MEDICINES INFORMATION ENQUIRY ANSWERING GUIDELINES

These guidelines draw together current UKMi guidance and resources and provide a guide to answering enquiries categorised by type. They can be easily adapted to include local resources.

The document can be used for training or as a helpful reminder for more experienced medicines information staff.

**For all enquiries you need to know:**

1. The enquirer.
2. Contact details.
3. Urgency of enquiry.
4. Purpose of enquiry e.g. patient specific, project.
5. What sources already been used (**NOTE**: Try to assess enquirer’s experience of searching more complicated resources as you may feel you need to do extra research).

Each **monograph** is divided into the following sections:

1. Background information – pointers to information that may be required.
2. Resources.
	1. First-line resources, including:
		1. In-house past enquiries. Use your judgement to decide if an enquiry is too old to be relevant. For suggested keywords to search for, see the end of each monograph.
		2. UKMi Medicines Q&As Look for these early in your search; a relevant Q&A can save you a lot of work.
	2. Local resources e.g. contact details of experts, relevant departments, and policies.
3. Answering the enquiry – useful pointers to factors that should be considered.
4. Keyword suggestions for future enquiry retrieval.

#### Essential resource list

These guidelines should be used in conjunction with the UKMi Essential Resources list. This lists resources for purchase and resources with free access for NHS Medicines Information Services. **Make sure you are using the most up-to-date version of a resource by checking these lists regularly.** They can be accessed via: [www.sps.nhs.uk/articles/ukmi-recommended-resource-lists-and-tools/](http://www.sps.nhs.uk/articles/ukmi-recommended-resource-lists-and-tools/)

#### Risk management

No single source is totally comprehensive or completely up-to-date in all respects. A [Tips, hints and limitations of common medicines information resources](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf) document is available.

**Contents**

[Administration of medicines 3](#_Toc50734123)

[Adverse Drug Reactions 8](#_Toc50734124)

[Drugs in breastfeeding 13](#_Toc50734125)

[Compatibility of intravenous drugs 17](#_Toc50734126)

[Compatibility of subcutaneous drugs 20](#_Toc50734127)

[Complementary medicine 23](#_Toc50734128)

[Contraception (hormonal) 28](#_Toc50734129)

[Cytotoxic medicines 32](#_Toc50734130)

[Dental 34](#_Toc50734131)

[Drug shortages 38](#_Toc50734132)

[Drug use in hepatic impairment 40](#_Toc50734133)

[Pharmaceutical identification 44](#_Toc50734134)

[Immunisation 47](#_Toc50734135)

[Interactions 50](#_Toc50734136)

[New products 55](#_Toc50734137)

[Ophthalmology 59](#_Toc50734138)

[Paediatrics 63](#_Toc50734139)

[Palliative care 68](#_Toc50734140)

[Pharmaceutical 72](#_Toc50734141)

[Pharmacokinetics 83](#_Toc50734142)

[Poisoning or overdose 86](#_Toc50734143)

[Pregnancy 88](#_Toc50734144)

[Drug use in psychiatry 92](#_Toc50734145)

[Renal impairment 95](#_Toc50734146)

[Medicines in sport 100](#_Toc50734147)

[Substance misuse 102](#_Toc50734148)

[Travel medicine 106](#_Toc50734149)

[Wound care 116](#_Toc50734150)

[Disclaimer 118](#_Toc50734151)

[Contact 118](#_Toc50734152)

# Administration of medicines

#### Background information

These guidelines are for situations where patients are unable to tolerate oral medicines and other options need to be considered e.g. swallowing difficulties, patients who are nil-by-mouth (NBM) etc.

* Have any other medicines or routes of administration been considered?
* Are there any restrictions on the choice of administration route? For example, patients with diarrhoea may not be able to use rectal preparations. Patients with burns, eczema, excess hair or very sensitive skin conditions may not be able to use transdermal preparations. Patients with low muscle mass will not be able to have intramuscular injections. Patients with increased bleeding risk will not be able to have subcutaneous or intramuscular injections.
* What other routes are available? For example, does the patient have a venflon inserted; do they have an enteral feeding tube in situ? Is a subcutaneous pump being used?

***Nil-by-mouth (NBM) prior to surgery:***

* What medicines and doses is the patient taking and what are the indications?
* Can any be suspended temporarily?
* How long is the patient likely to be NBM?
* Have any other formulations been considered?
* What type of surgery is the patient about to undergo?

***Ocular administration:***

* If the question is about order or administration of eye drops - what are the names and doses of each?
* Are the drops to go into one or both eyes?
* What is the dosage frequency?
* If the question is about number of bottles of eye drops to dispense – how long will the patient be using the eye drops for?

***Nebulised administration:***

* What medicines are to be nebulised?
* Is the medicine licensed for nebulised administration? If not, is there an alternate drug which is licensed for administration via this route?
* If nebulised administration is off-label, what excipients are in the preparation?
* What are the doses and frequency of administration?
* What type of nebuliser is being used?

***Swallowing difficulties:***

* How does the patient eat and drink? Can they safely swallow water or do they need thickened fluids or modified food textures? (Patients who cannot safely swallow food and drink need a swallow assessment by a Speech and Language therapist. Patients who cannot safely swallow water will not be able to safely swallow liquid medicines and will need to take crushed tablets/ opened capsules with food of the appropriate consistency).
* Is the patient’s ability to swallow expected to improve (e.g. after throat surgery)? If so, when is this likely?
* What medicines are they prescribed (drugs and formulations)? Are they able to take any of them? If so, which ones?
* Who prepares and gives the patient their medicines? Would they have the manual dexterity or be able to follow instructions to crush tablet or open capsules?

Refer to the SPS step-wise guide: [Choosing formulations of medicines for adults with swallowing difficulties](https://www.sps.nhs.uk/articles/choosing-formulations-of-medicines-for-adults-with-swallowing-difficulties/)

Other useful [swallowing difficulties](https://www.sps.nhs.uk/home/guidance/swallowing-difficulties/) resources on the SPS website include:

* [Preparing and giving medicines for people with swallowing difficulties](https://www.sps.nhs.uk/articles/preparing-and-giving-medicines-for-people-with-swallowing-difficulties/)
* [Manipulating medicines for administration to adults with swallowing difficulties](https://www.sps.nhs.uk/articles/manipulating-medicines-for-administration-to-adults-with-swallowing-difficulties/)
* [Understanding why people take medicines with soft food or thickened fluid](https://www.sps.nhs.uk/articles/understanding-why-people-take-medicines-with-soft-food-or-thickened-fluid/)
* [Giving medicines safely with food or thickened fluid](https://www.sps.nhs.uk/articles/giving-medicines-safely-with-food-or-thickened-fluid/)
* [Medicines suitable for adults with swallowing difficulties](https://www.sps.nhs.uk/articles/medicines-suitable-for-adults-with-swallowing-difficulties/) (examples for some drug classes)

Information about thickeners

* [Defining and identifying thickness of fluids and food for patients with swallowing difficulties](https://www.sps.nhs.uk/articles/defining-and-identifying-thickness-of-fluids-and-food-for-patients-with-swallowing-difficulties/)
* [Using thickeners of different types for patients with swallowing difficulties](https://www.sps.nhs.uk/articles/using-thickeners-of-different-types-for-patients-with-swallowing-difficulties/)
* [Thickening liquid medicines](https://www.sps.nhs.uk/articles/thickening-liquid-medicines/)
* [Storage and regulation of thickeners and thickened fluids](https://www.sps.nhs.uk/articles/storage-and-regulation-of-thickeners-and-thickened-fluids/)

***Enteral feeding tube administration:***

* What medicines and doses is the patient taking?
* What type of feeding tube does the patient have e.g. Nasogastric, percutaneous endoscopic gastrostomy or jejunostomy?
* What feeding regime is being used?
* Which feed is being given? Consider interactions between medicines and enteral feeds.
* Have any other methods of administration been considered or tried? E.g. transdermal, rectal.

*For enquiries that relate to administration of medicines to children, please refer to the ‘*[Paediatrics](#_Paediatrics)*’ enquiry answering guideline.*

*For enquiries that relate to ocular administration, please refer to the ‘*[Opthalmology](#_Ophthalmology)*’ enquiry answering guideline.*

*For enquiries that relate to parenteral administration refer to ‘*[Compatibility of Intravenous Drugs](#_Compatibility_of_intravenous)*’ and ‘*[Compatibility of Subcutaneous Drugs](#_Compatibility_of_subcutaneous)*’ enquiry answering guidelines.*

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources**  |
| In-house past enquiries |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk](http://www.sps.nhs.uk)  | Use search term ‘administering’ and/or filter using the drug name, to see relevant articles, which include:* [Covert administration of medicines in adults: legal issues](https://www.sps.nhs.uk/articles/covert-administration-of-medicines-in-adults-legal-issues/)
* [Covert administration of medicines in adults: pharmaceutical issues](https://www.sps.nhs.uk/articles/covert-administration-of-medicines-in-adults-pharmaceutical-issues/)
* [Switching between liquid and tablet/capsule formulations – Which medicines require extra care?](https://www.sps.nhs.uk/articles/switching-between-liquid-and-tablet-capsule-formulations-which-medicines-require-extra-care/)
* [Advice on missed or delayed doses of medicines](https://www.sps.nhs.uk/articles/what-should-people-do-if-they-miss-a-dose-of-their-medicine/)
* [How is an intravenous aminophylline dose converted to an oral aminophylline or theophylline dose?](https://www.sps.nhs.uk/articles/how-is-an-intravenous-aminophylline-dose-converted-to-an-oral-aminophylline-or-theophylline-dose/)
* [How should intravenous (IV) potassium chloride be administered in adults?](https://www.sps.nhs.uk/articles/how-should-intravenous-iv-potassium-chloride-be-administered-in-adults/)
* [What is the equivalent dose of oral prednisolone to intravenous (IV) hydrocortisone?](https://www.sps.nhs.uk/articles/what-is-the-equivalent-dose-of-oral-prednisolone-to-intravenous-iv-hydrocortisone/)
* [How should haem arginate (human hemin) be administered in the management of acute porphyria?](https://www.sps.nhs.uk/articles/how-should-haem-arginate-human-hemin-be-administered-in-the-management-of-acute-porphyria/)
* [Can topical steroids be applied at the same time as emollients?](https://www.sps.nhs.uk/articles/can-topical-steroids-be-applied-at-the-same-time-as-emollients/)
* [Oral vitamin B12 – what are the prescribing considerations and what formulations are available?](https://www.sps.nhs.uk/articles/oral-vitamin-b12-what-are-the-prescribing-considerations-and-what-formulations-are-available/)

Surgery* [What should be considered when prescribing medicines for patients who have undergone bariatric surgery?](https://www.sps.nhs.uk/articles/what-should-be-considered-when-prescribing-medicines-for-patients-who-have-undergone-bariatric-surgery/)

Other* [What are the considerations when crushing tablets or opening capsules in a care home setting?](https://www.sps.nhs.uk/articles/crushing-tablets-or-opening-capsules-in-a-care-home-setting/)
* [How can medicines be managed for Parkinson’s disease patients with swallowing difficulties?](https://www.sps.nhs.uk/articles/how-can-medicines-be-managed-for-parkinsons-disease-patients-with-swallowing-difficulties/)
* [How do you convert from co-beneldopa (Madopar®) prolonged-release capsules to dispersible tablets?](https://www.sps.nhs.uk/articles/how-do-you-convert-from-co-beneldopa-madopar-prolonged-release-capsules-to-dispersible-tablets-2/)
* [How to minimise the risks of medication errors with rivastigmine patches](https://www.sps.nhs.uk/articles/how-to-minimise-the-risks-of-medication-errors-with-rivastigmine-patches/)
* [How do you convert an oral pyridostigmine or neostigmine dose to a parenteral neostigmine dose?](https://www.sps.nhs.uk/articles/how-do-you-convert-an-oral-pyridostigmine-or-neostigmine-dose-to-a-parenteral-neostigmine-dose/)

Enteral feeding tube administration* [How do the different types of enteral feeding tubes available affect drug administration?](https://www.sps.nhs.uk/articles/how-do-the-different-types-of-enteral-feeding-tubes-available-affect-drug-administration/)
* [What injections can be given orally or via enteral feeding tubes?](https://www.sps.nhs.uk/articles/what-injections-can-be-given-enterally/)

Nebulised administration* [Which commonly used nebuliser solutions are compatible?](https://www.sps.nhs.uk/articles/which-commonly-used-nebuliser-solutions-are-compatible/)
* [Administration of tobramycin via a nebuliser](https://www.sps.nhs.uk/articles/administration-of-tobramycin-via-a-nebuliser/)
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| British National Formulary. BMA and RPS. [bnf.nice.org.uk/](https://bnf.nice.org.uk/) | See ‘[Surgery and long-term medication](https://bnf.nice.org.uk/treatment-summary/surgery-and-long-term-medication.html)’ and ‘[Administration of drugs to the eye](https://bnf.nice.org.uk/treatment-summary/eye.html)’.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Electronic Medicines Compendium (eMC). DataPharm Communications. [www.medicines.org.uk/emc](http://www.medicines.org.uk/emc)  | The Summary of Product Characteristics for a nebuliser solution has details of administration and information about combining solutions in the nebuliser chamber.The Summary of Product Characteristics for a tablet and capsule preparation may state if it can be crushed or opened for administration orally or via an enteral feeding tube.The Summary of Product Characteristics for a liquid preparation may state if it can be administered via an enteral feeding tube.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| MHRA: Medicines & Healthcare Regulatory Agency. SPCs and PILs can be directly accessed via: <https://products.mhra.gov.uk> |
| Handbook of Drug Administration via Enteral Feeding Tubes. White R and Bradnam V. Pharmaceutical Press. [www.medicinescomplete.com](http://www.medicinescomplete.com) | Select the appropriate monograph. Always refer to the ‘suggestions/recommendations’ section in each monograph. |
| Handbook of Peri-Operative Medicines. UKCPA. [www.ukcpa-periophandbook.co.uk/](http://www.ukcpa-periophandbook.co.uk/)  | Contains information on how medicines are to be managed in adult patients in the perioperative period. Monographs contain information pertaining to the risks and benefits of omitting, changing and continuing therapy during the peri-operative period, and where possible how those risks can be managed.Some information is based on anecdotal specialist experience rather than manufacturer's product information |
| The NEWT Guidelines for Administration of Medicines to patients with Enteral Feeding Tubes or Swallowing Difficulties. Smyth JA. North East Wales NHS Trust. [www.newtguidelines.com](http://www.newtguidelines.com) | Useful for advice about patients with swallowing difficulties and those with feeding tubes. Electronic access is preferred as this is updated between editions.Search for the drug or drug class, and then select the relevant monograph. |
| HIV drug interactions – Prescribing Resources. University of Liverpool, UK. [www.hiv-druginteractions.org/prescribing-resources](http://www.hiv-druginteractions.org/prescribing-resources)  | See ‘Prescribing resources’, ‘Prescribing and Dosing Guidance’, ‘ARVs for patients with Swallowing Difficulties’ factsheet.Use in preference to NEWT for HIV medicines. |
| Crushing and Liquid ARV formulations. Immunodeficiency Clinic UHN (University Health Network) Toronto General Hospital <https://hivclinic.ca/>  | See Quick Links: Crushing and Liquid ARV formulations.Advice on crushing HIV and Hepatitis C Virus medicines, and availability of liquid formulations to aid administration to patients with swallowing difficulties. **NOTE:** Some UK licensed products may be listed under a different brand name. |
| Bibliographic databases e.g. Medline, Embase, Pubmed. Cochrane Library. [www.cochranelibrary.com/](http://www.cochranelibrary.com/) | Suggested terms: Drug name, ORAL ADMINISTRATION, OCULAR ADMINISTRATION, DYSPHAGIA, DEGLUTITION DISORDERS – DRUG THERAPY. |
| Trip Database. John Brassey (editor). [www.tripdatabase.com/](http://www.tripdatabase.com/) | Clinical search engine to find high-quality research evidence. Can register for free for additional functionality. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the networkRegistration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Additional resources (tailor to local use/availability)** |
| Moorfields Eye Hospital NHS Foundation Trust Pharmacists Handbook. | Contains clinical guidelines and dosing information. Provides a table for determining the number of bottles of eye drops to be dispensed according to the dose prescribed.  |

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| **Local resources** |
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#### Answering the enquiry

* Have any other methods of administration been considered or tried? E.g. transdermal, rectal.
* The BNF and SPCs are a good place to start for most straightforward administration questions.
* Crushing tablets or opening capsules renders them unlicensed. Consider if there is a licensed liquid or dispersible formulation available.
* Consider potential interactions between medicines being administered via a feeding tube and feeds.
* Is there an alternative drug that can be used or administered more easily (rather than trying to source a different formulation of the same drug).

#### **Keywords:** drug name, DRUG ADMINISTRATION, SURGERY, SWALLOWING, DYSPHAGIA, TUBE FEEDING.

# Adverse Drug Reactions

#### Background information

***Retrospective enquiries (i.e. suspected ADR has already occurred)***

* Establish patient details, including age, sex etc.
* What is the indication for the drug and any relevant medical history (e.g. renal function)?
* What is the current and previous medical history if relevant, including risk factors for the ADR?
* Is there a history of adverse drug reactions or allergies?
* List current drug therapy, including non-prescription medicines, alternative therapies and drugs of abuse whenever possible, plus any medication taken within the last 3 months.
* What is the timing of the reaction in relation to start or dose increase of the suspected drug?
* Obtain a full description of the signs and symptoms of the reaction; clarify reactions such as 'rash', 'abnormal liver function tests (LFTs)', 'aching all over'.
* Has the suspected drug been stopped?
* How has the patient been managed so far?
* Has rechallenge, deliberate or inadvertent, been undertaken?
* Did the suspected ADR resolve when the suspect drug was stopped?
* What are the results of any relevant biochemical tests e.g. renal function tests, liver function tests, full blood count, biopsies, relevant ultrasound or screening tests.
* Does the enquirer want to know which drug, A or B, is more likely to have caused side effect X?
* Is the enquirer involved in a legal case? Always be aware that this may be the scenario (often enquirers do not mention this).
* Has the manufacturer been informed or a yellow card completed?

***Prospective enquiries***

* Does the enquirer think that the patient may be at particular risk of an ADR e.g. a patient with a history of an ADR to the same class of drugs? If so, what were the signs and symptoms of the suspected previous reaction? NOTE: caution may be required when using other drugs with similar ADR profiles.
* Does the enquirer just want general information e.g. for informing a patient of possible side effects?
* Does the enquirer want to know more information about a specific side effect e.g. because the patient has asked?
* Does the enquirer want to assess the risk/benefit comparison between two drugs e.g. which is safer, drug A or drug B (often in relation to a specific side-effect)?
* Some enquiries will involve a mixture of the two e.g. if a patient has a reaction which is subsequently thought to be an ADR then it could be anticipated that the enquirer will want suggestions for alternatives.

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources** |
| In-house past enquiries |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk/](http://www.sps.nhs.uk/) | Use search terms ‘adverse effect’, ‘side effect’ and/or filter using the drug name, to see relevant articles, which include:* [Drug-induced hypersalivation – what treatment options are available?](https://www.sps.nhs.uk/articles/drug-induced-hypersalivation-what-treatment-options-are-available/)
* [Do gastric adverse events influence the choice of bisphosphonate for the treatment of osteoporosis?](https://www.sps.nhs.uk/articles/do-gastric-adverse-events-influence-the-choice-of-bisphosphonate-for-the-treatment-of-osteoporosis-2/)
* [What is the risk of gastrointestinal bleeding associated with selective serotonin reuptake inhibitors (SSRIs)?](https://www.sps.nhs.uk/articles/what-is-the-risk-of-gastrointestinal-bleeding-associated-with-selective-serotonin-reuptake-inhibitors-ssris/)
* [How should ankle oedema caused by calcium channel blockers be treated?](https://www.sps.nhs.uk/articles/how-should-ankle-oedema-caused-by-calcium-channel-blockers-be-treated/)
* [What are the reported incidences of ankle oedema with different calcium channel blockers?](https://www.sps.nhs.uk/articles/what-are-the-reported-incidences-of-ankle-oedema-with-different-calcium-channel-blockers/)
* [What is serotonin syndrome and which medicines cause it?](https://www.sps.nhs.uk/articles/what-is-serotonin-syndrome-and-which-medicines-cause-it-2/)
* [Should patients on statins take Coenzyme Q10 supplementation to reduce the risk of statin-induced myopathy?](https://www.sps.nhs.uk/articles/should-patients-on-statins-take-coenzyme-q10-supplementation-to-reduce-the-risk-of-statin-induced-myopathy/)
* [Can nonsteroidal anti-inflammatory drugs be used in adult patients with asthma?](https://www.sps.nhs.uk/articles/can-nonsteroidal-anti-inflammatory-drugs-be-used-in-adult-patients-with-asthma/)
* [What medicines should be avoided by patients suffering from “sulfa allergy”?](https://www.sps.nhs.uk/articles/what-medicines-should-be-avoided-by-patients-suffering-from-sulfa-allergy/)
* [If antidepressant-induced hyponatraemia has been diagnosed, how should the depression be treated?](https://www.sps.nhs.uk/articles/if-antidepressant-induced-hyponatraemia-has-been-diagnosed-how-should-the-depression-be-treated-2/)
* [How can hot flushes in men being treated for prostate cancer be managed?](https://www.sps.nhs.uk/articles/how-can-hot-flushes-in-men-being-treated-for-prostate-cancer-be-managed/)
 |
| British National Formulary. BMA and RPS. [bnf.nice.org.uk/](https://bnf.nice.org.uk/) | Clinically relevant adverse effects are listed, generally in order of frequency and arranged broadly by body systems.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| CKS. Clinical Knowledge Summaries. NICE. [cks.nice.org.uk](http://cks.nice.org.uk) | The [Adverse drug reactions](https://cks.nice.org.uk/adverse-drug-reactions#!rightTopic) summary covers assessment, management, and reporting of suspected adverse drug reactions. |
| Electronic Medicines Compendium (eMC). DataPharm Communications. [www.medicines.org.uk/emc/](http://www.medicines.org.uk/emc/)  | SPC section 4.8 (undesirable effects) provides information on all adverse reactions for which, after thorough assessment, a causal relationship between the medicinal product and the adverse event is at least a reasonable possibility. Adverse reactions are ranked under headings of frequency: very common [10% or more of patients]; common [1-10%]; uncommon [0.1-1%]; rare [0.01-0.1%]; very rare [below 0.01%]; not known [cannot be estimated from available data].For new drugs, adverse reaction information in the SPC comes from clinical trials, data are limited and uncommon idiosyncratic reactions are unlikely to be included. The SPCs for more established drugs include adverse reactions identified by postmarketing surveillance studies and spontaneous reporting schemes.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| MHRA: Medicines & Healthcare Regulatory Agency. SPCs and PILs can be directly accessed via: <https://products.mhra.gov.uk>  |
| AHFS Drug Information. McEvoy GK. American Society of Health-System Pharmacists. [www.medicinescomplete.com](http://www.medicinescomplete.com)  | Monographs often contain extensive information on ADRs. |

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| Martindale, the Complete Drug Reference. Brayfield, A. Pharmaceutical Press. [www.medicinescomplete.com](http://www.medicinescomplete.com) | The [ADR profiles](https://www.medicinescomplete.com/#/browse/martindale/adrProfiles) section summarises common ADRs and often provides more detailed and referenced information on effects seen in specific body systems. |
| Drug Safety Update. MHRA. [www.gov.uk/drug-safety-update](http://www.gov.uk/drug-safety-update)  | A regular monthly electronic bulletin providing information and clinical advice from the MHRA and the EU licensing authority (Commission on Human Medicines). Individual articles are searchable using the search box. An archive of the monthly PDF versions is also available. |
| Safety Public Assessment Reports (PARs). MHRA. [www.gov.uk/guidance/safety-public-assessment-reports](http://www.gov.uk/guidance/safety-public-assessment-reports)  | Safety Public Assessment Reports (PARs) cover medicines safety issues assessed at a national level by the Commission on Human Medicines (CHM) or its advisory groups. The reports show the evidence that was available at the time the regulatory decision was made. |
| interactive Drug Analysis Profiles (iDAPs) for Yellow Card data. MHRA. [yellowcard.mhra.gov.uk/idap](https://yellowcard.mhra.gov.uk/idap)  | Complete listings of suspected ADRs reported to the MHRA through the Yellow Card Scheme by healthcare professionals and patients provided in interactive Drug Analysis Prints (iDAPs). When sending iDAP data to an enquirer it is important to include the paragraph *Essential Context for Understanding this Interactive Drug Analysis Profile* (found at the end of the iDAP).See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| EMA – European database of suspected adverse drug reaction reports. [www.adrreports.eu/en/index.html](http://www.adrreports.eu/en/index.html)  | This database provides public access to reports submitted electronically to EudraVigilance. EudraVigilance collects reports of suspected ADRs from European medicines regulatory authorities and pharmaceutical companies.  |
| VigiBase/VigiAccess. World Health Organisation <http://www.vigiaccess.org/>  | Adverse drug reaction reports accumulated from all WHO member states, including the UK |
| TB Drug Monographs. [www.tbdrugmonographs.co.uk/](http://www.tbdrugmonographs.co.uk/)  | Resource to support the monitoring and safe use of anti-tuberculosis drugs.See [individual drug monographs](http://www.tbdrugmonographs.co.uk/drug-monographs.html) for adverse effect monitoring recommendations. |
| Manufacturers’ Medical Information departments | Companies are legally obliged to follow up telephone enquiries about ADRs to their products (by sending an adverse event reporting form).**NOTE**: see QRMG guidance ‘[How to Use Pharmaceutical Industry Medical Information Services](https://www.sps.nhs.uk/wp-content/uploads/2017/01/HowToUsePharma-MI-_PIPA-Final-September-2018.docx)’.  |
| Bibliographic databases e.g. Medline, Embase, Cochrane Library. [www.cochranelibrary.com/](http://www.cochranelibrary.com/) | Suggested terms: the reaction with the subheading ‘chemically induced’ (Medline) or ‘side effect’ (Embase) and/or the drug name with the subheading ‘adverse effects’ (Medline) or ‘adverse drug reaction’ (Embase). |
| Patient UK. Patient Information Publications / Egton Medical Information Systems. [www.patient.co.uk](http://www.patient.co.uk)  | Relevant professional reference articles include:* [Drug allergy](https://patient.info/doctor/drug-allergy-pro)
* [Drug induced hepatitis](https://patient.info/doctor/drug-induced-hepatitis)
 |
| Trip Database. John Brassey (editor). [www.tripdatabase.com/](http://www.tripdatabase.com/) | Clinical search engine to find high-quality research evidence. Can register for free for additional functionality. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the networkRegistration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Additional resources (tailor to local use/availability)** |
| Adverse Drug Reactions. Lee A. Pharmaceutical Press. | Describes ADRs by organ class, lists commonly implicated drugs and gives tips on management of suspected ADRs.  |
| Drugdex Database. IBM Corporation (USA) . [www.micromedexsolutions.com](http://www.micromedexsolutions.com) | Classifies ADRs simply as common or serious by organ system often with incidence as a percentage and the detailed monograph provide referenced information from case reports and studies. See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Lexi-Comp. Lexi-Comp Inc. (USA). [https:/online.lexi.com/lco/action/home](https://online.lexi.com/lco/action/home) |  |
| Litt’s Drug Eruption and Reaction Database. Shear N H, Litt J Z. Taylor and Francis. [www.drugeruptiondata.com](http://www.drugeruptiondata.com)  | Individual drug profile pages include links to relevant PubMed/Medline abstracts. Describes ADRs by organ class. Also contains information on drug interactions.  |
| Meyler's Side Effects of Drugs: The International Encyclopedia of Adverse Drug Reactions and Interactions. Aronson J.  | Presented as individual drug monographs in alphabetical order with general class monographs complemented by specific drug monographs. Also contains information on non-drugs e.g. toxins, foods.  |
| Natural Medicines Comprehensive Database. Therapeutic Research Centre, Somerville, America. [naturalmedicines.therapeuticresearch.com/](https://naturalmedicines.therapeuticresearch.com/)  | Includes adverse effects of herbal medicines.  |
| **Local resources** |
|  |  |

#### Answering the enquiry

For retrospective enquiries use the information you have obtained from the 'background information' questions and try to assess causality using the following criteria:

* Nature of the reaction - certain disorders are commonly drug-induced e.g. rashes, constipation, gastrointestinal haemorrhage.
* Previous SPC or literature reports describing the reaction.
* The timing of the reaction can vary but most ADRs appear shortly after a drug is started or the dose is increased.
* Outcome on drug withdrawal, if resolution occurs this is a positive dechallenge.
* Rechallenge outcome, although positive rechallenge strongly suggests drug cause deliberate rechallenge is rarely justifiable and should not be suggested.
* Risk factors, some patients have an increased susceptibility to ADRs (e.g. children, elderly, multiple disease states, atopic patients).
* Laboratory and diagnostic tests should indicate if there is a non-drug cause, ADRs are often a diagnosis of exclusion.

When interpreting ADR data for the enquirer, be clear about the limitations of the Yellow Card data. Warn that although there may be X number of reports we do not know the Y number of people who have received the drug, therefore you cannot extrapolate to predict ADR incidence.

#### Reporting suspected ADRs

* If you suspect that an ADR has been identified please complete a Yellow Card or offer to help your enquirer complete a card. You can report via MiDatabank, via the MHRA’s online Yellow Card [yellowcard.mhra.gov.uk/](http://yellowcard.mhra.gov.uk/) or via the MHRA’s Yellow Card App.
* Further information on reporting can be found in the MHRA’s *The Yellow Card Scheme: guidance for healthcare professionals* at[www.gov.uk/guidance/the-yellow-card-scheme-guidance-for-healthcare-professionals](http://www.gov.uk/guidance/the-yellow-card-scheme-guidance-for-healthcare-professionals)

#### **Keywords:** The drug name, disease term for the adverse effect.

# [Drugs in breastfeeding](#lactation)

#### Background information

Refer to the useful breastfeeding training resource on the [SPS website](https://www.sps.nhs.uk/home/guidance/safety-in-breastfeeding/):

* [Questions to ask when giving advice on medicines and breastfeeding](https://www.sps.nhs.uk/articles/questions-to-ask-when-giving-advice-on-medicines-and-breastfeeding/)
* [Information products that give advice on medicines and breastfeeding](https://www.sps.nhs.uk/articles/information-products-that-give-advice-on-medicines-and-breastfeeding/)
* [Advising on medicines regimens during breastfeeding](https://www.sps.nhs.uk/articles/advising-on-medicines-regimens-during-breastfeeding/)

***Patient and infant-related:***

**Mother**

* Is she currently breastfeeding?
* Has she been told to withhold until confirmation is received that it is okay to breastfeed?
* Is she still pregnant and thinking about breastfeeding in the future?

**Infant**

* How old is the infant?
* Was he/she premature or full-term?
* What is the infant’s weight?
* Is the infant fed exclusively with breast milk?
* Babies are weaned onto solid foods at around six months of age. Before this age, it is recommended that children are exclusively breast fed. Exposure to drugs in breast milk is greatest for babies who are exclusively breastfed.
* Is the infant well? Is there anything to suggest that the infant may be at increased risk of drug harm, e.g. impaired kidney or liver function? Has the infant been prescribed any medicines

**Medicines-related:**

* **Medicine** – the proposed medicine(s) and any other medicines the mother is taking (generic or brand name), dose, frequency, route and intended duration of treatment.
* **Indication** – The risk vs. benefit decision may differ depending on the indications e.g. an antiepileptic medicine for control of epilepsy compared to its use for neuropathic pain.
* Is the mother already taking the medicine in question?
* Is this drug therapy necessary? Have other therapies/medicines been considered or tried?
* Has the mother taken the drug during pregnancy? If so, identify whether it is appropriate to switch to an alternative if necessary. Note exposure during pregnancy does not confer safety during breastfeeding.

