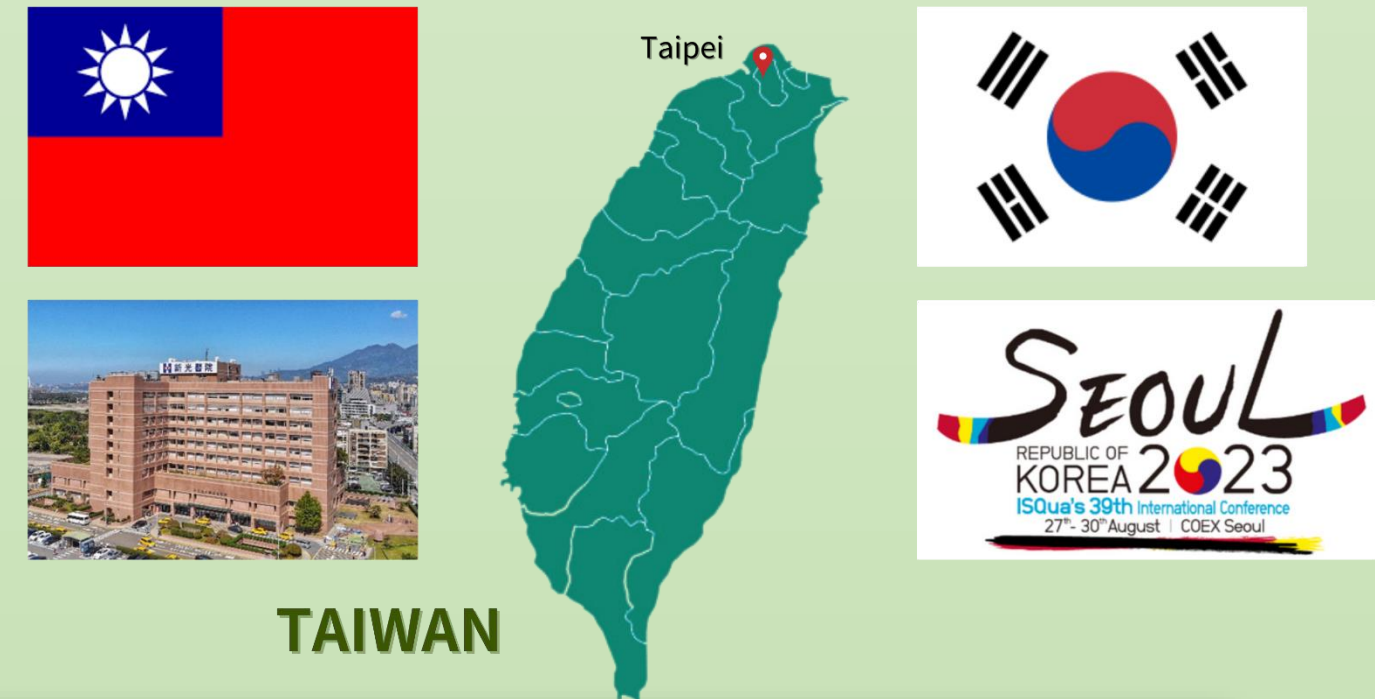


USING THE QCC METHOD TO REDUCE THE WAITING TIME FOR BLOOD TRANSFUSION OF RENAL DIALYSIS PATIENTS ACROSS HOSPITAL IN A MEDICAL CENTER IN NORTHERN TAIWAN

Chiung-Ju Chen¹, Ya-jou Chang⁴, Jui-Ting Chang^{2,3}, Yung-Luen Shih¹, Hui-Ping Chien¹
Department of Pathology and Laboratory¹, Division of Nephrology², Quality Management Department³, Hemodialysis Unit⁴ Shin Kong Wu Ho-Su Memorial Hospital, Taipei, Taiwan



