



Ordre
des Sages-Femmes
du Québec

MEDICATION GUIDE

December 2020

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Inclusion policy¹

For the OSFQ, accessibility and quality of services and care are inseparable, because health equity is a fundamental principle. The OSFQ affirms the importance of midwifery practice that is sensitive to the realities of minorities and people who are marginalized, discriminated against, and even stigmatized for various reasons, in particular physical, social, economic, and ethnic factors as well as sexual orientation. The OSFQ emphasizes that, beyond words and language, it is a fundamental principle that practice be guided by an ethic of acceptance and inclusive care for anyone who seeks the services of a midwife. Accordingly, each person shall be accepted by and treated with dignity and with respect for his or her identity, as defined by the person.

The feminine gender is used in the document and refers to any person as they define themselves.

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¹ Excerpt from the OSFQ's position paper: *L'inclusivité chez les sage-femmes*;
http://www.osfq.org/wp-content/uploads/2017/10/Position-OSFQ-inclusivite%C3%A9_oct2016_FR.pdf (2016)

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Important

This second edition of **Medication Guide** is intended to be the primary tool for midwives when prescribing and administering drugs. In the context of the coming into force of the new *Regulation respecting Drugs That a Midwife May Prescribe or Administer*, the OSFQ wishes to assist its members in applying the new responsibilities related to the list in effect as of March 1, 2021.

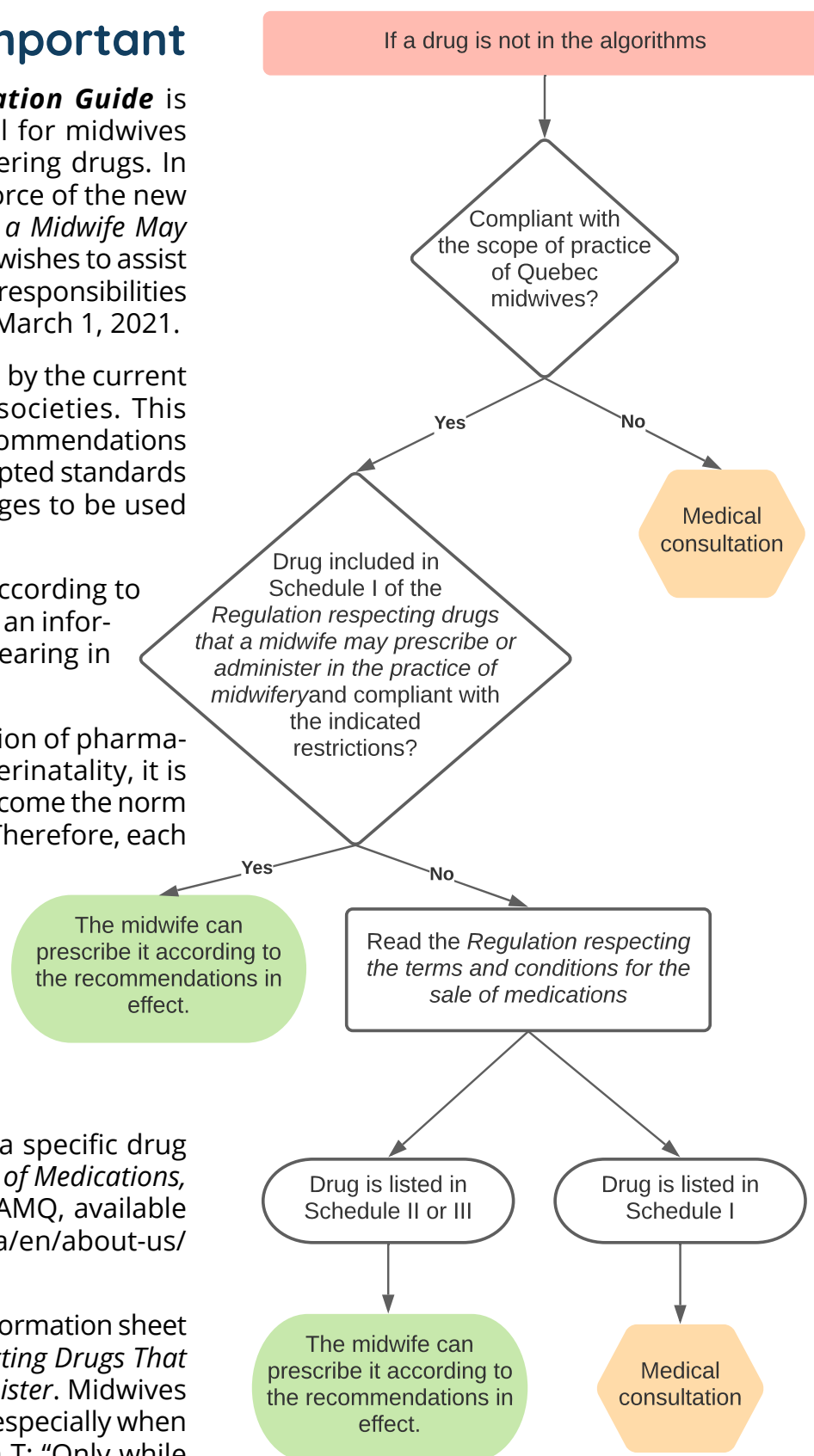
The drafting was mainly inspired by the current recommendations of learned societies. This process has ensured that the recommendations in the guide reflect currently accepted standards for the relevant drugs and dosages to be used for each therapeutic indication.

The guide contains algorithms according to therapeutic indication, as well as an information sheet for each drug appearing in the algorithms.

Considering the constant evolution of pharmaceutical knowledge related to perinatality, it is possible that new drugs might become the norm but do not appear in this guide. Therefore, each midwife is responsible for assessing the appropriateness of prescribing and administering a drug based on her clinical judgment. It is also recommended to consult a health-care professional when prescribing a drug for the first time.

You can find the class to which a specific drug belongs in Appendix V of the *List of Medications*, provided and updated by the RAMQ, available at: <https://www.ramq.gouv.qc.ca/en/about-us/list-medications>

The restrictions found on each information sheet are taken from *Regulation respecting Drugs That a Midwife May Prescribe or Administer*. Midwives must exercise clinical judgment, especially when using a drug with the restriction T: "Only while waiting for medical care where transfer of the



clinical responsibility of the mother or child to a physician is necessary.” The midwife will need to prioritize the situation according to its urgency, i.e., whether to consult a physician before or after administering the medication, and arrange for a transfer, if necessary.

In addition, the administration details in this guide may differ from local institutional protocols. For this reason, the OSFQ strongly recommends that each midwifery service work in collaboration with institutional pharmacists to harmonize the various protocols, particularly those related to perinatal administration by the midwife herself.

Lastly, it is important for every midwife to understand that the right to prescribe and administer a drug for a particular condition does not obviate the obligation to consult or transfer, according to the *Regulation respecting Cases Requiring a Consultation with a Physician or Transfer of Clinical Responsibility to a Physician*. These two regulations must be applied in parallel. The introduction of new drug regulations does not change the scope of practice of midwives but rather complements the clinical activities they already perform.

The update of the list was motivated by the desire to provide optimal care to midwifery clients.

To this end, four objectives have been defined:

1. Respond adequately to common health problems during pregnancy, childbirth, and the post-natal period.

This would include problems such as nausea and vomiting, constipation, hemorrhoids, vitamin deficiency, and nipple vasospasm.

2. Respond adequately to acute health problems by providing first-line treatment that might affect the successful completion of pregnancy, delivery, breastfeeding, and the well-being of the newborn.

This would include problems such as bacteriuria, STBBI, and vaginal infection.

3. Ensure optimal prophylaxis according to current practices.

Examples of this are prophylaxis for GBS positive women and prophylaxis to prevent neonatal hemorrhagic disease.

4. Respond adequately to obstetrical emergencies according to current practices.

Such emergencies would include suspected intra-amniotic infection, post-partum hemorrhage, preeclampsia, and drug overdose with narcotics or magnesium sulphate.

Some of these conditions require a transfer of care. The treatment administered is then **a temporary measure** until the client has been transferred to the care of a physician. Transfer delays in rural and remote areas are more frequent than in urban centres, requiring appropriate midwifery management. The midwife must be able, in conjunction with the physician consulted, to prescribe and administer the required drug therapy during this period.

On the other hand, the ability to prescribe and administer is not a requirement. Therefore, if the midwife and physician consulted feel that the transfer can be completed within a reasonable time, treatment can be initiated by the medical team.

Drug Safety during Pregnancy and Lactation

It was decided not to use the classification system adopted by the Food and Drug Administration (FDA USA) using pregnancy categories A, B, C, D, and X.

The following is a list of references for the use of medications in pregnancy and lactation.

Bumps (*Best use of medicines in pregnancy*) - <https://www.medicinesinpregnancy.org/About-Us/>

Le Centre de Référence sur les Agents Tératogènes - <http://www.lecrat.fr/>

Mother to baby - <https://mothertobaby.org/fact-sheets-parent/>

Infantrisk - <https://www.infantrisk.com/>

Centre IMAGE Sainte-Justine - <https://www.chusj.org/fr/soins-services/P/Pharmacie/Centre-IMAGE>

LactMed (site web et app. gratuite) - <https://toxnet.nlm.nih.gov/newtoxnet/lactmed.htm>

e-lactancia - <http://e-lactancia.org/>

Breastfeeding network - <https://www.breastfeedingnetwork.org.uk/drugs-factsheets/>

Judicious Use of Antibiotics

Antibiotics should be prescribed and administered judiciously. Perinatal antibiotics are associated with anaphylactic allergic reactions, digestive-system disturbances, various side effects, and the emergence of pathogens resistant to antibiotics previously used as first-line treatment. It is therefore essential that midwives use the appropriate laboratory tests and antibiotics of choice for the treatment of infections.

Vaccination

The information sheets on vaccines reflect the content of the *Protocole d'immunisation du Québec (PIQ)* (freely translated). The information therein is accurate, complete, and up-to-date. To avoid confusion between the PIQ and the guide, the OSFQ strongly encourages midwives to consult the PIQ before prescribing or administering a vaccine: <https://www.msss.gouv.qc.ca/professionnels/vaccination/protocole-d-immunisation-du-quebec-piq/>.

Narcotics

Midwives must take appropriate precautions when managing these medications, just as they do with any other high-risk medication. The OSFQ strongly recommends that midwives follow local protocols related to the safe use of narcotics.

The federal regulation provides for the use of narcotics by midwives subject to certain conditions:

https://laws-lois.justice.gc.ca/eng/regulations/C.R.C.%2C_c._1041/page-1.html

https://laws-lois.justice.gc.ca/eng/regulations/C.R.C.%2C_c._1041/ (article 55)

General Obligations of Practitioner

[SOR/2019-169, s. 18]

Marginal note: Requirements

55 A practitioner shall

- (a) furnish to the Minister any information that the Minister may require respecting
 - (i) the use by the practitioner of narcotics received — including the administering, selling or providing of them to a person,
 - (ii) the prescriptions for narcotics issued by the practitioner; and
 - (iii) [Repealed, SOR/2018-147, s. 18]
- (b) produce to an inspector on request any records that these Regulations require the practitioner to keep;
- (c) permit an inspector to make copies of such records or to take extracts therefrom;
- (d) permit an inspector to check all stocks of narcotics on the practitioner's premises;
- (e) retain in his possession for at least two years any record that these Regulations require him to keep;
- (f) take adequate steps to protect narcotics in his possession from loss or theft; and
- (g) report to the Minister any loss or theft of a narcotic within 10 days of the practitioner's discovery of the loss or theft.

<https://laws-lois.justice.gc.ca/eng/acts/C-38.8/>

<https://laws-lois.justice.gc.ca/eng/regulations/SOR-2012-230/page-1.html?wbdisable=true>

Permitted activities

- 3** Subject to section 4, a midwife, nurse practitioner or podiatrist, as a practitioner, may prescribe or possess a listed substance, or conduct an activity with a listed substance, in accordance with the *Benzodiazepines and Other Targeted Substances Regulations*, Part G of the *Food and Drug Regulations* or the *Narcotic Control Regulations* if they are permitted to prescribe, in their practice under the laws of the province in which they are registered and entitled to practise, that substance.

Previous Version

Marginal note: Exclusions — midwife or podiatrist

4 (1) In respect of a midwife or podiatrist, a listed substance excludes a substance set out in

- (a) the definition *designated drug* in subsection G.04.001(1) of the *Food and Drug Regulations*;
- (b) item 1 of Part III of the schedule to Part G of the *Food and Drug Regulations*; and
- (c) any of subitems 1(1) and (10), 2(1), 5(4) and 10(1) of the schedule to the *Narcotic Control Regulations*.

Protection of the Public

Protection of the public requires that midwives always adhere to the principles of safely prescribing and administering drugs.

