

TIPS, HINTS AND LIMITATIONS FOR USE OF COMMON MEDICINES INFORMATION RESOURCES

General Tips

This is not a comprehensive guide to the use of Medicines Information resources. It is a list of observations from experienced pharmacists that has been compiled to share hints and tips on the use of some resources, which may not always be obvious.

No single source, no matter how well-respected, should be regarded as totally comprehensive or completely up-to-date in all respects; in all cases, editorial decisions will have been made regarding information to be included or excluded. You should therefore use your professional judgement (which is a resource itself) to decide when you need to verify facts in another resource.

Most resources are constructed by human beings (who may not have medical or pharmaceutical training), and therefore may not always be consistent or logical.

- **Think about synonyms** when searching books, databases or websites since cross-referencing is not always reliable (e.g. “hypericum” vs. “St John’s Wort”; “alopecia” vs. “hair loss”).
- When using any database, including Embase and Medline, be aware that **keywords and subheadings may have been chosen by non-medical personnel or artificial intelligence** and as such may not always be entirely consistent or logical.
- All databases have the potential to have **search function anomalies**.
- When searching for **interactions** or **IV compatibilities** consult monographs for all drugs involved, as an interaction/incompatibility may be listed for one drug but not another; this is particularly true where different resources are used for each drug (e.g. summaries of product characteristics).

Training

It is your responsibility to ensure that you can use information resources appropriately.

- Your organisation’s library may run courses on using EMBASE and MEDLINE and/or other resources provided via library services.
- Web-based resources frequently have a ‘help’ section or other advice/training on how to use the resource.
- If you have not used a resource for some time, consider whether you need refresher training.

Tips, Hints and Limitations for use of Common Medicines Information Resources

Currency of Information

You should expect most books to be at least 1-2 years out of date at the point of publication. Even paper texts that are updated regularly, e.g. Martindale, Stockley, and Hale, have online versions that are updated more regularly. Where possible, use an electronic version of a resource rather than a paper version, as electronic resources are often updated more frequently.

When considering using a paper version because it is significantly cheaper, consider the risks due to the lack of regular updates.

Always be aware of the date of publication of the information you are using. This is particularly true for websites where different sections/pages/monographs may be updated at different times. Some information can be very up-to-date, while other information may be quite old. If the information in the resource you are using is old or may be out of date, check it in a different resource if possible.

In some cases, the monograph date of update may be recent, but the references may be old. Consider how important this is to your task/enquiry.

Certain enquiry types are particularly sensitive to changes:

- Changes in formulation or manufacturing process may render older information on stability (e.g. out of fridge) or compatibility unreliable.
- Medical practice changes over time; some areas change more quickly than others.

Origin of Information and Differences between Resources

It is good practice to confirm information in more than one reference source. However, there may be issues to consider whether the sources agree or not.

Circular referencing

In general, if the information in two reference sources agrees, this can be treated as confirmation. The exception is when one reference source quotes the other. In this case, you have only one source, not two.

A development of this is true circular referencing, where each resource references or quotes the other, but there is no indication of where the information originated. In this case, you effectively have only one source, but you must also consider the need to confirm the origin and continued accuracy of the information with an 'outside' source.

Dealing with differences

Where information in resources differs, you should use your professional judgement to decide which (which could be some, all, or none) information should be included or emphasised in your answer.

Reasons for differences include:

- One resource is more up to date than the other;
- Information is based on the manufacturer's product information vs clinical evidence or use in practice. The latter is often the case in specialist resources (e.g. *Renal Drug Handbook/Database*, *UKCPA Handbook of Perioperative Medicines*), when information may include information based on anecdotal specialist experience.
- One resource is UK-based and another is international.

International Reference Sources

Some of the reference sources used in medicines information originate outside the UK. It is therefore important to remember that, depending on the type of information accessed, there may be important differences to be considered. For example:

- Differences in drug names/brand names.
- Differences in guidelines/medical practice.
- Formulations may vary between countries, which may affect the applicability of information relating to formulation, stability, and compatibility.
- Differences in licences, e.g. indications and doses, etc.

