



medbase

EVIDENCE  
BASED  
DRUG  
INFORMATION

FOR THE HEALTHCARE PROFESSIONALS

gravbase   lactbase   inxbase   renbase   riskbase   heparbase   xreactbase   herbalbase



WHEN DRUG SAFETY IS YOUR CONCERN

# EVIDENCE BASED DECISION SUPPORT FOR DRUG THERAPY



MEDBASE LTD PRODUCES MEDICAL DATABASES FOR HEALTHCARE PROFESSIONALS AND PATIENTS TO ENSURE EFFECTIVE AND SAFE CLINICAL USE OF DRUGS.

Medbase is staffed by medical doctors who are experts in pharmacotherapy and its database products are maintained and further developed by an international team of experts.

The database contents are written by medical doctors, who are specialists in clinical pharmacology and therapeutics and all information is fully referenced.

All this is aimed to improve clinical decision making by warning on clinically relevant risks and providing holistic clinical recommendations to circumvent or control the risk.

Medbase products are easily adapted, be it a new language version, connection to a local drug register or a method of accessing the information.

## DRUG SAFETY – THE CHALLENGE:

Adverse drug reactions remain to be among leading causes of death and huge economic burden to the healthcare system.

Most of these cases are predictable and preventable. It is impossible for a clinician, dentist or pharmacist to control the vast amount of information without appropriate tools and solutions.

Medbase databases are clinically oriented and focused on the most relevant problem areas of drug therapy.

medbase

EVIDENCE  
BASED  
DRUG  
INFORMATION

Medbase drug databases have been integrated into several health information systems and health portals to safeguard effective and safe use of drugs. Data are produced by experienced consultants in clinical pharmacology and therapeutics. Data are fully referenced and always up-to-date. Hundreds of thousands healthcare professionals have taken Medbase drug databases as their trusted every-day tool in drug therapy.



# EASILY IMPLEMENTED SOLUTIONS

## ALL DATABASES ARE MULTILINGUAL



DUE TO UNIQUE DATABASE STRUCTURE NEW LANGUAGE VERSIONS AND LINKAGES TO LOCAL DRUG REGISTRIES IN EACH COUNTRY CAN BE EASILY IMPLEMENTED.

Medbase solutions are based on SQL technology which ensures that they are easily integrated into a portal or any mobile environment and will add value to an existing electronic health record, prescription or dispensing system. All databases are highly modular and delivered as xml-files.

All databases utilize the same technical structure to aid the integration. The databases produced by medbase cover all important areas of drug therapy, which enables us to provide the end-user with a concise decision support when prescribing or dispensing drugs. The portal and mobile solutions provide the end-user with powerful search engines for quick access to the medically reliable data, while integration to electronic patient record systems or pharmacy dispensing systems give the end-user a real-time warning on a potential medical hazard. By both ways the benefit of the systems is to prevent adverse drug reactions and increase the rational use of drugs.

All clinical recommendations have been classified into four different categories according to the GRADE system ([www.gradeworkinggroup.org](http://www.gradeworkinggroup.org)) using color coding for the different clinical classifications. The written clinical recommenda-

tion texts have been kept short and concise, which makes the production of new language versions extremely cost-effective.

These factors make the clinical message clear and easy to comprehend compared with the traditional encyclopedia-like databases – and this is proven by hundreds of thousands of clinicians using our databases in their daily routines. All databases are updated at least four times a year, which guarantees always up to date information. Different terms can be used to connect the databases to the local drug registry: generic drug name, ATC code, SNOMED code or RxNorm code. References to the original publications are PubMed-linked. All databases take into account dosage form of the drug and a separate list for connection of drug formulations to the terms used in the database is provided. This way the end-user is able to perform the searches with the local trade names of the drugs.

Medbase also guarantees appropriate localization of the database contents, so that the selection of drugs used in each country is adequately covered.

