Osteogenesis Imperfecta (OI, brittle bone disease), is a genetic disorder of bone formation resulting in fragile bones and other problems. Affected individuals have fragile bones that fracture easily and various additional manifestations including variably bone deformity, fragile teeth, short stature, blue sclerae, characteristic facies, and joint hypermobility among others. Initially OI was found to be a disorder of collagen, but recently additional genetic causes have been identified. OI is an inherited disorder with significant variability in presentation. Treatment is generally symptomatic, but bisphosphonates have been widely used as of late, and newer therapies are in development. The presentation will review the causes of OI, its signs and symptoms, genetic basis, contribution of collagen metabolism in the pathophysiology, recent advances in discovery of additional genetic causes of OI, diagnosis, and treatments in development.