UK Medicines Information

NPSA Rapid Response Report: Reducing Harm from omitted and delayed medicines in hospital

A tool to support local implementation

Revision 1 January 2016

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1. What is this tool for and how do I use it?

The NPSA rapid response report on omitted and delayed medicines in hospital directs organisations to identify a list of critical medicines where timeliness of administration is crucial and to undertake a number of other actions. This tool is **not** designed to replace individual local lists, but rather to assist in the generation of such as well as with subsequent actions suggested by the NPSA.

The risks of delay or omission for each drug or drug class in the BNF are categorised using a traffic light system (see below for further explanation) which aims to help organisations identify the need for specific local action in terms of patient care and incident reporting. For example, where higher risk uses are identified in the tool, organisations can use those to inform local actions on medicines' use which may include:

- generating local guidance on the importance of timeliness in relation to administration;
- prioritising supply to help minimise risks of omission or delay;
- ensuring appropriate action subsequent to incident reports involving omission or delay;
- conducting an annual audit of omission or delay;
- and encouraging appropriate incident reporting related to omission or delay.

Clearly local circumstances will determine an individual organisation's approach and their use of this tool, but our hope is that it provides a starting point in responding to the RRR and in undertaking local action. For example, where low risk has been identified it is unlikely that that would necessitate inclusion in local guidance on the importance of timeliness of medicines administration, or that it would be necessary to prioritise supply of such medicines. Conversely, where higher risk has been identified it may be necessary to ensure processes exist to prioritise supply of particular medicines, or to invest particular effort to encourage incident reporting related to delay or omission of administration of these.

2. How are risks categorised?

The tool is structured by BNF chapter. It gives an opinion on whether a pre-defined set of potential risk factors could be associated with a drug or class of drugs, and particularly whether the nature of any delay or omission affects defined potential risks.

The **potential risks** the tool considers are as follows[1 2]:

Risk 1. Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay

- There is no or negligible risk of patient impact
- No or minor intervention* necessary
- There is no possibility of an increase in the length of hospital stay

Risk 2. Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible

- There is a risk of significant short-term patient impact (i.e. significant loss of therapeutic effect, symptom control, or drug withdrawal effects)
- Subsequent moderate intervention† is required
- A resultant long increase (1–15 days) in the length of hospital stay is possible

Risk 3. Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible

- There is a risk of significant long-term patient impact (i.e. the incident, and not the natural progression of illness or underlying condition, could permanently lessen bodily functions be they sensory, motor, physiological or intellectual)
- There is a risk of catastrophic patient impact (i.e. death or severe irreversible health effects)
- Subsequent ongoing professional intervention is required
- A resultant very long (>15 days) increase in the length of hospital stay is possible

The **omission or delay** characteristics considered for each drug or drug class are as specified below:

a) Dose not given at the time prescribed

b) Dose not given within 2 hours of time prescribed

c) Dose omitted (i.e. not administered by the time of the next scheduled dose)

The tool is divided into two sections:

Section 1 specifies, using BNF classifications, those drugs for which an “orange” or “red” risk categorisation was identified for any characterisation of delay or omission. Section 1 also states those drugs for which risk categorisation was not possible within the limitations of the

***** Minor intervention is defined as additional therapy or additional medication without the possibility of extra time in hospital or extra time as an outpatient being necessary, or the possibility of continued treatment over and above that already planned.

† Moderate intervention is defined as an unplanned re-admission, a prolonged episode of care, extra time in hospital or as an outpatient, cancelling of treatment, or transfer to another area such as intensive care as a result of the incident.

tool, outlines the reasons for that, and gives guidance on assessing risk locally where appropriate.

Section 2 specifies those drugs for which a "green" risk categorisation was identified for all characterisations of delay or omission.

3. How was this tool put together?

The risk definitions for this tool are based on information in the NPSA rapid response report as well as other pivotal NPSA documents including: A risk matrix for risk managers (January 2008) and Seven steps to patient safety—The full reference guide (August 2004). The risk categorisations were agreed by consensus by a group of pharmacists comprising regional medicines information, regional clinical pharmacy, and patient safety specialists.

Applying a risk category to each drug or class of drugs for a given delay or omission characteristic was undertaken by regional medicines information pharmacists who worked through BNF 59 applying the categorisations systematically. The work was collated by London Medicines Information Service. To ensure parity between BNF chapters in the way risk categorisations were applied, a panel validated a final version of the product. Considerable input was also received throughout the process from specialist clinical and consultant pharmacists in relation to their specific areas of expertise. Details of contributors are included as an appendix.

4. What are the limitations of this tool?

By definition assessing risk in the context of the omission or delay of a medicine is not an exact science, and whilst considerable thought went into assigning each risk categorisation, the tool cannot replace the need for local action and professional judgement.

Specific limitations that should be considered when using this tool:

1. We considered only licensed indications for which prescribing particulars are present in BNF 59. We also considered some common unlicensed indications of which the authors are aware, but a comprehensive consideration of unlicensed or off-label uses is not covered. To try and achieve brevity, it was necessary in some instances to combine similar indications using broad terms.
2. The tool focuses primarily on the use of medicines in secondary care with indications deemed of particular relevance for primary care not having been considered.
3. For a small number of presentations and indications, in particular where use is particularly specialist in nature, the authors felt assessment of risk could only be determined locally—where this is the case it is indicated in the tool.
4. The tool does not consider the use of medicines where:
   - They are prescribed for immediate dosing i.e. "stat"
   - they are used for diagnostic purposes;
   - they are used in emergency care (i.e. crash trolley drugs) since those medicines are all deemed to be high risk if omitted or delayed in any circumstance;
   - they are used in the treatment of overdose or poisoning since again all those medicines are deemed to be high risk if omitted or delayed in any circumstance.

