RxNav: An Integrated View on Drug Information

Kelly Zeng, M.S., Olivier Bodenreider, M.D., PhD,
John Kilbourne, MD, and Stuart J. Nelson, MD
U.S. National Library of Medicine, National Institutes of Health, Bethesda, Maryland, USA
`{zeng,olivier}@nlm.nih.gov, {kilbourj,nelsons}@mail.nlm.nih.gov`

The original *RxNav*

RxNav [1] is a browser for *RxNorm* [2], the NLM terminology of standard names and codes for clinical drugs. *RxNav* displays links from clinical drugs, both branded and generic, to their active ingredients, drug components and related brand names. The current dataset (July 3, 2007) comprises 5,620 ingredients, 11,622 brand names, 13,550 clinical drug components, 13,630 branded drug component, 17,995 clinical drugs, 14,242 branded drugs, 8,222 clinical drug forms, 11,195 branded drug forms and 141 dose forms. *RxNorm* is one of a suite of designated standards for use in U.S. Federal Government systems for the electronic exchange of clinical health information.

Released in September 2004, *RxNav* was first developed as an interface to the *RxNorm* database and was thus restricted to displaying relations among drug names. However, besides terminology, other drug-related information can be integrated through and displayed in *RxNav*, including pharmacologic action, drug-drug interactions, indications and contraindications, adverse reactions, etc. More generally, *RxNav* can serve as an integrated tool for accessing drug information. In this abstract, we give a brief overview of the new features being implemented in *RxNav*, with the objective of providing an integrated view on drug information.

Multiple views

Each view presents one particular aspect of drugs, including names, clinical information, labeling information, etc. Each perspective on drug information is presented in a different tab. Each tab has its specific organization, reflecting the underlying structure of the information being displayed and draws on a particular information source. New tabs will be created as necessary when additional information sources are integrated.

The default view in the original *RxNav*, displaying the relations between drug names from *RxNorm*, has become the **terminology tab**. Other views under development include the clinical tab and the label tab.

The **label tab** displays the drug labeling information submitted to the Food and Drug Administration (FDA) for over 2,000 marketed drugs, including usage information and adverse reactions. The source for this information is *DailyMed* [3].

The **clinical tab** will soon make available information such as pharmacological actions, indications and contraindications, for which several possible sources are under consideration.

Navigation between views

Only the tabs for which information is available are active. Tabs are grayed out in some contexts and activated dynamically in others. Navigation is possible within a view through hyperlinks or a double-click, as it is currently the case in the terminology tab. Users can navigate between views through the tabs. For example, a search on "Zyrtec" first leads to the terminology view (possibly after spelling correction of the input term), from which it is possible to access label information through the corresponding tab.

Integrated view

Integrating drug information from various sources through *RxNav* is facilitated by the fact that *RxNorm* integrates not only the names, but also the identifiers of drug from the major providers of drug information. Moreover, because *RxNorm* is part of the Unified Medical Language System (UMLS) Metathesaurus, the integration with information sources not present in *RxNorm* is also facilitated.

In the future, *RxNav* is also expected to be interfaced with *MyMedicationList*, a tool for users to store, update, add and delete medications from their personal medication lists.

References

1 http://mor.nlm.nih.gov/download/rxnav/
2 http://www.nlm.nih.gov/research/umls/rxnorm_-main.html
3 http://dailymed.nlm.nih.gov/