



Enhanced Workflow for Request of Radiological CD ROM Images for Inpatient Wards



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Project Background

Inpatient wards often receive requests from patients for Compact Disk Read-Only Memory (CD-ROM) images for scans such as Computerized Tomography (CT), Magnetic Resonance Imaging (MRI), Two-Dimensional Echocardiography (2D-echo), angiograms etc. from Radiology, Clinical Measurement Unit (CMU), and Cardiac Catheterization Laboratory (CCL). Upon request, nurses assist patients to fill up consent form, nurses will then fax the hard copy form to the respective department. Upon completion of CD-ROM duplication, nurses will accompany patients to the respective department to make payment. The challenge lies in differing departmental workflows, various payment methods, and different hard copy consent forms in the request process (see Figure 1). This process deemed complicated and time consuming for the nurses.

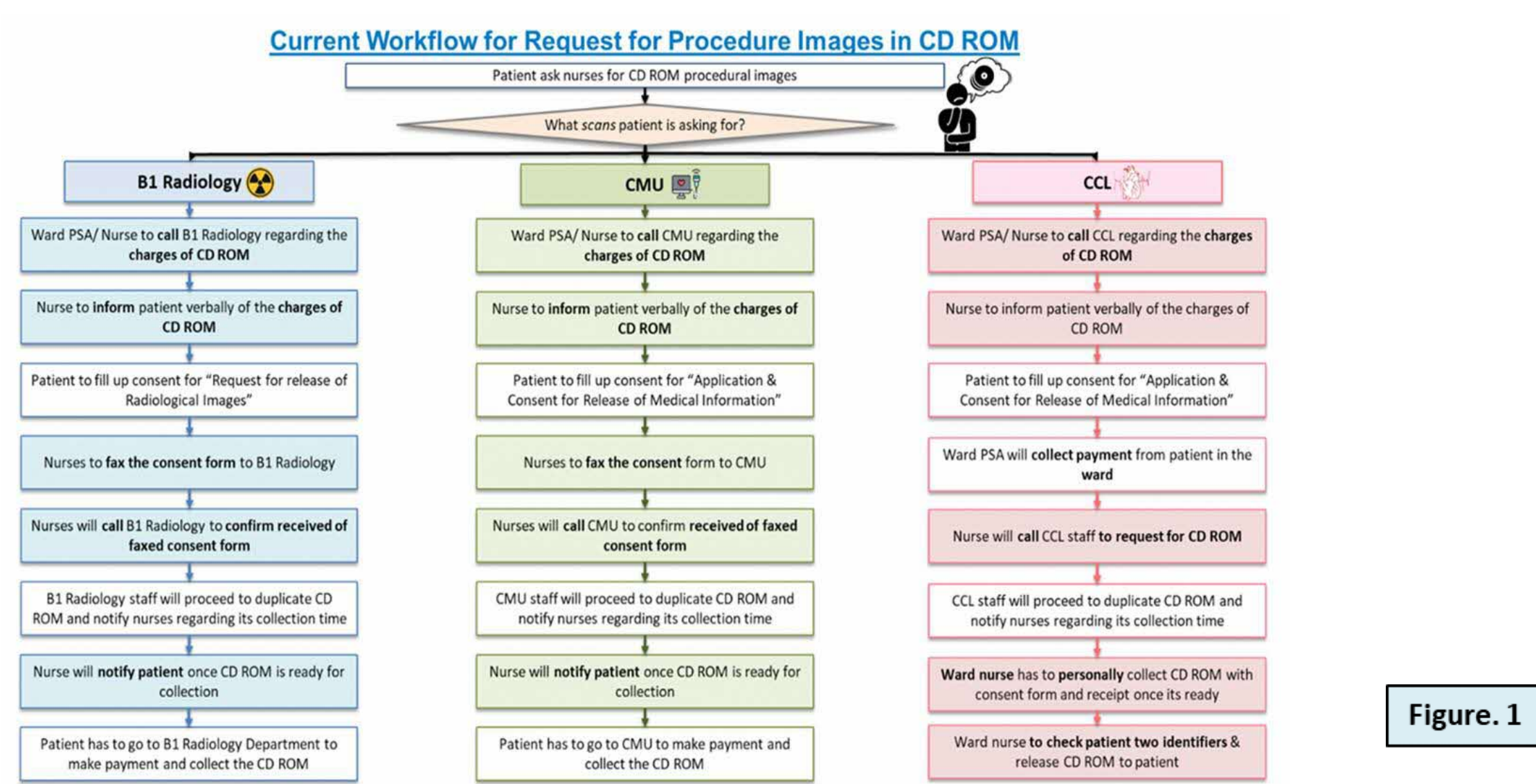


Figure 1

Aim

To reduce time required for nurses to facilitate patient's request for CD-ROM scan results from Radiology, CMU and CCL departments by 80 percent.

Changes (Methods)

A project team from the Inpatient Ward, Radiology, CMU, and CCL departments was formed to use the PDSA (Plan-Do-Study-Act) cycle to streamline CD-ROM requests and ensure desired outcomes. Challenges identified by the team were:

