

Clarity Drugs Suite and Associated Products

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Executive summary

Patient safety is a critical agenda for health care practice and is receiving more attention due to well reported failures.

One of the most dangerous activities clinicians undertake is prescribing.

For years clinicians have failed to take notice of computer supported alerts on interactions and contra-indications - mainly because of high false positive rates.

Clarity Drugs is a next generation knowledge base which supports prescribing and produces alerts of appropriate sensitivity and specificity thus resolving the problems of current systems.

Clarity Drugs is developed and maintained with a flexible and scalable authoring environment that also enables many different forms of publication including:

- decision support tools that look for problems in patients records,
- adding value to searches on web sites,
- dynamic or static web sites,
- printed drug monographs.

Overview

The recent report from the Chief Pharmacy Officer on 'Improving Medication Safety', stated "*Medication errors occur in all health care systems. Serious errors harm patients and expose health professionals to civil liability and sometimes criminal prosecution. They occur too frequently and they are preventable.*"

The report recommended the following steps to ensure safer prescribing:

- Active management and review of long term repeat prescribing
- Implementation of the electronic care record and effective electronic prescribing systems
- Clear treatment plans, shared with all professionals involved in the patient's care
- Double checking of all complex dose calculations

Tools to support computerised prescribing have been available for a number of years, but they have not always met the requirements of healthcare professionals and have not always been fully used. A major problem is that all too frequently users are presented with drug interactions or other alerts that are not clinically important.

Clarity Guidance and Clarity Drugs Suite, developed by Clarity Informatics Ltd, are part of a new generation of intelligent tools to support computerised prescribing that can integrate effectively into workflow.

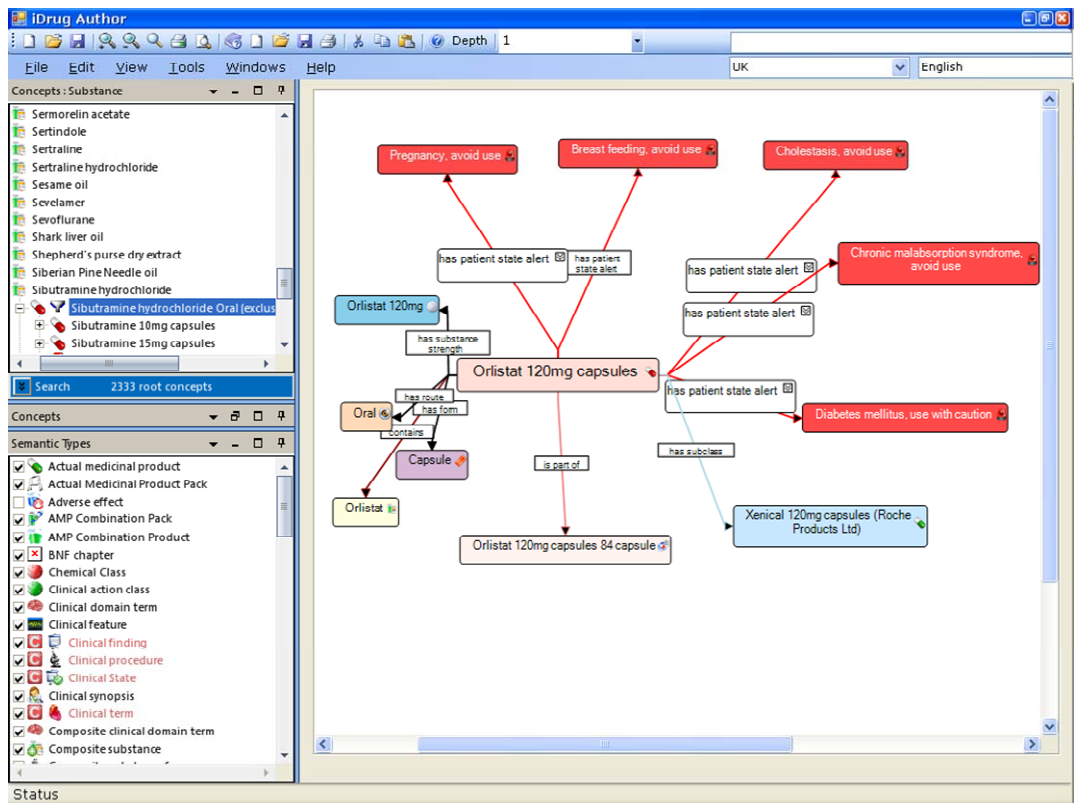
Clarity Drugs



What is Clarity Drugs?

