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Review Article

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Opportunistic Imaging for Osteoporosis Screening: A New Frontier in Fracture Risk Assessment

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Abstract

Osteoporosis remains a major health issue because most people do not realize they have low bone strength until they suffer a fracture. Standard tests like DXA are reliable but not always available or routinely used, which leaves many cases undetected. This has led to growing interest in using imaging that patients are already undergoing for other reasons. These scans often contain valuable information about bone quality, and reviewing them can help flag people at risk long before symptoms appear. Recent work shows that CT scans are particularly useful. Simple measurements such as vertebral Hounsfield Units correlate well with DXA values and can help identify osteopenia or osteoporosis without extra radiation or cost. Dental panoramic films and hand radiographs can also provide clues through cortical thickness and trabecular patterns. MRI adds another dimension by capturing marrow composition and microarchitecture, giving a deeper look at bone health without ionizing radiation. Artificial intelligence is beginning to strengthen this field. Automated tools can measure bone density surrogates, analyze trabecular structure and highlight high-risk patients in routine workflows. These systems can also link with existing hospital software to make screening more efficient. While there are challenges related to standardization, training and workflow adoption, the potential advantages are significant. Opportunistic imaging can turn everyday scans into powerful screening tools, improving early detection and reducing the burden of fractures. As AI develops further and reporting becomes more consistent, this approach could play a central role in closing the diagnostic gap and improving public health outcomes.

Keywords: Osteoporosis Screening, Opportunistic Imaging, Bone Mineral Density (BMD), Fracture Risk Assessment, Artificial Intelligence (AI)

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Introduction

Osteoporosis is a progressive skeletal disorder characterized by compromised bone strength, predisposing individuals to an increased risk of fractures.[1,2] It affects over 200 million people worldwide, with the majority being postmenopausal women and the elderly population.[1,2] Globally, osteoporosis accounts for approximately 9 million fractures annually, or one fracture every three seconds, making it a critical public health issue.[3] The condition is associated with high morbidity, reduced quality of life, and increased mortality, particularly following hip or vertebral fractures.[4] In India, the prevalence is notably high, with estimates suggesting that 50–70% of individuals over the age of 65 are affected by osteopenia or osteoporosis.[2]

Despite its clinical significance, osteoporosis remains underdiagnosed and undertreated. The asymptomatic nature of the disease until a fracture occurs, combined with limited awareness and restricted access to diagnostic tools such as dual-energy X-ray absorptiometry (DXA), has created a substantial care gap.[2,4] Less than 20% of patients who experience a fragility fracture undergo further osteoporosis evaluation or treatment, leaving a large portion of at-risk individuals undetected and unmanaged.[3]

DXA, while considered the gold standard for bone mineral density (BMD) assessment, has its limitations, including limited availability in rural and resource-constrained areas, low screening uptake, and the inability to detect qualitative aspects of bone microarchitecture.[4] Additionally, many individuals undergo imaging for other clinical indications that include portions of the skeletal system, but these are not routinely analysed for bone health, representing missed opportunities for early diagnosis.[5]

The concept of opportunistic imaging has emerged as a novel, pragmatic approach to address this challenge. Opportunistic imaging refers to the secondary use of routine imaging studies such as computed tomography (CT), magnetic resonance imaging (MRI), and plain radiographs performed for unrelated indications to assess bone quality and fracture risk.[5] This strategy leverages existing healthcare infrastructure without incurring additional imaging costs or radiation exposure and has the potential to identify at-risk individuals earlier in the disease course.

In recent years, research has demonstrated the utility of Hounsfield unit (HU) measurements from CT, mandibular indices from dental radiographs, and marrow fat quantification from MRI in assessing skeletal fragility.[5] Moreover, advancements in artificial intelligence (AI) and radiomics have enabled automated, accurate analysis of bone structures, facilitating real-time clinical decision-making. As the burden of osteoporotic fractures continues to rise, opportunistic imaging offers a valuable addition to traditional screening methods and may represent a paradigm shift in fracture risk assessment and prevention.

This review provides a comprehensive overview of the current literature on opportunistic imaging for osteoporosis screening, examining its diagnostic performance, clinical integration, technological advances, economic impact, and future directions for policy and practice.