For all of the assessments in the tool, the drug and indication were considered without reference to patient specific factors. Clearly this may not represent a "real world" situation and should be borne in mind when using the tool. As stated previously, the tool is not meant to replace the need for the generation of local lists and action, or the use of professional judgement in individual cases; the tool's aim is to help prioritise effort in tackling implementation of this NPSA RRR locally.

We recognise that assessment and interpretation of the risks may vary between individual organisations; we welcome comment and should there be areas of major disagreement with how risks have been assessed feel free to highlight those to us at lnwh-tr.medinfo@nhs.net .

For other enquiries about the tool please contact b.rehman@nhs.net or trevor.beswick@UHBristol.nhs.uk.

References

[1] Seven steps to patient safety: The full reference guide, second print August 2004. National Patient Safety Agency. Available at http://www.nrls.npsa.nhs.uk/resources/collections/seven-steps-to-patient-safety/?entryid45=59787
[2] A risk matrix for risk managers. January 2008. National Patient Safety Agency. Available at: http://www.npsa.nhs.uk/nrls/improvingpatientsafety/patient-safety-tools-and-guidance/risk-assessment-guides/risk-matrix-for-risk-managers/

RISK CATEGORISATION BY BNF CHAPTER

SECTION 1

THIS INCLUDES:

- ➲ **DRUGS AND DRUG CLASSES WITH AN ORANGE OR RED RISK CLASSIFICATION FOR SPECIFIED CHARACTERISTICS OF DELAY OR OMISSION**
- ➲ **DRUGS AND DRUG CLASESS FOR WHICH SPECIFIC ASSESSMENT WAS NOT POSSIBLE WITH EXPLANATORY GUIDANCE TEXT TO HELP DETERMINE RISKS LOCALLY (SEE ALSO LIMITATIONS OF THIS TOOL ABOVE)**

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risks as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
Chapter 1: Gastro-intestinal system			
1.3. Antisecretory drugs and mucosal protectants 1.3.5. Proton pump inhibitors *To treat major peptic ulcer or peptic ulcer bleeding or when used to prevent acid aspiration in ventilated patients*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible
1.5. Chronic bowel disorders 1.5.1. Aminosalicylates 1.5.2. Corticosteroids 1.5.3. Drugs affecting the immune system *To treat severe active/acute Crohn's disease or ulcerative colitis or for maintenance of Crohn's disease or ulcerative colitis*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risks as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
Chapter 2: Cardiovascular system			
2.1 Positive inotropic drugs 2.1.1 Cardiac glycosides *For rapid digitalisation as a loading dose, either given orally or by intravenous infusion*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
2.1 Positive inotropic drugs 2.1.2 Phosphodiesterase inhibitors *As a component of the treatment of severe congestive heart failure*	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
2.2 Diuretics When used to treat acute medical problems e.g. cerebral oedema, acute heart failure, fluid overload	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
2.3 Anti-arrhythmic drugs 2.3.2 Drugs for arrhythmias *For oral maintenance in arrhythmias only*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible
2.3 Anti-arrhythmic drugs 2.3.2 Drugs for arrhythmias *When used by parenteral routes for the treatment of arrhythmias; specific indications and practices have not been considered as risks will likely depend on local use and prescribing practices*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risks as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
2.4 Beta-adrenoceptor blocking drugs *For oral maintenance in angina, arrhythmias, and in migraine prophylaxis*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible
2.4 Beta-adrenoceptor blocking drugs *Use of peri-operative beta-blockers (e.g. as an adjunct in patients with thyrotoxicosis)*	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
2.4 Beta-adrenoceptor blocking drugs *Intravenous use of propranolol for arrhythmias and thyrotoxic crisis; atenolol and esmolol for arrhythmias; and metoprolol for arrhythmias including those developing during general anaesthesia and for early intervention within 12 hours of myocardial infarction*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
2.5 Hypertension and heart failure 2.5.1 Vasodilator antihypertensive drugs *All antihypertensives when used by any route for pulmonary hypertension or hypertensive crisis*	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
2.6 Nitrates, calcium-channel blockers, and other anti-anginal drugs 2.6.1 Nitrates *For the treatment of acute angina (but excluding intravenous administration of GTN and ISDN which has not been individually risk assessed)*	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risks as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
2.6.2 Calcium-channel blockers *Verapamil for supra-ventricular arrhythmias*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible
2.7 Sympathomimetics 2.7.1 Inotropic sympathomimetics 2.7.2 Vasoconstrictor sympathomimetics 2.7.3 Cardiopulmonary resuscitation *All drugs used for the range of acute indications specified in the BNF including use of inotropes in settings including ITU and surgery, and following septic or cardiogenic shock; and vasconstrictors to reverse hypotension*	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
2.8 Anticoagulants and protamine 2.8.1 Parenteral anticoagulants 2.8.2 Oral anticoagulants *For the full range of licensed indications for treatment as specified in BNF 59*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
2.8 Anticoagulants and protamine **2.8.1 Parenteral anticoagulants** **2.8.2 Oral anticoagulants** *For the full range of licensed indications for prophylaxis as specified in BNF 59*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
2.8 Anticoagulants and protamine **2.8.1 Protamine sulphate** *For the treatment of over-dosage of heparin or LMWH used as a single treatment*	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risks as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
2.9 Antiplatelet drugs *When used orally immediately post-stenting* *Intravenous use of antiplatelets has not been risk assessed nor has single use in acute MI; risk assessment should be performed locally. Such use is, however, likely to be used in specialist or emergency settings in which delay or omission may be associated with substantial risk.*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
2.10 Stable angina, acute coronary syndromes, and fibrinolysis 2.10.1 Management of stable angina and acute coronary syndromes 2.10.2 Fibrinolytic drugs *Drugs used for acute management in angina, for acute coronary syndromes, and as fibrinolytics for other acute indications*	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
2.11 Antifibrinolytic Drugs and hameostatics *When used in acute bleeds e.g. head injury*	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
Chapter 3: Respiratory system			
3.1 Bronchodilators 3.1.1 Adrenoceptor agonists 3.1.1.1 Selective beta$_2$-agonists *When used for the management of an acute asthma attack or COPD exacerbation*	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risks as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
3.1.2 Antimuscarinic bronchodilators *When used for the management of an acute asthma attack or COPD exacerbation*	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
3.1.3 Theophylline *When used for the management of an acute asthma attack*	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
3.1.4 Compound bronchodilator preparations *When used for the management of an acute asthma attack or COPD exacerbation*	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
3.1.4 Compound bronchodilator preparations *When used for the management of chronic reversible airway obstruction*	See separate constituents for assessment of risk associated with compound products		
3.2 Corticosteroids *When used for acute respiratory indications*	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
3.4 Antihistamines, hyposensitisation and allergic emergencies 3.4.1 Antihistamines *When used as a pre-medication for prophylaxis of treatment of allergy*	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risks as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
3.5 Respiratory stimulants and pulmonary surfactants 3.5.1 Respiratory stimulants *When used for postoperative respiratory depression, acute respiratory failure and neonatal apnoea*	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
3.5.2 Pulmonary surfactants *When used in the management of respiratory distress syndrome in neonates and premature neonates*	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
3.6 Oxygen *When used for all acute indications*	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
Chapter 4: Central nervous system			
4.1. Hypnotics and anxiolytics 4.1.2. Anxiolytics *When used for the treatment of fitting and for acute psychotic episodes or for acute alcohol withdrawal* *N.B. This risk assessment also applies to drugs in section 4.8.2 for the treatment of fitting*	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED		Potential risks as consequence of delay		
		Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
4.2. Drugs used in psychoses and related disorders 4.2.1. Antipsychotic drugs 4.2.3. Antimanic drugs *For the maintenance treatment of schizophrenia and psychoses, mania, bipolar disorder, or recurrent depression*		Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible
4.2. Drugs used in psychoses and related disorders 4.2.1. Antipsychotic drugs 4.2.3. Antimanic drugs *For acute symptoms of schizophrenia, psychoses, and mania; for agitation and restlessness; and as short-term adjunctive management in severe anxiety*		Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible
4.2. Drugs used in psychoses and related disorders 4.2.2. Antipsychotic depot injections *For maintenance in schizophrenia and other psychoses*		Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
4.7 Analgesics 4.7.1 Non-opioid analgesics 4.7.2 Opioid analgesics 4.7.3 Neuropathic pain 4.7.4 Antimigraine drugs	*Mild to moderate pain and pyrexia;; analgesia in other circumstances including peri-operatively and as treatment for acute migraine*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible
	Severe chronic pain and breakthrough pain;	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risks as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
4.8 Anti-epileptic drugs 4.8.1 Control of epilepsy *Drugs used for the management of all seizure types either alone or in combination*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
4.8. Anti-epileptic drugs 4.8.1. Control of epilepsy	See risk classification in section 4.1.2 for drugs used for fitting		
4.9. Drugs used in parkinsonism and related disorders 4.9.1. Dopaminergic drugs used in parkinsonism 4.9.2. Antimuscarinic drugs used in parkinsonism 4.9.3. Drugs used in essential tremor, chorea, tics, and related disorders *For the management of Parkinson's disease and Parkinsonism either alone or in combination; for the management of essential tremor, chorea, tics, and related disorders*	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
4.10. Drugs used in substance dependence *For alcohol or opioid dependence*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible
4.11. Drugs for dementia *For mild to moderate dementia*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risks as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**

