



Intel® NUC Mini PCs Power the Future of Inpatient Telehealth

With Intel® hardware and VeeMed software, Banner Health provides fast, safe telehealth services to potentially contagious hospital patients



When patients with COVID-19 began flooding into hospitals and emergency rooms, Banner Health turned to Intel for help developing an in-room telehealth solution so nurses and doctors could safely check in on highly contagious patients. The solution needed to be deployed quickly to help Banner Health continue providing high-quality care while also protecting medical staff from infection and reducing the need for personal protective equipment (PPE).

Banner Health, a nonprofit health system, worked closely with Intel and the telehealth technology company VeeMed to rapidly develop a solution and begin transforming nearly 1,000 in-room televisions into virtual care endpoints. The solutions—which combine advanced telehealth software from VeeMed and small-compute hardware from Intel—are being deployed in all 28 Banner Health acute-care hospitals and soon will be set up in emergency rooms, enabling staff to provide fast, safe, and effective patient care during and after the pandemic.

Banner Health's medical director of telehealth services, Michael Simons, M.D., says, "By implementing novel telehealth technology to provide seamless, virtual care, we are preserving vitally important personal protective equipment, safely limiting exposure to our amazing hospital staff, while providing excellent care to critically ill COVID-19 patients in our hospitals."

"Being able to deploy small, powerful Intel-powered solutions on our existing in-room TVs saved us a great deal of time and money in the midst of the COVID-19 crisis."

— Jim Roxburgh,
CEO of Banner Telehealth

Small Spaces, Large Performance Demands

Inpatient telehealth, in which medical professionals interact with patients remotely, has traditionally been provided via carts that are wheeled from room to room, but carts can be expensive to build and typically require several months to deploy—time the deadly and fast-spreading coronavirus did not allow.

One promising alternative is to provide telehealth through in-room televisions, if certain challenges can be overcome. First, to keep costs down, hospitals need small, reliable, high-performance compute solutions that can be quickly and easily mounted on existing televisions. The computer hardware needs to integrate well with HIPAA-compliant telehealth software, and powerful graphics performance is necessary to ensure that both patients and caregivers can view chop-free video streams. Ideally, in-room telehealth solutions also need to be remotely manageable to eliminate the need for on-site technical support.

Rapid Deployment for Pandemic Response

In the early weeks of the COVID-19 pandemic, Banner Health, VeeMed, and Intel teams worked together to develop the in-room telehealth solutions and begin rapid deployment of 1,000 units in 28 Banner Health facilities across six western states.





About VeeMed

Based in Roseville, California, VeeMed is a global telemedicine company focused on virtual technology, physician services, and operations. Founded as an advanced telemedicine company in 2016, VeeMed currently focuses on virtual care related to ICU, stroke, mental health, chronic care, nephrology, infectious disease, hospitalist coverage, pulmonary medicine, neurology, neurosurgery, cardiology, EEG, and palliative care.

veemed.com

Each solution features VeeMed's telehealth software built on Intel hardware, along with a pan-tilt-zoom (PTZ) camera and Jabra Speak 510 speakerphone. The solutions are mounted on televisions inside patient rooms. Medical staff simply call into the room to check on patients, who can respond from their beds, with no need to interact with a cart, keyboard, or other peripheral equipment. Doctors and nurses can talk with the patient and view in-room monitors that show their oxygen levels and other vitals. The advanced PTZ camera even makes it possible to zoom in to see a patient's pupil.

Because of the small size of the Intel-based solutions, deployment was extremely fast and easy, with each installation requiring just a few hours. Beginning at Banner Health hospitals in Arizona, VeeMed teams have been able to deploy more than 100 units a week.

Supporting Better, Faster, and Safer Patient Care

The in-room telehealth solution developed and deployed by VeeMed and Intel provides substantial benefits to hospitals and their patients:

- **Quality patient care:** Doctors and nurses can check in on more patients in less time, respond more quickly to their needs, and provide personalized care even during a crisis.
- **Reduced risk:** Staff do not have to enter patient rooms to conduct check-ins, which reduces their risk of infection and need for use of PPE.
- **Lower cost:** Small, powerful solutions can be mounted on televisions at a fraction of the cost of cart-based telehealth solutions.
- **Faster installations:** Each installation takes hours, not weeks or months. Mini PCs are easy to store, transport, and install.
- **Performance:** Intel® processors offer the performance and reliability Banner Health requires, including high-quality graphics for video streams.

The Future of Virtual Care

Intel® NUC Mini PCs and other small-compute solutions are expected to be a driving force in the future of telehealth. Increasingly, these small form factors—with integrated or discrete graphics, solid-state or HDD storage, Thunderbolt™ 3 and other ports—can do everything a full-size desktop computer can do, while taking up as little as a few inches of space.

Intel NUC Mini PCs and kits are available with the latest Intel® Core™ processors and with Intel vPro® technology for remote management and hardware-enhanced security. To help keep virtual care systems running 24/7, the Intel vPro platform features Intel® Active Management Technology, which allows IT teams to remotely discover, repair, and help protect networked computing assets.

The in-room telehealth solution that Banner Health, VeeMed, and Intel teams developed in just weeks to respond to the COVID-19 pandemic demonstrates not only the technical capabilities of small-compute solutions from Intel, but also Intel's commitment to developing and deploying telehealth solutions with partners like VeeMed. That commitment, in combination with innovative technologies, make it possible for Banner Health and other healthcare providers worldwide to reduce costs while providing better, safer care.



For more information on the benefits of Intel NUC Mini PCs for professional and commercial usages, visit intel.com/nucforbusiness.

