Approved by the Regents
May 18, 2023

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF EMERGENCY MEDICINE
DEPARTMENT OF SURGERY

Cindy Hsu, M.D., Ph.D., assistant professor of emergency medicine, Department of Emergency Medicine, and assistant professor of surgery, Department of Surgery, Medical School, is recommended for promotion to associate professor of emergency medicine, with tenure, Department of Emergency Medicine, and associate professor of surgery, without tenure, Department of Surgery, Medical School.

Academic Degrees:

M.S.	2021	University of Michigan
M.D.	2010	Boston University School of Medicine
Ph.D.	2010	Boston University School of Medicine
B.A.	2002	Johns Hopkins University

Professional Record:

2016-present	Assistant Professor of Emergency Medicine, University of Michigan
2016-present	Assistant Professor of Surgery, University of Michigan

Summary of Evaluation:

Teaching: Dr. Hsu is a dedicated and talented teacher. She has mentored several clinical fellows, residents, undergraduate students, and faculty members. She has served as an Extracorporeal Cardiopulmonary Resuscitation (ECPR) simulation instructor here at the University of Michigan, providing hands-on teaching and lectures to residents and fellows, and since 2018, she has been the instructor for the Emergency Medicine Resident Critical Care Bootcamp, which focuses on ventilator strategies for a post cardiac arrest patients in status asthmaticus and the management of a polytrauma patient with severe traumatic brain injury. She is a regular lecturer to residents and fellows in the Department of Emergency Medicine, as well as provides lectures and teaching to trainees in the Department of Surgery. She developed a train-the-trainer program to teach airway management during COVID-19 which was shared widely on social media, in two publications and two local awards, the Special Contributions in Emergency Medicine Faculty Award, and the Exceptional Physician Communicator Award.

Research: Dr. Hsu's research focuses on improving survival and neurologic outcomes of patients who have experienced sudden cardiac arrest. Dr. Hsu recognized that significant knowledge gaps exist for the translation of novel therapeutics from preclinical laboratories to clinical trials. As the K12 Scholar in Emergency Critical Care from 2017-2020, Dr. Hsu dedicated a significant amount of her time to developing clinically relevant large animal models of cardiac arrest. Dr. Hsu has consistently been funded throughout her time here at the university. Current funding includes a National Institutes of Health, Neurological Disorders and Stroke (NINDS) R61/33, and UG3, a Zoll Foundation grant, an American Heart Association grant, and a university of Michigan Center for Research on Learning and Teaching grant.

Her research efforts have been recognized at the national level through several awards, including receiving the American College of Emergency Physicians Critical Care Section Rising Star award, the Society for Academic Emergency Medicine, Academy for Women in Academic Emergency Medicine Early Career award, the American Heart Association Resuscitation Science Symposium Young Investigator award, and the Society for Academic Emergency Medicine Early Investigator Award in 2022. She has also been recognized here at the university, receiving the R Adams Cowley Shock Trauma Center Excellence in Research Endeavor award, and the Department of Emergency Medicine Research Excellence Faculty award.

Recent and Significant Publications:

Hsu CH, Fowler J, Cranford JA, Thomas MP, Neumar RW, "Integration of social media with targeted emails and in-person outreach for exception from informed consent community consultation," *Acad Emerg Med* 29: 217-227, 2022. PM34416069.

Peterson W, Munzer BW, Tucker RV, Losman ED, Harvey C, Hatton C, Sefa N, Bassin BS, Hsu CH, "Rapid dissemination of a COVID-19 airway management simulation using train-the-trainers curriculum," *Acad Med* 96(10): 1414-1418, 2021. PM33856362.

Hsu CH, Meurer WJ, Domeier R, Fowler J, Whitmore SP, Bassin BS, Gunnerson KJ, Haft JW, Lynch WR, Nallamothu BK, Havey RA, Kidwell KM, Stacey WC, Silbergleit R, Barlett RH, Neumar RW, "Extracorporeal cardiopulmonary resuscitation for Refractory Out of hospital Cardiac Arrest (EROCA) - results of a randomized feasibility trial of expedited prehospital transport," *Ann Emerg Med* 78(1): 92-101, 2021. PM33541748.

Hsu CH, Tiba MH, Boehman AL, McCracken BM, Leander DC, Francalancia BA, Pickell Z, Sanderson TH, Ward KR, Neumar RW, "Aerosol generation during chest compression and defibrillation in a swine cardiac arrest model," *Resuscitation* 159: 28-34, 2021. PM33338570.

Hsu CH, Tiba MH, McCracken BM, Colmenero CI, Pickell Z, Leander DC, Weitzel AM, Raghunayakula S, Liao J, Jinka T, Cummings BC, Pai MP, Alam HB, Ward KR, Sanderson TH, Neumar RW, "Dose optimization of early high-dose valproic acid for neuroprotection in a swine cardiac arrest model," *Resusc Plus* 1-2: 100007, 2020. PM34223294.

