

# Here's how Mass. General created an ICU of the future

Nov 7, 2014, 7:48am EST



Dr. Goldman shows the ICU of the future, complete with vital signs being monitored on a remote device.

Massachusetts General Hospital doctors say they have developed an intensive care unit of the future at the request of the White House, a project that has brought together medical-device makers and regulators seeking to rapidly innovate how medical devices work.

The Ebola crisis has accelerated the project.

Working with a variety of medical device makers - including

General Electric, Philips Healthcare and Smiths Medical – MGH doctors demonstrated a mock of the ICU on Thursday and were scheduled to show federal partners on Friday reengineered medical devices that can be controlled as if they were robots and monitored on remote computers.

"(We thought), how could we use different devices from different manufacturers and integrate them to make a smarter ecosystem?" said Dr. [Julian Goldman](#), a Massachusetts General anesthesiologist and medical director for Partners HealthCare Biomedical Engineering. "The whole notion of how do we reinvent the patient care environments by modifying technology, connecting technology. ... It was all part of that thinking,"

The vision is one that has long been in the works.

With \$18 million in federal funding, [Goldman](#) has been working with teams at MGH to develop standardized software that can allow doctors to convert proprietary software into something that can be viewed on a singular platform.

Despite the work, medical-device companies haven't been eager to develop similar platforms. [Goldman](#) said there hasn't been a clear market need for interoperable platforms, and the regulatory pathway was unclear. Such a high-risk business proposition has kept many innovations in the test

room of manufacturing offices, rather than on production floors.

Yet a request from the White House on Oct. 17 changed all that.

With the Ebola epidemic raging abroad, federal officials asked MGH to bring together medical-device makers and federal regulators to get the ball rolling on interoperable systems and remote-control medical devices.

The idea is to monitor infectious disease patients at less risk to care providers. With remote equipment, caregivers can also administer medicine without first having to don personal protective equipment.

In less than a month, [Goldman](#) has received a letter of support from the Food and Drug Administration and other federal regulators.

Manufacturers have subsequently jumped on board and opened up their software using the standardized platform developed by [Goldman](#), and have created prototypes that showcase their interoperability and their ability to be remotely controlled.

"By providing material to the FDA, we've helped manufacturers see what the regulatory pathway would be," [Goldman](#) said.

[Goldman](#) said the demonstration is to show what's possible, and to bring together regulators and engineers to show that there is regulatory support for a new model of care.

[Goldman](#) is also bringing together other innovators, such as the app Patient [Smart Tracker](#), to show the potential marketplace for apps to be created to utilize MGH's standardized software platform.

"We're doing this to inform the discussion at senior leadership levels so they have a more thoughtful approach to the steps they put in place, which could include funding to manufacturers," [Goldman](#) said. "I see this as driving innovation, ... bringing (manufacturers) to the table with the FDA, that might be sufficient on its own."