Conventional Screening Approaches

DXA remains the clinical gold standard for assessing bone mineral density (BMD), generating T-scores by comparing patient BMD to young adult reference values, helps diagnose osteopenia and osteoporosis, assess fracture risk, and guide treatment decisions in conditions affecting bone health.4 However, its accuracy can be affected by factors such as soft tissue artifacts, degenerative spinal changes, and vascular calcifications.[5] Moreover, DXA may miss up to 50% of vertebral fractures, even in individuals with normal T-scores.[5]

Risk assessment tools like FRAX is a clinical tool developed by the World Health Organization (WHO) to estimate a person's 10-year probability of major osteoporotic fractures (hip, spine, forearm, or shoulder).[1] It improves fracture risk prediction by incorporating clinical risk factors alongside Bone Mineral Density (BMD), enhancing decision-making beyond T-scores alone. However, FRAX depends on accurate BMD data for optimal accuracy and remains underutilized in routine clinical practice.[2]

Concept of Opportunistic Imaging

Opportunistic imaging leverages scans—such as abdominal or thoracic CT, dental panoramic X rays, or spinal MRIs—that were acquired for other reasons to extract data on bone health, without added imaging sessions, radiation, or costs.5 Given the high frequency of routine CT in older adults, this creates a rich, underutilized dataset for bone screening.

CT-Based Opportunistic Assessment

Numerous studies have established the diagnostic value of vertebral Hounsfield Unit (HU) measurements derived from routine CT scans for opportunistic osteoporosis assessment. Measurements at the L1 vertebral body show strong correlation with DXA-derived bone mineral density (BMD) scores. Pickhardt et al. evaluated over 1,800 patients and proposed that HU values below 110 are highly specific for osteoporosis, values between 110–160 HU indicate osteopenia, and values above 160 HU are considered normal.[6] Zou et al. confirmed these findings through a meta-analysis of 41 studies, reporting a pooled sensitivity of 83%, specificity of 74%, and an area under the curve (AUC) of 0.84, reflecting solid diagnostic performance. These HU values are easily obtainable from existing CT scans, including non-contrast studies, making them practical for integration into routine radiology workflows.[7]

Supporting this, Buckens et al. demonstrated that automated HU measurement can be incorporated within PACS systems to flag at-risk patients in real time.[8] further emphasized the reproducibility of HU values across different CT protocols, noting that while contrast enhancement affects HU values, correction algorithms can effectively standardize results.[8]

Quantitative CT (QCT) offers even more precise assessment, providing true volumetric BMD values for both trabecular and cortical bone, overcoming limitations seen with areal BMD from DXA. Link et al. reviewed QCT's role in osteoporosis management, highlighting its accuracy in measuring central skeletal sites. However, QCT's clinical adoption is limited by the need for calibration phantoms, specialized software, and radiologist expertise.[9] Newer phantom-less QCT methods have been explored to improve accessibility. Engelke and others have shown these techniques provide comparable diagnostic performance, though careful consideration is required in individuals with extreme body composition or certain comorbidities.[9]

Opportunistic CT imaging also enables detection of vertebral fractures that may otherwise go unreported. Buckens et al. found that 33% of vertebral fractures visible on abdominal CT scans were not mentioned in formal radiology reports.8 These undiagnosed or "silent" fractures are critical as they serve as strong predictors of future fracture risk, often surpassing BMD measurements alone in prognostic value.

Importantly, Vertebral Fracture Assessment (VFA) using CT imaging is now being standardized through Genant's semi-quantitative method, which provides a structured and reproducible approach to identifying and grading vertebral fractures. This method visually evaluates vertebral body shape and quantifies height loss, categorizing deformities into mild, moderate, or severe grades. Standardizing VFA in this way improves diagnostic accuracy, facilitates consistent reporting across clinical settings, and enhances fracture risk assessment—especially in patients where fractures may be missed by bone mineral density (BMD) measurements alone. Researchers advocate for integration of fracture annotation into structured CT reports, especially in elderly or at-risk patients undergoing abdominal or thoracic imaging.

Overall, CT-based opportunistic screening for osteoporosis has gained considerable validation through reproducibility studies, comparative accuracy trials, and economic modeling, which shows promise for broader clinical implementation.