The midwife must therefore:

1. Develop good prescribing habits, so that a drug is only prescribed or administered when there is a real need, is appropriate to the situation, and the benefits to the woman or her newborn outweigh the associated risks.
2. Involve the client in the decision to prescribe the drug she recommends. She should discuss the expected benefits of the drug, the risks, the possible side effects, and the possible alternatives in an open discussion to obtain the client's informed consent.
3. Prescribe the drug according to the standards of good practice.
4. Complete the medication order in accordance with the *Règlement sur les normes relatives à la forme et au contenu des ordonnances verbales ou écrites faites par une sage-femme* (French only).
5. Be familiar with the classes, subclasses, and generic names of the drugs prescribed or administered; the mechanisms of action; main side effects; therapeutic reactions; conditions of administration; usual doses; contraindications; and drug interactions.
6. Integrate the prescription of medications into a clinical approach that includes assessment of the client or newborn, consideration of other possible conditions, and development of an individualized care plan.
7. Monitor the treatment prescribed or administered and readjust it as needed.

Disclosure and Reporting of Drug Incidents or Accidents

Midwives must inform their clients of adverse drug events and report them through the appropriate channels in their institution, according to existing mechanisms and forms, so as to prevent recurrence.

How to Use the *Medication Guide*

The indexes in the table of contents will be important research tools in your practice.

They include the two main tools for drug classification:

- algorithms, under the index by therapeutic indications, and
- drug information sheets, under the generic and class indexes.

THERAPEUTIC-INDICATION ALGORITHMS

In order to guide midwives in selecting a drug to be prescribed and administered as well as in the prescribing procedures, more than 40 algorithms have been created according to the therapeutic indications most relevant to midwifery practice in Quebec, based on this model:

Some distinctive characteristics

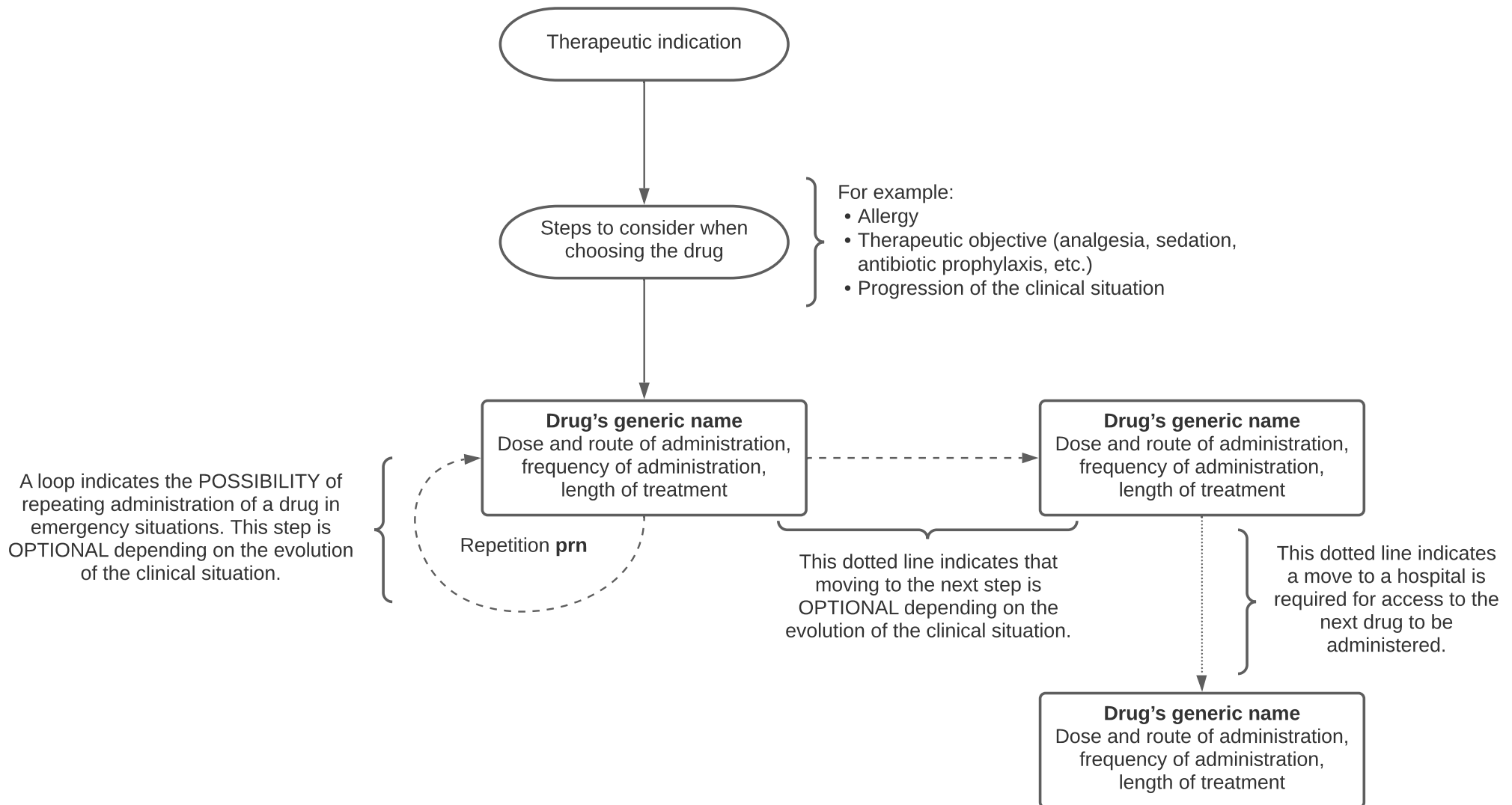
- The algorithms include a timeline when the choice of a drug varies according to the actual perinatal period. There is no such timeline in the algorithms that deal with infections. It is important to check the drug information sheets to see if the identified treatment has any contraindications related to the perinatal period.
- A yellow hexagon signals the need to consult a physician or transfer care to a physician according to *Regulation respecting Cases Requiring a Consultation with a Physician or Transfer of Clinical Responsibility to a Physician*. Some algorithms, however, suggest that the midwife should consult a physician, not because of this regulation, but because she has reached the limit of what she can prescribe for a given situation.
- Option 1 versus Option 2: Identification of different treatment options with the term “option” indicates that the choices offered are equivalent. The midwife must then choose the treatment according to the woman’s preferences and her own prescribing habits.
- 1st Choice versus Alternative: Identification of different treatment options with the terms “1st choice” and “Alternative” indicates that one treatment is superior and should be used whenever possible. An explanation is usually provided as to why the first choice cannot be used (supply shortage, emergency administration, etc.).
- A yellow diamond indicates the antidote to be used in a drug-overdose situation.

Modification of the Algorithms

The algorithms include treatment suggestions according to current recommendations. These can be adapted to suit local practice as long as the changes are consistent with the *Regulation respecting Drugs That a Midwife May Prescribe or Administer in the Practice of Midwifery*, the *Regulation respecting Cases Requiring a Consultation with a Physician or Transfer of Clinical Responsibility to a Physician*, and the *Midwives Act*.

IMPORTANT: It is not always necessary to go to the last step of an algorithm. The resolution of a clinical situation may justify limiting the treatment to that which is prescribed and produces the desired effect.

References are available according the therapeutic indications that come after the algorithms.



DRUG INFORMATION SHEETS

The drug information sheets are grouped according to drug class.

Block 1: Classification according to class, subclass and sub-subclass, as set out in the *Regulation respecting Drugs That a Midwife May Prescribe or Administer in the Practice of Midwifery*, and the generic name of the drug. The restrictions indicated refer to those found in the regulation.

Block 2: Therapeutic indication of the drug relevant to perinatal health and midwifery

Block 3: Adverse reactions, contraindications, precautions, and an “Important” section

The list of adverse reactions is not exhaustive. The complications listed are the most common and relevant to midwifery clients or those that require monitoring.

The list of contraindications was developed based on the profile of midwives’ clients. Contraindications for other populations do not appear.

Precautions include relative contraindications and situations that warrant a change in the usual dosage.

The distinctive characteristics of each drug are discussed in the “Important” section. Different tools are provided to respond to these characteristics.

Block 4: Efficacy, mechanism of action, and pharmacokinetics

The information in this section relates to the onset and duration of the drug’s action. The explanation of the mechanism of action helps to understand certain specific characteristics.

Additional Information

- Clinical monitoring suggested for certain drugs
- Specific characteristics related to administration, especially for intramuscular or intravenous administration

Reference

Each drug information sheet includes a link to the drug monograph.

Information not included on the drug information sheets:

- Brand names (Appendix 5)
- Storage method (room temperature or refrigerated)
- Dose and route of administration

Regulation respecting Drugs That a Midwife May Prescribe or Administer

(French only)

Loi sur les sages-femmes

(chapitre S-0.1, a. 9, 1^{er} al.)

1. Une sage-femme peut, dans l'exercice de sa profession, prescrire ou administrer les médicaments visés à l'annexe.
2. Malgré l'article 1, une sage-femme qui a obtenu son permis d'exercice avant le 1^{er} avril 2022 doit, pour prescrire ou administrer les médicaments visés à l'annexe, avoir suivi une formation d'au plus 12 heures reconnue par l'Ordre des sages-femmes du Québec et portant sur la prescription et l'administration de médicaments conformément au présent règlement.
3. Le présent règlement remplace le Règlement sur les médicaments qu'une sage-femme peut prescrire ou administrer dans l'exercice de sa profession (chapitre S 0.1, r. 12).
4. Le présent règlement entre en vigueur le 1^{er} mars 2021.

ANNEXE I

(a. 1)

MÉDICAMENTS QU'UNE SAGE-FEMME PEUT PRESCRIRE OU ADMINISTRER

NOTE : La classification qui suit réfère à celle élaborée par l'American Hospital Formulary Service.

1. Tout médicament appartenant à la classification suivante, sous réserve de la nomenclature et des restrictions indiquées :

Restrictions :

- | | |
|----|---|
| AM | Peut être prescrit ou administré seulement pour l'allaitement maternel |
| CH | Seulement dans un centre hospitalier exploité par un établissement au sens de la Loi sur les services de santé et les services sociaux (chapitre S-4.2) ou de la Loi sur les services de santé et les services sociaux pour les autochtones cris (chapitre S-5). |
| PI | Seulement dans le cadre d'un traitement de première intention ou si la prescription ou l'administration du médicament dans le cadre d'un traitement de deuxième ou troisième intention constitue une mesure prophylactique conforme aux pratiques cliniques en vigueur. |
| S | Peut être prescrit seulement. |
| T | Peut être prescrit ou administré seulement en attente de la prise en charge médicale lorsque le transfert de la responsabilité clinique de la mère ou de l'enfant à un médecin est nécessaire. |

CLASSES THÉRAPEUTIQUES	SOUS-CLASSES THÉRAPEUTIQUES	SOUS-SOUS-CLASSES THÉRAPEUTIQUES	RESTRICTIONS
Antihistaminiques	Antihistaminiques de première génération	Dérivés éthanolamine	
Anti-infectieux	Antibactériens	Aminosides	PI et T
		Céphalosporines	PI
		Macrolides	PI
		Pénicillines	PI
		Sulfamidés	PI
		Autres antibactériens	PI
	Antifongiques	Azoles	
		Polyènes	
	Antiviraux	Analogues des nucléosides et des nucléotides	
Médicaments du système nerveux autonome	Antiprotozoaires	Divers antiprotozoaires	
	Anti-infectieux urinaires		
Médicaments du sang	Sympathomimétiques	Agonistes alpha et bêta adrénergiques	T
Médicaments cardiovasculaires	Antianémiques		
	Vasodilateurs	Nitrates et nitrites	T
	Bloquants bêta-adrénergiques		T
Médicament système nerveux central	Bloquant du canal calcique	Dihydropyridines	T sauf pour un médicament visant à traiter des vasospasmes du mamelon
		Anti-inflammatoires non stéroïdiens	
		Agonistes des opiacés	CH
		Agonistes partiels des opiacés	CH
	Divers analgésiques et antipyrétiques		
	Antidotes des narcotiques		T et CH
	Anticonvulsivants	Divers anticonvulsivants	T
Agents diagnostiques	Anxiolytiques, sédatifs et hypnotiques	Benzodiazépines	
	Médicaments du système nerveux central divers		T
Électrolytes-diurétiques	Diabète sucré		
	Analyses d'urine et de selles		
	Agents de suppléance		
	Agents calorifiques		

CLASSES THÉRAPEUTIQUES	SOUS-CLASSES THÉRAPEUTIQUES	SOUS-SOUS-CLASSES THÉRAPEUTIQUES	RESTRICTIONS
Médicaments O.R.L.O.	Anti-infectieux O.R.L.O.	Antibiotiques	
Médicaments gastro-intestinaux	Anti-émétiques	Antihistaminiques	
		Autres anti-émétiques	
	Antiulcéreux et supprimeurs de l'acide	Antagonistes des récepteurs H2 de l'histamine	
		Prostaglandines	
		Cytoprotecteurs gastro-duodénaux	AM
		Inhibiteurs de la pompe à protons	
	Procinétiques		AM
Hormones et substituts	Corticostéroïdes		T
	Anovulants		S
	Progestatifs		
Anesthésiques locaux			
Ocytociques			
Agents immunisants	Agents d'immunothérapie passive		
	Agents d'immunothérapie active		
Peau et muqueuses	Anti-infectieux	Antibactériens	
		Antifongiques	
		Autres anti-infectieux locaux	
	Anti-inflammatoires		
	Antiprurigineux et anesthésiques locaux		
Vitamines			

2. Tout autre médicament qui n'est pas visé à l'annexe I du Règlement sur les conditions et modalités de vente des médicaments (chapitre P-10, r. 12).
3. Toute combinaison de médicaments de la présente annexe, sous réserve des restrictions qui leur sont applicables.

