



# Elevating Patient Care with Bedside-Clinical Mobility Tools

Renowned St. Louis teaching hospital outfits nurses and private patient rooms with tools to improve care and streamline workflows.

## Challenge

BJC Healthcare's Barnes-Jewish Hospital in St. Louis, Missouri, focuses on providing an exceptional experience for patients and their families. When it came time to build a new 12-story tower on the Washington University Medical Campus, the hospital wanted to ensure that the new facility centered around the patient and took into account the experience of physicians, nurses and other caregivers to enable them to provide responsive, efficient care of the highest quality. BJC sought to furnish every patient room with dedicated tools and equipment to maximize productivity, enhance patient care and eliminate errors.

## Solution

In 2018, Barnes-Jewish Hospital opened the new 558,000 square-foot Parkview Tower that consolidates and modernizes labor and delivery facilities in the Women & Infants Center. The tower also expands inpatient care for Siteman Cancer Center patients with complex cases. Each of the Tower's 160 private-patient rooms is outfitted with a dedicated DS8178-HC scanner and ZD410-HC printer from Zebra. Nurses and clinicians are also equipped with TC51-HC handheld computers, giving them mobile access to a variety of critical applications including electronic health records (EHR) voice, messaging and collaboration tools.

## Result

Outfitting private patient rooms with dedicated scanners and printers eliminated the need to transport essential technology from room to room via workstations on wheels (WOWs), which enhanced productivity, streamlined workflows and reduced the risk of spreading bacteria. Ready, in-room access to these essential tools gave nurses and clinicians more time at the bedside and increased their ability to complete tasks nearest the patient, an error-reducing best practice.

Zebra's handheld mobile computers, the TC51-HC, support a myriad of clinical tasks performed at the patient's bedside, from accessing EHRs to taking photos of wounds, sending and receiving voice calls and secure texts and nearly any task that might otherwise be completed on a desktop computer.



### SUMMARY



#### Customer

Barnes-Jewish Hospital  
(BJC Healthcare member hospital)  
St. Louis, Missouri

#### Industry

Healthcare

#### Challenges

- Reducing error-prone manual workarounds
- Inefficient workflows
- Increasing clinician time at the bedside
- Addressing unreliable/repeat wristband scans disruptive to patients
- Error-proofing specimen labeling

#### Solutions

- ZD410-HC thermal label printers
- DS8178-HC Bluetooth mobile scanners
- TC51-HC handheld mobile computer on Android OS

#### Results

- Improved patient safety
- Reduced risk of errors in specimen labeling and Rx administration
- Enabled mobile access to EHR patient records
- Streamlined workflows
- Improved quality of bedside care and clinical collaboration
- Optimized staff and technology resources

## Delivering Meaningful Improvements

Today's nurses deal with ever-changing policies and procedures. Double shifts. Pleas from patients to slow down. Demands from administration to speed up. More new technology. HIPAA. And by the way: No errors. And smiles, please.

No one questions whether the benefits of technology advancements in healthcare, specifically, "clinical mobility" in hospitals, outweigh the challenges that adoption and integration bring. That's why progressive organizations such as BJC Healthcare in St. Louis have committed to improving patient care by investing in mobile tools that give nurses and clinicians more time engaging with patients directly, in-room technology that reduces the risk of cross-infection and administrative errors while improving data access and overall workflow efficiency.

### New Tower, New Mobility to Power Better Care

When BJC Healthcare unveiled its newly constructed 12-story Barnes-Jewish Parkview Tower in early 2018, behind the ceremonial satin ribbon and oversize cartoon scissors was an extensive and fully functional deployment of versatile and robust healthcare-grade technology tools from Zebra. Rollout and integration with the tower's communications infrastructure began the year prior. The \$1 billion campus renewal project included construction of a second tower for BJC's St. Louis Children's Hospital, completed at the same time as Parkview Tower.

BJC HealthCare, whose 15 hospitals include the downtown St. Louis flagship Barnes-Jewish teaching hospital, is one of the largest nonprofit healthcare organizations in the United States with net revenues of \$5 billion. BJC's Barnes-Jewish Hospital is noted for excellent nursing care, ranking among the best hospitals by *U.S. News and World Report* 26 consecutive years and certified as a "Magnet Hospital" by the American Nurses Credentialing Center. With 1,386 beds, Barnes-Jewish Hospital offers 12 highly ranked specialties including cancer; diabetes; digestive disorders; ear, nose and throat; geriatrics; gynecology; heart and heart surgery; kidney disease; neurology and neurosurgery; orthopedics; respiratory disorders; and urology.

### Private Rooms + Data + Printing at Bedside = Fewer Errors

It's simple math: Administrative errors drop when patient data is handled right at the bedside with dedicated in-room scanners and printers. Untethering nurses from a centralized desktop workstation to print a specimen label, for example, helps eliminate errors that arise during that short trek down the hall when patient alarms can divert nurses away from a simple task like labeling a vial.

**"I think the staff like it because it protects them and the patient and our institution from errors that can happen with manual processes"**

Todd Clements, Manager,  
Clinical Information Systems  
(CIS), Barnes-Jewish Hospital



## SUCCESS STORY

BARNES-JEWISH HOSPITAL

That's why Barnes-Jewish Parkview Tower outfitted each of its 160 private rooms with a Zebra Technologies DS8178-HC handheld Bluetooth scanner and a Zebra ZD410-HC printer for real-time data access and label printing.

