Stroke Bridge Clinic

A bridge to recovery

Novant Health Forsyth Medical Center
Stroke & Neuroscience Center
Approach

- Began in October of 2010
- One time encounter 7-10 days post acute discharge
- Interdisciplinary assessment for patients with a primary diagnosis of Stroke or TIA
- Bridges the gap between discharge and PCP/specialist follow-up
Eligible patients

- Discharge diagnosis of Stroke or TIA (approx. 1200 patients/year)
- Discharged to home or rehab (approx. 900 patients/year)
- Attendance rate fluctuates between 70-80 percent of scheduled patients
- No Show rate averages 7% of scheduled patients
- Cancellation rate averages 25% of scheduled patients
Stroke Navigator (RN) Role

Inpatient (upon admission and prior to discharge)

- patient specific etiology
- Ask Me Three regarding prognosis
- caregiver respite
- depression screen (PHQ 9) and education
- Schedule PCP and SBC appts via Call-A-Nurse prior to discharge

Follow-up calls (after discharge)

- 7 days (bridge clinic reminder) and 90 days

Outpatient (Stroke Bridge Clinic)

- Depression screen, ADL assessments, medication reassessment and education, smoking cessation resources
- Risk for recurrent stroke
- Community resources i.e. transportation
Continuity of Care for Stroke Patients

- Admission
- Inpatient stay
- Discharge (home or rehab)
- Stroke Bridge Clinic

Primary Care

Outpatient Neurologist

Existing or New Referrals

• Nurse Practitioner
• Stroke Navigator (RN)
• Neuro Pharmacist
Visit Structure

Check in, Room patient

Stroke Navigator (vitals, PHQ 9)

Pharmacist (Med Reconciliation and Assessment)

Nurse Practitioner (Systems assessment, orders and referrals)

Check out
Pharmacist Role

Pharmacy

* Assessment
* Medication reconciliation
* Medication education
* Recommendations for medication adjustments
* Assist with finding medication discounts or drug cards
Stroke Readmissions- Impact of Bridge Care

1.8% average readmission rate for patients with Bridge Clinic Appointment
Stroke & TIA Discharged Home & Rehab
Scheduled & Attended Bridge Clinic (2013-2014 Q3)

<table>
<thead>
<tr>
<th>Quarter</th>
<th>D/C Home/Rehab</th>
<th>Scheduled</th>
<th>Attended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qtr 1 2013</td>
<td>236</td>
<td>168</td>
<td>140</td>
</tr>
<tr>
<td>Qtr 2 2013</td>
<td>230</td>
<td>176</td>
<td>123</td>
</tr>
<tr>
<td>Qtr 3 2013</td>
<td>208</td>
<td>166</td>
<td>125</td>
</tr>
<tr>
<td>Qtr 4 2013</td>
<td>204</td>
<td>162</td>
<td>119</td>
</tr>
<tr>
<td>Qtr 1 2014</td>
<td>208</td>
<td>137</td>
<td>103</td>
</tr>
<tr>
<td>Qtr 2 2014</td>
<td>201</td>
<td>168</td>
<td>136</td>
</tr>
<tr>
<td>Qtr 3 2014</td>
<td>195</td>
<td>142</td>
<td>112</td>
</tr>
</tbody>
</table>

NHFMC Bridge Clinic
01/19/2015
73% of patients seen in the stroke bridge clinic had at least one of the below listed clinic interventions at the appointment

- 158 patients seen

<table>
<thead>
<tr>
<th>Clinic Intervention</th>
<th>%</th>
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<tbody>
<tr>
<td>Changed antiplt/anticoag drug</td>
<td>14.6%</td>
</tr>
<tr>
<td>Changed antiplt/anticoag dose</td>
<td>27.2%</td>
</tr>
<tr>
<td>Change in blood pressure regimen</td>
<td>14.6%</td>
</tr>
<tr>
<td>Change cholesterol regimen</td>
<td>10.1%</td>
</tr>
<tr>
<td>Change diabetes regimen</td>
<td>0.6%</td>
</tr>
<tr>
<td>Smoking cessation counseling</td>
<td>19%</td>
</tr>
<tr>
<td>Change depression regimen</td>
<td>6.3%</td>
</tr>
<tr>
<td>Change drug for cost, interaction, or side effect</td>
<td>14.6%</td>
</tr>
</tbody>
</table>
Establishing Best Practice

- Research conducted to establish best patient care practices

<table>
<thead>
<tr>
<th>Graphic Results</th>
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<td><strong>PHQ-9 screening increased actionable treatment of depression</strong></td>
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</table>

- **p=0.009**
- **95% CI 1.6-25% increase**
- **18.4%**
- **5.6%**

*Similar baseline characteristics between groups: age (p=0.406), gender (p=0.9), and prior antidepressant use (p=0.377)*

Conclusion: PHQ-9 increased our detection and treatment of post-stroke depression

Conclusion: The Stroke Bridge Clinic is an important timepoint to screen for depression because scores increase from inpatient setting.
Improved Detection and Treatment of Post-Stroke Depression Utilizing Patient Health Questionnaire-9 (PHQ-9) Screening over Standard Methods

