Texas Perinatal Services
EDUCATION : INFORMATION : SURVEYS
A Program of the Texas EMS Trauma & Acute Care Foundation

CASE STUDY

NICU Disaster Training:

El Paso Hospitals Test Plans for Evacuating Tiniest Patients in an Emergency

Thanksgiving eve 2013 was a wake-up call for the six hospitals with neonatal intensive care units in the El Paso area. That night, a small fire at one of those facilities led to a total power failure. Hospital administrators were unsure how long it would take for power to be restored. Opting on the side of caution, the hospital chose to conduct an elective evacuation of the entire facility. Patients in the NICU were among the first to be moved, loaded into ambulances with their nurses at one time. Though an orderly and planned evacuation, it took 7 to 8 hours to complete.

"Until then, most of the literature our emergency preparedness committee was looking at was about hurricane preparation, which is an event you can plan for," said Wanda Helgesen, executive director of the Border Regional Advisory Council. Based in El Paso, the BorderRAC encompasses El Paso, Hudspeth and Culberson counties in far West Texas, plus seven counties in New Mexico. Within the region are urban, rural and frontier areas representing more than 40,000 square miles with a population 2 million. "But after this, we began asking ourselves, what if we didn't have 7 or 8 hours to do this?" she said.

Planning the Drills

The result was a NICU-specific disaster drill conducted in spring 2018 at each of the six hospitals. According to Helgesen, it is the first of its kind conducted in the state, and likely one of few in the nation. A CDC survey in 2014 noted that fewer than half of all hospitals with an emergency department had a disaster plan for children. "Improving disaster preparedness for critically ill newborn infants will require neonatal care providers to participate in the larger plan of emergency preparedness within hospitals, communities, states, and regions," the CDC noted.

For the BorderRAC exercise, each facility chose the date of their NICU drill within a three-month window, and each handled its own planning. The scenario, however, was consistent: a fire in the unit and six babies must be evacuated. One was intubated on a ventilator with multiple drip lines. Two were on IVs and needed oxygen, and three were feed and grow babies. Lastly, hospitals would not be able to use elevators to evacuate babies, leaving stairwells as their only route out of the building.

The goal of the exercises was to test each of the facilities' plan with little guidance from the RAC or emergency responders. "We had a planning meeting where we brought the fire department teams in to introduce those first responders to our NICU staff and facilities," said Helgesen. "Some had never seen a baby that small, and had no idea of the amount of equipment they require.

"We coached our firefighters in the preliminary meetings that if they heard information in those meetings (that they knew would not work), not to say anything," she added, "because we really wanted our hospitals to test their plan."

