

Japan

Making dialysis treatment safer using GS1 barcodes.

Challenge

Dialysis treatment demands accurate identification of patients, dialysers, and medicines, as any misidentification can lead to serious harm. The high volume of patients and treatments adds operational complexity, increasing the risk of errors.

Approach

Shinseikai Daiichi Hospital implemented GS1 barcodes on drugs and dialysers, supported by a bedside scanning system to confirm patient identity, medication details and staff verification. This has strengthened traceability, reduced errors, and improved teamwork through real-time record sharing.



over 90%
reduction in incidents



Reduction of operational
burden



Improving reliability through
bedside scanning and
verification



Enhancement of staff
safety awareness

Introduction

At Shinseikai Daiichi Hospital, the use of GS1 barcodes on medications and medical devices in dialysis treatment has greatly improved safety and efficiency. By scanning barcodes directly at the point of care, the hospital reduced errors and incidents by more than 90%. Workloads have also decreased, as all staff can now easily check medication status, work together more effectively, and ensure reliable record keeping. This transformation highlights how GS1 standards help hospitals enhance patient safety while streamlining their daily operations.

Challenges in dialysis treatment

Dialysis is a therapy that artificially replaces the function of the kidneys by removing blood from the body and purifying it through a dialyser. Patients typically need treatment two to three times a week, with each session lasting around four hours. After dialysis, hospitals often administer additional drugs and treatments. Because many patients are treated at the same time in one unit, correctly identifying patients, drugs, and medical devices is labour-intensive, and errors can sometimes lead to serious incidents.

Shinseikai Daiichi Hospital treats about 1,400 dialysis patients in total, with an average of 700 patients per day. The hospital aimed not only to prevent misidentification of dialysers and drugs, but also to improve efficiency across its operations.

Dialyser barcode checking system

Most dialysers now display the GTIN, expiry date and lot number using the GS1-128 barcode. To prevent misidentification, Shinseikai Daiichi Hospital verifies these barcodes directly at the patient's bedside.

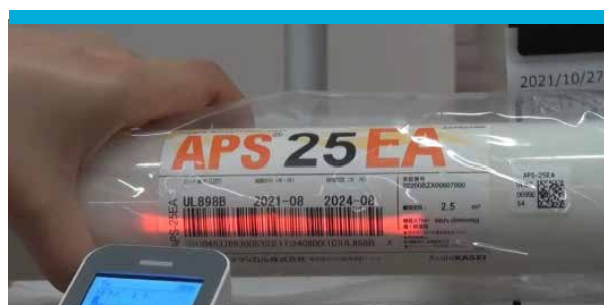


Figure 1. Scanning of GS1-128 symbol on a dialyser

Drug checking systems

Alongside dialyser verification, the hospital introduced a drug distribution and medication confirmation system using GS1 barcodes. This ensures the right drug reaches the right patient and is administered by the right nurse through a simple three-point check at the bedside.

1. Drug distribution system

For each dialysis patient, the required drugs are prepared and delivered to the bedside. At this stage, the staff add identification (ID) and the GS1 barcode on the drugs are scanned and verified.