Internet Searching

A webpage retrieved from a search engine such as Google may be an old version (a 'cache' page). For more information, see: www.googleguide.com/cached_pages.html so 'refresh' web pages to be sure you get the current version. (If you want to find an old version of a webpage try <https://web.archive.org/>)

Be aware that Google uses several factors when deciding on the order in which search results should be displayed. Therefore, the most recently updated result may not be presented first.

Documents may be uploaded to the internet by someone other than the originator; some websites can also hold several versions of the same document. Therefore, there may be old editions of documents still available; ensure that you are using the most up-to-date version.

Some websites are particularly difficult to search. Where this is the case for a general search, use Google Advanced Search and cut and paste the website address into the box labelled "Search within a site or domain". Then enter your search terms.

The QRMG document *Internet Searching for Medicines Information Staff* provides guidance on:

- The place of general internet searches in MI search strategies
- The use of different browsers
- The use of Google products (e.g. Google, Google Scholar)
- Guidance to help you decide on the reliability of information found on the internet

It is available at: <https://www.ukmi.nhs.uk/Resources?ContentID=3df605e3-ec43-47b7-99ff-aabc3cd91765>

Specific Resources

BNF and BNFC	General The introductory paragraphs to sections often contain important information which can be missed if users consult individual monographs only. For children's doses, use the BNFC; some products (especially those that are only used in children) are listed in the BNFC but not in the BNF. Doses and Indications - Manufacturers are not required to notify the BNF/BNFC editors of changes to SmPCs. Therefore, the BNF and BNFC may not reflect the current SmPC if it has changed recently. See: https://pipaonline.org/mhra-statement-on-notifying-the-bnf-of-updates-to-smpcs-and-pils/ - Indications and doses may vary between brands and manufacturers; when a preparation is available from more than one manufacturer, the BNF reflects advice that is the most clinically relevant regardless of any variation in the marketing authorisations. - Indications/ uses/ unlicensed uses etc sometimes reflect the views/ practice of experts and so may not be the same as in the SmPC. Adverse Effects - The BNF includes clinically relevant adverse effects for most drugs, listed alphabetically in order of frequency. The list in the BNF does not always reflect the SmPC. The following are usually omitted: - Hypersensitivity reactions (unless particularly common or the manufacturer provides specific management advice) as these occur with virtually all drugs; - An exhaustive list is not included for drugs that are used by specialists (e.g. cytotoxic drugs and drugs used in anaesthesia). - Reactions likely to have little clinical consequence - Reactions where causality has not been established, Interactions - For interactions check Appendix 1, the drug monograph and the drug group or section monograph. Note that many interactions marked 'severe' are also theoretical; use professional judgement (and a second resource) to help interpret the clinical relevance of interactions.
Drug Tariff	The <i>Drug Tariff</i> is a list of drugs and services, and prices paid by the NHS to community pharmacy contractors under the General Medical Services contract. Useful points to note are: <i>Medical devices</i> must be in the <i>Drug Tariff</i> to be reimbursable. <i>Drugs and other substances</i> that are not medical devices do not need to be in the <i>Tariff</i> but they must <i>not</i> be listed in the relevant country's <i>Tariff</i> as follows: England & Wales: Part XVIII A (Drugs, Medicines and Other Substances not to be ordered under a General Medical Services Contract) [commonly known as 'the

