Bioinformatic algorithm for automated family history retrieval and enhanced clinical care

Technology #cu16095

Family health history plays an important role in clinical healthcare for determining a patient likelihood to develop certain diseases. With this information readily available, doctors can make informed decisions when diagnosing and treating patients who are genetically predisposed to specific medical conditions. Family history, however, is typically reported by the patient manually through questionnaires and interviews that can be time-consuming and inaccurate. This technology enables the automatic retrieval of family medical history by querying electronic health records of known relatives and creating a family tree. Implementing this algorithmic tool may increase the efficiency of patient care and facilitate targeted diagnostics and treatment.

This technology increases effectiveness of patient care through rapid, autonomous identification of family medical history from electronic health records

This technology is a bioinformatic algorithm that can aggregate family medical records autonomously from electronic health records. First, the algorithm extracts the patient’s emergency contact information and matches each contact’s information with available patient records from a database. To ensure accuracy, a relative’s electronic health record is only retrieved when there is an exact match with the provided contact information. This process is carried out in iteration until a family tree is generated. Once complete, the patient’s family medical record comprises diagnosis codes, medication orders, and procedural data that are readily accessible to primary care providers and specialists.

Testing of the algorithm has confirmed that family health records can be positively identified with high accuracy.

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Applications:
• Patient risk assessment
Preventative care
Early disease diagnosis and treatment for primary and specialty care
Precision medicine
Emergency preparedness and response
Genealogical services

Advantages:

- Automatic collection of family medical history
- Extraction of medical information with great detail
- High-accuracy record retrieval
- Reduces time expended on collecting second-hand information from the patient
- Enables precise guidance for primary care providers and specialists

Tech Ventures Reference: IR CU16095

Related Publications:


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