Introduction

The acute and chronic kidney disease patients often develop anemia due to insufficient erythropoietin generation. Sometimes, these dialysis patients must only be given blood transfusions during dialysis to prevent fluid overload & hyperkalaemia. However in our hospital, the distance between the branch and the main building is more than 1 km (Fig1), so patients need to wait a long time for blood transfusion. **The purpose of this quality control circle activity is to shorten the blood transfusion waiting time for kidney dialysis patients between different buildings and improve related blood products transfer procedures.**

Methods

Establish a QCC : The activity is from May 2020 to December 2021. The team members was consisted of 10 interdisciplinary staffs. (Fig2)

Investigation of the current status : 5W2H (Table1, Fig3, Fig4), value stream mapping

Goal setting : Shorten the time from drawing blood to receive blood products at the nursing station within 100 mins.

Strategies & Implementations

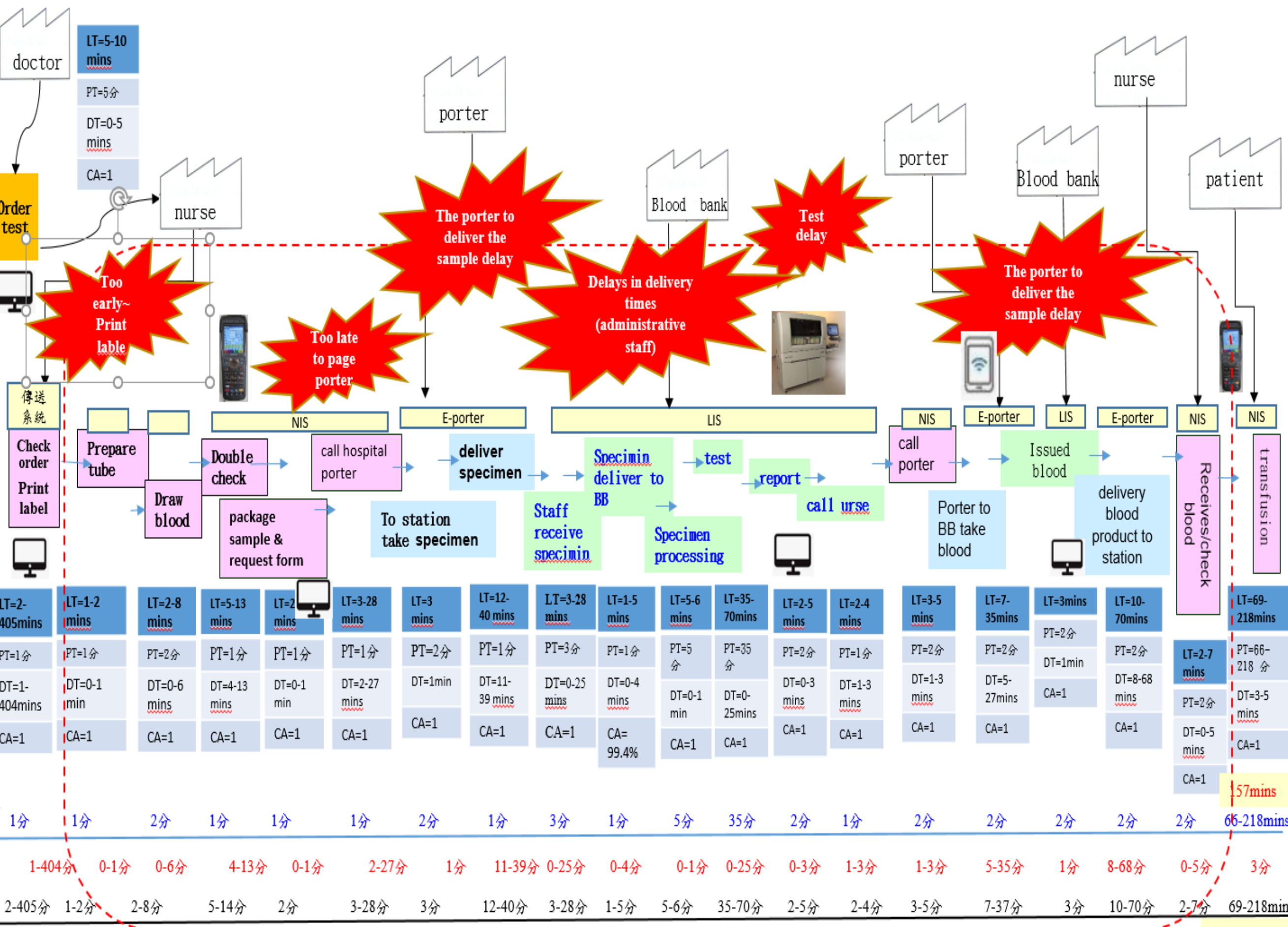
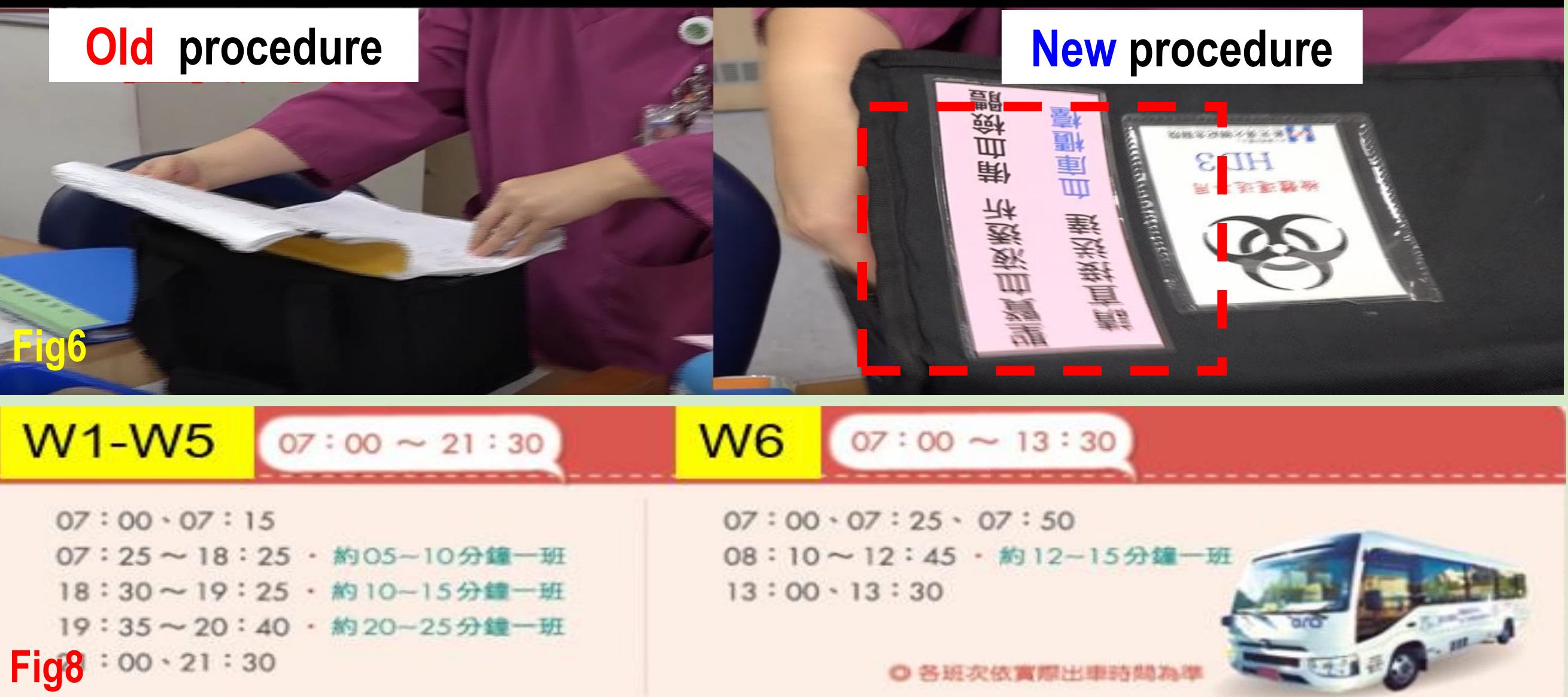
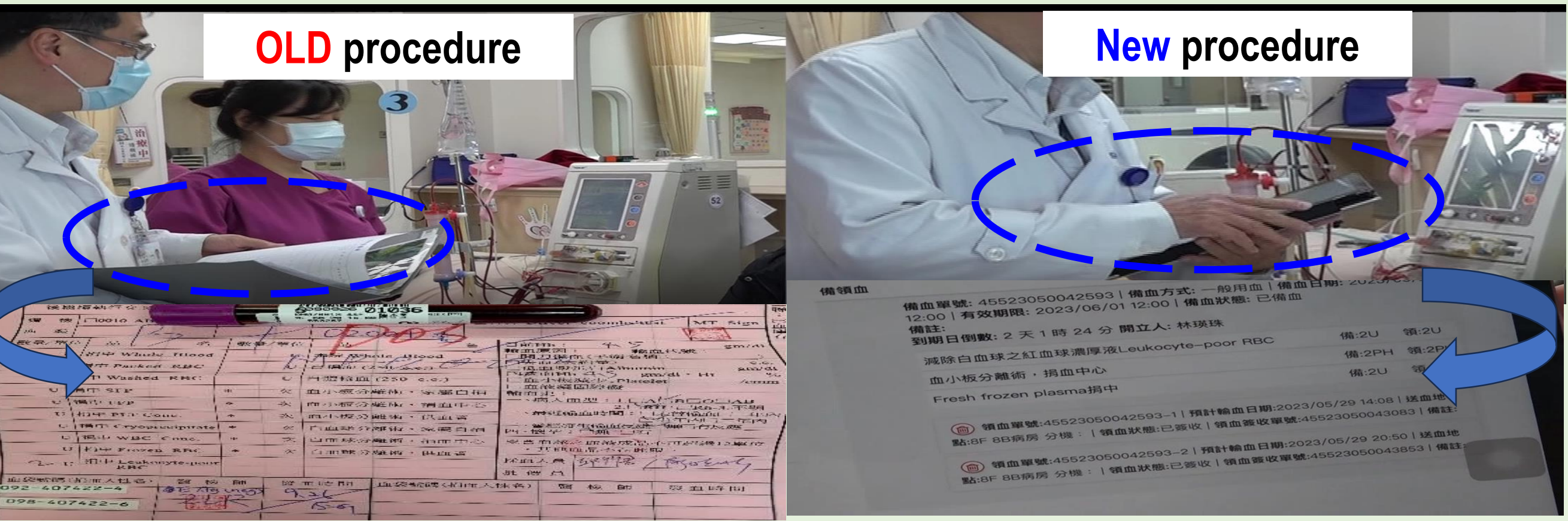


