How Stanford is upgrading tech for its $1.2 billion children's hospital expansion
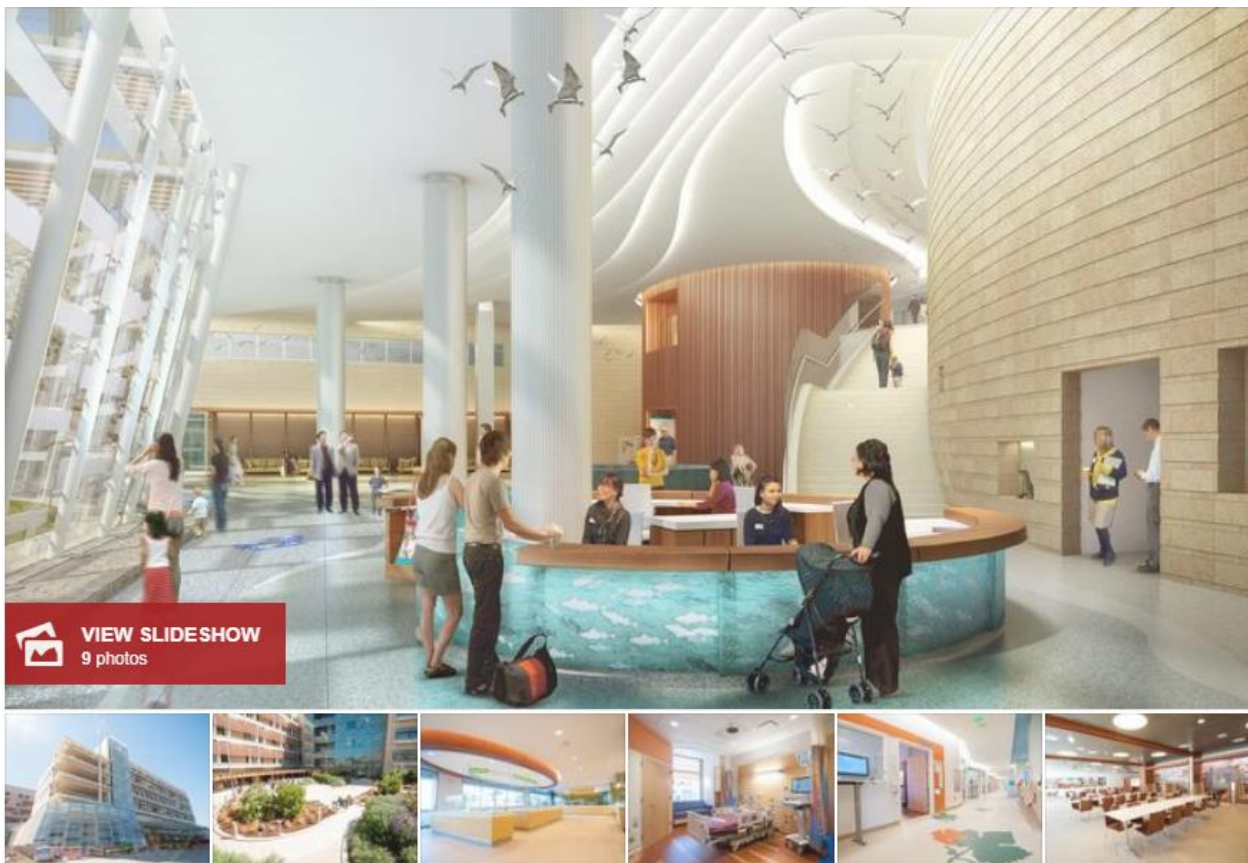
By Antoinette Siu | Nov. 10, 2017

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Stanford Medicine's new Lucile Packard Children's Hospital is weeks away from opening as construction crews put final touches on the $1.2 billion project this month.

Breaking ground in 2012, the hospital is completing its seismic retrofitting required of hospitals in the state by 2030. Project planning began in 2002 to more than double the current hospital size with 521,000 square feet of building space, 3.5 acres of gardens and additional surgical and imaging spaces.

But in addition to expanding in size, the hospital is investing in major technology upgrades and sustainability improvements inside its hospital and information systems. One of those additions will be the hospital's new mobile app, a tool that directs patients as they arrive and provides appointment and medical information.

Some of the technology targets improving operations and efficiency for staff at the redesigned hospital, which will add hundreds of new jobs to the campus. The focus has been on integrating their various systems and tools to create a more seamless experience for patients and staff, said Dr. Natalie Pageler, chief medical information officer of Stanford Children's Health.

Real-time location badges, for example, alert the team when a nurse walks in to prepare medication. Stanford is also working with Google data scientists to introduce artificial intelligence functions as it collects more data through electronic medical records.

Pageler graduated from Stanford's School of Medicine and completed her residency at Lucile Packard Children's Hospital. With a background in engineering physics from her undergraduate education at University of Arizona, Pageler acts as liaison between clinical and technology staff at the hospital.

She spoke with the Business Times about how Stanford is designing education and technology at the hospital.

How is the technology changing hospital operation?

Everything interacts a lot more seamlessly, which gives you a synergistic effects in terms of the outcomes. By having all of these integrated systems, there is a lot more automation that supports the best outcome without requiring that staff members, nurses, physicians have to interact with it. So now a nurse can get can get their alarm directly to a phone wherever they are and know immediately that the patient needs help and then that will be integrated with the real-time location services.

How do you begin finding and working with industry partners?

Being here in Silicon Valley and being able to meet and finding partners quickly and develop a content quickly has enabled us to get these new technologies into the clinical setting very quickly. We're very careful about our approach in figuring out which things are in the pilot stage, which things are in the experimental stage and which have really been demonstrated to have a benefit so that they can be implemented safely for patients.

What have those partnerships led to?

We're just starting collaboration with Google right now to look at ways we can work with their data scientists and our scientists to introduce more artificial intelligence to help us identify patients earlier, who might need interventions earlier. There's a lot of partnerships that we are doing to try to look at populations both within our hospital population across the country. For example, with Improve Care Now we are leading a national effort to basically learn from every pediatric patient about disease and gather their data to create new insights and then implement the improvement measures across the country.

Are there new programs and education around adapting health care technology?

We have several programs at the organization that are designed specifically to facilitate this kind of development. We have a clinical informatics fellowship, a relatively new board certification. Any physician from any different field can apply to to the fellowship after their residency and do a two-year fellowship, where they rotate through the children's hospital, the adult hospital, the school of medicine, but also have the opportunity to do electives at local companies. We've had fellows do electives at HP, Apple and Google. One of our fellows partnered with Apple's HealthKit app on a project for their clinical informatics.

Do you see these technologies and innovations driving health care costs up?

We know that new technology can both increase costs but that if it's deployed correctly, it can decrease costs. You can gain these efficiencies. You can decrease the number of people that are required to do data entry, for example. We are constantly teaching and through our information services department evaluating what is the cost of the technologies, what are opportunities for increased efficiencies and how will we balance that.