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

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

Pre-trial workflow: 0-9
- Doctor orders post-op instructions after surgery
- Recovery nurse will discharge a patient and order x-rays when patient is stable and ready for transfer
- OT porter and ward nurse will transfer patient back to the ward
- OT porter brings trolley back to OT

Trial workflow: 0-18
- Doctor identifies post-op patient requiring x-ray
- Radiology porter will activate porter and ward nurse to transport patient to radiology
- Radiology porter transfers patient to radiology
- Radiology porter and ward nurse activate porter and transfer patient to radiology
- Patient is returned to the ward by Radiology Porter and ward nurse
- OT porter brings trolley back to OT

Longest delay in post-op x-ray: 20h 40 min

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.