

NEUROLOGY RESEARCH UPDATE

Winter 2020



by the Neurology specialty
group and TPMG Physician
Researcher Program

WELCOME

to the inaugural KPNC Neurology Research Update!

In this issue, we will provide you with updates regarding research interests among KPNC neurologists, information on upcoming neurology events, upcoming internal research funding opportunities, and a list of the incredible research published recently by KPNC neurologists.



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KPNC Neurologists are Interested in Research

A total of 21 (!) KPNC neurology physicians completed a survey sent out in July, 2020 and provided information about specific topic areas of interest and research recommendations.

There is a lot of collective research experience among the KPNC neurologists. Many of those completing the survey (48%) completed research projects during residency, 52% have conducted chart reviews for research projects, and a third of respondents have recruited patients for research studies in their clinics.

Almost all the respondents expressed interest in being involved in research. Around 60% indicated an interest in either leading their own project or participating as a co-investigator on a project. 25% indicated an interest in working on projects led by other investigators. There was also interest in mentorship, developing skills needed to lead research independently, and contributing to and leading manuscript writing.

Survey Results



We asked you about high impact research questions in neurology that KP is uniquely positioned to answer. Below is a summary of your responses. This information can help inform the group on the most thought about research questions and help to link researchers with common interests who might be able to work together:

Stroke/Neurovascular:

- Difference in functional outcomes for patients presenting with acute ischemic strokes with low initial NIHSS who were treated with alteplase or not.
- Is there a group of patients that is at higher risk of ICH post alteplase?
- Do all patients treated with Alteplase need to be observed in ICU or can we safely transition low risk patients to Stroke Units?
- Rate of malignant cytotoxic edema, rate of surgical interventions and functional outcomes.
- Reasons why patients and PCPs (and other non-neurologists) choose not to use anticoagulation in atrial fibrillation patients?
- Aneurysms follow up.
- DAPT for stroke on single agent, symptomatic bleeding after X antithrombotic, progression of neuropathy.
- Further breakdown of populations likely to benefit from or be harmed by acute stroke treatment - older, younger, demented, etc.
- Need for admission of small subdural and small traumatic SAH vs outpatient f/u CT, PCP.

- Post stroke follow up measures: bp, lipids, antiplatelet, anticoagulants med compliance and vitals/labs recheck. Rehab/recovery/depression screening measures.
- Extended window patient outcomes in the real-world setting (where most patients are transferred to EST centers...)

Movement Disorders:

- Racial disparities in Parkinson's disease.
- Botox efficacy.
- Clinical outcomes of precision guided neuromodulation.
- Multidisciplinary Clinic for Atypical Parkinsonism to providing preventative measures to ensure safety and confidence in care.
- Falls occurring when patients do not have an exercise program in place.

General Neurology:

- Neurologic complications of COVID19.
- How COVID-19 impacts various neurology outcomes.
- Finding the most cost-effective way to treat expensive chronic neurologic conditions (MS, MG, CIDP).
- Racial differences in the course trajectory of neurologic disease.
- Use of artificial intelligence to check for cognitive and speech disorders.

Epilepsy:

- Identification of patients with medically refractory epilepsy using our medical pharmacy data base.
- Referral pattern for medically refractory epilepsy, reduce the delay for necessary referral.
- Use of EEG in deciding when to stop AED.

Headache:

- Study the impact of CGRP antagonists vs Botox on patient outcomes - headache days, cost benefits etc.
- integrative medicine approach in headache management.

Neuromuscular:

- Management of common neuropathies related to DM or chemotherapy. Specifically, interested in non-pharmacological methods for managing DM related neuropathy which I think our system would work well for.
- Progression of neuropathy.

MS/Autoimmune:

- Regional agreement and recommendation when ordering autoimmune panel and paraneoplastic panel for autoimmune encephalitis.
- Study identification / clinical characteristics of MS patients with good long term prognosis without DMA's using the KP Database



Research Highlight: Acute Stroke Presentation, Care, and Outcomes in Community Hospitals in Northern California During the COVID-19 Pandemic

