Supplementary Online Content

Shoamanesh A, Morotti A, Romero JM, et al; Antihypertensive Treatment of Acute Cerebral Hemorrhage 2 (ATACH-2) and Neurological Emergencies Treatment Trials (NETT) Network Investigators. Cerebral microbleeds and the effect of intensive blood pressure reduction on hematoma expansion and functional outcomes: a secondary analysis of the ATACH-2 randomized clinical trial. *JAMA Neurol.* Published online April 16, 2018. doi:10.1001/jamaneurol.2018.0454

eAppendix. Supplemental Appendix

eFigure. Flow Diagram of the ATACH-II Trial

eTable. Comparison of Baseline Characteristics and Neuroimaging Findings for Subjects Included in CMB Analysis and the Rest of the Subjects From ATACH-2

This supplementary material has been provided by the authors to give readers additional information about their work.

eAppendix. Supplemental Appendix

1.0 ATACH-2 Investigators

Trial Coordination Center:

Zeenat Qureshi Stroke Research Center, University of Minnesota

Principal Investigator: Adnan I. Qureshi, MD

Haitham Hussein, MD (Consent and CRF Development); Jill M. Novitzke, MPA, BSN, CCM, CLNC (Monitoring Oversight); Cathie Witzel, BA (Administrative Assistance, Editing); Bo Connelly, JD (Project Manager); Saqib A. Chaudhry, MD (Education Development); Emily I. Abbott, JD, CPA (Grants and Contracts, International Liaison); Erik T. Maland, BAN, RN, PHN (Clinical Research Associate and Monitor); Kathryn A. France, BA, RN, PHN, CCRC, CCRA (Clinical Research Associate, Clinical Trial Nurse-Coordinator, Domestic Affairs and Protocol Liaison, Monitor); Basit Rahim, MD (Clinical Tools Design); Zachariah Miller, MA (Communications Coordinator); Alfredo J. Caceres, MD (Central Imaging Reader); Logan J. Brau, BS (Imaging Technician); Mushtaq H. Qureshi, MD (Central Imaging Analyst); Jessy K. Thomas, MS, CCRP (Project Manager); Mohammad R. Afzal, MD (Assistant to Central Imaging Analyst); Norrita Rech, BS, MA, CCRP (Grants and Contracts)

Statistical and Data Coordination Center: Data Coordination Unit, Department of Public Health Sciences, Medical University of South Carolina

Principal Investigator: Yuko Y. Palesch, PhD

Renee Martin, PhD; and Wenle Zhao, PhD (Co-Investigators); Lydia Foster, MS; and Jaime Speiser, MS (Biostatisticial Programmers); Catherine Dillon, BS (Trials Operations Manager); Jaemyung Kim, MBA (Senior IS Developer); Cassidy Conner, MS; Adam Henry, MPH; Kristina Hill, MPH, MIS (Data Managers); Kristen Clasen, MEd (Regulatory Documents Manager); Christy Cassarly (Graduate Research Assistant)

Independent Oversight Committee

Johns Hopkins University – Division of Brain Injury Outcomes

Daniel F. Hanley, MD (Chair); Carlos S. Kase, MD; and J. Ricardo Carhuapoma, MD (Committee Members); Nichol McBee, MPH, CCRP (IOC Coordinator)

National Institute of Neurological Disorders and Stroke of the National Institutes of Health NINDS Representatives:

Claudia Moy, PhD (Project Scientist); and Scott Janis, PhD (Program Official)

NINDS-Appointed Data and Safety Monitoring Board:

J. Claude Hemphill III, MD, MAS (Chair); Brian L. Hoh, MD, FACS, FAHA; Mario Zucharello, MD; and Michael K. Parides, PhD (Board Members)

Regional/National Clinical Coordinating Centers

United States:

The Neurological Emergency Treatment Trials (NETT) Network, University of Michigan

William Barsan, MD (NETT Network Principal Investigator); Robert Silbergleit, MD (NETT Network Co-Investigator); Joshua N. Goldstein, MD, PhD (Investigator); Valerie Stevenson, BAS, LRT, CCRP (Administrative Director); Erin Bengelink, MS (Site Manager); Joy Black, BSN, MS (Education Coordinator); Mickie Speers, BSN; Donna Harsh, MS; Carol Van Huysen, BS; Angela Caveney, PhD; and Andrace Deyampert, MSHS (Monitors); Beth Grundman and Allison DuRoss (Research Assistants). Additional NETT hub participants: Jan Claassen, MD (Columbia); Michelle Biros, MD (University of Minnesota); David Wright, MD (Emory University); James Quinn, MD; and Rosen Mann (Stanford University); Jill Baren, MD (University of Pennsylvania); Robert Welch, MD (Wayne State University); Tom Aufderheide, MD; Melissa Mena; and Erica Chopskie (Medical College of Wisconsin); Roger Humphries, MD (University of Kentucky); Monica Mendoza-Moore (University of Texas); Katherine Lamond (University of Pennsylvania); Ryan Callahan and Melissa Howell, (Massachusetts General Hospital); Patricia M. McNelis and Hannah Reimer (Temple University); Ginny Stasinski and Bruce Barnhart (University of Arizona); Ryan McCormick (UCSF); Ana Maria Gomez Ramirez (Ohio State University).