Service: Dr. Hsu has an excellent service record for her department, the university, nationally, and internationally. She is a dedicated clinician and provides patient care in the adult emergency department. Her clinical work has allowed her to apply her research findings, as well as to continue to teach residents and medical students within the clinical setting not only about patient care techniques and best practices but how they can apply research principles to the area of patient care in order to improve outcomes and treatment options. Institutionally, she serves as a member of the Michigan Resuscitation Innovation and Science Enterprise (M-RISE) Steering Committee. Nationally, she serves as a member of the American Heart Association Cardiopulmonary, Critical Care, Perioperative and Resuscitation (3CPR) Early Career Committee; the American Heart Association Emergency Cardiovascular Care Science Subcommittee; and the Strategies to Innovate Emergency Care Clinical Trials Network (SIREN) Intensivist Working Group. She also currently serves as the co-chair of the Resuscitation Science Symposium Young Investigator Event committee. Internationally, she serves as a member of the International Liaison Committee on Resuscitation (ILCOR) Advanced Life Support Task Force. Dr. Hsu is an editorial board member for *Resuscitation Plus*, and provides ad hoc peer-reviews for several high-impact journals, including *Resuscitation* and *Circulation: Cardiovascular Quality and Outcomes*. She also serves

as an early career reviewer for the National Institutes of Health Clinical and Integrative Cardiovascular Sciences study section.

External Reviewers:
Reviewer A: "Dr. Hsu is an exceptional, innovative, NIH-funded, nationally and internationally recognized researcher in the field of emergency cardiac care and trauma/surgical critical care. Combining her unique expertise, Dr. Hsu helped pioneer development of ECMO-facilitated resuscitation for patients with refractory cardiac arrest, unresponsive to any standard treatment. In a patient population with previously little to no survival, her innovative approach has now been shown to achieve functionally favorable survival rates as high as 45%. The potential impact of her work on public health is enormous."

Reviewer B: "Her contributions to the teaching and service mission are substantive. Dr. Hsu, as a research faculty participates in local institutional teaching efforts to emergency medicine residents as well as critical care fellows and mentors learners across the continuum on a frequent bimonthly to monthly basis. Her contributions and leadership in research are hallmarked by her appointment as the Director of Critical Care Research in the Department of Emergency Medicine since 2020, with grant funding that is well over $8 million dollars. This is a significant administrative role with a substantial budget and mission."

Reviewer C: "Dr. Hsu is active with respect to a number of very important projects in resuscitation research. Included among these are the ICE-CAP and M-RISE studies, both of which are major efforts within this space. She has previously participated in funded research related to balloon occlusion, ECPR, and neuro-protection. As you know, it is generally difficult for early career investigators to obtain funding, Dr. Hsu's success to date is extraordinary and again portends well for her future success."

Reviewer D: "In 2019, the COVID pandemic hit, and it is impressive that Dr. Hsu's progress only accelerated in this time. In 2021, she published two key pieces of work. The first examined aerosol generation during chest compressions and defibrillation in a swine model of cardiac arrest and found that aerosolization did not occur during chest compressions but did occur with chest compressions following defibrillation, helping to guide the formation of guidelines for CPR at that time. The second examined the role of Extracorporeal cardiopulmonary resuscitation for Refractory Out of Hospital Cardiac Arrest (EROCA)."

Reviewer E: "In addition to Dr. Hsu's scholarly work, she has shown evidence of being a dedicated teacher and mentor. Since joining the University of Michigan, she continues to actively provide mentorship in a wide variety of students, trainees, and junior faculty across a number of disciplines. Despite her strong commitment to and focus on research and a deep dedication towards teaching and mentorship so early on in her academic career, Dr. Hsu already makes time to serve and make meaningful contributions broadly across the medical community through her international, national, regional and institutional committee member roles."

Reviewer F: "Dr. Hsu's service record is remarkable as well. She is a member of 7 professional societies, as mentioned above in scholarship – she serves as an ad-hoc member of an NIH study section, is on the Editorial Board of Resuscitation Plus, and is/was a peer reviewer for 7 journals.

She serves on numerous national committees, including the SAEM - GME committee, Research SAEM Fellowship Committee, the SAEM Research Committee, ACEP critical care Ultrasound committee – which she co-Chairs, the AHA Critical Care, Perioperative and Resuscitation Early Career committee, AHA Emergency Cardiovascular Care Science subcommittee, the Strategies to Innovate Emergency Care Clinical Trials Network Intensivist working group, and the Resuscitation Science Symposium Young Investigator Event – which she is a co-Chair. She also service on 11 institutional committees."

Summary of Recommendation:
Dr. Hsu has made outstanding research contributions and continues to make significant contributions to teaching, scholarship, and service. Therefore, I am pleased to recommend Cindy Hsu, M.D., Ph.D. for promotion to associate professor of emergency medicine, with tenure, Department of Emergency Medicine, and associate professor of surgery, without tenure, Department of Surgery, Medical School.

Marschall S. Runge, M.D., Ph.D.
Executive Vice President of Medical Affairs
Dean, Medical School

May 2023