Educational Brief

RxNorm

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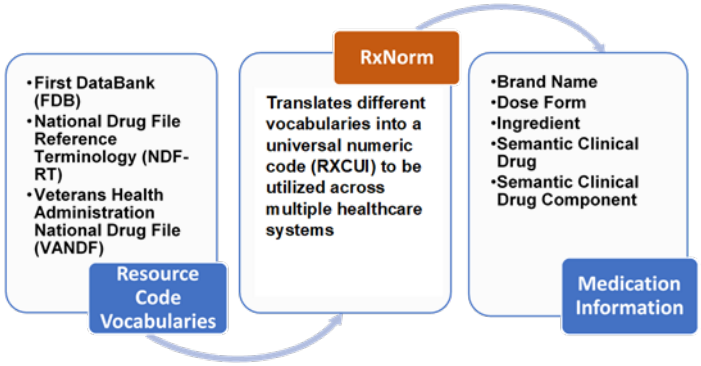
Established by the U.S. National Library of Medicine, RxNorm represents standardized concepts, meanings, and names for clinical drugs. RxNorm normalizes medication names by assigning unique numeric medication identifiers to normalized concepts (e.g., ingredients, dose form, brand, etc.). RxNorm supports interoperability among various code systems with different drug databases by providing links between their vocabularies. RxNorm offers a standardized structure and concepts for reporting medication-related patient safety events to the Patient Safety Organization (PSO) Privacy Protection Center (PPC) for national aggregation and analysis.

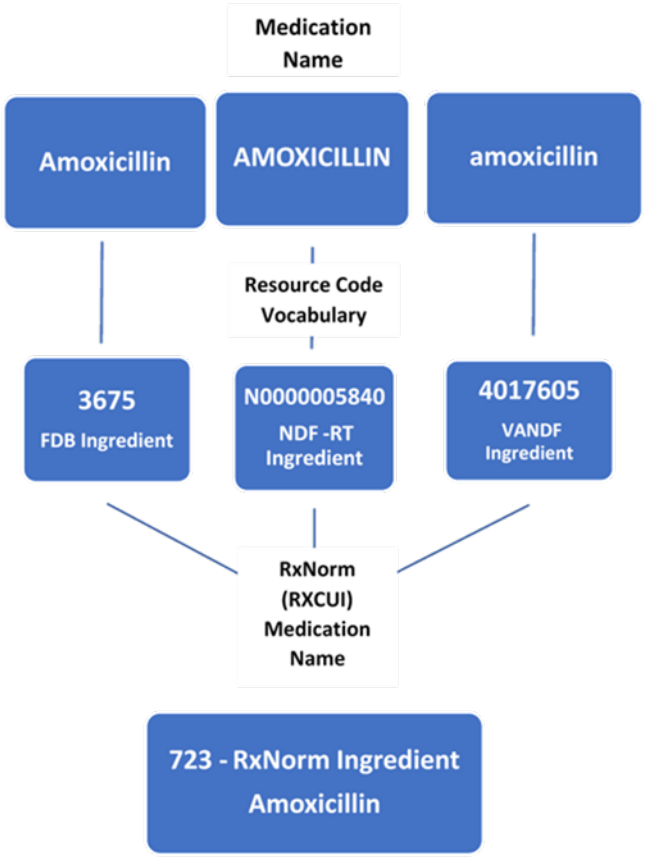
RxNorm assigns a specific RxNorm Concept Unique Identifier (RXCUI) for each normalized concept. The RXCUI is a numeric code used to link different pharmaceutical information systems as depicted below. For additional information on available vocabularies, please refer to the Unified Medical Language System®[1] (UMLS®) RxNorm Overview (see What does the RxNorm model look like?).

Figure 1. RxNorm Process of Translation[2]



- Linking drug vocabularies commonly used in pharmacy management and drug interaction software systems and allowing the efficient exchange and aggregation of information.

Figure 2. Example RXCUI Translation of Vocabulary(s)



Benefits of Using RxNorm

RxNorm delineates the complex medication information structure providing the opportunity to report with ease and clarity utilizing unique identifiers. Additional advantages of RxNorm include:

[1] The UMLS® is a registered trademark of the National Library of Medicine (NLM).

[2] Please note, the source code vocabulary examples listed in this brief do not represent an exhaustive list of vocabularies available for use with RxNorm. Please visit RxNorm Technical Documentation for a complete list

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- Timely[3] and easy access including tools such as RxNav [single medication look-up] offer an interactive experience for those new to RxNorm. Additionally, free downloadable RxNorm Files are available providing detailed medication information on the ingredients, dose forms, strengths, generic names, and brand names.
- Facilitates accurate electronic communication of drug information between electronic health record (EHR) systems, pharmacy, and other health information exchange (HIE) systems.
- Aligns with Meaningful Use compliance requirements.

RxNorm Implementation

RxNorm organizes the distinct elements of drug names at varying levels of detail called Term Types (TTYs), each with its own RXCUI. TTYs such as brand name (BN), dose form (DF), ingredient (IN), semantic clinical drug (SCD), and semantic clinical drug component (SCDC) as shown in table 1 are included in the technical specifications of the AHRQ Common Formats for Event Reporting. Please refer to the RxNorm Technical Documentation for further instruction on RxNorm integration.

Table 1. Term Types

Term Type	Name	Description	Example
BN	Brand Name	A proprietary name for a family of products containing a specific active ingredient.	Excedrin (Back & Body)
DF	Dose Form	The form in which a drug is intended for use.	Oral Tablet
IN	Ingredient	A component of medication that defines the compound of a specific medication.	Acetaminophen and Aspirin
SCD	Semantic Clinical Drug	Includes the medication ingredient, strength, and dose form	Acetaminophen 250 MG/ Aspirin 250 MG Oral Tablet
SCDC	Semantic Clinical Drug Component	Includes the medication ingredient and strength.	Acetaminophen 250 MG/ Aspirin 250 MG

AHRQ Common Formats for Event Reporting

To take full advantage of RxNorm, PSOs are encouraged to incorporate RxNorm into their current reporting systems. If PSOs map to and report RxNorm data, they will ensure more consistent reporting of medication data for Common Formats for Event Reporting (CFER) in both Hospital and Community Pharmacy settings. Use of the same nomenclature will advance national learning initiatives by allowing the aggregation of standardized data.

Reporting RxNorm data will offer additional benefits to Patient Safety Organizations (PSOs) for analysis of patient medication safety events:

- Aid in understanding what types of medications are commonly involved in medication events.
- Improve targeting of quality improvement strategies for high-risk medications which can help PSOs in implementing strategies to avoid patient safety events in the future.
- Assist with refinement of the Common Formats for Event Reporting as more is known about medication events.

Additional Resources

For additional information regarding RxNorm, technical specifications, vocabularies, and implementation please reference the following links.

- RxNorm Overview
- UMLS® - RxNorm Technical Documentation
- UMLS® Metathesaurus
- UMLS® Reference Manual - NCBI Bookshelf

Technical Assistance

Contact the PSOPPC Help Desk for additional technical assistance via email at support@psoppc.org, or via phone at (866) 571-7712, Mon-Fri, 9am – 5:30pm, ET. You can also submit an inquiry via our Contact Us page on the PSOPPC website.

[3] The RxNorm dataset is released the first Monday of each month and updated every Wednesday with newly approved drug information.

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