

General Acknowledgments



Each year we are fortunate to receive the input of thousands of medical students and graduates who provide new material, clarifications, and potential corrections through our website and our collaborative editing platform. This has been a tremendous help in clarifying difficult concepts, correcting errata from the previous edition, and minimizing new errata during the revision of the current edition. This reflects our long-standing vision of a true, student-to-student publication. We have done our best to thank each person individually below, but we recognize that errors and omissions are likely. Therefore, we will post an updated list of acknowledgments at our website, www.firstaidteam.com/bonus/. We will gladly make corrections if they are brought to our attention.

For submitting contributions and corrections, many thanks to Mohammed Abed, Ibrahim Abdelfattah, Asif Abidi, John David Adame, Poppy Addison, Onaola Adedeji, Comfort Agaba, Vivian Agumadu, Bilawal Ahmed, Zoey Akah, Hamed Akbari, Pegah Akbari, Marwan Alahiri, Fadi Al-Asadi, Lourdes Alberty, Christian Alch, Erica Alcibiade, Majed Alghamdi, Mohammed Alhaidar, Nasir Alhamdan, Albert Alhatem, Alaa Alibrahim, Mohammed Alsaggaf, Luai M. Alsakaf, Khaled Al-Sawalmeh, Vaidehi Ambai, Kevin An, Anna Anderson, Christopher Anderson, Mehdi Ansari, Nelson Arellano, Gabriel Arom, Immad Attique, Nicholas Austin, Mary Ayad, Cho New Aye, Marwan Azzam, Ram Baboo, Rahaf Baker, Brian Baksa, Vijay Balakrishnan, Vyshnavy Balendra, Melissa Banez, Gauri Barlingay, Ross Barman, Frances M. Marrero Barrera, Josh Barrick, Jason Batey, Priya Batta, Rosemary Noel Beavers, Sean Behan, Jorge Martinez Bencosme, Kene Ben-Okafor, Elodie Marie Betances, Maria Betances, Shea Bielby, Johnathon Bishop, Aaron Blackshaw, Edgar Blecker, Cary Blum, Peter Boateng, Nwamaka Bob-Ume, Victoria Bone, Stephanie Borinsky, Adam Bortner, Chantal Brand, Shannon Brouger, Sareena Brown, Rob Brumer, Ryan Brunetti, Takur Buck, Alejandro Bugarini, Nimerta Burmhi, James Butz, Jennifer Byrd, Stefan Campbell, Fiorella B. Castillo, Harold Cedeño, Kenan Celtik, Yusuf Chao, Kyriakos Chatzopoulos, Jessica Chen, Julia Chen, Stephanie Yi-Tsi Chen, Willie Chen, Charlie Cheng, Olivia Cheng, Shani Chibber, Tiffany Chomko, Manita Choudhary, Eric Christie, Melissa Chung, Casey Lane Clark, Beth Clymer, Sam Cochran, Lauren Coleman, Benjamin Comora, Jensyn Cone, Zachary R. Conley, Sarah Corral, Eliana Costantino, Ian Cox, Robert Cox, Crosby Culp, John Cummins, Helen Dainton, Christopher Dallo, Jonathan Dang, Laura Dankovich, Atman Dave, Eric Davied, Joshua Davis, Danielle Davis, Solomon Dawson, Ezra Dayan, Ryan DeAngelis, Kathryn Demitruk, Jessie Dhaliwal, Rahim Dhanani, Travis Dice, Abiot Didana, Cheri Dijamco, Ozan Dikilitas, Isaac M. Dodd, Kirsten Dowling, Mitch Dunklebarger, Khanh Duong, Marco Duverseau, Josh East, Jeremy Eckes, Elise Edoaka, Rachel Einarsson, Hannah Eisen, Tyler Emerson, Jon Erdman, Cynthia Estrada, Matthew Fadus, Giselle Falconi, Tabbassum Fayyaz, Ravali Feeramachaneni, Kaveh Fekri, Albert Fernandez, Maria Vanessa Ferrer, Roberto Hurtado Fiel, Nicholas Field, Ryan Finn, Helen Francis, Daniel Franco, Cameron Frederick, Eli Fredman, Sheri Frickey, Gianfranco Frojo, Malak Fuad, James Fuqua, Anita Gade, Sudha Gade, Nicholas Gamboa, Avi Gandhi, Jared Gans, Russell Garcia, P. M. Gayed, Nicholas Geiger, Alejandro Gener, John George, Maikel Ragaie Fahmi Gerges, Imran Ghare, Gaby Ghobrial, Javid Ghomashi, Gino Giannone, Lizz Gilmore, Priscilla Alvarez Gonzalez, Luis Fernando Gonzalez-Ciccarelli, Ashwani Gore, Sophie Gottesman, Crystal D.