Game Day: Conducting the NICU Drills

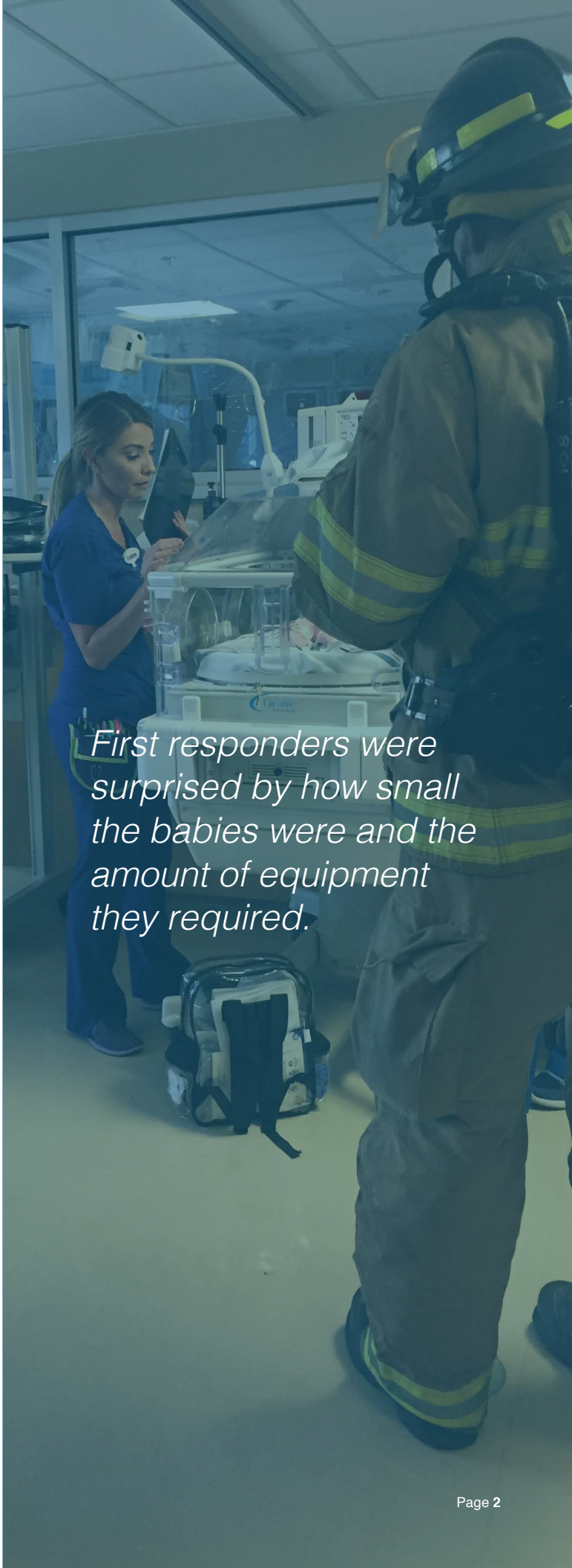
When the “emergency” calls came in to the first responders on game day, firefighters arrived at the hospitals in full gear – fire suits, tanks, helmets. Once on site, they found that most of the facilities already had evacuated their babies on their own, so they replayed the drill. “As part of the after action, we asked ourselves, how do you increase what you did from six babies to 50?” said Helgesen.

Some of the staff asked the firefighters to carry isolettes down the stairs, which they did. “But it was clear that was not realistic because it takes four people plus a spotter, and no one above them can get down the stairs,” said Helgesen. “If it was an actual emergency evacuation, we would not be able to do that.”

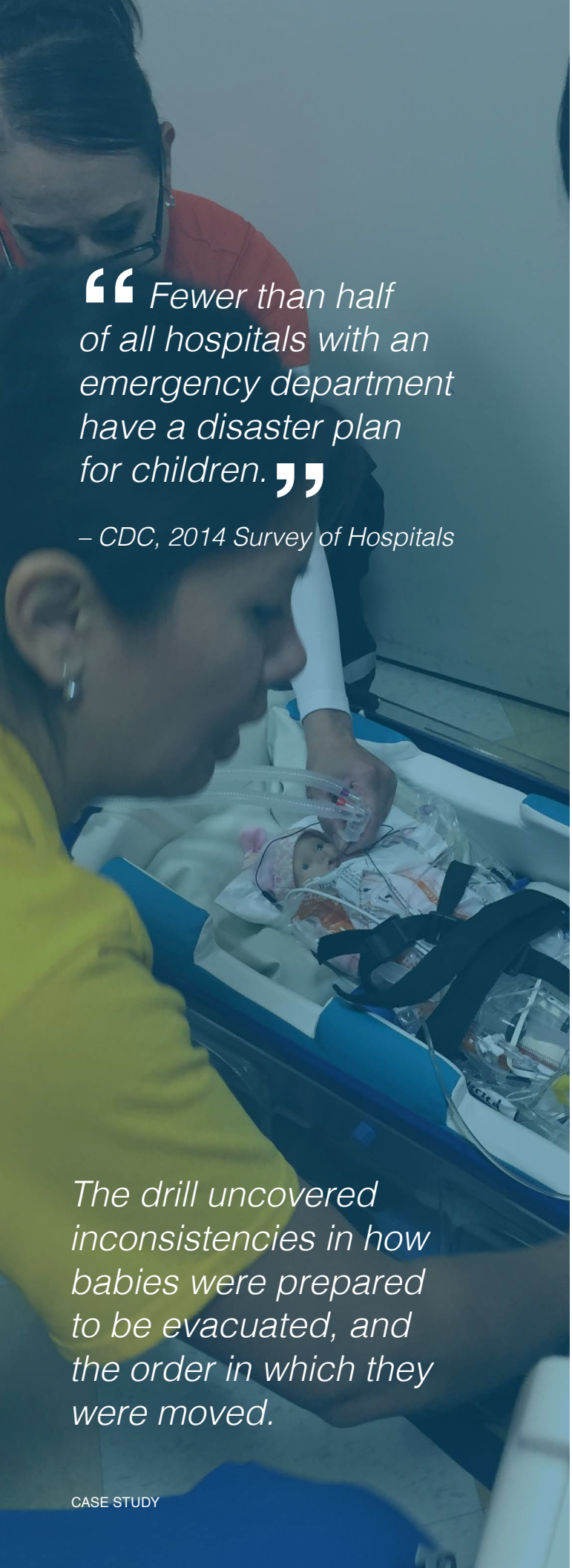
In other cases, staff carried babies down the stairs themselves – but without having a firefighter leading them, they couldn’t see their feet while carrying a baby and equipment. And even once outside the exit, these very fragile babies needed resuscitation equipment and supplies.