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources** |
| In-house past enquiries  |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk](http://www.sps.nhs.uk) | Use search term ‘safety in lactation’ and/or filter using the drug name, to see relevant Q&As.For full list, see [here](https://www.sps.nhs.uk/?s=&cat%5B0%5D=31&cat%5B1%5D=3008).  |
| UK Drugs in Lactation Advisory Service (UKDILAS). Online information (SPS). [www.sps.nhs.uk](http://www.sps.nhs.uk)  | UKDILAS produces concise monographs on individual drugs and also advice on drug classes. Suitable alternatives are listed where appropriate.To access the information, search for the drug name. From the drug result displayed select the ‘Lactation Safety Information’ button. Always view the individual drug entry first, which will then link through to any other relevant information such as the ‘Therapeutic group summary’ or a Medicines Q&A.UKDILAS has produced a guide to using the SPS website to find their information: [www.sps.nhs.uk/articles/ukdilas/](http://www.sps.nhs.uk/articles/ukdilas/) |
| LactMed. US National Library of Medicine. [www.ncbi.nlm.nih.gov/books/NBK501922/](http://www.ncbi.nlm.nih.gov/books/NBK501922/)  | Monographs are referenced and have the date of last revision at the top This freely available database provides comprehensive monographs on individual drugs. If a drug affects the actual lactation process itself, this is also included.Search for the drug, and then select the relevant monograph. |
| Medications and Mothers’ Milk. Hale, TW. [www.medsmilk.com/](http://www.medsmilk.com/) NOTE: Use the online version; it is more up to date than the print version.  | A US reference text on the safety of medicines during breastfeeding. The preface includes key points about breastfeeding and medicines, and highlights the benefits of breastfeeding. It is particularly useful for breastfeeding related pharmacokineticsIndividual drug monographs are in alphabetical order and there is an index at the back. Appendices provide information on chemotherapy agents, radiopharmaceuticals, contraceptives and cold/flu remedies. Note that brand names may differ in the UK.  |
| e-lactancia. Association for the Promotion and Scientific and Cultural Research of Breastfeeding. [www.e-lactancia.org/](http://www.e-lactancia.org/)  | A Spanish website with an English translation. Searches can be performed by drug name or group. The information is presented as monographs and includes a lactation risk category, information around use, and useful pharmacokinetic data. Suitable alternatives are listed where available. This resource may add additional practical information. |
| **Second-line resources** |
| Drugs during Pregnancy and Lactation. Schaefer, C et al. Academic Press Inc. | Chapter 3 includes general information about medicines use during breastfeeding. Chapter 4 provides information for individual agents and drug classes. Use the index to find the drug you want. Each monograph has a boxed ‘recommendation’ at the end. These can be helpful in suggesting safer alternatives within a drug class or therapeutic area. |
| Drugs in Pregnancy and Lactation. Briggs G et al. Lippincott, Williams and Wilkins. [online.vitalsource.com](http://online.vitalsource.com/) NOTE: Use the online version; monograph updates are included in-between print editions. | This is a standard US reference text on the safety of medicines in pregnancy. There is limited information about the safety in breastfeeding at the end of each drug monograph. Online, chapters are in alphabetical order on the left side of the screen. Monographs that have been updated since the print version include the date of update in the list. Drug monographs are in alphabetical order in the book. |
|  |
| British National Formulary. BMA and RPS. [bnf.nice.org.uk/](https://bnf.nice.org.uk/)British National Formulary-for Children. BMA, RPSGB, RCPCH and NPPG. [bnfc.nice.org.uk](https://bnfc.nice.org.uk/) | If information is lacking from other sources, BNFC can be consulted to see if the drug can be used in neonates or infants. The dose advised can be compared to the theoretical dose the infant will receive via the breast milk. It also gives an indication of paediatric experience.Information on drug safety in breastfeeding is included in drug monographs. However, this is too brief to be of real value (NOTE: the same information is held in BNF monographs).See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Electronic Medicines Compendium (eMC). DataPharm Communications. [www.medicines.org.uk/emc](http://www.medicines.org.uk/emc)  | SPC section 4.6 (pregnancy and lactation) clarifies the licensed status of a medicine’s use during lactation. NOTE: Statements in SPCs are often more cautious than current evidence requires and should not be used as the only data source.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| MHRA: Medicines & Healthcare Regulatory Agency. SPCs and PILs can be directly accessed via: <https://products.mhra.gov.uk> |
| CKS. Clinical Knowledge Summaries. NICE. [cks.nice.org.uk](http://cks.nice.org.uk) | Summaries advise on the management of conditions in breastfeeding mothers and there is also a specific summary on [breastfeeding problems](https://cks.nice.org.uk/breastfeeding-problems). |
| The Maudsley Prescribing Guidelines in Psychiatry, Taylor D et al. Wiley-Blackwell. | Chapter 7 includes a section on the choice of psychotropic medicines in breastfeeding mothers. |
| Psychotropic Drug Directory. Bazire S. Lloyd-Reinhold Publications. | Chapter 3 contains a ‘perinatal’ section that includes information on the choice of psychotropic medicines in breastfeeding mothers.  |
| UKMi Drugs in Lactation Advisory Service (UKDILAS). | UKMi Trent (0116 258 6491) and West Midlands (telephone 0121 424 7298) jointly provide support directly to healthcare professionals for complex enquiries or advice in high risk situations such as prematurity, low birth weight and multiple medications. Ensure you have adequate background information, and have checked sources available to you before contacting the specialist service. Enquiries can also be emailed to: ukdilas.enquiries@nhs.net  |
| Bibliographic databases e.g. Medline, Embase, Pubmed. Cochrane Library. [www.cochranelibrary.com/](http://www.cochranelibrary.com/) | Suggested terms: BREAST FEEDING, BREAST MILK, DRUG EXPOSURE DURING LACTATION, DRUG MILK LEVEL, LACTATION, LACTATION DISORDER, LACTATION INHIBITION, MILK EJECTION, ‘MILK, HUMAN’, MILK PRODUCTION. (NOTE: Nursing is a US term for breastfeeding). |
| Trip Database. John Brassey (editor). [www.tripdatabase.com/](http://www.tripdatabase.com/) | Clinical search engine to find high-quality research evidence. Can register for free for additional functionality. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Local resources** |
|  |  |

#### Answering the enquiry

The following principles should be followed when prescribing for breastfeeding mothers:

* It is seldom required that a breastfeeding mother stop breastfeeding in order to take a medication.
* The benefits of breastfeeding must be recognised; a recommendation to stop breastfeeding must not be made lightly. If the mother must withhold breastfeeding, think of the practicalities for both her and the infant. The mother will need to express the milk and discard it; the infant may need to take formula milk. In households where the infant is exclusively breastfed, there may not be bottles/teats readily available.
* The benefit and risk to both mother and infant must be considered.
* Neonates and premature infants are at greater risk from exposure to drugs via breast milk, because of immature excretory functions and the consequent risk of drug accumulation.
* Infants exposed to drugs via breast milk should be monitored for unusual signs or symptoms.
* Avoid unnecessary drug use and limit use of over-the-counter (OTC) products.
* Avoid use of drugs known to cause serious toxicity in adults or children.
* Drugs licensed for use in infants do not generally pose a hazard to full-term, healthy infants.
* Choose a regimen and route of administration which presents the minimum amount of drug to the infant.
* Be more cautious about recommending medicines with long half-lives, since these are more likely to cause adverse effects.
* Multiple drug regimens may pose an increased risk especially when adverse effects such as drowsiness are additive.
* Avoid new drugs if a therapeutically equivalent alternative with more safety data is available.

#### Keywords: BREAST FEEDING, LACTATION, MILK-HUMAN, MILK, PREMATURITY, INFANT-PREMATURE, drug name, and disease name (if appropriate).

# Compatibility of intravenous drugs

#### Background information

* How many intravenous lines are available, what type of lines are they (central or peripheral), how many lumens does each line have? Can other lines be inserted if necessary?
* What is the patient receiving through the lines at the moment? Ask about blood products, TPN, etc. as well as drugs.
* For current drugs:
* Check dose and administration schedule - are they being given continuously, or by short infusion or as a bolus? If continuous infusion, can they be given intermittently?
* What diluents and concentrations are being used?
* Are filters being used? If yes, where are they placed and what size are they, e.g. 0.2 micron?
* Can any drugs be discontinued?
* Which drugs are to be added and why?
* How will the drugs be mixed, e.g. in the same bag, the same intravenous line (Y site), same syringe or the same venflon?
* Is there a choice of drugs that could be used?
* Are there any limitations on choice, e.g. fluid and electrolyte restrictions, renal or hepatic dysfunction?
* Can the patient tolerate administration by another route, e.g. nasogastric tube, oral, rectal, intramuscular, subcutaneous or topical?

*NOTE: If the enquiry concerns the compatibility of drugs in a syringe driver for subcutaneous administration please refer to the ‘*[*Compatibility of Subcutaneous Drugs*](#_Compatibility_of_subcutaneous)*’ enquiry answering guideline.*

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources** |
| In-house past enquiries |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk](http://www.sps.nhs.uk)  | Use search terms ‘intravenous’, ‘parenteral administration’, and/or filter using drug name and ‘Q&A’ to see relevant articles, which include:* [Guidance on the Pharmaceutical Issues concerning Outpatient Parenteral Antibiotic Therapy (OPAT) and other Outpatient IV Therapy Services 1st Edition January 2018](https://www.sps.nhs.uk/articles/guidance-on-the-pharmaceutical-issues-concerning-outpatient-parenteral-antibiotic-therapy-opat-and-other-outpatient-iv-therapy-services-1st-edition-january-2018/)
* [Magnesium sulfate injection: converting between millimoles, milligrams and percentage w/v.](https://www.sps.nhs.uk/articles/magnesium-sulfate-injection-converting-between-millimoles-milligrams-and-percentage-wv-2/)
* [How should intravenous (IV) potassium chloride be administered in adults?](https://www.sps.nhs.uk/articles/how-should-intravenous-iv-potassium-chloride-be-administered-in-adults/)
 |
| British National Formulary. BMA and RPS. [bnf.nice.org.uk/](https://bnf.nice.org.uk/) | Contains information about compatible/incompatible diluents.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Electronic Medicines Compendium (eMC). DataPharm Communications. [www.medicines.org.uk/emc](http://www.medicines.org.uk/emc)  | SPCs may contain information about compatibility of commonly used admixtures.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| MHRA: Medicines & Healthcare Regulatory Agency. SPCs and PILs can be directly accessed via: <https://products.mhra.gov.uk> |
| IMG - Injectable Medicines Guide (Medusa). [medusa.wales.nhs.uk](http://medusa.wales.nhs.uk) or [www.injguide.nhs.uk](http://www.injguide.nhs.uk)  | Also contains information on paediatric intravenous drug administration, intramuscular administration, and ocular injections. |
| Handbook on Injectable Drugs. American Society of Health-System Pharmacists.[www.medicinescomplete.com](http://www.medicinescomplete.com)  | Gives information mainly on American preparations. Note that formulations may differ between the US and UK and this can affect compatibility. |
| AHFS Drug Information. McEvoy GK. American Society of Health-System Pharmacists. [www.medicinescomplete.com](http://www.medicinescomplete.com) | Information in the ‘chemistry and stability’ section of individual monographs. |
| Pharmaceutical manufacturer | They may have unpublished data, although many generics manufacturers have little or no information.**NOTE**: see QRMG guidance ‘[How to Use Pharmaceutical Industry Medical Information Services](https://www.sps.nhs.uk/wp-content/uploads/2017/01/HowToUsePharma-MI-_PIPA-Final-September-2018.docx)’.  |
| Stabilis. Compiled by hospital pharmacists in France. [www.stabilis.org/](http://www.stabilis.org/) | Compatibility and stability data to supplement other resources. Free access. Click arrow next to French flag to view in English language. |
| Bibliographic databases e.g. Medline, Embase, Pubmed. Cochrane Library. [www.cochranelibrary.com/](http://www.cochranelibrary.com/)  | Suggested terms: ADMINISTRATION-INTRAVENOUS and DRUG INCOMPATIBILITIES |
| Trip Database. John Brassey (editor). [www.tripdatabase.com/](http://www.tripdatabase.com/) | Clinical search engine to find high-quality research evidence. Can register for free for additional functionality. |
| **Additional resources (tailor to local use/availability)** |
| Injectable Drugs Guide. Gray A et al. [www.medicinescomplete.com](http://www.medicinescomplete.com)  | A-Z listing of injectable drugs in monograph format. Each monograph covers pre-treatment checks, dosing regimens, preparation and administration, compatibility and stability information, monitoring requirements during treatment, side effects, interactions and pharmacokinetic information. |
| IV Compatability Database via Micromedex. Truven Health Analytics. [www.micromedexsolutions.com](http://www.micromedexsolutions.com) | Contains information about compatibility of intravenous admixtures.Contains different/additional data to the Handbook on Injectable Drugs. |

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| --- | --- |
| Pediatric Injectable Drugs. Phelps SJ et al. American Society of Health-System Pharmacists.[www.medicinescomplete.com](http://www.medicinescomplete.com)  | US resource listing injectable drug monographs specific to use in children. Also available in paper format and known as the Teddy Bear Book. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Local resources** |
| Trust IV Nurse or HOPT (Home and Outpatient Parenteral Therapy) Team |  |

#### Answering the enquiry

When checking compatibilities, consider alternative ways of solving the problem, e.g. by using other routes of drug administration. You must consider problems associated with other routes and whether they would be appropriate for that particular patient.

When answering this type of enquiry consider:

* Are all drugs essential?
* What are the possible mechanisms of interactions/incompatibility – chemistry i.e. pH, adsorption?
* Is it possible to administer drugs by an alternative route?
* Could another line be inserted?
* Is there more than one option available, i.e. could a different drug be used to avoid a compatibility problem?
* Could the timing of administration be altered to avoid the need for mixing?

#### **Keywords:** drug names, ADMINISTRATION-INTRAVENOUS, DRUG INCOMPATIBILITIES

# Compatibility of subcutaneous drugs

#### Background information

* Which drugs need to be mixed, what are they for and what is the dose?
* What is the diluent to be used and the concentration required or the preferred total volume?
* Over what time period is the infusion to be given?
* What other routes of administration are available, e.g. intravenous lines?
* Which other medicines is the patient receiving, what are they for and by what routes are they being given?
* Establish how the patient is fed – an enteral feed tube offers a potential alternative route.

*NOTE: If the enquiry concerns the compatibility of drugs for intravenous administration please refer to the ‘*[*Compatibility of Intravenous Drugs*](#_Compatibility_of_intravenous)*’ enquiry answering guideline. See also ‘*[*Palliative Care*](#_Palliative_care)*’ enquiry answering guideline.*

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources** |
| In-house past enquiries |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk](http://www.sps.nhs.uk)  | Use search terms ‘subcutaneous’, ‘parenteral administration’, and/or filter using drug name and ‘Q&A’ to see relevant articles, which include:* [Can magnesium sulfate be given subcutaneously?](https://www.sps.nhs.uk/articles/can-magnesium-sulfate-be-given-subcutaneously-2/)
* [Can potassium be given by subcutaneous infusion?](https://www.sps.nhs.uk/articles/can-potassium-be-given-by-subcutaneous-infusion-2/)
 |
| British National Formulary. BMA and RPS. [bnf.nice.org.uk/](https://bnf.nice.org.uk/) | Section on prescribing in palliative care includes information about drug administration via syringe drivers.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| The Syringe Driver: Continuous Subcutaneous Infusions in Palliative Care.Dickman A and Schneider J. Oxford University Press. | Contains comprehensive information about two or more admixtures of commonly used combinations. |
| Syringe Driver Database.Palliative Care Formulary (PCF). Robert Twycross & Andrew Wilcock. Royal Pharmaceutical Society. [www.palliativedrugs.com](http://www.palliativedrugs.com) | The syringe driver drug compatibility charts summarise compatibility data submitted to the syringe driver database (SDSD) and that from published compatibility references. The SDSD can be accessed for free (registration required) via: [www.palliativedrugs.com/syringe-driver-database-introduction.html](http://www.palliativedrugs.com/syringe-driver-database-introduction.html) |
| Palliative Care Matters. Network of Palliative Care healthcare professionals. <http://m.pallcare.info/>  | Website for healthcare professionals working in palliative care (free registration required). Includes:* an interactive opioid dose calculator
* syringe driver drug compatibility database
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| Association of Paediatric Palliative Medicine (APPM). Master Formulary 2017. [www.appm.org.uk/guidelines-resources/appm-master-formulary/](http://www.appm.org.uk/guidelines-resources/appm-master-formulary/)  | This Formulary brings together all available paediatric palliative prescribing information in a single volume, utilising up to date published research and consensus expert opinion. |
| Electronic Medicines Compendium (eMC). DataPharm Communications. [www.medicines.org.uk](http://www.medicines.org.uk)  | Note: very few injectable drugs are licensed for subcutaneous injection or infusion.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| MHRA: Medicines & Healthcare Regulatory Agency. SPCs and PILs can be directly accessed via: <https://products.mhra.gov.uk> |
| Bibliographic databases e.g. Medline, Embase, Pubmed. Cochrane Library. [www.cochranelibrary.com/](http://www.cochranelibrary.com/) | Suggested terms: SUBCUTANEOUS-DRUG-ADMINISTRATION, INJECTIONS-SUBCUTANEOUS, ADMINISTRATION-SUBCUTANEOUS |
| Trip Database. John Brassey (editor). [www.tripdatabase.com/](http://www.tripdatabase.com/) | Clinical search engine to find high-quality research evidence. Can register for free for additional functionality. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the networkRegistration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Local resources** |
| Trust Palliative Care Team and guidelines |  |

#### Answering the enquiry

* GPs and hospital doctors are able to refer patients to a [Macmillan nurse](https://www.macmillan.org.uk/HowWeCanHelp/Nurses/AboutMacmillanNurses.aspx) or an alternative specialist. Find out if this has been done. For enquiries about managing a specific patient (other than straightforward medicines information queries), advise the enquirer to contact this nurse.
* Mixing two or more licensed drugs for administration via a syringe driver, where one is not a vehicle for administering the other, falls within the definition of manufacture and results in a new, unlicensed product. The person undertaking this preparation, unless an exemption applies (doctors, dentists, nurse and pharmacist independent prescribers, and supplementary prescribers), must hold a manufacturer’s licence. The exemption allows these prescribers to mix medicines themselves or direct others to mix. Directions must be in writing.
* Some drugs are too irritant to be given subcutaneously, e.g. prochlorperazine, diazepam and chlorpromazine.
* Phenobarbital is incompatible with most drugs given by continuous subcutaneous infusion and it is generally advisable to give via a separate syringe driver. If dexamethasone is to be mixed with other drugs, use as much diluent as possible before adding dexamethasone.
* Using more than one syringe driver may be an option if there are compatibility problems and alternative routes are unsuitable.
* Using a larger total volume will improve stability of many drug combinations and may be an option for some patients.
* Confirm maximum volume of the syringe driver. There may be limitations on concentrations that mean more than one daily syringe driver change is needed. Check whether this is going to be practical.
* Remember that a medicine with a long half-life might not need to go in the syringe driver, and could potentially be given as a once or twice daily subcutaneous injection (e.g. dexamethasone, haloperidol, levomepromzaine).

#### Keywords: Drug names, ADMINISTRATION-SUBCUTANEOUS, DRUG INCOMPATIBILITIES, INJECTIONS-SUBCUTANEOUS

# Complementary medicine

#### Background information

* Is the patient already taking the alternative or complementary medicine or do they want to start taking it?
* Identify the alternative medicine, indication, route, strength, dose and frequency, formulation, manufacturer and source if possible. If applicable, how long has it been taken for? Are they taking the product as a short course, cyclically or long-term?
* If it is a homeopathic remedy, check the dilution of the product (letter and number).
* Has the patient self-diagnosed the condition that they are seeking to treat? If they have, they should consider speaking to a healthcare professional first.
* Does the patient take any prescribed or non-prescription medication? Is there any history of ADRs or allergies?
* Check current and past medical history.
* Are they pregnant or breast feeding?
* Where did the patient hear about this or who recommended starting it?
* If information about the product was accessed online, which website?

*For enquiries that relate to* [drug interactions](#_Interactions) *or* [adverse effects](#Adverse)*, refer to the relevant enquiry answering guidelines.*

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources** |
| In-house past enquiries |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk](http://www.sps.nhs.uk) | Select ‘Complementary and alternative therapies’ under ‘category search’ to see all relevant articles, which include:* [Handling questions about herbal medicines (or dietary supplements) and conventional medicines](https://www.sps.nhs.uk/articles/handling-questions-about-herbal-medicines-or-dietary-supplements-and-conventional-medicines/)
* [Using kelp in patients on levothyroxine or with thyroid disorders](https://www.sps.nhs.uk/articles/using-kelp-in-patients-on-levothyroxine-or-with-thyroid-disorders/)
* [Cannabidiol oil - potential adverse effects](https://www.sps.nhs.uk/articles/cannabidiol-oil-potential-adverse-effects-and-drug-interactions/)
* [Considerations when addressing questions about potential for adverse effects and drug interactions with homeopathic remedies](https://www.sps.nhs.uk/articles/considerations-when-addressing-questions-about-potential-for-adverse-effects-and-drug-interactions-with-homeopathic-remedies/)
* [Does horny goat weed have any clinically significant interactions](https://www.sps.nhs.uk/articles/does-horny-goat-weed-have-any-clinically-significant-interactions/)?
* [Is it safe for breastfeeding women to take herbal medicines?](https://www.sps.nhs.uk/articles/is-it-safe-for-breastfeeding-women-to-take-herbal-medicines/)
* [Is it safe to take herbal medicines during pregnancy?](https://www.sps.nhs.uk/articles/is-it-safe-to-take-herbal-medicines-during-pregnancy/)
* [Is it safe to take herbal medicines with non-vitamin K antagonist oral anticoagulants (NOACs)?](https://www.sps.nhs.uk/articles/is-it-safe-to-take-herbal-medicines-with-non-vitamin-k-antagonist-oral-anticoagulants-noacs/)
* [Considering the safety and interactions of turmeric](https://www.sps.nhs.uk/articles/considering-the-safety-and-interactions-of-turmeric/)
* [Advising patients using turmeric on its adverse effects](https://www.sps.nhs.uk/articles/advising-patients-using-turmeric-on-its-adverse-effects/)
* [Advising patients using turmeric on its potential interactions](https://www.sps.nhs.uk/articles/advising-patients-using-turmeric-on-its-potential-interactions/)
* [Chondroitin – what are its drug interactions?](https://www.sps.nhs.uk/articles/chondroitin-d-drug-interactions/)
* [Chondroitin- adverse effects](https://www.sps.nhs.uk/articles/chondroitin-adverse-effects/)
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| European Union Herbal Monographs. [www.ema.europa.eu/en/human-regulatory/herbal-products/european-union-monographs-list-entries](http://www.ema.europa.eu/en/human-regulatory/herbal-products/european-union-monographs-list-entries)  | Under ‘Human Regulatory’ click ‘Herbal Products’ then ‘EU monographs and list entries’.EU monographs provide all information necessary for the use of a medicinal product containing a specific herbal substance or preparation:* what the herbal product is used for;
* who the herbal product is intended for;
* safety information such as information regarding undesirable effects and interactions with other medicines.

**NOTE:** enter the latin name for the herbal product. |
| Herbal and homeopathic medicines. MHRA: Medicines & Healthcare Regulatory Agency. [www.gov.uk/topic/medicines-medical-devices-blood/herbal-homeopathic-medicines](http://www.gov.uk/topic/medicines-medical-devices-blood/herbal-homeopathic-medicines)  | All manufactured herbal medicines are required to have either a traditional herbal registration (THR) or a Marketing Authorisation (MA). Products therefore need to meet specific standards of safety and quality. However, this only applies where products come within the definition of a medicinal product. Many herbal products will continue to be available as food supplements.A list of herbal medicines granted a THR is available at: [www.gov.uk/government/publications/herbal-medicines-granted-a-traditional-herbal-registration-thr](http://www.gov.uk/government/publications/herbal-medicines-granted-a-traditional-herbal-registration-thr) A list of banned/restricted herbal ingredients is available at: [www.gov.uk/government/publications/list-of-banned-or-restricted-herbal-ingredients-for-medicinal-use](http://www.gov.uk/government/publications/list-of-banned-or-restricted-herbal-ingredients-for-medicinal-use)  |
| Stockley’s Drug Interactions. Preston CL. Pharmaceutical Press. [www.medicinescomplete.com](http://www.medicinescomplete.com/) | Index term – herbal medicines but also see individual drugs.Note: Should be used in conjunction with Stockley’s Interactions Checker.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Stockley’s Interactions Checker (Stockley’s Interactions Alerts). Preston CL. Pharmaceutical Press. [www.medicinescomplete.com](http://www.medicinescomplete.com) | Included as part of the Stockley’s online subscription. Note: Should be used in conjunction with Stockley’s Drug Interactions Database. To access, select the ‘Drug Interactions’ tab (not available through the dashboard).See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Memorial Sloan-Kettering Cancer Centre (USA). [www.mskcc.org/cancer-care/diagnosis-treatment/symptom-management/integrative-medicine/herbs](http://www.mskcc.org/cancer-care/diagnosis-treatment/symptom-management/integrative-medicine/herbs)  | Evidence-based information about herbs, botanicals, supplements, and more. Monographs on herbal preparations include information relating to cancer treatments.Information for patients is also available. |
| Medline Plus – Herbs and supplements. National Library of Medicine part of the National Institutes of Health (NIH). <https://medlineplus.gov/druginfo/herb_All.html>  | Patient focussed. Suitable for use only as a supplementary resource. Note: interactions data may be incomplete. |

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| --- | --- |
| National Centre for Complementary and Integrative Health (NCCIH) <https://www.nccih.nih.gov/>  | Mainly patient focused. There is a useful and well referenced section for healthcare professionals with links to US guidelines. |
| Martindale, the Complete Drug Reference. Brayfield, A. Pharmaceutical Press. [www.medicinescomplete.com](http://www.medicinescomplete.com/) | See chapter on ‘Miscellaneous Drugs and Other Substances’ and individual monographs. |
| Drugs during Pregnancy and Lactation. Schaefer, C et al. Academic Press Inc. | See chapter 2.19: Herbs during pregnancy and Chapter 4.13 Alternative remedies, vitamins and minerals (breastfeeding). |
| Drugs in Pregnancy and Lactation. Briggs G et al. Lippincott, Williams and Wilkins. [online.vitalsource.com](http://online.vitalsource.com/) NOTE: Use the online version; monograph updates are included in-between print editions. | See individual monographs. |
| Medications and Mothers’ Milk. Hale, TW. Springer Publishing. [www.medsmilk.com/](http://www.medsmilk.com/) NOTE: Use the online version; it is more up to date than the print version. | See individual monographs. |
| BUMPS (Best Use of Medicines in Pregnancy) [www.medicinesinpregnancy.org/](http://www.medicinesinpregnancy.org/)  | This website provides information factsheets produced by UKTIS (see Toxbase above) for pregnant women and their partners; intended to be used in discussion with a health care provider. Monographs cover a variety of medicines, drug classes, recreational drugs and products such as face cream and hair dye. There are fewer monographs than on Toxbase.The site also has an ‘online reporting’ facility for women to record their drug exposure during a current or previous pregnancy in order to help UKTIS understand how medicines, lifestyles or illnesses may affect foetal development.  |
| Cochrane database of Sytematic Reviews. [www.cochranelibrary.com/cdsr/reviews](http://www.cochranelibrary.com/cdsr/reviews)  | Contains numerous systematic reviews of complementary therapies. |
| Bibliographic databases e.g. Medline, Embase, Pubmed. Cochrane Library [www.cochranelibrary.com/](http://www.cochranelibrary.com/) | Suggested terms: drug name, ALTERNATIVE MEDICINE, HERBAL MEDICINE, HERBALISM, MEDICINE-HERBAL, DRUGS-CHINESE-HERBAL, HERBAL-PREPARATIONS, DIETARY SUPPLEMENTS, DIET-SUPPLEMENTATIONThe Cochrane Library contains numerous systematic reviews of complementary therapies. |
| Trip Database. John Brassey (editor). [www.tripdatabase.com/](http://www.tripdatabase.com/) | Clinical search engine to find high-quality research evidence. Can register for free for additional functionality. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available.  |
| **Additional resources (tailor to local use/availability)** |
| Stockley's Herbal Medicines Interactions. Williamson E, Driver S, Baxter K. Pharmaceutical Press. [www.medicinescomplete.com](http://www.medicinescomplete.com/) | Searchable in the same way as Stockley’s Drug Interactions. Each included herbal medicine has monograph including uses, pharmacokinetics and an interactions overview. |
| Dietary Supplements. Mason P. Pharmaceutical Press. [www.medicinescomplete.com](http://www.medicinescomplete.com/)  |  |
| Herbal Medicines. Pharmaceutical Press. [www.medicinescomplete.com](http://www.medicinescomplete.com/) | This publication is intended to serve as a reference work for pharmacists, doctors, nurses and other healthcare professionals, assisting in their provision of advice on the use of herbal medicines to members of the public.  |
| Natural Medicines Comprehensive Database. Therapeutic Research Centre, Somerville, America. [naturalmedicines.therapeuticresearch.com/](https://naturalmedicines.therapeuticresearch.com/) | For complementary drug-drug, drug-food, and drug-disease interactions. Possible interactions are listed in each monograph. The interaction checker can be used to check specific combinations.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Lexicomp Natural MedicinesWolters Kluwer<https://online.lexi.com/lco/action/home>  | May be beneficial to consider if centre already has access to Lexicomp |
| Meyler's Side Effects of Drugs. Aronson JK.  | General class monograph on herbal medicines complemented by specific drug monographs.  |
| **Local resources**  |
|  |  |

#### Answering the enquiry

* Ensure that the enquirer is aware of the lack of quality, reliable information in the literature regarding complementary medicines. There is also an abundance of misleading information which is usually what patients have access to! This is particularly true of internet based resources. When assessing the quality of a website it is useful to ask yourself the following questions:
* Is the information up-to-date?
* Who has written the information?
* Who ‘owns’ the website? Could there be a conflict of interest?
* Are claims supported by reliable evidence?
* Is any information provided about risks associated with treatments?
* Consider any comorbidities the patient may have and use caution when advising for patients who may be predisposed to suffering an adverse event, e.g. older patients and children. Consider any acute risks the patient may be exposed to, for example, surgical patients may be at increased risk of suffering a bleed.
* Overall there is limited information available regarding interactions between complementary/alternative medicines and conventional medicines. Occasionally herbal products may be contaminated with other active substances. As with conventional drug interactions, herb-drug interactions may be pharmacodynamic or pharmacokinetic.
* It is often difficult to assess whether a complementary medicine will interact with a conventional medicine. In this situation it may be prudent to advise against using them together. In most cases this is not because there is evidence of an interaction but because there is a lack of evidence to assess risk. Individuals using a complementary medicine should be advised to be consistent with the brand, dose and frequency of administration of the product being used.
* Enquirers often ask about the likelihood of an interaction between prescribed and complementary medicines. Some herbal products may compromise the efficacy of conventional medicines and there are particular concerns for those individuals receiving drugs with a narrow therapeutic window such as warfarin, phenytoin and digoxin. Ideally where there is limited safety data for a particular herbal preparation it would be prudent to avoid their use in patients receiving these types of medicines or in those whose therapy is deemed critical e.g. chemotherapy.
* Pregnancy and breastfeeding – there is very limited information on the use of alternative or complementary medicines in pregnancy and breastfeeding and should only be recommended after careful consideration of the risks and benefits. Some preparations will be contraindicated in pregnancy – always consult a specialist source.

#### Keywords: Preparation name if possible, if not form of alternative medicine e.g. HERBAL MEDICINE, DIETARY SUPPLEMENTS, AROMATHERAPY, HOMEOPATHIC MEDICINES, MEDICINE-CHINESE TRADITIONAL.

# Contraception (hormonal)

#### Background information

***Choice of contraceptive for a specific patient***

* Type of contraceptive preferred: combined oral contraceptive (COC), progesterone only pill (POP), patch, depot injection, implant, intrauterine system (IUS), vaginal ring?
* Already taking or planning to take?
* Other medical conditions?
* Other medicines, including complementary and non-prescription?
* Breast feeding?
* Smoking status
* Age of patient. NOTE: Girls under 16 years do not need parental consent for contraception – see ‘What ethical and legal issues do I need to consider when arranging contraception for a girl who is under 16 years of age?’ in CKS topic ‘[Contraception – assessment scenario: Issues to discuss and consider](https://cks.nice.org.uk/topics/contraception-assessment/management/issues-to-consider-discuss/)’

***Missed contraceptive pills***

* Name of pill, type of pill (POP/COC/standard strength/low strength oestrogen) and number of days in the pack (21 or 28 days)? **NOTE**: Eloine, Qlaira and Zoely are COCs with different missed dose advice.
* What time do they usually take their pill?
* How many pills have been missed?
* Where in the cycle were they missed
* How many pills are left in the pack?
* Was previous pack taken correctly?
* COC: were the previous 7 pills taken correctly / any previous episodes of missed pills?
* POP: were the previous 2 pills taken correctly / any previous episodes of missed pills?
* COC: any sexual intercourse, without any form of contraception, during the preceding 7 days, (and also during the pill-free interval if pills were missed in week one)?
* POP: any sexual intercourse since the POP was missed (or if taken <3h or <12h late)?
* Diarrhoea and vomiting – when / how long for / severity?
* Other medicines, including complementary and non-prescription, particularly any enzyme inducers?

***Delayed or detached patch***

* Name of patch (Evra)?
* When does she usually change the patch (day and time)?
* Delay in applying a new patch: 48 hours or more?
* Detached patch: 48 hours or more?
* Have all previous patches been used correctly?
* Any sexual intercourse, without any form of contraception, during the preceding 5 days?
* Other medicines, including complementary and non-prescription?

***Delayed injection or implant rods***

* Name of injection (Depo-Provera/ Noristerat/ Sayana Press) or implant (Nexplanon).
* How long is the delay in administration?
* Any sexual intercourse since replacement was due?
* Other medicines, including complementary and non-prescription?

***Dislodged or delayed progesterone only intra-uterine system (IUS) (e.g.* Jaydess/ Kyleena/ Levosert/ Mirena)**

* How long since the replacement was due?
* When did the coil (IUS) dislodge?
* Any sexual intercourse during the preceding 5 days?

***Vaginal ring (*NuvaRing*)***

* Delay in inserting new ring: how long?
* Delay in removing the ring: how long?
* Ring accidentally expelled: for how long and in which week?
* Ring removed deliberately (for sex) but not replaced in time: for how long and in which week?
* Any sexual intercourse, without any form of contraception, during the preceding 7 days?

***Emergency contraception***

* How long is it since unprotected intercourse occurred?
* Was this due to missed pill? – If so, will need to give advice on restarting pill and additional precautions required.
* Other medical conditions and medicines, including complementary and non-prescription?
* Age of patient.
* Is the woman likely to be pregnant or are they breast feeding?
* Has any other form of emergency contraceptive been used in the current cycle?

