



King Salman Military Hospital Pharmacy Automation Case Study

Listening to patient preferences and deploying the right automation for pharmacy prescription pickup leads to a dramatic workflow improvement at this busy hospital pharmacy in northwest Saudi Arabia.



The first drive-through RoboWall unit in the world is at the King Salman Military Hospital in Saudi Arabia.



The Challenge

The outpatient pharmacy at King Salman Military Hospital had doubled its volume in two years, and the growth was to continue. The pharmacy processed 3,000 prescriptions for more than 1,000 patients per day using the outpatient pharmacy. Hiring more staff was not an option, however, for this regional hospital serving Saudi military personnel and their families.

Furthermore, the hospital received frequent feedback from their patients verbally and in a patient questionnaire conducted in 2021. The patients using the outpatient pharmacy were growing frustrated:

1. Waiting for medications through the outpatient pharmacy averaged 3.5 hours.
2. Once inside the pharmacy at the pickup station, patients had to wait another several minutes for their order to be found, scanned in, and presented.
3. Parking was challenging for customers and hospital staff alike. With hospital growth, the parking scarcity would worsen.

Major Olayan Alatawi, the director of pharmacy at King Salman Military Hospital, began a deep analysis of the hospital's patient experience survey. "That

survey showed that our outpatient pharmacy users were frequently waiting to get their medications for an unacceptable amount of time," Alatawi said. "Our pharmacy services overall ranked very highly ... except for waiting times."

To add to the high priority feeling of the scenario, Major Alatawi knew the Ministry of Defense was closely monitoring. The Ministry runs 23 military hospitals across the Kingdom, and once the right solution was found, they hoped to widen implementation.

The Solutions Evaluation

The hospital issued a tender to fully automate the King Salman Hospital pharmacy, and this included adding technology to fully handle the dispensing of medication packages inside the pharmacy, as well as to bring in a novel solution to make patient pickup of chronic condition medications more efficient. The team selected RoboPharma, automation from Capsa Healthcare.

The resourceful engineers and planners at RoboPharma presented their RoboWall automated all-hours prescription pickup kiosk as the ideal solution to address patient pickup. RoboWall kiosks already were being installed for years across pharmacies in Europe, and



Parking lot and outpatient lobby congestion are eased since 25% of the pharmacy's total daily orders are picked up at RoboWall.

“In Saudi Arabia, drive-through convenience is everywhere ... so why not a hospital pharmacy?”

patients consistently gave high marks for being able to pick up their prescriptions when it was convenient for them. Plus, RoboWalls lessened peak hours traffic inside the pharmacies, which greatly enhanced the pharmacy staff's workload and stress levels. By giving customers an option to pick up their prescription orders inside the pharmacy or outside at the RoboWall, it was a win-win for the pharmacy and the customer base.

RoboWall units are traditionally installed as outward-facing extensions of the pharmacy. A secure, customer-friendly front panel faced the street or lobby. There, customers would use the touchscreen to enter their secure PIN and patient information, and their medication would be automatically delivered from one of the cells inside the unit. Inside the pharmacy, technicians had easy access to load filled prescriptions, using software and barcoding to ensure the right medication was assigned to the right cell for each patient pickup.

Bringing a self-serve pharmacy kiosk system to the Middle East was novel, but not insurmountable. The pharmacy team at King Salman Hospital decided to proceed. Major Alatawi closely worked with the tender agent, hospital engineers and RoboPharma designers. The main benchmarks to consider were growth, speed, efficiency, expansion and convenience. And in that interactive process, an innovation emerged: Make the RoboWall unit a drive-through.

Instead of mounting RoboWall to the outside physical wall of the hospital, they would redesign it as a free-standing kiosk in the parking lot. “In Saudi Arabia, drive-through convenience is everywhere. Coffee shops, restaurants ... everything seems to have a drive-through. So why not a hospital pharmacy?” Major Alatawi said. “It would ease the parking congestion outside the hospital, it would extend our operating hours, and patients would come to appreciate picking up their orders from the convenience of their automobile.”

Taking it a step further, Major Alatawi envisioned the idea of a unique physical shape to truly make the RoboWall drive-through experience memorable. Thus, the engineers and designers sketched out and ultimately finalized the iconic pill-shaped RoboWall. Measuring 3.6 meters long by 2.4 meters high, King Salman's outpatient pharmacy was now a one-of-a-kind in the Kingdom, as well as the world. RoboWall would be a giant interactive capsule.

The Implementation

Faris Hakami, the Clinical Informatics Officer in charge of the project implementation, described the new process.

1. The pharmacy processes orders from the hospital's many clinics or telehealth channels as normal.
2. All pharmacy orders are dispensed through the RoboPharma RP20 robotic filling system in a matter of



seconds.

3. If the patient notated she/he wanted to pick up outside the outpatient pharmacy, the RoboWall software instructs the technician to set the order(s) in a locked portable box.
4. Several times a day, a technician walks approximately 20 patient orders at a time to the RoboWall outside the doors of the pharmacy. The capsule is securely locked and air conditioned to 16° C.
5. Once inside the kiosk, the RoboWall software presents an available cell among the 110 cells in the system. The technician barcode-scan/verifies, then loads the order.
6. The entire round-trip process for the technician takes less than 10 minutes.

“Customers regularly thank our pharmacy technician if they see the tech coming to or leaving the RoboWall,” Hakami says. “They tell us this self-service approach makes their lives easier.”

Due to continued growth projections, the pharmacy planning team added a second RoboWall. Unit #2 was installed 10 months after the initial unit, off-campus on an access road connecting the hospital and the regional airport 8 km away. Technicians drive a specially appointed secure automobile to transport medications from the outpatient pharmacy to Unit #2.

The Benefits

1. Time Savings

For the patient, RoboWall pickup averages 20 seconds from when a customer drives up and begins the interaction with the touch-screen to when they can drive away. “The patient experience has many levels and some are hard to precisely measure, but No. 1 was their time savings,” Major Alatawi says. “It is very real.”

2. Cost Savings From Home Delivery

Before the RoboWall installation, the outpatient pharmacy home-delivered more than 1,500 medication orders daily via FedEx, HLD, or local couriers. The cost averaged 56 SAR (\$15 U.S.) per home delivery. By encouraging pickup at RoboWall, the hospital will save 20M SAR annually (\$5.3M U.S.).

3. Alleviate Congestion

Lines are shorter inside the outpatient pharmacy since 25% of the pharmacy’s total daily orders are now dispensed externally by RoboWall. As a related benefit, parking lot congestion has also eased dramatically.

4. Ease of Use – For Pharmacy and Patient Alike

RoboWall is an engineering marvel, but outwardly it is simple to use. Pharmacy techs find using it very easy and

fast. Very little maintenance is required. Interfacing between the hospital’s operating system and the RoboWall software is seamless. And the touchscreen directions and operation are intuitive. Major Alatawi noted the team did not encounter any surprises during the entire planning-to-installation. “I visited the RoboPharma operations in The Netherlands and interviewed many retail pharmacies who were using their RoboWall. The pharmacies all said the same: almost zero problems, durable, positive patient experience, fast technical support.”