Electronic Medical Record Integration for Streamlined DEXA Reporting

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Abstract

The DEKA modalities and EMR interfaces were modified to support sending diagnostic cross-sectional data directly from the modality through an HL7 interface into the reporting application function within the EMR. The data was formatted in such a way as to allow posting in the EMR as a preliminary report with a decision highlighting that the final results generated were in the present, standard EMR report function, but did not allow the interactive entry of narratives or interpretations. A number of in-house interpretations were created to streamline and standardize the interpretations Reporting (Image 1). The workstation included automatic reporting of the DEKA examinations, which allowed the leveraging of smart features in the EMR/DXE environment, a custom reporting form and semantic data entry. This report was able to be generated on the go with little or no manual entry of numeric data provided by the software.

Introduction

Many health information technology tools are available to aid in report generation and can be customized to further increase efficiency and accuracy (2). Tools such as voice recognition software have even shown improved report quality, decreased report turnaround times (3). However the available tools that were being used in some DEKA reports were reported as time-consuming and not necessarily tailored to the DEKA system. The goal of this study was to compare the results of a modified reporting system with those of the existing system to better understand the improvement in the number of errors for similar technical details.

Methods and Materials

The DEXA modalities and EMR interfaces were modified to support sending diagnostic cross-sectional data directly from the modality through an HL7 interface into the reporting application function within the EMR. The data was formatted in such a way as to allow posting in the EMR as a preliminary report with a decision highlighting that the final results generated were in the present, standard EMR report function, but did not allow the interactive entry of narratives or interpretations. A number of in-house interpretations were created to streamline and standardize the interpretations Reporting (Image 1). The workstation included automatic reporting of the DEKA examinations, which allowed the leveraging of smart features in the EMR/DXE environment, a custom reporting form and semantic data entry. This report was able to be generated on the go with little or no manual entry of numeric data provided by the software.

Results

Out of 193 DEXA exams before the change, 20 preliminary reports contained an error and 135 final reports contained 20 errors. The errors were contained of incorrect numerical values and missing comparison reference. The primary reason was that the numerology report did not post to the EMR as a complete report, but only three fields in the preliminary report were found to be related to numerical reference. The report contained predetermined values and simple numerical substitution. 15 inference incorrectly formatted elements were found in the preliminary report, while only 10 fields in the final report were identified as problematic.

Discussion

We present cost-effective solution that improves report turnaround time and accuracy. Before implementation of the change, 15% (5/15) of the reported preliminary reports had errors after the change. Moreover, turnaround time generation was reduced from 24 hours to 1 hour. The improvement in the turnaround time and accuracy in DEXA reporting and cost-effectiveness allows for the DEKA system to be recommended for use with large patient populations.