*For enquiries that refer to* [drug interactions](#_Interactions)*,* [adverse effects](#Adverse)*,* [pregnancy](#pregnancy) *or* [breast feeding](#_Drugs_in_breastfeeding) *associated with contraception, refer to the relevant enquiry answering guidelines.*

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources** |
| In-house past enquiries |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk](http://www.sps.nhs.uk)   | Use search term ‘contraceptive’ and/or filter using the drug name, to see relevant articles, which include: * [Emergency contraception and breast-feeding](https://www.sps.nhs.uk/articles/emergency-contraception-and-breast-feeding/)
* [What is a suitable combined oral contraceptive pill in a patient who is taking hepatic enzyme-inducing drugs, such as carbamazepine, phenytoin, rifampicin or rifabutin?](https://www.sps.nhs.uk/articles/what-is-a-suitable-combined-oral-contraceptive-pill-in-a-patient-who-is-taking-hepatic-enzyme-inducing-drugs-such-as-carbamazepine-phenytoin-rifampicin-or-rifabutin/)
* [Does St John’s Wort interact with combined and progestogen only hormonal contraception?](https://www.sps.nhs.uk/articles/does-st-johns-wort-interact-with-combined-and-progestogen-only-hormonal-contraception/)
* [Does St John’s Wort interact with Emergency Hormonal Contraception?](https://www.sps.nhs.uk/articles/does-st-johnos-wort-interact-with-emergency-hormonal-contraception/)
* [What are the restrictions on prescribing for patients with non-acute porphyria?](https://www.sps.nhs.uk/articles/what-are-the-restrictions-on-prescribing-for-patients-with-non-acute-porphyria/)
 |
| British National Formulary. BMA and RPS. [bnf.nice.org.uk/](https://bnf.nice.org.uk/) | The ‘[Contraceptives, hormonal](https://bnf.nice.org.uk/treatment-summary/contraceptives-hormonal.html)’ treatment summary provides brief information on COC, POP, parenteral, IUD and emergency contraception. COCs are listed according to type (21/28 days, monophasic/multiphasic); there is advice on choice of contraception in patients taking medication with teratogenic potential, and on stopping before surgery.Other relevant treatment summaries include:* [Contraceptives, non-hormonal](https://bnf.nice.org.uk/treatment-summary/contraceptives-non-hormonal.html)
* [Contraceptives, interactions](https://bnf.nice.org.uk/treatment-summary/contraceptives-interactions.html)
* [Emergency contraception](https://bnf.nice.org.uk/treatment-summary/emergency-contraception.html)

See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| CKS. Clinical Knowledge Summaries. NICE. [cks.nice.org.uk](http://cks.nice.org.uk) | Relevant summaries include:* [Contraception - assessment](https://cks.nice.org.uk/contraception-assessment)
* [Contraception - combined hormonal methods](https://cks.nice.org.uk/contraception-combined-hormonal-methods) (includes missed pill rules)
* [Contraception - progestogen only methods](https://cks.nice.org.uk/contraception-progestogen-only-methods) (includes missed pill rules)
* [Contraception - IUS/IUD](https://cks.nice.org.uk/contraception-iusiud)
* [Contraception - sterilization](https://cks.nice.org.uk/contraception-sterilization)
* [Contraception - barrier methods and spermicides](https://cks.nice.org.uk/contraception-barrier-methods-and-spermicides)
* [Contraception - natural family planning](https://cks.nice.org.uk/contraception-natural-family-planning)
* [Contraception - emergency](https://cks.nice.org.uk/contraception-emergency)
 |
| Electronic Medicines Compendium (eMC). DataPharm Communications. [www.medicines.org.uk/emc](http://www.medicines.org.uk/emc)  | See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| MHRA: Medicines & Healthcare Regulatory Agency. SPCs and PILs can be directly accessed via: <https://products.mhra.gov.uk> |
| Contraception: Your Questions Answered. Guillebaud J & MacGregor A.Elsevier. | This useful resource covers various aspects of contraception and contraceptives in a question and answer format.  |
| Faculty of Sexual and Reproductive Healthcare (FSRH). [www.fsrh.org](http://www.fsrh.org/)  | This site provides access to useful guidance documents produced by FSRH, a faculty of the Royal College of Obstetricians and Gynaecologists (RCOG). There are three particularly useful sections:[UKMEC (UK Medical Eligibility Criteria for contraceptive use)](http://www.fsrh.org/ukmec/) -This is guidance on the choice of contraceptive for individual patients, taking into account factors such as parity, age, smoking status and personal and family medical history. To access, click on ‘Standards & Guidance’ then ‘UKMEC’.Guidelines on [contraception for specific populations](https://www.fsrh.org/standards-and-guidance/current-clinical-guidance/contraception-for-specific-populations/), including:* [Contraception after pregnancy](http://www.fsrh.org/standards-and-guidance/documents/contraception-after-pregnancy-guideline-january-2017/)
* [Contraception for women aged over 40 years](https://www.fsrh.org/standards-and-guidance/documents/fsrh-guidance-contraception-for-women-aged-over-40-years-2017/)
* [Contraceptive choices for women with cardiac disease](https://www.fsrh.org/standards-and-guidance/documents/ceu-guidance-contraceptive-choices-for-women-with-cardiac/)
* [Contraceptive choices for young people](https://www.fsrh.org/standards-and-guidance/documents/cec-ceu-guidance-young-people-mar-2010/)
* [Overweight, obesity and contraception](https://www.fsrh.org/standards-and-guidance/documents/fsrh-clinical-guideline-overweight-obesity-and-contraception/)
* [Sexual and reproductive health for patients with IBD](https://www.fsrh.org/standards-and-guidance/documents/ceu-clinical-guidance-srh-ibd/)

Other guidelines include:* [Drug interactions with hormonal contraception](http://www.fsrh.org/standards-and-guidance/current-clinical-guidance/drug-interactions/)
* [Emergency contraception](http://www.fsrh.org/standards-and-guidance/current-clinical-guidance/emergency-contraception/)
* [Quick starting contraception](http://www.fsrh.org/standards-and-guidance/current-clinical-guidance/quick-starting-contraception/)

To access, click on ‘Standards & Guidance’ then ‘Current clinical guidance’.Clinical statements including:* [Combined Hormonal Contraception](https://www.fsrh.org/standards-and-guidance/documents/combined-hormonal-contraception/)

To access, click on ‘Standards & Guidance’ then ‘Clinical statements’ |
| Bibliographic databases e.g. Medline, Embase, Pubmed. Cochrane Library. [www.cochranelibrary.com/](http://www.cochranelibrary.com/)  | Suggested terms: CONTRACEPTION, CONTRACEPTION- POSTCOITAL, EMERGENCY CONTRACEPTION, CONTRACEPTION-BARRIER, plus drug name. |
| Trip Database. John Brassey (editor). [www.tripdatabase.com/](http://www.tripdatabase.com/) | Clinical search engine to find high-quality research evidence. Can register for free for additional functionality. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Additional resources (tailor to local use/availability)** |
| MIMS. Monthly Index of Medical Specialities. Haymarket Media Group. [www.mims.co.uk/](http://www.mims.co.uk/).  | For a table summarising hormone doses in available products, see: [Table: contraceptives](https://www.mims.co.uk/table-contraceptives/contraception/article/1427965)  |
| **Local resources**  |
|  |  |

#### Answering the enquiry

* When answering an enquiry regarding missed pills, make your answer as clear and practical as possible, i.e. if they are to use additional contraceptive measures state for how long, what they do when they finish the packet of pills, when they restart their pill after EHC etc.
* Choice of therapy, ensure patient preference and concomitant risk factors have been considered.

#### Keywords: CONTRACEPTIVES-ORAL, CONTRACEPTIVES-POSTCOITAL, EMERGENCY HORMONAL CONTRACEPTION. Use CONTRACEPTIVES or CONTRACEPTION if other terms are not applicable. Also use individual estrogen or progestogen if appropriate.

# Cytotoxic medicines

#### Background information

Most hospitals will have a specialist oncology pharmacist and will have chemotherapy protocols to follow. These experts will be better placed to answer enquiries about cytotoxic medicines and regimes for the treatment of patients with cancer.

For any enquiries about treatment regimens, refer to local policy.

For enquiries about manufacturing of cytotoxic medicines, contact the aseptic manufacturing unit.

*For enquiries that relate to* [adverse effects](#_Adverse_Drug_Reactions_2), [drug interactions](#_Interactions_1) *or* [*complementary medicines*](#_Complementary_medicine)*, please refer to the relevant enquiry answering guidelines.*

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources** |
| In-house past enquiries. |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk](http://www.sps.nhs.uk) | Use search term ‘cytotoxic’ and/or filter using the drug name, to see relevant articles. |
| British National Formulary. BMA and RPS. [bnf.nice.org.uk/](https://bnf.nice.org.uk/) | The ‘[cytotoxic drugs](https://bnf.nice.org.uk/treatment-summary/cytotoxic-drugs.html)’ treatment summary provides brief information on safe handling of cytotoxic drugs and management of adverse effects associated with treatment.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Electronic Medicines Compendium (eMC). DataPharm Communications. [www.medicines.org.uk/emc](http://www.medicines.org.uk/emc)  | The Summary of Product Characteristics contains information about the administration of cytotoxic medicines and lists warnings, precautions and adverse effects.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf).  |
| MHRA: Medicines & Healthcare Regulatory Agency. SPCs and PILs can be directly accessed via: <https://products.mhra.gov.uk> |
| NICE. National Institute for Health and Care Excellence. [www.nice.org.uk](http://www.nice.org.uk)  | The full list of NICE products on cancer can be accessed here: [www.nice.org.uk/guidance/conditions-and-diseases/cancer](http://www.nice.org.uk/guidance/conditions-and-diseases/cancer) |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Local resources** |
|  |  |

#### Answering the enquiry

* Unless you are familiar with the chemotherapy regimens used for the treatment of cancer it would be safer not to attempt to answer the enquiry. Liaise with the specialist oncology team and oncology pharmacist.

#### Keywords: CYTOTOXINS, drug name.

# Dental

#### Background information

Dentists often ask about [adverse effects](#Adverse) and possible drug [interactions](#_Interactions), these should be answered in the same way as all other ADR or interactions questions.

*For* ***antibiotic treatment choice*** *enquiries:*

* What is the indication for the antibiotic?
* Any allergies and details of the reaction?
* Has the patient recently had any antibiotics? If so, which antibiotic, what was the dose, duration and indication?
* Is the patient taking any other medicines, including complementary or non-prescription?

*Dental* ***prescribing*** *enquiries:*

* Is the dentist treating an NHS or private patient?
* What is the indication for the prescription?
* Is the patient taking any other medicines, including complementary or non-prescription?

*For enquiries that relate to adverse effects, please refer to the ‘*[Adverse Drug Reactions](#_Adverse_Drug_Reactions_2)*’ enquiry answering guideline.*

*For enquiries that relate to drug interactions, please refer to the ‘*[Interactions](#_Interactions_1)*’ enquiry answering guideline.*

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources** |
| In-house past enquiries |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk/](http://www.sps.nhs.uk/)  | Links to dental related Q&As can be found at: [www.sps.nhs.uk/articles/uk-dental-medicines-advice-service-ukdmas/](http://www.sps.nhs.uk/articles/uk-dental-medicines-advice-service-ukdmas/) * [What is the clinical significance of potential drug interactions with local anaesthetic preparations used in primary care dentistry?](https://www.sps.nhs.uk/articles/what-is-the-clinical-significance-of-potential-drug-interactions-with-local-anaesthetic-preparations-used-in-primary-care-dentistry/)
* [Allergy to local anaesthetic agents used in dentistry – what are the signs, symptoms, alternative diagnoses and management options?](https://www.sps.nhs.uk/articles/allergy-to-local-anaesthetic-agents-used-in-dentistry-what-are-the-signs-symptoms-alternative-diagnoses-and-management-options/)
* [Using miconazole oral gel to treat oral thrush in adults taking a statin](https://www.sps.nhs.uk/articles/using-miconazole-oral-gel-to-treat-oral-thrush-in-adults-taking-a-statin/)
* [Do patients with hydrocephalus shunts need antibiotic prophylaxis before undergoing dental procedures?](https://www.sps.nhs.uk/articles/do-patients-with-hydrocephalus-shunts-need-antibiotic-prophylaxis-before-undergoing-dental-procedures-2/)
* [How should adults with cancer be managed by general dental practitioners if they need dental treatment?](https://www.sps.nhs.uk/articles/how-should-adults-with-cancer-be-managed-by-general-dental-practitioners-if-they-need-dental-treatment/)
* [Saliva substitutes: Choosing and prescribing the right product](https://www.sps.nhs.uk/articles/what-should-be-considered-when-choosing-or-prescribing-saliva-substitutes/)
* [Fluoride toothpaste – what are the dangers of chronic ingestion in adults?](https://www.sps.nhs.uk/articles/fluoride-toothpaste-what-are-the-dangers-of-chronic-ingestion-in-adults/)
* [When and how can dentists supply medicines?](https://www.sps.nhs.uk/articles/when-and-how-can-dentists-supply-medicines/)
* [How should dentists prescribe, store, order and dispose of controlled drugs?](https://www.sps.nhs.uk/articles/how-should-dentists-prescribe-store-order-and-dispose-of-controlled-drugs-2/)
* [What steroid supplementation is required for a patient with primary adrenal insufficiency undergoing a dental procedure?](https://www.sps.nhs.uk/articles/what-steroid-supplementation-is-required-for-a-patient-with-primary-adrenal-insufficiency-undergoing-a-dental-procedure/)
* [Safety of dental medicines in acute porphyria](https://www.sps.nhs.uk/articles/safety-of-dental-medicines-in-acute-porphyria/)
 |

|  |  |
| --- | --- |
| British National Formulary. BMA and RPS. [bnf.nice.org.uk/](https://bnf.nice.org.uk/) | At the front of the BNF ‘Guidance on Prescribing’ includes ‘[Prescribing in dental practice](https://bnf.nice.org.uk/guidance/prescribing-in-dental-practice.html)’. From here the BNF online provides links to dentally relevant sections in the body of the BNF and specific sections on:* Medical emergencies in dental practice
* Medical problems in dental practice
* [Oropharyngeal fungal infections](https://bnf.nice.org.uk/treatment-summary/oropharyngeal-fungal-infections.html)

The ‘[Dental Practitioners’ Formulary](https://bnf.nice.org.uk/dental-practitioners-formulary/)’ (the list of dental preparations approved by the Secretaries of State as prescribable by a dentist on an NHS prescription) can be found between Appendix 4 and the Nurse Prescribers Formulary in the print version. Within the monographs of the drugs that dentists can prescribe the preparations on the DPF are listed under ‘PROFESSION SPECIFIC INFORMATION’.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Electronic Medicines Compendium (eMC). DataPharm Communications. [www.medicines.org.uk/emc](http://www.medicines.org.uk/emc)  | SPCs for dental local anaesthetics and many fluoride preparations are not on eMC, but are available on the MHRA site.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| MHRA: Medicines & Healthcare Regulatory Agency. SPCs and PILs can be directly accessed via: <https://products.mhra.gov.uk> |
| Antimicrobial Prescribing in Dentistry: Good Practice Guidelines. Faculty of General Dental Practitioners (UK) and the Faculty of Dental Surgery. <https://cgdent.uk/wp-content/uploads/2021/08/Antimicrobial-Prescribing-in-Dentistry-2020-online-version.pdf>  | When to prescribe, appropriate doses and treatment duration for antibiotics, antifungals and antivirals in adults and children. Includes guidance on management of oral and dental infections by specialists and trainees in hospital environments.  |
| Drug Prescribing For Dentistry 2016. Scottish Dental Clinical Effectiveness Programme. [www.sdcep.org.uk/published-guidance/drug-prescribing/](http://www.sdcep.org.uk/published-guidance/drug-prescribing/)  | The SDCEP guidance 'Drug Prescribing For Dentistry' brings together advice on dental prescribing from the BNF and BNFC and presents it in a problem-orientated style. Guidance is suitable for informing dental practitioners in primary care. However, it does not include advice on prescribing for secondary care or for practitioners with specialist expertise. |
| Management of Acute Dental Problems, March 2013. Scottish Dental Clinical Effectiveness Programme. [www.sdcep.org.uk/published-guidance/management-of-acute-dental-problems-madp/](http://www.sdcep.org.uk/published-guidance/management-of-acute-dental-problems-madp/) | The guidance is intended for use by staff in any healthcare setting who may be asked to advise or manage patients with acute dental problems. Includes advice on drug choice and doses. |
| Oral Health Management of Patients at Risk of Medication-related Osteonecrosis of the Jaw. March 2017. Scottish Dental Clinical Effectiveness Programme. [www.sdcep.org.uk/published-guidance/medication-related-osteonecrosis-of-the-jaw/](http://www.sdcep.org.uk/published-guidance/medication-related-osteonecrosis-of-the-jaw/) | The guidance provides clear and practical advice for dentists in primary care on how to provide care for patients prescribed these drugs. The guidance is also of relevance to other prescribers, pharmacists and patients.Supporting tools include Patient Information Leaflets and a Risk Assessment Flowchart. |
| Management of Dental Patients Taking Anticoagulants or Antiplatelet Drugs. August 2015. Scottish Dental Clinical Effectiveness Programme. [www.sdcep.org.uk/published-guidance/anticoagulants-and-antiplatelets/](http://www.sdcep.org.uk/published-guidance/anticoagulants-and-antiplatelets/) | The guidance provides recommendations and practical advice to inform bleeding risk assessment and decision making for the treatment of this patient group. Information about the newer generation anticoagulants and antiplatelet drugs as well as the more established medications is included.Supporting tools include Patient Information Leaflets and a Risk Assessment Flowchart. |
| Septodont. [www.septodont.co.uk](http://www.septodont.co.uk) | One of the biggest manufacturers of dental materials. Lists preparations available. See [MHRA](http://www.gov.uk/guidance/find-product-information-about-medicines) for Septodont SPCs |
| General Dental Council. [www.gdc-uk.org](http://www.gdc-uk.org/) | The statutory body which regulates the dental profession in the UK. Online access to the dental register. |
| Dentsply. [www.dentsply.com/en-uk](http://www.dentsply.com/en-uk)  | Has the SPCs for Dentsply local anaesthetics (Xylocaine, Citanest, Anestadent). |
| UK Dental Medicines Advice Service (UKDMAS). North West Medicines Information Centre. Tel: 0151 794 8206 [www.sps.nhs.uk/articles/uk-dental-medicines-advice-service-ukdmas/](http://www.sps.nhs.uk/articles/uk-dental-medicines-advice-service-ukdmas/)  | See the Specialist Pharmacy Services page [UK Dental Medicines Advice Service (UKDMAS)](https://www.sps.nhs.uk/articles/uk-dental-medicines-advice-service-ukdmas/)for background, links to dental Medicines Q&As and details of information required before contacting the centre. |
| Bibliographic databases e.g. Medline, Embase, Pubmed. Cochrane Library. [www.cochranelibrary.com/](http://www.cochranelibrary.com/) | Suggested terms: DENTISTRY-OPERATIVE = dental procedures e.g. extractions (TOOTH EXTRACTION), ROOT CANAL THERAPY, DENTAL MATERIALS = impression materials, filling materials, cements, toothpastes, DENTAL CARIES, DENTIFRICES = toothpastes, CARTRIDGES-DENTAL, DENTAL ALLOYS = mercury amalgam fillings, TOOTH DISEASES, TOOTH EXTRACTION, PERIODONTAL DISEASES including GINGIVITIS, PERIODONTITIS, MOUTH DISEASES including TOOTH DISEASES, TASTE DISORDERS, GLOSSITIS, XEROSTOMIA = dry mouth, ANAESTHESIA-DENTAL, ANAESTHESIA-LOCAL, ANAESTHETICS-LOCAL, and PROPHYLAXIS, for endocarditis enquiries.  |
| Trip Database. John Brassey (editor). [www.tripdatabase.com/](http://www.tripdatabase.com/) | Clinical search engine to find high-quality research evidence. Can register for free for additional functionality. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Local resources**  |
|  |  |

#### Answering the enquiry

* Dentists see patients who may be taking a lot of medicines due to medical conditions and usually have no other resource than the BNF.
* All dental procedures undertaken in primary care can be classed as minor surgical procedures (even if the dentist thinks they are major for them!). This has implications when considering choice of prophylaxis, analgesia, management of patients on corticosteroids etc. Use the analogy: insertion of joint prosthesis (major) vs. two or more tooth extractions (minor).

#### Keywords**:** Use the drug name where appropriate. Other useful keywords include; OPERATIVE DENTISTRY, ROOT CANAL THERAPY, DENTAL MATERIALS, DENTAL CARIES, DENTIFRICES, DENTAL ALLOYS, ENDOCARDITIS-BACTERIAL, TOOTH DISEASES, TOOTH EXTRACTION, PERIODONTAL DISEASES, GINGIVITIS, PERIODONTITIS, MOUTH DISEASES, TOOTH DISEASES, TASTE DISORDERS, GLOSSITIS, XEROSTOMIA, ANESTHESIA-DENTAL, ANESTHESIA-LOCAL, ANESTHETICS-LOCAL.

# Drug shortages

#### Background information

* How did the enquirer hear about the shortage (or availability) issue?
* Have they confirmed the shortage with the manufacturer(s) or any other official source? Are generics available?
* What strength and formulation are they trying to source?
* What is the indication for use?
* If patient specific: have they run out? When will they run out? Supply may resume before they run out.
* If not patient specific, what is the enquirer going to use the information for? Will it be a population switch?
* What alternative options have they considered if there is a national shortage?

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources** |
| In-house past enquiries. | The information may be out of date or not consistent with current medicine supply alerts, but provide useful ideas for how to deal with the shortage.Search for the brand name in the text field.Search using the relevant drug name (or variation) as the keyword.Search using keyword ‘Drug Supply’. |
| Medicines supply and shortages updates from Department of Health & Social Care via [www.sps.nhs.uk](http://www.sps.nhs.uk) Note: you need to [sign in](https://www.sps.nhs.uk/wp/wp-login.php?redirect_to=https%3A%2F%2Fwww.sps.nhs.uk%2F)  | Access [medicines supply tool](https://www.sps.nhs.uk/home/planning/medicines-supply-tool/) for latest information on supply issues, actions to take, alternatives to use, and expected resolution dates. **Note:** For Supply Disruption Alerts see MHRA below. Or, search drug name and filter by ‘Guidance - Supply’. |
| Supply Disruption Alerts (SDAs). MHRA: Medicines & Healthcare Regulatory Agency. Central Alerting System. [www.cas.mhra.gov.uk](http://www.cas.mhra.gov.uk)  | For DHSC & NHS England and Improvement: Supply disruption alerts.To search for an alert go to: [www.cas.mhra.gov.uk/SearchAlerts.aspx](http://www.cas.mhra.gov.uk/SearchAlerts.aspx) Select dates you want to search between, and originator ‘DHSC & NHS England and Improvement: Supply disruption alert’.Other alerts and other important public health messages issued via this web based cascading system include: drug alerts, device alerts and FMD alerts. |
| Serious Shortage Protocols (SSPs). NHSBA <https://www.nhsbsa.nhs.uk/pharmacies-gp-practices-and-appliance-contractors/serious-shortage-protocols-ssps>  | Issued by Department of Health and Social Care (England), check for each SSP individually, if valid in other Home Countries. |

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| --- | --- |
| [A Guide to Managing Medicines Supply and Shortages](https://www.england.nhs.uk/publication/a-guide-to-managing-medicines-supply-and-shortages/)NHS England.[www.england.nhs.uk](http://www.england.nhs.uk)  | This guide aims to support pharmacists, clinicians and other NHS professionals with managing the supply of medicines to their patients and details the national, regional and local management and escalation processes and communication routes for medicines supply issues in order to consolidate existing practice across industry, government and the NHS. |
| MIMS. Monthly Index of Medical Specialities. Haymarket Media Group. [www.mims.co.uk/](http://www.mims.co.uk/). | Click on ‘Shortages – Live Tracker’ or go to [www.mims.co.uk/drug-shortages-live-tracker/article/1581516](http://www.mims.co.uk/drug-shortages-live-tracker/article/1581516)Type name of a product into the search box to find details of a specific shortage. |
| Ophthalmic products: Medicines Safety. The Royal College of Ophthalmologists<https://www.rcophth.ac.uk/standards-publications-research/quality-and-safety/medicines-safety/>  | Has links to shortage updates and special order products |
| Pharmaceutical manufacturers. | Contact the manufacturer to confirm a supply problem and likely resolution date if the above resources do not provide this information. If shortage is confirmed, and an alternative is to be recommended, consider contacting manufacturer of that to confirm availability.**NOTE**: see QRMG guidance ‘[How to Use Pharmaceutical Industry Medical Information Services](https://www.sps.nhs.uk/wp-content/uploads/2017/01/HowToUsePharma-MI-_PIPA-Final-September-2018.docx)’.  |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Local resources**  |
| NHS trust pharmacy procurement/purchasing team | NHS trust pharmacy procurement teams are responsible for managing any supply disruptions in their Trust in accordance with local policy and for working closely with Regional Pharmacy Procurement Specialists. |

#### Answering the enquiry

* Depends on level of information required from superficial availability information to requests for alternative agents.
* State when the drug shortage is expected to be resolved and what formulations/strengths are affected.
* When recommending alternatives, consider their UK licence status.
* If advising switching to a different formulation, consider the practicalities of dose administration, additional monitoring and duration for additional monitoring.
* If advising to switch to a different drug, consider the practicalities of dose administration, additional monitoring and duration for additional monitoring, and any other considerations such as drug interactions, washout, missing the next dose or substituting it.
* Consider including information and advice on switching back to the original drug/product once the drug supplies have resumed.

#### Keywords: Include drug names and DRUG SUPPLY

# Drug use in hepatic impairment

#### Background information

* Clinical condition of the patient, age, sex, previous medical history if relevant.
* Do they have a liver diagnosis?
* Cause of liver disease or liver dysfunction (e.g. hepatocellular injury, cirrhosis, hepatitis, fibrosis, cholestasis) and is it acute or chronic.
* Symptoms (e.g. ascites, jaundice, varices, encephalopathy), extent and severity.
* Liver function tests (bilirubin, alkaline phosphatase, ALT, AST, GGT) – most recent ones if possible. Are they stable or changing?
* What are the most recent albumin levels?
* What is the most recent INR/prothrombin time for clotting?
* Results of immunological/virological screens (e.g. hepatitis) and other tests (e.g. biopsies, Child-Pugh score in cirrhosis).
* What is the current medication including doses and any changes/short courses in the last three months (e.g. antibiotics)? Is the patient taking any other medicines, including complementary, non-prescription and illicit medicines?
* Ask about renal function. Multi-organ failure often co-exists but enquirers often forget to mention this.
* If requesting advice on dosage or suitability of a drug in hepatic dysfunction, what is the indication for the drug and have alternatives been considered? What agent would normally be used if the patient did not have liver dysfunction? Have alternatives been considered?
* Is it suspected that hepatic impairment is drug-induced? Is the patient still taking the drug? Ask about dose, frequency and duration of treatment of the suspected drug, timescales, type of liver injury, how patient has been managed, which other drugs are being taken or were taken recently, and could there be another cause?

*If the hepatic impairment is suspected to be drug-related, refer to the ‘*[Adverse drug reactions'](#Adverse) *enquiry answering* guideline*.*

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources** |
| In-house past enquiries. |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk](http://www.sps.nhs.uk)  | Use search term ‘liver’ and/or filter using the drug name, to see relevant articles, which include:* [[What pharmacokinetic and pharmacodynamic factors need to be considered when prescribing drugs for patients with liver disease?](https://www.sps.nhs.uk/articles/what-pharmacokinetic-and-pharmacodynamic-factors-need-to-be-considered-when-prescribing-drugs-for-patients-with-liver-disease-2/)](https://www.sps.nhs.uk/articles/what-pharmacokinetic-and-pharmacodynamic-factors-need-to-be-considered-when-prescribing-drugs-for-patients-with-liver-disease-2/)
* [Why is the adverse effect profile of a drug relevant when prescribing for patients with liver disease?](https://www.sps.nhs.uk/articles/why-is-the-adverse-effect-profile-of-a-drug-relevant-when-prescribing-for-patients-with-liver-disease/)
* [What is the Child-Pugh score?](https://www.sps.nhs.uk/articles/what-is-the-child-pugh-score/)
 |
| British National Formulary. BMA and RPS. [bnf.nice.org.uk/](https://bnf.nice.org.uk/) | Use this as an initial source but remember minimal information is included and it is inadequate as a sole reference source. NOTE: The absence of information does not imply safety.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Electronic Medicines Compendium (eMC). DataPharm Communications. [www.medicines.org.uk/emc](http://www.medicines.org.uk/emc) | SPCs may give advice on the need to reduce doses in hepatic impairment. The ‘pharmacokinetics’ and ‘undesirable effects’ sections may also be useful. See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| MHRA: Medicines & Healthcare Regulatory Agency. SPCs and PILs can be directly accessed via: <https://products.mhra.gov.uk> |
| Martindale, the Complete Drug Reference. Brayfield, A. Pharmaceutical Press. [www.medicinescomplete.com](http://www.medicinescomplete.com/) | See chapter on ‘Liver injury (hepatotoxicity)’ and the ‘Adverse Effects’ section of individual monographs. |
| AHFS Drug Information. McEvoy GK. American Society of Health-System Pharmacists. [www.medicinescomplete.com](http://www.medicinescomplete.com/) | Where relevant, individual monographs have a ‘Hepatic Effects’ section. |
| LiverTox. Specialist branches of NIDDK and NLM. [www.ncbi.nlm.nih.gov/books/NBK547852/](http://www.ncbi.nlm.nih.gov/books/NBK547852/)  | This joint venture between the Liver Disease Research Branch of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) and the National Library of Medicine’s (NLM) National Institutes of Health provides up-to-date information on diagnosis, cause, frequency, clinical patterns and management of liver injury attributable to prescription and non-prescription medications, herbal and dietary supplements.  |
| Drugs and the Liver. A guide to drug handling in liver dysfunction. North-Lewis P. Pharmaceutical Press. | Covers background information on liver function, the principles of drug use in liver disease and worked examples of common questions. |
| NICE. National Institute for Health and Care Excellence. [www.nice.org.uk](http://www.nice.org.uk)  | The full list of NICE products on liver disease can be accessed here: [www.nice.org.uk/guidance/conditions-and-diseases/liver-conditions/chronic-liver-disease](http://www.nice.org.uk/guidance/conditions-and-diseases/liver-conditions/chronic-liver-disease) |
| Bibliographic databases e.g. Medline, Embase, Pubmed. Cochrane Library. [www.cochranelibrary.com/](http://www.cochranelibrary.com/) | If no information can be found in standard resources on using a drug in a specific type of liver disease, consider conducting a literature search for relevant papers. This should be done before using pharmacokinetic/pharmacodynamic data to predict drug handling from first principles.Suggested terms: LIVER DISEASES, BILIARY TRACT DISEASES, LIVER-TOXICITY, HEPATITIS-TOXIC, CHOLESTASIS, HEPATITIS, LIVER FUNCTION-IMPAIRED, (NOTE: take care if using “LIVER DISEASES” - may not include some cholestatic conditions) |
| Pharmaceutical manufacturers. | May have information about any reduction of doses which may be necessary in hepatic impairment. May have relevant pharmacokinetic details if working from first principles.**NOTE**: see QRMG guidance ‘[How to Use Pharmaceutical Industry Medical Information Services](https://www.sps.nhs.uk/wp-content/uploads/2017/01/HowToUsePharma-MI-_PIPA-Final-September-2018.docx)’.  |
| Pharmacology textbooks. | Generally have a brief description of causes and background to liver disease. |
| Patient UK. Patient Information Publications / Egton Medical Information Systems. [www.patient.co.uk](http://www.patient.co.uk)  | The professional reference article [Abnormal Liver Function Tests](https://patient.info/doctor/abnormal-liver-function-tests) covers common liver investigations, interpretation of abnormal liver function tests and management plans. |
| The Merck Manual of Diagnosis and Treatment. Berkow, R et al. Merck and *Co.* [www.merckmanuals.com/professional/index.html](http://www.merckmanuals.com/professional/index.html) | Useful topics include [Laboratory Tests of the Liver and Gallbladder](https://www.msdmanuals.com/professional/hepatic-and-biliary-disorders/testing-for-hepatic-and-biliary-disorders/laboratory-tests-of-the-liver-and-gallbladder?query=hepatic%20impairment) and [Liver Injury Caused by Drugs](https://www.msdmanuals.com/professional/hepatic-and-biliary-disorders/drugs-and-the-liver/liver-injury-caused-by-drugs?query=liver%20injury%20caused%20by%20drugs). |
| Trip Database. John Brassey (editor). [www.tripdatabase.com/](http://www.tripdatabase.com/) | Clinical search engine to find high-quality research evidence. Can register for free for additional functionality. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Additional resources (tailor to local use/availability)** |
| Drugdex Database. IBM Corporation (USA). [www.micromedexsolutions.com](http://www.micromedexsolutions.com) | Where relevant, in-depth monographs have a 'dosage in hepatic insufficiency' section with links to more general drug consults e.g. ACE inhibitor-induced hepatotoxicity. Also useful for pharmacokinetic and adverse effect data.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Lexi-Comp. Lexi-Comp Inc. (USA). <https://online.lexi.com/lco/action/home> |  |
| Meyler’s Side Effects of Drugs. Dukes and Aronson. | For information on drug-induced hepatic injury. |
| Goodman and Gilman’s Pharmacological Basis of Therapeutics. Brunton L et al. McGraw Hill. | Has information about drug metabolism and hepatic effects. |
| Applied Therapeutics (Koda Kimble and Young): The Clinical Use of Drugs. Zeind CS, Carvalho MG. Lippincott, Williams & Wilkins.  | There is a section listing drugs reported to cause clinically significant hepatotoxicity and the likely mechanism. |
| Clinical Pharmacy and Therapeutics. Whittlesea C & Hodson K. Elsevier.  | Has information about adverse effects of drugs on the liver |
| Oxford Handbook of Clinical and Laboratory Investigation. Provan D, et al. Oxford University Press. |  |
| **Local resources**  |
| Nearest hospital with a liver unit  | For a practical approach to managing patients with hepatic disease, contact the pharmacy department of your nearest liver unit. |

#### Answering the enquiry

* The following factors should be considered when deciding on an optimum drug treatment for a patient with liver disease:
* Type, extent and severity of liver disease
* Pharmacokinetics and pharmacodynamics of the drug
* Adverse reactions of the drug
* Patient specific factors e.g. age, comorbidities, severity of the condition being treated, concomitant medications
* In patients with hepatic dysfunction, avoid hepatotoxic drugs where possible. Patients with existing hepatic disease may not necessarily be more prone to hepatotoxicity (unless it is dose-related), but they have diminished reserve hepatic function and may suffer disproportionately if hepatotoxicity does occur. Drug hepatotoxicity on top of existing liver disease and even clinically insignificant and/or transient changes in LFTs may confuse the diagnostic picture.
* For drugs metabolised by the liver, be alert to signs of drug side effects, know what they are and monitor for them. Monitor drug levels where appropriate.
* Non-systemic treatments should be chosen where possible. Renally excreted drugs are also preferred as long as renal function is normal. Monitor for any changes in renal function.
* Drugs that increase risk of bleeding should be avoided or used with extreme caution, depending on the severity of liver disease.
* Drugs that are highly dependent on the liver for deactivation or clearance are likely to need dose reduction in moderate to severe liver disease.
* Avoid sedating drugs in patients at risk of developing encephalopathy. Many of these drugs have long half-lives and are metabolised by the liver so their duration and intensity of action may be prolonged. The brain also becomes more sensitive to sedating effects in liver disease. A sedative drug may precipitate or mask encephalopathy.
* The doses of highly protein-bound drugs may need reducing in patients with low albumin levels due to chronic liver disease.
* Drug prescribing should be kept to a minimum – use the smallest effective doses at the greatest interval, and titrate according to clinical response.