Tips, Hints and Limitations for use of Common Medicines Information Resources

	Black List']; ○ Scotland: <i>Schedule 1 to the GMS Regulations;</i> ○ Northern Ireland: Part IXa of the <i>Tariff</i>. When searching for a particular product, bear in mind that the full brand name may not always be listed, e.g. Cow & Gate Nutriprem is only listed as 'Nutriprem', even though other Cow & Gate products are listed in the 'do not prescribe' sections as <i>Cow & Gate XXXX</i>. 'Borderline substances' (such as some infant milks etc) are only prescribable when prescribed for the relevant indication. If they are endorsed 'ACBS' the Prescription Pricing Authority will not investigate. Some drugs are only prescribable in certain circumstances. (There are separate lists for each of the Home Countries.) Community Pharmacy England has resources on interpreting and using the <i>Drug Tariff</i>: https://cpe.org.uk/dispensing-and-supply/dispensing-process/drug-tariff-resources/
Fungal Drug Interactions https://www.aspergillus.org.uk/antifungal-drug-interactions/	The information in this resource is currently not referenced. On investigation information appears to be taken from SmPCs, CYP websites, clinical opinion at Manchester University, in addition to information taken from primary sources found via literature searches. Use this resource in conjunction with other recommended drug interaction resources to ensure all relevant information is found and your answer can be appropriately referenced.
OVID • Embase • Medline • Others	General/All Databases • All the databases cover different ranges of years so bear this in mind when looking for older drugs. • Each database covers a slightly different subject range; ensure you are searching the database most likely to contain the information you want. • Remember to think laterally and try a variety of search strategies to find relevant results. • For a summary of the differences between PubMed, Embase, and Medline see: https://kemh.libguides.com/research/FAQ_Database_differences Embase • Use Embase as a first-choice database. Embase should cover all Medline content, plus additional content – especially pharmacology/drug-oriented content, and European content. Medline • The NELM MeSH browser at https://meshb.nlm.nih.gov/search provides more detail on MeSH terms and tree structure than the inbuilt HDAS Medline thesaurus. It is therefore helpful to consult the NELM MeSH browser for constructing complex searches or if you are not sure whether you are using the right search terms. • Medline omits e-pub Ahead of Print publications. To access these, use PubMed. For a full explanation of the differences between Medline, PubMed and PubMed Central see: https://www.nlm.nih.gov/bsd/difference.html

Tips, Hints and Limitations for use of Common Medicines Information Resources

IBM Micromedex	Martindale is available (for an additional subscription) via Micromedex. However, the symbol denoting withdrawn brands does not appear in the Micromedex version. Therefore, access Martindale via Medicines Complete if available.
iDAPS	Finding the correct Drug Analysis Print (DAP) There is no facility to search the fulltext of all Drug Analysis Prints to identify the correct DAP. You will need to identify the title of the DAP you need, then browse the list for it. DAPs are generally indexed by approved name of the active drug. However, there are some idiosyncrasies which include (but may not be limited to): - Many (but not all) iron products are listed under IRON, not 'ferric' or 'ferrous'. - Botulinum toxin products are under CLOSTRIDIUM BOTULINUM. - Herbal medicine constituents also have DAPs. Therefore, if you cannot find a DAP, consider what other names it might be indexed under. It may be helpful to consult the summary of product characteristics or patient information leaflet. Finding adverse effects - To 'expand all', right-click on the first line of the table of reactions (e.g. 'Blood and lymphatic system disorders total'). The iDAPS is effectively NOT SEARCHABLE. 'Ctrl+F' to find reactions quickly DOES NOT WORK. It will only find relevant reactions that are physically visible on your screen at that moment, not relevant reactions further up or down the expanded table. The only way to find a reaction is to look for it by eye. - Checking all sections is important, as the term you are looking for may appear under more than one heading e.g. ulcer. Note that some terms are not where you might expect them to be: for instance, <i>pruritus</i> is under Skin, but <i>anal pruritus</i> is under Gastrointestinal. Adverse effect terminology - iDAPS uses MedDRA (MEDical Dictionary for Regulatory Activities) terminology for side effects (e.g. dysgeusia or ageusia rather than 'taste disturbance'). The hierarchy and all terms can be browsed at www.meddra.org (subscription required) or http://bioportal.bioontology.org/ontologies/MEDDRA/?p=summary (free) - Martindale, Martindale's ADR checker or a medical dictionary may also help to identify possible MedDRA terms. Other - The 'printer friendly' view will not display an expanded table. - It does not appear to be possible to copy-and-paste the full table into a Word document.
Indiana University – cytochrome P450 drug interactions (Flockhart)	This list of drugs (substrates, inducers and inhibitors) categorised by specific cytochrome P450 isoforms is updated intermittently and so there is a risk of missing information. Use this resource in conjunction with others.

