



# Optimization of Post-operative X-ray Acquisition for Orthopaedic Patients

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## Introduction

Post-operatively, patients undergoing orthopaedic surgery are assessed in the Post Anaesthesia Care Unit (PACU) before transfer to the ward. After they have been reviewed by the doctors in the ward, they will be transported for x-rays. Due to manpower limitations, x-rays can only be performed before 5pm. A delay in this process leads to delays in post-operative assessment and initiation of rehabilitation for patients.

## Challenges faced by Stakeholders

### Doctors:

- Delay in reviewing x-rays
- Delay in rehabilitation instructions
- Patients being hospitalized for longer duration

### Operating theatre:

- Lack of porters to transport patient (with General Services)
- Long turn-around time between patients
- Delays in transporting other patients for surgery

### Ward Nurses:

- Long periods away from ward as they have to accompany patients during their journey
- Lack of ward manpower to support x-ray acquisition

### Radiology:

- Limited Radiographers after 5pm
- Prioritization of A&E cases over stable ward patients

## Aims

To create a workflow for patients to have post-operative x-rays acquired when discharged from PACU enroute to the ward.

The long-term goal is for all patients following orthopaedic surgery to obtain x-rays prior to returning to the ward 24/7.

## Methods

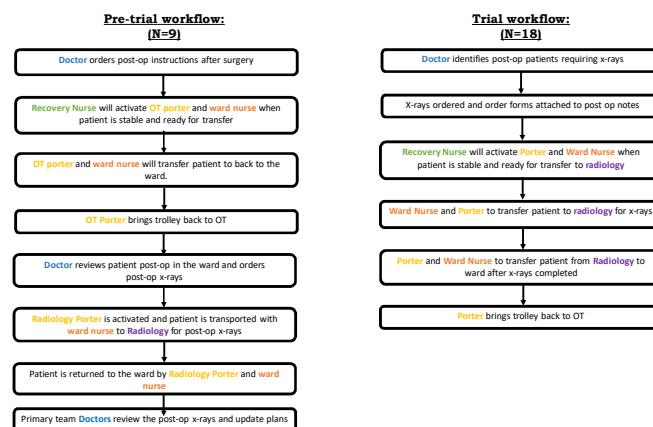
Pre-trial and trial workflow outcomes were collected with data forms over a 1-month period.

### Objective outcomes:

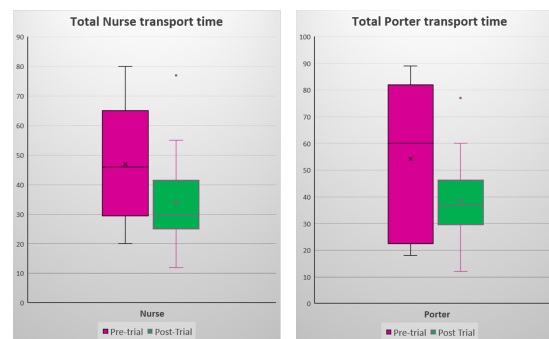
- Total nurse transport time to and from OT and Radiology
- Total porter transport time to and from OT and Radiology
- Delays in obtaining post-op x-rays

### Subjective results:

- Subjective feedback from all stakeholders



## Results



Mean reduction in man hours:  
Nurses: 12 mins  
Porters: 16 mins  
All values statistically significant with p<0.05

Longest delay in post-op x-ray:

**20h 40 min**

### Subjective reports:

**Doctors:** Same day post-op evaluation and explanation of surgical outcomes to patients with rehabilitation and weight bearing plans

**Ward nurses:** Significantly less transport time. Less disruption in ward jobs when having to re-transfer patient's for post-op x-rays

**Operating theatre:** Able to support multiple trips with extra allocated porter. Able to effectively coordinate services. No delay in other patient transport.

**Radiology:** Decrease in x-ray acquisition time as patient's under the effects of post-op analgesia. Increased ease of acquiring x-rays.

**General Services:** Able to support manpower requirements with extra porter

## Conclusion

The new workflow has reduced total man hours for both Nurses and Porters with increased ease of x-ray acquisition for Radiographers while patients are pain free under effects of post-op analgesia.

Doctors have also been able to review and explain surgical outcomes on the same post-op day allowing for earlier rehabilitation and mobilization.