Therapeutic Indications Index

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Abnormal vaginal discharge

Clinical objective: Provide first-intention treatment for pregnant or lactating women with abnormal vaginal discharge (bacterial vaginosis, trichomoniasis, or vaginal candidiasis).

Recurrence of this infection or resistance to first-intention treatment warrants medical attention.

COMPARATIVE TABLE OF FEATURES CONSISTENT WITH CERVICITIS, BACTERIAL VAGINOSIS, VULVOVAGINAL CANDIDIASIS OR TRICHOMONIASIS

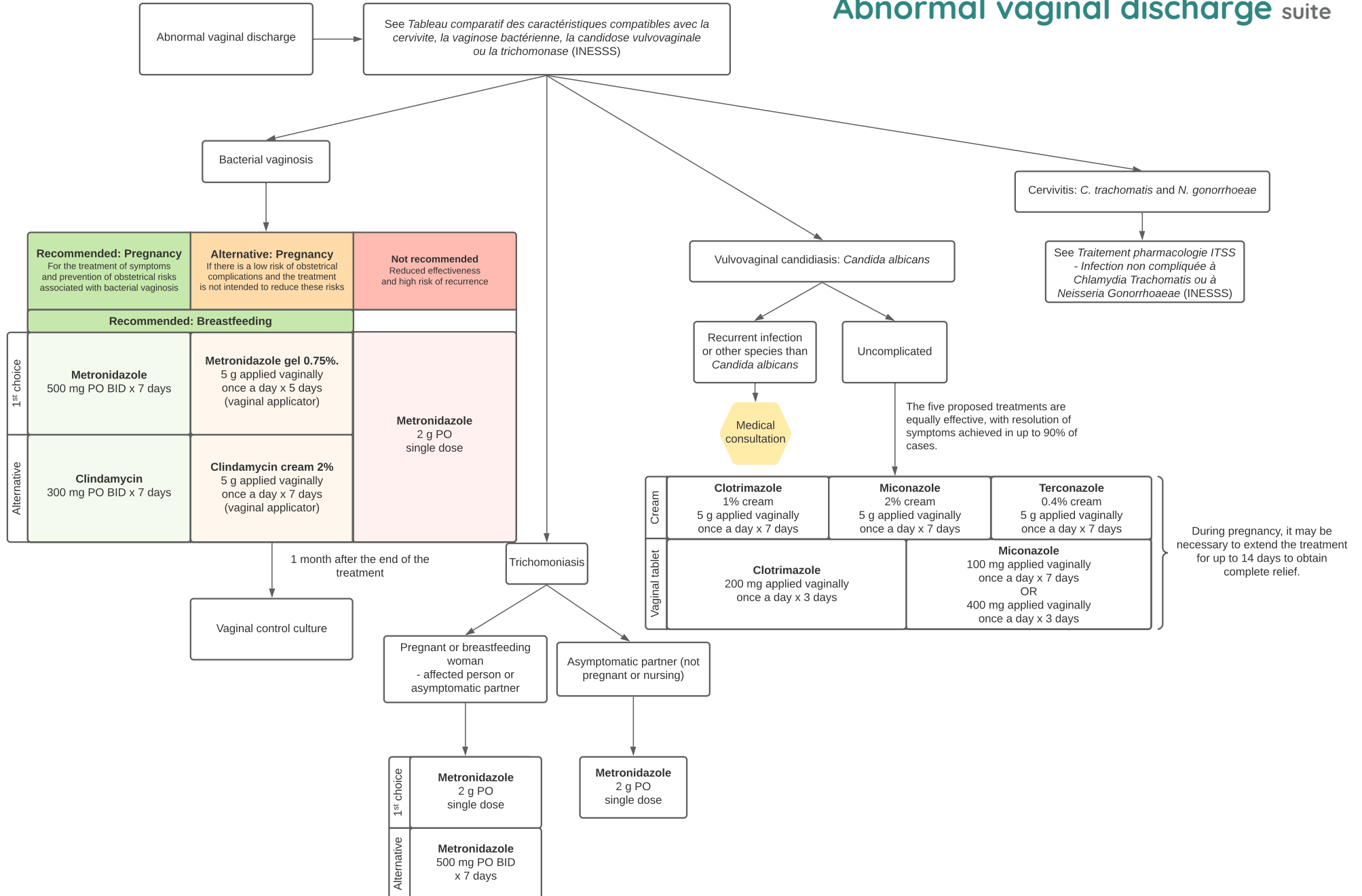
	<i>C. TRACHOMATIS</i> AND <i>N. GONORRHOEAE</i>	BACTERIAL VAGINOSIS	VULVOVAGINAL CANDIDIASIS*	TRICHOMONIASIS
Clinical manifestations (none of these infections necessarily presents by all the clinical manifestations listed)				
Vaginal discharge	Purulent	Adherent, homogeneous, fluid Whitish to greyish	Thick, curd-like Whitish to yellowish	Frothy appearance Yellowish to greenish
Odour	Nonspecific	Malodorous: fishy smell	Nonspecific	Malodorous
Itching	None	None or slight	Moderate to severe	Moderate to severe
Other	Purulent or mucopurulent endocervical exudate Pre- or postmenstrual spotting, postcoital bleeding Endocervical bleeding upon swabbing (brittle cervix epithelium)	Not applicable	Erythema, edema, fissures, excoriations Associated symptoms (pain, superficial dyspareunia, external dysuria)	Petichiae on the genital epithelium (strawberry cervix) Superficial dyspareunia, dysuria
Clinical criteria				
Vaginal pH	Not applicable	Vaginal pH > 4.5	Vaginal pH ≤ 4.5	Vaginal pH > 4.5
Amine odour (with KOH)	Not applicable	Yes	No	No
Laboratory criteria				
Result	<i>C. trachomatis</i> <i>N. gonorrhoeae</i>	Nugent's score ≥ 7 [‡] : vaginal flora consistent with bacterial vaginosis	Yeast present on wet mount or Gram staining	Presence of <i>T. vaginalis</i>

* Predisposing factor: recent use of antibiotics.

‡ Nugent's score ≥ 7 or another microbiological test result consistent with bacterial vaginosis.

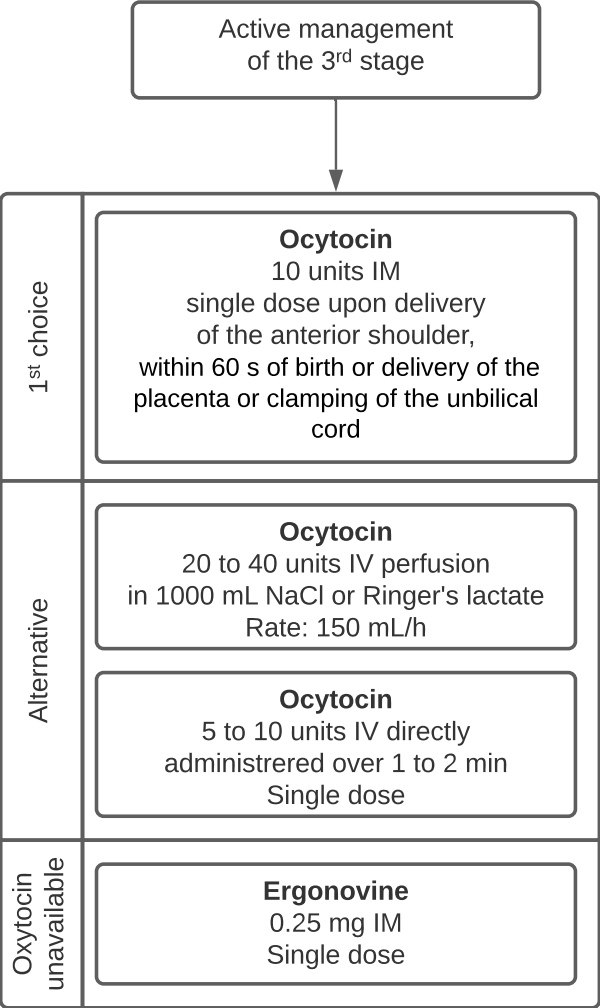
From: INESSS. *Initiating diagnostic measures and pharmacological treatment in a female with unusual vaginal discharge*. Quebec's medical protocol, No 628001, 2019.

Abnormal vaginal discharge suite



Active management of the third stage of labour

Clinical objective: Prevent postpartum hemorrhage by providing active management of the 3rd stage of labour.



Signs and symptoms of anemia or blood work suggestive of anemia

Identify the type and cause of the anemia

If iron cannot be taken with a product high in vitamin C (e.g., orange juice)

Elemental iron depending on the degree of anemia and the term of the pregnancy. Refer to "Iron Preparation" for product comparisons.

Vitamin C (ascorbic acid)
200 mg PO DIE

Start of midwife care

Child birth

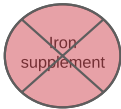
End of midwife care

1st trimester

2nd trimester

3rd trimester

First 6 weeks postnatal

Mild anemia (Hb : 100 and 110 g/L)	Elemental iron 60 to 100 mg PO DIE or heme iron 7 to 14 mg/day (in 1 or several doses)					Child birth
	Ferrous sulphate 300 to 600 mg (1 or 2 tablets) PO OR 10 to 15 mL PO	Ferrous fumarate 300 mg (1 tablet) PO OR 3 to 5 mL PO	Ferrous gluconate 600 or 900 mg (2 ou 3 tablets) PO	Iron polysaccharide complex 150 mg (1 caps.) PO	Heme iron peptide 11 or 22 mg (1 or 2 tablets) PO	
Moderate anemia (Hb : 70 and 99 g/L)	Elemental iron 60 to 100 mg PO DIE			Elemental iron 200 mg PO DIE (2 or 4 doses)		
Severe anemia (Hb < 70 g/L)	Elemental iron 200 mg PO DIE or Heme iron 33 mg DIE (2 or 4 doses)					
	Ferrous sulphate 900 to 1200 mg (3 or 4 tablets) PO OR 35 mL PO	Ferrous fumarate 600 mg (2 tablets) PO OR 10 mL PO	Ferrous gluconate 1500 to 1800 mg (5 to 6 tablets) PO	Iron polysaccharidecomplex 300 mg (2 caps.) PO	Heme iron polypeptide 33 mg (3 tablets) PO	
Megaloblastic or macrocytic anemia	The treatment includes these 3 supplements: Elemental iron: according to the severity of the anemia Folic acid (vitamin B9): 0.4 to 1 mg PO die * Never administer folic acid without vitamine B ₁₂ because it could mask an agravation of the anemia due to B ₁₂ deficiency. Vitamin B₁₂: 0.5 to 2 mg PO DIE					
Sickle-cell anemia or thalassemia						

Anemia

Clinical objective: Prescribe iron supplement in pregnancy for anemia according to type and severity, and term of pregnancy.

Mandatory consultation: Anemia: Hb less than 100 g/L not responding to treatment.



If unresponsive to treatment:

Medical consultation

Intramuscular injections may be necessary. If so:

Medical consultation

Clinical objective: Enable the midwife to respond to narcotic, benzodiazepine or magnesium sulphate poisoning.



Naloxone: not recommended in cases of neonatal resuscitation.