Neurocritical Care Research Network (NCRN)

Jose I. Suarez (Principal investigator)

Japana

National Cerebral and Cardiovascular Center and Japan Cardiovascular Research Foundation

Kazunori Toyoda, MD, PhD (Lead National Principal Investigator); Haruko Yamamoto, MD PhD (Lead Project Manager); Masatoshi Koga, MD PhD, Shoichiro Sato, MD PhD, and Sohei Yoshimura, MD PhD (coordination for Japanese sites); Mayumi Fukuda-Doi, MD MPH (Regulatory Manager); Kanae Hirase RN, CCRC (Lead Monitor); Shuhei Okazaki, MD PhD (Monitor); Hiromi Ohara, RN, CCRC (Coordinator)

China:

Beijing Tiantan Hospital Clinical Coordinating Center

Yongjun Wang, MD, PhD (Lead National Principal Investigator); Zeyu Ding, MD, PhD (Lead Coordinator); Dandan Wang, MD (Regulatory Specialist); Nannan Xu (Clinical Research Associate)

Taiwan:

China Medical University Hospital Clinical Trial Center of Excellence

Prof. Chung Y. Hsu, MD, PhD (Lead National Principal Investigator); Dana Lin (Lead Coordinator); Mamiko Suzuki (Lead Monitor); Chin-Ting Hsu, Jou-Ping Hsu, and Emma Ho, MS, BSN (Monitors)

Germany:

Coordinating Center for Clinical Trials (KKS), University Hospital Heidelberg

Prof. Dr. Thorsten Steiner, MD (Lead National Principal Investigator); Andrea Seidel-Glätzer, MA, RN (Project Manager); Claudia Simonis, PhD (Clinical Research Associate), Ulrike Berlet, Pharmacist (Clinical Research Associate)

South Korea:

Clinical Sites and Site Investigators, by Enrollment

National Cerebral and Cardiovascular Center, Osaka, Japan (79)

Kazunori Toyoda, MD, PhD (Principal Investigator); Kazuyuki Nagatsuka, MD, PhD (Investigator); Kanae Hirase, RN, CCRC (Primary Coordinator)

Beijing Tiantan Hospital, Beijing, China (72)

Yongjun Wang, MD, PhD (Principal Investigator); Zeyu Ding, MD, PhD (Primary Coordinator)

Kobe City Medical Center General Hospital, Kobe City, Hyogo, Japan (53)

Nobuyuki Sakai, MD, DMSc (Principal Investigator); Kenichi Todo, MD, PhD (Investigator); Sakina Yoshihira (Primary Coordinator)

Toranomon Hospital, Tokyo, Japan (38)

Takayuki Hara, MD (Principal Investigator); Mihoko Matsukami (Primary Coordinator)

Taizhou First People's Hospital, Taizhou City, Zhejiang Province, China (37) Zhimin Wang, MD (Principal Investigator); Jie Chen, MD (Primary Coordinator)

National Taiwan University Hospital, Taipei, Taiwan (36)

Jiann-Shing Jeng, MD, PhD (Principal Investigator); Sung-Chun Tang, MD, PhD; Li-Kai Tsai, MD, PhD; and Shin-Joe Yeh, MD (Co-Principal Investigators); Yu-Ting Wang (Primary Coordinator)

Columbia University Medical Center, New York, NY, USA (27)

Sachin Agarwal, MD, MPH (Principal Investigator); Stephan A. Mayer, MD (Principal Investigator, former, currently Director, Institute for Critical Care Medicine - Icahn School of Medicine at Mount Sinai); M. Cristina Falo, PhD; and Angela Velazquez, MD (Primary Coordinators)

St. Cloud Hospital, St. Cloud, MN, USA (26)

M Fareed K Suri, MD (Principal Investigator); Melissa A. Freese, BSN, RN, CNRN (Primary Coordinator)

Abington Memorial Hospital, Abington, PA, USA (23)

Qaisar A. Shah, MD (Principal Investigator); Karin Jonczak, CRNP; and Patricia Businger, CRNP (Primary Coordinators)

Baylor College of Medicine, Houston, TX, USA (20)

Jose I. Suarez, MD; and Paulina B. Sergot, MD (Principal Investigators); Eusebia Calvillo, RN; and Kelly Rogers Keene, BSN, RN (Primary Coordinators)

Stroke & Neurovascular Center, JFK Medical Center, Edison, NJ, USA (18)

