



## Tips and Tricks: Limitations of common resources

Following is a list of observations and general guidance from experienced MI pharmacists in Australia and the UK. It is not a comprehensive guide, but is intended to help users understand that no information resource is “perfect”. When formulating accurate, up-to-date and relevant therapeutic advice it is important to use a variety of resources, understand their potential limitations, and apply critical thinking skills and your professional judgement.

Dedicated MI services are often equipped with additional resources that may not be readily available. Consult your local MI pharmacist for assistance—they have particular experience and skills in locating, retrieving and analysing information (see [SHPA MI Services Directory](#)).

### General Advice

- All resources have a “How to use” (or similar) section and most updates will also include “What’s Changed? or “What’s New?” information. It is a good idea to become familiar with these, and the editorial processes employed by each resource.
- Editorial processes may vary between resources—some updates may not be complete re-evaluations of all the data.
- Most resources provide contact details for feedback. Use this if further clarification is required, or provide comments that can inform the editorial process. Your experience and knowledge can improve future versions.
- Use your professional judgement to decide when you need to verify facts in another resource. No single source is totally comprehensive or completely up-to-date in all respects, and all databases have the potential to have search function anomalies.
- Think about synonyms when searching resources as cross-referencing is not always reliable e.g. “hypericum” vs. “St John’s Wort”; “alopecia” vs. “hair loss”.
- Remember that generic drug names or spelling of drug names may differ between countries. International differences can also exist for indications and dosage recommendations so consider potential implications of this when applied locally.
- Expect most hard copy resources to be at least 1–2 years out-of-date at the point of publication. Even hard copy texts that are updated on a regular basis e.g. Australian Medicines Handbook, Martindale, Stockley’s Drug Interactions, have online versions that are updated more regularly.
- A webpage retrieved from a search engine such as Google may be an old version (a ‘cache’ page). For more information see [here](#). ‘Refresh’ web pages to be sure you get the current version. (If you *want* to find an old version of a webpage try [here](#)).
- Be aware that Google searches will return the entry with the most hits first which may not be the most recent or relevant.

- Consider the reliability of information on the web (see [here](#)).
- 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.
- 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.
- When searching for interactions or IV compatibilities, consult monographs for all drugs involved.
- Use at least three resources when investigating drug-drug interactions and consider implications of any discrepancies.
- Ensure that the correct concentrations and diluents are used when considering IV compatibility.
- Consider completeness, objectiveness and independence of information from every resource, including drug companies.

Refer to the [SHPA Medicines Information Procedure Manual](#) and the [Electronic Medicines Information Training \(EMIT\)](#) for up-to-date, curated education on seeking information you can trust and that is clinically relevant to our Australian practice when providing expert advice about medicines.

Join the [SHPA Specialty Practice](#): Medicines Information Interest Group forum for additional references related to MI.

## Further Reading

- [Grannell L. Drug interaction resources: mind the gaps. Aust Prescr 2020;43:18–23](#)
- [Hill M. Critical caveats in using product information/pregnancy categories for pregnant or breastfeeding patients. Aust J Gen Pract 2018;47\(12\):883-888](#)
- [Brown, E, Hotham, E, Hotham, N. Pregnancy and lactation advice: how does Australian Product Information compare with established information resources? Obstet Med. 2016;9:130-134](#)
- [Khanal A, Castelin R, Peterson G, Jose M. Dose adjustment guidelines for medications in patients with renal impairment: how consistent are drug information sources? Intern Med J 2014;44\(1\):77-85](#)
- [Vidal L, Shavit M, Fraser A, Paul M, Leibovici L. Systematic comparison of four sources of drug information regarding adjustment of dose for renal function. BMJ. 2005;331\(7511\):263](#)
- [Clauson K, Marsh W, Polen H, Seamon M, Ortiz B. Clinical decision support tools: analysis of online drug information databases. BMC Med Inform Decis Mak 2007;7:7](#)
- [UKMi Recommended Resource Lists and Tools \(July 2020\)](#)

