

ENHANCING MEDICATION ADMINISTRATION FOR PATIENT SAFETY AND WORKFORCE PRODUCTIVITY

ZEBRA DS457 NEXT-GENERATION FIXED MOUNT IMAGER DELIVERS FAST AND ACCURATE VERIFICATION OF MEDICINE PILL SACHETS



CUSTOMER PROFILE

Company Industry

- Healthcare
- Life Science

Key Results

- Ensured medicine quality and condition by automatically detecting chipped or broken pills
- Faster medicine verification with high-speed scanning of each pill sachet
- Safeguard patient safety with accurate medicine verification
- Effective manpower utilisation by replacing manual checking process
- Optimised efficiency of pill packing machines by automating quality checking

IMPROVING MEDICINE ADMINISTRATION

One of Singapore's largest public hospitals with over 700 beds, offers comprehensive range of medical specialties from general surgery, internal medicine, cardiology, Ear, Nose and Throat (ENT) to orthopaedic surgery and dermatology.

When the hospital wanted to replace their manual human checking process of each of the medicine pill sachets, they turned to Zebra DS457 Next-Generation Fixed Mount Imager for a fast and accurate barcode and 2D scanning to ensure the pills are correct, in the right quantity and not broken.





THE CHALLENGE

PREVENTING ERRORS FOR MEDICATION QUALITY AND SAFETY

According to the Institute of Medicine, many medication errors occur in the dispensing, transcribing, and administering stages of the medication process events. Although the standard is for nurses to check the ‘five rights’ of medication use—right patient, right medication, right dose, right route, right time, only 34 percent of dispensing and 2 percent of administration errors are caught prior to reaching the patient (sources: Harvard Medical Practice Study and The Journal of the American Medical Association).

BARCODE SCANNING CANNOT VERIFY PACKING ACCURACY, PILL QUANTITY OR CONDITION

Today’s hospitals use barcode scanning to identify the right medicine. Some hospitals have packing machines that pack different medicine pills into sachets for per-serving prescription. However, the machines are unable to detect if the pills are correct, in the right quantity and not broken.

MANUAL, CUMBERSOME CHECKING OF MEDICINE PILL SACHETS AFTER MACHINE PACKING

Hospitals know that when the wrong pill, wrong quantity or broken pills are consumed, their patient’s safety is at risk. Despite this, the current process is still a labour intensive and error prone process which involves a staff manually checking every sachet after the packing is done.

THE SOLUTION

ZEBRA DS457 PROVIDES AUTOMATED CHECKING TO SAVE TIME AND LIVES

Barcodes alone are not sufficient because it cannot verify the pills after they are packed. In hospitals without medicine packing machines, the practice is to scan and verify the medicine box or packet at the nursing counter or medicine store, and place it into individual serving cups on a trolley which are pushed to the bed-sides to be served to each patient. Errors can occur at the point of serving.

Hence, a more efficient method is needed to verify the medicine pill sachets are packed with the right pills. If an automated system is available to verify each sachet at the end of the packing process and at the point of serving, it will act as an effective safeguard.

COLLABORATION BUILT ON INDUSTRY EXPERIENCE AND EXPERTISE

For this reason, KOOPrime developed the Medication Tracking System (MTS) Station and MTS Tabletop for healthcare providers looking to automate the checking of the medicine pill sachets during and after the packing process. They also looked to the Zebra DS457 for their integrated solution, as the product series can meet the need for fixed mount, hands-free scanning of any barcode, 1D and 2D images. The compact size of 2.92cm in height x 5.84cm in length x 6.20cm in width with sleek design fits almost anywhere and scanning performance meets the stringent requirements for their healthcare customers.



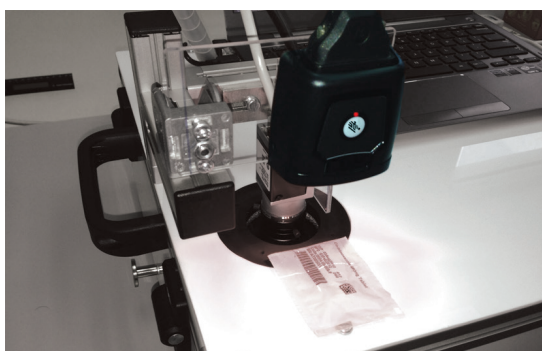
Zebra DS457 Next-Generation Fixed Mount Imager



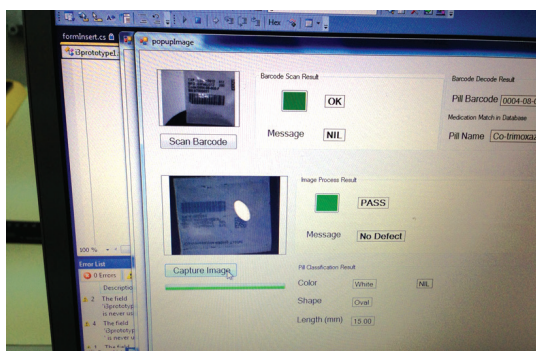
MTS Tabletop with pill sachet open slot



Image/information retrieval and browsing on the laptop



Omni-directional scanning of pill sachet



Instant verification of pill quality and condition in the sachet

HOW IT WORKS

The MTS Station acts as a standalone, checking module for the pill packing machine. As these machines pack and generate the medicine pill sachets, the station automatically scans and verifies each sachet for the packing accuracy, quality and condition of the pills it contains inside.

The MTS Tabletop scans and checks the blister packs and pill boxes. This tabletop version consists of a slotting compartment for the medicine pill sachets, a scanner and lighting compartment to capture the barcode and image of each sachet and verify its content, and a touch-screen monitor that is connected to a computer unit which stores these images and information. When placed at the patient wards or medication trolleys, caregivers can retrieve and browse records of these sachets from the MTS Tabletop to verify the accuracy of the pill prescription as well as the quality and condition

MEETING THE HOSPITAL NEEDS

A typical hospital usually has on average 50 patient wards. Each ward has one to two medication trolleys. There is a need for over 100 units of MTS Tabletop for these wards. In addition, it would also operate an outpatient pharmacy with a Quality Control (QC) unit. One to five sets of an 'enhanced' version of MTS Tabletop can be deployed to support the quality control of the multiple drug formats, such as pill box, blister pack, and sachet, before medication is dispensed to the patients. At the pharmacy unit where the packing of the sachets is performed, one to two units of MTS Station are sufficient to automate the checking process.

“Issues arising from aging population and chronic diseases are becoming critical in the healthcare industry. By leveraging the established technologies and expertise of Zebra such as the Zebra DS457 imager, we can provide targeted products and services that can meet these challenges,” explained Lim Teck Sin, founder, KOOPrime.

IMPROVED ACCURACY AND PRODUCTIVITY

Feedback on the use of these systems has been positive from the hospital that is involved in the development: 99.25% accuracy is being achieved at the automated checking and verification process. This is a significant improvement as compared to the error arising from the manual checking process. By replacing the manual process, hospitals also experience higher workforce productivity when they can better utilise their employees for other tasks. Instead of two persons on full-time duty to perform the manual checking, now they only need one person for random verification whenever necessary.

**FOR MORE INFORMATION ON HOW ZEBRA PORTFOLIO OF FIXED AND HANDHELD
IMAGERS CAN IMPROVE YOUR OPERATIONS, PLEASE VISIT US AT
WWW.ZEBRA.COM/BARCODESCANNING**