Jawad F. Kirmani, MD (Principal Investigator); Spozhmy Panezai, MD (Co-Principal Investigator); Charles Porbeni, MD; Nnamdi Uhegwu, MD; and Briana DeCarvalho, MSN, RN (Primary Coordinators)

Kaohsiung Veterans General Hospital, Kaohsiung, Taiwan (18)

Ching-Huang Lin, MD; and Yuk-Keung Lo, MD (Principal Investigators); Yi-Ting Hsu (Primary Coordinator)

Guilford Neurologic Associates, Greensboro, NC, USA (16)

Pramod Sethi, MD (Principal Investigator); Rizwan Sabir and Wesley Harbison, RN, MHA (Primary Coordinators)

Kyorin University, Tokyo, Japan (16)

Yoshiaki Shiokawa, MD, PhD (Principal Investigator); Masataka Torii MD, PhD (Primary Coordinator)

St. Marianna University Hospital, Kawasaki, Kanagawa, Japan (16)

Yasuhiro Hasegawa, MD, PhD (Principal Investigator); Yuki Ohta, PhD; and Sachiko Takenoshita, PhD (Primary Coordinators)

China Medical University Hospital, Taichung, Taiwan (16)

Chun-Lin Liu, MD (Principal Investigator); Li-Te Tseng (Primary Coordinator)

Hennepin County Medical Center, Minneapolis, MN, USA (14)

Thomas A. Bergman, MD (Principal Investigator); Gustavo J. Rodriguez, MD (Principal Investigator, former, Currently at Texas Tech University Health Sciences Center of El Paso, TX); Kathryn France, BA, RN, PHN, CCRC, CCRA (Primary Coordinator); and Kathleen Miller, BSN CCRC (Primary Coordinator, former)

Gifu University Hospital, Gifu, Japan (14)

Toru Iwama, MD, PhD (Principal Investigator); Shin-ichi Yoshimura, MD, PhD (Principal Investigator); Yusuke Egashira, MD, PhD; and Toshinori Takagi, MD, PhD (Primary Coordinators)

University Hospital Heidelberg, Heidelberg, Germany (14)

Julian Bösel, MD (Principal Investigator); Perdita Beck (Primary Coordinator)

Department of Neurosurgery, Nakamura Memorial Hospital, Sapporo, Hokkaido, Japan (13) Kenji Kamiyama, MD (Principal Investigator); Ryo Fujii and Megumi Chiba (Primary Coordinators)

Grady Memorial Hospital, Atlanta, GA, USA (12)

Gustavo Pradilla, MD (Principal Investigator); Alex J. Hall, MS, RN (Primary Coordinator); and Michael P. Lunney, MPH, NRP (Primary Coordinator, former)

Kansas University Medical Center, Kansas City, KS, USA (12)

Katherine Palmieri, MD (Principal Investigator); Abhijit Lele, MD (Principal Investigator, former); Rachel Henning, RN, BSN, CCRP (Primary Coordinator); Stephanie Thomas-Dodson and Angie Ballew (Primary Coordinators, former)

Stanford University, Stanford, CA, USA (12)

Chitra Venkatasubramanian, MBBS, MD, MSc (Principal Investigator); Christine Wijman, MD (Principal Investigator, initial, in memory of); Rosita Thiessen, BA, CCRP (Primary Coordinator); Madelleine Garcia and Ami Okada, PhD (Primary Coordinators, former)

Tokyo Saiseikai Central Hospital, Tokyo, Japan (12)

Haruhiko Hoshino, MD (Principal Investigator); Chiaki Arakawa (Primary Coordinator)

Wuhan Brain Hospital, Wuhan, China (12)

Yuhua Chen, MD (Principal Investigator); Jin Li, MD (Primary Coordinator)

Memorial Hermann - Texas Medical Center, Houston, TX, USA (11)

Tiffany R. Chang, MD (Principal Investigator); Misty Ottman (Primary Coordinator)

Valley Baptist Medical Center, Harlingen, TX, USA (11)

Ameer E. Hassan, DO (Principal Investigator); Olive Sanchez, MSN, RN, BC (Primary Coordinator)

Kohnan Hospital, Sendai, Miyagi, Japan (11)

Eisuke Furui, MD (Principal Investigator); Aki Osanai (Primary Coordinator)

Shin-Kong Wu Ho-Su Memorial Hospital, Taipei, Taiwan (11)

Li-Ming Lien, MD, PhD (Principal Investigator); Hsu-Ling Yeh, MD (Investigator); I-Yu Lee (Primary Coordinator)

Seoul National University Hospital, Seoul, South Korea (11)

Byung-Woo Yoon, MD, PhD (Principal Investigator); Yeo-Jung Chae, and Jae-Young Jo, RN (Primary Coordinators)

UAB Comprehensive Stroke Center, Birmingham, AL, USA (10)

Angela N. Hays, MD (Principal Investigator); Andrei V. Alexandrov, MD (Principal Investigator, former, now Semmes Murphy Professor and Chair, Department of Neurology, University of Tennessee Health Science Center); April Sisson, BSN, RN (Primary Coordinator); and Lynn Merritt, RN (Primary Coordinator, former)

