

Appendix. Chronology of important scientific and medical events in the history of infective endocarditis

Year	Scientist/physician, Country	Major findings
1554	Jean François Fernel, France	Earliest report of endocarditis in book <i>Medicini</i>
1669	Richard Lower, England	Accurately described tricuspid valve endocarditis
1646	Lazarus Riverius, France	Described unusual "outgrowths" from autopsy of patient with endocarditis; detected murmurs by placing hand on patient's chest
1708	Giovanni Maria Lancisi, Italy	Described unusual structures in entrance of aorta
1715	Raymond Vieussens, France	Described abnormality in aortic mitral valve
1749	Jean-Baptiste Sénac, France	Described valvular lesions
1769	Giovanni Battista Morgagni, Italy	Linked infectious disease and endocarditis; observed association with the spleen
1784	Eduard Sandifort, France	Accurately drew intracardiac abnormalities
1797	Matthew Baillie, England	Showed relationship between rheumatism and heart disease
1799	Xavier Bichat, France	Described inflammatory process associated with endocarditis
1806	Jean Nicholas Corvisart, France	Described unusual structures in heart as "vegetations," syphilitic virus as causative agent of endocarditis, and theory of antiviral treatment of endocarditis
1809	Allan Burns, England	Indicated vegetations were not "outgrowths" or "buds" but particles adhering to heart wall
1815	Friedrich Kreysig, Germany	Elucidated inflammatory processes associated with endocarditis
1816	Théophile Laënnec, France	Invented cylindrical stethoscope to listen to heart murmurs; dismissed link between venereal disease and endocarditis
1832	James Hope, England	Confirmed Laënnec's observations
1835–40	Jean-Baptiste Bouillaud, France	Named endocardium and endocarditis; described symptoms; prescribed herbal tea and bloodletting as treatment regimen; described link between acute rheumatoid arthritis and endocarditis
1852	William Senhouse Kirkes, England	Described consequences of embolization of vegetations throughout body. Described cutaneous nodules (named "Osler's nodes" by Libman)
1858–71	Rudolph Virchow, Germany	Examined fibrin vegetation associated with endocarditis by microscope; coined term "embolism;" discussed role of bacteria, vibrios, and micrococci in endocarditis
1861	Jean-Martin Charot, France	Confirmed Virchow's theory on emboli
1861	Alfred Vulpian, Germany	Confirmed Virchow's theory on emboli
1862	Etienne Lancereaux, France	Described granulations or foreign elements in blood and valves, which were motile and resistant to alkalis
1868–70	Samuel Wilks, England	Described infected arterial blood as originating from heart; proposed scarlet fever as cause of endocarditis
1869	Emmanuel Winge, Norway	Established "parasites" on skin transported to heart and attached to endocardium; named "mycosis endocardii"
1872	Hjalmar Heiberg, Norway	Detected microorganisms in vegetations of endocarditis
1878	Edwin Klebs, Germany	All cases of endocarditis were infectious in origin
1878	Ottomar Rosenbach, Germany/Poland	Combined experimental physiology and infection to produce animal model of endocarditis in rabbit; noted valve had

		to be damaged before bacteria grafted onto valve
1878	Karl Koester, Germany	Micrococci enter vessels that valves were fitted into; valves exposed to abnormal mechanical attacks over long period created favorable niche for bacterial colonization
1879	Joseph Hamburg, Germany	Virchow's student; employed early animal model of endocarditis
1879	Germain Sée, France	Proposed etiology of endocarditis was based on infectious model and treatment should focus on eliminating "parasitic infection"
1880	Jacques Doleris, France	Working with Pasteur, proposed use of routine blood cultures
1881– 86	Arnold Netter, France	Believed endocarditis could appear during various infections; noted translocation of respiratory pathogen from pulmonary lesion to valve through blood
1883	Michel Peter, France	Believed microorganisms were result, not cause, of endocarditis
1884	Joseph Grancher, France	Named disease "infective endocarditis"
1886	Valimir Wyssokowitsch and Johannes Orth, Germany	Demonstrated various bacteria introduced to bloodstream could cause endocarditis on valve that had previous lesion
1885	Sir William Osler, Canada	Synthesized work of others relating to endocarditis
1899	Hermann Lenhartz, Austria	Described streptococcal, staphylococcal, pneumococcal, and gonococcal endocarditis
1903	Hugo Schottmüller, Germany	First described "endocarditis lenta"
1909	John Alexander Mullen, Canada	Credited by Osler as first to observe cutaneous nodes (named "Osler's nodes" by Libman) in patients with endocarditis
1909	Sir Thomas Horder, England	Analyzed 150 cases of endocarditis and published diagnostic criteria relating to signs and symptoms
1910	Emmanual Libman, USA	Described initial classification scheme to include "subacute endocarditis," with clinical signs/symptoms; absolute diagnosis required blood cultures
1981	Von Reyn, USA	Described Beth Israel criteria based on strict case definitions
1994	David Durack, USA	New criteria utilizing specific echocardiographic findings
1995	American Heart Association, USA	Antibiotic treatment of adults with infective endocarditis caused by streptococci, enterococci, staphylococci, and HACEK ^a microorganisms
1996	Pierre Fournier, France	Modified Duke criteria to allow serologic diagnosis of <i>Coxiella burnetii</i>
1997	American Heart Association, USA	Guidelines for preventing bacterial endocarditis
1997	Lamas and Eykyn, UK	Suggested modifications to Duke criteria for clinical diagnosis of native valve and prosthetic valve endocarditis: analysis of 118 pathologically proven cases
1998	Working Party of the British Society for Antimicrobial Chemotherapy, UK	Guidelines for antibiotic treatment of streptococcal, enterococcal, and staphylococcal endocarditis
1998	Endocarditis Working Group of the International Society for Chemotherapy, Europe	Antibiotic treatment of infective endocarditis due to viridans streptococci, enterococci, and other streptococci; recommendations for surgical treatment of endocarditis
2000	Jennifer Li, USA	Updated and modified Duke criteria
2002	Beverley C. Millar, UK	Modified Duke criteria to include a molecular diagnosis of causal agents (20)
2001– 2003	Didier Raoult, France	Described etiology of <i>Bartonella</i> spp., <i>Tropheryma whippelii</i> , and <i>Coxiella burnetii</i> in endocarditis

^aHACEK, *Haemophilus aphrophilus*, *Actinobacillus actinomycetemcomitans*, *Cardiobacterium hominis*, *Eikenella corrodens*, *Kingella kingae* group, *Bartonella* spp., and *Coxiella burnetii*.