HARNESSING THE ELECTRONIC MEDICAL RECORD TO IMPROVE THE EVALUATION OF SOFT TISSUE MASSES IN THE PRIMARY CARE SETTING: A PILOT STUDY ON THE IMPACT OF A BEST PRACTICE ALERT

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Objective: Inappropriate evaluation of soft tissue masses (STM) may lead to a delay in diagnosis of soft tissue sarcomas (STS) because these neoplasms are often mistaken for more common, benign conditions. Current guidelines recommend magnetic resonance imaging (MRI) for STMs greater than five centimeters in size or lesions that are enlarging, painful, or deep. Best Practice Alerts (BPA) have emerged as a form of artificial intelligence built into the electronic medical record (EMR) that serve to improve patient care and decrease healthcare costs, yet they may be intrusive to clinicians in a busy practice setting. We developed a BPA at HealthPartners, a Minnesota-based integrated healthcare delivery system that uses EPIC EMR, and linked it to ICD-10 diagnosis codes associated with STMs. The BPA prompted primary care providers (PCP) on appropriate STM evaluation. We then conducted a pilot project that assessed clinician acceptance of the BPA, its effect on improving PCP confidence in evaluating STMs, and its impact on patient care.

Methods: We attached a BPA to specific ICD-10 diagnosis codes associated with STMs to prompt PCPs on suggested use of MRI for further evaluation. We surveyed PCPs and assessed their baseline demographics, familiarity with STS, and acceptance of the BPA as a clinical decision-making support tool. A 10-point Likert scale was used to assess changes in clinician confidence levels with STM evaluation before and after interacting with the BPA. We assessed impact on patient care by determining how many MRI scans were completed as a result of the BPA as well as the associated clinical outcomes.

Results: Seventy-three PCPs at five different HealthPartners primary care clinics interacted with the BPA each over a three-month period of time. Forty-two clinicians (58%) completed a post-BPA survey and twenty-four (33%) completed both a pre- and post-BPA survey. The BPA significantly improved PCP confidence levels when evaluating STMs ($p = 0.0001$), and 75% of clinicians agreed or strongly agreed that the BPA enhanced their awareness of STS with 70% more likely to consider a STS diagnosis after viewing the BPA. A total of 803 BPAs were triggered (average per month = 100.4) on a total of 631 patients (average per month = 78.9). A clinician saw the BPA an average of 3.8 times per month. Seventeen MRIs were completed as a result of the BPA (average per month = 1.9). Four malignant or potentially malignant diagnoses were identified (23.5%), while lipoma was the most common non-malignant diagnosis (23.5%).

Conclusions: This pilot study linked a BPA to certain ICD-10 codes associated with STMs to prompt MRI evaluation for large or enlarging, painful, or deep masses. Seventeen MRIs were completed and four malignant or potentially malignant diagnoses were identified. PCPs found the BPA to be a useful clinical decision-making support tool, and it improved their confidence level when evaluating STMs. A larger healthcare system-wide project is planned.