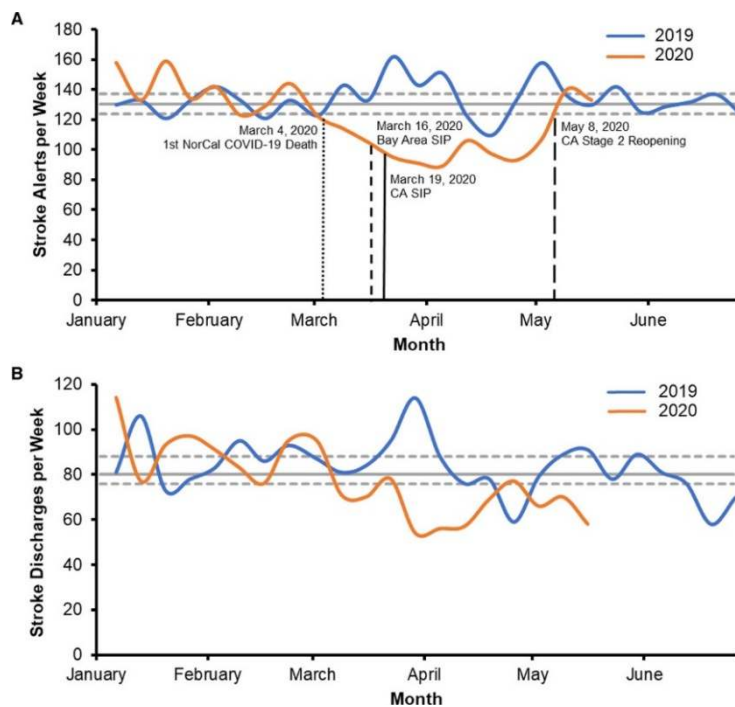
Mai N. Nguyen-Huynh, MD, MAS; Xian Nan Tang, MD, PhD; David R. Vinson, MD; Alexander C. Flint, MD, PhD; Janet G. Alexander, MSPH; Melissa Meighan, DNP; Molly Burnett, MD; Stephen Sidney, MD, MPH; Jeffrey G. Klingman, MD

Background and purpose: Shelter-in-place (SIP) orders implemented to mitigate severe acute respiratory syndrome coronavirus 2 spread may inadvertently discourage patient care-seeking behavior for critical conditions like acute ischemic stroke. We aimed to compare temporal trends in volume of acute stroke alerts, patient characteristics, telestroke care, and short-term outcomes pre- and post-SIP orders.

Methods: We conducted a cohort study in 21 stroke centers of an integrated healthcare system serving 4.4+ million members across Northern California. We included adult patients who presented with suspected acute stroke and were evaluated by telestroke between January 1, 2019, and May 9, 2020. SIP orders announced the week of March 15, 2020, created pre (January 1, 2019, to March 14, 2020) and post (March 15, 2020, to May 9, 2020) cohort for comparison. Main outcomes were stroke alert volumes and inpatient mortality for stroke.

Results: Stroke alert weekly volume post-SIP (mean, 98 [95% CI, 92-104]) decreased significantly compared with pre-SIP (mean, 132 [95% CI, 130-136]; $P<0.001$). Stroke discharges also dropped, in concordance with acute stroke alerts decrease. In total, 9120 patients were included: 8337 in pre- and 783 in post-SIP cohorts. There were no differences in patient demographics. Compared with pre-SIP, post-SIP patients had higher National Institutes of Health Stroke Scale scores ($P=0.003$), lower comorbidity score ($P<0.001$), and arrived more often by ambulance ($P<0.001$). Post-SIP, more patients had large vessel occlusions ($P=0.03$), and there were fewer stroke mimics ($P=0.001$). Discharge outcomes were similar for post-SIP and pre-SIP cohorts.

Conclusions: In this cohort study, regional stroke alert and ischemic stroke discharge volumes decreased significantly in the early COVID-19 pandemic. Compared with pre-SIP, the post-SIP population showed no significant demographic differences but had lower comorbidity scores, more severe strokes, and more large vessel occlusions. The inpatient mortality was similar in both cohorts. Further studies are needed to understand the causes and implications of care avoidance to patients and healthcare systems.