Chapter 5: Infections

NOTES FOR ASSESSING RISK IN RELATION TO ANTIMICROBIALS

For drugs in this section the risks arising from omission or delay are dependent primarily on the acuteness and severity of the infection being treated rather than the use of particular drugs. The NPSA have received multiple reports of patients suffering harm from delayed treatment with antibiotics for severe infections and it is well recognised that prompt administration of antibiotics in acutely ill people can be life saving (e.g. ceftriaxone or cefotaxime in meningitis, or administration of appropriate antibiotics within an hour of diagnosis in septic shock). Serious consequences are also possible in the delayed use of surgical antibiotic prophylaxis for which there is a demonstrable linkage between timing of the dose in relation to surgical incision and the risk of post-operative surgical site infection. In addition, serious consequences can arise from delay or omission of other antimicrobial therapy including drugs for fungal, viral, and protozoal infections. However, for less severe infections (e.g. tetracyclines for acne) the risks of delay or omission may be negligible.

Because of the potential risks most of this section should be considered high risk ("red") although we appreciate that this may not apply to each and every clinical situation. Particular factors that increase the risk to patients from delayed or omitted doses of anti-infectives include:

- First doses of therapeutic antimicrobials
- Severely or acutely ill patients (including severe sepsis/septic shock)
- Patients with co-morbidities such as chronic respiratory (including asthma), cardiac, renal, neurological or liver disease; diabetes; alcoholic/malnourished/frail elderly patients; immunosuppressed patients (either due to disease or therapy, including corticosteroids); HIV infection (regardless of immune status)
- Use of an agent requiring therapeutic drug monitoring (e.g. gentamicin, vancomycin)
- Use for surgical prophylaxis