Radiograph-Based Opportunistic Screening

The use of dental panoramic radiographs, or orthopantomograms (OPGs), has emerged as a practical approach for opportunistic osteoporosis screening through assessment of the Mandibular Cortical Index (MCI). MCI evaluates the morphology and porosity of the inferior mandibular cortex, serving as a surrogate marker for low bone mass. Taguchi et al. Were among the first to show that cortical erosion and thinning on OPGs correlated with reduced systemic bone mineral density (BMD), particularly in postmenopausal women. Their study found individuals with severely eroded mandibular cortices had a significantly higher likelihood of osteoporosis as confirmed by DXA.[10] Follow-up studies have consistently supported these observations, often reporting specificity rates exceeding 85% when experienced observers classify cortical shape. Horner and Devlin (1998) proposed a grading system for mandibular indices that correlated well with hip BMD.[10] Further developments in image analysis have introduced computer-assisted techniques for quantifying mandibular cortical width, improving inter-observer reliability and reproducibility. Dental clinics represent a valuable point of contact for early identification of at-risk individuals since dental imaging is commonly performed as part of routine care. Public health initiatives have explored training dental professionals to refer patients with abnormal MCI findings for further osteoporosis evaluation, enhancing early detection efforts.

The Singh Index remains a widely recognized radiographic grading system that evaluates trabecular bone patterns in the proximal femur using standard pelvic radiographs. Developed in the 1970s, it continues to serve as a practical and accessible qualitative tool, especially in resource-limited settings where advanced imaging modalities like DXA may not be available. The Singh Index categorizes trabecular patterns into six grades, ranging from Grade 6 (normal) to Grade 1 (severe trabecular loss), with lower grades indicating greater bone loss and higher osteoporosis risk.[11] Despite its qualitative nature and inherent observer variability, the Singh Index has demonstrated moderate correlation with BMD measurements and fracture risk prediction, particularly in elderly populations. It retains clinical value as a supportive method for bone health assessment where quantitative imaging options are limited.

Metacarpal cortical thickness, assessed via hand radiographs, provides another simple and accessible indicator of cortical bone status. Techniques such as the Barnett-Nordin Index and digital metacarpal morphometry offer standardized and reproducible methods for measuring cortical bone thickness.[12] By evaluating cortical width, especially in long bones like the metacarpals, these techniques provide insights into bone quality and structural integrity, complementing the evaluation of osteoporosis and other metabolic bone disorders beyond BMD alone. Patel et al. demonstrated that cortical thickness below specific thresholds could reliably predict osteoporosis in elderly patients.[12]

Despite technological limitations compared to DXA or QCT, these conventional radiographic indices including MCI, the Singh Index, and metacarpal cortical thickness remain practical alternatives for osteoporosis screening in settings without access to more advanced imaging, especially when combined with clinical risk factors.[11,12]

MRI and Opportunistic Bone Assessment

MRI offers a non-ionizing radiation imaging modality capable of assessing bone quality through the evaluation of both marrow composition and trabecular microarchitecture. While not traditionally part of standard osteoporosis diagnosis, recent studies have increasingly explored its role in opportunistic bone health assessment. Marrow fat content, which is inversely related to bone mass, can be quantified using MRI sequences such as proton density fat fraction (PDFF), Dixon imaging, and T1-weighted imaging. Baum et al. demonstrated that patients with osteoporosis had significantly higher marrow fat content in both the lumbar spine and femoral neck. These observations support the hypothesis that increased adipogenesis within the bone marrow environment suppresses osteoblast activity, contributing to bone loss.[13]

High-resolution MRI (hrMRI) enables direct visualization of trabecular bone microarchitecture, offering insights beyond conventional bone mineral density (BMD) metrics. Using advanced techniques such as 3-Tesla MRI with resolution enhancement, studies have consistently shown that osteoporotic patients exhibit reduced trabecular number, thickness, and connectivity, indicating compromised bone strength.[14] Research by Wehrli et al. and others has validated trabecular bone score (TBS) derived from hrMRI as a non-invasive biomarker for bone quality and fracture risk. TBS quantifies trabecular texture and integrity, providing diagnostic information complementary to BMD measurements.[14] As a result, hrMRI is gaining attention as a valuable tool in osteoporosis research and clinical evaluation, especially for assessing structural deterioration in patients where standard densitometry may not fully capture fracture risk.