In a hospital and outside of a hospital

Option 1

Naloxone
Dose 1:
0,4 mg IM

3 min

Naloxone
Dose 2 PRN:
0.4 mg IM

3 min

Naloxone
Dose 3 PRN:
0.4 mg IM

3 min

Naloxone
Dose 4 PRN:
2 mg IM

3 min

Naloxone
Dose 5 PRN:
4 mg IM

Until correction of respiratory depression
(SaO₂ < 94% AND RR < 8)

Maximum total dose: 10 mg

Option 2

Naloxone
0.4 mg IM

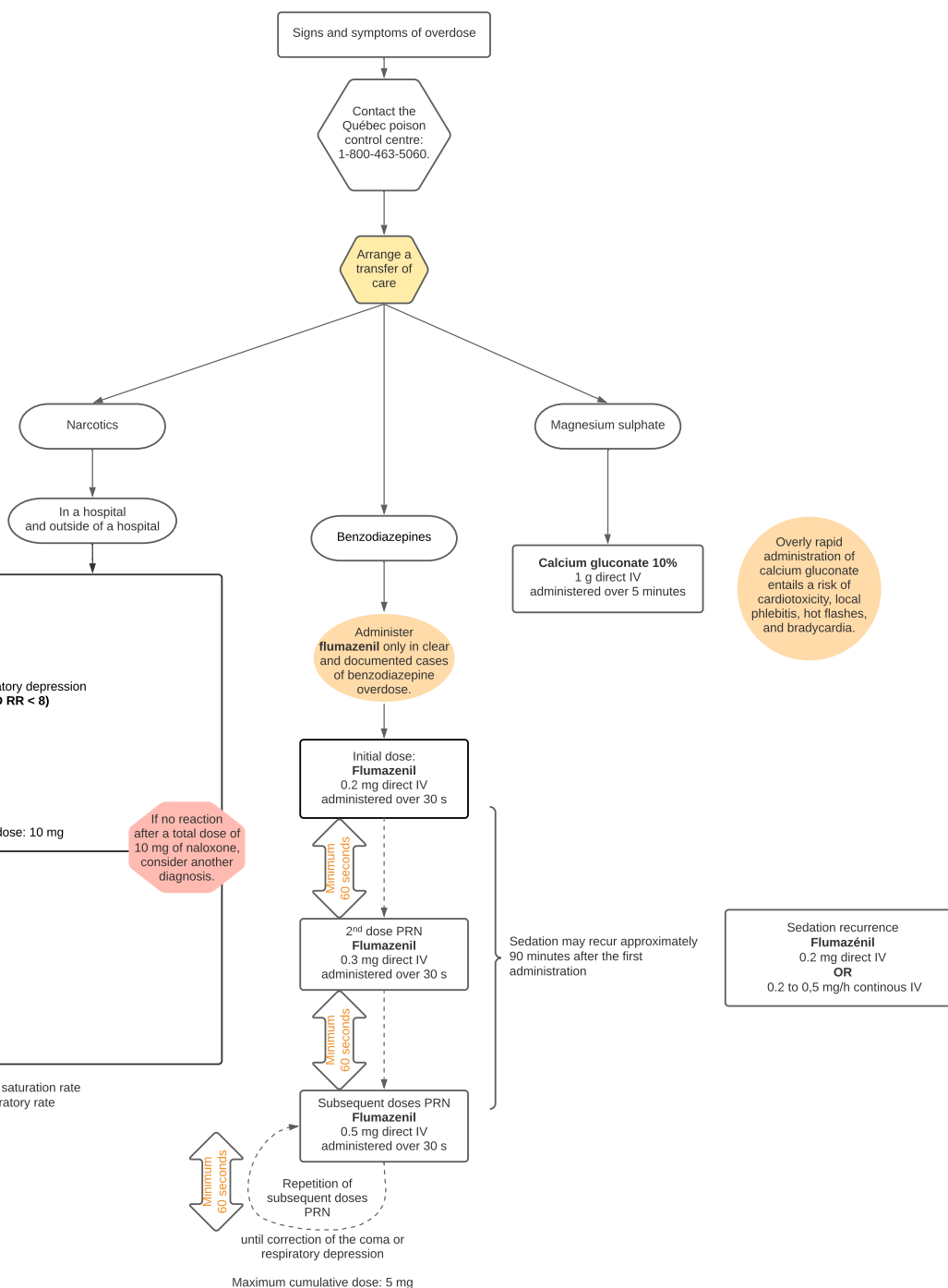
Repetition of subsequent doses PRN

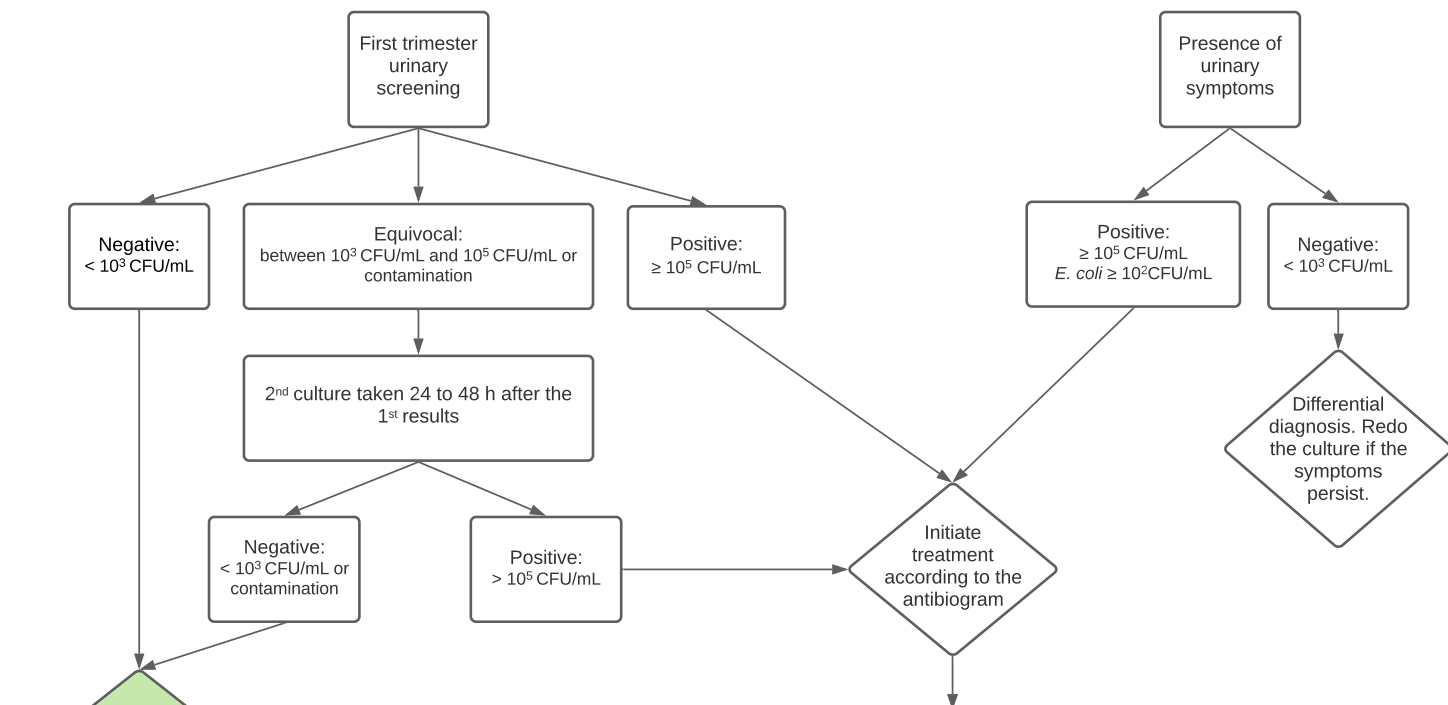
until correction of respiratory depression
(SaO₂ < 94% AND RR < 8)

Maximum total dose: 10 mg (25 doses)

If no reaction after a total dose of 10 mg of naloxone, consider another diagnosis.

SaO₂: oxygen saturation rate
RR: respiratory rate





Asymptomatic bacteriuria and cystitis

Clinical objective:

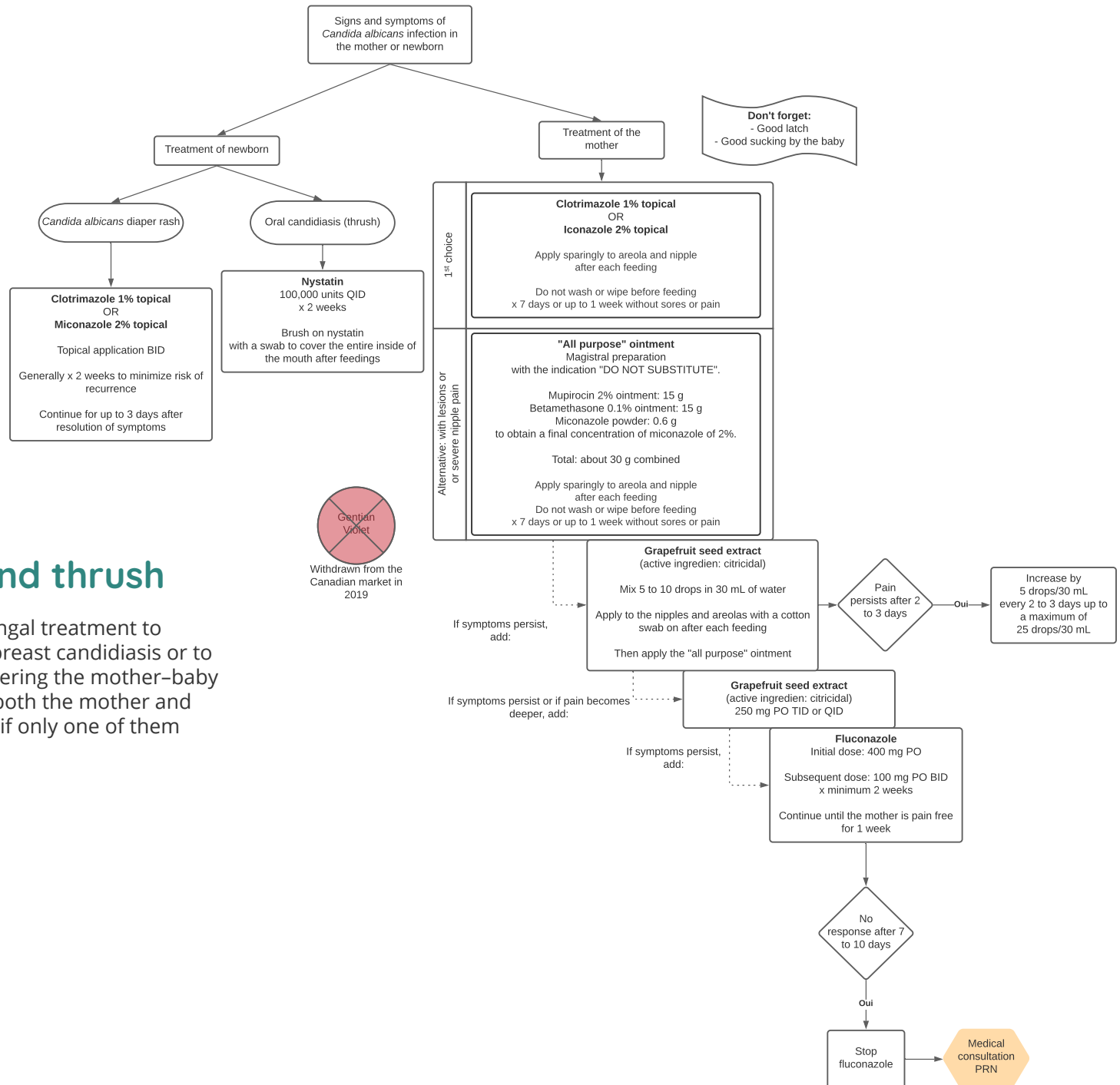
Provide first-intention antibiotic treatment for culture-confirmed urinary-tract infections. The choice of optimal treatment depends on the bacteria identified, the resistance profile, the woman's medical history (allergy to antibiotics) and the stage of pregnancy or postpartum.

The midwife should refer women with recurrent urinary-tract infections during pregnancy or persistent symptoms after treatment, those with a positive urine culture, and those whose antibiogram reveals a multidrug resistance profile to a physician.

1 st choice	Cefadroxil 500 mg PO BID x 7 days		
2 nd choice	Nitrofurantoin (MarcoBID)** 100 mg PO BID x 7 days	TMP/SMX* 160/800 mg PO BID x 7 days	
Other options depending on the antibiogram	Amoxicillin/ clavulanate 875/125 mg PO BID x 7 days	Amoxicillin 500 mg PO TID x 7 days	Cefixime 400 mg PO DIE x 7 days
Single-dose treatment	If compliance with a 7-day treatment is problematic		
	Fosfomycin 3 g PO in a single dose		

