



Giving Front-line Crews Confidence with Best Practices for Monitoring Medication Temperatures

Certified by the Commission on Accreditation of Ambulance Services (CAAS), MedStar Mobile Healthcare delivers life-saving emergency medical attention to nearly one million people throughout Fort Worth, Texas and the surrounding communities. In addition to complying with CAAS and state regulations, Shaun Curtis — Support Services Manager for MedStar — says it’s essential that his crews know they have what they need to deliver the best possible patient care. That’s when he started looking into a more accurate, seamless way to monitor the temperatures of medications carried on MedStar ambulances.

Challenge

MedStar’s mission is to deliver the highest quality services to its patients, and CAAS certification ensures they are always living up to what’s considered the industry’s “gold standard” of care. In particular, CAAS standards emphasize operational efficiency. This helps reduce overall costs, which is important to their payers such as Medicare and Medicaid. It’s also critical to MedStar because it operates on a public utility model. That means that while they are governed by the Department of State Health Services, they receive no tax revenue. Instead, they operate entirely on income from transports.

One of the several hundred regulations CAAS certified organizations must consider is keeping medicines and devices at appropriate temperatures, as outlined in **USP Guidelines**. Much of what MedStar crews carry are controlled room temperature medications that must be

SUMMARY

Customer

MedStar Mobile Healthcare
Fort Worth, Texas

Industry

Healthcare

Challenge

Find a more reliable way to monitor medication temperatures to make sure they didn’t fall out of range.

Solutions

- Zebra S-400 temperature sensors
- EDGEVue® mobile app
- EDGECloud®

Results

- Saved a lot of medications that, otherwise, would have gone to waste
- They can easily create reports to show compliance with city and state regulations
- Confidence from having a partner like Zebra always by their side

stored between 68-77°F (20-25°C) with excursions allowed from 59-86°F (15-30°C). The challenge for MedStar is that their 63 ambulances, which cover approximately 436 square miles, deploy out of a single station. “We don’t have stations where ambulances can plug in. So they use only their air conditioners and heaters to maintain controlled room temperature inside the vehicles,” explains Shaun.

Having started as a field medic and grown through the organization over the last 18 years, Shaun knows firsthand how important it is for front-line staff to have confidence in the efficacy of the medications and tools they are using. “In the past, we had thermometers installed on the trucks and staff would manually record temperatures,” he says. “But there were multiple failure points in this process, and we ended up disposing of medications that might not have been exposed to a temperature excursion.” Every one of those events was a hit to the bottom line.

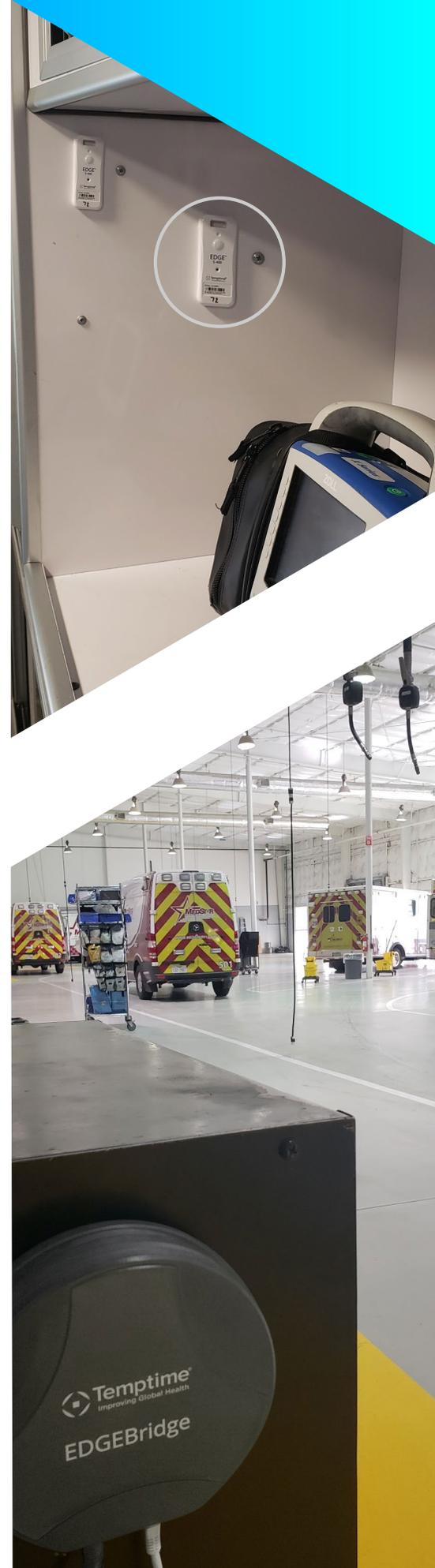
All these factors sent Shaun looking for a more reliable way to monitor medication temperatures to make sure they didn’t fall out of range. He started by talking to other similar organizations to see what protocols and processes they had in place. They were all pretty much doing what MedStar had been doing all along, so he looked outside mobile healthcare to other industries such as pharmacy and food delivery services. That’s how he came upon Zebra.

Solutions

MedStar started with the TransTracker® temperature indicators, which give users a visual cue if temperatures have exceeded a predetermined heat or freeze threshold. “We found out pretty quickly that this solution, although effective, wasn’t quite right for our process,” says Shaun.

