The goal of this renewal application is to provide continued support for mentoring junior faculty and fellows interested in patient oriented research and future research elucidating cellular and structural mechanisms that underlie deficits in bone strength associated with postmenopausal osteoporosis, idiopathic osteoporosis in premenopausal women, effects of HIV on bone health, other diseases associated with adverse effects on the skeleton, as well as small focused intervention studies with vitamin D and other bone-active agents. This proposal, as well as databases, biological specimens and imaging data from other currently and newly funded projects, provides many opportunities to mentor junior investigators in clinical research and also provides protected time for the PI to focus on training and mentoring.