Todd Clements, manager, clinical information systems (CIS), Barnes-Jewish Hospital, said the DS8178-HC is used to scan 2D barcodes for medication administration and linear barcodes for labs.

“The benefit for medications is you should not have any wrong doses or incorrect medications given because you scan the wristband barcode and correlate it with the patient’s medical chart. When you scan the barcode on the medication package, it will match up. If you follow the process, you should be safe.

“And it is the same for specimens: scan the wristband to get the patient chart; print the labels and you will not have mislabeling,” Clements added. “I think the staff like it because it protects them and the patient and our institution from errors that can happen with manual processes.”

The DS8178-HC captures scans reliably regardless of the barcode label’s condition – crinkled, shiny, poorly printed, curved around a patient wrist – or sensor-to-code orientation, so clinicians can scan with confidence without disturbing a sleeping patient to get a better line of sight.

Lesser technology forces repeat scans that are upsetting to patients who are awoken and repositioned to capture a good read from a wristband barcode. Compassionate care of those in fragile condition is paramount.

The DS8178-HC scanner’s unique housing makes it an antibacterial superhero: the unibody design conceals seams and screw holes, giving germs nowhere to hide. Healthcare plastic stands up to repeated exposure to the most aggressive hospital disinfectants; easy and speedy wipe-downs encourage sanitation compliance to improve patient safety. The scanner’s kind attributes include Night Mode feedback (muted vibration confirms scan instead of disruptive beep) and a built-in lamp provides enough illumination for patient scanning without the need to turn on room lights.

### Printing at the Point of Care

The ultra-compact ZD410-HC thermal label printer is set up in each of Barnes-Jewish Parkview’s private patient rooms, enabling printing of patient wristbands, prescriptions and labels for tiny specimen vials. Printing at the point of care, right at the patient bedside, eliminates errors such as mislabeling that can happen in the busy corridors



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outside a room. Assigning a ZD410-HC printer to each private room also reduces the risk of cross-contamination that can occur when equipment is moved from one room to another. Just like the DS8178-HC scanner, the housing of the “fits anywhere” ZD410-HC printer is also constructed from healthcare-grade plastic with a sealed button interface that makes cleaning and disinfecting fast and easy.

“The biggest benefit is the standardization across all the hospitals,” said Keith Wood, technical project manager for Barnes-Jewish Hospital’s EHR, the integrated database for electronic health records of patients. The most recent EHR rollout to facilities within the BJC Medical Group was completed in June 2018.

“We are seeing more nurses moving between hospitals” within the BJC network, he said. “Whether they are changing roles or covering at other facilities, it’s the same process and the same hardware,” he added. “It’s not learning a new process and new hardware. That’s been a big benefit.”

Before deployment of the Zebra tools, Wood said Barnes-Jewish compared the Zebra-HC to a competitor and found the Zebra scanner to be more reliable with better ergonomics. For printers, BJH already had a sizeable fleet of Zebra printers already deployed that according to Wood, “made us comfortable with the rollout of Zebra printers.”

### **Clinical Mobility Continues to Grow**

Hospitals worldwide are equipping personnel with mobile devices at increasing rates as they realize improvements in patient care and safety, elimination of manual, error-prone procedures, streamlined workflows, cost savings and overall improved use of resources.

By 2022, 97% of nurses will use mobile devices at the bedside, according to “The Future of Healthcare 2022 Hospital Vision Study” whose findings compile results from three global research studies commissioned by Zebra Technologies. That’s a dramatic surge from 2017 when 65% of nurses used mobile devices at the bedside.

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At Barnes-Jewish’s Parkview Tower, nurses use Zebra’s TC51-HC handheld devices that resemble and behave intuitively like a smartphone.

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The TC51-HC is used at the bedside to verify patient identification before any care begins – to ensure a task is the correct procedure for the patient, whether a blood draw, glucose reading or respiratory therapy.

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**SUCCESS STORY**  
BARNES-JEWISH HOSPITAL

The TC51-HC is an all-in-one device that enables Barnes-Jewish Hospital nurses to make and receive phone calls, send text messages, access the Internet and take wound photos. Alarms from patient rooms come straight to the device. Nearly any task that might be carried out at a desktop computer can be done on Zebra's TC51-HC.

**Leading the Way**

The rollout of Zebra's TC51-HC puts Barnes-Jewish in good company with other leading healthcare institutions whose clinicians rely increasingly on mobile computing. According to the 2022 Hospital Vision Study, 72% of respondents cite improved quality of patient care as a direct result of clinical mobility. In addition, 61% of hospitals surveyed reported a reduction in medication administration errors and 52% cited decreased specimen collection labeling errors, all factors that positively impact patient care.

The rollout of Zebra's mobile platform at Barnes-Jewish Hospital injects new levels of accountability, noted BJH's Clements. He said his CIS department runs reports on timestamps printed on labels generated in patient rooms and compares that with time stamps of diagnostic tests ordered. Wide discrepancies between the two-time stamps could flag patterns of manual workarounds that management can address with retraining on best practices, as needed.



To learn more about how Zebra can help your healthcare organization heighten accuracy, efficiency and patient care, visit [www.zebra.com/healthcare](http://www.zebra.com/healthcare)



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