* TMP-SMX - contraindicated in 1st trimester and at the end of 3rd trimester

** Nitrofurantoin - contraindicated when pregnancy is coming to term



Breast candidiasis and thrush

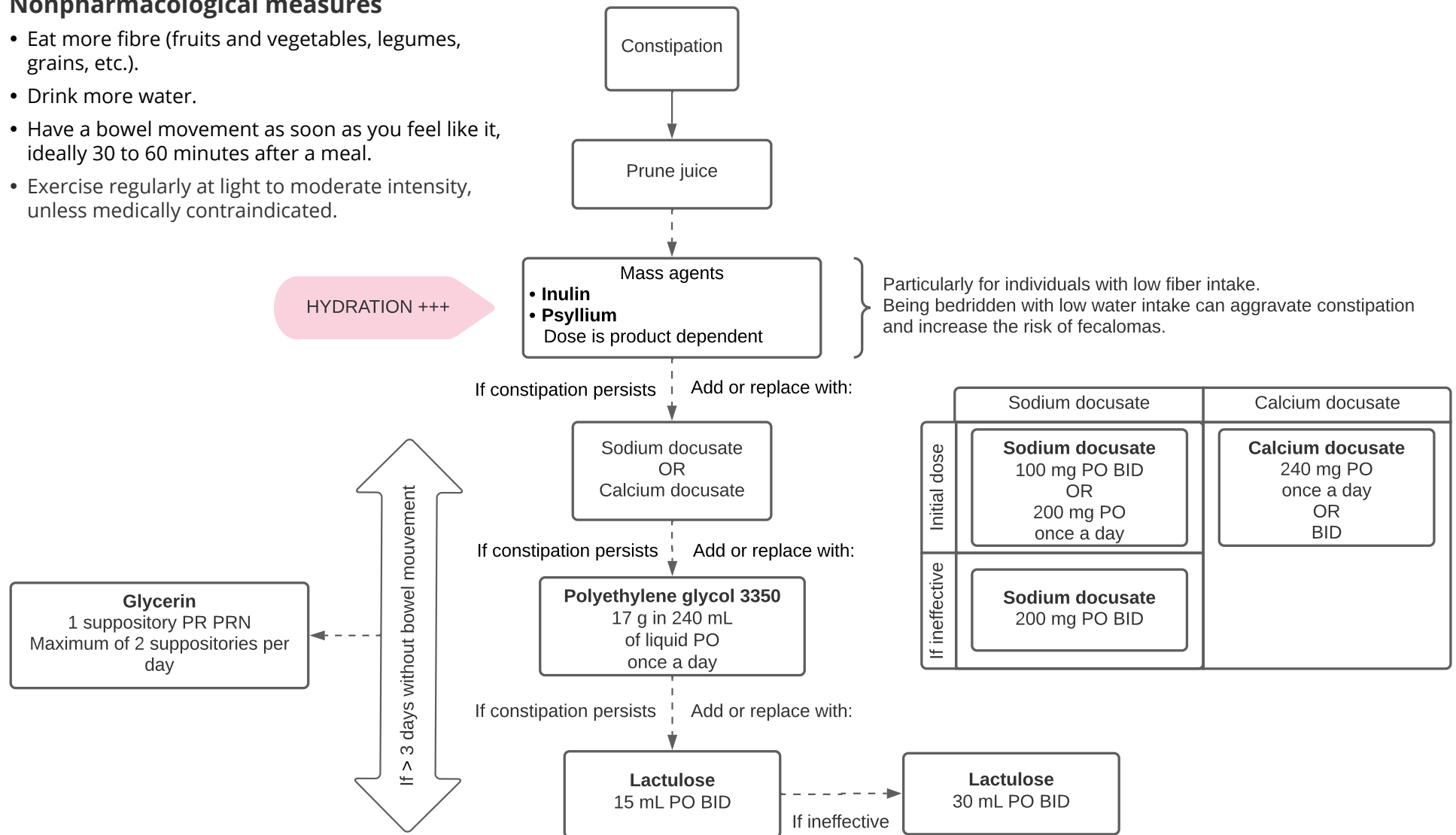
Clinical objective: Provide antifungal treatment to women with signs and symptoms of breast candidiasis or to newborns with thrush lesions. Considering the mother-baby dyad, if the woman is breastfeeding, both the mother and the newborn should be treated, even if only one of them is affected.

Constipation

Clinical objective: Provide effective relief from constipation for pregnant and nursing women.

Nonpharmacological measures

- Eat more fibre (fruits and vegetables, legumes, grains, etc.).
- Drink more water.
- Have a bowel movement as soon as you feel like it, ideally 30 to 60 minutes after a meal.
- Exercise regularly at light to moderate intensity, unless medically contraindicated.



Contraception

Clinical objective: Initiate contraception in the first six weeks postpartum.

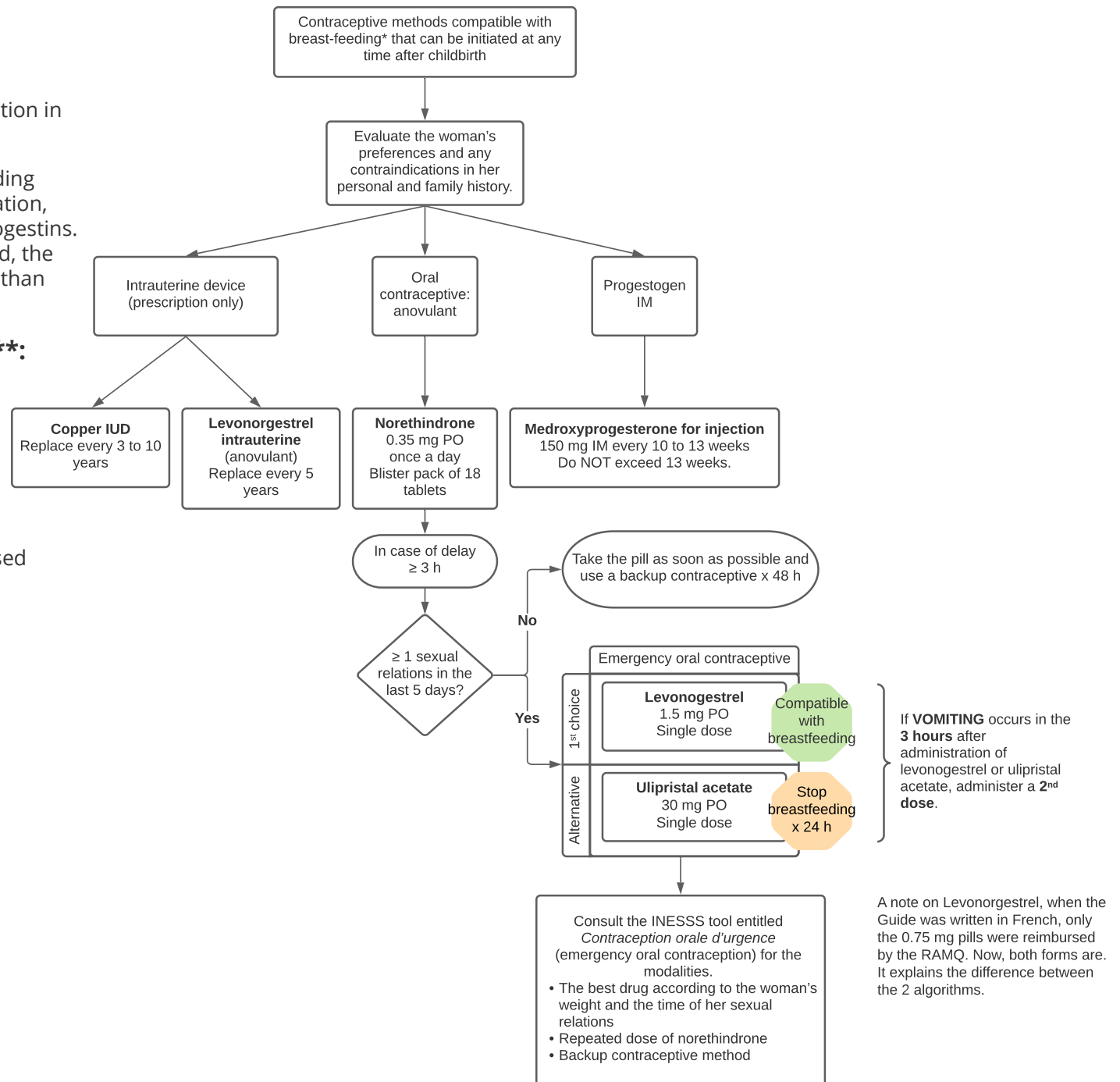
* Considering the high rate of breastfeeding among midwifery clients. The new regulation, however, includes all anovulants and progestins. If the woman does not wish to breastfeed, the midwife can initiate contraception other than the options presented in the algorithm.

Other available contraceptives**:

Combination oral contraceptives: pills, contraceptive vaginal ring, contraceptive patch

Barrier methods: diaphragm, cervical cap, condom

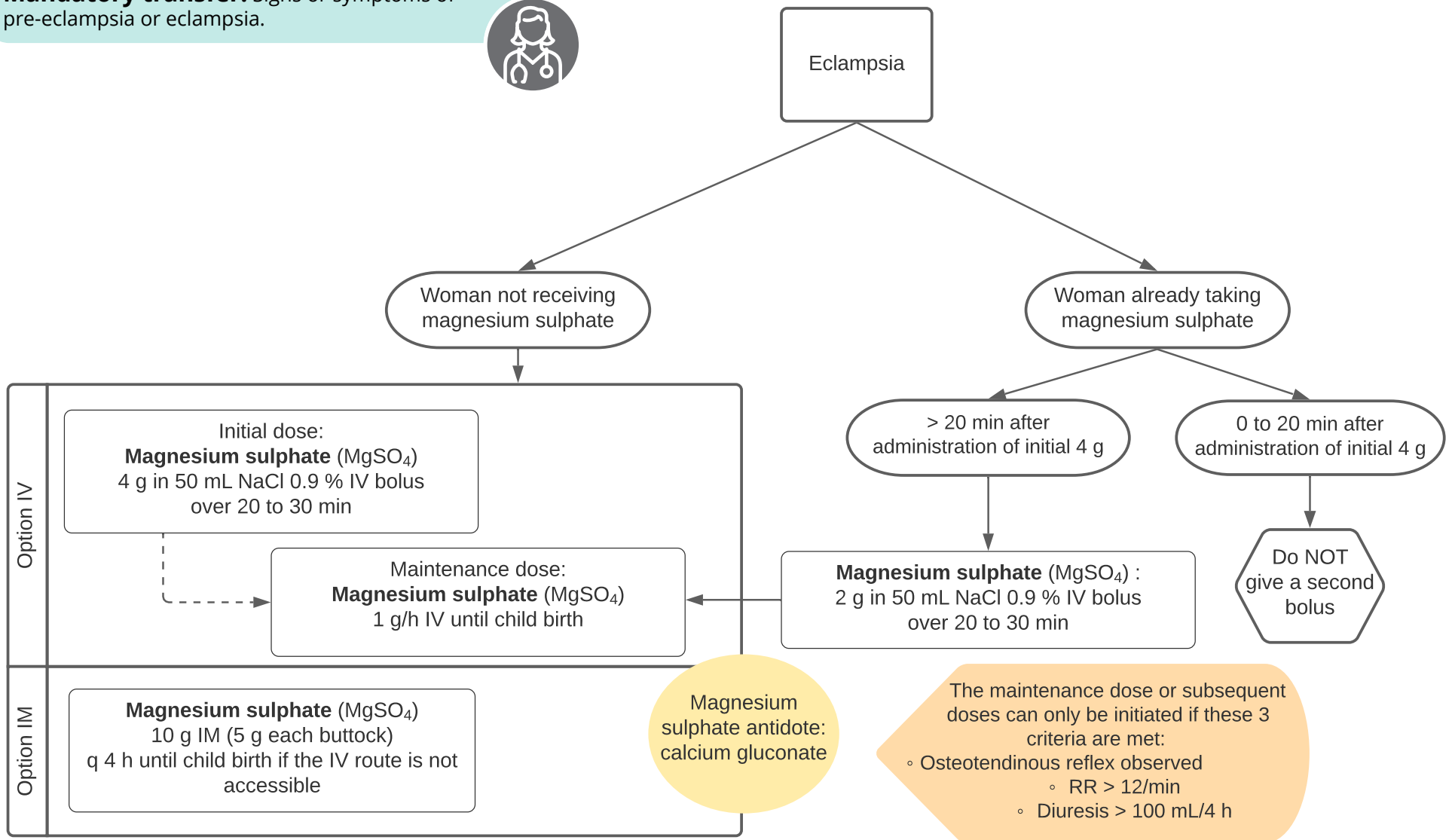
** Apart from condoms, which can be used at first episode of intercourse, the other contraceptives can be used six weeks after childbirth.



Eclampsia • convulsions

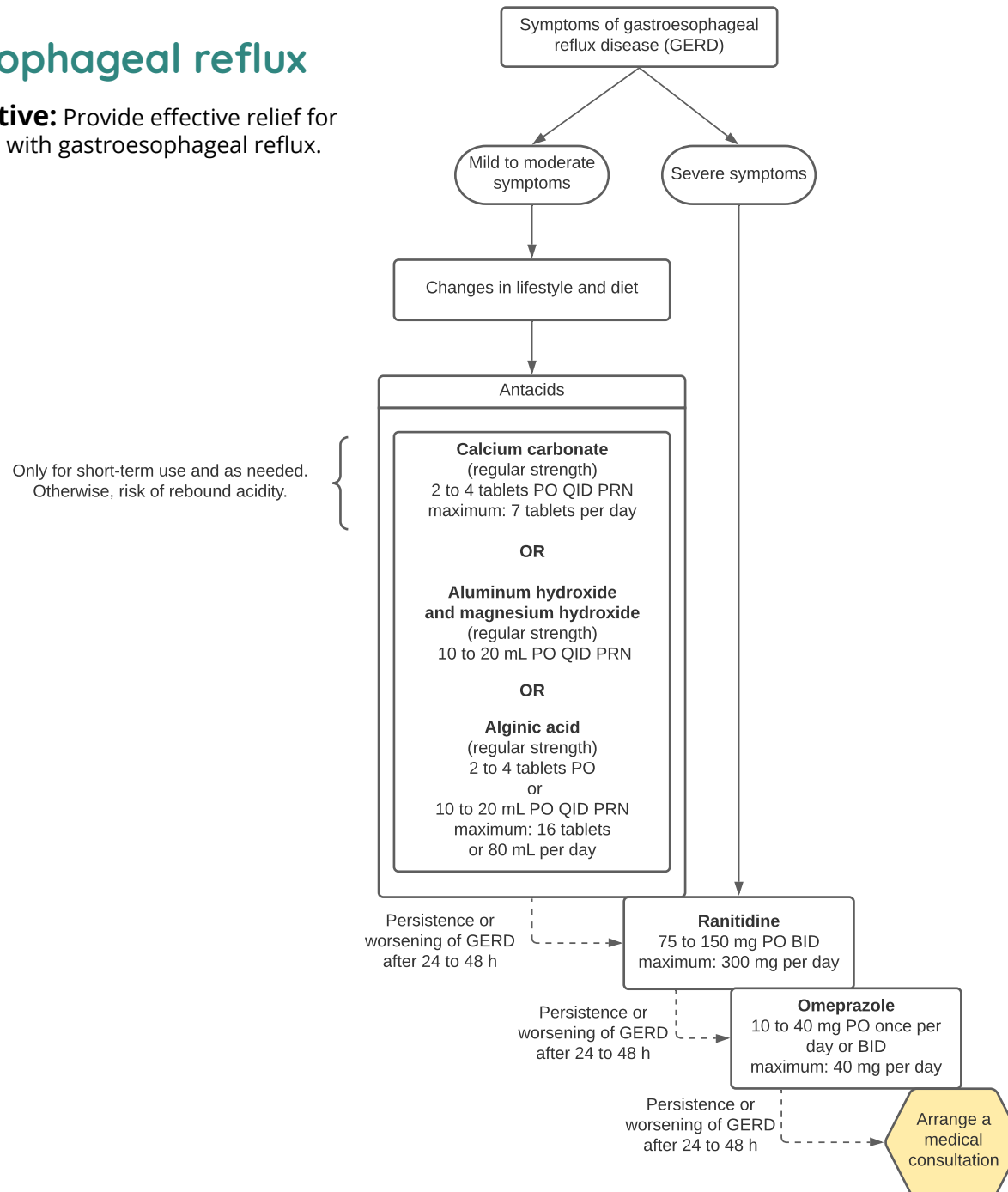
Clinical objective: Treat eclampsia (convulsions)

Mandatory transfer: Signs or symptoms of pre-eclampsia or eclampsia.



