

Hospital improves on-time administration of medication to Parkinson patients

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Timely administration of anti-Parkinson drugs is a significant issue for hospitalized patients with Parkinson's disease (PD) with late or missed doses resulting in longer stays and worse outcomes. As part of a quality

improvement project, a multidisciplinary team was able to change the culture at a US hospital by using a series of measures to ensure PD patients receive medications on time. Their findings are published in the *Journal of Parkinson's Disease*.

The proper administration of anti-Parkinson medications is a critical challenge for the hospitalized PD patient. Medication regimens for PD can be complex due to the use of multiple types of medications, the need for frequent dosing, or both. As the disease progresses, PD patients may require carbidopa-levodopa dosing as often as every one to two hours, with dramatic consequences on mobility and function when the [medication](#) benefits have worn off (OFF phase). Debilitating symptoms in an OFF phase can include freezing of gait, complete immobility, dysphagia, tremor, dystonia, shortness of breath, and anxiety.

"Previous studies have shown that neither patients with PD nor PD specialists are confident that PD medications are administered on time in the [hospital setting](#), and up to 30% of carbidopa-levodopa doses are not given within an hour of the scheduled time," explained lead investigator Martha A. Nance, MD, Park Nicollet Struthers Parkinson's Center, Golden Valley, MN, U.S., where the project took place. "Through a collaborative effort at our hospital that included contributions from PD specialists, hospitalist physicians, pharmacists, nurses, nursing administration, and information technology—and most importantly, patients and families—we were able to introduce strategies to substantially improve the timely administration of doses."

The primary goal of the quality improvement project was to improve the administration of carbidopa-levodopa to within 15 minutes of scheduled administration times at the Struthers Parkinson's Center, a Parkinson's Foundation-designated Center of Excellence treating about 2,000 individuals with Parkinson's disease and related conditions, and the 361-bed Park Nicollet Methodist Hospital. After two years of baseline

data collection and planning, interventions were carried out.

Several interventions were used: three kinds of nursing alerts in the electronic medical record; staff in-service education; stocking of immediate-release carbidopa-levodopa products into automated medication dispensing machines on key hospital units; reports to nurse unit managers on timeliness of carbidopa-levodopa administration; and reconciliation of all initial inpatient and outpatient carbidopa-levodopa orders by the hospital pharmacist upon admission.

After the intervention, investigators report there has been a sustained improvement in the timing of administered carbidopa-levodopa doses, from a baseline of 42.3% given within 15 minutes of the scheduled time in 2012 to over 70% in 2018, and from less than 90% of doses given within an hour of the scheduled time in 2012 to 96.5% in 2018. The hospital administered nearly 6,000 carbidopa-levodopa doses in 2018.

"We believe that the measures we instituted can be implemented in other hospitals, and that they will improve the safety, wellbeing, and outcomes of hospitalized PD patients," commented Dr. Nance. "The measures are not overly burdensome to [hospital](#) staff responsible for delivering over 4,000 administrations each year, so should be feasible at other hospitals with a similar number of PD patients and levodopa administrations.

"This project was very rewarding for our team, because of its obvious, immediate, and important impact on patient care," continued Dr. Nance.

"We have reason to think that timely [administration](#) of carbidopa-levodopa may be associated with shorter stays and better outcomes and satisfaction. Anecdotally, patients have reported being surprised and pleased that nurses were reminding them that medication doses were due soon, rather than the other way around!"

PD is a slowly progressive disorder that affects movement, muscle

control, and balance. It is the second most common age-related neurodegenerative disorder affecting about 3% of the population by the age of 65 and up to 5% of individuals over 85 years of age.

More information: Martha A. Nance et al, Quality Improvement in Parkinson's Disease: A Successful Program to Enhance Timely Administration of Levodopa in the Hospital, *Journal of Parkinson's Disease* (2020). [DOI: 10.3233/JPD-202024](https://doi.org/10.3233/JPD-202024)

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