Massachusetts General Hospital, Boston, MA, USA (10)

Joshua N. Goldstein, MD, PhD (Principal Investigator); Gregory Tirrell, MS (Primary Coordinator); Abigail Cohen, Kristen McNamara, and Lauren Barton (Primary Coordinators, former)

St. Marianna University Tokoyo Hospital, Kawasaki, Kanagawa, Japan (10) Toshihiro Ueda, MD (Principal Investigator); Yoko Kaji (Primary Coordinator)

National Hospital Organization Kyushu Medical Center, Fukuoka, Japan (10)

Yasushi Okada, MD, PhD (Principal Investigator); Asako Nakamura, MD, PhD; and Kouichirou Maeda (Primary Coordinators)

Datong Third People's Hospital, Datong, Shanxi Province, China (10) Xudong Ren, MD (Principal Investigator); Kang Ye (Primary Coordinator)

University of Bonn, Bonn, Germany (10)

Hartmut Vatter, MD (Principal Investigator); Erdem Güresir, MD (Investigator); Azize Boströem, MD (Investigator, Primary Coordinator)

Ochsner Clinic Foundation, New Orleans, LA, USA (9)

Ifeanyi Iwuchukwu, MD (Principal Investigator); Arash Afshinnik, MD; and Kenneth Gaines, MD (Principal Investigators, former); William Itoua Nganongo (Primary Coordinator)

Temple University Hospital, Philadelphia, PA, USA (9)

Nina T. Gentile, MD (Principal Investigator); Vernon S. Kalugdan, BSN, RN; and Brent Freeman (Primary Coordinators)

Novant Health Research Institute – Novant Health Forsyth Medical Center, Winston-Salem, NC, USA (9) Benjamin Anyanwu, MD (Principal Investigator); and Chere Chase-Gregory, MD, MHS (Principal Investigator, former); Kevin Colston, LPN, CRC (Primary Coordinator)

Henry Ford Hospital, Detroit, MI, USA (9)

Christopher Lewandowski, MD (Principal Investigator); Joseph B. Miller, MD, MS (Investigator); Shannen Berry-Hymon, RN (Primary Coordinator); Kathleen Mays-Wilson, MS, BSN, RN, CCRP; and Anne Marie Lundell, BSN, RN (Primary Coordinators, former)

University of Pennsylvania, Philadelphia, PA, USA (8)

Steven Messe, MD (Principal Investigator); Nichole Gallatti, MSEd (Primary Coordinator)

National Hospital Organization Nagoya Medical Center, Nagoya City, Aichi, Japan (8) Satoshi Okuda, MD (Principal Investigator); Kazumi Nakamura (Primary Coordinator)

University Hospitals Case Medical Center, Cleveland, OH, USA (7)

Nicholas Bambakidis, MD (Principal Investigator); Valerie Cwiklinski (Primary Coordinator)

Lehigh Valley Hospital, Allentown, PA, USA (7)

Hermann Christian Schumacher, MD (Principal Investigator, currently Neurohospitalist at Capital Health, NJ); Kathy Knapp, Susan Nabhan, and Leighanne Hartman (Primary Coordinators)

Keio University Hospital, Tokyo, Japan (7)

Yoshiaki Itoh, MD, PhD; Takato Abe, MD, PhD; and Shinichi Takahashi, MD, PhD (Principal Investigators); Mao Okamoto (Primary Coordinator)

National Cheng Kung University Hospital, Tainan, Taiwan (7)

Chih-Hung Chen, MD (Principal Investigator); Ya-Fang Hsueh (Primary Coordinator)

Advocate Christ Medical Center, Oak Lawn, IL, USA (6)

Erik Kulstad, MD (Principal Investigator); Michael T. Stanek, MD (Co-Principal Investigator); Kathleen Hesse, RN, CCRC (Primary Coordinator)

King's County Medical Center, New York, NY, USA (6)

Susan W. Law, DO (Principal Investigator); Helen Valsamis, MD (Principal Investigator, former); Steven R. Levine, MD (Investigator); Bryce Petty, CCRC (Primary Coordinator); Sarah Z. Weingast, Saroj D. Kunnakkat, Bruhati Shah, and Vanessa Arnedo (Primary Coordinators, former)

Baotou Central Hospital, Baotou, China (6)

Yuechun Li, MD (Principal Investigator); Qiang Chen (Primary Coordinator)

Seoul National University Bundang Hospital, Seongnam, Gyeonggi-do, South Korea (6)

Hee-Joon Bae, MD, PhD (Principal Investigator); Joungsim Kim (Primary Coordinator); Juri Park, RN (Coordinator)

Regions Hospital, St. Paul, MN, USA (5)