#### Keywords: Include drug names and LIVER and LIVER FUNCTION-IMPAIRED or LIVER DISEASES. Also consider LIVER FUNCTION TESETS if appropriate.

# Pharmaceutical identification

##### 1. Tablet or capsule identification

#### Background information

* Who is the enquirer and why are they requesting this information? Consider any legal or ethical issues – is it appropriate for you to answer this enquiry?
* Describe the form, markings, colour, shape, size and weight (if available).
* What is the likely therapeutic indication?
* What is the likely country of origin?
* Is the preparation thought to be prescription/ herbal / illicit?
* Can a photograph of the preparation be provided?

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources**  |
| Electronic Medicines Compendium (eMC). DataPharm Communications. [www.medicines.org.uk/emc](http://www.medicines.org.uk/emc) | SPCs describe products in the ‘Pharmaceutical form’ section. To search the whole databases go to ‘advanced search’, then search documents by ‘SmPC section’. Select section ‘3 Pharmaceutical form’ and enter letters, numbers, colour etc. This will not help with generic products unless they are branded generics.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| MHRA: Medicines & Healthcare Regulatory Agency. SPCs and PILs can be directly accessed via: <https://products.mhra.gov.uk> |
| Pharmaceutical manufacturer. | If logo or marking suggests a particular company. **NOTE**: see QRMG guidance ‘[How to Use Pharmaceutical Industry Medical Information Services](https://www.sps.nhs.uk/wp-content/uploads/2017/01/HowToUsePharma-MI-_PIPA-Final-September-2018.docx)’.  |
| TICTAC | Free for Regional Medicines Information Centres. Some A&E units also have access to this. If a particular logo is difficult to describe suggest the enquirer faxes/emails a drawing/photo with the drug placed next to a ruler for true-to-size measurement. For products with few distinguishing features, an accurate weight and measurement of dimensions might help.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| MIMS. Monthly Index of Medical Specialities. Haymarket Media Group. [www.mims.co.uk/](http://www.mims.co.uk/). | Click on ‘MIMS’ then type name in the ‘MIMS search’ box. Lists all of the products featured in the MIMS reference book and gives detailed descriptions of each product including tablet appearance. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Local resources**  |
|  |  |

#### Answering the enquiry

* If a TICTAC search gives a range of hits, highlight the fact that the only definitive way of identifying the preparation is to analyse it.
* Many of these enquiries involve a third party which may raise ethical questions. Refer to UKMi guidance on legal and ethical issues: [www.sps.nhs.uk/articles/ukmi-guidance-on-legal-and-ethical-issues/](http://www.sps.nhs.uk/articles/ukmi-guidance-on-legal-and-ethical-issues/).
* Girls under 16 years do not need parental consent for contraception – see [What ethical and legal issues do I need to consider when arranging contraception for a girl who is under 16 years of age?](https://cks.nice.org.uk/contraception-assessment#!scenarioRecommendation:5)
* If an enquirer is concerned that their child is taking illicit drugs, you can refer them to [www.talktofrank.com/worried-about-a-child](http://www.talktofrank.com/worried-about-a-child) or 0300 1236600. There is a parent section on the website which gives advice on how to broach the subject with their children, as well as information about drugs.
* There is general guidance on ‘street’ drugs as well as photographs found on [www.talktofrank.com/drugs-a-z](http://www.talktofrank.com/drugs-a-z).
* Some other points to consider if illicit drugs are suspected;
* Tablets may be embossed.
* Any emboss is typically a picture or symbol, rather than words or numbers.
* Often the tablet is crude with a texture like “extra strong mints”.
* Tablets are unlikely to be smooth and pure white.
* They are never in strip packs.
* Street drugs are never coated.

##### 2. Foreign drug identification

#### Background information

* Who is the enquirer and why are they requesting this information?
* What is the trade / generic / chemical name including spelling? Where has the enquirer found this information e.g. from packaging, dispensing label or from memory?
* What is the likely country of origin?
* Is the manufacturer known?
* Describe the form, markings, colour, shape, size and weight.
* What is the dose, strength and likely indication?

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources**  |
| Martindale, the Complete Drug Reference. Brayfield, A. Pharmaceutical Press. [www.medicinescomplete.com](http://www.medicinescomplete.com) | Search by preparation name, if known.To see a list of preparations available:* In a particular country select “[Preparations](https://www.medicinescomplete.com/#/browse/martindale/preparations)” then ‘[By Country](https://www.medicinescomplete.com/#/browse/martindale/preparations?selSwitch=by-country&selGroup=group-GroupingType(By%20Country,country)-ViewAll), and then relevant country.
* From a particular manufacturer, select “[Preparations](https://www.medicinescomplete.com/#/browse/martindale/preparations)” then ‘[By Manufacturer](https://www.medicinescomplete.com/#/browse/martindale/preparations?selSwitch=by-manufacturer), and manufacturer name.
 |
| Pill Identifier [www.drugs.com/imprints.php](http://www.drugs.com/imprints.php)Cerner Multum.  | For US products. See ‘[pill logo identification](http://www.drugs.com/pill-logo-identification.html)’ page for images of imprints commonly used by some manufacturers. |

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| Google search engine. [www.google.co.uk](http://www.google.co.uk)  | Search the distinguishing features of the medication.**Note:** See QRMG Guidance: [Internet Searching for Medicines Information staff](https://www.sps.nhs.uk/wp-content/uploads/2016/10/Internet-Searching-2.0.pdf) for information and advice on best use of the internet and internet-based search tools for enquiry answering in Medicines Information. |
| Bibliographic databases e.g. Medline, Embase, Pubmed. Cochrane Library. [www.cochranelibrary.com/](http://www.cochranelibrary.com/) | Suggested terms: known spelling of drug name or use truncation/wild cards if partial name known. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Additional resources (tailor to local use/availability)** |
| TICTAC | Free to Regional Medicines Information Centres. Can select option to search American products only: select ‘product’ tab then ‘American drugs’. |
| Drugdex Database. IBM Corporation (USA). [www.micromedexsolutions.com](http://www.micromedexsolutions.com) | Select ‘Drug ID’ to search by ‘imprint code’ or by description.For US products.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Royal Pharmaceutical Society database. [www.rpharms.com/resources/quick-reference-guides/identification-of-foreign-medicines](http://www.rpharms.com/resources/quick-reference-guides/identification-of-foreign-medicines) or on 0207 572 2737. (available only to members) | RPS Support has collated a list of websites to help identify foreign medicines from a number of countries. They also hold a collection of foreign medicine literature that complements the catalogue of websites.  |
| **Local resources**  |
|  |  |

#### Answering the enquiry

* Bear in mind that the drug/brand name may be spelt incorrectly.
* If you cannot identify the product from the available information, advise enquirer to check details or contact original prescriber.

##### 3. Investigational drugs

*Refer to ‘*[*New Products*](#_New_products)*’ enquiry answering guideline.*

# Immunisation

#### Background information

* Establish the situation the question relates to. Is it a general question about the UK immunisation schedule or is the question regarding the management of a specific patient?
* Does the question relate to routine childhood immunisation, vaccination for high-risk groups or travel vaccination? For travel medicine, see the ‘[*Travel Medicine*](#travek)*’* enquiry answering guideline.
* For questions relating to a specific patient establish age, vaccination history including dates, medical and medication history and allergy status (including food allergies). If an allergy is reported, did this involve anaphylaxis? Has the patient suffered adverse reactions to vaccinations in the past? Is the patient pregnant or breastfeeding (see also the Pregnancy and Drugs in Breastfeeding enquiry answering guidelines)?
* To answer questions about the safety of vaccines given in error, establish exactly what vaccine(s) has been given, including brand name if possible, and when.

*For enquiries about presence of animal products or other excipients in vaccines see ‘*[*Enquiries about pharmaceutical excipients*](#_Enquiries_about_pharmaceutical)*’ enquiry answering guideline. For travel related immunisation enquiries see the ‘*[*Travel Medicine’*](#travek) *enquiry answering guideline.*

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources** |
| In-house past enquiries. |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk](http://www.sps.nhs.uk)   | Enter disease name e.g. diphtheria in search box, or use search terms ‘vaccine’ or ‘immunisation’ to see relevant articles, which include:* [Can small volume intramuscular injections be given to patients taking oral anticoagulants?](https://www.sps.nhs.uk/articles/can-small-volume-intramuscular-injections-be-given-to-patients-taking-oral-anticoagulants-2/)
 |
| Electronic Medicines Compendium (eMC). DataPharm Communications. [www.medicines.org.uk/emc](http://www.medicines.org.uk/emc) | For product information about individual vaccines. **NOTE**: Dosage schedules may differ from those recommended nationally by specialists.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| MHRA: Medicines & Healthcare Regulatory Agency. SPCs and PILs can be directly accessed via: <https://products.mhra.gov.uk> |
| British National Formulary. BMA and RPS. [bnf.nice.org.uk/](https://bnf.nice.org.uk/)British National Formulary-for Children. BMA, RPSGB, RCPCH and NPPG. [bnfc.nice.org.uk](https://bnfc.nice.org.uk/) | Chapter 14 provides information on vaccines and immunisation. Note that the vaccine schedules in the BNF may be out of date. See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Public Health England. [www.gov.uk/government/organisations/public-health-england](http://www.gov.uk/government/organisations/public-health-england)  | This website includes information on the incidence of cases of infectious diseases and links to UK guidelines. From the home page, click on ‘Health Protection A-Z’ at the top right of the screen, then infectious diseases and then select the vaccine or disease you are interested in. |

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| Public Health England Immunisation website. [www.gov.uk/government/collections/immunisation](http://www.gov.uk/government/collections/immunisation)  | There are links to relevant documents such as:* Joint letters from the Department of Health, Public Health England and NHS England
* [Vaccine Update](https://www.gov.uk/government/collections/vaccine-update) - a regular newsletter health professionals and immunisation practitioners describing the latest developments in vaccines, and vaccination policies and procedures (including ordering and supply). An index of topics is available [here](https://www.healthpublications.gov.uk/ViewArticle.html?sp=Svaccineupdateindex). Note: always refer to the most recent advice.
* Current immunisation schedules:
* [Complete routine immunisation schedule](https://www.gov.uk/government/publications/the-complete-routine-immunisation-schedule)
* [Routine childhood immunisation schedule](https://www.gov.uk/government/publications/routine-childhood-immunisation-schedule)
* [Vaccination of individuals with uncertain or incomplete immunisation status](https://www.gov.uk/government/publications/vaccination-of-individuals-with-uncertain-or-incomplete-immunisation-status)
* [Vaccine incident guidance: responding to vaccine errors](https://www.gov.uk/government/publications/vaccine-incident-guidance-responding-to-vaccine-errors) – provides guidance on investigation and management of vaccine storage or administration incidents.
 |
| Vaccine Incident Guidance: Actions to take in response to vaccine errors. Health Protection Scotland. [www.hps.scot.nhs.uk/web-resources-container/vaccine-incident-guidance-actions-to-take-in-response-to-vaccine-errors/](http://www.hps.scot.nhs.uk/web-resources-container/vaccine-incident-guidance-actions-to-take-in-response-to-vaccine-errors/) | Provides guidance on investigation and management of vaccine storage or administration incidents. |
| Immunisation against Infectious Disease – otherwise known as the ‘Green Book’. [www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book](http://www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book)  | Comprehensive resource published by Public Health England, providing information about diseases and vaccines, including advice on cautions and contraindications.Use in preference to any other source, for example, the SPC; which may contain conflicting information.Note: Always check that you are looking at the most up to date version of the chapter you want. Be careful not to use chapter update patches or old chapters.  |
| NICE. National Institute for Health and Care Excellence. [www.nice.org.uk](http://www.nice.org.uk)  | The full list of NICE products on immunisation can be accessed here: [www.nice.org.uk/guidance/health-protection/communicable-diseases/immunisation](http://www.nice.org.uk/guidance/health-protection/communicable-diseases/immunisation) |
| Medical information, vaccine manufacturers. | Vaccine manufacturers may be able to answer questions relating to use of their vaccines. For information outside of the SPC ask for ‘data on file’.**NOTE**: see QRMG guidance ‘[How to Use Pharmaceutical Industry Medical Information Services](https://www.sps.nhs.uk/wp-content/uploads/2017/01/HowToUsePharma-MI-_PIPA-Final-September-2018.docx)’.  |
| Bibliographic databases e.g. Medline, Embase, Pubmed. Cochrane Library. [www.cochranelibrary.com/](http://www.cochranelibrary.com/) | Suggested terms: IMMUNISATION, IMMUNISATION PROGRAMMES, IMMUNISATION SCHEDULE, VACCINES, name of vaccine, VACCINATION, MASS-IMMUNISATION. |
| Trip Database. John Brassey (editor). [www.tripdatabase.com/](http://www.tripdatabase.com/) | Clinical search engine to find high-quality research evidence. Can register for free for additional functionality. |

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| --- | --- |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Local resources**  |
|  |  |

#### Answering the enquiry

* NOTE: Always ensure you are using up-to-date resources as changes to vaccines schedules and catch-up programmes may not be included in current editions of printed resources.
* Reassure callers that having an extra dose of a vaccine is not usually a cause for concern. Many preparations are formulated with multiple vaccines and it is inevitable that some patients will receive doses of vaccines they do not require. The most likely adverse effect in this situation is irritation at the site of injection.
* Be aware of the difference between live and inactivated vaccines. Live vaccines can, in some situations, cause severe or fatal infections in immunosuppressed individuals due to extensive replication of the vaccine strain.
* Consider the risk/benefit of vaccination. Unless there is a reliable vaccine history, individuals should be assumed to be unimmunised and a full course of immunisations planned. See: [Vaccination of individuals with uncertain or incomplete immunisation status](https://www.gov.uk/government/publications/vaccination-of-individuals-with-uncertain-or-incomplete-immunisation-status)

#### Keywords: IMMUNISATION, name of vaccine, name of disease

# Interactions

#### Background information

* Establish patient details, including age, sex etc.
* Consider whether the interaction is drug-drug, drug-food, drug-test or drug-disease.
* Which drugs are being taken by the patient already? How long have they been taken and what are the indications?
* Has the enquirer read about the interaction or has it been flagged by a prescribing or dispensing system? If so where/which system?
* If the patient is already taking both drugs, have any problems been identified or investigated? Ask for details of any suspected interaction (e.g. symptoms, lack of effect, timescales of starting drugs, any action already taken).
* If there is an interaction, is there any reason why alternatives can’t be used?
* What is the patient’s liver and renal function?
* Is the patient taking any other medicines, including complementary, non-prescription and illicit medicines?
* If any ongoing or future monitoring is required, who would do this?

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources** |
| In-house past enquiries. |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk](http://www.sps.nhs.uk) | Search ‘interaction’ and/or filter using the drug name to see relevant articles, which include:* [What is the clinical significance of the interaction between methotrexate and penicillins?](https://www.sps.nhs.uk/articles/what-is-the-clinical-significance-of-the-interaction-between-methotrexate-and-penicillins/)
* [Is there an interaction between erythromycin and statins?](https://www.sps.nhs.uk/articles/is-there-an-interaction-between-erythromycin-and-statins-2/)
* [Is there an interaction between bisphosphonates and proton pump inhibitors?](https://www.sps.nhs.uk/articles/is-there-an-interaction-between-bisphosphonates-and-proton-pump-inhibitors-2/)
* [Is there an interaction between warfarin and proton pump inhibitors?](https://www.sps.nhs.uk/articles/is-there-an-interaction-between-warfarin-and-proton-pump-inhibitors-2/)
* [Do proton pump inhibitors reduce the clinical efficacy of clopidogrel?](https://www.sps.nhs.uk/articles/do-proton-pump-inhibitors-reduce-the-clinical-efficacy-of-clopidogrel-2/)
* [What are the clinically significant drug interactions with cigarette smoking?](https://www.sps.nhs.uk/articles/what-are-the-clinically-significant-drug-interactions-with-cigarette-smoking/)
* [Tamoxifen and SSRI or SNRI antidepressants – is there an interaction?](https://www.sps.nhs.uk/articles/tamoxifen-and-ssri-or-snri-antidepressants-is-there-an-interaction/)
* [Triptans and SSRI or SNRI antidepressants – is there an interaction?](https://www.sps.nhs.uk/articles/triptans-and-ssri-or-snri-antidepressants-is-there-an-interaction/%22%20%5Co%20%22Triptans%20and%20SSRI%20or%20SNRI%20antidepressants%20%E2%80%93%20is%20there%20an%20interaction)
* [What is the risk of interaction between opioids and monoamine oxidase inhibitors (MAOIs)?](https://www.sps.nhs.uk/articles/what-is-the-risk-of-interaction-between-opioids-and-monoamine-oxidase-inhibitors-maois/)
* [What issues should be considered regarding drug induced QT prolongation?](https://www.sps.nhs.uk/articles/what-issues-should-be-considered-regarding-drug-induced-qt-prolongation/)
* [Chondroitin – what are its drug interactions?](https://www.sps.nhs.uk/articles/chondroitin-d-drug-interactions/)
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| British National Formulary. BMA and RPS. [bnf.nice.org.uk/](https://bnf.nice.org.uk/)British National Formulary-for Children. BMA, RPSGB, RCPCH and NPPG. [bnfc.nice.org.uk](https://bnfc.nice.org.uk/) | Appendix 1 in the paper BNF and BNFc. In the electronic BNF, click on the ‘[interactions](https://bnf.nice.org.uk/interaction/)’ tab and then select drug name from the ‘A to Z’ list. The severity of an interaction is stated (mild, moderate, severe or unknown) and the level of evidence for the interaction is indicated (study, theoretical or anecdotal). Clinically significant interactions are shaded in pink. Consider significance for your patient even if the BNF doesn’t rate the significance highly. For further information on how interactions information is presented see: [www.bnf.org/new-bnf-interactions/](http://www.bnf.org/new-bnf-interactions/) See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Electronic Medicines Compendium (eMC). DataPharm Communications. [www.medicines.org.uk/emc](http://www.medicines.org.uk/emc)  | Section 4.5 of an SPC specifically relates to interactions but also check contraindications and precautions and special warnings. Interactions listed can be theoretical; manufacturer may clarify.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| MHRA: Medicines & Healthcare Regulatory Agency. SPCs and PILs can be directly accessed via: <https://products.mhra.gov.uk> |
| Stockley’s Drug Interactions. Preston CL. Pharmaceutical Press. [www.medicinescomplete.com](http://www.medicinescomplete.com) | Search by putting both potentially interacting drugs in the search box. If you get no hits try using a broader term – see grey box at the top of the screen.See ‘[General considerations and mechanisms](https://www.medicinescomplete.com/#/browse/stockley/generalConsiderationsAndMechanisms)’ for an overview of the different mechanisms by which interactions can occur.Tables listing the main drugs responsible for clinically relevant inhibition of several cytochrome P450 enzymes can be accessed via the ‘Drug metabolism interactions’ section. **Note**: Should be used in conjunction with Stockley’s Interactions Checker. |
| Stockley’s Interactions Checker (Stockley’s Interactions Alerts). Preston CL. Pharmaceutical Press. [www.medicinescomplete.com](http://www.medicinescomplete.com) | Included as part of the Stockley’s online subscription. **Note**: Should be used in conjunction with Stockley’s Drug Interactions Database. To access, select the ‘Drug Interactions’ tab (not available through the dashboard). |
| AHFS Drug Information. McEvoy GK. American Society of Health-System Pharmacists. [www.medicinescomplete.com](http://www.medicinescomplete.com) | Each drug monograph includes referenced information on interactions. |
| Medscape drug interaction checker. Medscape. [www.medscape.com/druginfo/druginterchecker](http://www.medscape.com/druginfo/druginterchecker) Free registration required. |  Registration required. |

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| Drugs.com interactions checker. Cerner Multum. [www.drugs.com/drug\_interactions.html](http://www.drugs.com/drug_interactions.html)  |  |
| Transformer website (Cytochrome P450 database). Institute for physiology; Structural Bioinformatics Group, Berlin. <http://bioinformatics.charite.de/transformer/> | To be used only as a supplementary resource. Clinical significance of the interactions is not identified.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Cytochrome P450 Drug Interaction table. Flockhart DA. Indiana University School of Medicine. <https://drug-interactions.medicine.iu.edu/MainTable.aspx> | May not be exhaustive.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| CredibleMeds (QT prolongation). [www.crediblemeds.org/](http://www.crediblemeds.org/) US education organisation, Azcert. Free registration required.  | A list of drugs that prolong QT interval and/or induce TdP drugs are categorised into those that: * are considered to carry a risk of TdP.
* prolong QT interval and/or have been associated with TdP, but at this time lack substantial evidence for causing TdP.
* carry a risk of TdP and/or QT prolongation under certain conditions, such as patients with congenital long QT syndrome, drug overdose or co-administration of interacting drugs.
 |
| HIV drug interactions. University of Liverpool, UK. [www.hiv-druginteractions.org/](http://www.hiv-druginteractions.org/) | Comprehensive evidence-based tables of drug interactions between the HIV drugs or key interactions between Protease Inhibitors, NNRTIs, NRTIs, or Entry/Integrase Inhibitors and other drugs that may be prescribed to the HIV+ patient.**NOTE:** some UK licensed products may be listed under a different brand namne. |
| Hepatitis antiviral medicines. University of Liverpool, UK. [www.hep-druginteractions.org/](http://www.hep-druginteractions.org/)  | Comprehensive drug-drug interaction resource for antiviral drugs used for hepatitis and other medicines. |
| Cancer Drug Interactions. Radboud University Medical Centre, Netherlands and University of Liverpool, UK. <http://cancer-druginteractions.org/checker> | Comprehensive drug-drug interaction resource for anti-cancer agents and other medicines. |
| The Aspergillus Website. *Graham Atherton* (editor) National Aspergillosis Centre and Univesity of Manchester*.* [www.aspergillus.org.uk/content/antifungal-drug-interactions](http://www.aspergillus.org.uk/content/antifungal-drug-interactions) | Comprehensive drug-drug interaction resource for anti-fungal agents and other medicines. Website also contains patient appropriate content.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Bibliographic databases e.g. Medline, Embase, Pubmed. Cochrane Library. [www.cochranelibrary.com/](http://www.cochranelibrary.com/) | Suggested terms: DRUG INTERACTION, FOOD-DRUG-INTERACTIONS, HERB-DRUG-INTERACTIONS |
| Trip Database. John Brassey (editor). [www.tripdatabase.com/](http://www.tripdatabase.com/) | Clinical search engine to find high-quality research evidence. Can register for free for additional functionality. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl)A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
|  **Additional resources (tailor to local use/availability)** |
| Drugdex Database. IBM Corporation (USA). [www.micromedexsolutions.com](http://www.micromedexsolutions.com) | Interactions are described using the following headings: Interaction effect, summary, severity, onset, substantiation, clinical management, probable mechanism, literature reports.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Lexi-Comp. Lexi-Comp Inc. (USA). <https://online.lexi.com/lco/action/home> |  |
| Stockley's Herbal Medicines Interactions. Williamson E, Driver S, Baxter K. Pharmaceutical Press. [www.medicinescomplete.com](http://www.medicinescomplete.com) | Searchable in the same way as Stockley’s Drug Interactions. Each included herbal medicine has monograph including uses, pharmacokinetics and an interactions overview. |
| Natural Medicines Comprehensive Database. Therapeutic Research Centre, Somerville, America. [naturalmedicines.therapeuticresearch.com/](https://naturalmedicines.therapeuticresearch.com/)  | For complementary drug-drug, drug-food, and drug-disease interactions. Possible interactions are listed in each monograph. The interaction checker can be used to check specific combinations. |
| Meyler’s Side Effects of Drugs. Dukes and Aronson. |  |
| **Local resources**  |
|  |  |

#### Answering the enquiry

* If the enquiry is prospective, reference to BNF, eMC and Stockley may be all that is required. Note that SPC warnings are often extrapolated from other drugs in the same class and an assessment should be made as to how relevant this is to the individual drug.
* If there is likely to be little experience with the two drugs used together e.g. new drug or rarely used, review interactions with drugs from the same class and consider the pharmacology and pharmacokinetics.
* Consider whether an interaction is likely, on what basis and the limitations of information (e.g. if new drug/not widely used/ previous experience with combination unlikely).
* Can the two drugs be given together with appropriate monitoring? If so what should be monitored and who should monitor?
* Could a safer alternative be used?
* Could a different route of administration overcome the problem?
* If the interaction resulted in an adverse reaction please consider reporting via the [Yellow Card Scheme](https://yellowcard.mhra.gov.uk/).

#### Keywords: DRUG INTERACTIONS and drug names

# New products

#### Background information

* Has the product been launched in the UK? Check in MIMS or the Dictionary of Medicines and Devices browser (dm+d); an SPC on the eMC is not always an indication of launch.
* If pre-launch in the UK does the enquirer know whether it is available in another country?
* Where has the enquirer heard about this product?
* Ask for exact spelling, any known manufacturer, strength, dosage form and indication.
* If you are asked to identify a specific clinical trial, gather as much data as possible about the trial i.e. drug name, manufacturer, trial registry number, results, disease area, any acronym, authors’ names, date of publication etc.
* What is the enquirer going to use the information for? If the enquirer is considering using the new drug, supply issues may be relevant.

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources** |
| In-house past enquiries |  |
| **Pre-launch information** |
| SPS New medicines section. [www.sps.nhs.uk/home/planning/new-medicines/](https://www.sps.nhs.uk/home/planning/new-medicines/) | This contains monographs on developmental status of over 1000 drugs/licence extensions. Also contains links to more in-depth independent evaluated information on individual drugs. Registration is required for full access to all fields (free with NHS email address). Put generic drug name into search box to bring up individual monograph options. Alternatively, you can limit to specialty. See [SPS Horizon Scanning Service](https://www.sps.nhs.uk/articles/sps-horizon-scanning-service/) for further information * A [guide](https://www.sps.nhs.uk/wp-content/uploads/2021/01/Horizon-scanning-terminology-December_2020_SPS.pdf) to horizon scanning terminology is available.
 |
| SPS: Prescribing Outlook via [www.sps.nhs.uk](http://www.sps.nhs.uk)  | Advanced information on drugs with market launches planned in the next 12-18 months with abbreviated information on drugs with planned launches up to 3 years in advance. This is produced for those with budget setting, prescribing planning and medicines management responsibilities. All entries hyperlinked to SPS entry.Monographs contain information on: generic name, trade name, company, indication, NICE status, links to in-depth independent assessments, current status, estimated UK launch, pharmacology, efficacy, safety, target population, NHS service and financial implications, likely commissioning route.To access the suite of ‘Prescribing Outlook’ documents type Prescribing Outlook into the search box or access via the hyperlinks on this page [Annual medicines planning](https://www.sps.nhs.uk/home/planning/annual-medicines-planning/)**NOTE:** registration is required to access this content. |
| NIHR Innovation Observatory. [www.io.nihr.ac.uk](http://www.io.nihr.ac.uk)  | National medical horizon scanning facility located at Newcastle University, looking for technologies (Horizon Scanning) that are up to 10 years from being publicly available. Provides a horizon scanning service to NICE. To find reviews of drugs in development, search by generic name, synonym or disease. |
| ClinicalTrials.gov database. [www.clinicaltrials.gov](http://www.clinicaltrials.gov)  | A database of privately and publicly funded clinical studies conducted around the world. Produced by the US National Library of Medicine. Search for ongoing and completed trials. Results may sometimes be published. Use to identify the trial sponsor or UK trial sites, and contact them directly to get more information. |
| EU Clinical Trials Register. [www.clinicaltrialsregister.eu/](http://www.clinicaltrialsregister.eu/)  | Contains information on interventional clinical trials on medicines conducted in the European Union (EU), or the European Economic Area (EEA) which started after 1 May 2004. Generally not as up to date as the US register (described above). |
| Other trials registries | * [www.isrctn.com/](http://www.isrctn.com/) is recognised by WHO and ICMJE, and preferred partner of the UK Department of Health and Social Care.
* <https://bepartofresearch.nihr.ac.uk/index> is a registry of trials ongoing in the UK.
 |
| AHFS Drug Information. McEvoy GK. American Society of Health-System Pharmacists. [www.medicinescomplete.com](http://www.medicinescomplete.com) | Try this resource if product is already launched abroad especially in US. |
| Drugdex Database. IBM Corporation (USA) [www.micromedexsolutions.com](http://www.micromedexsolutions.com) | Try this resource if product is already launched abroad especially in US.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Lexi-Comp. Lexi-Comp Inc. (USA). <https://online.lexi.com/lco/action/home> | Try this resource if product is already launched abroad especially in US. |
| Bibliographic databases e.g. Medline, Embase, Pubmed. Cochrane Library. [www.cochranelibrary.com/](http://www.cochranelibrary.com/)  | Suggested terms: generic name or synonym |
| Internet search. [www.google.co.uk](http://www.google.co.uk) for general seach engineGoogle scholar for more academic focus <http://scholar.google.co.uk/> | Use for reviews published in other countries if already launched elsewhere in the world.**NOTE:** See QRMG Guidance: [Internet Searching for Medicines Information staff](https://www.sps.nhs.uk/wp-content/uploads/2016/10/Internet-Searching-2.0.pdf) for information and advice on best use of the internet and internet-based search tools for enquiry answering in Medicines Information. |
| Regional MI centre | Your regional MI centre may have access to other new drug/horizon scanning databases [UKPharmaScan](https://www.ukpharmascan.org.uk/login), especially if their staff are involved in SPS horizon scanning – see [www.sps.nhs.uk/articles/ukmi-medicines-access-group/](http://www.sps.nhs.uk/articles/ukmi-medicines-access-group/). |
| SPS horizon scanning service. [www.sps.nhs.uk/home/planning/new-medicines/](https://www.sps.nhs.uk/home/planning/new-medicines/) | If you can’t find the information you need in the resources listed or need more detailed or tailored support in the form of spreadsheets, etc. contact the service at nwmedinfo@nhs.net or 0151 794 8113. |

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| **Recently launched drugs** |
| SPS New medicines section. [www.sps.nhs.uk/category/new-medicines/](http://www.sps.nhs.uk/category/new-medicines/) | Monographs are retained on for up to two years post launch and will contain hyperlinks to independent reviews. |
| SPS Monthly list of new product evaluations via [www.sps.nhs.uk](http://www.sps.nhs.uk)  | UKMi produces a list of UK new product evaluations (medicines and devices) in production, or published in the previous three years.To find the latest copy search ‘New product evaluations*’*. |
| SPS New Product Launches [www.sps.nhs.uk/articles/new-product-launches/](http://www.sps.nhs.uk/articles/new-product-launches/)  | An annual list of new products (medicines and devices) and formulations launched, and licence changes approved, in the previous year. From 2020, published as part of the Prescribing Outlook series – see [www.sps.nhs.uk](http://www.sps.nhs.uk)   |
| UK licensing authority (Medicines and Healthcare products Regulatory Agency). [www.gov.uk/government/organisations/medicines-and-healthcare-products-regulatory-agency](http://www.gov.uk/government/organisations/medicines-and-healthcare-products-regulatory-agency)   | UK Public assessment reports (UKPARs) are published here and contain data used to support the application in the UK. See <https://products.mhra.gov.uk/>. However, they can take time to be published and are only available for certain products.SPCs and PILs can also be accessed here. |
| EU licensing authority (European Medicines Agency). [www.ema.europa.eu](https://www.ema.europa.eu/en) | European public assessment reports (EPARs) are published here and contain data used to support the application in the EU. The site also contains the SPCs and PILs.  |
| US licensing authority (FDA). [www.fda.gov](http://www.fda.gov) | For products launched in US. Scroll down the page and click on ‘Drugs’, then scroll down the page and click on ‘Drug Approvals and databases’.  Scroll down again and click on: * Drugs@FDA Search, then search by drug name to find the US SPC (known as a label). Other useful documents/letters relating to the licence application can be found here. Direct link is [www.accessdata.fda.gov/scripts/cder/daf/index.cfm](http://www.accessdata.fda.gov/scripts/cder/daf/index.cfm).
* Orange Book (Approved Drug Products with Therapeutic Equivalence Evaluations) Search, then search by drug name to find a list of all suppliers of that drug in the US. This database does not contain biological products. Direct link is [www.accessdata.fda.gov/scripts/cder/ob/index.cfm](http://www.accessdata.fda.gov/scripts/cder/ob/index.cfm)
 |
| Pharmaceutical manufacturer. | Companies can respond to individual requests for information on new products or drugs in development. However, depending on how far away from launch it is, you are unlikely to get anything more than that found in the above resources. Use only for drugs in development if there is little information elsewhere or for access to references and unpublished data.**NOTE**: see QRMG guidance ‘[How to Use Pharmaceutical Industry Medical Information Services](https://www.sps.nhs.uk/wp-content/uploads/2017/01/HowToUsePharma-MI-_PIPA-Final-September-2018.docx)’.  |
| Bibliographic databases e.g. Medline, Embase, Pubmed. Cochrane Library. [www.cochranelibrary.com/](http://www.cochranelibrary.com/) | Suggested terms: generic name of synonym |

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| Trip Database. John Brassey (editor). [www.tripdatabase.com/](http://www.tripdatabase.com/) | Clinical search engine to find high-quality research evidence. Can register for free for additional functionality. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Additional resources (tailor to local use/availability)** |
| ADIS Insight database. | Commercial database with information on all aspects of drugs in development. Requires a subscription. Contact your regional MI centre for details. |
| **Local resources**  |
|  |  |

#### Answering the enquiry

* Depends on level of information required from superficial availability information to in-depth reviews.
* If only pre-launch reviews are available following product launch, use with caution as the information they contain is likely to have been superseded, especially information relating to financial planning.

#### Keywords: NEW PRODUCT, drug name.

# Ophthalmology

#### Background information

* Establish current and previous medical and drug history including OTC preparations for both general and ophthalmic conditions. Try and establish a full ophthalmic diagnosis.
* Be aware that some ophthalmic conditions are linked to systemic conditions and systemic treatments may be linked with ophthalmic ADRs.
* Establish whether the enquiry is concerning lids, conjunctiva, cornea, anterior chamber, vitreous or another part of the eye.
* Does the patient have any known allergies or known sensitivities to excipients or preservatives in eye drops? This will govern treatment recommendations
* How old is the patient? Do they have dexterity problems, and how well can they see? These patients may be more prone to adverse effects or have practical difficulty using some of the ophthalmic preparations.
* **Glaucoma enquiries**: Ensure the correct type of glaucoma is known and whether any surgical intervention was successful.
* **Dry eye enquiries**: Establish if mild, moderate or severe.
* **Eye infections**: Establish what part(s) of the eye has been affected and whether swabs or cultures have been obtained.
* Establish colour of patient’s eyes and skin. Some topical ophthalmic preparations e.g. mydriatics and miotics are bound to melanin in the iris and have a longer duration in patients with dark skin and dark irides.