- Multiple steps involved for nurses to act as intermediaries in facilitating the process.
- Different departments use different administrative processes

Before implementing the project, the team used the Driver diagram tool (see Figure 2.) to assist us in planning and structuring our improvement project. Based on the Driver diagram, our aim is to reduce time required for nurses to facilitate patient's CD ROM requests. We have identified that there are 2 main contributing factors that cause the request to be a lengthy process. One is the lengthy administrative process, while the other is the requirement for nurses to personally collect the CD-ROM from the department.

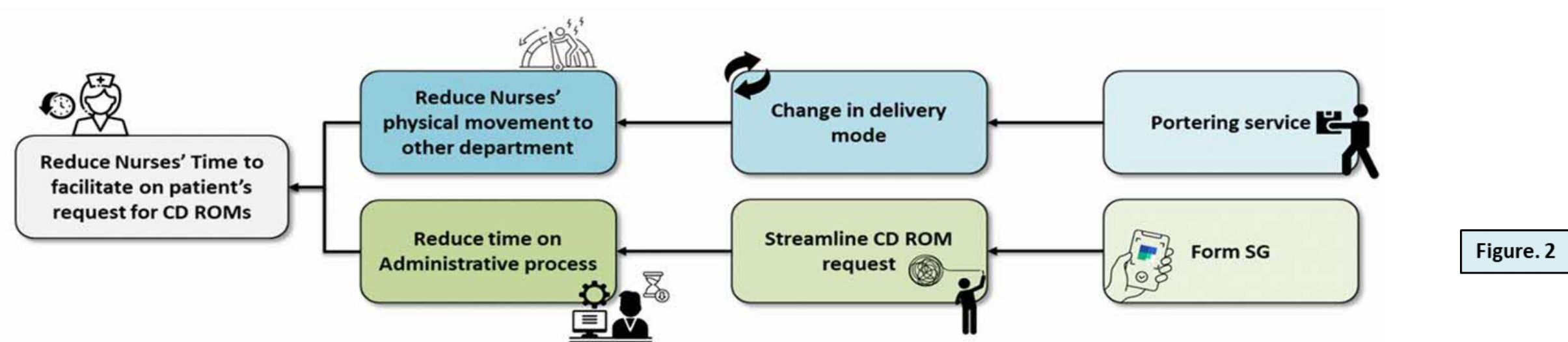


Figure 2

The proposed initiative utilizes FormSG, enabling patients to submit their CD-ROM requests via QR codes (refer to Figure 3). The streamlined workflow, as depicted in Figure 4, eliminates the need for nurses to act as intermediaries. Upon the completion of FormSG by the patient, respective departments (CMU, CCL, and Radiology) will receive an email, prompting them to duplicate the CD-ROMs. Subsequently, portering service will be activated for the collection of CD-ROMs once ready. It assists to reduce nurses' time to facilitate the whole process. The project was completed on 20 Dec 2023 and rolled out to all departments in Jan 2024 in CGH.

