Telephone Based Nursing Management of Movement Disorders Patients-Maximizing Health Utility

Linda Hall RN., BSc.N; Angie South Msc., Mandar Jog MD
NPF Centre of Excellence in Parkinson Disease,
London, Ontario, Canada

Introduction

- Telephone calls are an integral part of continuing care of patients
- This is especially true with chronic illnesses including cancer and neurodegenerative disorders
- Parkinson's disease is a multi-system illness that affects not only the physical but also the cognitive components
- Due to this complexity, clinic visits often separated by six months in between, form only one aspect of how care may be provided to patients with PD
- Care-giving then becomes a collaborative effort between the patient, caregiver and clinic staff
- Many problems are not addressed in clinic visits as they may not appear then or may become important later
- A natural course of action would then be to access the health care system in another way ⟹ Emergency, Family Physician or visit to the Movement Disorders Centre
- In most movement disorders clinics, another important option is provided and that is the option of calling the clinic nurse
- Although common, the impact of this service has never been adequately assessed.

Objectives

- To determine the nature of calls that are received by the clinic nurse
- Explore the many sub-components of the calls that give us a profile of these calls
- Importantly, whether the outcome of the calls results in a resolution of the issue or otherwise
- Understand if the calls are related to the prior clinic visit by examining the duration between the visit and the calls including factors such as demographics, person calling
- Finally estimate if this service saves the health care system actual physician visits and therefore improves health utility.

Method

Calls
- Consecutive calls are all recorded on paper as part of due diligence
- Two hundred of these calls from 75 patients were randomly entered into an excel spreadsheet within the past one year (July 2009-June 2010).
- At no time were any personal identifiers recorded

Inclusion criteria:
- All aspects of the call and the profile as determined by the investigators needed to be available

Exclusion criteria:
- There were no exclusion criteria

Data Collection Procedure
- An Excel spreadsheet was generated with the following columns
  - Demographics
    - Cognition
    - Primary diagnosis
    - Duration of disease (yrs)
    - Age/Sex
  - Call Parameters
    - Person calling
    - Duration of call (minutes)
    - Number of issues
    - Nature of problem for this call
    - Nature of problem determined after conversation
    - Time relationship to clinic visit (days)
    - Was this a related to previous call
    - Time to previous call (days)
    - Number of repeat calls
  - Outcome of call
    - Visit to FMD
    - Visit to ER
    - Visit to clinic
    - Resolution of problem
    - Who resolved
    - Duration bet call and resolution (days)

- Charts were randomly chosen and the details of the calls as per the criteria above were then entered into the spreadsheet
- Since there were no identifiers of any sort, there was no possibility of linkage back to any of the calls.
- Categories such as symptoms, driving distance etc were assigned numbers as per the appearance of the problems in the calls
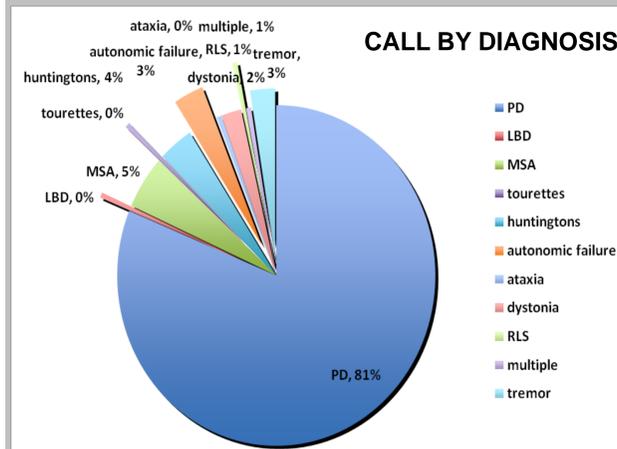
Statistical Analysis
- Statistical analysis was performed
  - Predominantly descriptive statistics were used
  - Correlation analysis using parametric statistics were used where appropriate
  - Primarily variables of interest were duration of call, person calling, cognitive status, distance, reason for call, both pre and post nurse intervention and resolution of call
  - In order to assess average days to resolution, t-test comparisons were conducted
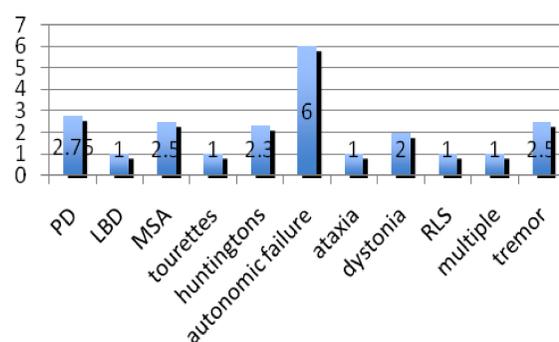 - Alpha was set at 0.05 for all calculations

Results

Subjects and Demographics
Number of calls N= 197
Number of issues N = 230
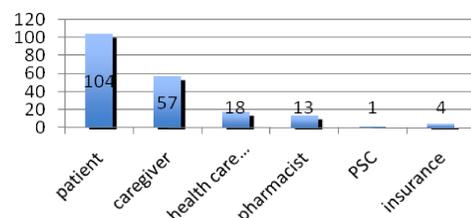**Number of cases** N= 75

Duration of Disease M = 9.45 yrs SD = 6.24 Range = 1-28 yrs
Age M = 66.99 yrs SD = 10.33 Range = 45-86 years
Gender making calls Men 121 Women 76
Average time of call M= 15.65 minutes SD = 7.63
Range = 3-60 minutes
Average # of issues M = 1.15 SD = .39