EVIDENCE  
BASED  
DRUG  
INFORMATION

- Easy integration to medical portals and clinical decision support systems
- All databases use mutual technical structure
- Frequent updates guarantee always up-to-date information
- Easy and cost-effective localization
- Medbase provides concise clinically oriented decision support for all relevant areas of pharmacotherapy
- End-user saves time and costs, and need for consultation is decreased
- All databases are delivered as highly modular xml-files



## HIGHLY INTEGRATABLE DRUG INTERACTION DATABASE FOR ALL HEALTHCARE PROFESSIONALS

INXBASE covers up-to-date knowledge on clinically significant interactions between drugs in highly sophisticated technical format. Interactions are depicted and described in the level of single generic drug substance, providing accurate information about the interactions. Also, information on interactions between drugs and natural products and food stuffs are included.

INXBASE drug interaction database enables real-time support for decision making in various clinical situations. It serves as a tool for trained practitioners who naturally retain ultimate responsibility for determining diagnostic and therapeutic strategies.

INXBASE contains information on over 20.000 drug interactions - and increasing constantly - making it clearly one of the most comprehensive drug interaction databases on the market. Each described interaction contains an assessment of the risks in compact form.

### MOST IMPORTANTLY,

it does not only warn, but also provides medical expert recommendations on circumventing or controlling the clinical problem, e.g. by suggesting an alternative choice of drug or required clinical/laboratory monitoring of the patient. In addition, the database covers the explanation of interaction mechanisms and a summary of the documentation the interaction is based on as well as key references. INXBASE drug interaction database is updated 4 times per year.

Medbase Ltd. has developed a novel, innovative and highly integrable drug interaction database, INXBASE, for professional use. In addition, a patient version, which is fully compliant in its contents with the professional version is available for integration for patient-oriented health information systems.

EVIDENCE  
BASED  
DRUG  
INFORMATION

- Covers more than 20000 interactions – and increasing constantly
- Includes also interactions between drugs and natural products or food stuffs
- Warns on a consequence and always provides a medical doctor given clinical recommendation how to avoid or monitor the potential interaction
- Easy to integrate and utilize in various applications
- Both professional and patient-oriented version available
- Quarterly updated
- Developed originally together with the Swedish Karolinska Institute

INXBASE



## ANALYSIS OF ADVERSE DRUG REACTIONS


RISKBASE is a database containing information on adverse drug effects. In RISKBASE the adverse effect profile of over 1600 drugs has been evaluated with regard to clinically important adverse drug effects such as anticholinergic effect, QT-prolongation, constipation, electrolyte balance and bleeding risk totaling over 16000 risk scores.

With RISKBASE the user can check the adverse effect profile of a single drug e.g. before it is added to patients treatment or perform a drug chart review to analyze the risk profile of patient's medication. Search result indicates the risk level for each adverse effect and points out the medications which are behind the risk.

Each adverse effect contains a standard warning and recommendation text and the risk level is divided in four categories based on the clinical significance (A-D; no risk – high risk). The significance level for each adverse effect is defined by specific algorithm and threshold values. All these details are delivered in the xml-export file of RISKBASE.

RISKBASE can be used as a stand-alone product e.g. for comprehensive medication reviews. Together with INXBASE it brings the user a possibility to simultaneously analyze both the interaction and adverse drug effect risks in the patients medication. With this regard INXBASE-RISKBASE is a unique solution.

A central value of RISKBASE is also that most of the pharmacodynamic drug interactions can be handled in RISKBASE instead of INXBASE; this is extremely important to reduce over-alerting by INXBASE when it is integrated into HIS. Because of the limited amount of free text fields, the translation and localization of RISKBASE is easy and inexpensive.

The logo for Evidence Based Drug Information, featuring the text 'EVIDENCE BASED DRUG INFORMATION' in white on a dark blue background.