Upcoming Events

Kaiser Permanente Stroke Conference

September 24 - 25, 2020
(Virtual)

SFNS Parkinson's Symposium

October 10, 2020
(Virtual)

ACTRIMS 2021 (virtual format)

February 25-27, 2021

American Heart Association/ American Stroke Association International Stroke Conference

March 17 - 19, 2021
(Virtual)

American Academy of Neurology Annual Meeting

April 17 - 22, 2021
San Francisco, CA

CMSC

San Diego
June 2-5, 2021

The International PD and Mvt Disorder Society Meeting

Sept 19-23, 2021
Copenhagen

ECTRIMS 2021

October 13-15, 2021

American Association of Neuromuscular and Electrodiagnostic Medicine (AANEM) annual meeting

October 13-16, 2021
Aurora, CO

AES - American Epilepsy Society

December 3-7, 2021
Chicago, IL

Internal Research Funding Opportunities



[General Funding Opportunities](#)



[Division of Research](#)

Active or Recently Completed Research Projects and Collaborations

1. **Remote assessment of cognitive function in MS patients**
NIH Grant
Co-PI: Lisa Barcellos, Catherine Schaefer, Terrence Chin
2. **Distributed Subnetworks of Depression Defined by Direct Intracranial Neurophysiology**
Collaboration with UCSF and Kaiser Epilepsy Center.
3. **Health care utilization at Kaiser Permanente for patients diagnosed with psychogenic non-epileptic seizures**
Community benefit grant, 2015
4. KP neurologists work with Lisa Barcellos and the DOR helping to give clinical insights into their various **MS research projects that use the KP database**
5. **PROGRESS** - St. Jude directional lead superiority
6. **PRO-Go** - A Prospective, Observational Study to Evaluate Changes in Non-Motor Symptoms and Other Clinical Outcome Assessments of Parkinson's Disease Patients Treated With XADAGO (Safinamide) Tablets
7. **Acute stroke presentation, care and outcomes in community hospitals in Northern California during the COVID-19 pandemic**
Nguyen-Huynh et al
8. **Parkinsonian Variant Clinic (Pilot) Parkinson's Foundation lecture series**
50th annual Association of Philippines Medical Colleges guest lecture PD Active Lecture series
9. **Extended Window for Thrombectomy - Have we extended our resources appropriately and effectively?**
PI: Mai Nguyen-Huynh. Co-PI: Jeff Klingman. Funded by TPMG Delivery Science Grant.
10. **Acute Emergency Care and Outcomes for Stroke, Myocardial Infarction, and Surgery During the COVID-19 Pandemic in Kaiser Permanente Northern California: Implications for Care Delivery During COVID-19 Recovery Phase and Future Surges**
PIs: Mai Nguyen-Huynh, Matthew Solomon, David Vinson, Robert Chang. Funded by Garfield Memorial Fund.
11. **Predicting Readmission after Stroke Study (PRESS)**
PI: Mai Nguyen-Huynh. Funded by NIH/NINDS R01 grant.



12. **Contemporary Outcomes and Management of Asymptomatic Carotid Stenosis (COMACAS)**
PI: Robert Chang. Co-investigator: Mai Nguyen-Huynh. Funded by TPMG Physician Researcher Program.
13. **Blood Pressure Trajectories to Predict Hypertensive Disorders of Pregnancy and CV Health Outcomes (BEST IPO)**
PI: Erica Gunderson. Co-investigator: Mai Nguyen-Huynh. Funded by NIH/NHLBI R01 grant.
14. **Predictors of CVD among breast cancer survivors in an integrated health system**
PI: Marilyn Kwan. Co-investigator: Mai Nguyen-Huynh. Funded by NIH R01.
15. **Carotid Revascularization and Medical Management for Asymptomatic Carotid Stenosis Trial (CREST-2) trial**
PI: Thomas Brott. Site PI: Mai Nguyen-Huynh. Funded by NINDS U01.
16. **Kaiser Permanente Stroke Rehabilitation Program Pilot Study for Language & Cognitive Therapy**
PI: Mai Nguyen-Huynh. Funded by The Learning Corp. Trial was stopped.

Recent Publications or other Scholarly Work Co-authored by KPNC Neurologists

Influenza Vaccines and Guillain Barré Syndrome.

Bakshi N, Sejvar JJ.

In: Chatterjee A. (eds) Vaccinophobia and Vaccine Controversies of the 21st Century. (2013) Springer, New York, NY. https://doi.org/10.1007/978-1-4614-7438-8_17

Remote assessment of verbal memory in MS patients using the California Verbal Learning Test.

Barcellos LF, Bellesis KH, Shen L, Shao X, Chinn T, Frndak S, Drake A, Bakshi N, Marcus J, Schaefer C, Benedict RH

Mult Scler. 2018 Mar;24(3):354-357. doi: 10.1177/1352458517694087.

