

Streamlining Workflow for Outpatient Creatinine Test Prior to Radiological Procedures

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INTRODUCTION

During radiological procedures, the use of contrast media may be required to improve the visibility of blood vessels and contrast of structures within the body. As contrast media used could cause kidney damage in people with poor kidney function, creatinine blood test prior radiological procedure is necessary especially for those with history of kidney problems.

PROBLEM IDENTIFIED:

Outpatients who has invalid or no creatinine results were referred back to their respective requesting doctors to get their creatinine tests done. Scans were delayed and long waiting hours for patients arise.

OBJECTIVES

1. Streamline the workflow for outpatients creatinine test to provide timelier scan procedure, so that proper treatment can be provided.
2. To avoid long waiting hours and increase scan turnover rate in our department.
3. To improve patient centered processes and services, hence, to increase department service quality.

METHODOLOGY

The team adopted the PDCA (Plan-Do-Check-Act) cycle for this project. Identification of root causes was done with the aid of the Ishikawa diagram (figure 2). Value Stream Mapping (VSM) was used to identify the inefficiencies that hold up the processes, so that new workflow can be designed and implemented. Rapid experiment was performed to ensure feasibility of the work flow before rolling out. The project improvement roadmap is illustrated in figure 1.

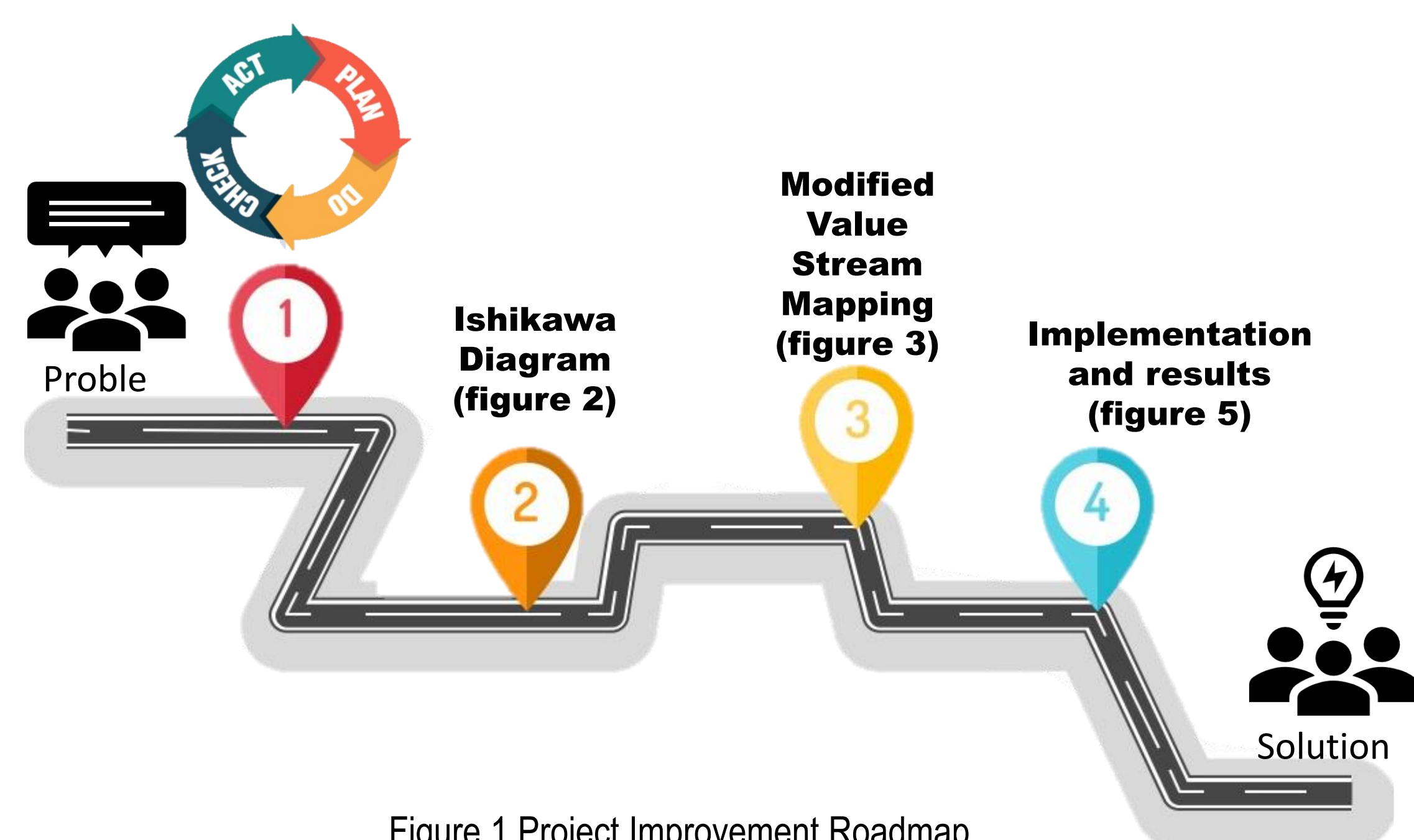


Figure 1 Project Improvement Roadmap

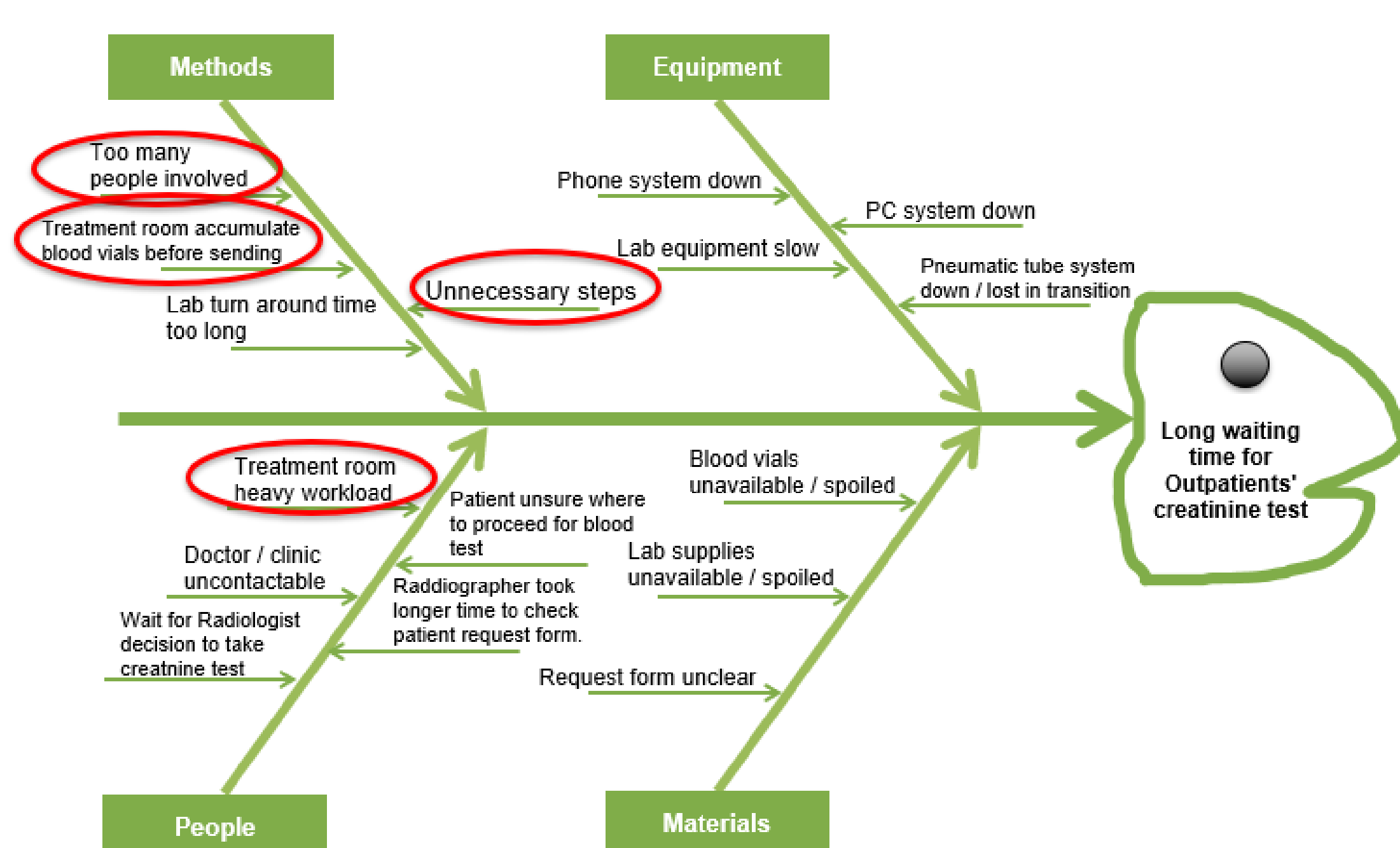


Figure 2 Ishikawa diagram to identify and analyze the root causes.

