Objectives: In June 2014, FDA launched OpenFDA, featuring an Application Programming Interface (API) which allows high-value, publically-available data to be accessed easily by software developers. Currently, the FDA Adverse Event Reporting system (FAERS), Recall Enterprise System (RES), and Standard Product Labels (SPL) are available for drug-related searches. The “Shiny” package by RStudio allows for the development of interactive web applications to visualize and summarize data. By combining “Shiny” and OpenFDA API, a web application aiming to facilitate visualization of FAERS data was developed. Upon submission of a drug name, the web application will use API to construct data set needed for further analysis.

Methods: Two R scripts (ui.R and server.R) were prepared allowing the end users to interact with FAERS and SPL data via the OpenFDA API. Current output was designed to assist end users to identify generic drug products with high report frequencies indicating diminished drug effect.

Results: Upon user input into the web application (Fig.1.1, [web link](#) available upon request), plots generated include: total FAERS report frequency stratified by drug-associated adverse events (Fig.1.2), total FAERS report frequency stratified by associated application numbers (Fig.1.3), and frequency of “Lack of effect” events stratified by drug application numbers (Fig.1.4). Though FAERS data are not confirmatory and require further investigation, these visualizations can be used to generate hypotheses about potential signals for generic drug products.

Conclusions: Combination of “Shiny” with OpenFDA API allows web application development to fit the needs of end users. To our knowledge, this is the first drug information-based and data query-based “Shiny” web application that will directly access public databases from OpenFDA. We believe building this web application can enhance real-time decision making and facilitate interactions across scientific disciplines and communities.
Figure 1. Snapshots of the user interface

Distribution of FAERS adverse events (MedDRA PT)

Adverse Events Drug Application Number Lack of effect

Fig. 1.1

Fig. 1.2

Fig. 1.3

Fig. 1.4