Osteomyelitis is an increasingly common pathology that often poses a diagnostic challenge to clinicians. Accurate and timely diagnosis is crucial for preventing complications that can result in the loss of life or limb, however, the diagnosis remains a challenge clinically. In addition to history, physical examination, and laboratory studies, diagnostic imaging plays an essential role in the diagnostic process. This narrative review article discusses various imaging modalities employed to diagnose osteomyelitis; these include: plain film radiography, computed tomography (CT), magnetic resonance imaging (MRI), ultrasound, bone scintigraphy, and positron emission tomography (PET).

Articles were obtained from identified through PubMed and screened for relevance to the topic of diagnostic imaging for osteomyelitis. The authors conclude that plain films are an appropriate first step because the images may reveal osteolytic changes and can help rule out alternative pathology. MRI is often the most appropriate second study because it is highly sensitive and can detect bone marrow changes within days of an infection. Other imaging modalities such as CT, ultrasound, and bone scintigraphy may be useful in patients who MRI cannot undergo. MRI may be performed. CT is useful for identifying necrotic bone in chronic infections. Ultrasound may be useful in children or those individuals with sickle-cell disease. Bone scintigraphy is particularly useful for detecting vertebral osteomyelitis. Finally, PET has demonstrated high sensitivity and specificity; however, as it is expensive and often unavailable, its clinical application is limited by its high cost and poor availability. When used appropriately, diagnostic imaging can provide high sensitivity and specificity for detecting osteomyelitis. Making radiographic evaluation a crucial step in the diagnostic process of diagnosing this debilitating condition.

Comment [A1]: Some text has been rearranged here for ensuring better flow with respect to context.

Comment [Editor2]: “Those” has been replaced with “individuals” for clarity as to who is being referred to at this instance.

Comment [A3]: At a previous instance in the text, the term “PET” has been used. Therefore, at this instance, “PET scan” has been revised to “PET” to maintain consistency.