Tips, Hints and Limitations for use of Common Medicines Information Resources

Martindale ADR Checker	- This does not provide additional information beyond what is available in <i>Martindale</i>. - To get a search result, it is necessary to choose exactly the right descriptor used; similar terms are not linked. Therefore, if a 'hit' is for 'liver function test abnormal', searching 'liver injury' or 'liver' does not work. This has been highlighted to <i>Pharmaceutical Press</i>.
Medications in Mothers' Milk (Hale)	- Some monographs are based on more complete literature searches than others. Be careful about relying upon it as a sole source. - An online subscription to Hale is preferable, since this is updated monthly between published editions.
Natural Medicines Comprehensive Database	- Some natural medicines have very similar or identical names but contain different ingredients. Check names carefully. - Do not use the 'interaction checker' in isolation, as this might miss pharmacodynamic interactions as well as drug/ disease interactions. It may also miss class-level interactions. It is therefore preferable to check each monograph individually, rather than using the interactions checker.
NEWT Guidelines	- Information included is mainly anecdotal and is based on practical experience and some laboratory work. - Even when the date of update for the monograph itself is recent, some of the references may be quite old and should be checked for appropriateness. - The information is not written for, and may not be applicable to, use in children, specifically excipients and volume of fluid for administration. - Many of the suggested administration routes will involve an off-label use of the product.
Renal Drug Handbook/ Database	Despite some references to published data, some dose recommendations are based upon specialist experience/practice. As the doses given may therefore differ from the licensed doses, it is particularly important to check the SmPC as well. Which dose you choose to use/recommend will depend on your own clinical judgement of what is most appropriate in the circumstances of your enquiry.
SPS Website	Whilst most of the content is freely accessible, you will need to register and be logged in to access some information. Most information is not referenced. Consider how reliable it is, and whether you should confirm with another (referenced) source. Request referenced information if you need it, via: asksps.nhs@sps.direct
Stockley's Drug Interactions & Interactions Checker	Stockley's search function works with both brand and generic names, and also includes some foreign brand names. Beware that: - Some brands may have different contents in the UK vs abroad - Some brand names are the same as a UK generic name, e.g. midodrine, which is the name of a brand of mesalazine in Indonesia. Stockley's Drug Interactions vs Checker

Tips, Hints and Limitations for use of Common Medicines Information Resources

	Stockley's Interactions Checker and Stockley's Interactions Alerts are different terms for the same database. To search Stockley's Drug Interactions comprehensively you need to search both interfaces i.e. Stockley's Drug Interactions and Stockley's Interactions Checker. The <i>Stockley</i> resources are not and were never intended to be a definitive guide to every possible drug interaction – so should not be used as a sole source for “screening” patients' medications for potential interactions. Searching <i>Stockley</i> resources for new drugs New interactions between specific drugs are often added to the <i>Checker</i>, and a full monograph in <i>Stockley's Drug Interactions</i> added later. New drug interaction listings in Stockley's Drug Interactions Checker may be generated automatically and may therefore include interactions that do not exist, or are not clinically relevant. Clinical review by real people occurs later. This is most likely to be a problem with very new drugs, when you may be checking in the interval between the publication of the automatically generated listing, and its review by a human being. If you encounter an interaction listing that surprises you, verify it in other resources. It is good practice to check all interaction enquiries in at least two resources, as interaction resources vary in their coverage and interpretation. If you have concerns about the interpretation of an interaction listed in <i>Stockley</i>, contact the editor, specifying your concerns. The editorial team usually responds within a few days. Mechanisms of Drug Interactions/P450 Tables <i>Stockley's Drug Interactions</i> contains several general monographs on the mechanisms of drug interactions. Particularly useful are tables of CYP450 enzyme inhibitors and inducers. The general monographs can be found by going to the <i>Stockley's Drug Interactions</i> homepage at: https://www.medicinescomplete.com/#/browse/stockley and then clicking <i>General considerations and mechanisms</i> For the CYP tables, then click <i>Drug metabolism interactions</i>. There are hyperlinks to the tables within the monograph.
Summaries of Product Characteristics (SmPCs)	Variation in dose/indication/stability The Summary of Product Characteristics is a medicolegal rather than a clinical document; it reflects the indications and doses for which the manufacturer applied for a product licence. A manufacturer is not obliged (and in certain cases where a patent is in existence, is not permitted) to apply for a licence for all possible indications. Likewise, doses for the same indication may also vary between brands. If it is important to know whether an indication/dose is within the product licence of a particular brand, you should therefore ensure that you check the correct SmPC. Stability information may also differ between brands, as the information quoted will depend on the stability tests done for the specific product. Excipients Individual SmPCs may not list certain excipients if the medicine contains extremely small (“trace”) amounts. If it is vital to avoid all exposure to a given excipient it would be wise to ring the manufacturer and check. Also