*NOTE: For enquiries that relate to adverse effects, please refer to the ‘*[*Adverse Drug Reactions*](#_Adverse_Drug_Reactions_1)*’ enquiry answering guideline.*

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources** |
| In-house past enquiries. |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk](http://www.sps.nhs.uk) | Use search term ‘eye’ or ‘ophthalmology’ and/or filter using the drug name, to see relevant articles, which include:* [Guidance on In Use Shelf Life for Eye Drops and Ointments](https://www.sps.nhs.uk/articles/guidance-on-in-use-shelf-life-for-eye-drops-and-ointments/)
* [Using chloramphenicol eye products in children under 2 years](https://www.sps.nhs.uk/articles/using-chloramphenicol-eye-products-in-children-under-2-years/)
 |
| British National Formulary. BMA and RPS. [bnf.nice.org.uk/](https://bnf.nice.org.uk/) | The [eye](https://bnf.nice.org.uk/treatment-summary/eye.html) treatment summary contains useful information about administration of drugs into the eye. Other relevant treatment summaries include: * [Dry eye](https://bnf.nice.org.uk/treatment-summary/dry-eye.html)
* [Eye, allergy and inflammation](https://bnf.nice.org.uk/treatment-summary/eye-allergy-and-inflammation.html)
* [Eye, infections](https://bnf.nice.org.uk/treatment-summary/eye-infections.html)
* [Eye, surgical and peri-operative drug use](https://bnf.nice.org.uk/treatment-summary/eye-surgical-and-peri-operative-drug-use.html)
* [Glaucoma and ocular hypertension](https://bnf.nice.org.uk/treatment-summary/glaucoma-and-ocular-hypertension.html)
 |

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| --- | --- |
| CKS. Clinical Knowledge Summaries. NICE. [cks.nice.org.uk](http://cks.nice.org.uk) | Several summaries cover treatment of eye diseases. Relevant summaries include:* [Glaucoma](https://cks.nice.org.uk/glaucoma)
* [Blepharitis](https://cks.nice.org.uk/blepharitis)
* [Conjunctivitis - allergic](https://cks.nice.org.uk/conjunctivitis-allergic)
* [Conjunctivitis - infective](https://cks.nice.org.uk/conjunctivitis-infective)

For full list see: [Clinical Specialties - Eyes](http://cks.nice.org.uk/clinicalspeciality#?speciality=Eyes)See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Electronic Medicines Compendium (eMC). DataPharm Communications. [www.medicines.org.uk/emc](http://www.medicines.org.uk/emc)  | Check relevant SPCs.Useful if the question is about excipients contained in eye drops.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| MHRA: Medicines & Healthcare Regulatory Agency. SPCs and PILs can be directly accessed via: <https://products.mhra.gov.uk> |
| Martindale, the Complete Drug Reference. Brayfield, A. Pharmaceutical Press. [www.medicinescomplete.com](http://www.medicinescomplete.com)  | Useful for information on uses and doses. |
| NICE. National Institute for Health and Care Excellence. [www.nice.org.uk](http://www.nice.org.uk)  | Several relevant guidelines including [Glaucoma: diagnosis and management](https://www.nice.org.uk/guidance/NG81). The full list can be accessed [here](https://www.nice.org.uk/guidance/conditions-and-diseases/eye-conditions).  |
| The Injectable Medicines Guide. [medusa.wales.nhs.uk](http://medusa.wales.nhs.uk) or [www.injguide.nhs.uk](http://www.injguide.nhs.uk)  | The Injectable Medicines Guide website contains monographs which give information on medicines given by ocular injection and infusion. Each monograph describes the method of preparation and administration of the given medicine. |
| The Royal College of Ophthalmologists. [www.rcophth.ac.uk/standards-publications-research/quality-and-safety/medicines-safety/](http://www.rcophth.ac.uk/standards-publications-research/quality-and-safety/medicines-safety/)  | Includes shortage updates and special order products. |
| Patient UK. Patient Information Publications / Egton Medical Information Systems. [www.patient.co.uk](http://www.patient.co.uk)  | See professional reference article [Eye drugs - prescribing and administering](https://patient.info/doctor/eye-drugs-prescribing-and-administering). |
| Toxbase <https://www.toxbase.org/> | Monographs from UKTIS are available on this website. Click on ‘Exposure in pregnancy’. Relevant monographs include ‘[Use of eye drops in pregnancy](https://www.toxbase.org/poisons-index-a-z/e-products/eye-drops-in-pregnancy/)’ and ‘[Treatment of glaucoma in pregnancy](https://www.toxbase.org/Bumps/Mongoraph-Data/TREATMENT-OF-GLAUCOMA-IN-PREGNANCY/)’. |
| BUMPS (Best Use of Medicines in Pregnancy) [www.medicinesinpregnancy.org/](http://www.medicinesinpregnancy.org/)  | This website provides information factsheets produced by UKTIS (see Toxbase above) for pregnant women and their partners; intended to be used in discussion with a health care provider. The site also has an ‘online reporting’ facility for women to record their drug exposure during a current or previous pregnancy in order to help UKTIS understand how medicines, lifestyles or illnesses may affect foetal development. See ‘[Treatment of glaucoma in pregnancy](https://www.toxbase.org/Bumps/Medicine--pregnancy/Glaucoma/)’. |
| Bibliographic databases e.g. Medline, Embase, Pubmed, Cochrane Library. | Suggested terms: Drug name, eye condition e.g. GLAUCOMA, Ophthalmic solutions, ‘Administration, Ophthalmic’, EYE DROPS. |
| Trip Database. John Brassey (editor). [www.tripdatabase.com/](http://www.tripdatabase.com/) | Clinical search engine to find high-quality research evidence. Can register for free for additional functionality. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Additional resources (tailor to local use/availability)** |
| Oxford Handbook of Ophthalmology. Denniston, AKO and Murray, PI<https://oxfordmedicine.com/>  | A quick reference resource for commonly-encountered eye conditions/problems, including information on diagnosis and treatment. It is aimed at people working in general practice and is the most suitable reference source for centres which do not have a significant ophthalmology enquiry workload. |
| Moorfields Manual of Ophthalmology. Jackson, TL | A clinical quick reference book but technical and specialist. |
| MIMS. Monthly Index of Medical Specialities. Haymarket Media Group. [www.mims.co.uk/](http://www.mims.co.uk/). | For a table summarising potential sensitising agents in eye drops and ointments, see: [Ophthalmic Preparations, Preservatives and Potential Sensitisers as Ingredients](https://www.mims.co.uk/table-ophthalmic-preparations-preservatives-potential-sensitisers-ingredients/ophthalmology/article/1428340)  |
| Ophthalmic Pharmacists Group (OPG). [www.networks.nhs.uk/nhs-networks/ophthalmic-pharmacists-group](https://www.networks.nhs.uk/nhs-networks/ophthalmic-pharmacists-group)  | Membership is free to hospital pharmacists and technicians, specialising/ interested in ophthalmology in the UK. Includes hot topic discussions e.g. current shortages, unusual routes and doses of ocular preparations.  |
|  **Local resources**  |
|  |  |

#### Answering the enquiry

***Safety of medication in glaucoma enquiries***

* Primary open angle glaucoma – there is very little risk of triggering angle closure with medication. However, ensure patient can identify the signs of acute angle closure.
* Primary angle closure glaucoma patients will usually have had some type of intervention to allow the eye to drain. Establish if surgery has been successful i.e. if the eye is now completely stable and draining. In this situation the risk of precipitating acute angle closure is low. This type of glaucoma can often occur rapidly (acute). Ensure patient can identify the signs of acute angle closure.
* For any other type of glaucoma, please consult specialist advice.

***Dry eye management advice***

* What drops have already been tried – did they work?
* What time of day are symptoms worse? Are there any aggravating factors e.g. computer use, air conditioning etc. Use lubricating drops more often in these situations.
* Patients with severe disease may require frequent application of drops. If more than four applications are used daily, consider using a preservative-free product as the risk of irritation from the preservative increases with the frequency of dosing. Also consider preservative content of other drops taken by the patient. The preservative that most often causes eye irritation is benzalkonium chloride.
* Eye ointments containing paraffin may be uncomfortable and blur vision, so they should usually be used at night.
* Contact lens use may cause or exacerbate dry eye. Does the patient wear contact lenses? If so, what kind? See contact lenses below.

***Suitability of preservative-containing eye drops and contact lens’ use***

If asked whether eye drops containing preservatives can be used with contact lenses consider:

* Which type of contact lenses does the patient wear? This will help determine whether the patient requires a preservative free eye drop.
* If using hard/rigid/scleral lens – eye drops containing preservatives can be used.
* Gas permeable lenses – establish the type of material, but in most cases eye drops containing preservatives can be used. If unsure, seek advice from contact lens practitioner.
* Soft/hydrophilic lens – eye drops containing preservatives cannot be used.

***Choice of treatment in ocular Infections***

* When recommending treatment for an ocular infection, consult local antimicrobial guidelines.
* If swabs have been taken for an eye infection, establish what antimicrobials the organism has been tested against. Not all antimicrobials which are used in ophthalmology are used in sensitivity tests. Establish any resistant organisms.
* Establish the specific location of the infection e.g. cornea (keratitis), internal eye tissues (endophthalmitis). This will help determine the appropriate choice of antimicrobial e.g. spectrum and bioavailability.
* Infections in the posterior segment of the eye may require systemic or intravitreal therapy.
* Severe infections may need very frequent application of drops (up to half hourly in some cases). This may include administration throughout the night.

***Use of eye drops in renal or liver impairment, pregnancy or breastfeeding or where there is a potential risk of adverse effects***

* Check product information carefully. Often, such cautions are based upon systemic use of the medicine, rather than local, ocular use. If so,
	+ Significant problems are very uncommon as only a very small amount of topical medication reaches the blood stream.
	+ Pressure on the lacrimal punctum for at least a minute after applying eye drops reduces nasolacrimal drainage and therefore decreases systemic absorption from the nasal mucosa. See UKDILAS guidance ‘[Minimising absorption from eyedrops](http://www.midlandsmedicines.nhs.uk/content.asp?section=6&subsection=17&pageIdx=3)‘.

#### Keywords: Drug name, eye condition, EYE, EYE DISEASES, OPHTHALMIC SOLUTIONS, EYE DROPS, GLAUCOMA, GLAUCOMA-CLOSED ANGLE, GLAUCOMA-OPEN ANGLE

# Paediatrics

#### Background information

These points are in addition to those required for enquiries related to other categories e.g. ADR, compatibility, etc.

* Establish patient details, including age and sex.
* What is the weight (kg) of the child? Confirm any discrepancy between age and weight.
* If weight is not known, try to find out whether the child is considered under or overweight for their age. **NOTE:** this is often underestimated even by experienced staff. For some drugs (e.g. cytotoxic agents) a more accurate dose is obtained by calculating body surface area, therefore you will need height as well as weight measurements.
* If the patient is a young infant (less than 3 months old), were they premature? If so, what is their corrected gestational age? **NOTE:** Once an infant is cGA>44/40
* What is the intended route of administration? If the route is oral, is the child able to swallow tablets?
* Are there any problems that may affect drug or formulation choice e.g. renal failure, cystic fibrosis, fluid requirements?

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources** |
| In-house past enquiries. |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk](http://www.sps.nhs.uk)  | Use search term or ‘children’, and/or filter using the drug name, to see relevant articles, which include:* [Using Standardised Strengths of Unlicensed Liquid Medicines in Children: joint statement from the Neonatal and Paediatric Pharmacists' Group (NPPG) and the Royal College of Paediatrics and Child Health (RCPCH)](https://www.sps.nhs.uk/articles/using-standardised-strengths-of-unlicensed-liquid-medicines-in-children-joint-statement-from-the-neonatal-and-paediatric-pharmacists-group-nppg-and-the-royal-college-of-paediatrics-and-child-heal/)
* [Do NSAIDs increase the risk of severe skin reactions in children with chickenpox?](https://www.sps.nhs.uk/articles/do-nsaids-increase-the-risk-of-severe-skin-reactions-in-children-with-chickenpox/)
* [How should medicines be dosed in children who are obese?](https://www.sps.nhs.uk/articles/how-should-medicines-be-dosed-in-children-who-are-obese/)
* [What dose of vitamin D should be prescribed for the treatment of vitamin D deficiency?](https://www.sps.nhs.uk/articles/what-dose-of-vitamin-d-should-be-prescribed-for-the-treatment-of-vitamin-d-deficiency-2/)
* [Using chloramphenicol eye products in children under 2 years](https://www.sps.nhs.uk/articles/using-chloramphenicol-eye-products-in-children-under-2-years/)
 |
| British National Formulary-for Children. BMA, RPSGB, RCPCH and NPPG. [bnfc.nice.org.uk](https://bnfc.nice.org.uk/) | See ‘[Approximate conversions and units](https://bnfc.nice.org.uk/about/approximate-conversions-and-units.html)’ for tables showing mean values for weight, height and gender by age.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| CKS. Clinical Knowledge Summaries. NICE. [cks.nice.org.uk](http://cks.nice.org.uk) | See the ‘Have I got the right topic?’ section to see which age group the summary applies to. Examples of relevant summaries include:* [Autism in children](https://cks.nice.org.uk/autism-in-children)
* [Bedwetting (enuresis)](https://cks.nice.org.uk/bedwetting-enuresis)
* [Constipation in children](https://cks.nice.org.uk/constipation-in-children)
* [Depression in children](https://cks.nice.org.uk/depression-in-children)
* [Vitamin D deficiency in children](https://cks.nice.org.uk/vitamin-d-deficiency-in-children).

For full list, see: [Clinical Specialties - Child health](https://cks.nice.org.uk/clinicalspeciality#?speciality=Child%20health) |

|  |  |
| --- | --- |
| Electronic Medicines Compendium (eMC). DataPharm Communications. [www.medicines.org.uk/emc](http://www.medicines.org.uk/emc)  | Check relevant SPCs.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| MHRA: Medicines & Healthcare Regulatory Agency. SPCs and PILs can be directly accessed via: <https://products.mhra.gov.uk> |
| Medicines for Children [www.medicinesforchildren.org.uk/](http://www.medicinesforchildren.org.uk/) Produced by the Royal College of Paediatrics and Child Health (RCPCH), Neonatal and Paediatric Pharmacists Group (NPPG), and national child health charity, WellChild. | Extensive range of patient information leaflets about medicines for children to view or print. Also leaflets and videos about how to give medicines to children and information on missed doses. Written in plain English and contains practical advice.  |
| Paediatric Formulary. Paediatric Formulary Committee. [cms.ubqo.com/public/d2595446-ce3c-47ff-9dcc-63167d9f4b80](http://cms.ubqo.com/public/d2595446-ce3c-47ff-9dcc-63167d9f4b80)  | Updates happen monthly, rather than there being editions. The 9th edition (previously Guy’s Paediatric Formulary) may still be accessible, but this is not the official version and will no longer be updated. |
| Neonatal Formulary: Drug Use in Pregnancy & the First Year of Life. Northern Neonatal Network. Blackwell Publishing. | Free access to archived monographs and supplementary commentaries relating to current monographs in the main book via: <https://oxfordmedicine.com/neonatalformulary>  |
| Neonatal & Paediatric Pharmacists Group (NPPG). <https://nppg.org.uk/>  | Repository of paediatric resources including news, education and position statements |
| Children and Young People’s Services MKN Neonatal Drug Formulary (West of Scotland). West of Scotland Neonatal Pharmacists Group published on Knowledge Network (NHS Education for Scotland). [www.knowledge.scot.nhs.uk/child-services/communities-of-practice/neonatal-managed-clinical-networks/west-of-scotland/neonatal-drug-formulary-(wos).aspx](http://www.knowledge.scot.nhs.uk/child-services/communities-of-practice/neonatal-managed-clinical-networks/west-of-scotland/neonatal-drug-formulary-%28wos%29.aspx) | Suitable for use only as a supplementary resource.  |
| The Injectable Medicines Guide [medusa.wales.nhs.uk](http://medusa.wales.nhs.uk) or [www.injguide.nhs.uk](http://www.injguide.nhs.uk)  | Regularly updated monographs and other useful resources. Monographs relevant to paediatrics are checked by a member of the Neonatal and Paediatric Pharmacists Group. Select ‘Paediatric IntraVENOUS drugs’ from menu on left hand side of page to access. |

|  |  |
| --- | --- |
| NICE Evidence search. [www.evidence.nhs.uk](http://www.evidence.nhs.uk)  | Include the search term *child* or *paediatric* when searching (alternative spellings are automatically searched, e.g. *paediatric* and *pediatric*). Difficult to identify useful resources as there is no filter for age; use the Source filter to narrow down to paediatric organisations. |
| The British Inherited Metabolic Disease Group (BIMDG).BIMDG Committee<https://bimdg.org.uk/site/formularies.asp>  | Should not replace local guidelines, but may supplement information on rare conditions where local guidance does not exist. |
| Pharmaceutical manufacturer. | May have unpublished data.**NOTE**: see QRMG guidance ‘[How to Use Pharmaceutical Industry Medical Information Services](https://www.sps.nhs.uk/wp-content/uploads/2017/01/HowToUsePharma-MI-_PIPA-Final-September-2018.docx)’.  |
| Martindale, the Complete Drug Reference. Brayfield, A. Pharmaceutical Press. [www.medicinescomplete.com](http://www.medicinescomplete.com) | Can sometimes be helpful. |
| The British Inherited Metabolic Disease Group (BIMDG)BIMDG Committee[www.bimdg.org.uk/site/formularies.asp](http://www.bimdg.org.uk/site/formularies.asp)  | Should not replace local guidelines, but may supplement information on rare conditions where local guidance does not exist. |
| Bibliographic databases e.g. Medline, Embase, Pubmed. Cochrane Library. [www.cochranelibrary.com/](http://www.cochranelibrary.com/) | Suggested terms: CHILD (explode term), restrict search to documents relating to specific age ranges, INFANT-NEWBORN, INFANT-PREMATURE, NEONATAL DISEASES. |
| Trip Database. John Brassey (editor). [www.tripdatabase.com/](http://www.tripdatabase.com/) | Clinical search engine to find high-quality research evidence. Can register for free for additional functionality. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Additional resources (tailor to local use/availability)** |
| Drugdex Database. IBM Corporation (USA). [www.micromedexsolutions.com](http://www.micromedexsolutions.com) | Monographs have a ‘Pediatric dosing’ section.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Lexi-Comp. Lexi-Comp Inc. (USA). <https://online.lexi.com/lco/action/home> |  |
| Nearest paediatric hospital pharmacy department. | Contact the hospital caring for the child or your nearest paediatric specialist centre, and take advice from their clinical pharmacists.  |
| The Epilepsy Prescriber's Guide to Antiepileptic Drugs. Patsalos PN, St Louis EK. Cambridge University Press.  | Monograph style covering antiepileptic drugs. Includes paediatric prescribing information. |
| Pediatric & Neonatal Dosage Handbook. American Pharmacists Association (LexiComp Incorporated). | This includes more than 900 drug monographs. Over 100 monographs contain an extemporaneous formulation to prepare a liquid solution where no licensed product is available. |
| **Local resources**  |
|  |  |

#### Answering the enquiry

* Consider whether recommendations are within the drug’s licensed indications or whether you are advising off-label use. Prescribing unlicensed medicines, or medicines outside the terms of their licence (off-label), alters the prescriber’s professional responsibility and liability. The prescriber and pharmacist should have sufficient information to support using the medicine. Be aware that the manufacturer’s patient information leaflet may not be relevant to the child and the parents should be warned of this and appropriately reassured.
* When calculating a dose on an mg/kg basis never exceed the maximum recommended dose (usually the adult dose). If the child is obese consider calculating using ideal body weight.
When assessing the appropriate dose (making reference to available paediatric dosage formularies) take account of available formulations and their suitability.
* If doses require calculation based on surface area, use recognised reference tables (see back pages of BNF for Children) or a [recognised formula](http://patient.info/doctor/body-surface-area-calculator-mosteller) to calculate surface area.
* With smaller doses used in paediatrics it is much easier to make ten-fold errors in calculations. Be especially vigilant with decimal points or avoid using them (and quote appropriate units in full), e.g. 100 micrograms NOT 0.1mg. Do not use trailing zeros, e.g. 5mg NOT 5.0mg.
* Always have calculations checked.
* Always quote dose to be given rather than volume of liquid to avoid potential for errors, as multiple strengths of medicines (and manufactured specials) are common in paediatric practice.
Consider timing of administration to avoid giving during school time if possible. Consider the hours the child will be awake to avoid interrupting sleep to give medicines. Opt for once or twice daily dosing where appropriate.
* Consider formulation and appropriateness for the child’s age. As a general rule, liquid formulations are preferable for children aged less than five years. Choose sugar-free formulations where available. If a sugar-containing preparation has to be used, provide advice on teeth cleaning after administration to reduce risk of dental caries.
* The availability of a formulation in an apparently suitable form does not ensure its suitability for use in children. Consider excipients, e.g. alcohol, sorbitol. For premature or low birth weight infants with very low total fluid requirements, concentrated preparations may be more appropriate than dilute ones.
* Consider how the dose will be given:
	+ Will an oral syringe be necessary or is it better to provide a formulation where the dose is contained in 5mL? Round the dose up or down if it makes administration easier (and safer) if the medicine has a wide therapeutic range.
	+ If the parents are considering mixing the medicine with a drink to mask the taste check the potential for drug-drink interaction and advise that they should mix with a small volume of drink. The whole drink must be consumed to ensure the intended dose is given.
	+ Avoid mixing the dose in a baby’s feeding bottle.
	+ If no suitable liquid formulation is available, consider crushing tablets or opening capsules and mixing with a small amount of soft food, again ensuring the whole dose is consumed. Always consider potential for drug-food or drug-drink interaction. Remember this renders use of the product off-label.
* Avoid intramuscular injections where possible. The exception to this may be for one off doses where there is no other suitable formulation, e.g. vaccines.
* If you are considering recommending an extemporaneous preparation, consider how supply will be continued in the longer term. The local community pharmacist may require details of special-order manufacturers to obtain the product; these can be very expensive. Also think about whether the preparation needs to be stored in a fridge or has a short expiry, and what implications this has.

#### **Keywords**: CHILD, INFANT, INFANT-NEWBORN INFANT-PREMATURE NEONATAL DISEASES, PAEDIATRICS and relevant drug names.

# Palliative care

#### Background information

* Is a palliative care team, hospice or MacMillan nurse involved in the patient’s care? For enquiries about managing a specific patient (other than straightforward queries), tell the enquirer to contact them.
* If the enquirer asks about compatibility of drugs in a syringe driver, check drugs, doses, diluents and volume.
* If the enquirer asks about symptom control, ask about the likely cause and what drug or non-drug options they have tried already. Find out what other medicines the patient is taking, and any other significant medical problems.
* If the patient is unable to tolerate oral administration, can other routes be used? Note that intramuscular and rectal routes may be unsuitable if they have low platelets.
* Check concomitant medication and concurrent disease including kidney and liver function.
* If the enquiry is related to conversion between different opioids, what is the total daily (24 hour) dose, including PRN doses, currently being taken? Is the patient’s pain well controlled?

*NOTE: If the enquiry concerns the subcutaneous administration of medicines via a syringe driver please also refer to the ‘*[*Compatibility of subcutaneous drugs*](#_Compatibility_of_subcutaneous)*’ enquiry answering guideline.*

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources** |
| In-house past enquiries. |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk](http://www.sps.nhs.uk)  | Use search term ‘palliative’ or drug name and/or filter using speciality ‘Palliative and End of Life Care’, to see relevant articles, which include:* [Switching between oral morphine and other oral opioids in adult palliative cancer care patients](https://www.sps.nhs.uk/articles/switching-between-oral-morphine-and-other-oral-opioids-in-adult-palliative-cancer-care-patients/)
* [Tool to calculate estimated dose equivalences of oral morphine to other oral opioids](https://www.sps.nhs.uk/articles/tool-to-calculate-estimated-dose-equivalences-of-oral-morphine-to-other-oral-opioids/)
* [How can you minimise the risks of medication errors with buprenorphine patches?](https://www.sps.nhs.uk/articles/how-do-you-minimise-the-risks-of-medication-errors-with-buprenorphine-patches/)
* [What naloxone doses should be used in adults to urgently reverse the effects of opioids?](https://www.sps.nhs.uk/articles/what-naloxone-doses-should-be-used-in-adults-to-reverse-urgently-the-effects-of-opioids-or-opiates/)
 |
| British National Formulary. BMA and RPS. [bnf.nice.org.uk/](https://bnf.nice.org.uk/) | ‘Pain management with opioids’ in the ‘[Prescribing in palliative care section](https://bnf.nice.org.uk/guidance/prescribing-in-palliative-care.html)’ provides guidance on specific routes for pain management. The 'Equivalent doses of opioid analgesics' table has been expanded to include more drugs and routes; also included is a buprenorphine patch conversion table and a fentanyl patch conversion table.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |

|  |  |
| --- | --- |
| CKS. Clinical Knowledge Summaries. NICE. [cks.nice.org.uk](http://cks.nice.org.uk) | There are several relevant summaries including:* [Palliative cancer care - pain](https://cks.nice.org.uk/palliative-cancer-care-pain)
* [Palliative care - constipation](https://cks.nice.org.uk/palliative-care-constipation)
* [Palliative care - cough](https://cks.nice.org.uk/palliative-care-cough)
* [Palliative care - dyspnoea](https://cks.nice.org.uk/palliative-care-dyspnoea)
* [Palliative care - general issues](https://cks.nice.org.uk/palliative-care-general-issues)
* [Palliative care - malignant skin ulcer](https://cks.nice.org.uk/palliative-care-malignant-skin-ulcer)
* [Palliative care - nausea and vomiting](https://cks.nice.org.uk/palliative-care-nausea-and-vomiting)
* [Palliative care - oral](https://cks.nice.org.uk/palliative-care-oral)
* [Palliative care - secretions](https://cks.nice.org.uk/palliative-care-secretions)

For full list, see: [Clinical Specialties - Palliative care](https://cks.nice.org.uk/clinicalspeciality#?speciality=Palliative%20care) |
| Electronic Medicines Compendium (eMC). DataPharm Communications. [www.medicines.org.uk/emc](http://www.medicines.org.uk/emc)  | Section 4.5 of an SPC specifically relates to interactions but also check contraindications and precautions and special warnings. Interactions listed can be theoretical; manufacturer may clarify.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| MHRA: Medicines & Healthcare Regulatory Agency. SPCs and PILs can be directly accessed via: <https://products.mhra.gov.uk> |
| Cancer Drug Interactions. Radboud University Medical Centre, Netherlands and University of Liverpool, UK. <http://cancer-druginteractions.org/checker> | Comprehensive drug-drug interaction resource for anti-cancer agents and other medicines. |
| Palliative Care Formulary (PCF). Robert Twycross & Andrew Wilcock. Royal Pharmaceutical Society. [www.palliativedrugs.com](http://www.palliativedrugs.com)[www.medicinescomplete.com](http://www.medicinescomplete.com) | Available in print and online versions. **NOTE:** PalliativeDrugs.com website continues to provide free access to the Syringe Driver Database (click on SDSD tab), Bulletin Board, News etc. via: [www.palliativedrugs.com/syringe-driver-database-introduction.html](http://www.palliativedrugs.com/syringe-driver-database-introduction.html) (registration required). |
| Palliative Care Matters. Network of Palliative Care healthcare professionals. [m.pallcare.info](http://m.pallcare.info)  | Website for healthcare professionals working in palliative care (free registration required). Includes a syringe driver compatibility database – use in preference to PANG (see below) for syringe driver compatibilities. |
| Palliative Care Adult Network Guidelines Plus (PANG). Developed by a collaboration of UK Cancer Networks. <http://book.pallcare.info/>  | Website aiming to offer up-to-date, evidence based information and guidance on professional aspects of palliative care. Developed by a collaboration of UK cancer networks and the Welsh Palliative Care Implementation Group. Includes:* an interactive opioid dose calculator
* syringe driver compatibility database

This should be used in preference to the print, but not the electronic version, of Palliative Care Formulary (see above). |

|  |  |
| --- | --- |
| Scottish Palliative Care Guidelines. Healthcare Improvement Scotland (NHS Scotland). [www.palliativecareguidelines.scot.nhs.uk/](http://www.palliativecareguidelines.scot.nhs.uk/)  |  |
| Association of Paediatric Palliative Medicine (APPM). Master Formulary 2017. [www.appm.org.uk/guidelines-resources/appm-master-formulary/](http://www.appm.org.uk/guidelines-resources/appm-master-formulary/)  | This Formulary brings together all available paediatric palliative prescribing information in a single volume, utilising up to date published research and consensus expert opinion. |
| The Syringe Driver: Continuous Subcutaneous Infusions in Palliative Care.Dickman A & Schneider J. Oxford University Press. | Contains comprehensive information about two or more admixtures of commonly used subcutaneous infusion combinations. |
| Faculty of Pain Medicine. Royal College of Anaesthetists. [www.rcoa.ac.uk/faculty-of-pain-medicine](http://www.rcoa.ac.uk/faculty-of-pain-medicine) | A range of guidelines and PILs are available, including:* [Opioids for pain management in palliative care](https://fpm.ac.uk/node/601)
* [Dose equivalents & changing opioids](https://fpm.ac.uk/node/651)
* [Substance misuse: pain management in palliative care](https://fpm.ac.uk/node/691)
 |
| NICE. National Institute for Health and Care Excellence. [www.nice.org.uk](http://www.nice.org.uk) | Several relevant guidelines including [Opioids for pain relief in palliative care](https://pathways.nice.org.uk/pathways/opioids-for-pain-relief-in-palliative-care), [Care of dying adults in the last days of life](https://www.nice.org.uk/guidance/ng31), and guidance on supportive and palliative care within guidelines on managing specific cancers, e.g. [lung cancer](http://pathways.nice.org.uk/pathways/lung-cancer/lung-cancer-overview), [advanced breast cancer](http://pathways.nice.org.uk/pathways/advanced-breast-cancer). |
| NICE Evidence search [www.evidence.nhs.uk](http://www.evidence.nhs.uk) | Use the search box and include the search term palliative or cancer. |
| Bibliographic databases e.g. Medline, Embase, Pubmed. Cochrane Library. [www.cochranelibrary.com/](http://www.cochranelibrary.com/) | Suggested terms: PALLIATIVE TREATMENT, PALLIATIVE-CARE. |
| Trip Database. John Brassey (editor). [www.tripdatabase.com/](http://www.tripdatabase.com/) | Clinical search engine to find high-quality research evidence. Can register for free for additional functionality. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Local resources**  |
| Trust Palliative Care team |  |

#### Answering the enquiry

* Many uses of medicines within palliative care are off-label, but are based on current clinical practice.
* A patient’s condition can change rapidly so it is imperative that their response to drug therapy is monitored and assessed frequently.
* Always make one change at a time; then reassess to judge whether the change is helpful.
* Equivalent doses between opioids are approximate and can differ greatly between resources so patients must always be monitored carefully and regularly if transferred to another opioid. Check several resources when deciding on an equivalent dose.
* Always have calculations checked. Calculation errors involving opioid dose conversions are commonly reported to the UKMi IRMIS database. The UKMi Clinical Governance Working Group strongly [recommends](http://www.ukmi.nhs.uk/filestore/ukmiacg/IRMIS-Review-report-July2013FINALv2-frontpage.pdf):
	+ Have all calculations checked by an independent person.
	+ Do not be pressured into answering enquiries requiring calculations within an unrealistic timescale.
	+ If no independent person is available to check a calculation, and delaying the answer would be detrimental to patient care, inform the enquirer that the calculation hasn’t been second checked, document this in the answer field, and obtain a retrospective second check as soon as possible.

#### Keywords: PALLIATIVE TREATMENT, drug name

# Pharmaceutical

**There are four sections to this document:**

[Enquiries about pharmaceutical excipients](#_Enquiries_about_pharmaceutical)

[Enquiries about stability of refrigerated products at room temperature or frozen](#_Enquiries_about_stability)

[Enquiries about products in multi-compartment compliance aids (MCA), also known as monitored dosage systems (MDS)](#_Enquiries_about_stability)

[Enquiries about extemporaneous preparation](#_Enquiries_about_extemporaneous)

*NOTE: If the enquiry concerns the advisability of crushing tablets, opening capsules or mixing medicines with food or drink, please refer to the ‘*[*Administration of medicines*](#_Administration_of_medicines)*’ enquiry answering guideline. See also the ‘*[*Interactions*](#_Interactions_1)*’ enquiry answering guideline. If the enquiry concerns the advisability of mixing injectable products in syringes or fluid bags, please refer to the ‘*[*Compatibility of Intravenous Drugs*](#_Compatibility_of_intravenous)*’ and ‘*[*Compatibility of Subcutaneous Drugs*](#_Compatibility_of_subcutaneous)*’ enquiry answering guidelines.*

##### Enquiries about pharmaceutical excipients

#### Background information

* What is the reason for asking about excipients? Does the patient have a known problem, or is one suspected?
* What is the nature of any known or suspected reactions to excipients?
* For patients experiencing intolerance to a product, how long has the patient been taking the medicine?
* Is the patient taking other medicines? Has the patient had a similar reaction with another medicine, food or drink? It may be possible to rule out suspected problems with excipients if the patient has no problems already taking medicines, foods or drinks that contain these excipients.
* For enquiries about lactose or sodium content, an assessment of the total quantity provided by all of the patient’s medicines can indicate the likelihood of a significant problem occurring.
* For enquiries about***natural rubber latex allergy****:*
	+ Obtain a full description of what happens when the patient is exposed to natural rubber latex.
	+ Which products do they intend to use, including the brand name if possible, and why?
* *For enquiries about* ***products of animal origin*** *or* ***suitability for patients with religious beliefs:***
	+ Establish clearly which substances the patient objects to and the reason why; patients may wish to avoid animal products for religious, cultural or ethical reasons. **NOTE:** How people adhere to religious teaching is a personal issue and may depend on many things.
	+ What is the drug to be prescribed and why?
	+ Which other medicines is the patient taking?