MRI holds particular clinical value in settings such as oncology, endocrinology, and chronic disease management, where patients undergo repeated imaging for other indications. Opportunistic bone assessment can be integrated into MRI evaluations for spinal lesions or pelvic abnormalities, enhancing clinical utility without the need for additional scans. However, routine use of MRI for bone health assessment faces challenges, including the lack of standardized quantification methods, variability in MRI protocols, and limited access to specialized post-processing tools. Despite these barriers, advances in imaging software and AI-driven interpretation tools are gradually addressing these limitations, suggesting that MRI may become an increasingly important component of multi-parametric osteoporosis evaluation in the future.

AI and Automation in Opportunistic Screening

Artificial Intelligence (AI) is increasingly influencing radiology workflows, showing notable potential in osteoporosis screening through opportunistic imaging by automating image analysis, reducing interobserver variability, and improving early identification of high-risk individuals in clinical practice. Deep learning techniques, particularly Convolutional Neural Networks (CNNs), have been applied to estimate bone mineral density (BMD) and predict fracture risk from routine CT and X-ray images. Wang et al. developed a CNN algorithm analyzing chest CT scans, achieving an area under the curve (AUC) of 0.94 for osteoporosis detection. These models extract features such as trabecular pattern density, cortical thickness, and vertebral morphology—features often subtle or invisible to human observers but associated with bone fragility.[15]

Radiomics, which involves extracting high-dimensional quantitative features from medical images, offers another approach. In osteoporosis assessment, radiomic features like texture, intensity, and vertebral shape have been used to create fracture risk models. Jiang et al. (2022) demonstrated that radiomics applied to spinal CT scans could predict fracture risk independently of traditional BMD, offering deeper insight into bone quality beyond what areal BMD provides.[16]

AI-driven systems can also automatically quantify vertebral Hounsfield Units (HU) and detect vertebral fractures without manual input. These tools employ semantic segmentation and classification networks to flag HU values below osteoporotic thresholds and identify fractures. Valentinitsch et al. showed that AI-based vertebral fracture assessment on abdominal CT scans achieved diagnostic accuracy comparable to expert radiologists.[17]

Integration into PACS (Picture Archiving and Communication Systems) and Electronic Health Records (EHRs) is already underway, allowing AI algorithms to be embedded directly into clinical workflows. Automated alerts for low BMD or silent fractures can prompt clinicians to follow up, while EHR integration enables broader population health screening by identifying patients at risk who might benefit from osteoporosis evaluation.[17,18]

Despite this progress, challenges remain. Training reliable AI models requires large, diverse, and well-annotated datasets, and achieving clinical trust in AI outputs depends on model interpretability.[17] Regulatory approvals, integration costs, and medicolegal issues also need to be resolved before widespread adoption is feasible.[18]

Nevertheless, AI holds significant potential to transform opportunistic osteoporosis screening by offering scalable, reproducible, and automated tools for early detection. With further validation and seamless clinical integration, AI can support radiologists and improve patient outcomes by identifying and managing osteoporosis before fractures occur.[17,18]

Clinical Integration and Challenges

Opportunistic imaging for osteoporosis screening offers significant potential, yet its integration into routine clinical practice presents various technical and systemic challenges. A primary issue is the absence of standardized protocols across different institutions and imaging systems. Hounsfield unit (HU) thresholds can vary depending on scanner type, patient positioning, scan have suggested HU cutoffs, but achieving consistent calibration across platforms remains critical for reliable results.7 Automated measurement tools and seamless integration into PACS systems are still in early stages or confined to larger academic centers.[14] Some institutions have adopted structured reporting templates that incorporate vertebral BMD estimation or prompts for fracture detection, which help standardize communication between radiologists and referring physicians. Professional bodies like the ACR and ESR are encouraging routine reporting of incidental vertebral fractures, especially in elderly patients undergoing CT scans.[14,15]