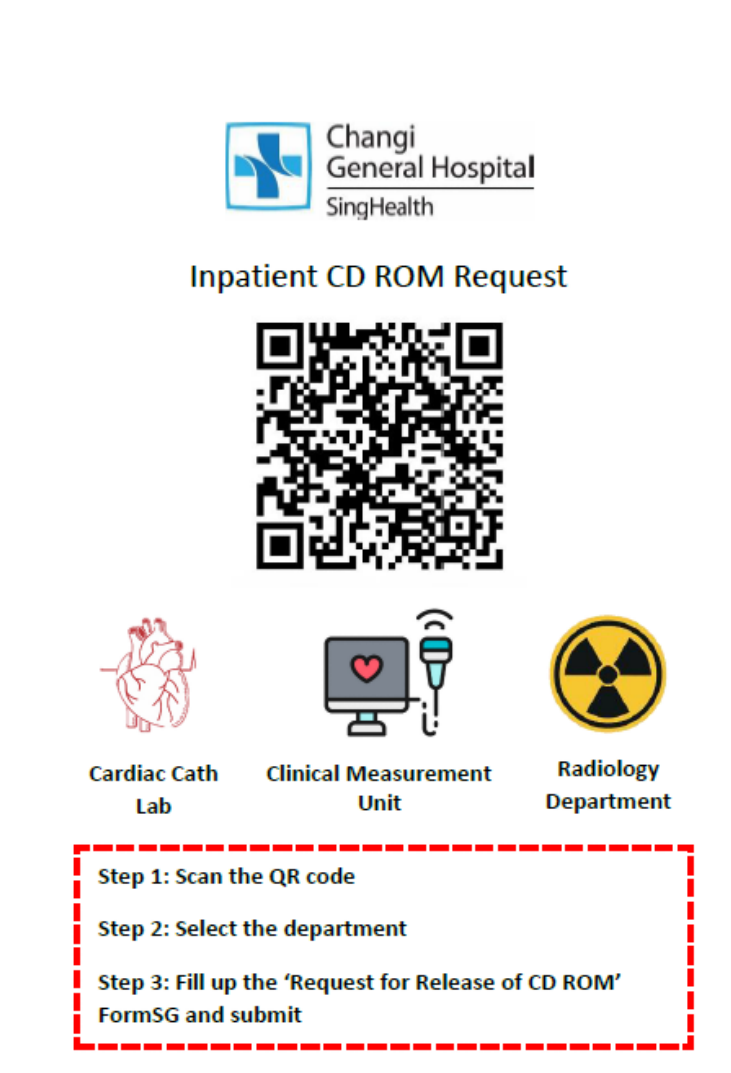


Figure 3

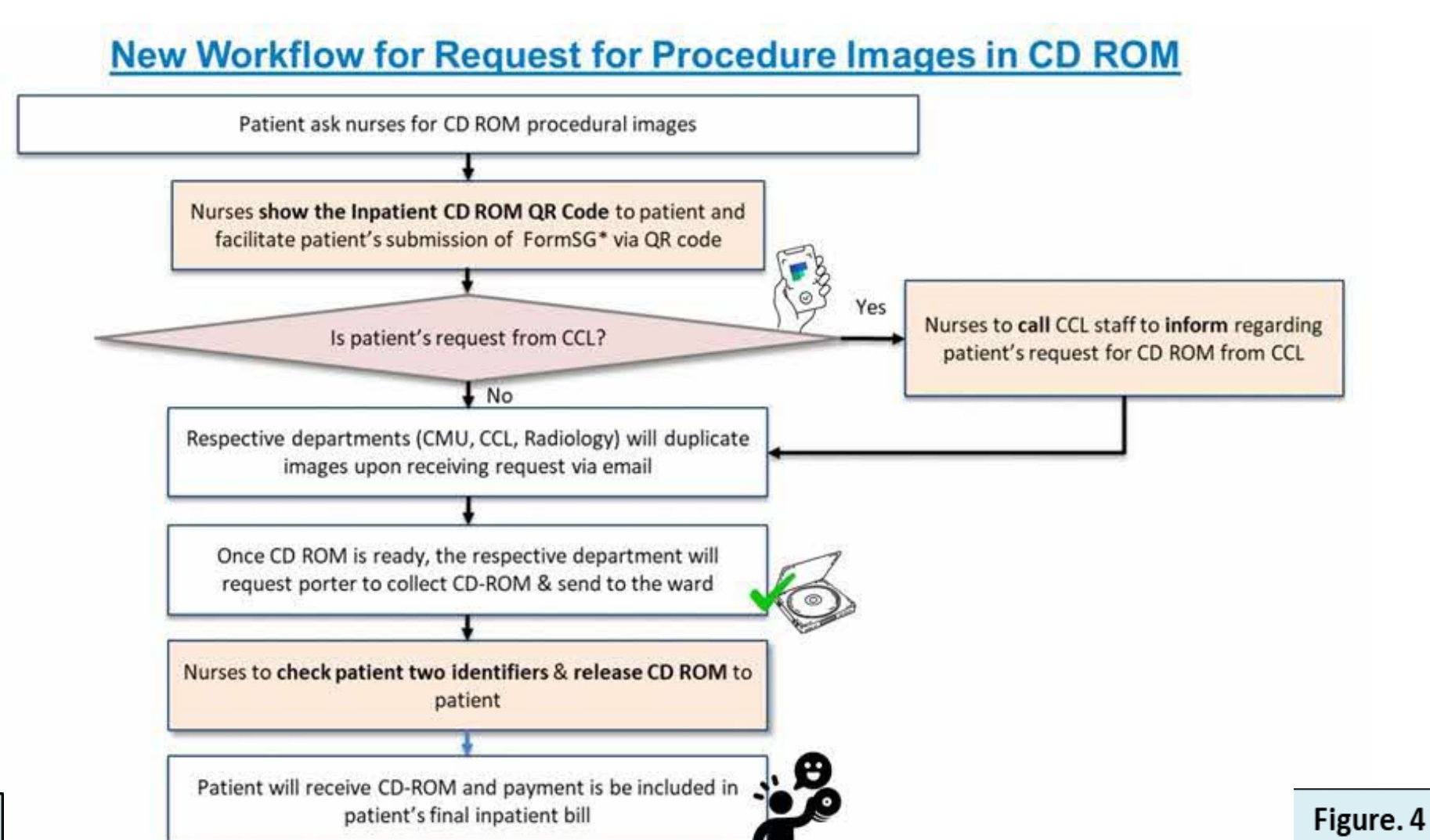


Figure 4

Measures

Data Collection

To evaluate the effectiveness of FormSG implementation, our team conducted a motion study involving the requests to measure the time nurses spent assisting patients in obtaining their procedural images on CD-ROMs from the three departments in the hospital from Jan 2023 to Dec 2024, both before and after the implementation of FormSG, respectively.

Results

	Before Intervention	After Intervention	Improvement in Time Reduction
Total number of patients (N)	189	201	
Average time required to facilitate one request	48.75	5.75	88.20%

