The Impact of a Checklist on Quality Patient Care and the Reduction of Clinic Visit Times in Pediatric Patients with Neurofibromatosis Type I

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Purpose

The purpose is to standardized practices in the neurofibromatosis clinic by establishing clinical guidelines among the healthcare providers, increasing the productivity of the new patients' appointment times through use of an evidence-based checklist (CL). It is crucial to optimize the patients' experience by evaluating the complete organ systems of those affected with NF1 and potentially decreasing clinic wait times. A new patient checklist can be beneficial to achieve these goals.

Background

Neurofibromatosis 1 (NF1) is a chronic medical condition with clinical variability in presentation and medical management. The physical examination is vital in making the clinical diagnosis, further diagnostic studies, and referrals needed to investigate the extent of the disease burden (Jett & Friedman, 2010). Due to the disease process's complexities, the clinic appointment times may require 60-90 minutes for annual physical examinations. New patient appointments frequently take longer than the allotted 60 minutes.

Aim Statement

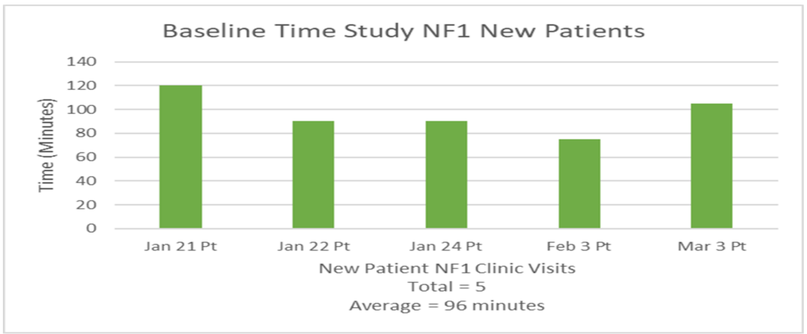
This project aims to design a disease-specific CL for pediatric patients that are being evaluated for a new diagnosis of NF1. The plan is to use this CL for 95% of all new patient appointment visits within six months of implementation to standardize the clinical process providing evidence-based care. This CL is evidence-based with typical clinical symptoms of patients with NF1 with limited options available in the literature. Additionally, this pilot study should decrease appointment visit times by 30 minutes over three months to improve clinic workflow. Improvements in wait times could also sustain positive patient satisfaction scores.

Methods

The Plan-Do-Study-Act (PDSA) method of quality of improvement was used for this project. Author conducted a systematic literature review to explore literature for the benefits of a checklist in NF1. A CL was designed using evidence for the needs of the NF1 patient. A baseline 3-month time study was collected before starting the project, confirming the number of minutes spent for all new pediatric patient appointments for NF1. The new patient CL was implemented at each initial visit. The Advanced Practice Provider (APP) collected time data and completed the new patient CL.

Individualized New Pediatric Patient Checklist for Neurofibromatosis Type 1

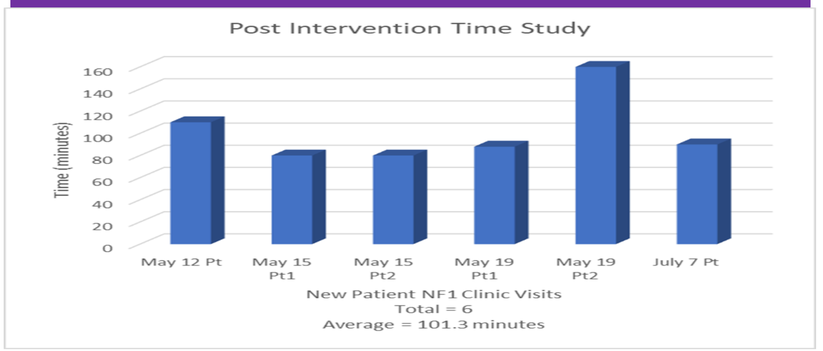
NIH diagnostic criteria:	Common symptoms *Individualized Disease Burden*	Diagnostic studies	Consultations
☐ 1st degree relative with NF1	☐ Adrenal gland tumors	☐ Baseline MRI brain at 18-24 months	☐ OT/PT
	☐ Anxiety	☐ EEG	☐ Speech therapy
☐ >6 café au lait spots	☐ Delayed/early puberty	☐ Metanephrines	☐ Ophthalmology
☐ Axillary/inguinal freckling	☐ Flat feet	☐ PET	☐ Nephrology
☐ Optic pathway glioma	☐ Focal sensory/motor symptoms	☐ Neurocognitive testing	☐ Oncology
☐ Lisch nodules	☐ Headaches	☐ MRI spine	☐ Endocrine
☐ Osseous (bone) lesion/dysplasia	☐ High blood pressure	☐ MRI pelvis	☐ Genetics
☐ >2 neurofibromas of any type or one or more plexiform neurofibroma	☐ Hyperactivity	☐ ECHO/EKG	☐ Plastics
☐ * Positive genetic testing	☐ Itchy skin	☐ CBC	☐ Orthopedics
	☐ Knock knees/bow legs	☐ Abdominal ultrasound	☐ Neurosurgery
	☐ Learning deficits	☐ Leg xrays	☐ Psychology
	☐ Leg length discrepancy	☐ Spinal xrays	☐ Psychiatry
	☐ Macrocephaly		☐ School liaison
	☐ Pectus anomalies		☐ Dermatology
	☐ Plexiform Neurofibroma, pain		☐ Cardiology
	☐ Poor motor skills, clumsiness		
	☐ Scoliosis		
	☐ Seizures	PATIENT LABEL	
	☐ Short stature		
	☐ Social awkwardness		
	☐ Speech disorders		
	☐ Stomach pain/ Constipation		
	☐ Stroke like symptoms		
	☐ Tumors in the brain		
	☐ Vision changes		
	☐ Vitamin D deficit		
NF QI PILOT	TIME IN	TIME OUT	HELPFUL YES/NO



Results

A baseline time study was collected from January through March 2020, revealing five new NF1 patient clinic visits that took an average of 96 minutes to complete the visit. The time began once the patient was in the exam room to start vital signs until the health care provider concluded the visit and the patient was walking out of the exam room. During the project period, a total of six new patients evaluated for NF1. The CL utilization in new NF1 patients increased from baseline of 0% at project implantation to 100% at four months post project implementation. A total of six CLs was completed from May 2020 through August 2020, completed by the APP. A time study was completed for the six CLs completed, with an average of 101.3 minutes for the visits. There was not an improvement in clinic times.

Conclusion



There was a creation and implementation of a disease-specific CL for pediatric patients evaluated for new diagnosis of NF type 1. The CL did not improve clinic times. There were multiple variables related to the COVID-19 pandemic, changes in staffing, and data highlighting clinical variability as a time critical issue when examining new patients with NF1.

Implications for DNP Practice

CLs allowed for providers to document individualized patient information to readily identify each patients'- specific disease burden, diagnostic workup needed for further evaluation, and ongoing needed management. It will also serve as a personalized, educational tool for families and patients with NF1. This evidence-based CL is created with common clinical symptoms of patients with NF1 currently limited in the literature.

References

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National Institute of Health (1987). National institutes of health consensus development conference statement no neurofibromatosis. *Arch Neurology 45*, 589-579