Gastroesophageal reflux

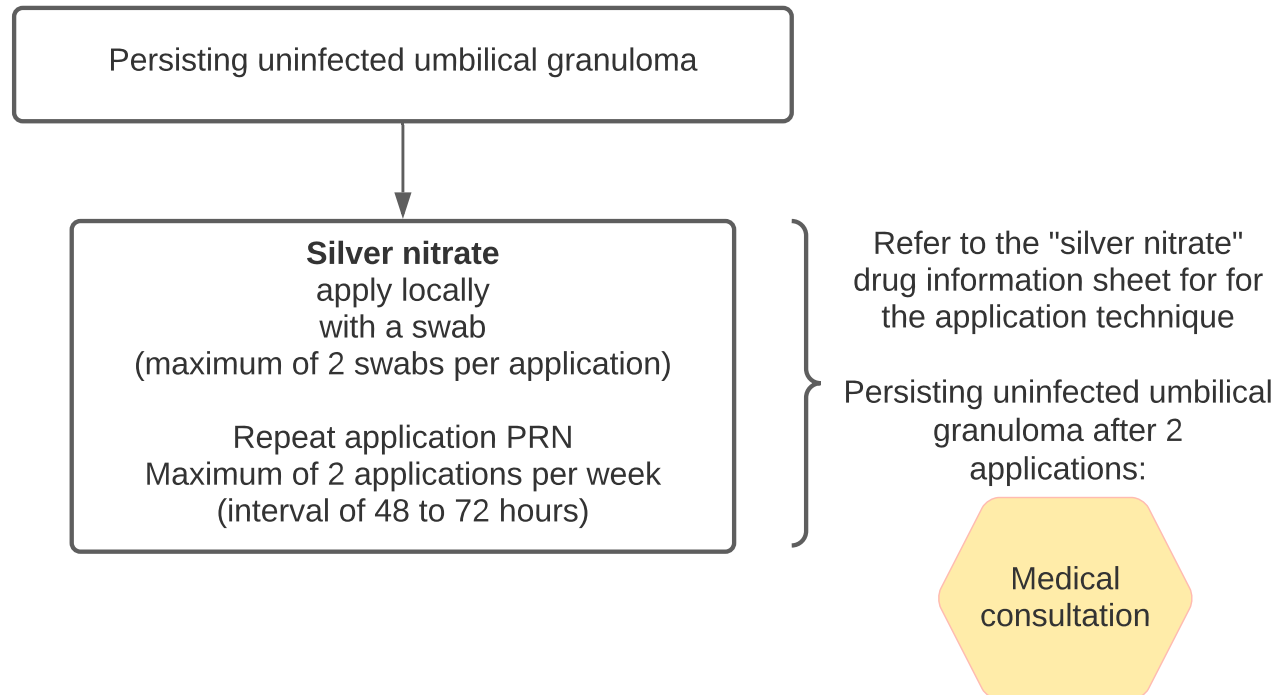
Clinical objective: Provide effective relief for pregnant women with gastroesophageal reflux.



Healing of umbilical granuloma

Clinical objective: Promote navel healing in a newborn with an uninfected umbilical granuloma.

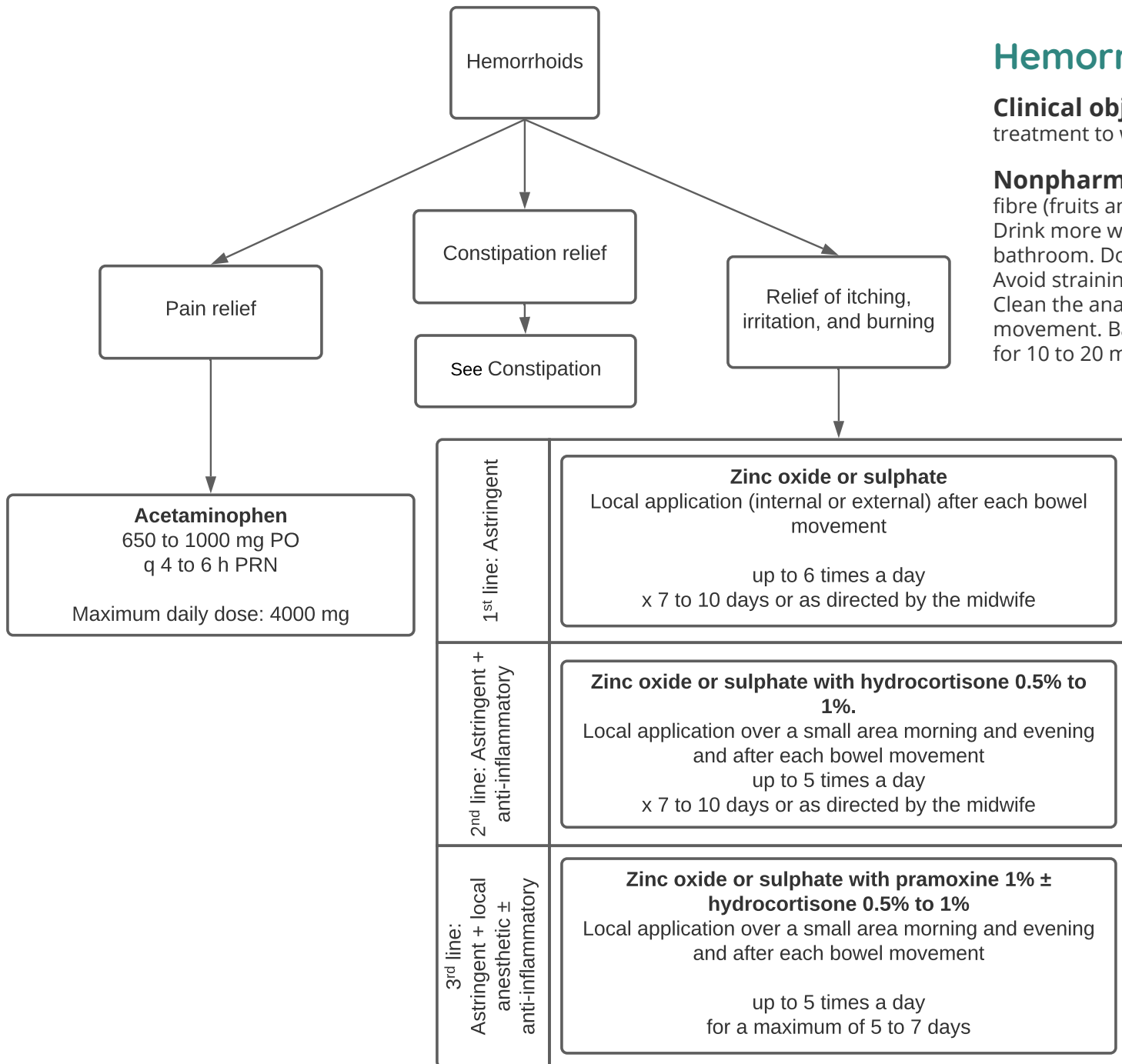
Mandatory consultation: Suspected infection in the baby or periumbilical erythema consistent with omphalitis. In these cases, silver nitrate should not be used.



Hemorrhoids

Clinical objective: Provide pharmacological treatment to women with hemorrhoids.

Nonpharmacological measures: Eat more fibre (fruits and vegetables, legumes, grains, etc.). Drink more water. Do not delay going to the bathroom. Do not sit on the toilet for long periods. Avoid straining when having a bowel movement. Clean the anal area thoroughly after each bowel movement. Bathe in warm water (40°C–50°C) for 10 to 20 minutes 3 to 4 times a day.

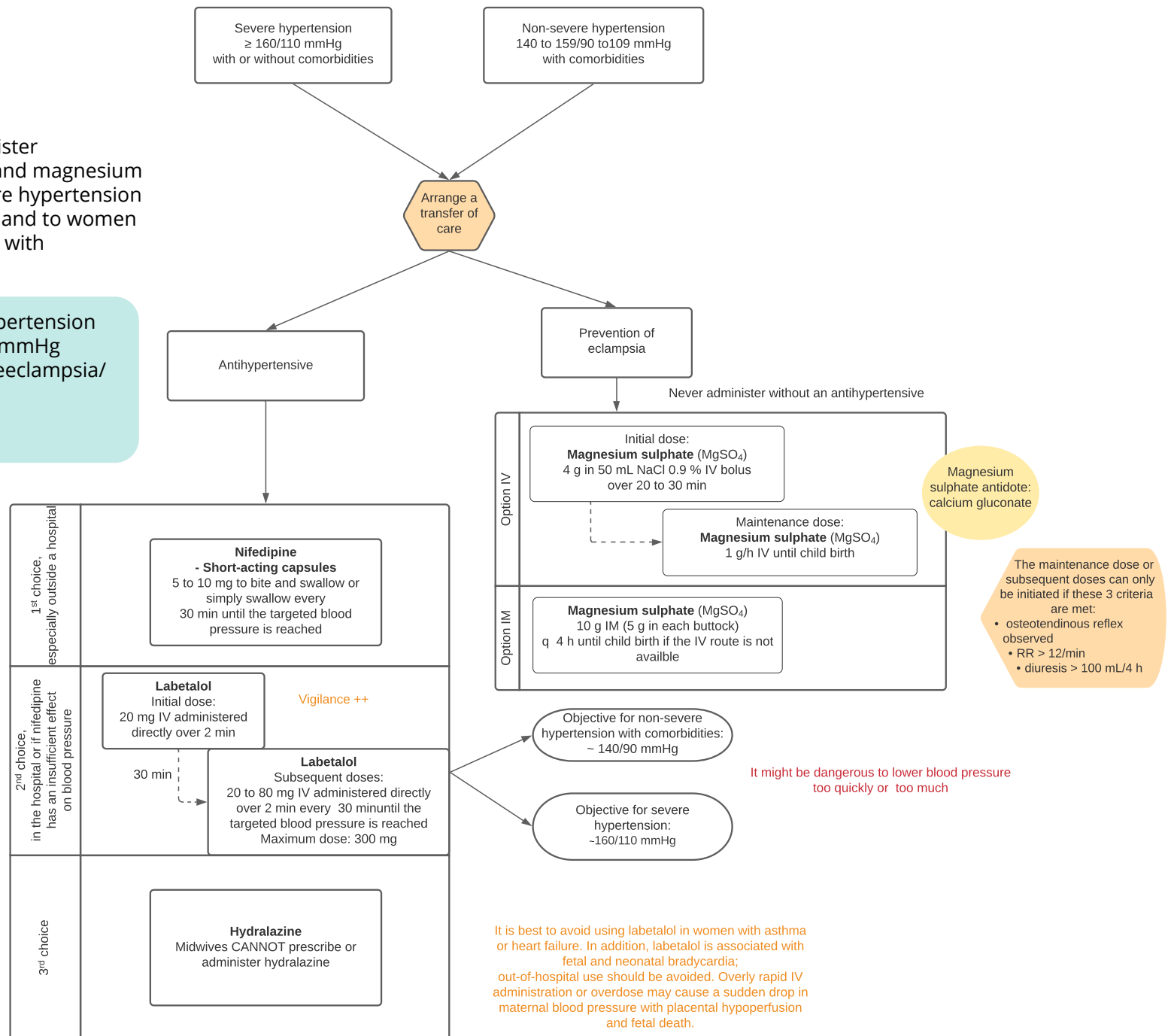


The use of other local anesthetics (benzocaine and dibucaine) is possible. These agents are more irritating than pramoxine. No data on the use of dibucaine in pregnancy.

Hypertension • preeclampsia

Clinical objective: Administer antihypertensive medication and magnesium sulphate to women with severe hypertension with or without comorbidities and to women with non-severe hypertension with comorbidities.

