# Piloting a Neuro Advanced Practice Provider Clinic

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## Background

- Transitional Care: *time-limited services when a patient is experiencing a transition from different environments, such as hospital to home, in order to prevent poor outcomes among high risk populations*[1]

- Neurocritical care department: gaps in rapid follow-up of hemorrhagic stroke and traumatic brain injury patients

- Shortages of PCPs and Neurology specialists cause delays in follow-up services[2]

## Literature Review

- Post-discharge follow-up within 7-14 days is most effective in reducing readmission[3]

- Advanced practice nurses lead transitional care interventions; provide medication review, patient education and provide resources[4]

- Stroke guidelines recommend transitional care programs for stroke prevention[5]

- Patient recruitment methods are crucial to implement post-ICU clinics[6]

## Project Purpose

**Design a Neuroscience Advanced Practice Provider (APP) Clinic, staffed by neurocritical care APPs. Evaluate the clinical outcomes and rehospitalizations in the first 3 months of the pilot clinic.**

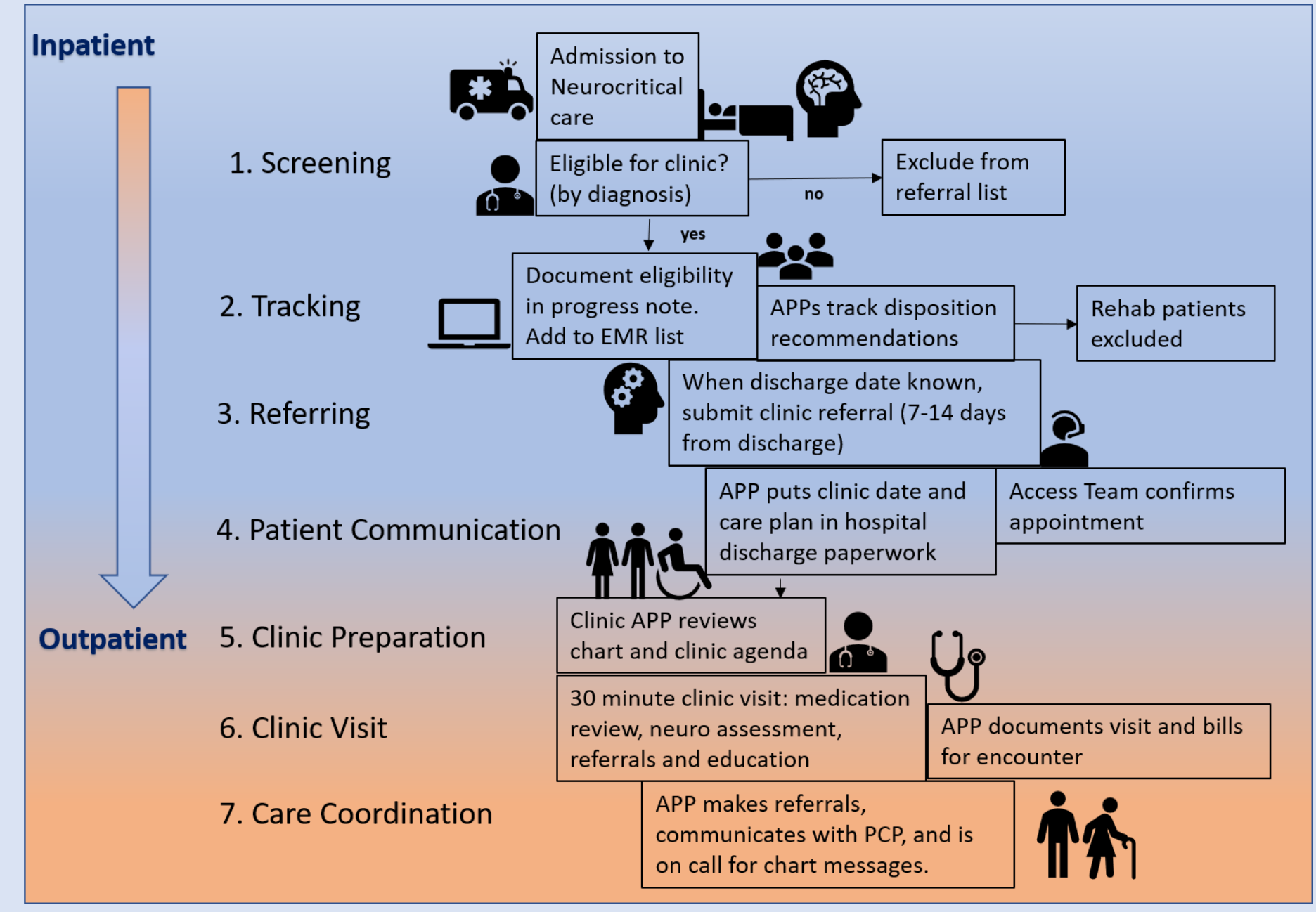## Transitional Care Process



**Figure 1: Flow diagram of clinic process from ICU admission to clinic visit.**
EMR = electronic medical record. APP= advanced practice provider (nurse practitioner or physician assistant). PCP = primary care provider