Exploratory proteomic analysis implicates the alternative complement cascade in primary CNS vasculitis.

Mandel-Brehm C, Retallack H, Knudsen GM, Yamana A, Hajj-Ali RA, Calabrese LH, Tihan T, Sample HA, Zorn KC, Gorman MP, Madan Cohen J, Sreih AG, Marcus JF, Josephson SA, Douglas VC, Gelfand JM, Wilson MR, DeRisi JL

Neurology. 2019 Jul 30;93(5):e433-e444. doi: 10.1212/WNL.0000000000007850.



Acute Stroke Presentation, Care, and Outcomes in Community Hospitals in Northern California During the COVID-19 Pandemic.

Nguyen-Huynh MN, Tang XN, Vinson DR, Flint AC, Alexander JG, Meighan M, Burnett M, Sidney S, Klingman JG.

Stroke. 2020 Oct;51(10):2918-2924. doi: 10.1161/STROKEAHA.120.031099.

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Mandel-Brehm C, Retallack H, Knudsen GM, Yamana A, Hajj-Ali RA, Calabrese LH, Tihan T, Sample HA, Zorn KC, Gorman MP, Madan Cohen J, Sreih AG, Marcus JF, Josephson SA, Douglas VC, Gelfand JM, Wilson MR, DeRisi JL.

Neurology. 2019 Jul 30;93(5):e433-e444. doi: 10.1212/WNL.0000000000007850.

Minimal breast milk transfer of rituximab, a monoclonal antibody used in neurological conditions.

Krysko KM, LaHue SC, Anderson A, Rutatangwa A, Rowles W, Schubert RD, Marcus J, Riley CS, Bevan C, Hale TW, Bove R. *Neurol Neuroimmunol Neuroinflamm*. 2019 Nov 12;7(1):e637.

doi: 10.1212/NXI.0000000000000637.

Shake Rattle & Roll - Design and rationale for a pragmatic trial to improve blood pressure control among blacks with persistent hypertension.

Nguyen-Huynh MN, Young JD, Alexeeff S, Hatfield MK, Sidney S.

Contemp Clin Trials. 2019 Jan;76:85-92. doi: 10.1016/j.cct.2018.11.012.

Skin cancer and dermatoses in a majority-Hispanic population of solid organ transplant recipients.

Adler BL, Smogorzewski J, Sierra T, Shauly O, Osipchuk D, Miller M, Mert M, Fong MW, Ganesh S, Han H, In GK, Maw TT, Smogorzewski M, Hu J, Ngo B, Lee D, Ahronowitz I.

J Am Acad Dermatol. 2020 Aug;83(2):607-610. doi: 10.1016/j.jaad.2019.07.099.

Long-term Stroke Risk with Carotid Endarterectomy in Patients with Severe Carotid Stenosis.

Rothenberg KA, Tucker LY, Gologorsky RC, Avins AL, Kuang HC, Faruqi RM, Flint AC, Nguyen-Huynh MN, Chang RW.

J Vasc Surg. 2020 Jul 21:S0741-5214(20)31696-7. doi: 10.1016/j.jvs.2020.06.124.

Streamlining genetic testing for women with ovarian cancer in a Northern California health care system. Powell CB, Laurent C, Ciaravino G, Garcia C, Han L, Hoodfar E, Karlea A, Kobelka C, Lee J, Littell RD, Roh J, Vay A, Kushi LH.

Gynecol Oncol. 2020 Aug 7:S0090-8258(20)33662-3. doi: 10.1016/j.ygyno.2020.07.027.

A validation study for remote testing of cognitive function in multiple sclerosis.

Barcellos LF, Horton M, Shao X, Bellesis KH, Chinn T, Waubant E, Bakshi N, Marcus J, Benedict RH, Schaefer C.

Mult Scler. 2020 Jul 14:1352458520937385. doi: 10.1177/1352458520937385.

Risk of Distal Embolization From tPA (Tissue-Type Plasminogen Activator) Administration Prior to Endovascular Stroke Treatment.



Flint AC, Avins AL, Eaton A, Uong S, Cullen SP, Hsu DP, Edwards NJ, Reddy PA, Klingman JG, Rao VA, Chan SL, Hartman J, Zrelak PA, Nguyen-Huynh MN.
Stroke. 2020 Sep;51(9):2697-2704. doi: 10.1161/STROKEAHA.120.029025.