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 shared in order 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 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** 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.

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You should expect most books to be at least 1-2 years out-of-date at the point of publication.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 on a regular basis 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 often.

Always be aware of the date of publication of information you are using. This is particularly true for websites where different sections/pages/monographs may be updated at different times. It is quite possible for some information to be very up-to-date and some to 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.

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. The resources chosen may contain the same information, in which case the information can be treated as confirmed, or information may differ. This could be for one (or more) of several reasons:

- 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.

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 emphasized in your answer.

International Reference Sources

Not all of the reference sources used in medicines information originate in the UK. It is therefore important to remember that, depending on the type of information accessed, there may be important differences to be taken into account. For example:

- Differences in drug names/brand names. There is a UKMi Q&A that addresses differences between UK and US drug names: https://www.sps.nhs.uk/articles/what-are-the-differences-between-us-and-uk-drug-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 www.searchengineshowdown.com/others/archive.shtml)

Be aware that Google uses a number of 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. See Internet Searching for Medicines Information Staff for further guidance.

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.sps.nhs.uk/articles/ukmi-recommended-resource-lists-and-tools/

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 SPCs. Therefore, the BNF and BNFC may not reflect the current SPC 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 SPC.
	
	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 SPC. 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 *Drug Tariff* 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:
	• *Medical devices* must be *in* the *Drug Tariff* in order to be reimbursable.
	• *Drugs and other substances* (that are not medical devices) do not need to be in the *Tariff* but they must *not* be listed in the relevant country's *Tariff* as follows:
	  ○ **England & Wales:** Part XVIIIA (Drugs, Medicines and Other Substances not to be ordered under a General Medical Services Contract) [commonly known as 'the Black List'];
	  ○ **Scotland:** *Schedule 1 to the GMS Regulations;*
	  ○ **Northern Ireland:** Part IXa of the *Tariff*.
	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 *Cow & Gate XXXX.*
	'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 England and Wales.)

Fungal Drug Interactions **www.aspergillus.org.uk/content/antifungal-drug-interactions**	The information in this resource is currently not referenced. On investigation information appears to be taken from SPCs, 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.
HDAS (Healthcare Databases Advanced Search) provided by NICE: • **Embase** • **Medline** • **Others**	**General/All Databases** • Within the HDAS site there is a welcome page which has several helpful tips on searching (http://hdas.nice.org.uk/help). • For up-to-date information on NICE Evidence Services issues see https://www.nice.org.uk/about/nice-communities/library-and-knowledge-services-staff/nice-evidence-services-issues) • 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/library/search_tips/faqs/difference_between_pubmed_medline_embase **Embase** • Use Embase in preference to Medline as a first-choice database for most purposes, as 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 does not include e-pub Ahead of Print publications. In order to access these it is necessary to search PubMed. For a full explanation of the differences between Medline, PubMed and PubMed Central see: https://www.nlm.nih.gov/bsd/difference.html
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 to look at, and 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. • Vaccine DAPs are not available on the iDAPs site. If you require a vaccine DAP, you will need to contact the MHRA directly and request it. • 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/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. • The term you are looking for may appear under more than one heading e.g. ulcer – after selecting 'expand all' use 'ctrl F' to find your term. Note that some terms are not where you might expect them to be: for instance, *pruritus* is under Skin, but *anal pruritus* is under Gastrointestinal.

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.
Medications in Mothers' Milk (Hale)	• Some monographs are based on more complete literature searches than others. Be careful about relying upon as a sole source. • An on-line subscription to Hale is preferable, since this is updated on a monthly basis in between published editions.
Natural Medicines Comprehensive Database	• Some natural medicines have very similar or identical names but contain different ingredients. Check names carefully. • Beware using 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.
NICE Evidence	Tips on using Evidence Search are available at https://www.nice.org.uk/Media/Default/About/NICE-Communities/Library-and-knowledge-services-staff/notes-for-advanced-searchers-jan2016i.pdf
Palliative Care Formulary	If your centre uses the *Palliative Care Formulary* book rather than online access via www.medicinescomplete.com, ensure that you are registered on www.palliativedrugs.com as: • Syringe driver compatibility tables and some other items are still free to access; • You can register to receive emails and alerts, e.g. of any errors identified in the book.
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 SPC 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 detailed new drug and patent expiry information. If you're not logged in, there is no notification that there is information that you cannot see. Therefore, ensure you are logged in when searching so that you will see all search results. A guide on 'How to search for information on medicines' is available on the website under 'Training' at: https://www.sps.nhs.uk/articles/sps-website-how-to-search-for-information-on-medicines/

	For finding information on the safety of drugs in lactation, an individualised guide has been written and can be accessed here: https://www.sps.nhs.uk/articles/ukdilas/
Stockley's Drug Interactions & Interactions Checker	Stockley's Interactions Checker and Stockley's Interactions Alerts are different terms for the same database. In order to search Stockley's Drug Interactions comprehensively you need to search both interfaces i.e Stockley's Drug Interactions and Stockley's Interactions Checker. New interactions between specific drugs are often added to the *Checker*, and a full monograph in *Stockley's Drug Interactions* added later. This is not and was 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. *Stockley's Drug Interactions* contains a number of 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 *Stockley's Drug Interactions* homepage at: https://www.medicinescomplete.com/#/browse/stockley and then clicking *General considerations and mechanisms* For the CYP tables, then click *Drug metabolism interactions.* There are hyperlinks to the tables within the monograph.
Summaries of Product Characteristics (SmPCs)	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, although the European Medicines Agency is attempting to harmonise doses across the EU, this work is not complete, so 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. 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. 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 therefore recommended that if you are using this functionality, you check each document in the results list individually to make sure that it satisfies your requirements before passing on the information to your enquirer/using it in your enquiry. **Where to find them** • 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. • Centrally-licensed products have their SmPCs hosted on the European Medicines Agency's site: https://www.ema.europa.eu/en

	• 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** • For SmPCs hosted on the eMC, document the *date last updated on the eMC*. You may also wish to document the date of revision of the text. • For SmPCs on MHRA website or elsewhere it will only be possible to document date of revision of the text.
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'.
Transformer (cytochrome P450 website)	• The clinical significance of interactions is not identified. • Use this resource in conjunction with others. • The website is updated annually and after user feedback.
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.

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

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