#### Resources

|  |  |
| --- | --- |
| **Source** | **Notes** |
| **First-line resources** |
| In-house past enquiries. |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk](http://www.sps.nhs.uk)  | Includes documents on gluten, lactose and sodium content of medicines. Also information on halal medicines and excipients in toothpastes. Relevant articles include:* [Handling questions about excipients](https://www.sps.nhs.uk/articles/handling-questions-about-excipients/)
* [Switching between liquid and tablet/capsule formulations – Which medicines require extra care?](https://www.sps.nhs.uk/articles/switching-between-liquid-and-tablet-capsule-formulations-which-medicines-require-extra-care/)
* [What issues should be considered in patients with peanut allergy requiring a medicine containing soya?](https://www.sps.nhs.uk/articles/what-issues-should-be-considered-in-patients-with-peanut-allergy-requiring-a-medicine-containing-soya-2/)
* [Vitamin D: Is there a licensed product suitable for a patient with peanut or soya allergy?](https://www.sps.nhs.uk/articles/is-there-a-suitable-vitamin-d-product-for-a-patient-with-a-peanut-or-soya-allergy/)
* [What is the gluten content of medicines?](https://www.sps.nhs.uk/articles/what-is-the-gluten-content-of-oral-prescription-medicines/)
* [What factors to consider when advising on medicines suitable for a Halal diet?](https://www.sps.nhs.uk/articles/how-can-i-find-out-if-medicines-may-be-considered-okoshero-or-ohalalo/)
* [Can epoetin be used in Jehovah’s Witness patients in accordance with their beliefs?](https://www.sps.nhs.uk/articles/can-epoetin-be-used-in-jehovahs-witness-patients-in-accordance-with-their-beliefs/)
* [Excipients: What are the general considerations for vegan patients?](https://www.sps.nhs.uk/articles/excipients-what-are-the-general-considerations-for-vegan-patients/)
* [Choosing an oral vitamin D preparation for vegetarians or vegans](https://www.sps.nhs.uk/articles/choosing-an-oral-vitamin-d-preparation-for-vegetarians-or-vegans/)
* [Choosing a calcium and vitamin D preparation for vegetarians or vegans](https://www.sps.nhs.uk/articles/choosing-a-calcium-and-vitamin-d-preparation-for-vegetarians-or-vegans/)
* [Ethanol content of inhalers – What is the significance?](https://www.sps.nhs.uk/articles/ethanol-content-of-inhalers-what-is-the-significance/)
* [What factors need to be considered when prescribing for lactose intolerant adults?](https://www.sps.nhs.uk/articles/what-factors-need-to-be-considered-when-prescribing-for-lactose-intolerant-adults-2/)
* [Oral antihistamines – which are available in lactose-free formulations?](https://www.sps.nhs.uk/articles/which-oral-antihistamines-are-available-in-lactose-free-formulations/)
* [Is there a lactose-free hormone replacement therapy (HRT)?](https://www.sps.nhs.uk/articles/is-there-a-lactose-free-hormone-replacement-therapy-hrt-2/)
* [What is the sodium content of medicines?](https://www.sps.nhs.uk/articles/what-is-the-sodium-content-of-medicines-2/)
* [Considering sodium content of medicines](https://www.sps.nhs.uk/articles/considering-sodium-content-of-medicines/)
 |
| British National Formulary. BMA and RPS. [bnf.nice.org.uk/](https://bnf.nice.org.uk/)British National Formulary-for Children. BMA, RPSGB, RCPCH and NPPG. [bnfc.nice.org.uk](http://www.bnfc.nice.org.uk/) | The presence of selected excipients is noted. See [Guidance on prescribing](https://bnf.nice.org.uk/guidance/guidance-on-prescribing.html) section for details.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Electronic Medicines Compendium (eMC). DataPharm Communications. [www.medicines.org.uk/emc](http://www.medicines.org.uk/emc)  | All excipients need to be declared on the labeling and in the SPC/PIL of injectable, topical or eye preparations. Excipients known to have a recognised action or effect must be declared on the labeling of all other medicinal products. See [European Commission Guideline](https://ec.europa.eu/health/sites/health/files/files/eudralex/vol-2/c/guidelines_excipients_march2018_en.pdf) ‘Excipients in the labeling and package leaflet of medicinal products for human use’ and [EMA Guideline](http://www.ema.europa.eu/docs/en_GB/document_library/Scientific_guideline/2009/09/WC500003412.pdf) (Annex to the European Commission guideline on ‘Excipients in the labeling and package leaflet of medicinal products for human use’).On EMC, use Advanced search – ‘Search by section’ – to find SPCs that contain, or do not contain, an excipient.MHRA website can only be searched by generic or brand name or PL number. Staff at the MHRA Information Centre can search the licensing database (Sentinel) to identify products that do not contain specific excipients. Email informationservices@mhra.gov.uk – enquiries are answered within 20 working days.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| MHRA: Medicines & Healthcare Regulatory Agency. SPCs and PILs can be directly accessed via: <https://products.mhra.gov.uk> |

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| Manufacturers’ Medical Information departments. | **NOTE**: see QRMG guidance ‘[How to Use Pharmaceutical Industry Medical Information Services](https://www.sps.nhs.uk/wp-content/uploads/2017/01/HowToUsePharma-MI-_PIPA-Final-September-2018.docx)’.  |
| Public Health England. [www.gov.uk/government/organisations/public-health-england](http://www.gov.uk/government/organisations/public-health-england) | Public Health England have produced a leaflet describing how and why porcine gelatine is used in vaccines for immunisation programmes – see [Vaccines and porcine gelatine](https://www.gov.uk/government/publications/vaccines-and-porcine-gelatine). Versions translated into Arabic, Bengali, Gujarati, Panjabi and Urdu are available. A ‘[Guide to the use of human and animal products in vaccines](https://www.gov.uk/government/publications/use-of-human-and-animal-products-in-vaccines)’ is also available’. |
| Martindale, the Complete Drug Reference. Brayfield, A. Pharmaceutical Press. [www.medicinescomplete.com](http://www.medicinescomplete.com) | See chapter ‘About Pharmaceutical Excipients’ and individual monographs. |
| The Injectable Medicines Guide. [medusa.wales.nhs.uk](http://medusa.wales.nhs.uk) or [www.injguide.nhs.uk](http://www.injguide.nhs.uk) | Monographs include information on natural rubber latex content.  |
| Muslim Council of Britain (MCB). [www.mcb.org.uk](http://www.mcb.org.uk), | Can also be contacted on 0845 26 26 786. Advice on medicines suitable for someone on a Halal diet can also be sought from a recognised local Imam.  |
| Coeliac UK. [www.coeliac.org.uk](http://www.coeliac.org.uk)  | Includes:* Advice on what gluten is and how to achieve a gluten-free diet.
* Information on regional [prescription policies](https://www.coeliac.org.uk/information-and-support/coeliac-disease/once-diagnosed/prescriptions/prescription-policies/).
* A section for healthcare professionals.
* Information on the gluten content of [medication](https://www.coeliac.org.uk/information-and-support/living-gluten-free/the-gluten-free-diet/medication/).
 |
| Bibliographic databases e.g. Medline, Embase, Pubmed. Cochrane Library. [www.cochranelibrary.com/](http://www.cochranelibrary.com/) | Suggested terms: name of the excipient. |
| Trip Database. John Brassey (editor). [www.tripdatabase.com/](http://www.tripdatabase.com/) | Clinical search engine to find high-quality research evidence. Can register for free for additional functionality. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Additional resources (tailor to local use/availability)** |
| MIMS. Monthly Index of Medical Specialities. Haymarket Media Group. [www.mims.co.uk/](http://www.mims.co.uk/). | Useful [tables](http://www.mims.co.uk/Tables/) comparing sensitising excipients in [eye preparations](https://www.mims.co.uk/table-ophthalmic-preparations-preservatives-potential-sensitisers-ingredients/ophthalmology/article/1428340), [emollients](https://www.mims.co.uk/table-emollients-potential-skin-sensitisers-ingredients/dermatology/article/1428147) and [topical steroids](https://www.mims.co.uk/table-topical-steroids-potential-skin-sensitisers-ingredients/dermatology/article/1428107). |
| Handbook of Pharmaceutical Excipients. Rowe RC et al. [www.medicinescomplete.com](http://www.medicinescomplete.com)  | Comprehensive guide to the uses, properties and safety of pharmaceutical excipients. Check if local manufacturing unit or quality control department has access. |
| Aulton’s Pharmaceutics – **EXAMPLE TEXT** | General reference textbook. Explains how pharmaceutical excipients are manufactured and used in medicines.As an example reference text book for pharmaceutics. Other reference texts could also be held. |
| **Local resources** |
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#### Answering the enquiry

* The individual product’s Summaries of Product Characteristics should always be checked as formulations may change and quantities of excipients used may vary by manufacturer, product, formulation and strength.
* It is our duty as a health professional to abide by the wishes of a patient, regardless of the reason why a person objects to products of a certain animal origin. Therefore, for example, if a Muslim patient refuses products containing gelatin, it is our responsibility to help them to find a suitable alternative product, if possible.
* The MHRA recommends that an unlicensed medicine should only be used when a patient has special requirements that cannot be met by use of a licensed medicine.

#### Keywords: Name of the excipient (e.g. LACTOSE, GLUTEN, ALCOHOL, GELATIN, SODIUM CHLORIDE), or LATEX and relevant drug names.

##### Enquiries about stability of refrigerated products at room temperature or frozen

#### Background information

For products that have been stored at temperatures outside the manufacturer’s recommended limits:

* What was the highest (or lowest) temperature?
* How long were the products exposed to this temperature?
* What are the brand names of the products?
* What are the batch numbers and expiry dates of the affected products? This information is often requested by the manufacturer.
* Where are they stored now?

#### Resources

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| **Source** | **Notes** |
| **First-line resources** |
| In-house past enquiries |  |
| SPS. Refrigeration Storage information. [www.sps.nhs.uk](http://www.sps.nhs.uk)  | Search by generic drug name and filter by ‘refrigerated medicines stability’. Provides stability information for medicines, intended for storage in the fridge, inadvertently stored outside recommended storage temperatures.Guidance on how to use the information is at [www.sps.nhs.uk/articles/using-our-refrigerated-storage-information-on-medicine-pages/](http://www.sps.nhs.uk/articles/using-our-refrigerated-storage-information-on-medicine-pages/)  |
| Electronic Medicines Compendium (eMC). DataPharm Communications. [www.medicines.org.uk/emc](http://www.medicines.org.uk/emc)  | See section ‘6.4 Special precautions for storage’.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| MHRA: Medicines & Healthcare Regulatory Agency. SPCs and PILs can be directly accessed via: <https://products.mhra.gov.uk> |
| Manufacturers’ Medical Information departments | Be aware that some manufacturers will need to contact their Quality Assurance department for advice, and so may not be able to provide an immediate response.**NOTE**: see QRMG guidance ‘[How to Use Pharmaceutical Industry Medical Information Services](https://www.sps.nhs.uk/wp-content/uploads/2017/01/HowToUsePharma-MI-_PIPA-Final-September-2018.docx)’.  |
| Public Health England Immunisation website. [www.gov.uk/government/collections/immunisation](http://www.gov.uk/government/collections/immunisation)  | [Vaccine incident guidance: responding to vaccine errors](https://www.gov.uk/government/publications/vaccine-incident-guidance-responding-to-vaccine-errors) – provides guidance on investigation and management of vaccine storage or administration incidents. |
| Vaccine Incident Guidance: Actions to take in response to vaccine errors. Health Protection Scotland. [www.hps.scot.nhs.uk/web-resources-container/vaccine-incident-guidance-actions-to-take-in-response-to-vaccine-errors/](http://www.hps.scot.nhs.uk/web-resources-container/vaccine-incident-guidance-actions-to-take-in-response-to-vaccine-errors/) | Provides guidance on investigation and management of vaccine storage or administration incidents. |
| Risk Management of Medicines Stored in Clinical Areas: Temperature Control. NHS Pharmaceutical Quality Assurance Committee. [www.sps.nhs.uk/articles/risk-management-of-medicines-stored-in-clinical-areas-temperature-control/](https://www.sps.nhs.uk/articles/risk-management-of-medicines-stored-in-clinical-areas-temperature-control/)  | Information and principles for risk assessing fridge and room temperature excursions. **NOTE**: registration is required (free with NHS email address). To access this content, you must be logged in. |
| Bibliographic databases e.g. Medline, Embase, Pubmed.Cochrane Library. [www.cochranelibrary.com/](http://www.cochranelibrary.com/) |  |
| Trip Database. John Brassey (editor). [www.tripdatabase.com/](http://www.tripdatabase.com/) | Clinical search engine to find high-quality research evidence. Can register for free for additional functionality. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Local resources** |
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#### Answering the enquiry

* The individual product’s Summaries of Product Characteristics should always be checked as formulations may change.

#### Keywords: ROOM TEMPERATURE, FREEZING and relevant drug names.

##### Enquiries about products in multi-compartment compliance aids (MCA), also known as monitored dosage systems (MDS)

#### Background information

***The multi-compartment compliance aid (MCA)***

* What type of device is being used?
* How long will the product be stored in the device?
* Is the medicine being repackaged within a single MCA compartment?
* Does the device provide protection from water vapour and/or atmospheric gases i.e. sealed “blister” type or unsealed?
* Does the device provide protection from light?

***The medicine(s)***

* Brand name(s) of medicine(s) to be stored in the MCA.
* Solid dose formulation:
	+ film coated or sugar coated (sugar coating provides a better barrier to moisture and light),
	+ hard or soft gelatin capsule shells (both have a high water content. Do not put with tablets, or put hard and soft gelatin capsules in the same compartment),
	+ effervescent/dispersible or hygroscopic (are sensitive to moisture),
	+ buccal/sublingual (may be swallowed by mistake).
* Cytotoxic medicines should not be put in an MCA.
* Type of packaging:
	+ foil packaging/desiccant (usually indicates moisture sensitivity),
	+ glass container (usually provided for a reason, so do not put in an MCA),
	+ dark coloured blister pack (indicates light sensitivity).
* Do(es) the medicine(s) have additional/complex instructions (some MCAs cannot accommodate additional instructions)?
* Does the patient take other medicines not in an MCA (PRN medicines and/or multiple methods can cause confusion for patients and/or carers)?
* Chemical structure:
	+ hydrolysis is most likely to occur in ester-containing drugs (RCOOR').

#### Resources

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| **Source** | **Notes** |
| **First-line resources** |
| In-house past enquiries |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk](http://www.sps.nhs.uk)  | Filter by ‘Medicines in compliance aid stability’ to find relevant articles, which include:* [Summary of Guidance and Evidence for use of Multi-Compartment Compliance Aids (MCCAs)](https://www.sps.nhs.uk/articles/summary-of-guidance-and-evidence-for-use-of-multi-compartment-compliance-aids-mccas/)
 |
| SPS. Medicines Compliance Aid Database. [www.sps.nhs.uk](http://www.sps.nhs.uk)  | Search by individual drug name and filter by ‘Medicines in compliance aid stability’.Provides stability information for branded and some generic medicines in MCAs. Guidance on how to use the information is at [www.sps.nhs.uk/articles/usage-of-medicines-in-compliance-aids/](http://www.sps.nhs.uk/articles/usage-of-medicines-in-compliance-aids/) |
| British National Formulary. BMA and RPS. [bnf.nice.org.uk/](https://bnf.nice.org.uk/) | See information in the ‘Handling and storage’ section of individual drug monographs.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Electronic Medicines Compendium (eMC). DataPharm Communications. [www.medicines.org.uk/emc](http://www.medicines.org.uk/emc)  | See section ‘6.4 Special precautions for storage’.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| MHRA: Medicines & Healthcare Regulatory Agency. SPCs and PILs can be directly accessed via: <https://products.mhra.gov.uk> |
| AHFS Drug Information. McEvoy GK. American Society of Health-System Pharmacists. [www.medicinescomplete.com](http://www.medicinescomplete.com)  | Information in the ‘chemistry and stability’ section of individual monographs. US resource – consider if formulation differs from UK product.  |
| Manufacturers’ Medical Information departments. | **NOTE**: see QRMG guidance ‘[How to Use Pharmaceutical Industry Medical Information Services](https://www.sps.nhs.uk/wp-content/uploads/2017/01/HowToUsePharma-MI-_PIPA-Final-September-2018.docx)’.  |
| RPS Toolkit ‘[Improving patient outcomes through MCA](http://www.rpharms.com/unsecure-support-resources/improving-patient-outcomes-through-the-better-use-of-mcas.asp)’ Royal Pharmaceutical Society. [www.rpharms.com](http://www.rpharms.com)  | A repository of information on medicines compliance aids. For RPS recommendations on use of MCAs, see ‘[Improving patient outcomes with the better use of MCAs](https://www.rpharms.com/Portals/0/RPS%20document%20library/Open%20access/Support/toolkit/rps-mca-july-2013.pdf)’. |
| PSNC Special Container Database (SCD). [psnc.org.uk/](http://psnc.org.uk/dispensing-supply/dispensing-a-prescription/special-containers/special-container-database/) | For MCA questions: a medicinal product is granted special container status in cases where it is not practical to split an original pack, for example where the product is sterile or hygroscopic. The SCD contains information about all products which have special container status or a sub-pack as a special container as recognised by the Pricing Authority. It is updated every month and is only valid for that specific month. Special container details for specific products can also be identified using the [Dictionary of Medicines and Devices](https://applications.nhsbsa.nhs.uk/DMDBrowser/DMDBrowser.do) (DM+D) browser. |
| Bibliographic databases e.g. Medline, Embase, Pubmed. Cochrane Library. [www.cochranelibrary.com/](http://www.cochranelibrary.com/) | Suggested terms: name of the medicine, DRUG STABILITY, DRUG STORAGE, DRUG PACKAGING. |
| Trip Database. John Brassey (editor). [www.tripdatabase.com/](http://www.tripdatabase.com/) | Clinical search engine to find high-quality research evidence. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Local resources** |
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#### Answering the enquiry

* The individual product’s Summaries of Product Characteristics should always be checked.
* There are many ways patients can be helped to take their medicines safely; MCAs may not be the only option. Ask if a patient assessment has been done and other options considered.

#### Keywords: COMPLIANCE AIDS and relevant drug names.

##### Enquiries about extemporaneous preparation

#### Background information

* Establish clearly what product has been prescribed including all ingredients, strengths and vehicles.
* What condition is it being used to treat? What else has been tried?

*For enquiries that relate to administration see the ‘*[*Administration of medicines*](#_Administration_of_medicines)*' enquiry answering guideline.*

#### Resources

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| **Source** | **Notes** |
| **First-line resources** |
| In-house past enquiries |  |
| Drug Tariff. NHS Business Services Authority. [www.nhsbsa.nhs.uk/PrescriptionServices/4940.aspx](http://www.nhsbsa.nhs.uk/PrescriptionServices/4940.aspx)  | Only available online. Part VIIIB ‘Arrangements for payment for Specials and Imported Unlicensed Medicines’.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Dictionary of Medicines and Devices (dm+d). NHS Business Services Authority. <https://applications.nhsbsa.nhs.uk/DMDBrowser/DMDBrowser.do>  | For product availability (including devices), pack sizes, legal status, indicative pricing, and reimbursement status. Updated weekly. **NOTE:** The dm+d information can be accessed via a variety of different sources. |
| The NEWT Guidelines for Administration of Medicines to patients with Enteral Feeding Tubes or Swallowing Difficulties. Smyth JA. North East Wales NHS Trust. [www.newtguidelines.com](http://www.newtguidelines.com) | Formulae for extemporaneous manufacture are available for some drugs – select ‘Extemp. formulations’ in menu to access a list. Alternatively, search for the drug or drug class, and then select the relevant monograph. If a formula is available it will be highlighted within the monograph.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| List of preferred unlicensed dermatological preparations (specials). British Association of Dermatologists. [www.bad.org.uk/healthcare-professionals/clinical-standards/specials](http://www.bad.org.uk/healthcare-professionals/clinical-standards/specials)  | See ‘Specials Recommended by the British Association of Dermatologists for Skin Disease 2018’ for a list of unlicensed dermatological preparations recommended for manufacture and supply in NHS hospitals (including drug, vehicles and strength). Clinicians are encouraged to prescribe from this list, the aim of which is to ensure quality, safety and availability of extemporaneously manufactured products.  |
| Ophthalmic products: Medicines Safety. The Royal College of Ophthalmologists. [www.rcophth.ac.uk/standards-publications-research/quality-and-safety/medicines-safety/](http://www.rcophth.ac.uk/standards-publications-research/quality-and-safety/medicines-safety/)  | Has links to shortage updates and special order products. |

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| Special-order manufacturers. | See ‘[Medicines guidance – Special-order manufacturers](https://bnf.nice.org.uk/guidance/special-order-manufacturers.html)’. |
| Pharmaceutical importers. | For example: Durbin [www.durbin.co.uk](http://www.durbin.co.uk), Clinigen [www.clinigengroup.com/](http://www.clinigengroup.com/) and Mawdsleys [www.mawdsleys.co.uk/](http://www.mawdsleys.co.uk/)  |
| Pro-file Database. Guy’s and St Thomas’ Hospital NHS Trust. [www.pro-file.nhs.uk](http://www.pro-file.nhs.uk)  | Useful for sourcing unlicensed ‘special’ medicinal products made in licensed NHS hospital manufacturing units. Free registration required. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Local resources** |
|  |  |

#### Answering the enquiry

* If no information is available on the stability of the requested product, it may be possible to substitute the requested product with one that has been made previously or one that is from an approved list.
* Is there a licensed alternative available? The MHRA recommends that an unlicensed medicine should only be used when a patient has special requirements that cannot be met by use of a licensed medicine; while it does not recommend “off-label” use of licensed medicines, this is preferred to the use of unassessed, unlicensed medicines.
* If the patient is a hospital inpatient, consider what arrangements need to be made to continue supply of the product after the patient is discharged. Will a special-order manufacturer be able to supply the product? Can the community pharmacist easily obtain supplies?

#### Keywords: DISPENSING-EXTEMPORANEOUS and relevant drug names.

# Pharmacokinetics

#### Background information

* What is the drug, dose, frequency, indication, route and duration of therapy?
* What is the patient’s age, sex and weight?
* Do they have any renal or hepatic impairment? (for background information required and relevant calculations please see the enquiry answering guidelines ‘[Drug use in hepatic impairment](#_Drug_use_in_2)’ and ‘[Renal impairment](#renal)’).
* Does the patient have any other disease states or conditions that may affect drug-handling e.g. hypothyroidism, hyperthyroidism, hypoalbuminaemia?
* Is there concurrent medication?
* Have any previous drug levels been taken? If so, check the exact time they were taken in relation to drug administration and confirm the units of measurement.

#### Pharmacokinetic definitions and calculations

**Bioavailability (F):** the fraction of the dose that reaches the systemic circulation as intact drug.

Bioavailability = Bioavailability factor (F) x dose

**Volume of distribution (Vd):** a hypothetical volume that relates the concentration of drug in the plasma to the total amount of drug in the body.

Vd (L) = Total amount of drug in the body (mg)

 Plasma drug concentration (mg/L)

**Clearance (Cl):** the volume of blood cleared of drug per unit time. The units are normally litres per hour or ml per minute.

 Cl = F x (Dose/Dose interval)

 Average steady state plasma drug concentration (Css)

**Loading dose:** the dose required to rapidly achieve the desired plasma drug concentration (C)

 Loading dose = Vd x C

 F

**Maintenance dose:** the regular dose required to maintain the desired plasma drug concentration.

 Maintenance dose = Cl x Css x dose interval

 F

**Steady-state:** the equilibrium achieved after multiple dosing when the rate of drug administration equals the rate of drug elimination. At steady-state the amount of drug in the body, and the average plasma concentration, are constant.

**Half-life:** is the time taken for the amount of drug in the body (or the plasma concentration) to fall by half.

Half-life determines both time to reach steady-state conditions with chronic dosing and time for elimination. It takes approximately 5 half-lives to achieve steady-state conditions or for a drug to be completely eliminated from the plasma. (**NOTE**: the situation is more complex for drugs with multi-exponential half-lives).

Half-life is a function of Vd and inversely proportional to clearance:

Half-life (hrs) = 0.693 x Volume of distribution (L)

Clearance (L/hr)

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources** |
| In-house past enquiries. |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk](http://www.sps.nhs.uk)  | Use search term ‘pharmacokinetics’ or ‘monitoring’ and/or filter using the drug name, to see relevant articles, which include:* [Medicines monitoring tool](https://www.sps.nhs.uk/home/guidance/drug-monitoring/)
* [Extended-release methylphenidate - A review of the pharmacokinetic profiles of available preparations](https://www.sps.nhs.uk/articles/extended-release-methylphenidate-a-review-of-the-pharmacokinetic-profiles-of-available-products/)
* [Which medicines require extra care when switching between liquid and tablet/capsule formulations?](https://www.sps.nhs.uk/articles/switching-between-liquid-and-tablet-capsule-formulations-which-medicines-require-extra-care/)
* [What factors should be considered when using LMWH to treat venous thromboembolism in patients with high body weight?](https://www.sps.nhs.uk/articles/what-factors-should-be-considered-when-using-lmwh-to-treat-venous-thromboembolism-in-patients-with-high-body-weight/)
* [When should gentamicin levels be taken after once daily administration?](https://www.sps.nhs.uk/articles/when-should-gentamicin-levels-be-taken-after-once-daily-administration/)
* [How should medicines be dosed in children who are obese?](https://www.sps.nhs.uk/articles/how-should-medicines-be-dosed-in-children-who-are-obese/)
* [Switching from modified release doxazosin to standard release doxazosin in patients with hypertension](https://www.sps.nhs.uk/articles/switching-from-doxazosin-xl-tablets-to-doxazosin-standard-release-tablets/)
* [Differences in oral tablet mesalazine preparations and considerations when switching](https://www.sps.nhs.uk/articles/differences-in-oral-tablet-mesalazine-preparations-and-considerations-when-switching/)
* [What are the differences between non-oral mesalazine preparations?](https://www.sps.nhs.uk/articles/what-are-the-differences-between-non-oral-mesalazine-preparations/)
* [Which medicines should be considered for brand-name prescribing in primary care?](https://www.sps.nhs.uk/articles/which-medicines-should-be-considered-for-brand-name-prescribing-in-primary-care/)
 |
| British National Formulary. BMA and RPS. [bnf.nice.org.uk/](https://bnf.nice.org.uk/) | Provides details of recognised therapeutic ranges for some drugs that require monitoring e.g. phenytoin, theophylline, gentamicin.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Electronic Medicines Compendium (eMC). DataPharm Communications. [www.medicines.org.uk/emc](http://www.medicines.org.uk/emc)  | Section 5.2 ‘Pharmacokinetic properties’ provides pharmacokinetic information including absorption, distribution, metabolism, elimination and half-life. An indication of the recognised therapeutic range is usually given within section 4.2 ‘Posology and method of administration’.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| MHRA: Medicines & Healthcare Regulatory Agency. SPCs and PILs can be directly accessed via: <https://products.mhra.gov.uk> |
| Martindale, the Complete Drug Reference. Brayfield, A. Pharmaceutical Press. [www.medicinescomplete.com](http://www.medicinescomplete.com) | Monographs provide information on pharmacokinetics including elimination half-life. |
| TB Drug Monographs. [www.tbdrugmonographs.co.uk/](http://www.tbdrugmonographs.co.uk/)  | Resource to support the monitoring and safe use of anti-tuberculosis drugs and second line treatment of multidrug-resistant tuberculosis.Includes advice on ‘[Baseline and ongoing monitoring tests](https://ddec1-0-en-ctp.trendmicro.com:443/wis/clicktime/v1/query?url=http%3a%2f%2fwww.tbdrugmonographs.co.uk%2fbaseline%2d%2dongoing%2dmonitoring%2dtests.html&umid=91c2b035-40bc-4f84-a710-ec7fa482a515&auth=214c472b0d4a84553d6481f498015f71ae1db4d5-8fad1f0aeeb907d2311aa477b323d5109f33ad4f)’, drug level monitoring and adverse effect monitoring recommendations. |
| Bibliographic databases e.g. Medline, Embase, Pubmed. Cochrane Library. [www.cochranelibrary.com/](http://www.cochranelibrary.com/) | Terms include PHARMACOKINETICS, ABSORPTION, INTESTINAL ABSORPTION, BIOLOGICAL TRANSPORT, TISSUE DISTRIBUTION, BIOTRANSFORMATION, DRUG ABSORPTION, DRUG ACCUMULATION, DRUG ACTIVATION, DRUG ADSORPTION, DRUG BIOAVAILABILITY, DRUG CLEARANCE, DRUG DIFFUSION, DRUG DISPOSITION, DRUG DISTRIBUTION, DRUG ELIMINATION, DRUG EXCRETION, DRUG HALF LIFE, DRUG PENETRATION, MAXIMUM PLASMA CONCENTRATION, PLASMACONCENTRATION-TIME CURVE, TIME TO MAXIMUM PLASMA CONCENTRATION, DRUG METABOLISM, DRUG RELEASE. |
| Trip Database. John Brassey (editor). [www.tripdatabase.com/](http://www.tripdatabase.com/) | Clinical search engine to find high-quality research evidence. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Additional resources (tailor to local use/availability)** |
| Drugdex Database. IBM Corporation (USA). [www.micromedexsolutions.com](http://www.micromedexsolutions.com) | Pharmacokinetic section provides therapeutic drug levels, absorption, distribution, metabolism and excretion.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Lexi-Comp. Lexi-Comp Inc. (USA). <https://online.lexi.com/lco/action/home> |  |
| A pharmacokinetics textbook e.g. Winter’s Basic Clinical Pharmacokinetics. Beringer PM. Lippincott, Williams & Wilkins. | As an example reference text book for pharmacokinetics. Other reference texts could also be held. |
|  **Local resources**  |
| Trust formularies and/or clinical chemistry labs and/or therapeutic drug level monitoring services. | Trusts will have local policies and procedures for measuring and interpretation of drug levels. |

#### Answering the enquiry

* Always have calculations checked.
* Pharmacokinetic parameters in elderly and paediatric patients may not be the same as in adult patients and may alter drug response.
* For highly protein bound drugs consider checking albumin levels.
* If therapeutic drug level monitoring (TDM) is recommended ensure that levels are not taken before steady state is reached.

#### Keywords: PHARMACOKINETICS, ABSORPTION, BIOLOGICAL AVAILABILITY, CLEARANCE-DRUG, VOLUME OF DISTRIBUTION, EXCRETION, EXCRETION-DRUG, HALF LIFE, METABOLISM, METABOLISM-DRUG, METABOLITES-ACTIVE, FIRST-PASS PHENOMENON.

# Poisoning or overdose

#### Background information

A quick response may be required if an overdose has been taken. Be aware that referral to the National Poisons Information Service (NPIS, telephone **0344 892 0111**) may be required. Urgent medical attention may be necessary.

The key information required before answering an enquiry about a potential poisoning or overdose includes:

* **Intent** – Intentional or accidental
* **Who?** Patient – age and weight
* **What?** Agent – brand name of the medicine/product or the ingredient(s).
* **When?** Time – as accurate a time as is possible for a single ingestion/ exposure or the timeframe over which multiple ingestions / exposures occurred.
* **How much?** Amount – the amount ingested or relevant indicator blood levels.
* **Route** – ingestion, inhalation, skin, eye, injection, bite/sting, other, unknown.
* **Symptoms** – any useful information relating to the condition of the patient. While descriptions such as ‘respiratory depression’ and ‘renal dysfunction’ are acceptable, to ensure their usefulness in patient assessment, they should ideally be supported with relevant clinical parameters. Features and trends in monitoring parameters are very important in assessing a patient.
* **Circumstances** – accidental, deliberate, administration error, drug ID unknown.
* **Type** – acute, acute-on-chronic, chronic, staggered, unknown.
* **Action taken** – Did the patient or carer try any self-care in response to the ingestion / exposure? If the patient has burns advise to irrigate with water for at least 20 minutes while waiting for formal clinical assessment and care. If the person has life-threatening symptoms (e.g. is unconscious or having difficulty breathing) urge the caller to call an ambulance.

Poor provision of key information can mean that the referral onward to a suitable health care professional or NPIS, can be unnecessarily prolonged as further necessary information is gathered. This can result in a delay in the patient’s treatment.

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources**  |
| Relevant articles via [www.sps.nhs.uk](http://www.sps.nhs.uk) | Relevant articles include:* [Regional Medicines Optimisation Committee Antidotes and RUMs Position Statement](https://www.sps.nhs.uk/articles/regional-medicines-optimisation-committee-antidotes-and-rums-position-statement/)
* [Rarely Used and Urgent Medicines List](https://www.sps.nhs.uk/articles/rarely-used-and-urgent-medicines-list/)
 |
| Toxbase. [www.toxbase.org](http://www.toxbase.org)  | Information from NPIS on the symptoms and management of poisoning by medicines, plants, household chemicals and other substances. Use the search box at the top of the home page or click on the poisons A-Z index for an alphabetical list of products and drugs. For a list of chemicals click on ‘Chemicals’, select ‘Household Chemicals’. This includes: cosmetics, hair products, household cleaners, miscellaneous, pharmaceuticals, standard formulation index, toiletries.For acute poisoning or for complex cases, refer directly to the Poisons Information Service:**0344 892 0111.**Before using the website, it is advisable to complete the e-learning modules available at [www.toxlearning.co.uk](http://www.toxlearning.co.uk)  |
| Electronic Medicines Compendium (eMC). DataPharm Communications. [www.medicines.org.uk/emc](http://www.medicines.org.uk/emc) | SPC section 4.9 overdose may provide information on the symptoms and management of toxicity.SPC section 5.2 provides information on pharmacokineticsSee comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| MHRA: Medicines & Healthcare Regulatory Agency. SPCs and PILs can be directly accessed via: <https://products.mhra.gov.uk> |
| Martindale, the Complete Drug Reference. Brayfield, A. Pharmaceutical Press. [www.medicinescomplete.com](http://www.medicinescomplete.com) | Monographs provide information on pharmacokinetics including elimination half-life. |
| INCHEM. International Programme on Chemical Safety. [www.inchem.org/](http://www.inchem.org/).  | Toxicology information on chemicals and drugs. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
|  **Additional resources (tailor to local use/availability)** |
| Drugdex Database. IBM Corporation (USA). [www.micromedexsolutions.com](http://www.micromedexsolutions.com)  | Monographs provide useful information on pharmacokinetics such as the elimination half-life.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Lexi-Comp. Lexi-Comp Inc. (USA). <https://online.lexi.com/lco/action/home> |  |
|  **Local resources**  |
|  |  |

#### Answering the enquiry

* If you are unable to answer the question using resources available, or are concerned that the person requires specialist medical attention, refer the caller (if a healthcare professional) to NPIS. Have a patient ID available before contacting NPIS in case they need to make further contact or follow-up that patient.
* Document all poisoning enquiries even those you refer directly to NPIS.