Green, Brian Grice, John Grotberg, Li Guiqin, Nita Gupta, Gail Gutman, Samuel Guyer, Natalia Guzman-Seda, Fuad Habbal, Sean M. Hacking, Erik Haley, Oday Halhouli, Martin Halicek, Isaiah Hammonds, Nicola Hampel, Brian Handal, Roy Handelsman, Glenn R. Harris, Jamison Harvey, Hunaid Hasan, Makenzie Hatfield Kresch, Joel Hayden, Mona Hdeib, Kasey Helmlinger, Katy Helms, Michelle Herberts, Cinthia Marie Gonzalez Hernandez, Ariana Hess, Mitchell Heuermann, Richard Hickman, Tiffany Hinojosa, Joyce Ho, M. Ho, Patrick Holman, Jeffeory Howard, Paige Hoyer, Jonathan C. Hu, Ann Hua, Jack Hua, I-Chun Hung, Frank S. Hurd, Ibrahim Hyder, David Ianacone, Jouzif Ibrahim, Taylin Im, Saira Iqbal, Josh Isserman, Mimoza Isufi, Kelechi Izunobi, Pegah Jahangiri, Sakshi Jain, Maryam Mohammed Jallo, Mitra Jamshidian, Neetu Jamwal, Paige Jarmuz, Zahran Jdaitawi, Kyu-Jin Jeon, Benjamin Hans Jeuk, Jose F. Jimenez, Sally Jo, Alfredo Joffre, Andrew Johnson, Jordan E. Johnson, Kai Johnson, Sarah Johnson, Katherine Joltikov, Gavin Jones, Saman Doroodgar Jorshery, Vaidehi Joshi, Shirley Ju, Michael Kagan, Hanna Kakish, Kirill Karlin, Michael Karp, Aaron R. Kaufman, LaDonna Kearse, Sorena Keihani, Shamim Khan, Tamer Khashab, Mitra Khosravi, Amin Khosrowpour, Neharika Khurana, Beom Soo Kim, Christina Kim, Robert Kim, Yoo Jung Kim, Megan King, Vladimer Kitiashvili, David E. Klein, Mohammed Sammy Knefati, George Koch, Noah Kojima, Amol Koldhekar, Samantha Kops, Sai Krishna Korada, Zachary Koretz, Heather Kornmehl, David Kowal, Kathleen Kramer, Akash Kroeger, Elan Krojanker, Matthew Kurian, Anita Kurre, Rachel Kushner, Eustina Kwon, Michael Larson, George Lasker, Evangelia Lazaris, Aaron A. Lebron Burgos, Christina Dami Lee, James Lee, Jennifer Lee, Erica Lee, Rachel Leeman, Ryan Lena, Stacy Leung, Guanqun Li, Yedda Li, Ramon Li, Guohua Liang, Soobin Lim, Meng-Chen Vanessa Lin, Matthew Lippmann, Selina Liu, Alnardo Lora, Yancheng Luo, Ahmed Lutfi, Martin Ma, Ahmad Mahadeen, Nandita N. Mahajan, Gajendra Maharjan, Megan Maier, Nodari Maisuradze, Rohail Malik, Andrew Martella, Beatriz Martinez, Eden Marx, Christy Mathew, Aletha Anisha Mathias, Alex McDonald, Robert McKenna, Maggie Meier, Wendy Mejia, Theresa Meloche, Elizabeth Mertilus, Jersey Mettill-Butts, Marielle Meurice, Sarah Michelson, Austin Mike-Mayer, Nardine Mikhail, Vincent Mirabile, Ahmed Mohamed, Hassan Reyad Mohsen, Nate Moore, Rose Mueller, Amer Muhyieddeen, Natia Murvelashvili, Anadarajan Nadarajan, Louai Naddaf, Shane Naidoo, Khushabu Nayak, Mai-Trang Nguyen, Michael Nguyen, Thomas Nienaber, Bharati Nimje, Cynthia Noguera, Albert Nwabueze, Devon O'Brien, Lola Ogunsuyi, Ololade Ogunsuyi, Olguta Olea, Wilson Omesiete, Michael Osinski, Vasily Ovechko, Jordan