Wake Radiology Updates DXA (Bone Density) Service

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Summary:

• Wake Radiology has recently completed a practice-wide update of its DXA equipment, resulting in high-resolution images in seconds at a fraction of the radiation dose.
• Software upgrades at all office locations have improved the performance and interpretation of DXA studies.
• Forearm BMD measurement is now available at all office locations for patients who (1) exceed the 350 lb. table limit, (2) have hip or lumbar spine impediments, such as severe degenerative disease or metallic artifacts.
• Our West Raleigh, Garner, and Chapel Hill offices now provide pediatric BMD, soft tissue assessment, and periprosthetic BMD (for patients with metallic implants).

Wake Radiology marked May as Osteoporosis Awareness Month this year by updating DXA equipment and software practice-wide, and adopting newly published International Society of Clinical Densitometry (ISCD) guidelines for performance and interpretation of DXA.

As the baby boomer population ages, osteoporotic fractures promise to be an increasingly common source of morbidity and mortality. DXA screening is an important means of detecting early onset of osteoporosis.

In keeping with these trends and the technological improvements, new state-of-the-art Lunar Prodigy Advance direct-digital bone densitometers are now in service at the Cary, North Hills, Garner, Northwest Raleigh, West Raleigh, and Chapel Hill offices. Lunar Prodigy DXA equipment is also in operation at WakeMed, Johnston Memorial, and Maria Parham hospital locations.

These new DXA scanners are capable of making more precise measurements of bone density than previously possible. Utilizing narrow fan beam technology and computerized image reconstruction, these scanners eliminate magnification and distortion effects inherent in older wide fan beam technology allowing more precise measurements of bone area, and bone mineral content (BMC). Improved precision enables ordering physicians to monitor real changes in their patients’ bone mineral density (BMD) at shorter intervals.

Effects of medical treatment can now be detected sooner and with greater confidence. The Prodigy Advance machines are the first DXA scanners with a direct-digital detector array. This new technology provides high-resolution images in seconds at a fraction of the radiation dose of older DXA scanners.

New software upgrades, which improve the performance and interpretation of DXA studies, have also been added at all office locations. Among these, Advanced Hip Assessment (AHA) allows precise measurement of smaller areas such as the “upper femoral neck,” a sub-region, which has greater predictive value for fracture risk than larger areas such as the femoral neck or trochanter sub-regions.

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CAD aids technologists in avoiding acquisition and analysis errors by alerting them to unusual patient anatomy, abnormally high-density measurement used in conjunction with BMD to yield a more accurate prediction of fracture risk in the hip. Computer Assisted Densitometry (CAD) software present at all office locations helps ensure the highest possible Quality Assurance standards, which are critical for DXA exams. Forearm BMD measurement is now available at all office locations for patients who exceed the 350lb table limit or whose lumbar spine and hips cannot be evaluated due to impediments such as severe degenerative changes, or metallic artifacts.

Additional specialized DXA functions will also be available at our West Raleigh, Garner and Chapel Hill office locations including pediatric BMD and soft tissue assessment, and in-depth orthopedic evaluation. Software at these locations includes special gender specific pediatric reference data, which allows ultra low-dose evaluation of children with certain growth, metabolic, or cachectic disorders.

Also available at the West Raleigh, Garner and Chapel Hill locations is Periprosthetic bone densitometry. This tool provides a quantitative, and highly sensitive assessment of changes in BMD around hardware such as total hip replacements. It excludes heavily attenuating metallic implants and measures only the periprosthetic bone. Previously, this evaluation could only be done qualitatively using serial plain radiographs.

Wake Radiology began offering DXA in 1997 with two Lunar DPX IQ machines at our North Hills and Chapel Hill offices. Since then, over 12,000 exams have been performed, and four other office locations have become DXA sites.

Improvements in medical treatment of osteoporosis have made diagnosis and monitoring of this disease increasingly important tasks. Wake Radiology is committed to providing the latest and best diagnostic technology for our patients with low bone density.