Fig 4 : **Process time (P/T)** ~Nurse printed of sample labels → receives/check blood products the average time is 67 minutes ; Nurse printed of sample labels → transfusion finished the average time is 157 minutes
(**Delay time, D/T**) = **Lead time, L/T** – **Process time P/T**
D/T : From nurse printed of sample labels → receives/check blood products is about 35~66mins
D/T : From nurse printed of sample labels → transfusion is about 38~66mins



Continuous improvements in Sheng Shian branch

1. Paperless issuance of doctor's order for blood transfusion
2. Using barcode system and smart phone APP to assist patient identification and blood transfusion processes



Conclusions

This activity not only shorten the time for patients to wait for blood transfusion, but also directly reduce blood delivery time, which ensuring the quality of blood products as well as better patients medical care. At the same time, through process improvement, the workflow of porters, staffs of blood bank and nurses are all simplified, which improves work efficiency and personnel satisfaction.



Fig1 : The distance between the branch (Sheng Shian) and the main building (Shin Kong Wu Ho-Su Memorial Hospital)



Fig2 : The QCC interdisciplinary team members: Medical technologist, Nurse, Doctor, Information engineer, Hospital porter and Clerk

Table1: 5W2H-perform data collection and analysis(Before improvement)	
What	The hospital transfusion Processes(Fig5)
When	2020/1/1~2020/4/30
Where	Sheng Shian the third hemodialysis unit ~ Blood bank
Why	REDUCE THE WAITING TIME FOR BLOOD TRANSFUSION
Who	QCC team members
How	Information system ~ Statistical report ~ Field observation
How many	Number of blood transfusions:31 From the printing of sample labels to the completion of pre-transfusion testing in average is 251mins The average time from call porter to arrive blood bank is 21 minutes The average time from porter delivery blood products to arrive hemodialysis unit is 38 mins The average pre-transfusion testing time is 51 mins

