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Data Linkages to Study Pharmaceutical Health Services Delivery: Three Applied Examples

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Introduction

The safe, effective, and efficient use of pharmaceutical health services is a critical area of public health and social policy. Implementation and monitoring studies often use single data sources but require diverse data elements pertaining to patients and health services. Linking multiple data sources may enable more comprehensive studies.

Conclusion/Implications

Many data sources are available for pharmaceutical health services research studies and linkage can be made at the patient, region, or payer level to support program monitoring and evaluation. Data linkage enables the inclusion of multiple domains, although multiple linkages and/or custom data may be needed for more complex studies.

Objectives and Approach

The objective of this presentation is to describe three applied pharmaceutical health services projects in the United States that use data linkage to support program monitoring. A conceptual model was defined including the following key domains: (1) contextual determinants; (2) pharmacy service availability and coverage by payers; (3) receipt/use of services by patients; and (4) outcomes such as clinical outcomes, patient satisfaction and healthcare costs. Applied studies were selected to illustrate data linkage across different domains. For each study, we present the data sources used and the domains addressed by each data source. We also describe the linkage process.

Results

Study 1 assesses distance between patients and pharmacies in-network for health plans. It determined pharmacy address and patient ZIP code using several Medicare datasets and calculated driving distance using geocoding software.

Study 2 measures if patients targeted for services receive an intervention designed to prevent adverse drug events and improve patient health outcomes while reducing healthcare costs. Targeted beneficiaries are determined using Medicare administrative data and delivery of services is assessed based on a custom-developed encounter data set, linked by beneficiary.

Study 3 examines the association between prescription drug formulary design, medication use, and cost and health outcomes. For this, formulary data are obtained from a commercial source and utilization/outcomes data from commercial claims data. These datasets are linked by payer.