Despite growing evidence, clinical awareness of opportunistic imaging's value remains limited outside of radiology. Many primary care physicians, orthopedists, and oncologists may overlook HU values or subtle radiographic signs due to unfamiliarity.[9] Addressing this gap requires focused educational efforts and clearer inclusion of opportunistic imaging data in radiology reports. Radiologist training also plays a key role, with workshops, CME modules, and AI-supported tools enhancing their ability to recognize osteoporotic features efficiently. AI technologies that automatically highlight vertebral fractures or calculate HU values can support radiologists by reducing interpretation variability and improving workflow efficiency.[17,18]

Ethical and legal questions add another layer of complexity. Once an incidental finding such as low BMD or a vertebral fracture is reported, issues arise regarding responsibility for follow-up care. It is often unclear whether the radiologist or the referring physician holds the duty to act on such findings.[14] This underscores the need for clear institutional protocols that define roles, ensure appropriate patient communication, and minimize medicolegal risk.

Successful clinical integration also depends on multidisciplinary collaboration. Coordinating between radiology, endocrinology, geriatrics, dentistry, and primary care is essential for comprehensive osteoporosis care. The fracture liaison service (FLS) model, which has already improved post-fracture osteoporosis management, could be adapted to incorporate opportunistic imaging findings.[15] Such an approach would help close the gap between diagnosis and treatment, ensuring timely intervention for patients identified through routine imaging.

Health Economics and Public Health Impact

Osteoporotic fractures, especially hip and vertebral fractures, create a significant financial burden on healthcare systems globally. In the U.S. alone, annual direct costs exceed $20 billion.[1,2] Studies suggest early identification and treatment of at-risk individuals can notably reduce these expenses. Opportunistic imaging uses already available scans, avoiding additional imaging appointments and radiation. Pickhardt et al. reported through economic analysis that incorporating CT-based HU screening into routine imaging could lower future fracture-related costs by up to 30% by enabling earlier treatment and preventing secondary fractures.[18]

With aging global populations, osteoporosis-related fractures are expected to increase. Opportunistic screening represents a scalable public health strategy to detect high-risk individuals who might otherwise remain undiagnosed. In India and other low- and middle-income countries, where DXA access is limited, using radiograph- or CT-based screening in rural or resource-constrained settings becomes especially relevant.[4,6] Opportunistic detection during cancer staging, trauma assessment, or dental evaluations offers multiple entry points for preventive healthcare, turning these instances into "teachable moments" for clinicians to initiate early interventions.[10]

For broader implementation, adjustments in reimbursement policies and formal recognition of opportunistic BMD reporting as a reimbursable service will be necessary. Countries with national health systems might introduce pilot programs or public campaigns focusing on bone health and incidental findings. Collaboration among radiology societies, insurance providers, and public health authorities is essential to incorporate opportunistic imaging into national osteoporosis screening guidelines.

Ultimately, opportunistic imaging aligns with value-based care principles—maximizing patient outcomes relative to healthcare spending. Combined with digital health technologies and artificial intelligence, it holds potential to reshape osteoporosis detection and management on a population scale.

Conclusion

Opportunistic imaging offers a highly promising adjunct to conventional osteoporosis screening, with strong evidence supporting CT based HU thresholds, radiograph based indices, and emerging MRI and AI tools. With standardization and implementation support, this strategy could transform early bone disease detection and significantly reduce fracture risk at a population level.