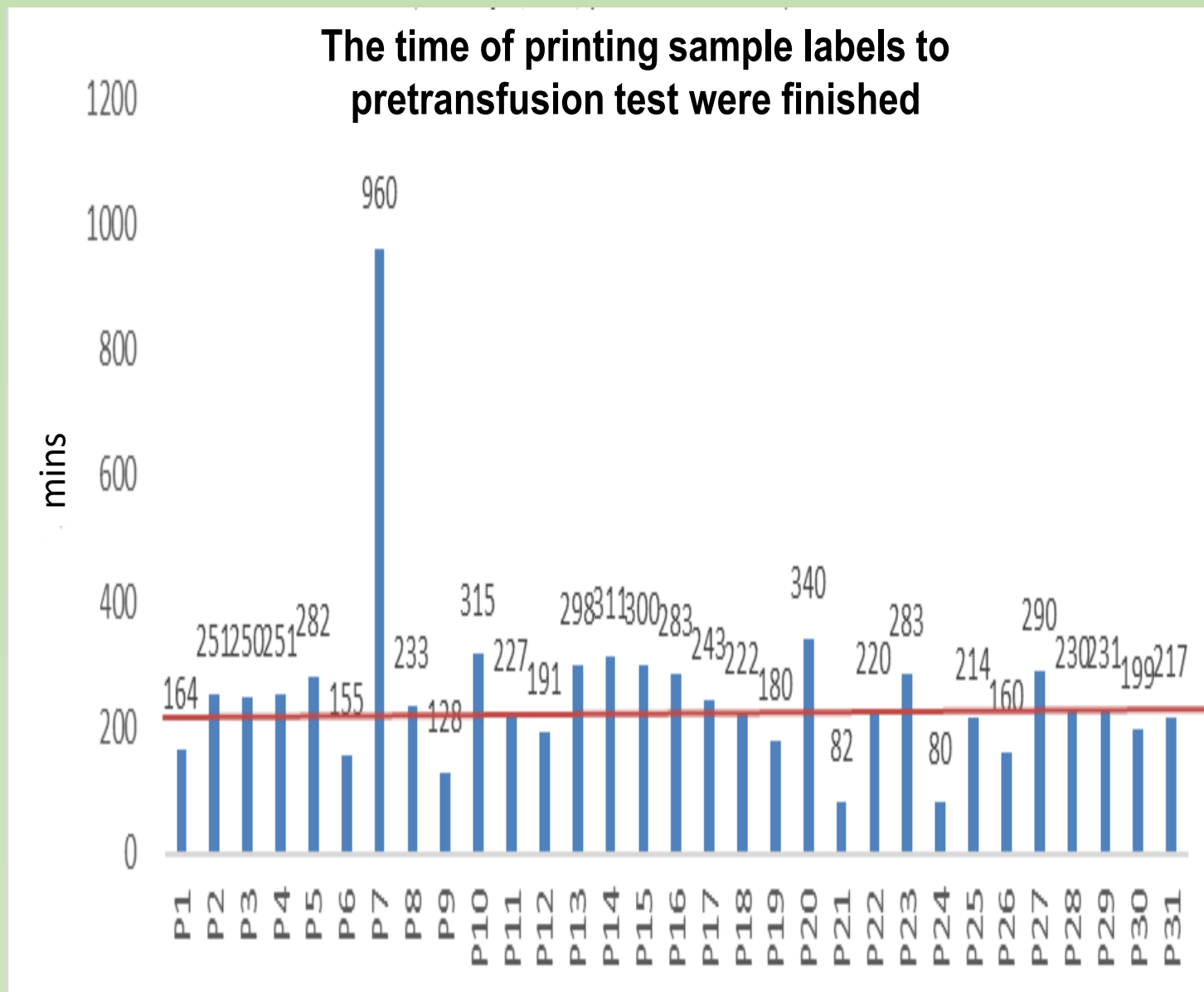


Fig 3 : The time of printing sample labels to pretransfusion test were finished

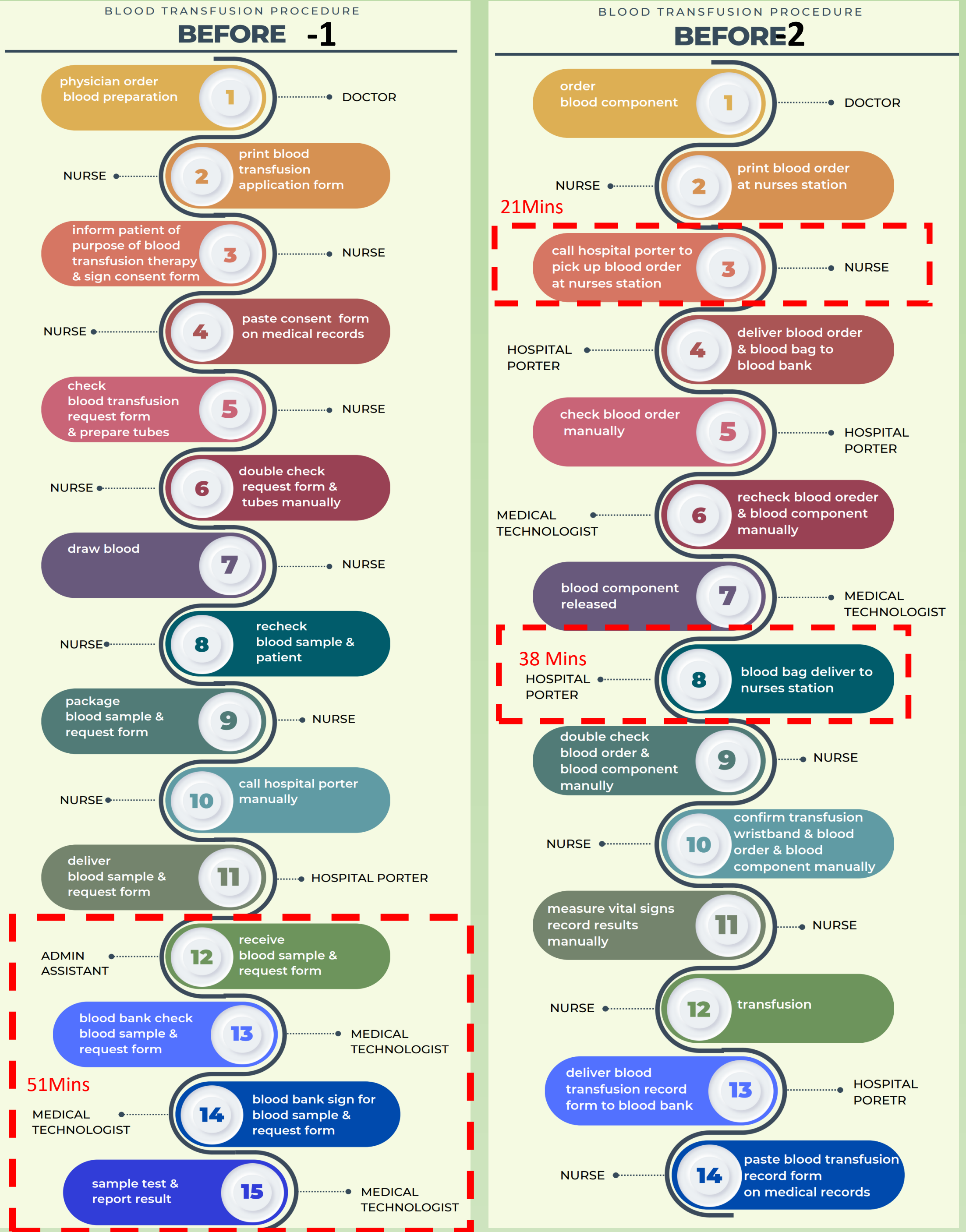
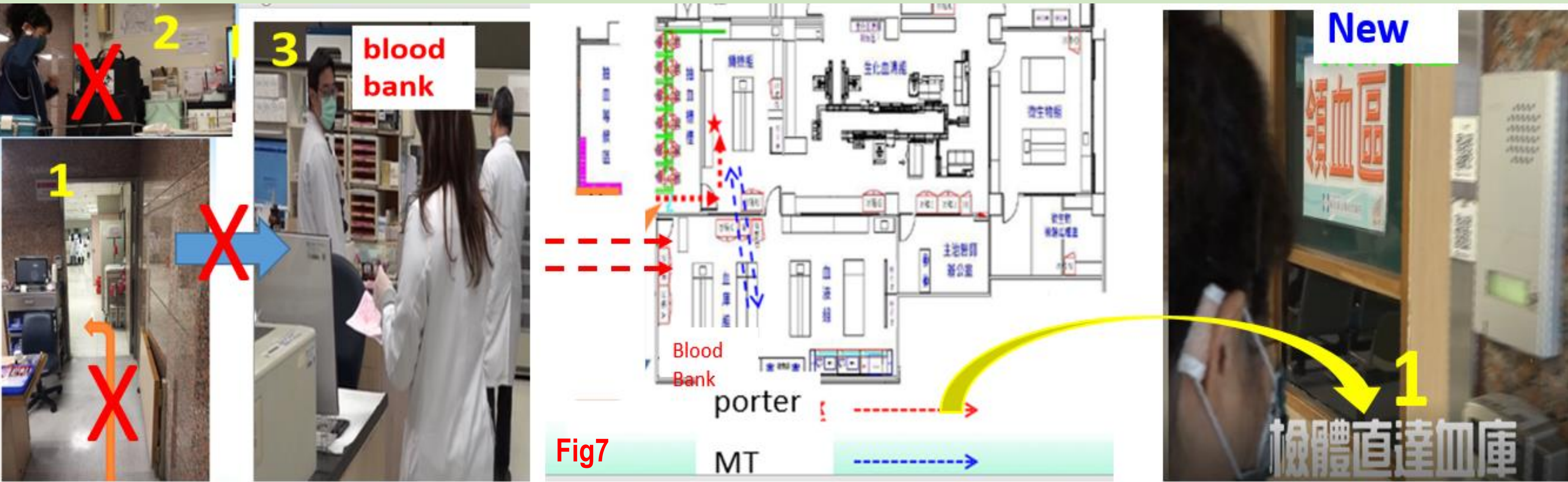


Fig5 : The transfusion process before improved

Strategies & Implementations

1. Visual management (Fig6)
2. Use ECRS to eliminate the unnecessary receiving process (fig7)
3. When there is no shuttle bus, take a taxi or ambulance to send the blood samples and blood products (Fig8)
4. Information system notification porter automatically when the report was finished. (Fig9)
5. Paperless procedures from doctor order to patients receiving blood products



Results

