

Idle No More

MedicAire's MediDock ambulance docking station promotes cleaner air around hospital emergency departments.



Photos courtesy of MedicAire

MediDock makes it easy for ambulances to help improve air quality outside hospital ERs.

IT'S A common scenario seen thousands of times each day: An ambulance delivers a patient to a hospital emergency room, and once the patient is moved inside, the ambulance parks near the entrance to fill out paperwork and prepare for its next call. This often means 45 minutes or more of vehicle idling, where noxious exhaust fumes can enter the building, affecting both patients and ER staff.

Problem, meet solution: MedicAire, LLC's MediDock ambulance docking station is designed to help maintain air quality at a hospital and eliminate the sound of noisy engines.

The technology already has a proven track record. Electrified parking spaces, also known as truck stop electrification systems (TSE), have been in use for decades in commercial truck stops—allowing long-haul truckers to enjoy electric power and interior comfort systems without the need to idle their engines. It was MedicAire principal Bill Lavelle's experience in the TSE industry that helped the company transition to this next step in health care.

"We saw a need at medical facilities to eliminate the air and noise pollution from emergency vehicles and decided to build a unit

exclusively for ambulances," said MedicAire consultant Frank Podgwaite.

There are several reasons why emergency vehicles must idle during their downtime at hospitals. To remain prepared for emergency calls, the engine start battery's charge level must be maintained to ensure reliable starting. Most medications are required to be kept within a certain temperature range, and heating or cooling the ambulance cab and cabin not only maintains critical medicines, but also provides patients and EMTs with a more comfortable interior vehicle environment.

Ambulances also have medical equipment for patient treatment and diagnostics such as suction machines, EKG monitors and ventilators that require a constant charge to keep batteries from failing prematurely. While most ambulances have inverters that provide the electricity required, they require the ambulances to at least idle to work properly.

But leaving an emergency response vehicle idling outside of a hospital's emergency department is not an ideal situation. Each gallon of fuel burned produces about 20 pounds of carbon dioxide. Besides the environmentally dangerous greenhouse gases released from

exhaust emissions, toxic fumes and engine noise can make their way into the facility through open doors and fresh air vents. Idling also increases vehicle maintenance costs due to excessive wear and tear on engines, and the inefficient use of energy means added fuel costs.

While an idling engine does not use a considerable amount of fuel—approximately 0.5 to 1.0 gallons of fuel per hour—the savings in fuel and engine wear become significant in the long run. And with nearly 50,000 registered ground ambulances operating nationally, according to the American Ambulance Association, the potential savings in both cost and reduction in greenhouse gases is considerable. A hospital with 1,400 ambulance call-outs per year and an idling time of 30 minutes each will use approximately 525 gallons of fuel at a cost of nearly \$2,000, incur increased maintenance costs, and release 10,000 pounds of CO₂. The same hospital using a MediDock unit will only use 3,080 KWH of electricity at a cost of approximately \$350 and without the release of CO₂.

“The MediDock is very easy to install,” said Podgwaite. “The unit is bolted to a 4-by-4-foot concrete pad, or if an existing sidewalk is available, it could also be installed there.” The electric power requirement is a 40-amp, three-wire 220V line.

The system is user-friendly, with little training or familiarization necessary. After dropping off the patient, the ambulance driver pulls up to the MediDock unit, lowers the driver side window and places the unit’s faceplate on the edge of the window. The driver then raises the window and attaches a cover to the ambulance door with magnets. A 110V electrical cord is plugged into the side of the ambulance, and the system is ready to go. An instructional video showing the MediDock in operation is available for viewing on the company’s website.

The faceplate delivers air at the temperature set by the user into the ambulance, keeping the ambulance from getting too cold in the winter or too hot in the summer, allowing the proper temperature for medicine and for equipment in the ambulance to be maintained.

“When leaving the hospital, if they had an emergency, it only takes about 10 to 25



A closer look at the MediDock system.

seconds to replace the faceplate and unplug the retractable cord,” said Podgwaite.

Brattleboro Memorial Hospital in Vermont was the first in the nation to install a MediDock system. Harold Garabedian, president of the consulting firm Energy & Environmental Analytics, approached Lavelle about installing a MediDock at Brattleboro as a test case, and it was such a success that he assisted MedicAire in placing several other units at medical facilities in Northern New England.

Brattleboro’s emergency room employees have noticed the difference. As John E. Starkey, nurse manager of the emergency department, told the Keene, New Hampshire, *Sentinel Source*, “More than 3,000 patients each year of the 13,000 we see in the ER come in by ambulance. We’ve definitely noticed a difference with the amount of emissions coming into the hospital decreasing. During the winter, when the emergency room is busiest, ambulances may get backed up outside the hospital, and fumes from the idling vehicles would go through the front door and into the hospital.

“Our biggest concern was the fumes, but it’s definitely working,” Starkey said.

Jeff Seyler, CEO of the American Lung Association of the Northeast, told the *Brattleboro Reformer* that Brattleboro Memorial Hospital’s MediDocks can serve as an example for other hospitals around the country. “Multiply this by the thousands of facilities around the country, and you could really make a dent in air pollution,” said Seyler.

Eleven hospitals in three states are currently operating a total of 26 MediDock units, and a grant is being completed to fund installation of 15 more MediDocks in North Carolina.

In most areas, grants are available to help fund MediDock sites. “Hospitals should look into grants in their area,” said Podgwaite. “They can range from 50 to 100 percent and include help with installation costs.

“We have found the U.S. Department of Energy’s Clean Cities program to be very helpful in this regard. South Shore Clean Cities in Indiana was instrumental in our installations there, and Triangle Clean Cities is helping us with the grants in Durham County, North Carolina.”