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Luis J Soliz* (luis13soliz@gmail.com), 6114 W Grace St, Chicago, IL 60634, and **Maunak Rana**. *The application of Bayes' theorem to justify the use of a triple-phase bone scan (TPBS) in helping diagnose complex regional pain syndrome (CRPS) within select patient populations.*

Complex regional pain syndrome (CRPS) is a poorly understood and complex neuropathic disease process often affecting a single extremity after inciting trauma. Since 2007, the Budapest criteria have been the recommended standard in diagnosing CRPS. Critics have argued that bone scintigraphy (BS) offers little clinical value in supporting the diagnosis of CRPS and cannot be used to confirm its diagnosis. We obtain input data for Bayes' Theorem and calculate the probability of a patient having CRPS given a positive triple-phase bone scan (TPBS). We further utilize a variable base rate probability based on different selected patient populations to illustrate the importance of careful patient population selection when utilizing Bayesian analysis. We found the probability of a patient having CRPS given a positive TPBS was <1% for the general population. In contrast, the probability of a patient having CRPS given a positive TPBS within a patient population of individuals undergoing external fixation of tibial fractures and one of surgically treated distal radius fractures were 74% and 84.4%, respectively. These findings support the judicious use of BS in confirming the diagnosis of CRPS when there is a moderately high pre-test clinical suspicion to avoid delayed treatment. (Received September 26, 2017)