Michael D. Zwank, MD (Principal Investigator); Tenbit Emiru, MD, PhD (Principal Investigator, former, currently at Hennepin County Medical Center, Minneapolis, MN); Emily Mischel, MA (Primary Coordinator); and Sandi Wewerka, MPH (Primary Coordinator, former)

University of California San Diego, San Diego, CA, USA (5)

Dawn Meyer, FNP-C, PhD (Principal Investigator); Karen Rapp, BSN, RN, CCRC (Primary Coordinator); Nancy Kelly, Ronelyn Chavez, and Teresa Rzesiewicz (Primary Coordinators, former)

Palmetto Health Richland and University of South Carolina, Columbia, SC, USA (5)

Souvik Sen, MD (Principal Investigator); Evelyn Kennedy, MSN, RN, CCRP (Primary Coordinator); Krista Vaughan, RNC; and Selena Lollar, RN (Primary Coordinators, former)

St. Joseph's Regional Medical Center, Paterson, NJ, USA (5)

Dorothea Altschul, MD (Principal Investigator); Avery Katz, MD (Principal Investigator, former); Bogdana Dikovytska, CCRC (Primary Coordinator); and Milicent Titus, CCRP (Primary Coordinator, former)

Martin-Luther University Hospital Halle-Wittenberg, Halle (Saale), Germany (5)

Katja E. Wartenberg, MD, PhD (Principal Investigator); Doreen Herale (Primary Coordinator); and Sandra Seidl (Primary Coordinator, former)

University of Tübingen, Tübingen, Germany (5)

Sven Poli, MD (Principal Investigator); Ulf Ziemann, Florian Härtig, Martin Ribitsch, Hardy Richter, Matthias Ebner, Alexandra Gaenslen (Investigators); Julia Zeller (Primary Coordinator)

Tulane Medical Center, New Orleans, LA, USA (4)

Ramy El Khoury, MD (Principal Investigator), Elizabeth Jones, (Principal Investigator, NETT hub, and site former); Sheryl Martin-Schild, MD, PhD (Investigator); Annie Stell and Cheryl Carmody (Primary Coordinators, former)

Sinai-Grace Hospital, Detroit, MI, USA (4)

Gregory M. Norris, MD (Principal Investigator); Valerie Mika (Primary Coordinator)

Yale - New Haven Hospital, New Haven, CT, USA (4)

David M. Greer, MD, MA (Principal Investigator); Kimberly Kunze, MSN, RN (Primary Coordinator); Janet R. Halliday, BS, RN (Primary Coordinator, former)

Mayo Clinic Florida, Jacksonville, FL, USA (4)

W. David Freeman, MD (Principal Investigator); Emily Edwards, MS, CCRP (Primary Coordinator); Dale Gamble, MHSc, CCRP; and Sothear Luke, MPH, CCRP (Primary Coordinators, former)

Tampa General Hospital/University of South Florida School of Medicine, Tampa, FL, USA (4) David Z. Rose, MD (Principal Investigator); Tara McTigue, RN, CCRC (Primary Coordinator)

University of Louisville, Department of Neurology, Louisville, KY, USA (4)

Jignesh J. Shah, MD (Principal Investigator); Kerri S. Remmel, MD, PhD (Principal Investigator, former, now Professor and Chair, Department of Neurology at University of Louisville); Ann Jerde (Primary Coordinator)

Medical College of Wisconsin, Milwaukee, WI, USA (4)

Ann Helms, MD (Principal Investigator); Ling Zhong, PhD (Primary Coordinator); Emon Das, (Primary Coordinator, former)

Colorado Neurological Institute, Englewood, CO, USA (4)

Ira Chang, MD (Principal Investigator); Alicia Novak, PhD; and Laura Greeley (Primary Coordinators); Paula Fisk, BS, CCRP; Ashley Bittner, BS, CCRP; and Lenden Neeper, BS, CCRP(Primary Coordinators, former)

Fairview Southdale Hospital, US (4)

Alexander Y. Zubkov, MD, PhD (Principal Investigator); Abbey Staugaitis, MSN (Primary coordinator); Kathryn France, BA, RN, PHN, CCRC, CCRA; and Kathleen Miller, BSN, CCRC (Primary Coordinators, former)

Penn State Milton S. Hershev Medical Center, Hershey, PA, USA (4)

J. Christopher Zacko, MD (Principal Investigator); Deborah Hoffman, BSN (Primary Coordinator)

Eastern Idaho Regional Medical Center, Idaho Falls, ID, USA (4)

Kenneth E. Krell, MD (Principal Investigator); Erich Garland, MD and Douglas N. Whatmore, MD (Investigators); Amy Thornley, ACNP-BC (Primary Coordinator)

Research Medical Center, Kansas City, MO, USA (4)

Iftekhar Ahmed, MD (Principal Investigator); Sarah Dunalewicz (Coordinator); Jennifer W. Feeback, Amy Akins, Pamela McCann (Primary Coordinators, former)