#### Keywords: POISONING, drug name or substance name

# Pregnancy

#### Background information

Refer to the useful safety in pregnancy training resource on the [SPS website](https://www.sps.nhs.uk/home/guidance/safety-in-pregnancy/):

* [Questions to ask when giving advice on medicines in pregnancy](https://www.sps.nhs.uk/articles/questions-to-ask-and-information-to-collect-when-giving-advice-about-medicines-in-pregnancy/)
* [Information resources that give advice on medicines in pregnancy](https://www.sps.nhs.uk/articles/information-resources-that-give-advice-about-medicines-in-pregnancy/)
* [Assessing risk and informing the risk versus benefit decision for medicines in pregnancy](https://www.sps.nhs.uk/articles/assessing-risk-and-informing-the-risk-versus-benefit-decision-for-medicines-in-pregnancy/)
* [The principles of prescribing in pregnancy](https://www.sps.nhs.uk/articles/the-principles-of-prescribing-in-pregnancy/)
* [Formulating your advice on the use of medicines in pregnancy](https://www.sps.nhs.uk/articles/formulating-your-advice-on-the-use-of-medicines-in-pregnancy/)

The key information required before answering an enquiry about drug exposure in pregnancy is:

* **Who?** Patient –age, general health, pregnant or trying to conceive?
* Has the patient taken the medicine already? Or is this a prospective enquiry? The ideal is to consider medicines before exposure. While you may be in a position to simply advise against exposure if it has not already been taken. More detailed scans, reduced doses, additional drug monitoring etc. may be necessary if exposure has occurred.
* **What?** Medicine – the proposed medicine(s) and any other medicines the patient is taking or wants to take (generic or brand name, dose, frequency, route).
	+ Is drug therapy necessary? Have other therapies/medicines been tried?
	+ Has the patient been on this or alternative medicine(s) during previous pregnancies and were symptoms controlled?
* **Why?** Indication – it is helpful to know the indication in order to be able to advise best about risk/benefit (and necessity of drug) and to suggest alternatives if necessary**.**

***Pregnancy***

* Stage of pregnancy in weeks – at the time of the enquiry and at the time of the exposure. Be as accurate as possible as developmental sensitivities to teratogens may be dependent on stage of pregnancy.
* Have any investigations been performed?
* Previous pregnancies or miscarriages?

**Referral to UKTIS** – Document the GP or Consultant contact details and a patient identifier in case the UK Teratology Information Service (UKTIS) want to follow up the exposure.

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources** | **NOTE**: At least two resources should be used for all pregnancy enquiries. |
| In-house past enquiries  |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk](http://www.sps.nhs.uk)  | Use search term ‘pregnancy’ and/or filter using the drug name, to see relevant articles; which include:* [Nausea and Vomiting: treatment during pregnancy](https://www.sps.nhs.uk/articles/nausea-and-vomiting-treatment-during-pregnancy/)
* [Dosing and monitoring for treatment of vitamin D deficiency in pregnancy](https://www.sps.nhs.uk/articles/dosing-and-monitoring-for-treatment-of-vitamin-d-deficiency-in-pregnancy/)
* [How should severe vitamin B12 deficiency in pregnancy be managed?](https://www.sps.nhs.uk/articles/how-should-severe-vitamin-b12-deficiency-in-pregnancy-be-managed/)
* [Hayfever or allergic rhinitis: treatment during pregnancy](https://www.sps.nhs.uk/articles/hayfever-or-allergic-rhinitis-treatment-during-pregnancy/)
* [Can opioids be used for pain relief during pregnancy?](https://www.sps.nhs.uk/articles/can-opioids-be-used-for-pain-relief-during-pregnancy/)
* [Is it safe to take herbal medicines during pregnancy?](https://www.sps.nhs.uk/articles/is-it-safe-to-take-herbal-medicines-during-pregnancy/)
 |
| CKS. Clinical Knowledge Summaries. NICE. [cks.nice.org.uk](http://cks.nice.org.uk) | Many summaries include information on the management of that condition during pregnancy. There are specific summaries on:* [Itch in pregnancy](https://cks.nice.org.uk/itch-in-pregnancy)
* [Dyspepsia - pregnancy associated](https://cks.nice.org.uk/dyspepsia-pregnancy-associated)
* [UTI - in pregnancy (no visible haematuria)](https://cks.nice.org.uk/urinary-tract-infection-lower-women#!scenario:3)
* [Asymptomatic bacteriuria in pregnancy](https://cks.nice.org.uk/topics/urinary-tract-infection-lower-women/management/asymptomatic-bacteriuria-in-pregnancy/)
* [Nausea and vomiting in pregnancy](https://cks.nice.org.uk/nauseavomiting-in-pregnancy)
* [Depression - antenatal and postnatal](https://cks.nice.org.uk/depression-antenatal-and-postnatal)
* [Antenatal care - uncomplicated pregnancy](https://cks.nice.org.uk/antenatal-care-uncomplicated-pregnancy)
* [Hypertension in pregnancy](https://cks.nice.org.uk/hypertension-in-pregnancy)

For full list, see: [Clinical Specialties - Pregnancy](https://cks.nice.org.uk/clinicalspeciality#?speciality=Pregnancy) |
| Toxbase [www.toxbase.org](http://www.toxbase.org/)  | Monographs from UKTIS are available on this website. Click on ‘Exposure in pregnancy’.Monographs are listed alphabetically by drug name. Towards the bottom of the screen are monographs on managing various conditions during pregnancy. The date of revision is on each monograph. If a monograph is old, contact UKTIS for further information. |
| UKTIS (UK Teratology Information Service) [www.uktis.org](http://www.uktis.org)  | UKTIS Summary monographs for healthcare professionals are freely available on this site (no registration or log-in required); click on the ‘Resources’ section. |
| BUMPS (Best Use of Medicines in Pregnancy) [www.medicinesinpregnancy.org/](http://www.medicinesinpregnancy.org/)  | This website provides information factsheets produced by UKTIS (see Toxbase above) for pregnant women and their partners; intended to be used in discussion with a health care provider. Monographs cover a variety of medicines, drug classes, recreational drugs and products such as face cream and hair dye. There are fewer monographs than on Toxbase.The site also has an ‘online reporting’ facility for women to record their drug exposure during a current or previous pregnancy in order to help UKTIS understand how medicines, lifestyles or illnesses may affect foetal development.  |
| Drugs in Pregnancy and Lactation. Briggs G et al. Lippincott, Williams and Wilkins. [online.vitalsource.com](http://online.vitalsource.com/) **NOTE**: Use the online version; monograph updates are included in-between print editions. | Available in paper, e-book, app and online versions. Quarterly updates are incorporated into online monographs. Therefore, it is better to use the online rather than paper version. Drug monographs are listed in alphabetical order and provide in-depth data; for most monographs there is also a summary of safety in breastfeeding. Each monograph is assigned a risk category. Do not rely solely on these; always read the full monograph.  |
| Drugs during Pregnancy and Lactation. Schaefer, C et al. Academic Press Inc | Chapter 1 provides a useful overview of the risks of drug use in pregnancy. Chapter 2 contains information on drugs in pregnancy by therapeutic class. Each monograph has a boxed ‘recommendation’ at the end that may suggest suitable alternatives.  |
| British National Formulary. BMA and RPS. [bnf.nice.org.uk/](https://bnf.nice.org.uk/) | Drug monographs include brief information on safety of drugs in pregnancy.These monographs tend to reflect SPC advice.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Electronic Medicines Compendium (eMC). DataPharm Communications. [www.medicines.org.uk/emc](http://www.medicines.org.uk/emc)  | SPC section 4.6 (pregnancy and lactation) clarifies the licensed status of a medicine’s use during pregnancy. **NOTE**: statements in SPCs are often more cautious than current evidence requires and should not be used as the only data source.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| MHRA: Medicines & Healthcare Regulatory Agency.SPCs and PILs can be directly accessed via:<https://products.mhra.gov.uk> |
| Royal College of Obstetrics and Gynaecology (RCOG).  | A range of guidelines on women’s health are available. Click on ‘Guidelines & research services’. |
| The Maudsley Prescribing Guidelines in Psychiatry, Taylor D et al. Wiley-Blackwell. | Chapter 7 contains a section on the choice of medicines for psychiatric conditions in pregnancy. |
| Psychotropic Drug Directory. Bazire S. Lloyd-Reinhold Publications. | Chapter 3 contains a section on the choice of medicines for psychiatric conditions in pregnancy. |
| UK Teratology Information Service (UKTIS); specialist centre for drugs in pregnancy.Tel: 0844 892 0909 | UKTIS provides information to NHS health care professionals on the safety of medicines in pregnancy. Before contacting UKTIS ensure you have checked available resources and have obtained all the background information.  |
| Bibliographic databases e.g. Medline, Embase, Pubmed. Cochrane Library. [www.cochranelibrary.com/](http://www.cochranelibrary.com/) | Suggested terms: PREGNANCY, PREGNANT WOMEN, PREGNANCY-COMPLICATIONS, PREGNANCY DISORDER, ABNORMALITIES-DRUG INDUCED, CONGENITAL ABNORMALITIES, CONGENITAL MALFORMATION, EMBRYONIC AND FETAL DEVELOPMENT, MATERNAL EXPOSURE, PERINATAL DRUG EXPOSURE, PRENATAL DRUG EXPOSURE plus individual drug name.This will yield mainly isolated case studies which may indicate a trend or potential concern. However, isolated case studies do not provide sufficient numbers on which to base advice without expert interpretation. |
| Trip Database. John Brassey (editor). [www.tripdatabase.com/](http://www.tripdatabase.com/) | Clinical search engine to find high-quality research evidence. Can register for free for additional functionality |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Additional resources (tailor to local use/availability)** |
| Handbook of Obstetric Medicine. Nelson-Piercy C. | Early chapters cover the management different disease areas during pregnancy. Later chapters consider the differential diagnosis of medical problems in pregnancy. |

|  |  |
| --- | --- |
| Clinical Handbook of Psychotropic Drugs for Children and Adolescents. D Elbe, TR Black, IR McGrane, RM Procyshyn, editors. , editors. Hogrefe Publishing Corp | A useful additional resource if your centre provides a service/responds to queries relating to child and adolescent mental health services. NB: American resource so prescribing information and dosages may be different in the UK. Should not be relied on as a single resource.  |
| Reprorisk Database. Thomson Healthcare (USA) [www.micromedexsolutions.com](http://www.micromedexsolutions.com) | The Reprorisk database includes Reprotox, Shepards and Teris. |
| **Local resources**  |
|  |  |

#### Answering the enquiry

* Consider the benefits and risks of medication to both the expectant mother and developing baby.
* Consider the implications of unmanaged acute and chronic conditions on the expectant mother and developing baby’s health.
* Consider the period of gestation and, if possible, avoid all drugs during the first trimester.
* Where appropriate, use the lowest effective dose for as short a period as possible.
* Older drugs are often preferred to newer drugs as there is more information about their safety.
* Avoid polypharmacy where possible.
* Remember to consider maternal contraindications and precautions.
* Reassure the patient/enquirer if the drug has already been taken and if there is no indication from the literature that the drug poses significant harm.
* Detailed scans during pregnancy may be appropriate if a medicine has been taken.
* Remember there is a background risk of major congenital malformations of 2-3% in the population and 10-20% for miscarriage for a relatively young, healthy mother. This risk is higher for older mothers irrespective of their health or medicines they may be taking.

#### Keywords: PREGNANCY plus drug name and disease name (if appropriate)

# **Drug use in psychiatry**

#### Background information

* If patient specific, establish patient details, including age, sex etc.
* Establish current and previous medical history, drug history (including non-prescription and illicit drugs).

*For enquiries that relate to* [drug interactions](#_Interactions_1),[adverse effects](#_Adverse_Drug_Reactions_2)*,* [renal impairment](#renal), [hepatic impairment](#_Drug_use_in_2), [pregnancy](#_Pregnancy) or [breastfeeding](#_Drugs_in_breastfeeding)*, please refer to the relevant enquiry answering guidelines.*

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources** |
| In-house past enquiries  |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk](http://www.sps.nhs.uk) | Use search term ‘mental health’ or ‘mental health and illness’ and/or filter using the drug name, to see relevant articles; which include:* [How do you switch between tricyclic, SSRI and related antidepressants?](https://www.sps.nhs.uk/articles/how-do-you-switch-between-tricyclic-ssri-and-related-antidepressants/)
* [How do you switch between monoamine oxidase inhibitors and SSRI, tricyclic or related antidepressants?](https://www.sps.nhs.uk/articles/how-do-you-switch-between-monoamine-oxidase-inhibitors-and-ssri-tricyclic-or-related-antidepressants/)
* [Using antidepressants for depression in people with epilepsy](https://www.sps.nhs.uk/articles/using-antidepressants-for-treating-depression-in-people-with-epilepsy/)
* [Choosing a suitable antidepressant for people with coronary heart disease (CHD)](https://www.sps.nhs.uk/articles/choosing-a-suitable-antidepressant-for-people-with-coronary-heart-disease-chd/)
* [If antidepressant-induced hyponatraemia has been diagnosed, how should the depression be treated?](https://www.sps.nhs.uk/articles/if-antidepressant-induced-hyponatraemia-has-been-diagnosed-how-should-the-depression-be-treated-2/)
* [What are the equivalent doses of oral benzodiazepines?](https://www.sps.nhs.uk/articles/what-are-the-equivalent-doses-of-oral-benzodiazepines/)
* [What is the risk of gastrointestinal bleeding associated with selective serotonin reuptake inhibitors (SSRIs)?](https://www.sps.nhs.uk/articles/what-is-the-risk-of-gastrointestinal-bleeding-associated-with-selective-serotonin-reuptake-inhibitors-ssris/)
 |
| British National Formulary. BMA and RPS. [bnf.nice.org.uk/](https://bnf.nice.org.uk/) | See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| CKS. Clinical Knowledge Summaries. NICE. [cks.nice.org.uk](http://cks.nice.org.uk)  | Useful and practical summaries on mental health conditions including:* [Bipolar disorder](https://cks.nice.org.uk/bipolar-disorder)
* [Depression](https://cks.nice.org.uk/depression)
* [Generalized anxiety disorder](https://cks.nice.org.uk/generalized-anxiety-disorder)
* [Obsessive-compulsive disorder](https://cks.nice.org.uk/obsessive-compulsive-disorder)
* [Psychosis and schizophrenia](https://cks.nice.org.uk/psychosis-and-schizophrenia)
* [Benzodiazepine and z-drug withdrawal](https://cks.nice.org.uk/benzodiazepine-and-z-drug-withdrawal)
* [Dementia](https://cks.nice.org.uk/dementia)

For full list, see: [Clinical Specialties - Mental health](https://cks.nice.org.uk/clinicalspeciality#?speciality=Mental%20health)  |

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| --- | --- |
| Electronic Medicines Compendium (eMC). DataPharm Communications. [www.medicines.org.uk/emc](http://www.medicines.org.uk/emc) | Check relevant SPCs.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| MHRA: Medicines & Healthcare Regulatory Agency. SPCs and PILs can be directly accessed via:<https://products.mhra.gov.uk> |
| Psychotropic Drug Directory. Bazire S. Lloyd-Reinhold Publications. |  |
| The Maudsley Prescribing Guidelines in Psychiatry, Taylor D et al. Wiley-Blackwell. |  |
| NICE. National Institute for Health and Care Excellence. [www.nice.org.uk](http://www.nice.org.uk) | The full list of NICE products on mental health and behavioural conditions can be accessed here: [www.nice.org.uk/guidance/conditions-and-diseases/mental-health-and-behavioural-conditions](http://www.nice.org.uk/guidance/conditions-and-diseases/mental-health-and-behavioural-conditions)  |
| SIGN—Scottish Intercollegiate Guidelines Network. [www.sign.ac.uk](http://www.sign.ac.uk)  | Relevant guidelines include:* [Risk reduction and management of delirium](https://www.sign.ac.uk/our-guidelines/risk-reduction-and-management-of-delirium/)
* [Assessment, diagnosis and interventions for autism spectrum disorders](https://www.sign.ac.uk/our-guidelines/assessment-diagnosis-and-interventions-for-autism-spectrum-disorders/)
* [Management of schizophrenia](https://www.sign.ac.uk/our-guidelines/management-of-schizophrenia/)
 |
| Bibliographic databases e.g. Medline, Embase, Pubmed. Cochrane Library. [www.cochranelibrary.com/](http://www.cochranelibrary.com/) | Suggested terms: ANTIDEPRESSIVE AGENTS, TRICYCLIC ANTIDEPRESSANT AGENT, SEROTONIN UPTAKE INHIBITOR, SEROTONIN REUPTAKE INHIBITOR, ANTIPSYCHOTIC AGENTS, NEUROLEPTIC AGENT. |
| PsycINFO via [www.evidence.nhs.uk](http://www.evidence.nhs.uk)  | Database of abstracts that covers psychological practice and research (e.g. drug and behavioural therapy, treatment of disease, drug addiction, developmental and educational psychology). |
| Trip Database. John Brassey (editor). [www.tripdatabase.com/](http://www.tripdatabase.com/) | Clinical search engine to find high-quality research evidence. Can register for free for additional functionality. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Additional resources (tailor to local use/availability)** |
| Oxford Handbook of Psychiatry | Provides practical advice on all aspects of general adult psychiatry and other psychiatric sub-specialties.  |
| **Local resources**  |
|  |  |

#### Answering the enquiry

* Be aware that psychotropic medication cannot be stopped abruptly due to risk of discontinuation reactions.

#### Keywords: Include drug names and disease states

# Renal impairment

#### Background information

* Diagnosis and previous medical history if relevant.
* Establish patient details, including age, sex, ethnic origin, height, weight, etc.
* U&Es and serum creatinine, eGFR – most recent if possible. Are they stable or changing? Is renal impairment acute or chronic?
* Current medication – include all drugs (prescription and non-prescription) including doses.
* Is renal impairment suspected to be drug-induced? Which drug(s) are suspected?\*

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| *\* If renal failure is thought to be drug-related refer to the enquiry answering guideline on ‘*[*Adverse drug reactions’*](#_Adverse_Drug_Reactions_2) |

* Is the patient receiving renal replacement therapy (RRT), if so how often and what type? Does the patient have any residual renal function?
	+ Haemodialysis (HD)
	+ Haemodiafiltration (HDF)
	+ Peritoneal Dialysis (PD) [automated peritoneal dialysis (APD) and continuous ambulatory peritoneal dialysis (CAPD)]
	+ Continuous arteriovenous haemofiltration (CAVHF)/continuous venovenous haemofiltration (CVVHF)
	+ Continuous arteriovenous haemodialysis (CAVHD)/continuous venovenous haemodialysis (CVVHD)
	+ Continuous arteriovenous haemodiafiltration (CAVHDF)/continuous venovenous haemodiafiltration (CVVHDF)
* For enquiries about dosage or suitability of a drug in renal impairment, ask:
	+ What is the indication for the drug and have alternatives been considered?
	+ What agent and what dosage would normally be used if the patient did not have renal impairment?
	+ Is the patient currently taking the drug in question?
	+ For most drugs and for most patients (over 18 years and of average build and height) dosage adjustment based on eGFR is acceptable. However, calculate the patient’s estimated creatinine clearance (CrCl) using the Cockcroft & Gault equation (see below), and monitor plasma-drug concentrations and clinical response:
		- For patients taking nephrotoxic drugs (examples include vancomycin and amphotericin B)
		- For adults at extremes of body weight (BMI <18.5kg/m2 or >40kg/m2) and use ideal body weight or adjusted body weight. Where the patient’s body weight is less than their ideal body weight, actual body weight should be used instead.
		- For patients taking direct-acting oral anticoagulants (DOACs)
		- For patients taking medicines that are largely renally excreted and have a narrow therapeutic index, such as digoxin and sotalol.
		- For elderly patients (aged 75 years and over)
	+ For children, serum-creatinine concentration is sometimes used as a measure of renal function but is only a rough guide even when corrected for age, weight, and sex. Base dose recommendations on severity of renal impairment expressed in terms of GFR (mL/minute/1.73 m2) (see below).
	+ Where an accurate GFR is considered necessary e.g. in chemotherapy dosing, an isotope GFR determination should be performed.

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| Cockcroft and Gault equationCrCl mL/minute (male) = 1.23 x (140 - age in years) x weight in kg serum creatinine (micromol/litre)CrCl mL/minute (female) = 1.04 x (140 - age in years) x weight in kg serum creatinine (micromol/litre) |

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| Calculation of estimated GFR (mL/minute/1.73 m2) in children Child over 1 year: eGFR = 40 x height (cm)/serum creatinine (micromol/litre) Neonate: eGFR = 30 x height (cm)/serum creatinine (micromol/litre) |

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources** |
| In-house past enquiries  |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk](http://www.sps.nhs.uk)  | Use search term ‘renal’ and/or filter using the drug name, to see relevant articles, which include:* [Which estimate of renal function should be used when dosing patients with renal impairment?](https://www.sps.nhs.uk/articles/which-estimate-of-renal-function-should-be-used-when-dosing-patients-with-renal-impairment/)
* [What factors need to be considered when dosing patients with renal impairment?](https://www.sps.nhs.uk/articles/what-factors-need-to-be-considered-when-dosing-patients-with-renal-impairment-2/)
* [What factors need to be considered when dosing patients on renal replacement therapies?](https://www.sps.nhs.uk/articles/what-factors-need-to-be-considered-when-dosing-patients-on-renal-replacement-therapies/)
* [Direct Acting Oral Anticoagulants (DOACs) in Renal Impairment: Practice Guide to Dosing Issues](https://www.sps.nhs.uk/articles/direct-acting-oral-anticoagulants-doacs-in-renal-impairment-practice-guide-to-dosing-issues/)
* [Can oral bisphosphonates be given to people with renal impairment to treat osteoporosis?](https://www.sps.nhs.uk/articles/can-oral-bisphosphonates-be-given-to-people-with-renal-impairment-to-treat-osteoporosis/)
* [Low molecular weight heparins – should prophylactic doses be used in patients with renal impairment?](https://www.sps.nhs.uk/articles/should-prophylactic-doses-of-low-molecular-weight-heparins-be-used-in-patients-with-renal-impairment/)
* [Are low molecular weight heparins preferred to unfractionated heparin in people with renal impairment for treatment indications?](https://www.sps.nhs.uk/articles/are-low-molecular-weight-heparins-preferred-to-unfractionated-heparin-in-people-with-renal-impairment-for-treatment-indications/)
* [What is the sodium content of medicines?](https://www.sps.nhs.uk/articles/what-is-the-sodium-content-of-medicines-2/)
 |
| British National Formulary. BMA and RPS. [bnf.nice.org.uk/](https://bnf.nice.org.uk/) | If care is needed when prescribing in renal impairment, this is stated under the relevant drug. Use the BNF as an initial source of information but it is inadequate as a sole reference source. See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Electronic Medicines Compendium (eMC). DataPharm Communications. [www.medicines.org.uk/emc](http://www.medicines.org.uk/emc)  | SPCs should always be checked as they may give advice on the need to reduce doses and a suitable regimen in renal impairment. This is particularly important for new drugs, as the SPC is usually very detailed and there are often no additional published data. See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| MHRA: Medicines & Healthcare Regulatory Agency.SPCs and PILs can be directly accessed via:<https://products.mhra.gov.uk> |
| Drug Safety Update. MHRA. [www.gov.uk/drug-safety-update](http://www.gov.uk/drug-safety-update) | See: [Prescribing medicines in renal impairment: using the appropriate estimate of renal function to avoid the risk of adverse drug reactions.](https://www.gov.uk/drug-safety-update/prescribing-medicines-in-renal-impairment-using-the-appropriate-estimate-of-renal-function-to-avoid-the-risk-of-adverse-drug-reactions) October 2019 for advice on which estimate of renal function to use when prescribing medicines for patients with renal impairment.  |
| The Renal Drug Database. Ashley C. Dunleavy A, and UK Renal Pharmacy Group. [www.renaldrugdatabase.com/](http://www.renaldrugdatabase.com/)  | Drug monographs suggest doses in renal impairment and in patients undergoing renal replacement therapies. Doses reflect specialist practice and may differ from licensed doses, so it is important to always check the SPC as well. Available as an online searchable database (preferred format) which is updated more frequently than the book.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| NICE. National Institute for Health and Care Excellence. [www.nice.org.uk](http://www.nice.org.uk)  | NICE guidance on chronic kidney disease in adults ([www.nice.org.uk/guidance/cg182](http://www.nice.org.uk/guidance/cg182)) recommends the use of the CKD-EPI creatinine equation to calculate eGFR, in preference to the MDRD equation. |
| Pharmaceutical manufacturers. | Manufacturers may have information about any necessary reduction of doses in renal impairment.**NOTE**: see QRMG guidance ‘[How to Use Pharmaceutical Industry Medical Information Services](https://www.sps.nhs.uk/wp-content/uploads/2017/01/HowToUsePharma-MI-_PIPA-Final-September-2018.docx)’.  |
| Bibliographic databases e.g. Medline, Embase, Pubmed. Cochrane Library. [www.cochranelibrary.com/](http://www.cochranelibrary.com/) | If no information can be found in standard resources on using a drug in a specific type of renal disease, consider conducting a literature search for relevant papers. This should be done before using pharmacokinetic/pharmacodynamic data to predict drug handling from first principles.Suggested terms: KIDNEY FAILURE, ACUTE KIDNEY FAILURE, CHRONIC KIDNEY FAILURE, KIDNEY INJURY (Embase); ACUTE KIDNEY INJURY, RENAL INSUFFICIENCY, ‘RENAL INSUFFICIENCY,CHRONIC’ or ‘KIDNEY FAILURE, CHRONIC’ (Medline) |
| Trip Database. John Brassey (editor). [www.tripdatabase.com/](http://www.tripdatabase.com/) | Clinical search engine to find high-quality research evidence. Can register for free for additional functionality. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| Drugs in renal failure specialist advisory service (Bristol). Tel: 0117 342 6655. [www.swmit.nhs.uk/medicines-info/renal-failure.aspx](http://www.swmit.nhs.uk/medicines-info/renal-failure.aspx)  | Advises on drug dose adjustment in patients with renal failure and/or on renal replacement therapy. Advice on adverse effects of drugs on the kidney or drugs in renal transplantation is not provided.There is no renal unit attached to the Bristol Royal Infirmary, so contact your nearest renal unit for practical advice. Before contacting, check all first-line resources and have all relevant background information if the enquiry is patient specific (see above).  |
| **Additional resources (tailor to local use/availability)** |
| Drugdex Database. IBM Corporation (USA) [www.micromedexsolutions.com](http://www.micromedexsolutions.com) | Where relevant, in-depth monographs have a 'dosage in renal failure' section with links to more general drug consults e.g. ACE inhibitor-induced acute renal failure. Also useful for pharmacokinetic and adverse effect data.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Lexi-Comp. Lexi-Comp Inc. (USA). <https://online.lexi.com/lco/action/home>  |  |
| Introduction to Renal Therapeutics. Ashley C & Morlidge C. Pharmaceutical Press. | This discusses diseases affecting the kidney and their management rather than providing dosing guidance. Useful for background information and general principles of dose adjustment in renal impairment and renal replacement therapies. |
| Dialysis of Drugs [renalpharmacyconsultants.com/](http://renalpharmacyconsultants.com/)  | This is an American text produced by an expert in nephrology pharmacy. It is updated every 2 years and provides information on the dialysability of drugs in patients receiving haemodialysis and peritoneal dialysis. It is available to purchase as a printed pocket guide or wall chart. |
| Drug Prescribing in Renal Failure: Dosing Guidelines for Adults and Children. Aronoff GR et al. American College of Physicians. | US book with information on doses of drugs separated into different clinical areas. **NOTE**: This has paediatric as well as adult dosing guidance. |
| **Local resources**  |
|  |  |

#### Answering the enquiry

***Patients not on renal replacement therapies (RRT)*** – for more in-depth guidance see Medicines Q&A [What factors need to be considered when dosing patients with renal impairment?](https://www.sps.nhs.uk/articles/what-factors-need-to-be-considered-when-dosing-patients-with-renal-impairment-2/)

* There are three approaches to altering drug maintenance doses in patients with renal impairment:
	+ Give the standard dose at extended intervals.
	+ Give a reduced dose at usual intervals.
	+ Give a combination of reduced dose and extended interval.

Drugs that require maintenance of a serum concentration over the dosing interval should be administered at usual intervals, but with reduced doses. Drugs for which specific peak serum concentrations must be achieved should be dosed with the standard dose at extended intervals.

* For most drugs single doses will be the same as for those with normal renal function. Loading doses of some drugs may need adjustment.
* When choosing a drug for patients with renal impairment:
	+ Only use drugs where there is a definite indication for prescribing.
	+ Choose a drug that has minimal or no nephrotoxicity.
	+ Use recommended dosage regimens for renal impairment.
	+ Use plasma concentration measurements to adjust dose if possible and clinically relevant.
	+ Monitor for evidence of clinical efficacy and toxicity.

***Patients on renal replacement therapies (RRT)*** – for more in-depth guidance see Medicines Q&A [[What factors need to be considered when dosing patients on renal replacement therapies?](https://www.sps.nhs.uk/articles/what-factors-need-to-be-considered-when-dosing-patients-on-renal-replacement-therapies/)](https://www.evidence.nhs.uk/search?q=What+factors+need+to+be+considered+when+dosing+patients+on+renal+replacement+therapies%3F+):

* There are a number of inter-dependent factors that need to be considered when dosing patients on RRT. Consider the drug, the patient and type of RRT.
* Alteration of drug dosage is usually only necessary if renal clearance exceeds 25% of total body clearance.
* Drugs which are cleared by the kidneys are usually dialysed, and vice versa, although there are some anomalies.
* Dose adjustment for RRT is normally only necessary for drugs that require dose adjustment because of the presence of renal failure. No RRT is as effective as the normal kidney – so for most drugs doses used will never be larger than those recommended in normal renal function.
* Physicochemical drug characteristics affecting drug removal include protein binding, volume of distribution, water/lipid solubility, and molecular weight. Drugs that are highly protein bound (>80%) and/or have a large Vd (>1L/kg), are unlikely to be removed to a significant degree. In general, very large molecules are less likely to be removed than smaller ones.
* Pharmacokinetic studies that formed the basis for many of the drug dosing recommendations used today were performed in the 1980s and 1990s using less efficient techniques of RRT than those employed currently. These studies varied in design, used different haemofilters, blood, dialysate and ultrafiltration rates and calculated drug clearance by different methods. Advice on drug dosage in continuous RRT from the literature should therefore be applied cautiously to individual patients. Dosing recommendations based on this older data may result in underdosing of drugs e.g. antibiotics.
* In patients on HD, dose after the dialysis session otherwise a proportion of the drug may be removed during the HD session and its duration of action reduced. For CRRT and CAPD, since these are continuous processes, there is no need to schedule doses around RRT sessions.
* For toxic drugs, and for drugs with a narrow therapeutic index, drug monitoring with measurements of plasma concentrations, where available, and monitoring of the patient for therapeutic response and adverse effects, are essential.

**NOTE:** Information from specialist sources may provide dosing information outside the product licence. The omission of a drug from reference sources does not imply that the drug is safe for use in patients with impaired renal function.

You should consider other therapeutic options that don’t require adjustment in renal failure e.g. drugs that are primarily metabolised by the liver.

#### Keywords: KIDNEY, KIDNEY FUNCTION-IMPAIRED, KIDNEY FAILURE, drug name

# Medicines in sport

#### Background information

* When was the drug taken?
* What is the classification of the product involved e.g. prescribed medication, supplement?
* Does the enquiry relate to a specific sport or competition?
* Does the enquiry relate to a complaint or investigation that is already in progress?

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources** |
| In-house past enquiries |   |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk/](http://www.sps.nhs.uk/)  | Filter using specialty ‘sports medicine’ and/or drug name, to see relevant articles; which include:* ['Medicine use in diving: what information is available?’](https://www.sps.nhs.uk/articles/medicine-use-in-diving-what-information-is-available/)
 |
| British National Formulary. BMA and RPS. [bnf.nice.org.uk/](https://bnf.nice.org.uk/) | See medicines guidance ‘[Drugs and sport](https://bnf.nice.org.uk/guidance/drugs-and-sport.html)’.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| UK Anti-Doping [www.ukad.org.uk](http://www.ukad.org.uk) | UK Anti-Doping is the national body responsible for implementation and management of the UK’s anti-doping policy and is responsible for ensuring sports bodies in the UK comply with the World Anti-Doping Code. Click on ‘Athletes’ then ‘What’s banned in sport – the prohibited list’ to access the list of prohibited substances or ‘TUEs’ to access Therapeutic Use Exemption (TUE) information.  |
| The World Anti-Doping Agency (WADA) [www.wada-ama.org/en](http://www.wada-ama.org/en)  | WADA is an international independent agency. It monitors the World Anti-Doping Code. The website contains a Prohibited List, published annually in October: the list comes into force on 1st January the following year. There are a large number of Q&A articles grouped by topic – see: [www.wada-ama.org/en/questions-answers/prohibited-list-qa](http://www.wada-ama.org/en/questions-answers/prohibited-list-qa)  |
| Martindale, the Complete Drug Reference. Brayfield, A. Pharmaceutical Press. [www.medicinescomplete.com](http://www.medicinescomplete.com) | See chapter on ‘[Drugs in Sport](https://www.medicinescomplete.com/#/content/martindale/65000-a17-y?hspl=sport)’. Drug monographs note if drugs are restricted in sports, but should not be relied on as a single source. This information is usually in the ‘abuse’ section. |
| Relevant sport governing body website. | Use Google to search for these. Examples are the Lawn Tennis Association and the Football Association. **NOTE:** See QRMG Guidance: [Internet Searching for Medicines Information staff](https://www.sps.nhs.uk/wp-content/uploads/2016/10/Internet-Searching-2.0.pdf) for information and advice on best use of the internet and internet-based search tools for enquiry answering in Medicines Information. |
| Patient UK. Patient Information Publications / Egton Medical Information Systems. [www.patient.co.uk](http://www.patient.co.uk)  | See professional reference article [Drugs and sport](https://patient.info/doctor/drugs-and-sport)  |
| Bibliographic databases e.g. Medline, Embase, Pubmed. Cochrane Library. [www.cochranelibrary.com/](http://www.cochranelibrary.com/) | Suggested terms: SPORT, SPORTS MEDICINE, DOPING IN SPORT. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Additional resources (tailor to local use/availability)** |
| Drugs of abuse. Wills, S. Pharmaceutical Press.  | Contains a chapter on performance enhancing drugs. |
|  **Local resources**  |
|  |  |

#### Answering the enquiry

* Athletes are personally responsible should a prohibited drug be detected in their body.
* Note that national legal controls vary.

