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# Improving Physiatry Consultation for Ischemic Stroke Patients Admitted by the LVHN Hospital Medicine and Neurology Services

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## Background

- Stroke is the leading cause of serious long-term disability in the United States<sup>1</sup>
- Physiatrists offer an overall medical and functional assessment to determine the most appropriate level of rehabilitation following stroke
- One study suggests management guided by physiatrists is associated with good functional improvement following stroke<sup>2</sup>
- Additional studies suggest early intervention with rehabilitation following stroke is beneficial<sup>3</sup>
- Yet proper physiatry consultation remains a largely underutilized and misunderstood field of patient care<sup>4</sup>

## Problem Statement

We seek to improve proper utilization of physiatry consultation for ischemic stroke patients admitted to the hospital medicine (HM) and neurology (neuro) services at Lehigh Valley Health Network (LVHN) Cedar Crest (CC) and Muhlenberg (Muhl) by gathering, analyzing, and presenting relevant data to these respective departments.

## Methods

- Retrospective pilot data was gathered through the LVHN Neurology Department's Stroke Dashboard for ischemic stroke patients admitted to CC and Muhl from 1/1/2020 to 6/30/2020
- Tabular data was presented along with American Stroke Association/American Heart Association<sup>5</sup> and Annals of Internal Medicine<sup>6</sup> stroke rehabilitation guidelines to LVHN Neuro and HM leadership to improve physiatry consultation rates
- Analogous retrospective post-intervention data was gathered for ischemic stroke patients from 11/1/2020 to 12/31/2020 to assess effectiveness of the intervention

## Results

	CC HM	CC Neuro	Muhl HM	Muhl Neuro
Consult Ordered	57	90	4	0
No Consult Ordered	160	10	87	0
Total Patients	217	100	91	0
Percent Consult Ordered	26.3%	90%	4.4%	0%

Table I. Physiatry Consultation Order Rate Pilot Data

	CC HM	CC Neuro	Muhl HM	Muhl Neuro
Consult Ordered	26	33	0	0
No Consult Ordered	57	5	31	0
Total Patients	83	38	31	0
Percent Consult Ordered	31.3%	86.8%	0%	0%

Table II. Physiatry Consultation Order Rate Post-Intervention

	CC HM	CC Neuro	Muhl HM	Muhl Neuro
Admission to Consult Order Average (hours)	45.348	7.739	36.4375	N/A
Consult Order to Discharge Average (hours)	135.423	263.115	26.4375	N/A

Table III. Timing of Physiatry Consultation Order Pilot Data

	CC HM	CC Neuro	Muhl HM	Muhl Neuro
Admission to Consult Order Average (hours)	36.762	2.366	N/A	N/A
Consult Order to Discharge Average (hours)	180.171	216.611	N/A	N/A

Table IV. Timing of Physiatry Consultation Order Post-Intervention

	CC HM with Consult	CC HM without Consult	CC Neuro with Consult	CC Neuro without Consult	Muhl HM with Consult	Muhl HM without Consult
Home/Self Care	13 (22.8%)	74 (46.3%)	26 (28.9%)	5 (50%)	0 (0%)	32 (36.8%)
Skilled Nursing Facility	2 (3.4%)	11 (6.9%)	14 (15.6%)	0 (0%)	0 (0%)	9 (10.3%)
Home Health Care Service	9 (15.8%)	35 (21.8%)	13 (14.4%)	0 (0%)	0 (0%)	18 (20.6%)
Against Medical Advice	0 (0%)	2 (1.3%)	1 (1.1%)	0 (0%)	0 (0%)	0 (0%)
Expired	0 (0%)	3 (2.6%)	3 (3.3%)	2 (20%)	0 (0%)	1 (1.1%)
Hospice Home	1 (1.7%)	3 (2.6%)	4 (4.4%)	0 (0%)	0 (0%)	1 (1.1%)
Hospice/Medical Facility	3 (5.3%)	3 (2.6%)	6 (6.7%)	3 (30%)	0 (0%)	3 (3.3%)
Acute Inpatient Rehabilitation Facility	28 (49.1%)	29 (18.1%)	23 (25.6%)	0 (0%)	4 (100%)	23 (26.4%)
Total Patients	57	160	90	10	4	87

Table V. Discharge Disposition Pilot Data

	CC HM with Consult	CC HM without Consult	CC Neuro with Consult	CC Neuro without Consult	Muhl HM with Consult	Muhl HM without Consult
Home/Self Care	5 (19.2%)	33 (57.9%)	10 (30.3%)	0 (0%)	0 (0%)	11 (35.5%)
Skilled Nursing Facility	4 (15.4%)	2 (3.5%)	2 (6.1%)	0 (0%)	0 (0%)	4 (12.9%)
Home Health Care Service	2 (7.7%)	14 (24.6%)	4 (12.1%)	1 (20%)	0 (0%)	11 (35.5%)
Against Medical Advice	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Expired	1 (3.8%)	0 (0%)	3 (9.1%)	2 (40%)	0 (0%)	0 (0%)
Hospice Home	0 (0%)	1 (1.8%)	1 (3%)	0 (0%)	0 (0%)	0 (0%)
Hospice/Medical Facility	0 (0%)	1 (1.8%)	4 (12.1%)	2 (40%)	0 (0%)	1 (3.2%)
Acute Inpatient Rehabilitation Facility	14 (53.8%)	6 (10.5%)	9 (27.3%)	0 (0%)	0 (0%)	4 (12.9%)
Total Patients	26	57	33	5	0	31

Table VI. Discharge Disposition Post-Intervention

## Discussion

- Overall, the data suggests that the email intervention did not have an appreciable effect on physician behavior regarding physiatry consultation for ischemic stroke patients
- In relation to SELECT, this quality improvement project promotes the quality aspect of the iron triangle and evidence-based medicine practices
- Limitations include not accounting for individual patient variance in post-stroke function, utilizing email for the intervention, and the ongoing COVID pandemic

## Conclusions

- Cedar Crest Neurology has a more frequent and earlier consultation rate for physiatry than Cedar Crest HM and Muhlenberg HM for ischemic stroke patients
- Patients with physiatry consults had greater rates of discharge to acute inpatient rehabilitation facilities
  - Allows patients to have the ability to access appropriate inpatient rehabilitation services to maximize their functional outcome and return to the community
- Further effort should be made to increase awareness of the role of physiatry consultation for ischemic stroke patients

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