Tri-Service General Hospital and the National Defense Medical Center, Taipei, Taiwan (4) Hsin-I Ma, MD, PhD (Principal Investigator); Pei-Min Hsiao (Primary Coordinator)

University Medical Center Brackenridge, Austin, TX, USA (3)

Jefferson T. Miley, MD (Principal Investigator); Laura Lachance, MA, CCRP (Primary Coordinator)

Rhode Island Hospital, Providence, RI, USA (3)

Lisa H. Merck, MD, MPH (Principal Investigator); Bradford B. Thompson, MD (Co-Principal Investigator); Jena Lerch (Primary Coordinator)

UPMC Presbyterian Hospital, Pittsburgh, PA, USA (3)

Bradley J. Molyneaux, MD, PhD; Clifton W. Callaway, MD, PhD; and Jon C. Rittenberger, MD (Principal Investigators); Sara DiFiore, Pamela Fazio, RN, CNC; and Kara Armbuster, BSN, RN (Primary Coordinators)

Detroit Receiving Hospital, Detroit, MI, USA (3)

Greg M. Norris, MD (Principal Investigator); Wazim Mohamed, MD; and Mohammad S Ibrahim, MD (Investigators); Valerie H. Mika, MS; and Amy Spencer (Primary Coordinators); Cathey Boyer (Primary Coordinator, former)

SUNY Downstate Medical Center/University Hospital of Brooklyn, Brooklyn, NY, USA (3)

Steven R. Levine, MD (Principal Investigator); Bryce Petty (Primary Coordinator); Sarah Z. Weingast, Saroj D. Kunnakkat, Bruhati Shah, Marijayne Bushey, and Vanessa Arnedo (Primary Coordinators, former)

Maine Medical Center, Portland, ME, USA (3)

David B. Seder, MD (Principal Investigator); Richard R. Riker, MD (Investigator); Barbara F. McCrum, RN, BSN (Primary Coordinator)

Sutter Roseville Medical Center, Roseville, CA, USA (3)

Asim Mahmood, MD (Principal Investigator); Michele Guillen (Primary Coordinator); Teresa Carter (Primary Coordinator, former)

University of New Mexico, Albuquerque, NM, USA (3)

Huy Tran, MD (Principal Investigator); Marc Malkoff, MD (Principal Investigator, former); Theresa Wussow, BSSN, RN; and Alice Brown, CNP (Primary Coordinators)

Providence Brain and Spine Institute, Portland, OR, USA (3)

Ted Lowenkopf, MD (Principal Investigator); Monica Rodriguez (Primary Coordinator)

University Hospital Mannheim, Mannheim, Germany (3)

Marc Fatar, MD (Principal Investigator); Kathrin Knoll (Primary Coordinator)

Texas Tech University Health Sciences Center of El Paso, El Paso, TX, USA (2)

Gustavo J. Rodriguez, MD (Principal Investigator); Alberto Maud, MD (Co-Principal Investigator); Elizabeth Ledger (Primary Coordinator)

UCSF Medical Center, San Francisco, CA, USA (2)

Wade Smith, MD, PhD (Principal Investigator); Michelle Meeker, BSN, RN (Primary Coordinator)

University of Kentucky, Lexington, KY, USA (2)

Luther Creed Pettigrew, MD (Principal Investigator); Linda Dechtenberg and Joann Short, RN BSN (Primary Coordinators)

Banner University Medical Center - Tucson Campus, Tuscon, AZ, USA (5)

Kurt Denninghoff, MD (Principal Investigator); Chelsea S. Kidwell, MD (Principal Investigator); Andrew Laine (Primary Coordinator)

Parkview Hospital, Fort Wayne, IN, USA (2)

Rakesh Khatri, MD (Principal Investigator); Jeanne Carroll, RN BA CCRC (Primary Coordinator)

University of Mississippi Medical Center, Jackson, MS, USA (2)

Hartmut Uschmann, MD (Principal Investigator); As'ad Ehtisham, MD, (Principal Investigator, former, currently at Ehtisham Neurovascular Institute, ENVI, PLLC); Marcia Bankston (Primary Coordinator, former)

The Ohio State University - Wexner Medical Center, Columbus, OH, USA (2)

Michel Torbey, MD, MPH (Principal Investigator); Chad Miller, MD (Principal Investigator, former); Réza Behrouz, DO (Principal Investigator, former, currently Associate Professor at the University of Texas Health Science Center - San Antonio); Nirav Patel, MBBS, MPH; (Primary Coordinator); Leonard Basobas (Primary Coordinator, former)

Brigham and Women's Hospital, Boston, MA, USA (2)

Galen Henderson, MD (Principal Investigator); Sherry Chou, MD (Principal Investigator); Sarah Clark and Simone Renault (Primary Coordinators); Gabriela Santos, Sarah Suh, Kristina Lieu, and Ross Merkin (Primary Coordinators, former)