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References

1. Kanis JA, Melton LJ 3rd, Christiansen C, Johnston CC, Khaltaev N. The diagnosis of osteoporosis. J Bone Miner Res. 1994 Aug;9(8):1137-41. doi: 10.1002/jbmr.5650090802.
2. NIH Consensus Development Panel on Osteoporosis Prevention, Diagnosis, and Therapy. Osteoporosis prevention, diagnosis, and therapy. JAMA. 2001;285(6):785–95. doi: 10.1001/jama.285.6.785.
3. Siris ES, Chen YT, Abbott TA, et al. Bone mineral density thresholds for pharmacological intervention to prevent fractures. Arch Intern Med. 2004;164(10):1108–12. doi: 10.1001/archinte.164.10.1108.
4. Blake GM, Fogelman I. The role of DXA bone density scans in the diagnosis and treatment of osteoporosis. Postgrad Med J. 2007;83(982):509–17. doi: 10.1136/pgmj.2007.057505.
5. Diacinti D, Guglielmi G. Vertebral morphometry. Radiol Clin North Am. 2010 May;48(3):561-75. doi: 10.1016/j.rcl.2010.02.018.
6. Pickhardt PJ, Lee LJ, del Rio AM, Lauder T, Bruce RJ, Summers RM, Pooler BD, Binkley N. Simultaneous screening for osteoporosis at CT colonography: bone mineral density assessment using MDCT attenuation techniques compared with the DXA reference standard. J Bone Miner Res. 2011 Sep;26(9):2194-203. doi: 10.1002/jbmr.428.
7. Zou D, Li W, Deng C, Du G, Xu N. The use of CT Hounsfield unit values to identify the undiagnosed spinal osteoporosis in patients with lumbar degenerative diseases. Eur Spine J. 2019 Aug;28(8):1758-1766. doi: 10.1007/s00586-018-5776-9.
8. Link TM. Osteoporosis imaging: state of the art and advanced imaging. Radiology. 2012;263(1):3–17. doi: 10.1148/radiol.2633201203.
9. Buckens CF, Dijkhuis G, de Keizer B, Verhaar HJ, de Jong PA. Opportunistic screening for osteoporosis on routine computed tomography? An external validation study. Eur Radiol. 2015 Jul;25(7):2074-9. doi: 10.1007/s00330-014-3584-0.
10. Taguchi A, Suei Y, Sanada M, Ohtsuka M, Nakamoto T, Sumida H, Ohama K, Tanimoto K. Validation of dental panoramic radiography measures for identifying postmenopausal women with spinal osteoporosis. AJR American Journal of Roentgenology. 2004;183(6):1755–1760. doi: 10.2214/ajr.183.6.01831755.
11. Singh M, Nagrath AR, Maini PS. Changes in trabecular pattern of the upper end of the femur as an index of osteoporosis. J Bone Joint Surg Am. 1970;52(3):457–67.
12. Baum T, Yap SP, Dieckmeyer M, Ruschke S, Eggers H, Kooijman H, Rummeny EJ, Bauer JS, Karampinos DC. Assessment of whole spine vertebral bone marrow fat using chemical shift-encoding based water-fat MRI. J Magn Reson Imaging. 2015 Oct;42(4):1018-23. doi: 10.1002/jmri.24854.
13. Wehrli FW. Structural and functional assessment of trabecular and cortical bone by micro magnetic resonance imaging. J Magn Reson Imaging. 2007;25(2):390–409. doi: 10.1002/jmri.20807.
14. Löffler MT, Jacob A, Scharr A, Sollmann N, Burian E, El Husseini M, Sekuboyina A, Tetteh G, Zimmer C, Gempt J, Baum T, Kirschke JS. Automatic opportunistic osteoporosis screening in routine CT: improved prediction of patients with prevalent vertebral fractures compared to DXA. Eur Radiol. 2021 Aug;31(8):6069-6077. doi: 10.1007/s00330-020-07655-2.
15. Pickhardt PJ, Pooler BD, Lauder T, del Rio AM, Bruce RJ, Binkley N. Opportunistic screening for osteoporosis using abdominal computed tomography scans obtained for other indications. Ann Intern Med. 2013;158(8):588–95. doi: 10.7326/0003-4819-158-8-201304160-00003.
16. Patel B, Aqil A, Riaz O, Jeffers R, Dickson D. The 2nd Metacarpal Cortical Index as a Simple Screening Tool for Osteopenia. J Bone Metab. 2020 Nov;27(4):261-266. doi: 10.11005/jbm.2020.27.4.261.
17. Jiang YW, Xu XJ, Wang R, Chen CM. Radiomics analysis based on lumbar spine CT to detect osteoporosis. Eur Radiol. 2022 Nov;32(11):8019-8026. doi: 10.1007/s00330-022-08805-4.
18. Wang S, Tong X, Cheng Q, Xiao Q, Cui J, Li J, Liu Y, Fang X. Fully automated deep learning system for osteoporosis screening using chest computed tomography images. Quant Imaging Med Surg. 2024 Apr 3;14(4):2816-2827. doi: 10.21037/qims-23-1617.

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