12.1.3 National Medication Decision Support System (Denmark)

Physicians often lack the time to familiarize themselves with the details of particular allergies or other drug restrictions. Clinical Decision Support (CDS), based on a structured terminology, such as SNOMED CT, can help physicians get an overview by automatically alerting allergy, interactions and other important information. The centralized CDS platform based on SNOMED CT controls Allergy, Interactions, Risk Situation Drugs and Max Dose restrictions with the help of databases developed for these specific purposes.[1]

The National Release Centre of Denmark (National eHealth Authority) produces a SNOMED CT drug extension for medications. The Danish SNOMED CT drug extension was primed by data extraction, cleansing and conversion of content from the Danish Medicine Agency Database (DKMDB), which is primarily meant for pricing and stock handling. The DKMDB was then complemented with SNOMED CT substances and their unique IDs. The Danish SNOMED CT drug extension includes information such as trade names, substances, dose forms, strengths and units of measure.

Building upon the Danish drug extension, the National eHealth Authority is working to introduce centralized decision support (CDS) services for both primary care and hospital prescribing systems.

The CDS server will respond to web service requests from the various electronic medication systems and return alerts and other prescribing information (see Figure 12.1.3-1)
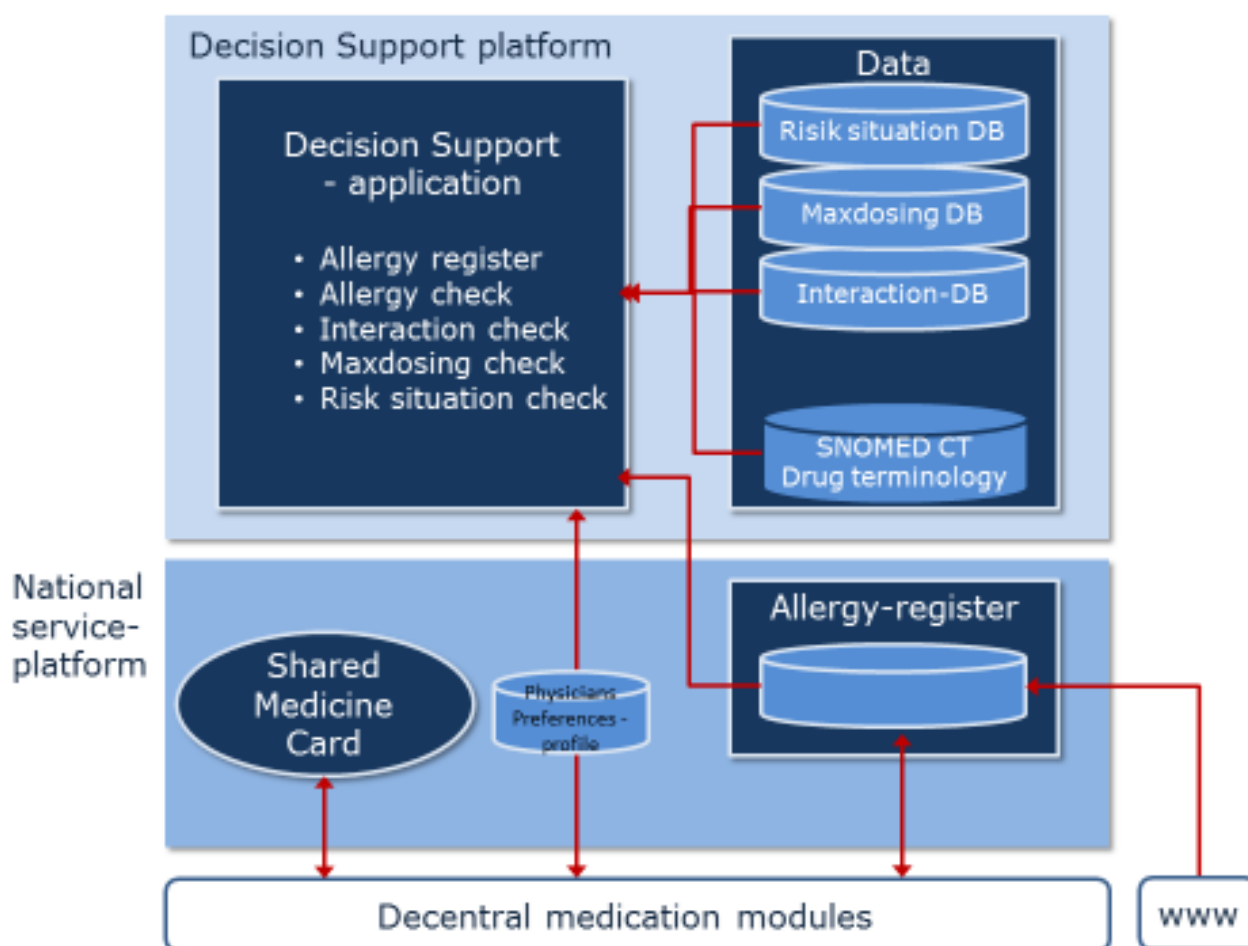

Figure 12.1.3-1: Denmark medication decision support services overview

Allergies Register

A group of allergy specialists, family practitioners and CDS experts are developing a standard set of information to be used in a patient drug allergy register. A SNOMED CT subset, from the Drug Allergy (disorder) sub hierarchy in the Findings hierarchy, is used to document allergies. .

Allergy Alert Service

Allergy alerts are enabled by the relationships in SNOMED CT between allergy disorders and substances (via the |causative agent| attribute), and relationships between drug products and substance concepts (via the |has active ingredient| attribute).

Interactions Service

Based on an existing service, with data primarily drawn from peer-reviewed literature, the interaction database describes 2,500 interactions between different drugs based on their ingredients.

The database contains a short description of all interactions and a recommendation of how the physician can handle the interaction. The ingredients have been linked to SNOMED CT substances to directly inform the decision support service.

Risk Situation Database

The risk situation database contains drugs evaluated by experts as being potentially dangerous in specific situations. Drug products, ingredients and dose forms are converted to SNOMED CT concepts, which thus contribute to the decision support service.

Maximum Dose Database

An existing database contains maximum doses for all drugs and recommended doses for patients with impaired renal function. In the decision support service ingredients are once again expressed as SNOMED CT substances.

Alert Filtering

The decision support platform will incorporate an alert filtering service in which physicians can set up their personal preferences for the displaying of alerts. For example, the dose form hierarchy of SNOMED CT will be used to enable filtering of unwanted alerts for specific dose forms (such as cutaneous dose forms).

Footnotes

RefNotes

1   http://ebooks.iospress.nl/publication/34363