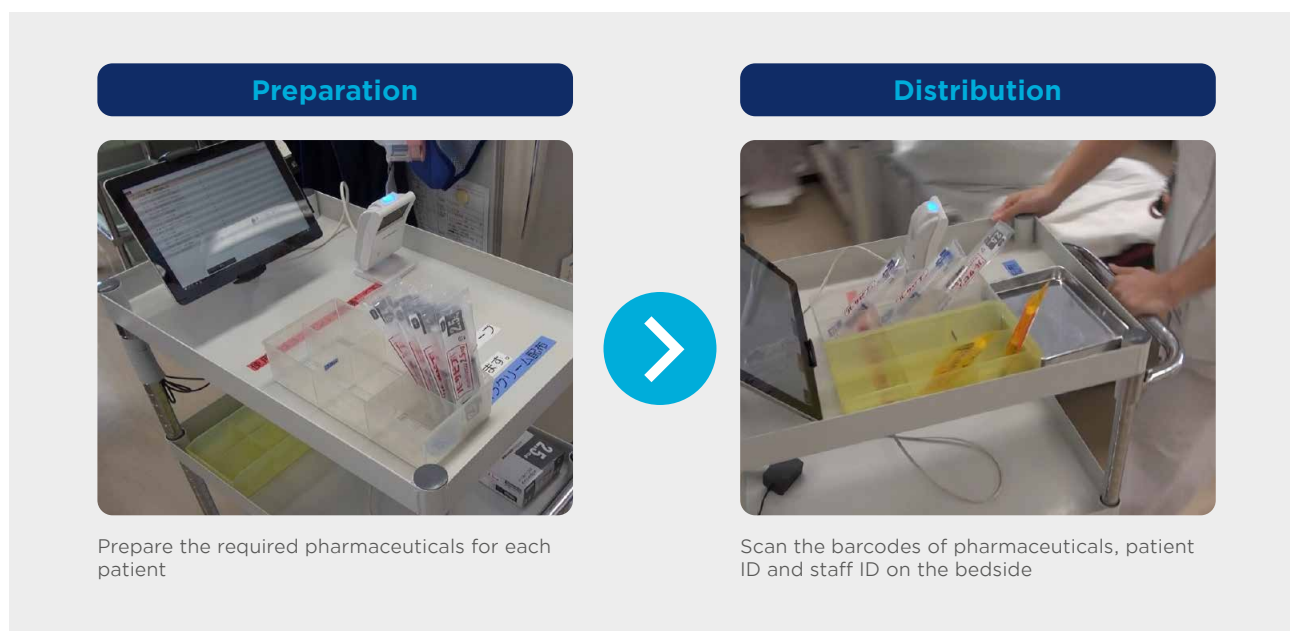


Figure 2. Barcode scanning on the distribution of drugs to each patient bed

2. Medication confirmation system

At the end of dialysis, the patient ID, the GS1 barcode on the drugs, and the nurse's ID are scanned at the bedside. This process automatically creates a medication record that can be accessed by all floor staff, improving accuracy and visibility.