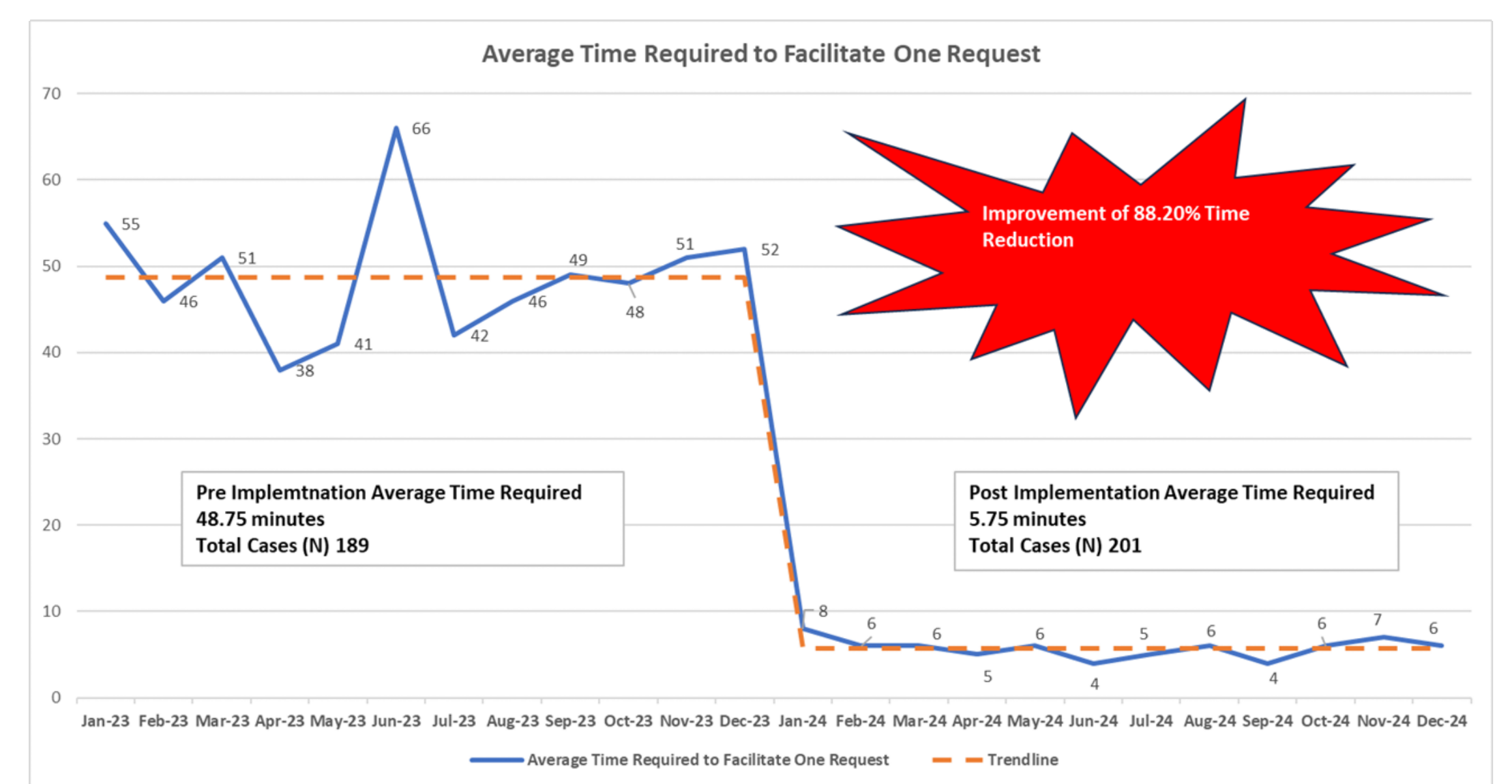


Figure 5

Figure 5 displayed an average of 48.75 minutes spent by nurses assisting patients in receiving their procedural images on CD-ROMs using the current process, compared to 5.75 minutes with the new process. This indicates an 88.20% reduction in the time spent by nurses. Thus, It illustrates how the implementation of FormSG significantly reduce nurses' time to facilitate the process.

Outcome

The enhanced workflow incorporates CD-ROM charges into the final inpatient bill, making the payment process seamless. The implementation of FormSG not only eliminated the need for nurses to act as intermediaries but also served as a one-stop service for patients to obtain their procedural images, enhancing their overall patient experience and empowering them. Lastly, the implementation of the FormSG initiative ensures compliance with PDPA regulations, thereby eliminating any incidents related to breaches of patient data privacy. Overall, this initiative saves both nurses' and patients' time, enhances the overall patient experience, and improves satisfaction and engagement (Figure 6).