Mandatory transfer: Hypertension with diastolic greater than 90 mmHg for more than 2 hours and preeclampsia/eclampsia

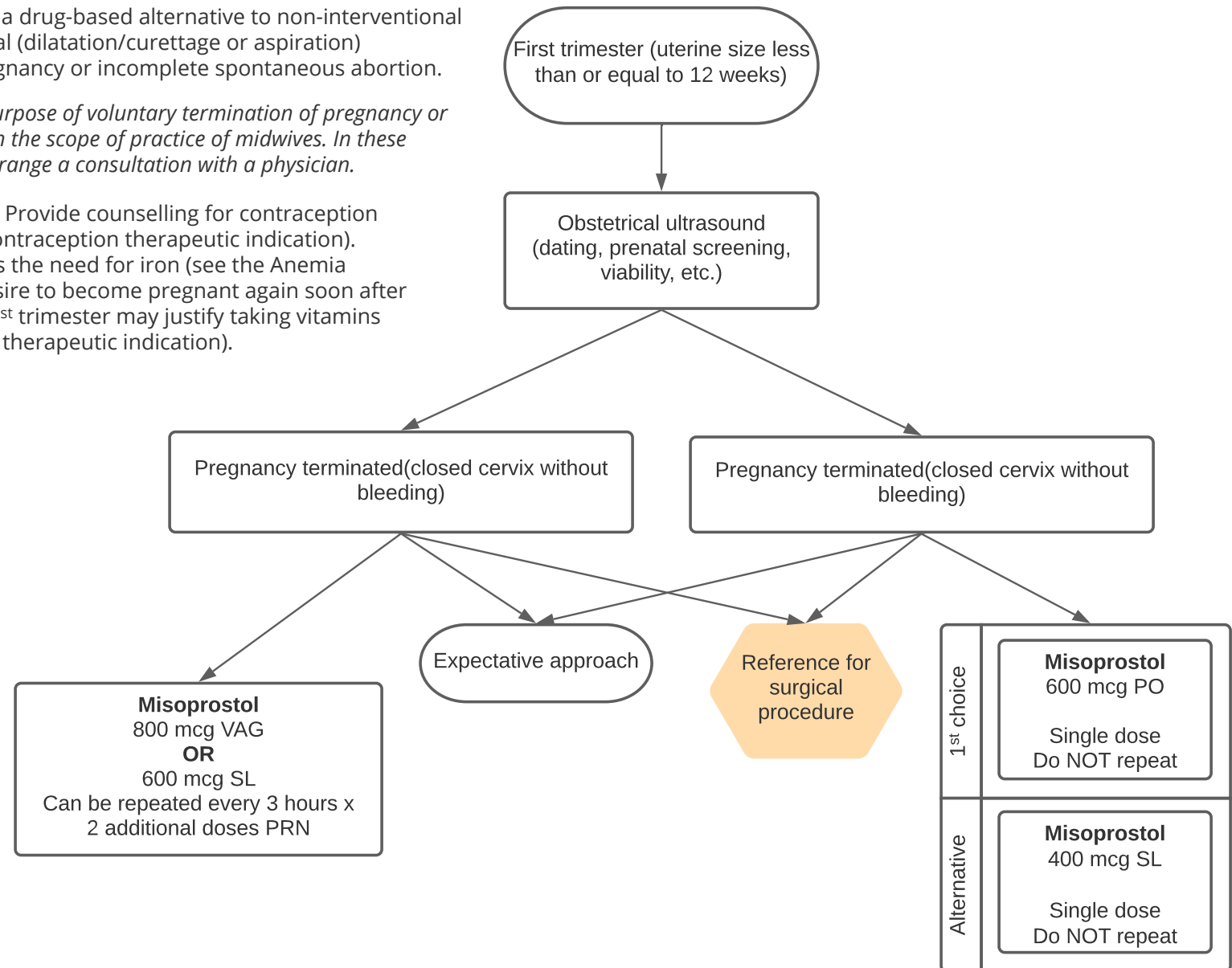


Incomplete abortion or terminated pregnancy

Clinical objective: Provide a drug-based alternative to non-interventional (expectant approach) or surgical (dilatation/curettage or aspiration) management of a stopped pregnancy or incomplete spontaneous abortion.

Prescribing medication for the purpose of voluntary termination of pregnancy or therapeutic abortion is not within the scope of practice of midwives. In these situations, the midwife should arrange a consultation with a physician.

Post-Post-abortion care: Provide counselling for contraception and family planning (see the Contraception therapeutic indication). If heavy bleeding occurs, assess the need for iron (see the Anemia therapeutic indication). The desire to become pregnant again soon after the end of a pregnancy in the 1st trimester may justify taking vitamins and minerals (see the Vitamins therapeutic indication).



Insufficient milk supply

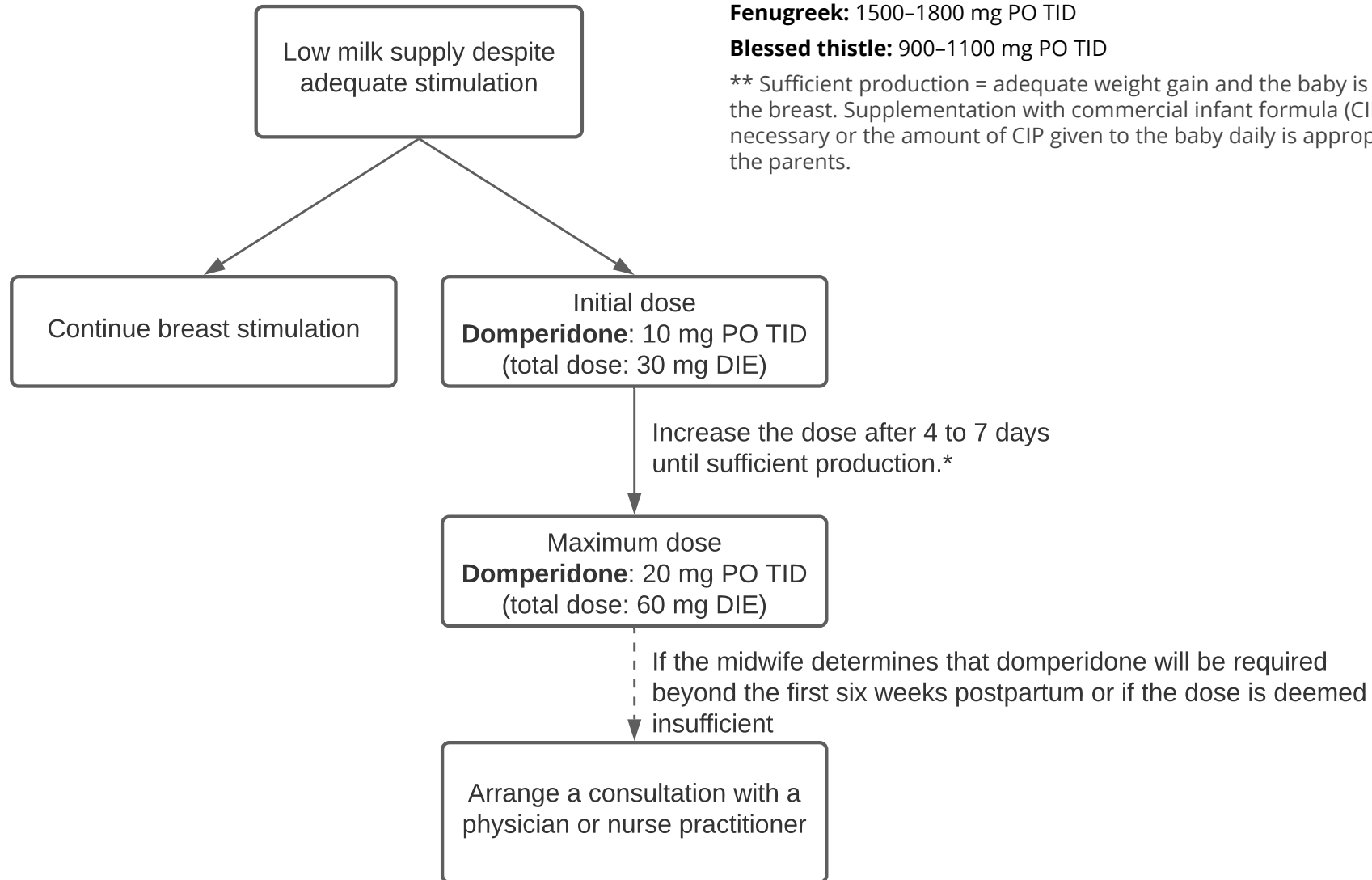
Clinical objective: Initiate stimulation of milk production in women for whom nonpharmacological measures are not sufficient.

Consider using natural products to increase milk production:

Fenugreek: 1500–1800 mg PO TID

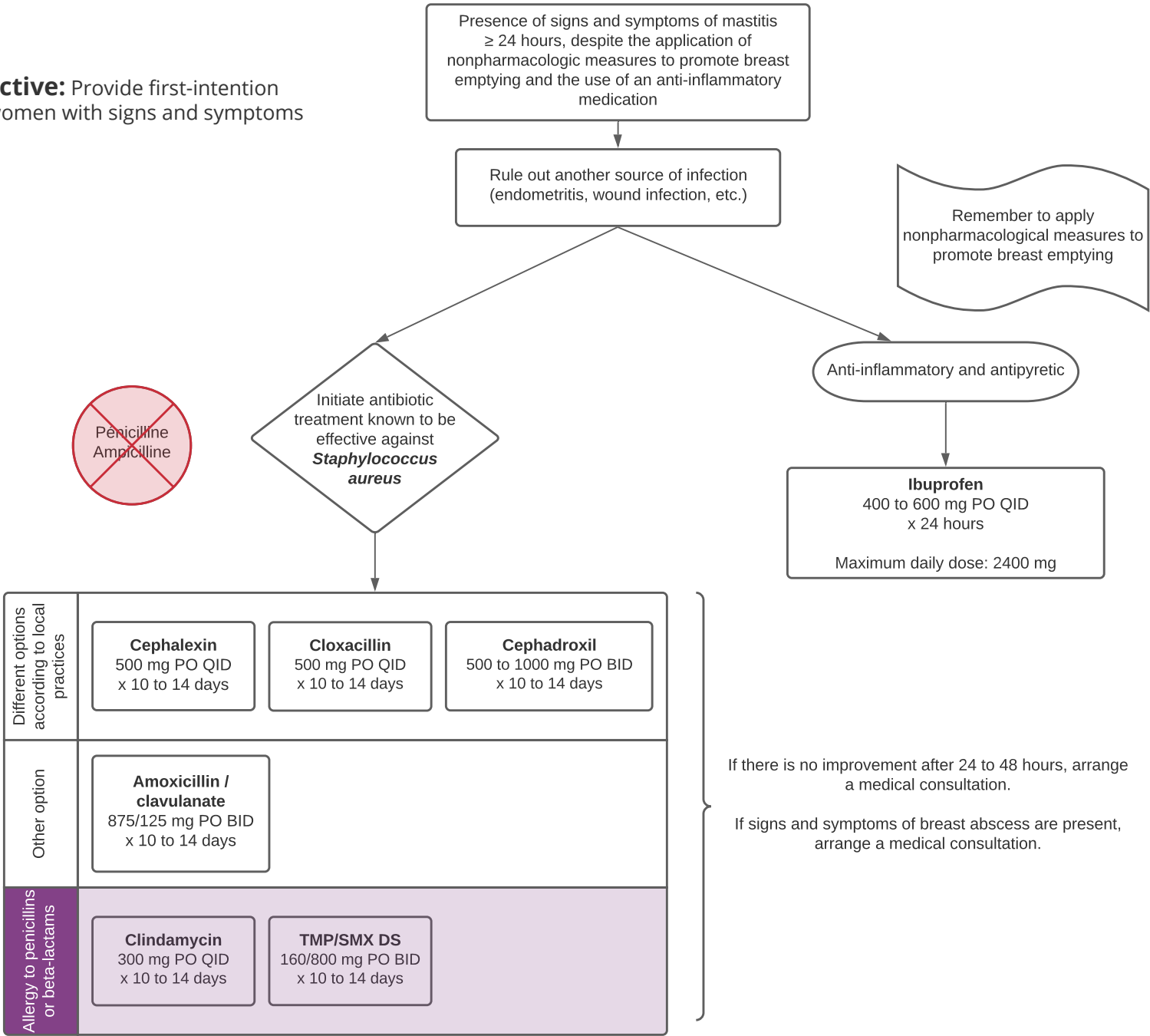
Blessed thistle: 900–1100 mg PO TID

** Sufficient production = adequate weight gain and the baby is satisfied at the breast. Supplementation with commercial infant formula (CIP) is no longer necessary or the amount of CIP given to the baby daily is appropriate for the parents.