EVIDENCE  
BASED  
DRUG  
INFORMATION

- Covers about 1600 drugs and over 16000 risk analyses – and increasing constantly
- Together with INXBASE, brings the user a unique possibility to analyze both interactions and ADR risks in the same user interface
- Includes specific warning and recommendation texts for each adverse effect
- Easy and inexpensive localization
- Quarterly updated
- Developed originally together with the Swedish Karolinska Institute

The logo for riskbase, with 'risk' in orange and 'base' in blue.

RISKBASE



## UNIQUE DECISION SUPPORT FOR DRUG TREATMENT IN RENAL FAILURE

RENBASE is a unique decision support database that gives concise information on the safety and dosage modifications of different drugs in patients with renal failure in a user-friendly format. In addition to clinically used drugs, information exists also on vitamins, and micronutrients. It is one of the very few fully evidence-based decision support databases for drug treatment in renal failure.

The goal of RENBASE is to provide the user with up-to-date information on safe use of drugs in renal failure with powerful search methods that enable quick help for decision making when prescribing or dispensing medications.

All information has been produced according to standard operation procedures including both published medical information and the manufacturer provided information. All texts are produced and approved by medical doctors specialized in clinical pharmacology and therapeutics or nephrology. RENBASE analyses the pharmacokinetics and safety of various drugs and substances by dividing them into 4 categories based on the degree of renal failure (mild, moderate, severe, end-stage renal failure). The information in RENBASE is divided into four parts. The DOSAGE RECOMMENDATION is divided into four categories, using a colour coding and the user is always provided with an evidence based recommendation for dosage modification.

A free text part, ADDITIONAL INFORMATION provides the user with a detailed, in some cases indication specific, information on what is known on the pharmacokinetics and use of each drug during renal failure and with various methods of dialysis as well as recommendations for clinical and laboratory monitoring when prescribing/dispensing a specific agent. In RENBASE, the potential for NEPHROTOXICITY of each drug has been evaluated, which makes possible a listing and printing out such lists for patients. The REFERENCES are PubMed-linked to enable a quick access to the original publications.

EVIDENCE  
BASED  
DRUG  
INFORMATION

- Covers about 1500 drugs – and increasing constantly
- Provides a medical doctor given clinical recommendation on the need for dosage modification and how to monitor the treatment for each degree of renal failure and various methods of dialysis
- Includes a list of nephrotoxic substances
- Easy to integrate and utilize in various HIS applications
- Quarterly updated

RENBASE





## UNIQUE DECISION SUPPORT FOR DRUG TREATMENT IN HEPATIC IMPAIRMENT

Hepatic impairment is an important, but often neglected, factor determining drug dosage in patients with liver disease. HEPARBASE is a decision support database that gives concise information on the safety and dosage modifications of different drugs in patients with hepatic impairment in a user-friendly format. In addition to clinically used drugs, information exists also on vitamins and micronutrients. In HEPARBASE, the degree of hepatic impairment is divided into three categories according to the Child-Pugh classification (A-C) according to the guidelines by EMA and FDA. The dosage recommendation is divided into four categories, using a colour coding.

A free text part, ADDITIONAL INFORMATION, provides the user with a detailed, in many cases indication specific, information on what is known on the pharmacokinetics and use of each drug during hepatic impairment as well as recommendations for clinical and laboratory monitoring when prescribing/dispersing a specific agent. The potential for hepatotoxicity for each drug has been evaluated. References are PubMed-linked to enable a quick access to the original publications.

The goal of HEPARBASE is to provide the user with up-to-date information on drug safety in hepatic impairment, with powerful search methods that enable quick help for decision making when prescribing or dispensing medications. HEPARBASE can easily be integrated into various medical portals and electronic patient record systems to give automated warnings and recommendation on drug use in hepatic impairment. HEPARBASE is quarterly updated and delivered as highly modular xml-export file.