Boston Medical Center, Boston, MA, USA (2)

Joseph D. Burns, MD (Principal Investigator); Helena Lau, MSPH, RN (Primary Coordinator)

Saint Louis University, Saint Louis, MO, USA (2)

Salavador Cruz-Floes, MD (Principal Investigator); Eve M. Holzemer, DNP, ANP-BC; Susan Eller, MA, RN, CCRC; Susan Brown, RN, CCRC (Primary coordinators); and JoAnn Filla-Taylor, BSN, RN, CCRC (Primary Coordinator, former)

Hoag Memorial Hospital Presbyterian, Newport Beach, CA, USA (2)

David Brown, MD (Principal Investigator); Laura Whitaker (Primary Coordinator)

Changhua Christian Hospital, Changhua, Taiwan (2)

Mu-Chien Sun, MD (Principal Investigator); Pi-Ju Hsiao (Primary Coordinator)

University Hospital Leipzig, Leipzig, Germany (2)

Dominik Michalski, MD (Principal Investigator, affiliation Department of Neurology, University of Leipzig); Carsten Hobohm, MD (Principal Investigator); Daniela Urban (Primary Coordinator)

UC Davis Medical Center, Sacramento, CA, USA (1)

Daniel K. Nishijima, MD (Principal Investigator); Glen C. Jickling, MD (Co-Principal Investigator); Laura Beth Jones (Primary Coordinator); Tirath Sanghera, CCRC (Primary Coordinator, former)

University of Florida Gainesville, Gainesville, FL, USA (1)

Anna Khanna, MD (Principal Investigator); Vishnumurthy Shushrutha Hedna, MD (Principal Investigator, former, now at University of New Mexico); Rosie Kizza, RN (Primary Study Coordinator)

Aurora St. Luke's Medical Center, Milwaukee, WI, USA (1)

Elizabeth Marriott, MD (Principal Investigator); Linda Yanny, RN, BSN, CCRC (Primary Coordinator)

Seton Medical Center Austin, Austin, TX, USA (1)

Jefferson T. Miley, MD (Principal Investigator); Laura LaChance, MA, CCRP (Primary Coordinator); Alison M. von Eberstein, PhD, RN, BSN (Primary Coordinator, former, currently at Florida State University School of Information)

UPMC Mercy Hospital, Pittsburgh, PA, USA (1)

Bradley J. Molyneaux, MD, PhD; CliftonW. Callaway, MD, PhD; and Jon C. Rittenberger, MD (Principal Investigators); Sara Difiore (Primary Coordinator)

Emory University Hospital, Atlanta, GA, USA (1)

Gustavo Pradilla, MD (Principal Investigator); Alex J. Hall, MS, RN (Primary Coordinator); and Michael P. Lunney, MPH, NRP (Primary Coordinator, former)

Santa Clara Valley Medical Center, San Jose, CA, USA (1)

Marco Lee, MD, PhD, Dept. of Neurosurgery, Stanford University (Principal Investigator); Anita Visweswaran (Primary Coordinator)

William Beaumont Hospital-Royal Oak, Royal Oak, MI, USA (1)

Robert Swor, DO (Principal Investigator); Mara Branoff, RN, BSN (Primary Coordinator/Research Nurse Clinician)

Akron General Hospital, Akron, OH, USA (1)

James M. Gebel, MD (Principal Investigator); Debra Hudock, MSN (Primary Coordinator)

Saint Luke's Marion Bloch Neuroscience Institute, Kansas City, KS, USA (1) Darren Lovick, MD (Principal Investigator); Bridget Brion (Primary Coordinator)

United Health Services Hospitals, Inc. – Wilson Medical Center, Johnson City, NY, USA (1)

Yahia M. Lodi, MD (Principal Investigator); Varun Reddy, MD (Investigator); Terri Peters (Primary Coordinator)

Vanderbilt Stroke Center, Nashville, TN, USA (1)

Michael T. Froehler, MD, PhD (Principal Investigator); Howard S. Kirshner, MD (Investigator); Matthew M. Warrick (Primary Coordinator)

Oklahoma University Health Sciences Center (OUHSC), Oklahoma City, OK, USA (1)

Evgeny Sidorov, MD, PhD (Principal Investigator); Akram Shhadeh, MD (Principal Investigator, former); Bradley Hightower (Primary Coordinator)

Kawasaki Medical School, Okayama, Japan (1)

Kazumi Kimura, MD, PhD (Principal Investigator, former, now at Nippon Medical School); Kensaku Shibazaki (Primary Coordinator)

Taipei Veterans Hospital, Taipei, Taiwan (1)

Chang-Ming Chern, MD (Principal Investigator); Chia-Hui Lin and Chia-Wei Lin Hsu (Primary Coordinators)