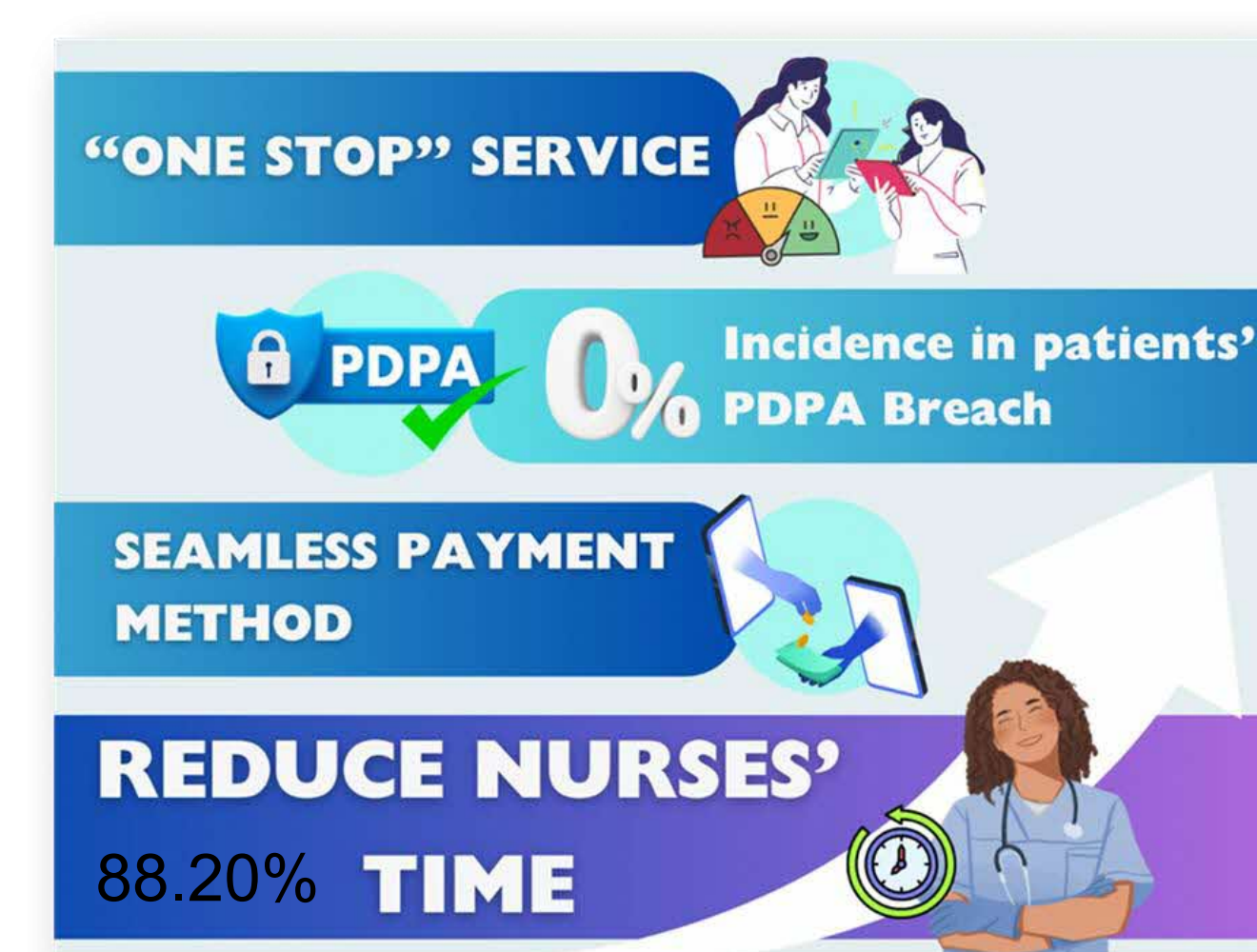


Figure 6

Conclusion

Our project has achieved notable successes in several key areas. Firstly, we have significantly reduced the time required for nurses to assist patients in receiving their CD-ROMs, meeting our target by achieving an impressive 88.20% reduction. Moreover, by removing the need for nurses to fax hardcopy consent forms, we have ensured a 100% compliance with data protection regulations, safeguarding patient confidentiality and trust. This innovative approach has transformed the process of requesting procedural images on CD-ROMs into a seamless 'one-stop' service for patients.

Future Plans:

To further decrease onsite counter payments and the corresponding increase in offsite payments for other inpatient procedures. To strive towards transitioning other requests via a paperless FormSG, achieved through continuous review of work processes and system enhancements..