

BWH Bulletin

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Pharmacy Robots Improve Efficiency, Patient Safety



Bill Churchill watches the IntelliFill robot sort syringes.

Three recent additions to the Department of Pharmacy handle the most potent cancer medications and can fill hundreds of syringes in just one hour. They are robots, and together with BWH pharmacists and pharmacy technicians, they are helping to dramatically improve patient safety and pharmacy efficiency.

“IV medications prepared by humans are approximate—they can be plus or minus 10 percent of what the label amount says. The robots measure these medications not only by volume, but also by specific weight, with an accuracy of plus or minus 5 percent,” said Bill Churchill, MS, RPh, Chief of Service, Department of Pharmacy. “That higher level of accuracy makes a significant difference for many patient populations, including elderly, patients with renal or liver disease as well as neonatal and pediatric patients, to name a few.”

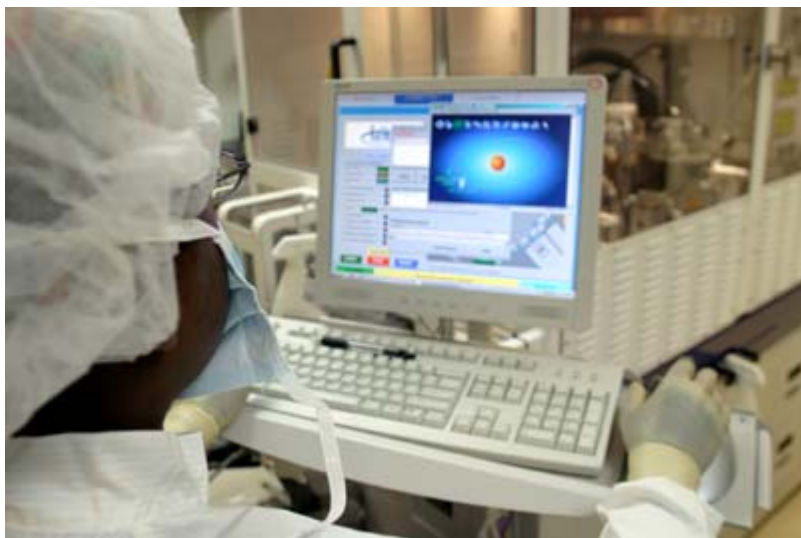
Each robot has its own specialty. CytoCare prepares chemotherapeutic agents, significantly reducing potential exposure to pharmacy staff that could occur when humans mix these types of hazardous medications. The IntelliFill syringe robot prepares bulk batches of ready-to-use syringes for anesthesia and nursing staff. The third robot, the Health Robotics IV Station, prepares patient-specific IV bags and syringes. It is in the final stages of testing and will begin producing IVs for patients in the near future.

Despite the increased prevalence of technology in almost every other industry, pharmacy robots like the ones used at BWH are rare. Out of more than 5,000 hospitals in the U.S., only 35 institutions use IntelliFill. Fewer than 10 hospitals use CytoCare, and even fewer hospitals are participating in the testing for the IV Station. The BWH Pharmacy Department is the leader in adopting robotic technology for compounding sterile products and is the only hospital in the world to have all three robots.

Together, the three robots prepare more than 350,000 doses annually, all of which previously were produced off site and shipped to the hospital at significantly higher costs. Now, one robot can fill up to 400

syringes in one hour, compared to 100 or so that could be filled manually. Churchill estimates that when the robots are fully deployed, BWH will reduce the costs for these targeted medications by 50 percent, saving approximately \$1.2 million per year.

While the robots now handle the syringes and IV bags that pharmacy technicians once would have been responsible for filling, they are by no means a replacement for people.



Pharmacy Technician Tracy Cordwell operates the IntelliFill syringe robot.

“If anything, the roles and responsibilities of pharmacy technicians have escalated,” said Chad Stashek, PharmD, MS, medication safety officer. “They’ve become managers of the robots. They enjoy working with the robots because it enables them to use technology to assist with daily work tasks, responsibilities that traditionally would have been done manually.”

Pablo Chacon, who has been a pharmacy technician at BWH for nine years, says that one of best things about working with the robots is the innovative aspect.

“It’s been exciting to be among the first people to use the robots,” he said.

Added Churchill, “BWH truly is on the leading edge when it comes to improving medication safety, efficiency and research. We’ve come a long way from the days when pills were sent to patient rooms in little paper boxes, and it’s a real thrill for me to see us doing this kind of work and making a difference in the quality of care provided by BWH.”

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