MI Q&A is an initiative of the Medicines Information Leadership Committee of the Society of Hospital Pharmacists of Australia. MI Q&A aims to present concise, factual information on issues of current interest in therapeutics, drug safety and cost-effective use of medications. The topics presented are based on frequently encountered medicines information requests made to Medicines Information centres and/or matters of current clinical importance. Note that any treatment decisions should be made with careful consideration of the individual clinical circumstances of each patient. Comments, contributions or suggestions are welcome. Please join the SHPA Medicines Information stream at: <https://www.shpa.org.au/join-interest-group> or email [specialtypractice@shpa.org.au](mailto:specialtypractice@shpa.org.au)

## Tips & Tricks when using specific resources

Resource	Considerations
Australian Medicines Handbook (AMH)	<ul style="list-style-type: none"> <li>• Online version is updated every 6 months i.e. January and July, but only printed once per year (January)</li> <li>• Refer to 'Editorial Process' section on <a href="#">website</a> for further information</li> <li>• Not a comprehensive resource to use for drug interactions; provides practical information about clinically important interactions, noting "As only selected drugs are listed here, use this table with background information about the drug that appears before the list of its interactions"</li> <li>• Information on drug metabolism including quick reference tables for drugs and CYP enzymes and P-glycoprotein is provided. Substrates included are those medicines for which there is evidence from kinetic studies or (from good case reports or series) of a clinical problem when taken with an inducer or inhibitor.</li> <li>• Primary references are not provided.</li> <li>• Occasionally a marketed indication is not included, as appropriate scientific evidence to support it is lacking and/or the drug is not currently used for this indication due to the availability of better treatments</li> <li>• Classes may list indications of the class members. It should not be assumed that every drug of the class can be used for all the indications listed, and users should refer to the comparative information provided in the class and to the drug monographs</li> <li>• The AMH does not contain an exhaustive list of all the adverse effects that have been reported for a specific drug or class. Adverse effects have been selected according to likely causality with the drug (e.g. increased incidence compared with placebo in comparative clinical trials) and their severity (rare but life-threatening adverse effects are listed).</li> <li>• Doses are provided for the listed indications, however, there may be instances where dosing is too complex to be included</li> <li>• Dosing in specialist areas (e.g. cancer chemotherapy) is not included, refer to more specific resources</li> </ul>
AMH Children's Dosing Companion	<ul style="list-style-type: none"> <li>• Online version is updated every 6 months i.e. January and July, but only printed once per year (July)</li> <li>• Refer to 'Editorial Process' section on <a href="#">website</a> for further information</li> <li>• Not all drugs are listed</li> </ul>
ASHP Handbook on Injectable Drugs ( <i>previously Trisfel</i> )	<ul style="list-style-type: none"> <li>• Gives information mainly on American preparations. Note that formulations (including different salts) may differ between the US, UK and Australian and this can affect compatibility</li> </ul>
Australian Immunisation Handbook	<ul style="list-style-type: none"> <li>• The Handbook is reviewed 3 times per year following ATAGI meetings in February, May and August. Urgent updates to content will be made as required</li> <li>• Refer to 'Development of the Handbook' section on <a href="#">website</a> for further information</li> <li>• Can be tricky to navigate to locate specific information</li> </ul>
Australian Injectable Drugs Handbook (AIDH)	<ul style="list-style-type: none"> <li>• Refer to 'How to Use the AIDH' section in both hard copy and electronic copy</li> <li>• Refer to SHPA <a href="#">website</a> for updated and new medicine monographs, and for archived monographs (for medicines rarely used or difficult to obtain)</li> <li>• Refer to "What's New" tab on electronic version</li> <li>• Refer to electronic version for most complete up-to-date version</li> <li>• Check each drug when searching for IV or Y-site compatibility</li> <li>• Where information on compatibility is conflicting, or unable to be reproduced due to copyright, it is not included in the AIDH</li> </ul>
AHFS ( <i>American Hospital Formulary Service</i> )	<ul style="list-style-type: none"> <li>• This is an American resource so trade names will not match Australian trade names</li> <li>• Most of the information comes from the product information</li> </ul>

