



## Trends in Bone Marrow Aspiration & Bone Marrow Biopsy Among Medicare Patients from 2010-2017: Analysis of procedure volume, specialty involvement and cost

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**Purpose:** Bone marrow aspiration and bone marrow biopsies can help guide diagnosis and treatment for a variety of disorders. These procedures have traditionally been done by Hematology/Oncology. Among Medicare Patients, minimal data exists on trends in procedure volume and specialty involvement.

**Methods:** This study utilized data derived from publicly available databases provided by the Center for Medicare and Medicaid Services (CMS). Billing data from the CMS Physicians/Supplier Procedure Summary (PSPS) Master Files from 2010 to 2017 were obtained. The billing codes 38220 and 38221 were used. The Mann-Kendall test was used to analyze for statistically significant trends in procedure volume.

**Results:** A total of 176,665 bone marrow aspirations and biopsies were billed for in 2010 which decreased significantly ( $p < 0.01$ ) to 161,037 (-8.8%) in 2017. The ratio of bone marrow biopsies to aspirations increased from 3.1:1 to 3.8:1 during the study period. By specialty, Hem/Onc accounted for a majority of bone marrow aspirations/biopsies at 64.1% in 2010 followed by Pathology (8.5%) and Advanced Practice Providers (APPs) (8.2%). In 2017 however, Hem/Onc performed 38.9% of total bone marrow aspirations/biopsies with Radiology and APPs increasing their share of these procedures to 22.3% and 20.2% respectively. The specific department/team with which the APPs were associated with is not recorded within the data. Analysis of average submitted charges for bone marrow biopsies revealed that both Hem/Onc and APPs had higher average submitted charges at \$483.6 and \$512.8 when compared to radiology \$367.4 ( $p < 0.01$ ).

**Conclusion:** Among Medicare patients an increasing number of bone marrow aspirations/biopsies are being performed by radiologists at a reduced submitted charge when compared to Hem/Onc and APPs. Exposure and comfort with performing these procedures will be increasingly important for diagnostic and interventional radiologists.