

Building AI-Powered Ecosystems for Smarter Migraine Care: From Connected Care to Personalized Interventions

Surat Tanprawate, M.D.^{1*}

¹ Faculty of Medicine, Chiang Mai University, Chiang Mai 50200, Thailand

***Corresponding author:** surat.tan@cmu.ac.th

Abstract

The future of migraine management lies in integrating artificial intelligence (AI) and connected care models to create patient-centric ecosystems that support personalized and holistic interventions. These ecosystems combine real-time monitoring, AI-driven insights, and collaborative networks to redefine care delivery for migraine patients.

The Smile Migraine platform has been utilized by over 35,000 patients, generating 1.5 million data points to inform predictive insights, automated feedback, and tailored therapeutic strategies. Additionally, telemedicine services within the platform have served over 2,000 patients, providing efficient, accessible care solutions and enabling continuous engagement between patients and providers.

Equally critical is the implementation of a connected care model, which emphasizes seamless collaboration between patients, healthcare providers, and support systems. By fostering disease-patient interaction, supporting patient communities, and building professional networks, this model ensures continuous engagement and shared decision-making. The integration of telemedicine has further expanded access to care, transforming the patient experience with innovative, patient-centered solutions.

Together, the convergence of AI-based therapy and connected care ecosystems provides a scalable framework that optimizes treatment outcomes, enhances quality of life, and sets a new standard for migraine care globally.

Keywords: Migraine, AI, Personalized care, Remote monitoring

CURRICULUM VITAE



Name:	Surat Tanprawate
Academic positions:	Assistant Professor
Workplace:	Faculty of Medicine, Chiang Mai University
Address:	9 th Floor, The Northern Neuroscience Center, Suthep, Mueang District, Chiang Mai 50200, Thailand
Email:	surat.md@gmail.com or surat.tan@cmu.ac.th
Expertise:	Neurological and headache disorders, Innovation



Education History

2018	Certificate in Headache Master School, IHS
2021	Certificate of Innovation Organization Management (IOM) NIA
Sep 2009-Sep 2010	University College London, MSc, Research Associate, Headache London, UK
May 2005-May2007	Chiang Mai University, MD, Neurology Chiang Mai, Thailand
May 2002-May2005	Chiang Mai University, Internal Medicine Chiang Mai, Thailand



Professional Background

2023-Present	Internal Operation Committee of Ministry of Digital Economy and Society of Thailand
2017-Present	The Committee of Suandok Medical Innovation District (SMID)
2020-Present	Head of InnoHealth Project by SMID
Mar 2023-Present	President of Thai Headache Society
Aug 2022-Present	Treasurer of Asia Regional Consortium for Headache (ARCH)
2015-Present	Head of IT of the Neurological Society of Thailand (NST)
Jan 2013-Present	Research Director Headache Group, The Northern Neuroscience Centre Chiang Mai, Chiang Mai, Thailand
May 2012-Present	Neurological Staff Chiang Mai University, Department of Internal Medicine Chiang Mai, Thailand
Feb 2017-2021	Director of Geriatric Medical Centre and Associate Director, Centre for Medical Excellence Center for Medical Excellence, Chiang Mai University
Sep 2009-Sep 2011	Research Associate/Fellow Headache Group University College London, Institute of Neurology London, UK



Selected Awards and Honors

1.	2023	1 st prize the Winner, The Northern Science Park Award for Biz Innovation (V Flow herbal drink, JW herbal)
2.	2023	The Winner of Hack for Good Health and Wellbeing Project by EDTA
3.	2022	Asia Smart App Award, Merit Award 2021
4.	2022	5th Finalist Innovation Biz Champion (Nin Mangkorn The reality)
5.	Feb 2021	Gold Elephant Award (Great Innovation Impact to Public) by Chiang Mai University
6.	2021	Herbal Development for Cerebrovascular Disease (Matching Fund with STEP)
7.	Apr 2019	Smile Migraine Application (National Innovation Agency)
8.	Aug 2019	2 nd Winner: Spin-Off Project for Tech Start-Up
9.	Oct 2017	Japanese International Cooperation Agency (JICA) Project - Kagawa University
10.	Aug 2017	Smart Headache Program (Innovative Hub, Thailand)
11.	Jul 2007	Grant: Multiple Sclerosis Experience Week, Royal Perth Hospital, Australia



Selected Publications

1. Chutitthep Teekaput, M.D., Kanokkarn Teekaput, B.N.S., **Surat Tanprawate**, M.D., Adisak Kittisares, M.D., & Metha Apiwattanakul, M.D. (2023). Coexistence of IgLON5-IgG and SOX1-IgG in a Patient with Progressive Brainstem Dysfunction. *Acta Neurologica Taiwanica*, 32(3), 131-135.
2. Saengmanee, T., Thiankhaw, K., **Tanprawate, S.**, Soontornpun, A., Wantaneeyawong, C., Teekaput, C., ... & Nudsasarn, A. (2023). A Simplified Risk Score to Predict In-Hospital Newly-Diagnosed Atrial Fibrillation in Acute Ischemic Stroke Patients. *International Journal of General Medicine*, 1363-1373.
3. Srisujikul, P., Thiankhaw, K., **Tanprawate, S.**, Soontornpun, A., Wantaneeyawong, C., Teekaput, C., ... & Nudsasarn, A. (2023). Serum NT-proBNP level for predicting functional outcomes after acute ischemic stroke. *Scientific Reports*, 13(1), 13903.
4. **Tanprawate, S.**, Charoensri, K., Nudsasarn, A., & Vaiyavuth, R. (2023, September). The analysis of precipitating factors related severity of migraine attacks using the headache diary mobile application (Smile Migraine Application). In *CEPHALALGIA* (Vol. 43, No. 1 supp, pp. 147-148)
5. Sirimaharaj, N., **Tanprawate, S.**, Chai-Adisaksopha, C., Phinyo, P., Chaimano, S., Vaiyavuth, R., ... & Teekaput, C. (2023, September). Concurrent Validity and Minimal Clinically Important Difference (MCID) of the Smile Migraine Impact score (SMIs) for Headache Impact Evaluation in Migraine Patients. In *CEPHALALGIA* (Vol. 43, No.1 supp, pp. 148-149)