The VSM principles were used to analyze the current workflow situation and identify “wastes” in the processes (figure 3),

- ❑ The total process / value added (P/T / VA) time is **64 mins**.
- ❑ The total waiting / non-value added (W/T / NVA) time of this current workflow is **139 mins**.
- ❑ Bottlenecks of this current workflow were identified and encircled in **RED**.

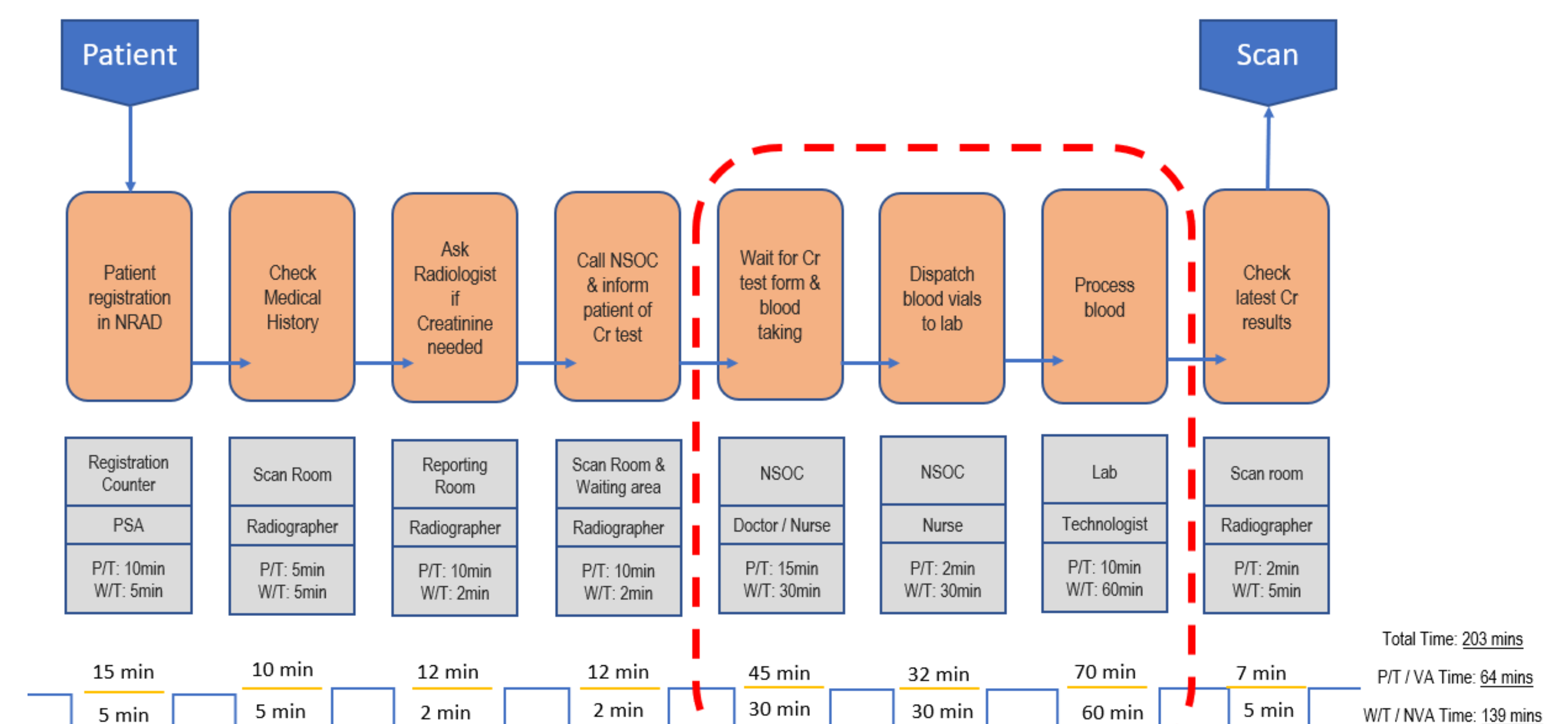


Figure 3. VSM before implementation



Figure 4. Approximate number of footsteps patient has taken

Average of 250 footsteps (figure 4) are required for the patient to walk from Neuroradiology to NSOC and back. Hence, approximately 2 hours of walk , wait time in NSOC and laboratory process before creatinine result is out.

