# Linking primary care EMR data and administrative data in Alberta, Canada: experiences, challenges, and potential solutions

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## Introduction

Administrative data are commonly used for a variety of secondary purposes. Although they lack clinical detail and risk factor information, linkage to primary care electronic medical records (EMR) could fill this gap. Primary care EMRs are a relatively new data source available in Alberta and thus, EMR-administrative linkages are novel.

## Objectives and Approach

To describe the process undertaken for linking de-identified primary care EMR data from two regional Alberta networks of the Canadian Primary Care Sentinel Surveillance Network (CPC-SSN) with administrative data (hospital admissions, emergency department visits, pharmacy information) from Alberta Health Services Analytics, specifically as it relates to a study on patients with complex, chronic diseases. As this linkage process is new in Alberta, we will describe the challenges encountered and possible solutions to inform future data linkage for research studies.

## Results

Linkage steps: 1) approval from research ethics board and individual CPCSSN providers as data custodians; 2) notify Privacy Commissioner on behalf of custodian; 3) send linking key (CPCSSN patient ID, EMR ID) from regional database to Analytics; 4) send linking files (patient personal health number [PHN], EMR ID) from custodian's EMR system to Analytics; 5) match unique EMR ID from linking key and clinic linking files; 6) PHN from clinic linking file mapped to administrative data; 7) data de-identified before transferring to secure repository; administrative data matched to EMR data using CPCSSN ID.

Challenges: obtaining individual provider consent for each study; sampling bias; delays/issues generating clinic linkage file; mismatch between patients in clinic & regional linking files.

Current and potential solutions will be discussed during the presentation.

## Conclusion/Implications

As primary care EMR and administrative data become more routinely linked and accepted, the process will become more efficient and streamlined. These data will contribute to a better understanding of patients and their care in Alberta.