PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF INTERNAL MEDICINE

Akbar Waljee, M.D., M.S., associate professor of internal medicine, with tenure, Department of Internal Medicine, Medical School, is recommended for promotion to professor of internal medicine, with tenure, Department of Internal Medicine, Medical School.

Academic Degrees:
M.S.   2007   University of Michigan
M.D.   2002   Emory University
B.S.   1996   Emory University

Professional Record:
2017 - present   Associate Professor of Internal Medicine, University of Michigan
2012 - 2017   Assistant Professor of Internal Medicine, University of Michigan
2009 - 2012   Clinical Lecturer of Internal Medicine, University of Michigan
2005 - 2006   Clinical Instructor of Internal Medicine, University of Michigan

Summary of Evaluation:
Teaching: Dr. Waljee is very active in the clinical and research mentoring of trainees at all levels. He has mentored high school and undergraduate students on research projects, as well as master students through the National Clinician Scholars Program (NCSP). He is the associate director of the Gastroenterology Junior Faculty to K-award (JF2K) program, overseeing the data for pilot projects and preliminary data for future NIH and Veterans Affairs career development awards. Dr. Waljee has also been heavily involved in curriculum development, having provided teaching materials on predictive modeling for the former Robert Wood Johnson Clinical Masters and Scholars Program that is now part of the core curriculum for the NCSP. He is an active member of both the GI Fellowship and Internal Medicine Resident Curriculum Committees. Dr. Waljee teaches internal medicine residents and GI fellows in the clinical setting at both the Ann Arbor Veterans Affairs Healthcare System (AAVHS) inpatient GI Consult service. He also provides didactic lectures through the noon conference at the VA and the GI fellows Clinical Research Conference. Dr. Waljee is also active in medical student teaching, serving as a discussion leader for second year medical students for the gastroenterology sequence, as well as the physician scientist clinical and translational research course. In the area of peer-education, Dr. Waljee is the faculty lead for the monthly VA Inflammatory Bowel Disease SCAN Conference. His teaching contributions were recognized through receipt of the 2017 Gastroenterology Fellows Teaching Award and the 2019 Michigan Institute for Clinical and Health Research Distinguished Clinical and Translational Research Mentor Award.

Research: Dr. Waljee's scholarly work focuses on new data science methods such as machine learning and artificial intelligence approaches to improve the treatment of several high-cost, high-risk chronic diseases. Using advanced statistical techniques, he has developed and implemented decision support tools for large health systems such as the University of Michigan and the Ann

Arbor Veterans Affairs Health System, as well as the state government, in collaboration with the Michigan Department of Health and Human Services. He has published 141 peer-reviewed articles, including 81 in rank. These have been published in high impact journals, including *Inflammatory Bowel Disease*, *JAMA* and *Gastroenterology,* and his research has been cited over 5,603 times. He holds two patents for Algorithms to predict clinical response, adherence, and shunting with thiopurines and Machine Learning for Hepatitis C. Dr. Waljee also has seven patent applications pending. Dr. Waljee is currently funded by three large Department of Defense grants, one of which he is the principal investigator. He has been invited to present his work at numerous national and international meetings including Denmark, Taiwan, and China.

Recent and Significant Publications:

Rubenstein JH, Noureldin M, Tavakkoli A, Hur C, Omidvari AH, Waljee AK: Utilization of surveillance endoscopy for Barrett's Esophagus in Medicare enrollees. *Gastroenterology*. 158(3):773-775, 2020.

Waljee AK, Higgins PDR, Jensen CB, Villumsen M, Cohen-Mekelburg SA, Wallace BI, Berinstein JA, Allin KH, Jess: Anti-tumour necrosis factor-α therapy and recurrent or new primary cancers in patients with inflammatory bowel disease, rheumatoid arthritis, or psoriasis and previous cancer in Denmark: a nationwide, population-based cohort study. *Lancet Gastroenterol Hepatol* 5(3):276-284, 2020.

Waljee AK, Wallace BI, Cohen-Mekelburg S, Liu Y, Liu B, Sauder K, Stidham RW, Zhu J, Higgins PDR: Development and validation of machine learning models in prediction of remission in patients with moderate to severe Crohn disease. *JAMA Netw Open*. 2(5):e193721, 2019.

Waljee AK, Sauder K, Patel A, Segar S, Liu B, Zhang Y, Zhu J, Stidham RW, Balis U, Higgins PD: Machine learning algorithms for objective remission and clinical outcomes with thiopurines. *J Crohns Colitis*. 2017; 11(7):801-810, 2017.