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Novant Health Forsyth Medical Center, Winston-Salem, NC

Background
- Post-stroke depression is common, occurring in an estimated 33% of stroke survivors
- Unknown optimal screening tool, setting or time to detect, or treatment
- In a meta-analysis, Patient Health Questionnaire-9 had a sensitivity of 0.86 and specificity of 0.79 in screening for post-stroke major depression
- Meta-analysis found SSRIs improved dependence, disability, neurological impairment, anxiety, and depression after stroke, however large well-designed trials are lacking
- Comprehensive Stroke Centers are required to assess for depression, however methodology is undefined
- Identifying optimal screening and treatment for depression will elevate care for stroke patients across the care continuum

Objective
Assess the null hypothesis that PHQ-9 screening is equivalent to standard care (suicide screening + provider assessment) in detection of post-stroke depression
Secondary outcome: assess optimal timing and setting to perform PHQ-9 screening

Methods
- Prospectively, 49 patients underwent PHQ-9 screening (Figure 1) and modified Rankin Scales at 3 timepoints after stroke:
  - Inpatient within 48 hours of admission
  - 7 days after discharge to outpatient stroke clinic
  - By telephone at 60 days
- Actionable treatment of depression (psychiatry referral and/or initiation of antidepressants) were recorded
- A retrospective control group (n=125), prior to initiation of the PHQ-9, was reviewed to determine baseline rates for treatment of depression

Table 1

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Study Group (n=49)</th>
<th>Control Group (n=125)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Age (range)</td>
<td>67 (24-95)</td>
<td>67 (24-95)</td>
</tr>
<tr>
<td>% female</td>
<td>53%</td>
<td>53%</td>
</tr>
<tr>
<td>Average length of stay (median)</td>
<td>3.5 (3)</td>
<td>3.5 (3)</td>
</tr>
<tr>
<td>Average MDR on arrival (median)</td>
<td>1.74 (1)</td>
<td>1.74 (1)</td>
</tr>
<tr>
<td>% on antidepressant prior to admission</td>
<td>28%</td>
<td>28%</td>
</tr>
</tbody>
</table>

Graphic Results

PHQ-9 screening increased actionable treatment of depression

<table>
<thead>
<tr>
<th>PHQ-9 screening increased actionable treatment of depression</th>
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</thead>
<tbody>
<tr>
<td>Patients treated for depression with standard screening methods</td>
</tr>
<tr>
<td>Patients treated for depression with PHQ-9 screening</td>
</tr>
</tbody>
</table>

Results
- PHQ-9 screening increased treatment of depression over standard methods from 5.6% to 13.4% (p=0.009) without confounding variable between groups
- Symptoms of depression were frequent with PHQ-9 scores often peaking at the outpatient stroke clinic timepoint
- Frequent loss to follow-up at 90 day phone call (28.5%)
- Young age was statistically significant in multivariate analysis as a predictor for high PHQ-9 scores post-stroke

Conclusion
PHQ-9 screening significantly increased our detection and treatment of post-stroke depression. Increased PHQ-9 scores at the outpatient stroke clinic suggest this is an important timepoint to assess patients.

References

Disclosures
Authors of the presentation have no disclosures concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.
Provider Roles

Nurse Practitioner

• Clinical Assessment

• Order necessary follow-ups and studies

• Education

• Medication adjustments

• Referral to outpatient neurology

• Send summary to PCP
Logistics

Appointments

• PCP and SBC appts are initiated by Stk Nav. & scheduled by Call-A-Nurse prior to discharge
• Follow-up Neuro OP appts are scheduled by PSC during SBC visit

Billing

• NP and supervising MD are credentialed and bill all major payors
• Billed as an OP visit
• No copays collected

Documentation

• Dimensions Ambulatory
• OP neurology referrals are closed out by PSC
### Logistics Cont’d

<table>
<thead>
<tr>
<th>Affiliation</th>
<th>Reduced Overhead</th>
<th>Staffing</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Clinic of NHMG</td>
<td>• Rent space from FMC</td>
<td>• Share staff with IP service and charge back payroll dollars</td>
</tr>
<tr>
<td>• Shared tax ID with inpatient service</td>
<td>• Refer out all lab work, procedures and studies</td>
<td></td>
</tr>
</tbody>
</table>
Continued Barriers

Access

- 2 days/week

Location

- Spoke hospital system, geographic distance from patients’ homes

Staffing

- Shared staffing between inpatient service and Stroke Bridge Clinic
Future Goals

• Expand access to include patients discharged from other facilities and healthcare systems

• Explore satellite office for patients in rural areas

• Pursue grant funding for continued patient education

• Reduce No-Show and Cancellation rates
Secondary Stroke Prevention
GOAL is to control Risk factors

Hypertension

Hyperlipidemia/Extracranial & intracranial artherosclerosis

Atrial fibrillation

Smoking Cessation

Diabetes Management

Healthy diet/Exercise

Obesity