## Results

Clinic Attendees (9): 8 days post discharge (5-10 day range). 90% attendance (9/10): 1 no show, 1 readmit (excluded in count)

45% did NOT have established PCP

NO readmissions among attendees

33% had medication changes

66% had referrals placed

Tailored education provided to all



| Table 1: Demographics and Clinical Acuity | |
| --- | --- |
| Demographic | Statistic |
| Age, Mdn (IQR) | 67.5 (47.3-77.0) |
| Gender, n (%) | |
| Male | 30 (53.6%) |
| Female | 26 (46.4%) |
| Race, n (%) | |
| White | 38 (67.9%) |
| Black or African American | 11 (19.6%) |
| Other | 4 (7.1%) |
| Asian | 3 (5.4%) |
| Ethnicity, n (%) | |
| Hispanic | 3 (5.4%) |
| Non-Hispanic | 53 (94.6%) |
| Insurance, n (%) | |
| Medicare | 28 (50%) |
| Medicaid | 7 (12.5%) |
| Private | 17 (30.4%) |
| Veteran's Insurance | 3 (5.4%) |
| Uninsured | 1 (1.8%) |
| Length of Stay, Mdn (IQR) | |
| LOS days | 7.5 (4-13.8) |
| LOS ICU days | 2 (1-5) |
| Distance from Hospital, Mdn (IQR) | |
| Distance (miles) | 31.5 (13.5-52.3) |

| Admission Diagnosis n (%) | |
| --- | --- |
| SAH | 13 (23.2%) |
| ICH | 18 (32.1%) |
| SDH | 16 (28.6%) |
| TBI | 4 (7.1%) |
| Other | 5 (8.9%) |
| Comorbidities, n (%) | |
| Hypertension | 38 (67.9%) |
| Diabetes Mellitus | 17 (30.4%) |
| Hyperlipidemia | 27 (48.2%) |
| Atrial Fibrillation | 9 (16.1%) |
| Disposition, n (%) | |
| Home | 23 (41.1%) |
| Home with home health | 5 (8.9%) |
| Acute rehab/ SNF | 17 (30.4%) |
| Hospice Services | 5 (8.9%) |
| Deceased | 6 (10.7%) |

| Comparison of Means and Frequencies between Home and Rehab Patients | | |
| --- | --- | --- |
| Age (years) | Mean (SD) | |
| Rehab | 64.53 (16.1) | p= 0.122 |
| Home | 55.39 (22.5) | |
| Comorbidity: Rehab vs. Home | | |
| HTN | $\chi^2 = 1.49$ | p=0.223 |
| HLD | $\chi^2 = 0.54$ | p= 0.465 |
| Afib | $\chi^2 = 0.00$ | p= 1.000 |
| DM | $\chi^2 = 5.81$ | p= 0.034* |
| Length of Stay (days) | Median (IQR) | |
| Rehab | 14 (9-23.5) | p=0.001* |
| Home | 4 (3-6.8) | |
| ICU LOS (days) | Median (IQR) | |
| Rehab | 3 (1.5-6.5) | p=.110 |
| Home | 2 (1-3.5) | |

**Table 1: Demographics and clinical acuity of the clinic cohort.**
LOS= length of stay. ICU= intensive Care Unit. SAH= subarachnoid hemorrhage. ICH= intracerebral hemorrhage. SDH= subdural hematoma. TBI= traumatic brain injury. SNF= skilled nursing facility. HTN= hypertension. HLD = hyperlipidemia. Afib= atrial fibrillation. DM = diabetes mellitus. * denotes statistical significance.

## Discussion

- Readmission reduction strategy, potential for $16-38,000 savings per hospital readmission prevented. Reduce avoidable ER visits.[7]
- Training needs for development of this program were minimal since experienced providers were involved
- Clinic revenue adds to the productivity of the APP team and maximizes the staffing resources of critical care providers.

## Limitations

- Pilot study, 3 month time frame; limited conclusions based on readmission data and clinical outcomes
- EMR data used for data collection; did not interview the patient for their experience

## Conclusion

- Transitional Care clinic run by neurocritical care APPs is a novel approach to discharge follow-up
- Promotes continuity of care, reduces time to follow-up and is a solution to outpatient provider shortages
- May be transferrable to other patient populations