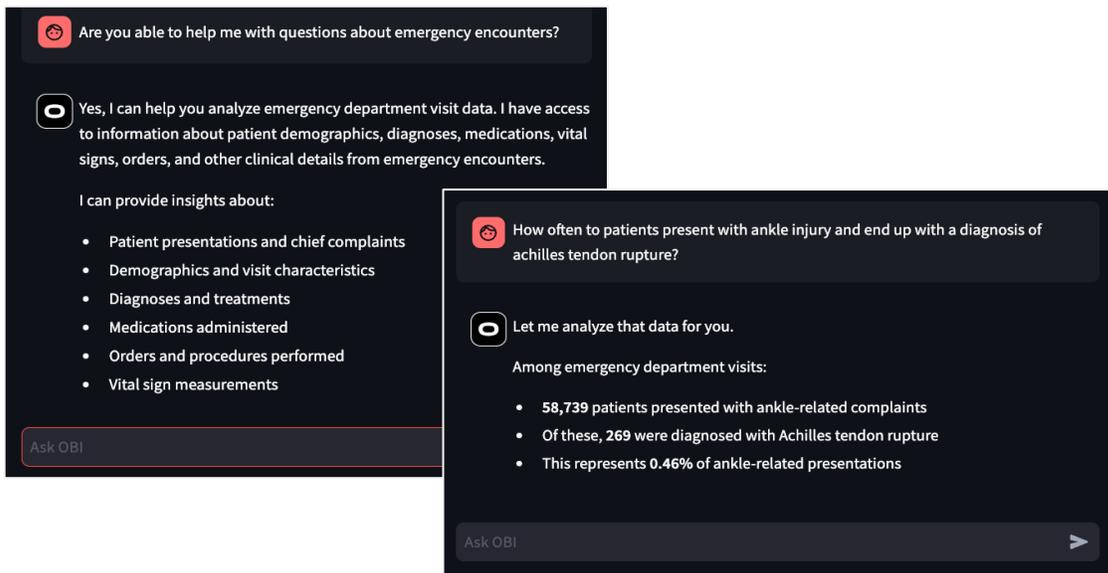# AskOBI (Outcomes Based Intelligence) Query Assistant

The American College of Emergency Physicians (ACEP) Emergency Medicine Data Institute (EMDI) has accumulated the nation's largest repository of emergency encounter data, gathered from EMRs and billing systems for over 20 million encounters annually into the Clinical Emergency Data Registry (CEDR). This is a Qualified Clinical Data Registry (QCDR) approved by the Centers for Medicare and Medicaid Services (CMS) for reporting quality scores as part of the Merit-based Incentive Payment System (MIPS). The AskOBI project was created to allow authorized users to query a de-identified version of this data for further quality work and to provide real world evidence (RWE) to support clinical research.

A common problem with very large databases is difficulty accessing answers to relatively straightforward questions by users with limited technical capabilities. Frequently the need is addressed by asking a technical expert to perform a series of Structured Query Language (SQL) queries to determine the answer. Given the demands on technical resources, this can be an iterative process that occurs over weeks. New artificial intelligence (AI) tools are being deployed to try to help with this situation, but large language models (LLM) that depend on text vectoring can be limited when asked to provide numeric or statistical answers with high reliability.

The AskOBI Query Assistant prototype was created as an example to show how to address this use case. Tabular clinical data was extracted from electronic medical record systems from a sample of almost six million emergency encounters across several hundred emergency departments. The data was processed, deidentified, deduplicated, normalized and then stored in a proprietary data schema.

AskOBI uses the Claude model from Anthropic to provide natural language querying of healthcare data stored in the data repository. The AI analyzes emergency department visit records, interpreting user questions and dynamically generating SQL queries to extract relevant insights. It handles medical terminology, maintains context across conversations, and presents findings in a clear, clinically relevant format. The underlying AI model interprets the question and responds with answers in natural language, including numeric and statistical information. The user can iterate with the chatbot interface to add clarity. The solution bypasses the need for human SQL experts saving immense time and costs.

The AskOBI concept is now being developed and deployed as a scalable production level application by EMDI with support and co-funding by Amazon Web Services (AWS). For more information, please contact ebarthell@acep.org