EVIDENCE  
BASED  
DRUG  
INFORMATION

- Covers about 1500 drugs – and increasing constantly
- Provides a medical doctor given clinical recommendation on the need for dosage modification and how to monitor the treatment for each degree of hepatic impairment
- Includes a list of hepatotoxic substances
- Easy to integrate and utilize in various HIS applications
- Quarterly updated

HEPARBASE



## INCREASED DRUG SAFETY WHEN PRESCRIBING OR DISPENSING MEDICATIONS TO PREGNANT WOMEN

GRAVBASE is decision support database which gives concise information on the safety of different drugs during pregnancy in a user-friendly format. In addition to clinically used drugs, information exists also on vitamins, illicit substances of abuse and commonly used substances as caffeine, nicotine etc.

GRAVBASE can easily be integrated into various medical portals and electronic health record systems to give automated warnings and recommendations on drug use during pregnancy. Also, a patient-oriented version is available on GRAVBASE.

All information has been produced according to standard operation procedures including both published medical information and the manufacturer provided information, as well as information from national registers. All texts are produced and approved by medical doctors specialized in clinical pharmacology and therapeutics or teratology.

GRAVBASE analyzes the safety of various drugs and substances by dividing them into 4 categories according to the level of documentation available and a risk analysis made on the basis of the documentation. GRAVBASE gives a short, clinically oriented, RECOMMENDATION in end-user native language to enable a quick review of the safety information for clinicians /pharmacists.

GRAVBASE also enables easy comparison of different substances within a therapeutic drug group, to ease the choice of most appropriate medication for various medical conditions during pregnancy. The BACKGROUND part gives a concise review of the published and manufacturer provided information on the safety of each substance during pregnancy in English. The REFERENCES are PubMed-linked to enable a quick access to the original publications.

EVIDENCE  
BASED  
DRUG  
INFORMATION

- Covers more than 1300 drugs – and increasing constantly
- Provides a medical doctor given clinical recommendation on the safety of the substance in pregnancy and the need for dosage modification and how to monitor the treatment
- Includes also vitamins, micronutrients and illicit drugs
- Both professional and patient-oriented version available
- Easy to integrate and utilize in various applications
- Regularly updated – 4 times a year

GRAVBASE





## HELP FOR DECISION MAKING WHEN PRESCRIBING OR DISPENSING MEDICATIONS TO BREAST-FEEDING WOMEN

LACTBASE is decision support database which gives concise information on the safety of different drugs during lactation in a user-friendly format. In addition to clinically used drugs, information exists also on vitamins, illicit substances of abuse and commonly used substances as caffeine, nicotine etc. Also, a patient-oriented version of LACTBASE is available.

LACTBASE can easily be integrated into various medical portals and patient electronic health record systems to give automated warnings and recommendation on drug use during lactation.

All information has been produced according to standard operation procedures including both published medical information and the manufacturer provided information, as well as information from national registers. All texts are produced and approved by medical doctors specialized in clinical pharmacology and therapeutics.

LACTBASE analyses the safety of various drugs and substances by dividing them into 4 categories according to the level of documentation available and a risk analysis made on the basis of the documentation. LACTBASE gives a short, clinically oriented, RECOMMENDATION in end-user native language to enable a quick review of the safety information for clinicians /pharmacists.

LACTBASE also enables easy comparison of different substances within a therapeutic drug group, to ease the choice of most appropriate medication for various medical conditions during lactation.

The BACKGROUND part gives a concise review of the published and manufacturer provided information on the safety of each substance during lactation in English. The REFERENCES are PubMed-linked to enable a quick access to the original publications.