Resource	Considerations
<i>AusDI (see also Product Information)</i>	<ul style="list-style-type: none"> <li>• Interactions data provided by First Databank (FDB)</li> <li>• Updated monthly but may still be time lags in approved Product Information being included</li> <li>• Monographs may not be available for all drugs or classes</li> </ul>
BNF (British National Formulary)	<ul style="list-style-type: none"> <li>• Wherever possible the web version of the BNF should be used in preference to the printed version as it is updated monthly (including errors and clarifications)</li> <li>• The introductory paragraphs to sections often contain important information which can be missed if users consult individual monographs only</li> <li>• Listed side effects may not indicate frequency of occurrence</li> <li>• Indications/uses/off-label uses sometimes reflect the views and practices of experts and so may not be evidence-based or the same as in the Product Information</li> <li>• For interactions check Appendix 1, the drug monograph and the drug group or section monograph</li> <li>• For children's doses use the BNF-C</li> </ul>
Don't Rush to Crush	<ul style="list-style-type: none"> <li>• Refer to SHPA <a href="#">website</a> for updated and new medicine monographs (may not be included in hard copy)</li> <li>• Refer to electronic version for most complete up-to-date version</li> <li>• Brand specific dissolution information not always available for every drug</li> </ul>
Embase	<ul style="list-style-type: none"> <li>• Years covered are less than for Medline – consider the implications of this when searching for older drugs</li> <li>• Remember to think laterally and try a variety of search strategies to find relevant results</li> </ul>
Medications in Mothers' Milk	<ul style="list-style-type: none"> <li>• Some monographs are based on more complete literature searches than others. Be careful about relying upon as a sole source</li> <li>• An on-line subscription to Hale is preferable, since this is updated on an ad-hoc basis in between published editions. However, when a new paper edition is published, for a short period, this may be the most up-to-date version. There is a lag time, of around a couple of months, until the on-line version is updated and brought in-line. During this time, if access is available for both a print and an on-line version, both copies should be checked</li> </ul>
Medline	<ul style="list-style-type: none"> <li>• This resource does not include ePub Ahead of Print publications. In order to access these it is necessary to search PubMed</li> <li>• Remember to think laterally and try a variety of search strategies to find relevant results</li> </ul>
Micromedex / Lexicomp	<ul style="list-style-type: none"> <li>• Lexicomp is produced by a different company to Micromedex but contains very similar information (see <a href="#">review</a>)</li> <li>• Both are US collections of databases. Check that information reflects Australian practice.</li> <li>• Check currency via the "last modified" date after the references list at the end of monographs</li> <li>• Be careful of American terminology/spelling (e.g. pethidine/meperidine; salbutamol/albuterol etc)</li> </ul>
<i>MIMS (see also Product Information)</i>	<ul style="list-style-type: none"> <li>• Updated monthly but may still be time lags in approved Product Information being included</li> <li>• Interaction Checker may not be comprehensive</li> <li>• Not all products are currently available. Even if products are discontinued the PI is still available until the expiry date of the last batch.</li> </ul>

