



## Service Priorities and Programmes Electronic Presentations

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### **The Determents of Bone Mineral Density (BMD) in a Group of Chinese Population**

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#### **Introduction**

Osteoporosis is a common disease degrading bone strength. It potentially results in pathological fractures in various area easily such as vertebral body or upper and lower limbs when the bone is subjecting to external pressure. Bone strength can be reflected by bone mineral density (BMD), which represents the amount of calcium content. Previous study showed that BMD can be affected by age, sex and weight. However, most of the studies were conducted overseas. While ethnicity would act as a biological factor affecting BMD, most of the results generated from previous could not represent Chinese population as they use white Caucasians or black as sample population. Walker et al (2007) investigated the determinants of BMD in Chinese-American population. Dual-energy x-ray absorptiometry (DEXA) is the most common technique for accurate and precise measurement of BMD with the least time consumption and low dose of radiation. DEXA would be utilized to measure BMD in this study.

#### **Objectives**

Given that lifestyle would also be one of the factors affecting BMD, this study aimed to investigate the relationship between biological factors such as age, gender and weight and BMD in Chinese population in Hong Kong.

#### **Methodology**

BMD and other patient data were collected retrospectively. All Chinese patients attended DEXA exam in Our Lady of Maryknoll Hospital (OLMH) were included in the study population. Their weight were measured by an electronic scale immediately before DEXA examination.

Hologic Horizon DXA system was installed to measure the BMDs of the patients in OLMH. Regular QC test was performed every day to ensure the best regular performance. The sequence and analysis of DEXA examination followed the

department protocol and manufacturer guidelines. BMD of lumbar spine (BMDLS) and left hip (BMDHIP) were measured. L1 –L4 were included for analyzing BMD of lumbar spine. If there was no two consecutive evaluable lumbar vertebrates, the result of Lumbar spine BMD would be excluded. Non-dominant forearm would be scanned and analyzed additionally (BMDARM). If left hip was not evaluable, right hip would be scanned and analyzed for BMDHIP.

Statistical analysis would be performed using SPSS. Correlations between different parameters would be investigated. The statistical significance of the results would be indicated by Pearson correlations.

## **Result**

Apart from the result from the male patients, the study result matched the findings from previous studies. The weight and age of an individual is positively correlated to the BMD of central skeleton and peripheral skeleton.