EVIDENCE  
BASED  
DRUG  
INFORMATION

- Covers more than 1300 drugs – and increasing constantly
- Provides a medical doctor given clinical recommendation on the safety of the substance in during breast-feeding and how to monitor the treatment
- Includes also vitamins, micronutrients and illicit drugs
- Both professional and patient-oriented version available
- Easy to integrate and utilize in various applications
- Regularly updated – 4 times a year

LACTBASE



# xreactbase

## HIGHLY MODULAR KNOWLEDGE BASE TO REDUCE DRUG ALLERGIES

Cross allergies between drugs form a large group of preventable adverse drug reactions, which can be prevented by adequate decision support. XREACTBASE covers the available evidence-based information on the cross reactivity between clinically used drugs. Information is compiled from both academic and manufacturer given information. All contents are fully referenced.

The clinical significance of cross-allergy risk is divided in four grades (A-D) based on the clinical evidence on cross reactivity risk as well as the structural relationship between the substances.

Each risk analysis is given at a single substance level. Also, information is provided on the frequency and clinical presentation of the allergic reaction as well needed clinical actions to safeguard future therapy with risk drugs.

The structure of the database is highly modular, offering a wide selection of user interface development. XREACTBASE is suitable for both portal delivery and integration to various kinds of HIS to give automated warnings on cross allergies. XREACTBASE is quarterly updated and delivered as an xml-export file.

EVIDENCE  
BASED  
DRUG  
INFORMATION

- Covers evidence-based information on the most important cross-allergies between drugs
- Offers information on the clinical presentation of the reaction and estimate on the frequency of cross-reactivity
- Uses a 4-grade significance rating (A-D)
- All information fully referenced
- Easy integration to HIS
- Easy and inexpensive localization
- Quarterly updated

XREACTBASE



## EVIDENCE BASED ANALYSIS ON THE EFFICACY AND SAFETY OF NATURAL MEDICINES



It has been estimated that up to two thirds of the Western people have at some stage used natural medicines and about half of them during the last 3 months. Accordingly, health care personnel constantly face questions regarding the use of natural medicines.

HERBALBASE is designed to offer quick answers for health care professionals on the patients' questions concerning the use of natural medicines and aid on prescribing. Substances from herbal, fungal, faunal or synthetic origins are covered.

The philosophy in the development of HERBALBASE has been that if natural medicines are competing on the same patients with drugs, then their efficacy and safety should be evaluated using similar criteria and methodology that is required for evaluation of drugs.

There is a vast amount of good quality clinical RCT studies on the efficacy of natural products and in HERBALBASE this evidence has been analyzed to give the substance either:

- An evidence based indication, when there is good RCT-based evidence on benefit/efficacy or
- A tradition-based indication when the evidence is incomplete, but still the use is common.

Also, for each of the about 250 substances available in HERBALBASE the following issues have been analysed:

- Adverse effects
- Contraindications
- Use in pregnancy
- Use in lactation
- Interactions with drugs

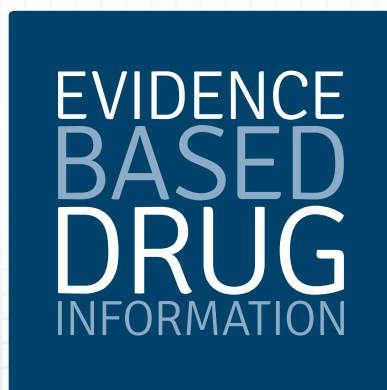
All contents have been produced according to standard operating procedures and are fully referenced and the references are PubMed-linked. HERBALBASE is quarterly updated and, therefore, the information is always up-to-date.

**EVIDENCE  
BASED  
DRUG  
INFORMATION**

- Covers about 250 natural products – and increasing constantly
- Provides healthcare professionals a concise information on the efficacy and safety of natural products
- Database structure and standard terms enable powerful search methods in portals and mobile solutions
- All information fully referenced
- Quarterly updated

HERBALBASE





medbase

MEDBASE LTD  
LINNANKATU 64 B 23, FI-20100 TURKU, FINLAND  
TEL +358 10 3976 300  
[WWW.MEDBASE.FI](http://WWW.MEDBASE.FI) / [INFO@MEDBASE.FI](mailto:INFO@MEDBASE.FI)