Tips, Hints and Limitations for use of Common Medicines Information Resources

	consult https://www.sps.nhs.uk/articles/understanding-excipients-in-medicines/ To find a product without (or with) a specific excipient, follow the guidance at: https://www.sps.nhs.uk/articles/searching-for-presence-or-absence-of-an-excipient-in-medicines/ The electronic Medicines Compendium (eMC) has an advanced search function at: https://www.medicines.org.uk/emc/advanced-search. This allows searching for documents “By word or phrase” or “By SmPC section”. Although this is very useful, there have been instances in which results have been inaccurate – either expected results have not appeared, or results have appeared that did not satisfy the search terms. It is recommended that, if you are using this functionality, you check each document in the results list to ensure it meets your requirements before passing the information to your enquirer/using it in your enquiry. Where to find SmPCs • Most UK SmPCs are available on the electronic Medicines Compendium (eMC): www.medicines.org.uk. However, inclusion is voluntary and some SmPCs are not listed. • The MHRA’s website is intended to host all SPCs of UK-licensed products at https://products.mhra.gov.uk/. • Sometimes, an SmPC is not listed on either the MHRA or eMC websites; in this case, the manufacturer’s website may host a copy. • There have been some instances where most recent SmPC has not been included on one of these sites. Consult eMC first and if necessary MHRA website subsequently. Enquiry documentation • Document sufficient information to identify the SmPC. This will normally include: ○ Drug name (and dose if each dose has its own SmPC) ○ Brand name ○ Formulation ○ Manufacturer name, especially if there is no brand name ○ Date of revision of the text • Other information may be included if desired, such as the date of update on the eMC.
TicTac	• Sometimes colours are described oddly within the database so, if possible, focus on other characteristics instead/as well to aid identification where possible. • Sometimes the shape/plan descriptions of tablets can be misleading. When searching consider all the potential options that could have been used. • Avoid using the size function to narrow down your search, as this risks excluding matching products. • Products that have recently been added and for which a sample is awaited will only be found by searching the ‘any product form’.

Tips, Hints and Limitations for use of Common Medicines Information Resources

Travel Websites	There are three main travel advice websites recommended for finding advice on travel vaccines/malaria prophylaxis: • Travel Health Pro. This advice is based on that produced by the Health Protection Agency (now part of Public Health England). • Travax. This advice is based on that produced by NHS Scotland. • FitForTravel is the patient-facing version of Travax, and is free access. Advice on TravelHealthPro may differ from that on Travax/FitForTravel. However, all advice is evidence based. It is advised that one resource only is used in these circumstances: centres in England, Wales, and Northern Ireland should use Travel Health Pro, and centres in Scotland should use Travax/FitForTravel.
------------------------	--

Disclaimer (optional)

You should always consult local policies and/or guidance. This document is intended to supplement these, not to replace them.

The information and opinion in this document are general information. The information and opinion are not legal advice, and should not be treated as such.

The information is provided without any representations or warranties, either express or implied.

Although we have attempted to ensure that the information and opinion are true, accurate, complete, current and non-misleading, to the best of our ability, we do not warrant that we have succeeded.

You must not rely on this document as an alternative to legal advice from a legal professional.

If you have any specific questions about a legal matter, you should contact your legal services provider.

Nothing in this disclaimer will:

- Limit or exclude any liability for death or personal injury resulting from negligence;
- Limit or exclude any liability for fraud or fraudulent misrepresentation;
- Limit or exclude any liabilities in any way that is not permitted under applicable law.

Contact

Jen Smith MRPharmS

QRMG.ukmi@nhs.net