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risks as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
Chapter 6: Endocrine system			
6.1 Drugs used in diabetes **6.1.1 Insulins** **6.1.1.1 Short acting insulins** *When used for hyperglycaemia.*	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
6.1 Drugs used in diabetes **6.1.1.2 Intermediate- and long-acting insulins** *When used for hyperglycaemia.*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible
6.1.2 Antidiabetic drugs **6.1.2.1 Sulphonylureas** *When used for hyperglycaemia*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible
6.1.2 Antidiabetic drugs **6.1.2.2 Biguanides** *When used for hyperglycaemia.*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible
6.1.2 Antidiabetic drugs **6.1.2.3 Other antidiabetic drugs** *When used for hyperglycaemia.*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risks as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
6.1.4 Treatment of hypoglycaemia *Glucagon for the management of hypoglycaemia.*	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
6.3 Corticosteroids 6.3.1 Replacement therapy *Maintenance of mineralocorticoid effect due to insufficiency*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible
6.3 Corticosteroids 6.3.2 Glucocorticoid therapy *When used in the long-term management of inflammatory disorders.*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible
6.5 Hypothalamic and pituitary hormones and anti-oestrogens **6.5.1 Hypothalmic and anterior pituitary hormones and anti-oestrogens** *When used for fertility treatment*	This indication has not been assessed as it is specialist in nature and requires detailed knowledge of patient parameters and the indication in question.		
6.5 Hypothalamic and pituitary hormones and anti-oestrogens 6.5.2 Posterior Pituitary Hormones and antagonists *ADH analogues when used for diabetes insipidus*	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
6.7 Other endocrine drugs 6.7.2 Drugs affecting gonadotrophins *Gonadorelin analogues when used for prostate and breast cancer, endometriosis.*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risks as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
6.7 Other endocrine drugs **6.7.3 Metyrapone and trilostane** *When used for Cushing's Syndrome and Primary Hyperaldosteronism*	This indication has not been assessed as it is specialist in nature and requires detailed knowledge of patient parameters and the indication in question.		
6.7 Other endocrine drugs **6.7.4 Somatomedins** *When used for growth failure*	This indication has not been assessed as it is specialist in nature and requires detailed knowledge of patient parameters and the indication in question.		
Chapter 7: Obstetrics, gynaecology, and urinary-tract disorders			
7.1 Drugs used in obstetrics 7.1.1 Prostaglandins and oxytocics *When used to induce abortion*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
7.1.1 Prostaglandins and oxytocics *When used for induction and augmentation of labour*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
7.1.1.1 Ductus arteriousus *Alprostadil for congenital heart defects in neonates prior to corrective surgery*	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risks as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
7.1.2 Mifepristone *When used for termination of pregnancy*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
7.1.3 Myometrial relaxants *For uncomplicated premature labour*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
7.3 Contraceptives 7.3.5 Emergency contraception	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
7.4.3 Drugs used in urological pain	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible
7.4.4 Bladder instillations and urological surgery *Drugs used for bladder irrigation and during urological surgery*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risks as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
Chapter 8: Malignant disease and immunosuppression **NOTES FOR ASSESSING RISK IN RELATION TO MALIGNANT DISEASE AND IMMUNOSUPPRESSION** • Risk assessment has taken into account that medicines in this BNF section are often part of multiple drug treatment regimens, and that missing a dose of a specific medicine may impact upon subsequent therapies. • Active treatment refers to treatment to prevent or minimise disease progression. • Maintenance treatment refers to maintaining a patient in remission			
8.1. Cytotoxic agents **Treatment for cytotoxic induced side effects** *Dexrazoxane for anthracycline induced cardiotoxicity and anthracycline extravasation*	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
8.1. Cytotoxic agents **Treatment for cytotoxic induced side effects** *Folinic acid for chemotherapy-induced mucositis and myelosuppression*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
8.1. Cytotoxic agents **Treatment for cytotoxic induced side effects** *Mesna for urothelial toxicity*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risks as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
8.1. Cytotoxic agents 8.1.1. Alkylating agents 8.1.2. Anthracyclines and other cytotoxic antibiotics 8.1.3. Antimetabolites 8.1.5. Other antineoplastic drugs *For active treatment and all other indications*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
8.1. Cytotoxic agents 8.1.1. Alkylating agents 8.1.3. Antimetabolites 8.1.5. Other antineoplastic drugs *For maintenance treatment*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible
8.1. Cytotoxic agents 8.1.4. Vinca alkaloids and etoposide *For all indications*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
8.1. Drugs affecting the immune response 8.2.1. Antiproliferative immunosuppressants *For all indications*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
8.2. Drugs affecting the immune response 8.2.2. Corticosteroids and other immunosuppressants *Antithymocyte immunoglobulin (Rabbit) and basiliximab for the prophylaxis of acute organ rejection*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risks as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
8.2. Drugs affecting the immune response 8.2.2. Corticosteroids and other immunosuppressants *For maintenance therapy post-transplant*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
8.2. Drugs affecting the immune response 8.2.3. Rituximab and alemtuzumab *For all indications as stated in BNF 59*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible
8.3. Sex hormones and hormone antagonists in malignant disease—depot preparations *For all indications in the BNF for depot preparations including e.g. fulvestrant, goserelin, histrelin, leuporelin, triptorelin, degarelix, and lanreotide*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
Chapter 9: Nutrition and blood			
9.1 Anaemias and some other blood disorders **9.1.2 Drugs used in megaloblastic anaemias** **Hydroxocobalamin** *When used for pernicious anaemia and other macrocytic anaemias*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible
9.1.2 Drugs used in megaloblastic anaemias **Folic acid** *When used for the prevention of methotrexate-induced side effects in rheumatic disease and severe psoriasis*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risks as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
9.1.3 Drugs used in hypoplastic, haemolytic, and renal anaemias **Hydroxycarbamide** *When used for sickle cell disease*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible
9.1 Anaemias and some other blood disorders **9.1.4 Drugs used in platelet disorders** **Romiplostim** *When used for the treatment of chronic idiopathic thrombocytopenic purpura in splenectomised patients refractory to other treatments*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
9.1 Anaemias and some other blood disorders **9.1.6 Drugs used in neutropenia** *When used to stimulate the production of neutrophils in a variety of circumstances*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
9.1 Anaemias and some other blood disorders **9.1.7 Drugs used to mobilise stem cells** *When used to mobilise haematopoietic stem cells to peripheral blood for collection and subsequent autologous transplantation in patients with lymphoma or multiple myeloma*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
9.2 Fluids and electrolytes **9.2.1 Oral preparations for fluid and electrolyte imbalance** *When used to correct fluid or electrolyte imbalance*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risks as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
9.2 Fluids and electrolytes **9.2.2 Parenteral preparations for fluid and electrolyte imbalance**	For fluids and electrolytes the nature of the risk of delay or omission is particularly variable because of the wide range of indications. For example a delay in administering fluids to a patient with hypovolemic shock would pose substantially higher risk than delay in treating a clinically stable patient with mild dehydration. We have therefore not been able to apply risk categorisations to this section since this will depend on individual clinical circumstances.		
9.5 Minerals **9.5.1 Calcium and magnesium** **9.5.1.1 Calcium supplements** *Parenteral calcium preparations when used for severe acute hypocalcaemia; hypocalcaemic tetany; or the temporary reduction of the toxic effects of hyperkalaemia*	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
9.5 Minerals **9.5.1 Calcium and magnesium** **9.5.1.3 Magnesium** *Magnesium sulphate used for symptomatic hypomagnesaemia; arrhythmias; treatment and prevention of seizures in women with eclampsia; and severe acute asthma*	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
9.5 Minerals **9.5.2 Phosphorus** *Intravenous phosphate supplementation for severe or symptomatic hypophosphataemia*	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risks as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
9.6 Vitamins **9.6.2 Vitamin B group [parenteral]** *Parenteral B and C vitamins (e.g. Pabrinex) to treat severe deficiency states, Wernicke's encephalopathy, and Korsakoff's psychosis*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
9.6 Vitamins **9.6.6 Vitamin K** *When used for the treatment of haemorrhage or threatened haemorrhage associated with a high INR, or for the treatment of vitamin K deficient bleeding neonates and infants*	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
9.6 Vitamins **9.6.6 Vitamin K** *When used for the prophylaxis of vitamin K deficient bleeding neonates and infants*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible
9.8 Metabolic disorders **9.8.1 Drugs used in metabolic disorders**	This indication has not been assessed as it is specialist in nature and requires detailed knowledge of patient parameters and the indication in question.		
9.8 Metabolic disorders **9.8.2 Acute porphyrias** *Haem arginine used for the treatment of acute porphyrias*	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risks as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
Chapter 10: Musculoskeletal and joint diseases			
10.1.2.2 Local corticosteroid injections *When used for local inflammation of joints and soft tissue.*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible
10.1.3 Drugs that suppress the rheumatic disease process *When used for active progressive rheumatoid arthritis*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible
10.1.4 Gout and cytotoxic-induced hyperuricaemia *When used for acute attacks of gout*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible
Chapter 11: Eye			
11.3 Anti-infective eye preparations 11.3.1 Antibacterials 11.3.2 Antifungals 11.3.3 Antivirals *For serious infections and where often combined with systemic anti-infective treatment*	See chapter 5 for coverage of the particular risks associated with delay or omission of anti-microbial medicines.		