In addition, said Helgesen, “We discovered that there were different levels of attention to temperature; some carefully wrapped the babies, some grabbed them and got out, and the order in which babies were evacuated varied from facility to facility.”

And, while the RAC had purchased evacuation equipment for placement in the NICUs years ago, the drill uncovered a critical issue: that equipment was not spaced around the unit but rather located all in one place. “If a fire happened to be where the equipment was located, those devices would be useless,” she said.



First responders were surprised by how small the babies were and the amount of equipment they required.



“Fewer than half of all hospitals with an emergency department have a disaster plan for children.”

– CDC, 2014 Survey of Hospitals

The drill uncovered inconsistencies in how babies were prepared to be evacuated, and the order in which they were moved.

Lessons Learned

“We had pockets of best practice at every facility – and we had similar opportunities at every facility,” noted Helgesen. “The communication and the working together was a wonderful experience for both groups, and for our perinatal and emergency preparedness committees, the things we learned about the plans and our prior assumption of the plans were invaluable.”

Among the takeaways that are now being factored into emergency plan alterations are:

1. It’s critical to **have a spotter** for anyone going down the stairs with a baby, whether it is a staff member or a first responder.

2. Be sure someone is **assigned at the bottom of all stair exits** to account for all the babies and staff, because the very last people out will be the firefighters.

3. Be strategic in **placement of emergency equipment** around the unit, and make sure everyone knows its location.

4. Decide in advance on the **order in which babies will be evacuated.** “The firefighters felt the nurses were very unrealistic about the ramifications of smoke, and their ability to function in that atmosphere, which impacted their decisions on which patients go first,” said Helgesen.

5. **Purchase resuscitation equipment** for all exits.

6. Understand and get comfortable with the fact that some babies will have to be **evacuated by firefighters.** Schedule education for firefighters and the EMS community to increase their familiarity with handling these patients, and improve nurses’ comfort level in entrusting babies to non-caregivers.

Next Steps

The drill pointed out important changes to how the Border RAC will rapidly communicate with the fire department and respond to this fragile patient population in the event of an actual NICU emergency evacuation. Before the exercise, “Some felt like we’ll never have to evacuate the NICU and we didn’t need to do this,” said Helgesen, “but afterwards, we had not a single person say that. In fact, we had a lot that said, wow, we really needed this.”

As a result, the RAC now is planning a similar drill with the region’s newborn nurseries. In addition, several of the NICUs already have asked to repeat the exercise in 2019. “Overall, it was a great experience for us,” said Helgesen. “We learned a lot that will help us and help others.”

For more information on the BorderRAC’s NICU disaster drill, contact Helgesen at wanda@borderrac.org.