IMPLEMENTATION

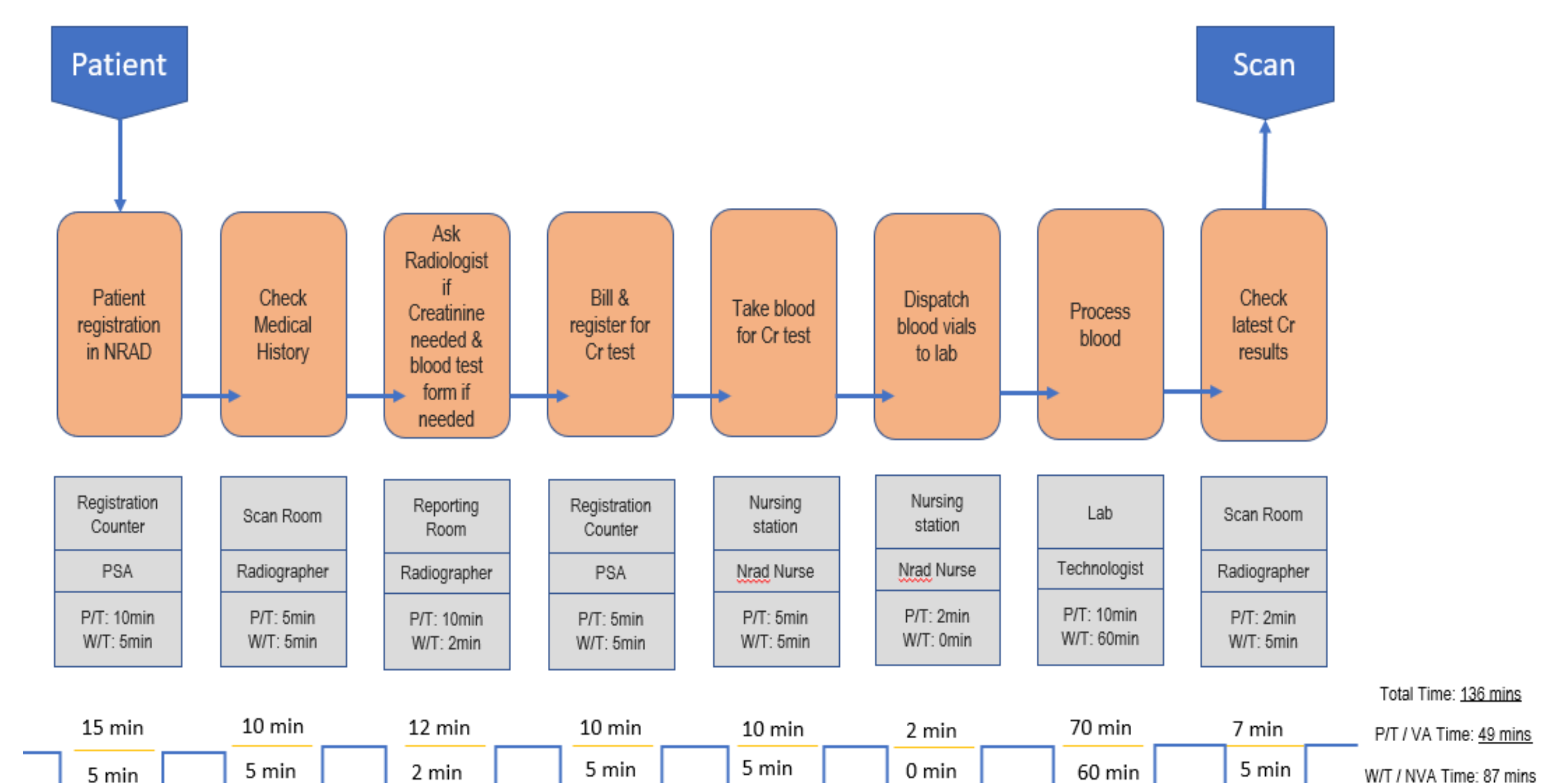


Figure 5. VSM after implementation

In the new enhanced workflow, blood taking will be done by our neuroradiology nurses and dispatch blood vial immediately to the laboratory.

- ❑ The total process / value added (P/T / VA) time is **49 mins**.
- ❑ The total waiting / non-value added (W/T / NVA) time of this current workflow is **87 mins**.

RESULTS

As blood taking and despatching processes are done by the Neuroradiology nurses, the estimated time for patient to return to department for procedure has also increased in accuracy.

Patient's satisfaction has increased as they are not required to walk and wait at the NSOCs. The total lead time for the creatinine result is also greatly **reduced by 33%**.

CONCLUSIONS

- ❑ We have achieved our study goal of reducing the outpatient's waiting time and increase scans turn over rate in Neuroradiology department.
- ❑ The next thing on our agenda will be looking into the long waiting time for laboratory process.