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risks as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
11.4. Corticosteroids and other anti-inflammatory preparations 11.4.1 Corticosteroids *For sight threatening inflammatory conditions, either intraocular (e.g. uveitis) or of the ocular surface*	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
11.4 Corticosteroids and other anti-inflammatory preparations 11.4.1 Corticosteroids 11.4.2 Other anti-inflammatory preparations *For non sight threatening inflammatory conditions*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible
11.5 Mydriatics and cycloplegics • Antimuscarinics • Sympathomimetics *For use post surgery to prevent synechiae*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible
11.5 Mydriatics and cycloplegics • Antimuscarinic • Sympathomimetics *For the treatment of uveitis*	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
11.6 Treatment of glaucoma • Beta-blockers • Prostaglandin analogues and prostamides • Carbonic anhydrase inhibitors and systemic drugs • Miotics *For urgent treatment of acute severe intraocular pressure elevation e.g. acute primary angle closure*	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risks as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
11.6 Treatment of glaucoma • Beta-blockers • Prostaglandin analogues and prostamides • Carbonic anhydrase inhibitors and systemic drugs • Miotics *For chronic treatment of glaucoma*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible
11.7 Local anaesthetics *For all ocular indications*	This indication has not been assessed as it is specialist in nature and requires detailed knowledge of patient parameters and the indication in question.		
11.8 Miscellaneous ophthalmic preparations 11.8.1 Tear deficiency, ocular lubricants (and astrigents) *For severe dry eyes or ocular surface disease*	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
11.8 Miscellaneous ophthalmic preparations Ocular diagnostic and peri-operative preparations and photodynamic treatment	This indication has not been assessed as it is specialist in nature and requires detailed knowledge of patient parameters and the indication in question.		
Chapter 13: Skin			
13.5 Preparations for eczema and psoriasis 13.5.3 Drugs affecting the immune response	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible
13.8 Sunscreens and camouflagers *Fluorouracil and imiquimod for treating superficial basal cell carcinomas*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risks as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
13.10 Anti-infective skin preparations	See chapter 5 for coverage of the particular risks associated with delay or omission of anti-microbial medicines.		
Chapter 14: Immunological products and vaccines			
14.4 Vaccines and antisera	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
14.5 Immunoglobulins 14.5.1 Normal immunoglobulins 14.5.2 Disease specific immunoglobulins 14.5.3 Anti-D immunoglobulin *For all indications*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Significant short-term patient impact with moderate intervention required; increase in length of hospital stay possible	Significant or catastrophic long-term patient impact with ongoing intervention required; long increase in length of stay possible
Chapter 15: Anaesthesia **NOTES FOR ASSESSING RISK IN RELATION TO ANAESTHESIA** Individual risk assessment has not been carried out for this chapter but the nature of the majority of drugs and indications means delay or omission would be considered high-risk ("red") in almost all circumstances. Local risk assessment may determine variations from that position based on the context in which particular medicines are used, but in the absence of such assessment it seems advisable to treat timeliness of administration for medicines in this section as critical.			