Owens, Devon Pace, Zonghao Pan, Khang Wen Pang, Olga Paniagua, Silvia Paola, Erika Parisi, Andrew Park, Madhumitha Parthasarathy, Ishan Patel, Saikrishna Patibandla, Iqra Patoli, David Patterson, Lanieka Peck, Alexander Pennekamp, Luisa Peress, Max Petersen, Romela Petrosyan, Patryk Piekos, Sarah Pietruszka, Luis Pina, Yuval Pinto, Andrew Piropato, Phillip Plager, Netanya Pollock, Chelsea Powell, Gautham Prabhakar, Will Preston, Grace Pryor, Audrey Pulitzer, Tyler Putnam, Connie Qiu, Brian Quaranto, Fatima Quddusi, Carlos Quinonez, Maria Qureshi, Samir Rahman, Saad Rahmat, Alia Raja, Vinaya Rajan, Arun Rajaratnam, Ferza Raks, Juhi Ramchandani, Judith Ramel, Josean Ramos, Cesar Augusto Hernandez Rangel, Dhakshitha Rao, Mohsin Raza, Syed Mohammad Yunus Raza, Sushma Reddy, Dave Reyes, Lenisse Miguelina Reyes, Robert Riggio, Ernest James Rin, Julia Ringel, Moshe Roberts, Clara Robertson, Sam Robinson, Agalic Rodriguez, Juliana D. Rodriguez, Jorge Roman, Luis Rosario, Alexander Rowan, Julietta Rubin, Daniel Rubinger, Martin Runnström, Nicholas Russo, David Rutenberg, Sean Saadat, Stuart Sacks, Rorita Sadhu, Atin Saha, Haneen Salah, Mohamad Saleh, Rafael E. Valle Salinas, Jacqueline Sanchez, Natalia Santiago-Morales, Steven Sapozhnikov, Ashley Sareen, Jason Sarte, Claire Sathe, Darya Savel, Osama Sbeitan, Ghil Schwarz, Caleb Seavey, Roopak Sekhon, Anna Sevilla, Anand Sewak, Akash Shah, Anna Shah, Muneeb Shah, Sherina Shahbazian, Abdulla Shaheen, Ojochide Shaibu, Mhd Tayseer Shamaa, Bryan Shapiro, Dolly Sharma, Demetrio Sharp, Jia Shi, Helen Shi, Ryan Sieli, Tyler Simpson, Vikal Singh, Chandandeep Singh, Ramzi Skaik, Omar Abu Slieh, Joey Sneij, Navjot Sobti, Tom Soker, Jun Song, Sushant Soni, Mihir Soparkar, Vlasios Sotirchos, Amelia St. Ange, Mac Staben, Clay Stafford, Allan Stolarski, Sonia A Sugumar, Mark Anthony Sy, Angela Taeschner, Dawood Tafti, Nitin Tandan, Asna Tasleem, David Taylor, Abiolah Telesford, George Terre, Sam Thomas, Akhilesh Thota, Sandra Tomlinson-Hansen, Carlos E. Velez Torres, Derrick Tran, Vi Tran, Michael Troutman, Cindy L. Tsui, Harika R. Tula, Michael Turgeon, Esonoes Tururu, Marcia Uddoh, Daniel

Udrea, Nkechi Ukeekwe, Sara Usman, Akash Vadhavana, Royson L. Valliyil, Leah D. Vance, Blanca Vargas, Alexander Vartanov, Jayalakshmi Venkateswaran, Bhanu Verma, Shawn Verma, Andrea Victorio, Anthony Viola III, Miriam Volosen, Habiba Wada, Benjamin Warren, Juliana Watson, Hannah Wellman, Stanley J. Welsh, Pang Khang Wen, Richard Whitlock, Jimbo Wilhite, Michael Winter, Jonathan Wolfson, John Worth, Eva Wu, Birdy Xu, Antonio Yaghy, Jehan Yahya, Xiaofeng Yan, Rebecca Ye, Raquel Yokoda, Alexander Yuen, William Yuen, Alan Zats, Billy Zhang, Park Zheng, and Andrew Zilavy.