Waljee AK, Rogers MA, Lin P, Singal AG, Stein JD, Marks RM, Ayanian JZ, Nallamothu BK. Short term use of oral corticosteroids and related harms among adults in the United States: population-based cohort study. *BMJ*. 357:j1415, 2017.

Service: Dr. Waljee provides clinical care with a focus on the treatment of veterans with Inflammatory Bowel Disease (IBD). Institutionally, he is an active member on the Inflammatory Bowel Disease Working Group, Center for Global Health Equity Committee, Michigan Institute for Data Science Committee, and Gastroenterology Fellowship Interview Committee. He also serves as the director of both the IBD Program and Prediction Modeling Unit at the Ann Arbor VA Healthcare System. In this role, he is involved in providing clinical, programmatic, and strategic support for providers caring for over 80,000 Veterans with IBD nationally. In addition, Dr. Waljee is the faculty associate director of the Data and Methods Hub, Institute for Healthcare Policy and Innovation at Michigan Medicine. Nationally, he serves on the Veterans Affairs National Artificial Intelligence Institute Committee and Veterans Affairs Gastroenterology Field Advisory Committee, IBD Sub Committee. Internationally, he serves on the American Gastroenterological Association International Subcommittee and *BMJ Journals:* GUT Advisory Committee.

External Reviewers:

Reviewer A: "Akbar is best known as a scholar with expertise in machine learning and artificial intelligence in gastroenterology and hepatology…I was aware of Akbar's scholarly contributions but after reviewing his entire promotion packet, I was impressed even more. He has been incredibly productive in a relatively short period of time."

Reviewer B: "Dr. Waljee is a leader among a dedicated team of researchers using complex data analytic techniques to explore clinical outcomes of IBD care and to improve the health service delivery of care to health systems involved in the care of IBD…Dr. Waljee is also considered an internationally renowned leader in the field of gastroenterology. He has developed important clinical and research collaborations in Africa – e.g. country of Kenya…I recognize him as among the most accomplished clinical investigator in the field of gastroenterology."
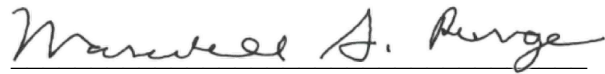
Reviewer C: "The scope of Dr. Waljee's research and publications is astounding in both breadth and volume, but are unified by a predominant theme of applying novel methodology to clinical prediction modeling, with important implications for advancing care…Dr. Waljee incisively employs the most appropriate and up-to-date techniques of epidemiology. His greatest innovation has been the application of machine learning techniques to research questions in the sphere of gastrointestinal disease, and he is among the very first to have successfully applied such techniques within the field...In every respect, as a clinical investigator, educator and leader, Dr. Waljee is at the top of the field among his peers. His contributions are highly original and impactful. He is highly visible and his accomplishments shine…I support his promotion without reservation and with the highest enthusiasm."

Reviewer D: "Professor Waljee's work in artificial intelligence algorithms is very impressive. His ability to convert evidence from data into AI algorithms that are sensitive to the specific clinical environments (such as the US Veterans Administration) is a model that will work well in our countries (Pakistan, Afghanistan, Kenya, Tanzania and Uganda)…The quantity of his work output overall, the quality of the dissemination outlets, and the external funding he has received are all in line with the highest caliber files I have reviewed while part of various committees during my previous work…His ability and willingness to mentor emerging talent is impressive…Professor Waljee would meet and surpass the benchmarks for promotion to Full-Professor at [the institution] where I have worked previously, as well as at [my institution]."

Reviewer E: "Dr. Waljee personifies what it means to be a true Academic Gastroenterologist as evidenced by his record. His passion for the care of patients with inflammatory bowel disease is evident by his development of the Inflammatory Bowel Disease Program at the VA in Ann Arbor as well as my direct observation of his care in a few patients we have shared over the years…His academic success really speaks for itself…It is because of Dr. Waljee's success in all aspects of Academic GI including clinical, academic and research that I can recommend him without hesitation for promotion to Professor within the tenure track at the University of Michigan without hesitation."

Summary of Recommendations:

Dr. Waljee is recognized nationally for his expertise in health services research in the area of gastrointestinal and liver diseases. His artificial intelligence methods, including machine learning and deep learning, have improved decision-making to facilitate the delivery of efficient, effective, and equitable care, especially in costly diseases and in limited resource settings. He is strongly committed to teaching, and provides significant service, particularly to the Veterans Affairs Healthcare System, both regionally and nationally. I recommend Akbar Waljee, M.D., M.S. for promotion to professor of internal medicine, with tenure, Department of Internal Medicine, Medical School.

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

May 2021