SECTION 2

THIS INCLUDES

➲ **DRUGS AND DRUG CLASSES WITH A GREEN RISK CLASSIFICATION FOR ALL CHARACTERISTICS OF DELAY OR OMISSION**

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risk as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
Chapter 1: Gastro-intestinal system			
1.1. Dyspepsia and gastro-oesophageal reflux disease 1.1.1. Antacids and simeticone 1.1.2. Compound alginates and proprietary indigestion preparations *For the symptomatic relief of dyspepsia*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
1.2. Antispasmodics and other drugs altering gut motility *For the symptomatic relief of gastro-intestinal smooth muscle spasm (atropine, dicycloverine, hyoscine butylbromide, propantheline, alverine, mebeverine, and peppermint oil).*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
1.3. Antisecretory drugs and mucosal protectants 1.3.1. H_2-receptor antagonists 1.3.2. Selective antimuscarinics 1.3.3. Chelates and complexes 1.3.4. Prostaglandin analogues 1.3.5. Proton pump inhibitors *For benign gastric and duodenal ulceration, stomal ulceration, and reflux oesophagitis. Or (for proton pump inhibitors) when used in combination with antibacterials for the eradication of H pylori.*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risk as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
1.4. Acute diarrhoea 1.5.4. Adsorbents and bulk-forming drugs 1.5.5. Antimotility drugs *To treat uncomplicated acute diarrhoea*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
1.5. Chronic bowel disorders 1.5.4. Food allergy *When sodium cromoglycate used as an adjunct to strict dietary restriction*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
1.6. Laxatives *For relief of constipation in a variety of circumstances*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
1.7. Local preparations for anal and rectal disorders 1.7.1. Soothing haemorrhoidal preparations 1.7.2. Compound haemorrhoidal preparations with corticosteroids 1.7.3. Rectal sclerosants 1.7.4. Management of anal fissures *For the symptomatic relief of haemorrhoids and the management of anal fissures.*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
1.9. Drugs affecting intestinal secretions 1.9.1. Drugs affecting biliary composition and flow *For the dissolution of gallstones where other treatments not deemed necessary (e.g. patients with mild symptoms) or for primary biliary cirrhosis.*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risk as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
1.9. Drugs affecting intestinal secretions 1.9.2. Bile acid sequestrants *For relief of diarrhoea or pruritus associated with intestinal bile acids.*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
1.9. Drugs affecting intestinal secretions 1.9.4. Pancreatin *For reduced or absent exocrine secretion in cystic fibrosis; and following pancreatectomy, gastrectomy, or chronic pancreatitis.*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
Chapter 2: Cardiovascular system			
2.1 Positive inotropic drugs 2.1.1 Cardiac glycosides *For oral maintenance treatment of atrial fibrillation or flutter, or as an adjunct in heart failure*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risk as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
2.2 Diuretics 2.2.1 Thiazides and related diuretics 2.2.2 Loop diuretics 2.2.3 Potassium-sparing diuretics and aldosterone antagonists 2.2.4 Potassium-sparing diuretics with other diuretics 2.2.5 Osmotic diuretics 2.2.6 Mercurial diuretics 2.2.7 Carbonic anhydrous inhibitors 2.2.8 Diuretics with potassium *For oral treatment of hypertension or heart failure, or as an adjunct in congestive heart failure* *Other indications, including those in which diuretics are administered parenterally, have not been assessed as part of this tool as risks will likely depend on local use and prescribing practices*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
2.4 Beta-adrenoceptor blocking drugs *For oral maintenance in hypertension and heart failure, and for prophylaxis following myocardial infarction*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
2.5.2 Centrally acting antihypertensive drugs *Oral use for the treatment of hypertension*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risk as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
2.5.4 **Alpha-adrenoceptor blocking drugs** *Oral use for the treatment of hypertension, benign prostatic hyperplasia, and Raynaud's syndrome* *Use for the management of phaeochromocytoma has not been risk assessed*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
2.5.5 **Drugs affecting the renin-angiotensin system** *Oral use for heart failure, hypertension, diabetic nephropathy, and prophylaxis of cardiovascular events*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
2.6 Nitrates, calcium-channel blockers, and other anti-anginal drugs 2.6.1 Nitrates *For the prophylaxis of angina*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
2.6 Nitrates, calcium-channel blockers, and other antianginal drugs **2.6.1** Nitrates *For the prophylaxis of heart failure and anal fissure*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
2.6.2 Calcium-channel blockers *For the treatment of hypertension and Raynaud's phenomenon* *Use of nimodipine for prevention and treatment of ischaemic neurological deficits has not been risk assessed*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
2.6.2 **Calcium-channel blockers** *For the prophylaxis of angina*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risk as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
2.6.3 **Other antianginal drugs** *For the prophylactic treatment of angina*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
2.6.4 **Peripheral vasodilators and related drugs** *For the treatment of occlusive or vasospastic peripheral vascular disease*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
2.9 Antiplatelet drugs *When used as part of a prophylactic maintenance regimen*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
2.11 Antifibrinolytic drugs and haemostatics *Use of oral antifibrinolytics only (blood products and drotrecogin alfa have not been risk assessed)*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
2.12 Lipid-regulating drugs *For the full range of indications for the class as described in BNF 59*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
2.13 Local sclerosants *For sclerotherapy of varicose veins*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
Chapter 3: Respiratory system			
3.1.1.1 Selective beta$_2$-agonists *When used for the management of chronic reversible airway obstruction*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay

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	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
3.1.1.2 Other adrenoceptor agonists *When used for the management of chronic reversible airway obstruction*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
3.1.2 Antimuscarinic bronchodilators *When used for the management of chronic reversible airway obstruction*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
3.1.3 Theophylline *When used for the management of chronic reversible airway obstruction*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
3.2 Corticosteroids *When used for the prophylaxis of chronic reversible airway obstruction*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
3.3 Cromoglicate and related therapy and leukotriene receptor antagonists 3.3.1 Cromoglicate and related therapy *When used for the prophylaxis of asthma*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
3.3.2 Leukotriene receptor antagonists *When used for the prophylaxis of asthma*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
3.4.1 Antihistamines *When used for the symptomatic relief of mild and chronic allergy*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay

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	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
3.4.2 Allergen immunotherapy *When used for the desensitisation of allergies*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
3.7 Mucolytics *When used to facilitate expectoration, by reducing sputum viscosity, in patients with chronic respiratory disease (COPD and cystic fibrosis)*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
3.8 Aromatic Inhalations *When used to relieve nasal congestion*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
3.9 Cough Preparations 3.9.1 Cough suppressants *When used to relieve a chronic cough*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
3.9.2 Demulcent and expectorant cough preparations *When used to relieve a chronic cough*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
3.10 Systemic Nasal Decongestants *When used to relieve nasal congestion*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risk as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
Chapter 4: Central nervous system			
4.1. Hypnotics and anxiolytics 4.1.1. Hypnotics 4.1.2. Anxiolytics 4.1.3. Barbituates *When used for the short-term management of insomnia and for other non-acute indications*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
4.3. Antidepressant drugs 4.3.1. Tricyclic and related antidepressant drugs 4.3.2. Monoamine-oxidase inhibitors 4.3.3. Selective serotonin re-uptake inhibitors 4.3.4. Other antidepressants drugs *For treatment of depressive illness, as well as other indications including obsessive compulsive disorder, anxiety and panic disorders, neuropathic pain, and nocturnal enuresis in children*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
4.4. CNS stimulants and drugs used for attention deficit hyperactivity disorder *For the treatment of attention deficit hyperactivity disorder, narcolepsy, and other daytime sleepiness*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
4.5. Drugs used for the treatment of obesity 4.5.1. Anti-obesity drugs acting on the gastrointestinal tract 4.5.2. Centrally acting appetite suppressants *For adjunctive use in the management of obesity*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risk as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
4.6. Drugs used in nausea and vertigo *Treatment and prevention of nausea and vomiting, including that occurring post-operatively or that induced by cytotoxic chemotherapy; motion sickness, labyrinthine disorders, and other associated conditions*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
4.10. Drugs used in substance dependence *For smoking cessation*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
Chapter 6: Endocrine system			
6.1.2 Antidiabetic drugs **6.1.5 Treatment of diabetic nephropathy and neuropathy** *Analgesics such as gabapentin and pregabalin*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
6.2 Thyroid and antithyroid drugs 6.2.1 Thyroid hormones *When used for hypothyroidism.*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
6.2 Thyroid and antithyroid drugs 6.2.2 Antithyroid drugs *When used for hyperthyroidism.*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
6.4 Sex Hormones 6.4.1 Female Sex Hormones 6.4.1.1 Oestrogens and HRT *When used for hormone replacement therapy.*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay

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	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
6.4 Sex Hormones 6.4.2 Male sex hormones and antagonists *For hypogonadism and androgen deficiency in men (male hypersexuality has not been assessed)*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
6.6 Drugs affecting bone metabolism *When used for post-menopausal osteoporosis and Paget's Disease.*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
6.7 Other endocrine drugs 6.7.1 Bromocriptine and other dopaminergic drugs *When used for galactorrhoea and prolactinoma.*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
Chapter 7: Obstetrics, gynaecology, and urinary-tract disorders			
7.2 Treatment of vaginal and vulval conditions 7.2.1 Preparations for vaginal and vulval changes 7.2.2 Vaginal and vulval infections	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
7.4 Drugs for genito-urinary disorders 7.4.1. Drugs for urinary retention 7.4.2. Drugs for urinary frequency, enuresis, and incontinence.	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risk as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
Chapter 8: Malignant disease and immunosuppression			
8.1. Cytotoxic agents **Treatment for cytotoxic induced side effects** *Palifermin for chemotherapy-induced mucositis and myelosuppression*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible
8.1. Cytotoxic agents **Treatment for cytotoxic induced side effects** *Amifostine for reducing the risk of chemotherapy-induced neutropenic infection and nephrotoxicity*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible
8.3. Sex hormones and hormone antagonists in malignant disease (excluding depot preparations) 8.3.1. Oestrogens 8.3.2. Progestogens *For all indications as stated in BNF 59*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible
8.3. Sex hormones and hormone antagonists in malignant disease (excluding depot preparations) 8.3.4. Hormone antagonists 8.3.4.1. Breast cancer 8.3.4.2. Gonaderelin analogues and gonadotrophin-releasing hormone antagonist 8.3.4.3. Somatostatin analogues *For all indications as stated in BNF 59*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risk as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
Chapter 9: Nutrition and blood			
9.1 Anaemias and some other blood disorders **9.1.1 Iron-deficiency anaemias** **9.1.1.1 Oral iron** *When used for iron-deficiency anaemia*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible
9.1 Anaemias and some other blood disorders **9.1.1 Iron-deficiency anaemias** **9.1.1.2 Parenteral iron** *When used for iron-deficiency anaemia*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible
9.1.2 Drugs used in megaloblastic anaemias **Cyanocobalamin** *When used for vitamin B12 deficiency of dietary origin* **Folic acid** *When used for folate-deficient megaloblastic anaemia, prevention of neural tube defects, prophylaxis in chronic haemolytic states, and prophylaxis of folate deficiency in dialysis***.**	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible
9.1 Anaemias and some other blood disorders **9.1.3 Drugs used in hypoplastic, haemolytic, and renal anaemias** **Erythropoietins** *When used to treat symptomatic anaemia associated with erythropoietin deficiency in chronic renal failure*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay possible