Clarity Drugs is a knowledge base and a drug file that has been designed to help healthcare professionals prescribe safely and to enable them to easily carry out reviews of an individual patient’s regular or repeat medication.

It has a uniquely flexible and scalable authoring approach developed in an ontology environment designed by Clarity Informatics. This environment enables the authors to place facts about conditions and medications wherever it is appropriate (e.g. Tenormin® or atenolol or atenolol tablets) and an ontology classifier ensures the facts are applied to all appropriate prescribable items.



This flexibility enables us to specifically develop Clarity Drugs to address the issue of irrelevant warnings which reduce healthcare professionals’ responsiveness to prescribing alerts.

Clarity Drugs has been built on the NHS Dictionary of Medicines + Devices (NHS DM+D). This NHS dictionary contains unique identifiers and associated textual descriptions for medicines and medical devices and has been developed for use throughout the NHS as the standard way of identifying the specific medicines or devices used in the diagnosis or treatment of patients. However Clarity Drugs is easily localisable to different countries’ drug files.

Clarity Drugs has been developed by the same expert team at Clarity Informatics who led the design of NHS DM+D, evaluated the Electronic Transfer of



Clarity Drugs



Prescriptions project, advised on the Extended Nurse Prescribing Formulary for the Department of Health, and produce and maintain evidence-based prescribing guidance for PRODIGY and the NHS Clinical Knowledge Summaries service (CKS) (cks.library.nhs.uk).

The team has enhanced the NHS DM+D model to enable it to represent different language synonyms (e.g. Atenolol, 阿替洛尔), the international role of these synonyms (e.g. RIN, BAN) and the utilisation of these synonyms within a region (e.g. USA, UK). When it comes to localising the Clarity Drugs knowledge base all that is necessary is to add proprietary medications and their packs which are region specific (e.g. Tylenol®).

Who is it targeted at?

Clarity Drugs is targeted at the NHS and healthcare systems around the world for individual;

- Prescribers
- Reviewers and managers of repeat prescriptions
- Dispensers of prescriptions
- Auditors of the quality of prescribing
- Self directed learning
- Teachers

What can it do?

Some of the distinguishing features of Clarity Drugs are:

- Extensive hierarchies for browsing and for computer software to make inferences (e.g. safety alerts, atenolol which is taken by mouth etc.).
- Clinical indications in addition to regional licensed indications.
- Improved knowledge about drug interactions.
- Directions of usage which computers can understand and make inferences plus human readable forms.
- New, unique and improved approach to contra-indications and cautions.
- Dosage instructions.
- Supports prescribers which have formulary or guidance restrictions on what they can prescribe.
- An architecture that is designed to add many more features including increasing/decreasing dosage.
- It can also publish its knowledge base into static views such as books or web sites containing monographs about drugs or guidance on the management clinical conditions.

Clarity Drugs Suite



Clarity Drugs Suite

Clarity Drugs is a very flexible knowledge base, it is not a product we sell. The products are produced by publishing Clarity Drugs knowledge into files for printing or in different data representations for software manipulation. In some instances we produce the software. In others another software vendor generates the software.

To date, the suite of products produced from Clarity Drugs are as follows:

Clarity Medication Review

This product takes the electronic records of patients from a family practice assesses the risks, prioritizes which patients are at risk and why and then presents this to a team of clinicians who help the practice improve quality – the next version will inform the clinicians the best course of action.

This has been a joint development for the UK with Apollo Medical Systems, who have data extraction software in the majority of General Practices in the UK. It will be in the market place by the end of 2008.

Clarity Drug Information System (CDIS)

CDIS is a highly cross indexed drug information browser that contains the majority of the facts found in Clarity Drugs and is presented in hyperlinked lists plus monographs. It can also be cross index with our Clinical Knowledge Summary (CKS) product for detailed guidance and information on the management of conditions.

This system is in prototype targeted at the University marketplace.

Clarity Prescribing

Clarity Informatics has detailed use cases (in UML) for prescribing, medication review and dispensing generated from the UK. We are in the process of reviewing these for the Middle East. Clarity Drugs has been designed and authored to fulfil these use cases. Clarity Prescribing needs to be implemented within a clinical system or a patient “held” electronic record. To enable this we have experimented with the following:

- An Application Programme Interface (API) that fulfils the functionality required for our use cases (in the NHS this exceeds the requirements of RFA99 v1.2)
- web services
- a prototype system for prescribing and the review of repeat medication.

We are actively reviewing our product for the Middle East and looking for partners to help us reach into the UK and other markets.