Resource	Considerations
	<ul style="list-style-type: none"> <li>• Not all products are available in the Pill ID section</li> </ul>
Natural Medicines	<ul style="list-style-type: none"> <li>• Some complementary medicines have very similar or identical names but contain different ingredients or constituents. Check names carefully in the synonyms section.</li> <li>• This is a US database, with some European brand names and some Australian brand names of products</li> <li>• Beware using the 'interaction checker' in isolation as this might miss pharmacodynamic interactions as well as drug/disease interactions</li> </ul>
Palliative Care Formulary (PCF)	<ul style="list-style-type: none"> <li>• Although written primarily with cancer patients in mind, PCF contains specific material relating to a number of other life-limiting diseases, e.g. COPD, congestive heart failure, renal failure, hepatic failure, and Parkinson disease. However, in relation to the use of strong opioids for analgesia, the focus in PCF is on cancer pain. Because the use of strong opioids for chronic non-cancer pain is generally associated with lower benefits and higher risks, specialist advice should be followed and/or sought from chronic pain teams</li> <li>• PCF often refers to the use of medicinal products beyond the scope of their marketing authorization, e.g. in relation to indication, dose or route of administration. Such use has implications for the prescriber</li> </ul>
Renal Drug Handbook/ Renal Drug Database	<ul style="list-style-type: none"> <li>• Despite some references to published data, some dose recommendations are based on specialist experience/practice</li> <li>• UK based, therefore not all medicines used in Australia are listed</li> <li>• As the doses given may therefore differ from the approved doses, it is important to also check the Australian PI and other resources</li> </ul>
<a href="#">Pregnancy and Breastfeeding Medicines Guide</a> (PBMG)	<ul style="list-style-type: none"> <li>• Online content is updated continuously. <a href="#">Monthly Updates</a>: provides a quick summary of any new additions or changes to the Women's PBMG. This may include updates about new or existing medicine monographs and therapeutic groups</li> <li>• Quotes TGA Pregnancy categories which may be restrictive and difficult to interpret</li> <li>• In some cases there may be discrepancies between the published PI and information in the <a href="#">TGA Prescribing medicines in pregnancy database</a>.</li> </ul>
Product Information (PI)	<ul style="list-style-type: none"> <li>• Individual PIs 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</li> <li>• Go to <a href="#">TGA</a> for most recent version as there may be time delays with accessing PI from MIMS and AusDI</li> <li>• Interaction data is not exhaustive and not routinely updated with new clinically important drug/drug interactions</li> <li>• Pregnancy and breastfeeding data can be very conservative. The TGA pregnancy categories are sometimes difficult to interpret (<i>see above</i>)</li> <li>• Doses for renal impairment may also be very conservative</li> <li>• Only lists registered indications, i.e. no 'off-label' or unapproved use</li> <li>• Current clinical practice for administration may not be reflected in the product information</li> </ul>
Specialist Pharmacist Service ( <a href="#">SPS</a> ) website	<ul style="list-style-type: none"> <li>• Whilst most of the content is freely accessible, registration is required to access detailed new drug and patent expiry information</li> <li>• This is a UK specific resource, consider applicability to local conditions</li> </ul>

Resource	Considerations
Stockley's Drug Interactions	<ul style="list-style-type: none"> <li>• Stockley's is UK based, so some Australian products may not be listed</li> <li>• Information on new drugs may be lacking</li> <li>• There are two products available from Medicines Complete based on the well-known 'Stockleys'. Pharmacists should be aware of the difference between them. Both are available online.</li> <li>• <i>Stockley's Interaction Alerts</i> provides brief information on interactions. The Alerts may be integrated into prescribing and dispensing software.</li> <li>• <i>Stockley's Drug Interactions</i> provides detailed monographs on interactions, an analysis of the evidence, differences between members of a drug class, discussion on occurrence, severity etc. and references. It is invaluable for making clinical decisions and choices regarding interactions.</li> <li>• Pharmacists are strongly recommended to refer to <i>Stockley's Drug Interactions</i>.</li> <li>• If you have subscriptions to both, <i>Stockley's Alerts</i> may link to the detailed <i>Stockley's Drug Interactions</i> monographs.</li> </ul>
Therapeutic Guidelines (eTG)	<ul style="list-style-type: none"> <li>• Updates to eTG are released quarterly</li> <li>• Revision of each topic area occurs every 5 years. A targeted updating process occurs between regular content reviews</li> <li>• Subscribe to email list to receive updates about changes to content in eTG</li> <li>• Refer to the '<a href="#">Production process</a>' section for further information</li> <li>• Due to limited space, print versions of the Guidelines only include references for further reading or key references that might be helpful to the reader (ie major new and pivotal studies). However, all references are available in eTG complete</li> <li>• Does not cover rare conditions</li> </ul>
UpToDate	<ul style="list-style-type: none"> <li>• This is a US resource, consider applicability to local conditions</li> <li>• Recommendations may differ due to availability of certain products or specific formulations</li> <li>• Topics in UpToDate are revised whenever important new information is published, not according to any specific time schedule. Refer to Editorial Policy on Wolters Kluwer <a href="#">website</a> for further information</li> <li>• Drug Interaction component utilises Lexicomp clinical content. Although a useful resource, it tends to extrapolate interaction advice from other drugs in the same class or other drugs with the same metabolism. It is sometimes overcautious and includes drug/drug interactions, even when evidence or even plausibility is lacking</li> </ul>

Adapted from SPS/UKMi '[Tips, Hints and Limitations of Common Medicines Information Resources](#)' (2020)

**Acknowledgment:** Leone Snowden, Clinical Engagement & Education Coordinator, CIAP, eHealth NSW

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