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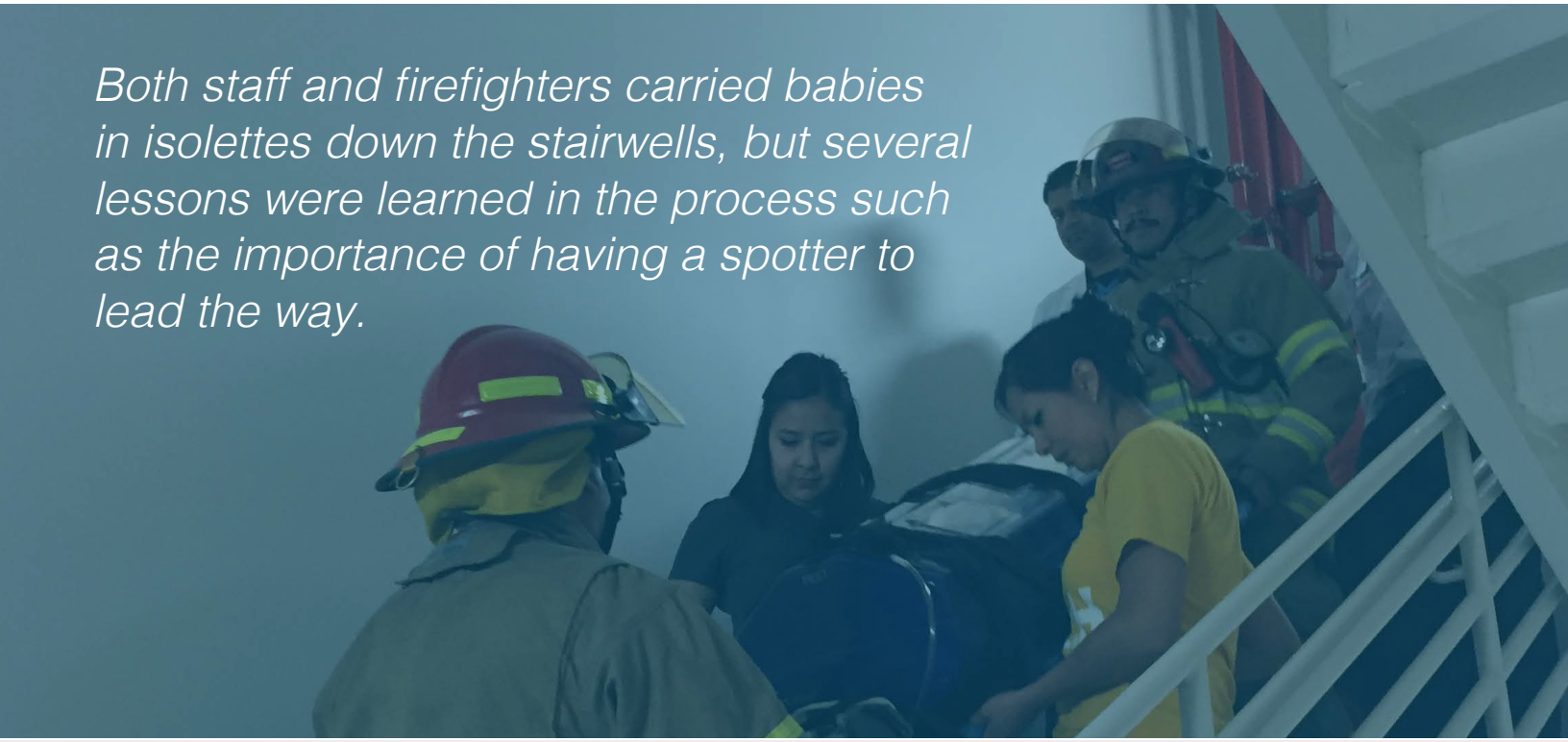

Both staff and firefighters carried babies in isolettes down the stairwells, but several lessons were learned in the process such as the importance of having a spotter to lead the way.