

Tustin doctor uses robot to help young patients

CHOC doctor connected to Hoag Hospital emergency room

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Robots may lead us into the future. That's what Dr. Jason Knight says.

He's a medical director for the Children's Hospital of Orange County and often works with patients in the Hoag Hospital emergency room who will be transferred to CHOC.

Knight, who works with emergency transport services, has been using a robot to communicate with patients at Hoag Hospital in Newport Beach before they are moved to CHOC in Orange. Through the robot, patients can see and hear Knight in the emergency room before meeting him at the Orange facility.

Knight can control the human-sized robot from a laptop computer that can be used nearly anywhere. The robot can move across a room or zoom in on charts, X-rays and machines check a patient's vital signs. A stethoscope attached to the back of the robot allows Knight to listen to a patient's heart. And when he logs in, Knight's face is broadcast as the robot's face. He's been working with the robot for about a year and a half, he said.



Dr. Jason Knight can log into a robot at Hoag Hospital in Newport Beach and check on patients from his home in Tustin.

Q: What's the benefit of using robots remotely?

A: Knight: "The patients see my face. I can take digital photos of the X-ray. I can write on it digitally and can zoom into things in the room; I can read charts on the wall. There is usually a doctor in the room to talk with and I can look at the patient. With pediatrics I can look right away and tell if a patient is sick or not sick. I can ask people at the bedside to do certain things, like using the stethoscope. And I can check ventilator settings and look at vital signs. At CHOC I can log into the X-ray system."

Q: How do the robots help you do your job?

A: Knight:"It allows us to better make a determination where the patient should go in the hospital. For any patient coming to the ICU the transport team has a goal to get on their way in 30 minutes. At Hoag I can hear anything going on in the emergency room and can check on patients anytime in one room at Hoag."

"It enhances the relationship because before, Hoag's emergency room would call and we'd talk on the phone. This way, I can look at the patient and talk to the family and make decisions in real time. I can make a remote assessment of the patient. I've done at least 30 consults that way. I find it extremely helpful to quickly assess the patient and find out if they are truly sick. Hoag doesn't have a pediatric, just a neonatal intensive care unit, so it helps the pediatric patients. Kids go into the Hoag emergency room and get sent to CHOC so I make sure they get a telemedicine consult. I hope eventually we will be connected to more hospitals."

Q: What's has been most challenging?

A: Knight:"The initial startup took a lot of education and training of physicians and support staff on CHOC and the Hoag side. In retrospect that was probably the easiest part. The hardest part is getting physicians on board. It's new technology. Clearly nothing can replace being in front of a patient. Before this we would only have contact with the person on the other end, like the emergency room doctors. With new technology we have different groups, like early adaptors who get technology in their hands and figure it out. I think with time it'll be very useful to patients. A fair amount of people are not early adaptors. Not everyone embraces new technology the same."

"Something like electronic medical records seemed far off. It takes a long time for certain things to be accepted and adapted to regular practice. It's slower than I would like and we don't do as many concepts as I would like."

Q: Has anyone requested the room with the robot?



Dr. Jason Knight uses his laptop and joystick in his Tustin home to control a robot at CHOC in Orange.

A: Knight: "No, I think because people don't know about it. They haven't heard about it. In the last month or so I've been able to use it on older children and they are able to interact with me. I can do an assessment and make recommendations. If a child comes to us in the ICU, I walk in and say 'hi,' it's always the same look, like 'Hey, you're the guy on the robot!' There's no fear factor with children who are able to talk. I've done it more with infants and toddlers and there's no fear factor. Older kids, they just think it's the coolest thing.

Parents I've talked to said it was great, that I put their minds at ease. When they come in and I greet them it's almost like continuity of care."

Q: What's the most positive experience you've had?

A: Knight:"One of the first cases I did, a one-month old had a lung problem and essentially I had the ability to take a look at a patient who was very distressed. I looked at the monitor and saw that the vital signs were abnormal. I looked at the child's X-ray and it showed an abnormal cystic mass filling one entire side of the chest. Integrating all that information and sending a transport team with an ICU physician out the door within 5 minutes and recommending to the emergency room physician that given the entire picture the child would be safer to have a breathing tube placed. I said my team could do it when they got there. We brought the child back to CHOC in stable condition with a breathing tube and on a ventilator. The baby had surgery for a lung cyst the following day and was discharged (seven days later)."

"The family was so nervous and anxious and once I did an assessment and made recommendations the mother was calmer and felt that everything was going to be fine. It was like night and day. When I talked to her she was very emotional as to how helpful the process was. To me, that's how the system is supposed to work."

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