

61. Chen N, Hao C, Peng X, Lin H, Yin A, Hao L, Tao Y, Liang X, Liu Z, Xing C, Chen J, Luo L, Zuo L, Liao Y, Liu BC, Leong R, Wang C, Liu C, Neff T, Szczech L, Yu KP: Roxadustat for anemia in patients with kidney disease not receiving dialysis. *N Engl J Med* 2019; 381:1001–10
62. Zheng Q, Yang H, Sun L, Wei R, Fu X, Wang Y, Huang Y, Liu YN, Liu WJ: Efficacy and safety of HIF prolyl-hydroxylase inhibitor vs epoetin and darbepoetin for anemia in chronic kidney disease patients not undergoing dialysis: A network meta-analysis. *Pharmacol Res* 2020; 159:105020

## ANESTHESIOLOGY REFLECTIONS FROM THE WOOD LIBRARY-MUSEUM

## The Circle of Life: Christopher Wren and the First Intravenous Anesthetic



When royal physician William Harvey published his magnum opus, *De Motu Cordis* (1628), he dismantled 15 centuries of European allegiance to Galen's belief that blood originated in the liver, trickled out through veins, and was consumed by the tissues. According to Harvey, the heart pumped blood that was conserved as it circulated through the body. Almost 30 years later, Christopher Wren (1632 to 1723), astronomer and future architect of today's St. Paul's Cathedral (*upper right*), sought to prove Harvey's controversial theory by showing that drugs entering the bloodstream would quickly reach the heart and brain. In 1656, Wren convened with two friends from his Oxford circle—the great chemist Robert Boyle and physician Thomas Willis—at Boyle's High Street Home. In their best-known experiment, Wren fastened the legs of Boyle's dog to the corners of a table (*left*), cut into its limb to isolate a vein, and infused opium (*lower right*) and wine through a goose quill connected to a pig bladder that contained the elixir. As soon as the dog was freed, he “appear'd...stupifi'd” and crumpled to the floor, having become the recipient of the world's first intravenous anesthetic. Wren and Willis would later use intravascular injections to delineate yet another famed anatomic circuit—the brain's arterial “Circle of Willis.” (Copyright © the American Society of Anesthesiologists' Wood Library-Museum of Anesthesiology.)

Jane S. Moon, M.D., University of California, Los Angeles, California, and Melissa L. Coleman, M.D., Penn State College of Medicine, Hershey, Pennsylvania.