

## RxNav 2.0 – A web-based, mobile-responsive RxNorm browser

Lee Peters, M.S. and Olivier Bodenreider, M.D., PhD

U.S. National Library of Medicine, National Institutes of Health, Bethesda, Maryland, USA

Contact information: RXNAVINFO@LIST.NIH.GOV

### Motivation

RxNav is a browser for several drug information sources, including RxNorm, RxTerms and NDF-RT. Since its release in 2004, many features have been added over the years, including pill images and drug-drug interaction information. However, the Java Web Start framework originally used was not adaptable to an environment where web resources are increasingly used on mobile devices. In 2016 RxNav was redesigned to conform to modern web application development principles, with the goal of simplifying the user experience and supporting mobile devices.

### Features and look of RxNav 2.0

**Startup.** The redesigned RxNav 2.0 is a web application which can be run by selecting the RxNav button from the RxNav website (<https://rxnav.nlm.nih.gov>). Based on Java Script, it only requires a browser such as Chrome or Firefox, whereas the original version of RxNav required users to have java installed on their system in order to run the application. RxNav 2.0 has a faster startup time than the original application, as well as faster search times.

**Responsive Design.** Based responsive design techniques, RxNav 2.0 can be displayed appropriately on workstations, tablets and mobile devices. The original application was limited to devices running java and required a large display area. Figure 1 (left) shows a screenshot of RxNav 2.0 on a mobile phone.

**Functionality.** Our goal in developing RxNav 2.0 was to keep the functionality of the original application and provide additional features. These new features include:

- **Ubiquitous searching.** Searching can be done while visiting any tab in RxNav 2.0.
- **NDC properties.** The NDC tab displays properties from DailyMed for each NDC.
- **NDC History.** The NDC tab contains a history feature that displays all past and present NDCs for the RxNorm concept.
- **Links to RxClass.** The nodes in the graphs in the Class View tab are linked to RxClass and clicking on a class in RxNav 2.0 opens RxClass for that class.
- **Search history.** A search history allows the user to conveniently revisit previous searches.

**Appearance.** RxNav 2.0 keeps the basic tab structure of the original application, but the tab views have been modified in some cases to provide better navigation and enhanced look and feel. In particular, RxNav 2.0 offers a simplified graph view limited to ingredients, brand names and drug products (Fig. 1, right).

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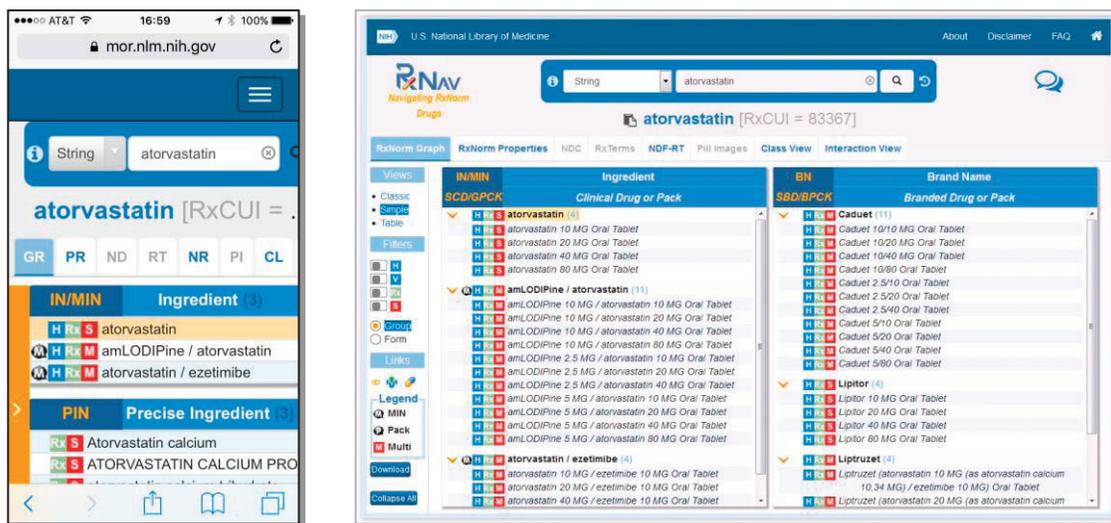


Figure 1. RxNav 2.0 on a mobile phone (left); new simple graph view (right)