and the demand. In the second approach that we used in this study is actually to examine the association between their staffing and patient outcomes. And also something that we have not presented here but is still under the preparation for manuscript is that we're going to predict how the patient outcomes will be changed or will be improved if we have additional nurse staffing available during Hurricane Sandy.

And I believe that because this is a very interesting project because it's for examining nurse staffing during a disaster, and so we believe that this will have some comments or some overlaps for any other types of disaster where nurses are in high demand.