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risk as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
9.1 Anaemias and some other blood disorders **9.1.3 Drugs used in hypoplastic, haemolytic, and renal anaemias** **Deferasirox** **Deferiprone** **Desferrioxamine** *When used for iron overload*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
9.1.4 Drugs used in platelet disorders **Anagrelide** *When used for essential thrombocythaemia*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
9.4 Oral nutrition **9.4.2 Enteral nutrition**	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
9.5 Minerals **9.5.1 Calcium and magnesium** **9.5.1.1 Calcium supplements** **Oral calcium supplements** *When used where dietary calcium intake is deficient*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
9.5 Minerals **9.5.1 Calcium and magnesium** **9.5.1.2 Hypercalcaemia and hypercalciuria** *Cinacalcet used for secondary hyperparathyroidism in patients with end-stage renal disease on dialysis; or hypercalcaemia of primary hyperparathyroidism or parathyroid carcinoma*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay

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	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
9.5 Minerals **9.5.2 Phosphorus** *Oral phosphate supplementation for mild to moderate asymptomatic hypophosphataemia*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
9.5 Minerals **9.5.2 Phosphorus** **9.5.2.2 Phosphate-binding agents** *When used in the management of hyperphosphataemia complicating renal failure*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
9.5 Minerals **9.5.3 Fluoride** **9.5.4 Zinc** **9.5.5 Selenium** *When used to treat the relevant deficiency*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
9.6 Vitamins **9.6.1 Vitamin A** **9.6.2 Vitamin B group [oral preparations]** **9.6.3 Vitamin C** **9.6.4 Vitamin D** **9.6.5 Vitamin E** **9.6.6 Vitamin K [see below also]** **9.6.7 Multivitamin preparations** *When used for the prevention of vitamin K deficiency in malabsorption syndromes, or for the prevention and treatment of specific deficiency states or where the diet is known to be inadequate*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risk as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
Chapter 10: Musculoskeletal and joint diseases			
10.1 Drugs used in rheumatic diseases and gout **10.1.1 Non-steroidal anti-inflammatory drugs** *When used for pain and inflammation in rheumatoid arthritis, osteoarthritis and ankylosing spondylitis*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
10.1.4 Gout and cytotoxic-induced hyperuricaemia *When used for long-term control of gout*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
10.2 Drugs used in neuromuscular disorders 10.2.1 Drugs that enhance neuromuscular transmission *When used for myasthenia gravis*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
10.2.2 Skeletal muscle relaxants *When used for relief of muscle spasm or spasticity associated with multiple sclerosis or other neurological damage*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
10.3.2 Rubefacients and other topical antirheumatics *When used for counter irritation in painful lesions of the muscles, tendons, joints and in non-articular rheumatism*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risk as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
Chapter 11: Eye			
11.1 Anti-infective eye preparations 11.3.1 Antibacterials 11.3.3 Antivirals *For self limiting infections e.g. microbial conjunctivitis*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
Chapter 12: Ear, nose, and oropharynx			
12.1 Drugs acting on the ear 12.1.1 Otitis Externa 12.1.2 Otitis Media 12.1.3 Removal of Ear Wax	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
12.2 Drugs acting on the nose 12.2.1 Drugs used in nasal allergy 12.2.2 Topical nasal decongestants 12.2.3 Nasal preparations for infections	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
12.3 Drugs acting on the oropharnyx 12.3.1 Drugs for oral ulceration and inflammation 12.3.2 Oropharyngeal anti-infective drugs 12.3.3 Lozenges and Sprays 12.3.4 Mouthwashes, gargles and dentrifrices 12.3.5 Treatment of dry mouth	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risk as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
Chapter 13: Skin			
13.2 Emollient and barrier preparations 13.2.1 Emollients *When used to hydrate skin* 13.2.1.1 Emollient bath additives *When used as a bath soak to improve skin hydration* 13.2.2 Barrier preparations *When used on intact skin*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
13.3 Topical local anaesthetics and antipruritics *When used for pruritus*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
13.4 Topical corticosteroids *When used to treat simple inflammatory skin conditions*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
13.5 Preparations for eczema and psoriasis 13.5.1 Preparations for eczema 13.5.2 Preparations for psoriasis	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay

DRUG OR DRUG CLASS BY BNF CLASSIFICATION AND INDICATION (S) CONSIDERED	Potential risk as consequence of delay		
	Dose not given at the time prescribed	**Dose not given within 2 hours of time prescribed**	**Dose omitted (i.e. not administered by the time of next scheduled dose)**
13.6 Acne and rosacea 13.6.1 Topical preparations for acne *When used for acne vulgaris* 13.6.2 Oral preparations for acne *Does NOT cover antibacterials*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
13.7 Preparations for warts and calluses *When over-the-counter preparations are used*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
13.8 Sunscreens and camouflagers 13.8.1 Sunscreen preparations *When used for photo damage* 13.8.2 Camouflagers *When used for post-operative scars and other deformities to adjunct relief of emotional disturbances due to skin disease*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay
13.9 Shampoos and other preparations for scalp and hair conditions *When used for psoriasis, severe dandruff, scalp dermatitis, hirsutism, and androgenic alopecia*	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay	Nil or negligible patient impact with nil or minor intervention required; no increase in length of stay

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Ben Rehman, Director, London Medicines Information Service

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