CALL BY DIAGNOSIS — PD 81%, MSA 5%, huntingtons 4%, autonomic failure 3%, dystonia 2%, tremor 3%, RLS 1%, multiple 1%, ataxia 0%, tourettes 0%, LBD 0%

Mean number of calls/diagnosis — PD 2.75, LBD 1, MSA 2.5, tourettes 1, huntingtons 2, autonomic failure 6, ataxia 1, dystonia 2, RLS 1, multiple 1, tremor 2.5

Person making calls - all calls (197) — patient 104, caregiver 57, health care... 18, pharmacist 13, PSC 1, insurance 4

Symptom (Top 8)	Reason for call (%)	Reason for call after speaking to the nurse (%)
Worsening symptoms	22.2	15.7
Renewal	11.30	11
Medications	21.3	25.7
Cognition	4.8	4.8
Psychiatric	1.3	1.3
Placement	3.5	3.5
DBS	2.6	2.6
Dizziness	1.7	4.8

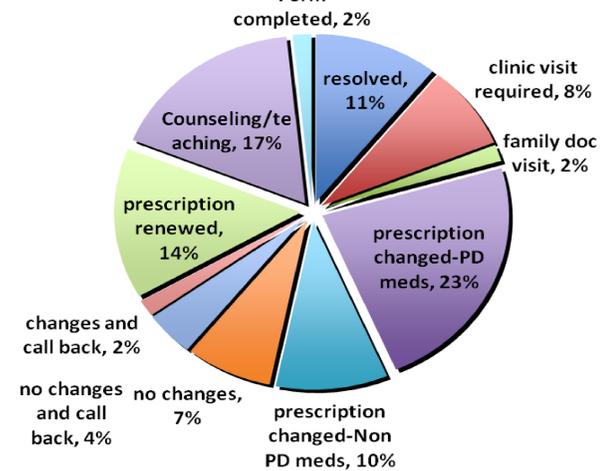Average days to resolution — Nurse 0.53, MD 2.39, P<.0001
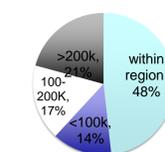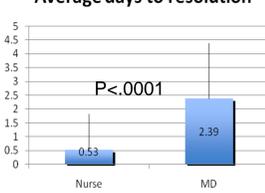
Mean duration between call and resolution = 0.81 days
SD = 1.57 Range = 0-10 days N = 188

Mean time between calls = 8.86 days
SD 22.83 Range = 0-150 days

Mean time from last clinic visit to first call : 87.8 days
SD = 68.83 Range = 1-400

Results

OUTCOME OF CALLS

OUTCOME OF CALLS — Form completed 2%, resolved 11%, clinic visit required 8%, family doc visit 2%, prescription changed-PD meds 23%, prescription changed-Non PD meds 10%, no changes 7%, no changes and call back 4%, changes and call back 2%, prescription renewed 14%, Counseling/teaching 17%

ESTIMATED ANNUAL COST SAVINGS

A. COST FOR VISIT TO PHYSICIAN
Number of calls with no visit — 175
Hourly cost estimate for MD visit — $30
Total cost for visit — $5,250.00

B. COST FOR CALL MADE BY NURSE
total time of calls (hours) — 51.38
Hourly cost estimate for nurse call — $35
Total — $1,800.00

C. ESTIMATED COST SAVINGS PER @200 CALLS(A-B) — **$3,450.00**

D. Calls per year to nurse — 2000

APPROX. ANNUAL SAVING (C X 2000/200) — **$34,500.00**

CORRELATIONS

1. No correlation existed between call duration (r_{pb} = 0.19) frequency of calls (Φ = 0.05) and patient's cognitive status.
2. No correlation between the person calling and duration (r_{pb} = 0.14) nor frequency of calls and duration (r_{pb} = -0.05)
3. However, patients with cognitive impairment generally do not call (Φ = 0.45)
4. High correlation existed between problem identified by patient vs that identified by the nurse except worsening symptoms and medications

Conclusion

- The nurse is able to return phone calls and generally offer help within one day for over 80% of the problems. Patients would never have been able to access their physicians within this time.

- Over 1/3rd of patients were calling from >100 km distance. Calls to the nurse would have thus saved significant driving time.

- Since PD accounts for 81% of the calls and approximately 52% of the calls are patient initiated, it appears to be that patients are quite capable of calling and asking for help.

- Correlation between pre and post call problem identification was very good to excellent for most problems. However, worsening symptoms and medication issues show that an interaction may exist between a problem identified as worsening symptoms as being possibly due to or resolved by medication change.

- The outcome data shows the nurses role is multi-faceted including routine tasks such as renewals to complex counseling.

- The average time between the call and clinic visit was 3 months. This clearly shows that most patients are able to identify significant issues a long time after a clinic visit. Hence although a clinic visit may only be needed every 6 months, a telephone call at 3 months may proactively address issues not related to disease.

- The nurse is able to resolve almost all calls on her own and this is substantially faster than when advice is needed from the physician.

- **Most importantly, when an average estimate of annual cost savings is estimated, the presence of a nurse and the subsequent phone service saves between $30 to $35,000 dollars annually.**

- This cost estimate does not take into account aspects such as saving of travel time, potential work time lost, stress of not getting a doctors appointment quickly amongst others.