This review of quantitative ultrasound (QUS) and bone health uses the current literature to summarise the clinical and research effectiveness of QUS. QUS has been demonstrated to have the ability to predict fracture, particularly at the hip. However, the magnitude of prediction is fracture-site, measurement-site and device dependent. The correlations between dual X-ray absorptiometry (DXA) and bone mineral density (BMD) are weak to moderate, resulting in different subjects being identified as being at risk of fracture by the two different methods. QUS is sensitive to age and menopause-related changes and to clinical risk factors and lifestyle factors associated with osteoporosis. Whilst a limited ability of QUS to monitor therapeutic intervention has been demonstrated, this is still an area where its poorer precision, in comparison to DXA, results in limited applicability. Whilst DXA remains the gold standard for the diagnosis of osteoporosis, QUS may be of use for the prediction of those at risk of future fracture in areas where there is limited availability of DXA.

Keywords
Osteoporosis, ultrasound, bone density, fracture.