#### Keywords: SPORT plus individual drug names.

# Substance misuse

#### Background information

***History of illicit drug or substance use:***

* Is drug use suspected or confirmed?
* What drug or substance is involved? If slang names are used, clarify what the drug name is.
* When and how much of the drug was taken? Does use of the drug relate to a single exposure, short-term use, or a persistent habit?
* How frequently has the patient used this drug? How long certain drugs stay in the body is influenced by how often the patient is using it.
* How is the subject taking the drug (e.g. injection, oral)? The form of the drug and knowing how a patient is taking it may make a difference to your answer.
* Is the subject taking other illicit drugs? Also ask about other substances (e.g. tobacco, alcohol, prescribed or non-prescription medicines) and other medical or mental health conditions.
* How confident are you that the amount of drug taken and the frequency of use is correct? Users may lie about the quantities consumed and the purity of street drugs also varies widely.
* Has a drug test been performed or ordered? What were the results or when are they expected?
* Why are you being asked for the information? These enquiries can raise ethical/legal issues due to the nature of the drugs involved. It is essential all background details are obtained to help assess if you can answer the enquiry and what information you can give.
* Is the patient being managed by an expert in this area (e.g. psychiatrist, Community Drug and Alcohol Team, Drug Liason Nurse etc.), or not?

*Many enquiries concern* [*identification*](#_Pharmaceutical_identification)*,* [*side effects*](#_Adverse_Drug_Reactions_2)*,* [*interactions*](#_Interactions_1) *or use in* [*pregnancy*](#_Pregnancy)*/*[*breastfeeding*](#_Drugs_in_breastfeeding)*. Refer to appropriate enquiry answering guideline(s).*

***Drug discontinuation:***

* Has the drug/substance been discontinued or is discontinuation being considered?
* What is the reason for discontinuing? If for urgent medical reasons, discontinuation may need to be immediate, with the actual withdrawal effects assuming secondary importance.
* Does the patient agree with the decision to discontinue the drug? Without the patient’s co-operation, attempts at discontinuation are not likely to succeed.
* Has discontinuation been attempted before? How was it done? What happened?
* Is discontinuation the only option? Have other options been considered (e.g. maintenance therapy)?
* Are there objective signs of withdrawal, or are you relying on the patient’s account?

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources** |
| In-house past enquiries  |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk/](http://www.sps.nhs.uk/)  | Relevant articles include:* [What naloxone doses should be used in adults to urgently reverse the effects of opioids?](https://www.sps.nhs.uk/articles/what-naloxone-doses-should-be-used-in-adults-to-reverse-urgently-the-effects-of-opioids-or-opiates/)
* [What are the equivalent doses of oral benzodiazepines?](https://www.sps.nhs.uk/articles/what-are-the-equivalent-doses-of-oral-benzodiazepines/)
 |

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| --- | --- |
| British National Formulary. BMA and RPS. [bnf.nice.org.uk/](https://bnf.nice.org.uk/) | The ‘[Substance dependence](https://bnf.nice.org.uk/treatment-summary/substance-dependence.html)’ treatment summary provides brief guidance on treatment of drug misuse.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| CKS. Clinical Knowledge Summaries. NICE. [cks.nice.org.uk](http://cks.nice.org.uk) | Relevant summaries include:* Opioid dependence - [cks.nice.org.uk/opioid-dependence](http://cks.nice.org.uk/opioid-dependence) Covers the management of opioid dependence in adults. The guideline provides information on substitution therapy with methadone, naltrexone and buprenorphine.
* Alcohol and problem drinking - [cks.nice.org.uk/alcohol-problem-drinking](http://cks.nice.org.uk/alcohol-problem-drinking)

Covers the management of adults who are drinking hazardous or harmful amounts of alcohol, those who are dependent on alcohol, and the on-going management in those who have been dependent on alcohol following alcohol withdrawal.* Benzodiazepine and z-drug withdrawal - [cks.nice.org.uk/benzodiazepine-and-z-drug-withdrawal](http://cks.nice.org.uk/benzodiazepine-and-z-drug-withdrawal)

Covers the assessment of people prescribed long-term benzodiazepines or z-drugs, and offers advice on managing withdrawal of treatment. |
| The Maudsley Prescribing Guidelines in Psychiatry, Taylor D et al. Wiley-Blackwell. | Contains a chapter on the practical management of substance misuse and some interactions with medicines prescribed in psychiatry. Also available as an eBook. |
| Psychotropic Drug Directory. Bazire S. Lloyd-Reinhold Publications. | Contains sections on alcohol and benzodiazepine withdrawal, caffeinism, drug interactions with non-prescribed drugs (alcohol, cannabis, cocaine) and smoking. |
| Talk to Frank. DoH / Home Office. [www.talktofrank.com](http://www.talktofrank.com) | An independent government funded website aimed at concerned parents and young people, answering their questions about drug misuse. Provides contact details if they need to speak to someone. There is a useful A-Z of drugs. |
| DrugWise [www.drugwise.org.uk](http://www.drugwise.org.uk)  | DrugWise (formerly DrugScope) is a UK independent organisation with expertise on drug use. The website includes a “DrugSearch Encyclopaedia” with information on illegal drugs, prescription drugs and legal highs. Entries contain brief information about mechanism of action, risks, harm reduction and the law. There is a website section on prescribed and OTC dependence (click on “drug information” then “prescribed & OTC drug dependence”), as well as a drug FAQ page (click “drug information” then “drug FAQs”). There are also links to DrugScope archive documents from 2004-2015. |
| Faculty of Pain Medicine. Royal College of Anaesthetists. [www.rcoa.ac.uk/faculty-of-pain-medicine](http://www.rcoa.ac.uk/faculty-of-pain-medicine) | A range of guidelines and PILs are available, including:* [Terminology & prevalence](https://fpm.ac.uk/node/661)
* [Diagnosis, identification & risk populations](https://fpm.ac.uk/node/666)
* [Treatment & prevention](https://fpm.ac.uk/node/671)
* [Patients with substance misuse](https://fpm.ac.uk/node/676)
* [Substance misuse: acute pain management](https://fpm.ac.uk/node/681)
* [Substance misuse: chronic pain management](https://fpm.ac.uk/node/686)
* [Substance misuse: pain management in palliative care](https://fpm.ac.uk/node/691)
* [Pain emerging when methadone for OST is tapered](https://fpm.ac.uk/node/696)
 |
| Toxbase [www.toxbase.org](http://www.toxbase.org)  | Information from NPIS on the symptoms and management of poisoning by medicines, plants, household chemicals and other substances. Use the search box at the top of the home page or click on the poisons A-Z index for an alphabetical list of products and drugs. For a list of chemicals click on ‘Chemicals’, select ‘Household Chemicals’. This includes: cosmetics, hair products, household cleaners, miscellaneous, pharmaceuticals, standard formulation index, toiletries.For acute poisoning or for complex cases, refer directly to the Poisons Information Service:**0344 892 0111.**Before using the website, it is advisable to complete the e-learning modules available at [www.toxlearning.co.uk](http://www.toxlearning.co.uk)  |
| [Drug misuse and dependence: UK guidelines on clinical management.](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/628634/clinical_guidelines_2017.pdf)Independent Expert Working Group (2017) Department of Health | Often called the Orange Guide, this is guidance for clinicians treating people with drug problems.This 2017 version offers new guidelines on:* prison-based treatment
* new psychoactive substances and club drugs
* mental health co-morbidity
* misuse of prescribed and over-the-counter medicines
* stopping smoking
* preventing drug-related deaths, including naloxone provision

The new guidelines also have a stronger emphasis on recovery and a holistic approach to the interventions that can support recovery. |
| NEPTUNE. Novel Psychoactive Treatment: UK Network (Clinical Guidance). Novel Psychoactive Treatment UK Network. Funded by the Health Foundation. <http://neptune-clinical-guidance.co.uk/>  | The [Clinical Guidance](http://neptune-clinical-guidance.co.uk/wp-content/uploads/2015/03/NEPTUNE-Guidance-March-2015.pdf) document is an extensive and comprehensive reference aimed at clinicians and other practitioners across a range of clinical settings.It provides detailed information and guidance on the acute and chronic harms of a range of club drugs and NPS and their management. |
| National Institute on Drug Abuse. National Institutes of Health, U.S. [www.drugabuse.gov/](http://www.drugabuse.gov/)  | An American National Institute of Health (NIH) website which contains evidence based fact sheets and resources for healthcare professionals about drugs of abuse.  |
| NICE. National Institute for Health and Care Excellence. [www.nice.org.uk](http://www.nice.org.uk)  | [pathways.nice.org.uk/pathways/drug-misuse-management-in-over-16s](https://pathways.nice.org.uk/pathways/drug-misuse-management-in-over-16s) An interactive flowchart showing NICE advice for drug misuse management in over-16s, including formal psychosocial interventions, opioid detoxification and pharmacological interventions. |
| Bibliographic databases e.g. Medline, Embase, Pubmed. Cochrane Library. [www.cochranelibrary.com/](http://www.cochranelibrary.com/) | Suggested terms: DRUG ABUSE, DRUG DEPENDENCE, SUBSTANCE ABUSE, SUBSTANCE-ABUSE-INTRAVENOUS, SUBSTANCE-RELATED-DISORDERS, INTRAVENOUS DRUG ABUSE, MULTIPLE DRUG ABUSE, ALCOHOLISM. |
| Trip Database. John Brassey (editor). [www.tripdatabase.com/](http://www.tripdatabase.com/) | Clinical search engine to find high-quality research evidence. Can register for free for additional functionality. |

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| --- | --- |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl). A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Additional resources (tailor to local use/availability)** |
| Drugs of Abuse, Wills S. Pharmaceutical Press.  | A useful starting point if you’re not familiar with this area (although it was last updated in 2005). Contains information on drugs of abuse including prescription drugs, OTC preparations, alcohol, caffeine, nicotine, plants and fungi. Includes information on uses, side effects, interactions, use in concomitant disease states and useful websites. |
| **Local resources**  |
|  |  |

#### Answering the enquiry

* It is important to consider the ethical/legal implications surrounding these types of enquiry. If you are in doubt as to what information you should give the enquirer discuss with MI colleagues.
* Remember with some of these agents there is limited information available so be aware when giving advice particularly in patients with concomitant medical problems or those on other medication.
* Do not assist a drug user to extend the range of their drug-using behaviour, or to evade detection.

#### Keywords: DRUG ABUSE or SUBSTANCE ABUSE and where possible the name of the drug involved.

# Travel medicine

**There are four sections to this document:**

[Malaria prophylaxis and travel vaccinations](#_Malaria_prophylaxis_and)

[Travel-related DVT](#_Travel-related_DVT)

[Taking medicines abroad](#_Taking_medicines_abroad)

[Other travel-related medicines enquiries](#_Other_travel-_related)

##### Malaria prophylaxis and travel vaccinations

#### Background information

* What country/countries are to be visited?
* What is the departure date?
* How long will the visit be for?
* Where exactly are they travelling within the country and what type of accommodation will they be staying in? (e.g. tourist areas, safari, backpacking)
* Have they had malaria prophylaxis before and if so what? Did they have any problems with the prophylaxis?
* Have they had any vaccinations before, if so when, and did they have any problems?
* What medication, if any, is the traveller taking?
* What is the traveller's past and current medical history? Does it include:
	+ Immunosuppression
	+ Psoriasis
	+ Epilepsy or other seizure disorders
	+ Depressive or psychiatric illness
	+ Renal or hepatic impairment
	+ Splenectomy
	+ Porphyria
	+ G6PD deficiency
	+ Inherited haemoglobinopathies e.g. sickle cell or thalassaemia
* Is the traveller pregnant or breast-feeding?
* Will any children be travelling, and if so what age and weight will they be at the time of travel?

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources** |
| In-house past enquiries. |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk](http://www.sps.nhs.uk) | Select ‘Travel Medicine’ under ‘category search’ to see relevant articles, which include:* [What advice should be given to patients with porphyria who intend to travel?](https://www.sps.nhs.uk/articles/what-advice-should-be-given-to-patients-with-porphyria-who-intend-to-travel/)
* [What are the restrictions on prescribing for patients with non-acute porphyria?](https://www.sps.nhs.uk/articles/what-are-the-restrictions-on-prescribing-for-patients-with-non-acute-porphyria/)
* [Which medicines are considered safe for use in the acute porphyrias?](https://www.sps.nhs.uk/articles/which-medicines-are-considered-safe-for-use-in-the-acute-porphyrias/)
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| National Travel Health Network and Centre (NaTHNaC) website, [travelhealthpro.org.uk/](http://travelhealthpro.org.uk/) | This website has information about yellow fever vaccination centres and other travel information. Registration is not required. If you cannot find what you want on the website, healthcare professionals may telephone the NaTHNaC helpline on 0845 602 6712 (9.00 to 11.45 and 13.00 to 15.45 hours Monday to Friday – closed Wednesday pm and Bank Holidays).**NOTE**: The website is suitable for both healthcare professionals and travellers. Advice may differ from that in other sources (i.e. Travax, Fit for Travel). However, all advice is evidence based. It is advised that one resource only is used in these circumstances.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Immunisation against Infectious Disease – otherwise known as the ‘Green Book’. [www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book](http://www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book)  | Comprehensive resource published by Public Health England, providing information about diseases and vaccines, including advice on cautions and contraindications.**NOTE**: Always check that you are looking at the most up to date version of the chapter you want. Be careful not to use chapter update patches or old chapters.  |
| Drug Safety Update. MHRA. [www.gov.uk/drug-safety-update](http://www.gov.uk/drug-safety-update) | Filter using therapeutic area ‘Immunology and Vaccination’, to see relevant articles, which include:* [Yellow fever vaccine: stronger precautions in people with weakened immunity and in those aged 60 years or older](https://www.gov.uk/drug-safety-update/yellow-fever-vaccine-stronger-precautions-in-people-with-weakened-immunity-and-in-those-aged-60-years-or-older).
 |
| Commission on Human Medicines (CHM). CHM/MHRA. [www.mhra.gov.uk/Committees/Medicinesadvisorybodies/CommissiononHumanMedicines/index.htm](http://www.mhra.gov.uk/Committees/Medicinesadvisorybodies/CommissiononHumanMedicines/index.htm).  | [Report of the Commission on Human Medicine’s Expert Working Group on benefit-risk and risk minimisation measures of the yellow fever vaccine](https://www.gov.uk/government/publications/report-of-the-commission-on-human-medicines-expert-working-group-on-benefit-risk-and-risk-minimisation-measures-of-the-yellow-fever-vaccine) |
| Malaria prevention guidelines for travellers from the UK. Advisory committee on malaria prevention.[www.gov.uk/government/publications/malaria-prevention-guidelines-for-travellers-from-the-uk](http://www.gov.uk/government/publications/malaria-prevention-guidelines-for-travellers-from-the-uk)  | The Public Health England Advisory Committee on Malaria Prevention (ACMP) updates and reissues these guidelines every year for UK travellers. Countries are listed in alphabetical order. There is a useful ‘Frequently asked questions’ section.ACMP, NaTHNaC, and PHE recommend that healthcare professionals working in England, Wales or Northern Ireland use these guidelines as their preferred source of guidance for malaria prevention. |
| Malaria Reference Laboratory. Public Health England. [www.gov.uk/government/collections/malaria-reference-laboratory-mrl](http://www.gov.uk/government/collections/malaria-reference-laboratory-mrl)  | The Malaria Reference Laboratory provides laboratory reference and diagnostic parasitology of malaria, and surveillance data on all imported malaria reported in the UK. |

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| CKS. Clinical Knowledge Summaries. NICE. [cks.nice.org.uk](http://cks.nice.org.uk) | The summary [Malaria prophylaxis](https://cks.nice.org.uk/malaria-prophylaxis) covers the management of a person travelling to malaria endemic areas.The summary [Immunizations travel](https://cks.nice.org.uk/immunizations-travel) covers the use of vaccinations required or recommended for travel overseas.  |
| Trip Database. John Brassey (editor). [www.tripdatabase.com/](http://www.tripdatabase.com/) | Clinical search engine to find high-quality research evidence. Can register for free for additional functionality. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Additional resources (tailor to local use/availability)** |
| Travax database. Health Protection Scotland. [www.travax.nhs.uk](http://www.travax.nhs.uk)  | This advice is based on that produced by NHS Scotland and may differ from advice in other sources (i.e Travel Health Pro/NaTHNac). However, all advice is evidence based. It is advised that one resource only is used in these circumstances. Click on ‘malaria’ or select the destination you require. Subscription is required to access Travax.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Fit for Travel. NHS Scotland. [www.fitfortravel.nhs.uk](http://www.fitfortravel.nhs.uk)  | This is the Travax sister-site and can be accessed by members of the public and healthcare professionals. Click on ‘A to Z site index’ to bring up a list of countries and topics.Public access site for sister site Travax. **NOTE**: This advice is based on that produced by NHS Scotland and may differ from advice in other sources (i.e. Travel Health Pro/NaTHNaC). However, all advice is evidence based. It is advised that one resource only is used in these circumstances. |
| **Local resources**  |
|  |  |

#### Answering the enquiry

* When formulating an answer consider if there is more than one chemoprophylaxis regimen available.
* The ACMP strongly advises against relying on any homoeopathic remedies preventing malaria. There is no scientific proof that homoeopathic remedies are effective in either preventing or treating malaria. In addition, the Faculty of Homoeopathy does not promote use of homoeopathic remedies for malaria prevention.
* Try to give as much advice as possible. No prophylaxis regimen is 100% effective, so include general advice regarding protection against mosquito bites – use of mosquito nets, insecticides, insect repellents, wearing long-sleeved clothing after sunset etc.
* Preferred malaria prophylaxis regimens should always be recommended unless there are medical reasons why this is not possible. Alternative regimens may not give optimal prophylaxis.
* During pregnancy, travel to malarious areas should be avoided wherever possible. If travel is unavoidable, effective malaria prophylaxis should be used, as the risk of malaria to both the mother and foetus is greater than the risk from antimalarial drugs at recommended doses. Vaccines may be administered where the risk of exposure outweighs the risk of vaccination.
* Breast-feeding infants will still require malaria prophylaxis, as the amounts of antimalarial drugs excreted in breast milk are too variable to give reliable protection to the infant. Most vaccines can be administered to breast-feeding women; however immunity is not passed to the infant via breast milk.
* When advising on children’s dosages, calculate the dose by weight rather than by age wherever possible.

#### Keywords: MALARIA, PROPHYLAXIS, VACCINE and VACCINATIONS, TRAVEL, name of country, name of drugs recommended

##### Travel-related DVT

#### Background information

* What type of travel is the patient undertaking and how long will it take?
* What is the traveller’s past and current medical history? Does it include:
	+ History of deep vein thrombosis (DVT) or pulmonary embolism (PE)
	+ History of stroke
	+ Thrombophilia
	+ Family history of clotting conditions
	+ Cancer or treatment for cancer
	+ Major surgery or had a hip or knee replacement within 3 months before travel
	+ Recent serious injury or trauma
	+ Pregnancy or less than 6 weeks after delivery
	+ Varicose veins
	+ Obesity
	+ Chronic debilitating illness especially those causing mobility problems
* What medication, if any, is the traveller taking? Does it include a direct oral anticoagulant, warfarin, aspirin, HRT or hormonal contraception?

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources** |
| In-house past enquiries. |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk](http://www.sps.nhs.uk) | Select ‘Travel Medicine’ under ‘category search’ to see relevant articles, which include:* [What is the evidence for the use of Low Molecular Weight Heparins for the prophylaxis of travel-related thrombosis?](https://www.sps.nhs.uk/articles/what-is-the-evidence-for-the-use-of-low-molecular-weight-heparins-for-the-prophylaxis-of-travel-related-thrombosis/)
* [What advice should be given to patients with porphyria who intend to travel?](https://www.sps.nhs.uk/articles/what-advice-should-be-given-to-patients-with-porphyria-who-intend-to-travel/)
 |
| National Travel Health Network and Centre (NaTHNaC) website, [travelhealthpro.org.uk/](http://travelhealthpro.org.uk/) | Click on ‘Factsheets from A to Z’ then ‘Preparing for healthy travel’ (on the right side of the page) select ‘All’ then ‘venous thromboembolism’ for a travel health information sheet.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| CKS. Clinical Knowledge Summaries. NICE. [cks.nice.org.uk](http://cks.nice.org.uk) | The summary [DVT prevention for travellers](https://cks.nice.org.uk/dvt-prevention-for-travellers) provides advice on assessing DVT risk in travellers and on measures to reduce the risk. |
| **Additional resources (tailor to local use/availability)** |
| Travax. Health Protection Scotland. [www.travax.nhs.uk](http://www.travax.nhs.uk)  | Log in, click on ‘Health Information’ then ‘General health advice’ then ‘Deep vein thromboses’.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Fit for Travel. NHS Scotland. [www.fitfortravel.nhs.uk](http://www.fitfortravel.scot.nhs.uk) | Click on ‘Advice’ then ‘Deep vein thrombosis’. |
| Bibliographic databases e.g. Medline, Embase, Pubmed. Cochrane Library [www.cochranelibrary.com/](http://www.cochranelibrary.com/) | Suggested terms: DEEP VEIN THROMBOSIS, AIR TRAVEL, FLYING, THROMBOSIS, THROMBOSIS-PREVENTION. |
| Trip Database. John Brassey (editor). [www.tripdatabase.com/](http://www.tripdatabase.com/) | Clinical search engine to find high-quality research evidence. Can register for free for additional functionality. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Local resources**  |
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#### Answering the enquiry

* Patients at high risk of DVT (as per the guidelines above) should discuss their need for prophylaxis with their GP or haematologist.
* Flight socks are not prescribable on the NHS but may be purchased from pharmacies.

#### Keywords: DEEP VEIN THROMBOSIS, FLYING, TRAVEL.

##### Taking medicines abroad

#### Background information

* What medication is being taken abroad? Does it include controlled drugs? What quantity of medicines are they planning to take?
* Are the medicines prescription only or over-the-counter?
* What countries are being visited?
* How long will the patient be out of the UK for (for questions about prescription length or continued supply)?

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources** |
| In-house past enquiries. |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk](http://www.sps.nhs.uk) |  |
| CKS. Clinical Knowledge Summaries. NICE. [cks.nice.org.uk](http://cks.nice.org.uk) | The summary [Opioid dependence](https://cks.nice.org.uk/opioid-dependence) includes advice on what to consider when an individual on substitution therapy is planning travel abroad. |
| National Travel Health Network and Centre (NaTHNaC) website, [travelhealthpro.org.uk/](http://travelhealthpro.org.uk/) | Click on ‘Factsheets from A to Z’ then ‘Preparing for healthy travel’ (on the right side of the page) select ‘All’ then ‘Medicines and travel’ for a travel health information sheet.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Travelling with medicine containing a controlled drug. Home Office Drug and Firearms Licensing Unit. [www.gov.uk/travelling-controlled-drugs](http://www.gov.uk/travelling-controlled-drugs)  | Describes the requirements for travelling abroad with controlled drugs and the relevant paper work and licenses required. |
| Embassy, Consulate or High Commission for the country being visited.  | Check the specific entry requirements for the country being visited by contacting the relevant Embassy, Consulate or High Commission. Where possible, obtain a letter from them before you travel. Use [www.google.co.uk](http://www.google.co.uk) or the Home Office website above to find contact details.**NOTE:** See QRMG Guidance: [Internet Searching for Medicines Information staff](https://www.sps.nhs.uk/wp-content/uploads/2016/10/Internet-Searching-2.0.pdf) for information and advice on best use of the internet and internet-based search tools for enquiry answering in Medicines Information. |
| UK legislation: NHS patients may be removed from GP list if abroad for over 3 months.  | [www.legislation.gov.uk/uksi/1992/635/regulation/19/made](http://www.legislation.gov.uk/uksi/1992/635/regulation/19/made) (See paragraphs 19(4) and 19(5)). |

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| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Additional resources (tailor to local use/availability)** |
| Travax. Health Protection Scotland. [www.travax.nhs.uk](http://www.travax.nhs.uk)  | Click on ‘advice sheets for travellers’ then ‘Travelling with medicines’.**NOTE**: This advice is based on that produced by NHS Scotland and may differ from advice in other sources (i.e Travel Health Pro/NaTHNac). However, all advice is evidence based. It is advised that one resource only is used in these circumstances. See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Fit for Travel. NHS Scotland. [www.fitfortravel.nhs.uk](http://www.fitfortravel.scot.nhs.uk) | This is the Travax sister-site and can be accessed by members of the public and healthcare professionals. Click on ‘A to Z site index’ to bring up a list of countries and topics. |
| **Local resources**  |
|  |  |

#### Answering the enquiry

* The legal status of medicines in other countries might differ from the UK.
* For patients travelling with controlled drugs, check entry requirements with the relevant Embassy, Consulate or High Commission. Where possible, the traveller should obtain a letter from them before travelling.
* GPs are not responsible for prescribing medicines for conditions which may arise during travelling, e.g. antibiotics, oral rehydration.
* Travellers who leave the UK for more than three months can be removed from GP lists. Three months is the generally accepted maximum length for a prescription for patients travelling abroad.

#### Keywords: TRAVEL, FIRST AID, CONTROLLED DRUGS, LEGISLATION

##### Other travel- related medicines enquiries

#### Resources

| **Source** | **Notes** |
| --- | --- |
| **First-line resources** |
| In-house past enquiries. |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk](http://www.sps.nhs.uk)  | Select ‘Travel Medicine’ under ‘category search’ to see relevant articles, which include:* [What advice should be given to patients with porphyria who intend to travel?](https://www.sps.nhs.uk/articles/what-advice-should-be-given-to-patients-with-porphyria-who-intend-to-travel/)
* [What information is available on drugs in diving?](https://www.sps.nhs.uk/articles/medicine-use-in-diving-what-information-is-available/)
 |
| National Travel Health Network and Centre (NaTHNaC) website, [travelhealthpro.org.uk/](http://travelhealthpro.org.uk/) | This website has information about yellow fever vaccination centres and other travel information. Registration is not required. If you cannot find what you want on the website, healthcare professionals may telephone the NaTHNaC helpline on 0845 602 6712 (9.00 to 11.45 and 13.00 to 15.45 hours Monday to Friday – closed Wednesday pm and Bank Holidays).**NOTE**: The website is suitable for both healthcare professionals and travellers. Advice may differ from that in other sources (i.e. Travax, Fit for Travel). However, all advice is evidence based. It is advised that one resource only is used in these circumstances.See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| NHS Website - health advice for travellers: [www.nhs.uk/Healthcareabroad/Pages/Healthcareabroad.aspx](http://www.nhs.uk/Healthcareabroad/Pages/Healthcareabroad.aspx) | Includes health information for travellers, those emigrating and those traveling abroad.  |
| CKS. Clinical Knowledge Summaries. NICE. [cks.nice.org.uk](http://cks.nice.org.uk) | The summary [Diarrhoea prevention and advice for travellers](https://cks.nice.org.uk/diarrhoea-prevention-and-advice-for-travellers) includes advice on when to consider prescribing a prophylactic antibiotic for travellers' diarrhoea. |
| WHO guidance on International travel and health. World Health Organisation <https://www.who.int/travel-advice>  |  |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Additional resources (tailor to local use/availability)** |
| Travax. Health Protection Scotland. [www.travax.nhs.uk](http://www.travax.nhs.uk) | Click on ‘advice sheets for travellers’ or select your destination.**NOTE**: This advice is based on that produced by NHS Scotland and may differ from advice in other sources (i.e Travel Health Pro/NaTHNac). However, all advice is evidence based. It is advised that one resource only is used in these circumstances. See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| Fit for Travel, [www.fitfortravel.nhs.uk](http://www.fitfortravel.scot.nhs.uk) | This is the Travax sister-site and can be accessed by members of the public and healthcare professionals. Click on ‘A to Z site index’ to bring up a list of countries and topics. |
| **Local resources**  |
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#### Answering the enquiry

* See above for information about answering questions about malaria prophylaxis, travel vaccinations, travel-related DVT or travelling abroad with medicines.

#### Keywords: TRAVEL, name of country.

# Wound care

#### Background information

Wound healing is complex and affected by patient and wound related factors. Holistic assessment should take account of medical history as well as factors that may delay healing that include mobility, nutrition and personal circumstances.

Most organisations will have a tissue viability nurse who will be better placed to advise on choice of dressings in individual circumstances. For many specialist wounds e.g. burns it is unlikely you will be asked to advise on anything other than product availability.

However, in the absence of specialist healthcare professionals, the following will give you some pointers where to start. In order to advise on choice of wound management product, consider the following:

* What type of wound is it e.g. surgical, pressure sore, burns, extravasation?
* What colour is the wound?
* How long has the patient had the wound? This may give an impression of complexity of the wound.
* What stage is the wound at i.e. does it need debridement or is it at the granulating stage?
* What products have been tried already and what problems have there been?
* Concomitant medication (may delay wound healing)?
* Are there special factors that need to be addressed e.g. high amount of exudate, malodorous?
* Could it be infected, if so, have swabs been taken?
* Any known allergies (especially to wound management products)?

#### Resources

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| --- | --- |
| **Source** | **Notes** |
| **First-line resources** |
| In-house past enquiries |  |
| Relevant articles (including Medicines Q&As) via [www.sps.nhs.uk](http://www.sps.nhs.uk)  | Filter using speciality ‘Wounds and injuries’, to see relevant articles, which include:* [Using potassium permanganate for skin conditions or wound care](https://www.sps.nhs.uk/articles/using-potassium-permanganate-for-skin-conditions-or-wound-care/)
 |
| British National Formulary. BMA and RPS. [bnf.nice.org.uk/](https://bnf.nice.org.uk/) | See: [Wound management products and elasticated garments](https://bnf.nice.org.uk/wound-management/).See comments in [Tips, Hints and Limitations for use of Common MI Resources document](https://www.sps.nhs.uk/wp-content/uploads/2020/07/Tips-hints-limitations-use-of-common-medicines-information-resources-20200929.pdf). |
| The Injectable Medicines Guide [medusa.wales.nhs.uk](http://medusa.wales.nhs.uk) or [www.injguide.nhs.uk](http://www.injguide.nhs.uk) | Look at individual drug monographs for extravasation guidance. |
| CKS. Clinical Knowledge Summaries. NICE. [cks.nice.org.uk](http://cks.nice.org.uk) | Search specific wound type e.g. venous ulcer etc. Relevant summaries include:* [Leg ulcer - venous](http://cks.nice.org.uk/leg-ulcer-venous)
* [Burns and scalds](http://cks.nice.org.uk/burns-and-scalds)
* [Palliative care - malignant skin ulcer](https://cks.nice.org.uk/palliative-care-malignant-skin-ulcer)
 |
| NICE. National Institute for Health and Care Excellence. [www.nice.org.uk](http://www.nice.org.uk) | [pathways.nice.org.uk/pathways/pressure-ulcers](http://pathways.nice.org.uk/pathways/pressure-ulcers)Information about dressings/debridement/negative pressure wound therapy etc. in the management section. |
| DermNet New Zealand[www.dermnetnz.org/topics/synthetic-wound-dressings/](http://www.dermnetnz.org/topics/synthetic-wound-dressings/)  | A New Zealand-based general dermatology resource. Has a section on synthetic wound dressings, different wound types, and a table showing suitable dressings for particular wound types. |
| Primary Care Dermatology Society. [www.pcds.org.uk](http://www.pcds.org.uk)  | Guidelines and PILs specifically targeted at dermatology issues in primary care.See: [Wound dressing guideline – a visual aid](http://www.pcds.org.uk/article/wound-dressing-guideline-a-visual-aid) |
| Online bibliographic databases | Consider databases such as British Nursing Index (BNI) and Cumulative Index to Nursing and Allied Health Literature (CINAHL), both of which have a nursing focus. |
| Trip Database. John Brassey (editor). [www.tripdatabase.com/](http://www.tripdatabase.com/) | Clinical search engine to find high-quality research evidence. Can register for free for additional functionality. |
| UKMi Discussion Group. Ecompass (host). <http://list.ecompass.nl/listserv/cgi-bin/wa?A0=MI-UK> | Email discussion forum to contact other members of the network. Registration required (contact: mi-uk-request@list.ecompass.nl).A [guide](https://www.sps.nhs.uk/wp-content/uploads/2018/11/how-to-use-UKMI-Mailing-list-Oct-2020.pdf) to using the UKMI Mailing list is available. |
| **Additional resources (tailor to local use/availability)** |
| Formulary of Wound Management Products. Thomas S. Euromed Communications. |  |
| **Local resources**  |
| Trust tissue viability nurse |  |

#### Answering the enquiry

* If advising on choice of wound management product you will need to be familiar with the dressings you have on contract/formulary.
* Make sure factors that will influence wound healing have been addressed e.g. can drugs that delay wound healing be stopped/reduced, is any infection being treated?

#### Keywords: WOUND HEALING, WOUNDS, DRESSINGS and terms specific to wound type e.g. WOUND INFECTION, ODOURS, DIABETIC COMPLICATIONS

# Version control

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| **Version control**  |
| **Version Number** | **Date issued** | **Author** | **Update information** |
| V1.0 | 30.10.2021 | QRMG | First published version  |
| V1.1 | 26.03.2021 | QRMG | New resources added to align with ERL |
| V1.2 | 07.02.2022 | QRMG | Resource updates made to align with changes to ERL February 2022SPS page hyperlinks updated |
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# Disclaimer

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

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# Contact

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