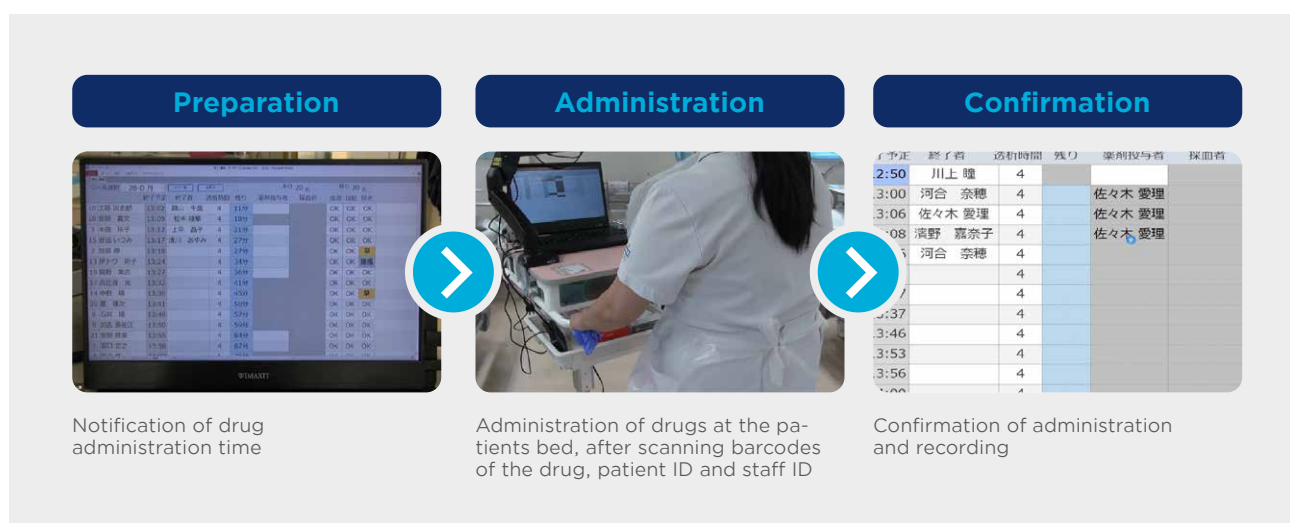


Figure 3. Barcode scanning for the administration of drugs at each patient bed

Improved safety through system implementation

Figure 4 shows the results from the first three months of system operation. On its own, the drug distribution system reduced errors and incidents by about 30%, but this was not enough to ensure safety. When combined with the medication confirmation system, however, the hospital achieved a much greater reduction, significantly lowering the number of errors and incidents.

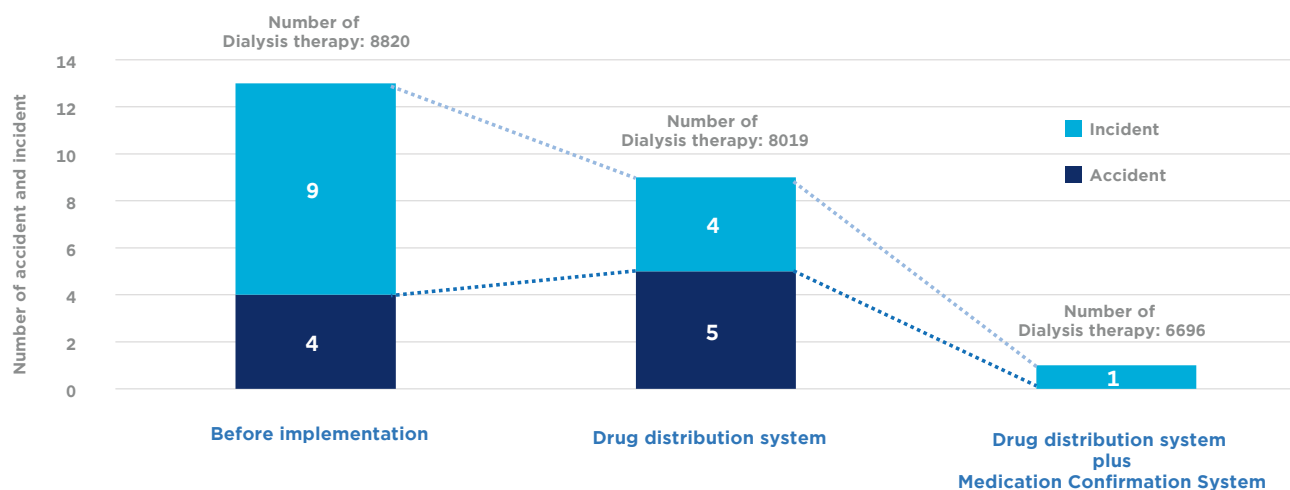


Figure 4. The effect of barcode scanning

Conclusion

By combining drug checking systems with dialyser verification, every dose can now be accurately confirmed and recorded by floor staff during administration. This approach not only eliminates administration errors but also strengthens staff awareness of safety. The use of GS1 barcodes delivers benefits well beyond patient safety—improving efficiency, teamwork, overall quality of care and confidence in daily hospital operations.

About the author

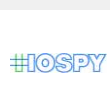


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Mr. Morizane is a Clinical Engineer and Director of the Japanese Society for Technology of Blood Purification. He specialises in developing and implementing medical safety systems for dialysis care and is a strong advocate for advancing digital transformation (DX) in healthcare settings.

About the organisation



Shinseikai Daiichi Hospital

Shinseikai Daiichi Hospital specialises in the treatment of kidney and dialysis-related conditions, as well as subacute phase care. Together with Nagoya Memorial Hospital - a key institution for emergency medical services in the Aichi Prefecture region - it forms the HOSPY Group, which provides care for over 1,400 maintenance dialysis patients. Established in 1971 to support community rehabilitation for individuals with renal failure, the HOSPY Group has grown into one of Aichi Prefecture's leading private medical and welfare organisations.

www.hospy.or.jp/shinseikai