

Linking medical licensing examination scores with longitudinal physician practice data using a privacy preserving protocol

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Introduction

Medical education and regulatory bodies do not often share performance data due to privacy concerns. Innovative approaches are needed to facilitate research while preserving security and privacy. To this end, a privacy preserving protocol was employed linking medical examination and regulatory data to examine future physician competence across the career.

Objectives and Approach

This study extends previous work linking de-identified Canadian medical licensing examination data with medical regulatory outcomes to answer the following question: is there a predictive relationship between licensing examination scores and post-licensure practice outcomes? A privacy preserving protocol using a third party organization was employed to link data between two disparate organizations - a medical licensing examination organization (MLE) and a medical regulatory authority (MRA). Multiple years of licensing examinations were linked to thirteen years of regulatory assessment outcomes (2004 – 2016) without identifiable data being shared to either party.

Results

Medical Identification Number for Canada (MINC) was used as a common identifying variable between the two organizations. First, the analytic cohort was created by linking identifying variables of the physicians of interest from both parties, thereby creating a common cohort. The third-party organization then created an encryption key using the common cohort and the MLE examination data. The key was given to the MRA and the encrypted, de-identified examination data was given back to the MLE. Lastly, the MRA data was de-identified, encrypted and transferred to the MLE for analysis. This ensured neither party had access to each other's encrypted data and the key simultaneously.

Conclusion/Implications

Privacy preserving protocols enhance opportunities for novel research questions and data linkages within and across sectors; here, results from this analysis may enhance the utility of medical licensing exams by providing evidence for secondary uses. Furthermore, it will offer other physician organizations evidence to support physicians across their career trajectory.

