FEASIBILITY OF BENCHMARKING POPULATION CHARACTERISTICS AND SERVICES ACROSS PROGRAMS IN A LOCAL PUBLIC HEALTH DEPARTMENT USING STANDARDIZED DATA

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Significance & Setting

• Terminologies and metrics are needed to support the development of a national population health infrastructure

• There are numerous challenges in data identification and management
  • Data quality
  • Data characterization
  • Data interpretation
  • Data visualization
  • Real-time data
Significance & Setting

• Developing a data source from clinical documentation in public health departments may be a resource for population health surveillance and evaluation

• Data source: Washington County Minnesota Department of Public Health and Environment

The Omaha System
Solving the Clinical Data-Information Puzzle
Methods

• Collected 10 years of data from a local public health department

• Initial status:
  • data stored in 39 separate spreadsheets that were archived for program evaluation purposes
  • 36 spreadsheets for various clinical problems

• Designed and built a MySQL Database Management System (DBMS)
Methods

• There were two main challenges to effectively managing the data:
  • data was exported from the Omaha System into multiple Excel spreadsheets with thousands of records and tens of fields, which makes it tedious to organize, restructure, and manage.
  • redundant and incomplete data among the excel spreadsheets, which were misleading when running statistical algorithms.
# Methods

<table>
<thead>
<tr>
<th>FakeID</th>
<th>AdmDate</th>
<th>DCDate</th>
<th>VisitDate</th>
<th>Prob</th>
<th>ProblemText</th>
<th>CareDescription</th>
<th>Sta</th>
<th>FakeStaffID</th>
</tr>
</thead>
</table>

Identify each patient entry through an aggregate key
Results
Results

• De-identified clinical data for 2406 clients (individuals, families, and community groups) consisting of 197,000 records for several public health department programs

• Searching for records, identifying patterns and associations, and running queries take seconds compared to minutes.
Discussion

• Utilize descriptive and inferential analysis to benchmark population characteristics, services, and outcomes and to look for associations within each program and between programs
• The Omaha System has potential to enable benchmarking of population characteristics and outcomes across programs and jurisdictions
• This feasibility study will be replicated with large multi-agency data sets to further develop national population health informatics data architecture and benchmarking
Thank you