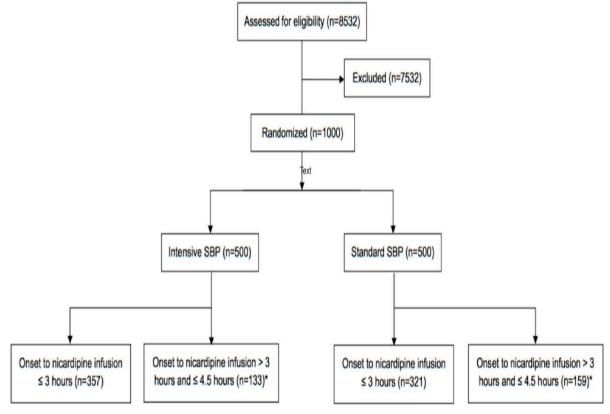
Department of Neurology at Klinikum Frankfurt Hoechst, Frankfurt, Germany (1)

Thorsten Steiner, MD, MME (Principal Investigator); Corina Epple, MD; Mari-Carmen Lichti, MD; Johannes Trabert; and Anna Katharina Flügel, MD, Department of Internal Medicine, Frankfurt University Hospital (Investigators); Sabrina J. Ritter (Primary Coordinator)

Charite Universitätsmedizin Berlin,	Berlin, Germany (1)
	© 2018 American Medical Association. All rights reserved.



eFigure. Flow Diagram of the ATACH-II Trial



^{*10} subjects in the intensive group and 20 in the standard group have time form onset to nicardipine infusion greater than 4.5 hours

eTable. Comparison of Baseline Characteristics and Neuroimaging Findings for Subjects Included in CMB Analysis and the Rest of the Subjects From ATACH-2

	CMB Analysis	Excluded	p-value
	(n = 167)	(n = 833)	
Demographics			
Male – no. (%)	108 (59.3)	512 (62.6)	0.41
Age, years – mean (SD)	61.9 (13.2)	61.9 (13.1)	0.94
Race – no. (%)			0.35
White	52 (31.1)	235 (28.2)	
Black	27 (16.2)	104 (12.5)	
Asian	84 (50.3)	478 (57.4)	
Other	4 (2.4)	16 (1.9)	
Smoking - no./total no. (%)	71/154 (46.1)	368/760 (48.4)	0.60
Cocaine use – no./total no. (%)	10/151 (6.6)	29/743 (3.9)	0.14
Hypertension – no./total no. (%)	125/165 (75.8)	668/808 (82.7)	0.04
SBP at initial presentation – mean (SD)	198.4 (27.2)	201.0 (26.9)	0.26
DBP at initial presentation – mean (SD)	110.9 (20.4)	111.0 (20.7)	0.96
Prior stroke/TIA – no. (%)	26/167 (15.6)	138/827 (16.7)	0.72
Congestive heart failure – no. (%)	7/167 (4.2)	30/823 (3.7)	0.73
Atrial fibrillation – no. (%)	2/167 (1.2)	34/823 (4.1)	0.06
Diabetes mellitus – no./total no. (%)	31/165 (18.8)	154/816 (18.9)	0.98
Ischemic heart disease – no. (%) [previous	4/167 (2.4)	40/823 (4.9)	0.16
CABG, MI within 3 months, angina pectoris,			
PTCA]			
Hyperlipidemia – no./total no. (%)	45/162 (27.78	196/778 (25.2)	0.49
Peripheral vascular disease – no./total no. (%)	3/166 (1.8)	19/822 (2.3)	1.00
Laboratory			
Total white blood cell count – median (IQR)	7.3 (5.7, 9.0)	7.6 (6.1, 9.7)	0.03
Platelet count - mean (SD)	214.0 (54.6)	222.9 (64.2)	0.07
Hemoglobin - mean (SD)	14.3 (1.6)	14.2 (1.8)	0.91
Hematocrit - mean (SD)	42.3 (4.6)	41.9 (4.8)	0.30
Serum glucose – median (IQR)	120 (105, 145)	122 (106, 151)	0.38
Serum creatinine – median (IQR)	0.9 (0.7, 1.12)	0.9 (0.7, 1.1)	0.34
Creatinine > 1.5 – no. (%)	18 (10.8)	73 (8.8)	0.41
Neurological scales			
Baseline GCS – no. (%)			0.02
3-11	18 (9.9)	129 (15.8)	
12-14	46 (25.3)	248 (30.3)	
15	118 (64.8)	441 (53.9)	
Baseline NIHSS – median (IQR)	9 (5, 15)	11 (7, 16)	0.005
Treatment allocation:			
Intensive blood pressure target – no. (%)	93 (51.1)	407 (49.8)	0.74

Abbreviations: CABG, coronary artery bypass grafting; DBP, diastolic blood pressure; DWIHL, diffusion weighted imaging hyperintense lesions; GCS, glascow coma scale; IQR, interquartile range; MI, myocardial infarction; NIHSS, national institutes of health stroke scale; SBP, systolic blood pressure; SD, standard deviation; TIA, transient ischemic attack.