Improving the Timely Administration of Levodopa to Patients with Parkinson's Disease

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INTRODUCTION/BACKGROUND

Parkinson's disease (PD) is a chronic progressive neurodegenerative movement disorder. Levodopa is the mainstay of treatment for PD. However, as patients with PD experience the disease in very different ways, medications must be individualised. The timing of the administration of medication is critical. If a medication regimen is disrupted, it can take hours, days or even weeks for a patient to stabilise and regain the level of health they had prior to their admission to hospital.

PROBLEM

Individuals with PD often have their own medication regimens that do not easily fit into the timing of standard medication rounds at hospitals. Additionally, medication is administered within a 2.5-hour windows (i.e., 1 hour before and up to 1.5 hours after the scheduled administration time). Thus, patients with PD may not receive their medication as appropriate when hospitalised. The Michigan Parkinson Foundation recommends that PD medications be administered within a 30-minute window to ensure optimal effectiveness.

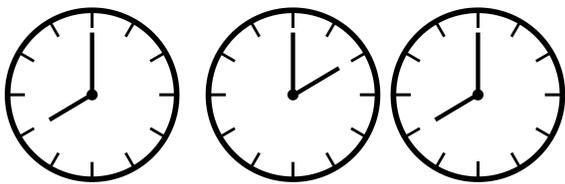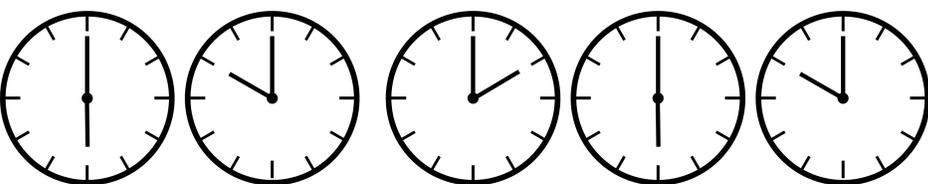**FIGURE 1:** Standard Medication Times at Hospitals

FIGURE 2: Example Medication Times for a PD Patient

PURPOSE

This project sought to improve the timely 30-minute window administration (i.e., ± 15 minutes) of Levodopa to patients with PD by 50% within 14 months.

METHOD

FIGURE 3: Tree Diagram of Solutions Implemented to Improve the Timely Administration of Levodopa


METHODS (CONTINUED)

The proposal was implemented in the two inpatient wards that admit the majority of patients with PD: Ward 74 (the Neuroscience/Internal Medicine Ward) and Ward 63 (the Internal Medicine/ Geriatrics Ward).

MEASURES

Two key measures were used to evaluate the effectiveness of the solutions: (i) the average difference between the actual administration time and the scheduled administration time; and (ii) the percentage of Levodopa administered (± 15 minutes) from the scheduled time. Data was collected and extracted from the hospital's electronic medical records for six months prior to, four months during and three months following the implementation of the project.

RESULTS

FIGURE 4: Implementation Results for Ward 74 and Ward 63
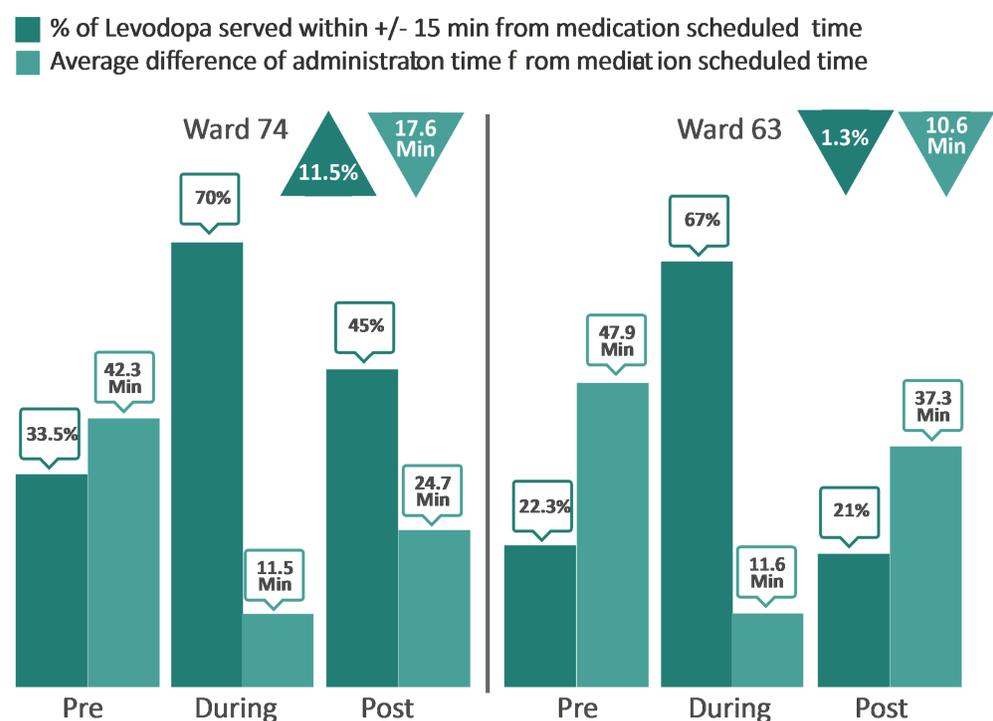
The percentage of Levodopa served within ±15 minutes and the average time difference between the actual administration of the medication and the scheduled timing improved significantly during the project implementation period.

A post implementation review showed that while there was an overall improvement from the baseline of delay in medication administration for Ward 74 (of 17.6 minutes) and Ward 63 (of 10.6 minutes), the total gain for the percentage of Levodopa administered on-time was not sustained.

Learnings
- On-going staff education is required due to the constant influx of newly employed staff. Staff education on PD was incorporated into the orientation/induction programme.
- On-going random audits are required to monitor the sustainability and identify opportunities for improvement.

CONCLUSION

The study showed that improving staff understanding of PD and implementing reminders reduced the time gap between the actual administration and the time scheduled to administer Levodopa. Timely administration of Levodopa can be achieved through staff education (e.g., in-service training and educational posters), using reminder bookmarks and random audits. Administering Levodopa within a 30-minute window is feasible and should become the standard of care for all PD patients in the hospital.