

Automated Coding Software: Development and Use to Enhance Anti-Fraud Activities*

Jennifer H. Garvin¹, Ph.D., RHIA, CPHQ, CCS, CTR, FAHIMA, ²Valerie Watzlaf, PhD, RHIA, FAHIMA, ²Sohrab Moeini, BSIS

¹Center for Health Equity Research and Promotion, Philadelphia VA Medical Center, Philadelphia, PA, ²University of Pittsburgh, Pittsburgh, PA

Abstract

This descriptive research project identified characteristics of automated coding systems that have the potential to detect improper coding and to minimize improper or fraudulent coding practices in the setting of automated coding used with the electronic health record (EHR). Recommendations were also developed for software developers and users of coding products to maximize anti-fraud practices.

Description of the problem

National Healthcare Antifraud Association (NHCAA) estimates 3% (\$51 billion) of nation's expenditures was lost to outright fraud.

Methods

This descriptive research study included a review of literature, interviews with Federal agencies, completion of a product information form, and interviews with vendors and users of automated coding. Following this initial phase, the information was aggregated and synthesized resulting in product information matrices, flowcharts depicting the automated coding process and the areas where fraud can occur, an automated coding impact table, development of weak links table, and the creation of an anti-fraud model.

Automated Coding Process

Analysis of the steps in the non-automated coding and automated coding process is presented and comparison undertaken. The areas vulnerable to fraud in both processes are presented.

Anti-Fraud Software

Software that is useful in fraud prevention is provided.

This software includes Anti-fraud software products:

- Post-payment audits (basic tools)
- Data mining and machine learning such as artificial neural networks (ANNs)
- ANNs predict the potential for fraud in a specific claim based on the data in the claim and in the EHR.
- No update to the software needed. It continuously learns by analyzing examples of fraudulent cases.
- Requirements that help the ANN system deal with fraud detection include:
 - Data Profiling

- Advanced analytic models
- Rank Scoring

Recommendations

Software

We recommend that software design combine statistics-based and rules-based systems, that a standardized database is used to train the statistics-based engine, that audit trails are used, and that machine learning such as ANNs be used for predictive modeling to detect fraud and abuse before it happens.

Compliance Program

Fraud prevention is the main purpose of compliance programs. Current programs can include continuous aggregate data analysis prior to claims submission, employment of appropriately trained coding professionals, and use of current coding references and coding practice standards are also.

Product Certification for CAC products

CAC products should be certified to converted to codes based on standard coding principles and guidelines

Greater Cross Industry Collaboration to Prevent Fraud

It is recommended that payers and providers work more closely to prevent fraud. This collaboration must include adherence to standard coding conventions and rules, and aggregate data analysis techniques and continuous monitoring should be used.

Limitations

The research was undertaken via phone interviews, e-mail correspondence, and webinars. Only a limited number of users, vendors, and government officials participated.

Future Research Areas

- Evaluate CAC in production EHR settings.
- Investigate use cases and test databases to evaluate of CAC code assign according to standard coding guidelines.
- Evaluate the potential of automated coding and anti-fraud software with the EHR to relieve coding workforce shortages.

Conclusion

Mitigation of fraud is possible through technologies, prevention and detection processes, and continued education efforts.

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