Automated RadLex Playbook Identifier Mapping Utilizing Web Services and Microsoft Excel

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Background

RadLex Playbook is a project sponsored by the Radiological Society of North America (RSNA) to provide a standard system for naming radiology procedures. Procedure names and identifiers are derived by combining individual elements such as modality, body part, and anatomic focus. Ultimately, Playbook’s goal is to define a standards-based approach to aid in multisystem projects such as radiation dose tracking, image exchange, workflow optimization, enterprise integration and billing. Unfortunately, the process of mapping a facility’s current procedure list to RadLex Playbook identifiers can be a very time-intensive manual process.

Evaluation

RadLex Playbook Version 2.1 introduces a web services interface to Playbook content. A web service utilizes internet technology such as the HyperText Transfer Protocol (HTTP) to facilitate communication between software applications which may be running on different platforms. The Playbook web services interface allows a system to query the Playbook data simply by using a structured Uniform Resource Locator (URL) as defined in the Playbook user guide. The web service is then able to return a result to the query in XML format. As web services are typically designed for machine-to-machine communication, the perceived obstacle of required front-end software can limit their utility to the average user. The purpose of our project was to leverage commonly available software, Microsoft Excel, in order to make web services more accessible. By using the WEBSERVICE function within spreadsheet cells, we were able to demonstrate how data from a charge master could be transmitted to the RadLex Playbook web service in order to query the most current version of the Playbook. Additionally, Excel’s FILTERXML function allowed us to extract the relevant data from the XML returned in response to our query. In order to demonstrate the utility of this approach, we were able to make use of the Excel functions and the Playbook web services to automatically map RadLex IDs and RadLex Long Names for 438 (65%) of the 675 imaging procedure codes from the 2015 National Physician Fee Schedule Relative Value File through a CPT code query. Many of the unmapped procedures were minor variations to mapped procedures or were procedures that are rarely performed such as a nuclear medicine Vitamin B-12 absorption exam.

Discussion

The increased computerization of the healthcare system has required an increased focus on interoperability which necessitates robust standards to facilitate communication between systems. Several current initiatives in radiology depend on standard procedure coding such as the RSNA Image Share project and the ACR Dose Index Registry. Unfortunately, converting a facility’s charge master to RadLex Playbook IDs can be a very daunting task. In addition to RSNA’s graphical search interface and access to downloadable spreadsheets, others such as Mabotuwana et al. have devised innovative methods to facilitate that conversion. Utilizing commonly available software and the recently released Playbook web service, we demonstrate another method that can assist in the mapping of RadLex IDs to an existing charge master.
Conclusion

The adoption of standards can often be hindered by difficulty in their implementation. In this project, we describe a method to automate the conversion of a charge master to Playbook IDs to aid in the adoption of the RSNA RadLex Playbook standard.

Reference


Keywords

RadLex Playbook, Interoperability, Web Services