“I realized I wanted actual temperature data, not relative temperature exposure information,” Shaun says. “Plus, I wanted to be able to monitor temperatures on all the ambulances from my desk no matter where they were in the field and needed to generate reports to prove proper temperature maintenance.” Zebra recommended their wireless Bluetooth®-enabled sensors, particularly the S-400.

The S-400 monitors temperatures 24/7 — generating alerts when temperatures fall above or below a pre-defined threshold. Using the EDGEBridge®, a receiver that is installed at the entrance of MedStar’s facility, data is captured and stored on the EDGECloud® where it can easily be accessed or downloaded. Shaun can also check the temperature of any ambulance in range of the bluetooth device or EDGEBridge gateway right from his phone with the EDGEVue® mobile app. The fact that everything is cloud based also means no additional cost or need for software stored locally on MedStar computers.



S-400: Benefits At-a-Glance

- Continually monitors and records medication temperatures 24/7
- Gives front line confidence in the efficacy of medications
- Illustrates USP and CAAS compliance with detailed reporting capabilities
- A single “set it and forget it” process for automated temperature tracking
- Cloud-based access to historical data for 63 vehicles

Results

In March of 2018, MedStar installed an S-400 on each of its 63 ambulances as well as two additional modules throughout the facility. “We’ve already saved a lot of medications we might otherwise have had to throw away,” says Shaun.

It works the opposite way as well. “In one case, I had a crew who felt that their truck was too hot and that the temperature was out of acceptable range. I was able to take my phone out and show them that the meds were safe,” he says. “So not only does the S-400 help me save inventory — it gives my crews confidence that they are administering effective life-saving medications.”

Of course, the historical data is invaluable. “Since I can download data in several formats, it’s easy for me to create the reports I need to show the executive team that our trucks are always in compliance with CAAS city and state regulations.” The reports are also so detailed that Shaun says compliance with temperature monitoring has become the easiest part of their CAAS inspections. “CAAS audits take place every three years, but the state can inspect at any time without notice — and with Zebra on our side, we’re always ready.”

Setup was relatively simple. “Each device had to be programmed individually,” explains Shaun. “So I thought it was going to be cumbersome, but once I’d set up the first one and created a template, it went a lot faster than the first.” In the end, he says the time spent programming was a small investment for something he’ll never need to touch again.

In addition to the efficiency and accuracy the S-400 delivers, Shaun says it’s the relationship with Zebra that has made a real difference. “I’m always cautious to engage new vendors. More times than not they want to sell you as much as possible. That wasn’t the case with Zebra at all. My rep worked with me to design a solution that fit my needs and my budget, even letting me try out the TransTracker solution, although he didn’t think it would ultimately suit our needs.”



“A lot of folks disappear once they get the check. Not Zebra. They have a clear commitment to our success.”

Shaun Curtis, Support Services Manager
MedStar Mobile Healthcare



S-400

Mission ID:
 E4083200008D-20180412190306
 Module name: M21 4083200008D

High Alarm: ⊗
Low Alarm: ☑

Information:

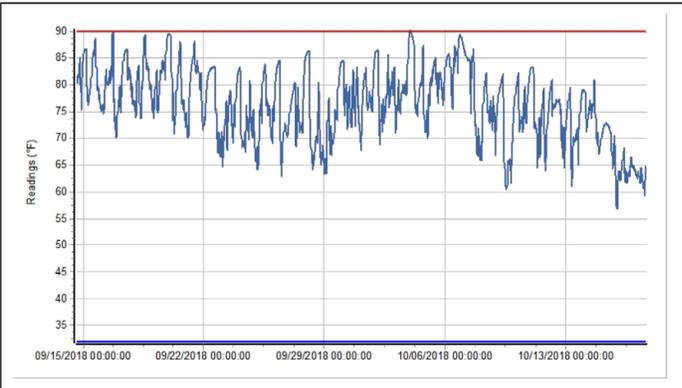
Reading interval: 15 min	High limit: 90.0 °F	High delay: None
Reading count: 3162	Low limit: 32.0 °F	Low delay: None
Programming date: 04/12/2018 13:03:06	Stopped: N/A	
Datalogging start date: 04/12/2018 13:03:06	Last reading date: 10/17/2018 14:48:06	
Elapsed time: 32 d 22 h 15 min		
Dates displayed in GMT -6:00		

Alarms	Duration	Longest	First Alarm
High Alarm: 2 event(s)	0 d 1 h 15 min	0 d 1 h 0 min	09/16/2018 17:48:06
Low Alarm: 0	--	--	--

Conditions

Min value: 56.71 °F at 10/15/2018 23:18:06	Max value: 90.12 °F at 10/03/2018 23:33:06
Mean value: 76.25 °F	Standard deviation: 6.70 °F
Mean kinetic temperature: 77.87 °F	Activation energy: 83.144 Kj/mol

°F



EdgeVue
 Report generated on 01/14/2019 16:23:44
 Request by scurtis@medstar911.org

Comments:

Signature:

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He goes on to say that Zebra is always in touch and following up. “Even when we had challenges with the initial EDGEBridge® wireless gateway installation, they resolved the issue immediately. A lot of folks disappear once they get the check. Not Zebra. They have a clear commitment to our success.”

Explore sensors that help you keep temperatures in range at
www.zebra.com/electronictempsensors

COMZ Medstar Mobile Healthcare Success Story V2



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