Mastitis

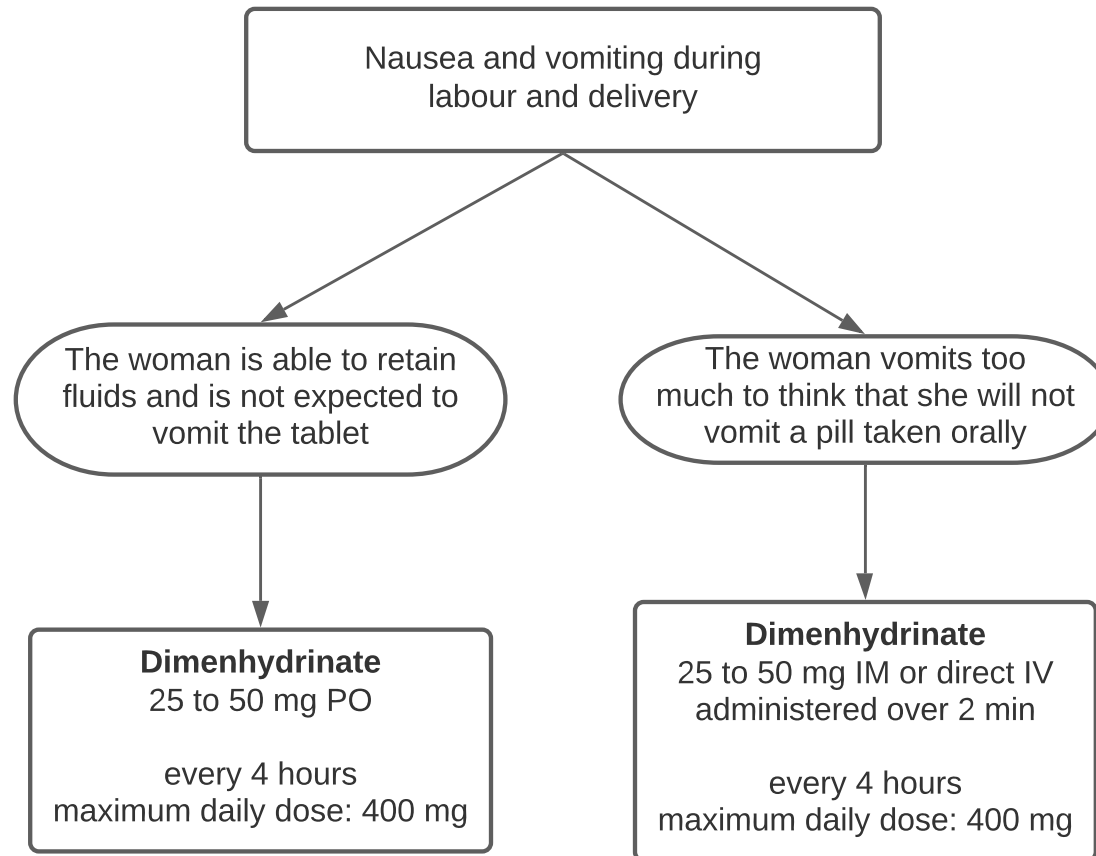
Clinical objective: Provide first-intention treatment for women with signs and symptoms of mastitis.



Nausea and vomiting

- labour and birth

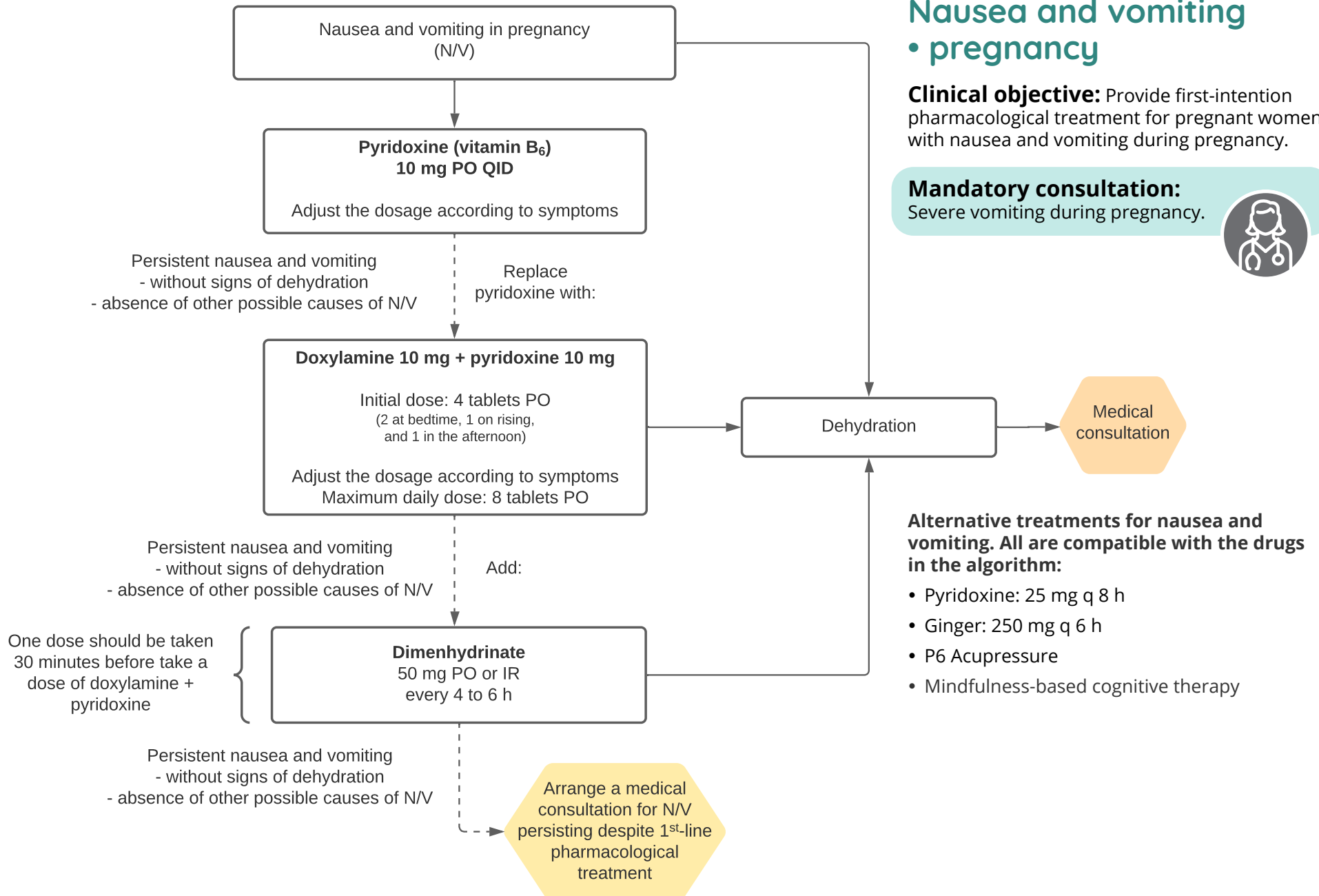
Clinical objective: Prevent dehydration and exhaustion by effectively relieving women who vomit during labour.



Nausea and vomiting • pregnancy

Clinical objective: Provide first-intention pharmacological treatment for pregnant women with nausea and vomiting during pregnancy.

Mandatory consultation:
Severe vomiting during pregnancy.



Neonatal resuscitation

Clinical objective: Apply CPS recommendations during neonatal resuscitation.

Medication	Concentration	Preparation	Dose/Route	Weight/Dose	Rate
Epinephrine ET	0.1 mg/mL ¹ (1:10,000)	Draw up in a 3 mL syringe and label “for ET”	0.1 mg/kg (1 mL/kg) ² via ET Maximum 0.3 mg (3 mL) per dose	1 kg = 0.1 mg (1 mL) 2 kg = 0.2 mg (2 mL) ≥ 3 kg = 0.3 mg (3 mL)	Rapidly Do not follow with a flush <i>First dose may be given via ET while UVC inserted</i>
Epinephrine UVC* / IV / IO³ *preferred route	0.1 mg/mL ¹ (1:10,000)	Draw up in a 1 mL syringe and label “for IV / UVC”	0.01 mg/kg (0.1 mL/kg) via IV²	1 kg = 0.01 mg (0.1 mL) 2 kg = 0.02 mg (0.2 mL) 3 kg = 0.03 mg (0.3 mL) 4 kg = 0.04 mg (0.4 mL)	Rapidly Follow with up to 0.5-1 mL 0.9% NaCl flush
Volume Expanders ⁴	0.9% NaCl (normal saline) O-negative PRBC	40 mL (Prepare 2 x 20 mL sy- ringes and label)	10 mL/kg by IV/IO route	1 kg = 10 mL 2 kg = 20 mL 3 kg = 30 mL 4 kg = 40 mL	Over 5 to 10 minutes
Naloxone	No longer recommended	“There is insufficient evidence to evaluate the safety and efficacy of this practice” (NRP textbook, 7 th edition – pg. 257)			
Sodium Bicarbonate	No longer recommended	“There is currently no evidence to support this routine practice” (NRP textbook, 7 th edition – pg. 221)			

Mandatory transfer: newborn having required endotracheal intubation or positive pressure ventilation beyond the second minute of life

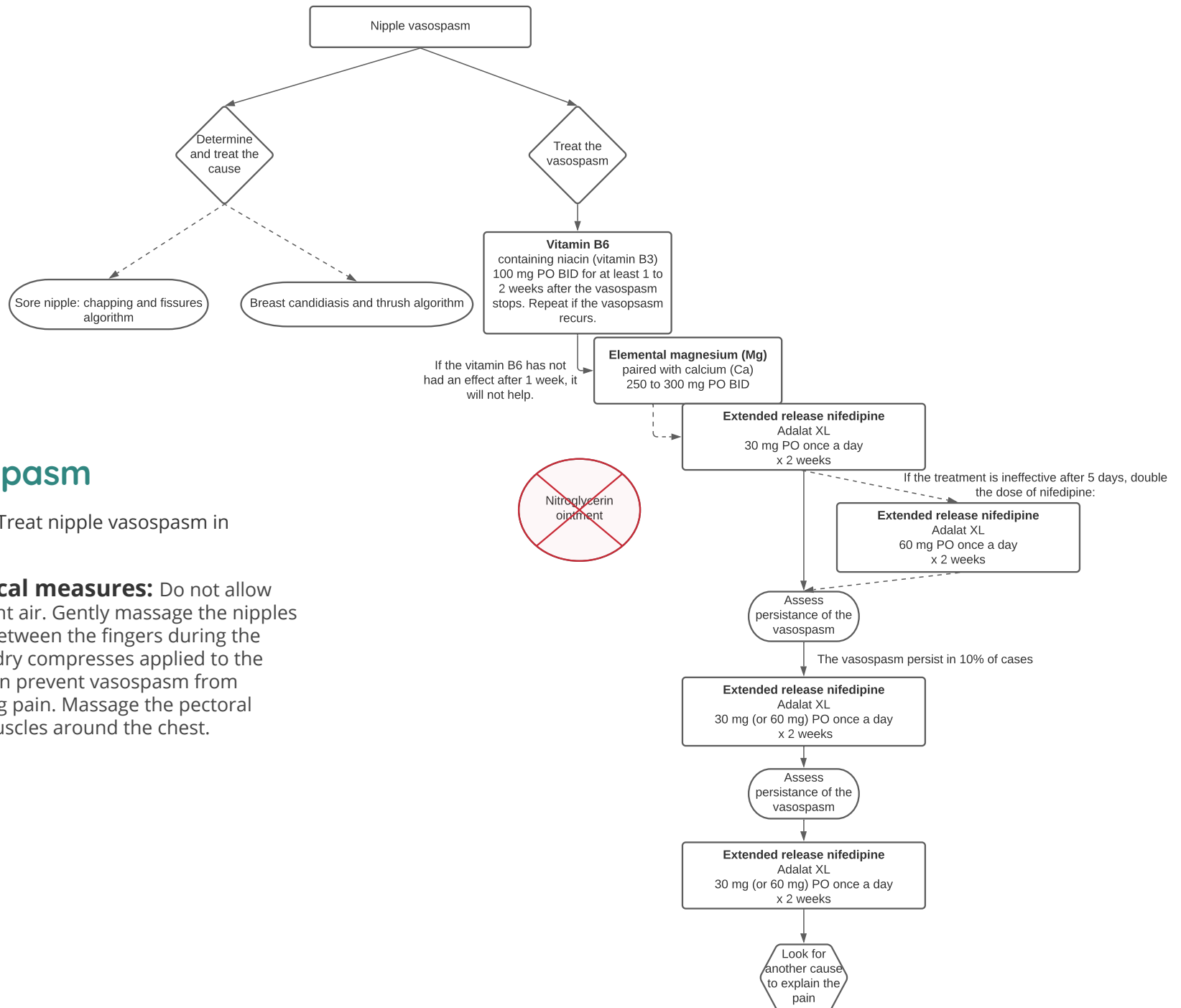


1 AsofMay2016,the Institute for Safe Medication Practices (ISMP) Canada has eliminated the epinephrine ratio: https://www.ismp-canada.org/download/safetyBulletins/2016/ISMPCSB2016-02_ChangesInExpressionStrength.pdf

2 AsofSeptember22,2016theISMPwarnedagainstvolumetricdosingforepinephrine: <https://www.ismp.org/resources/volumetric-dosing-epinephrine-neonates-could-lead-dosing-errors>

3 UVCcontinuestobethepreferredrouteofemergencyvascularaccess,butIntraosseous(IO)accesscanbeusedasan alternativeifUVCinsertionis not possible

4 RingersLactateisnolonger includedinthe7thedition



Nipple vasospasm

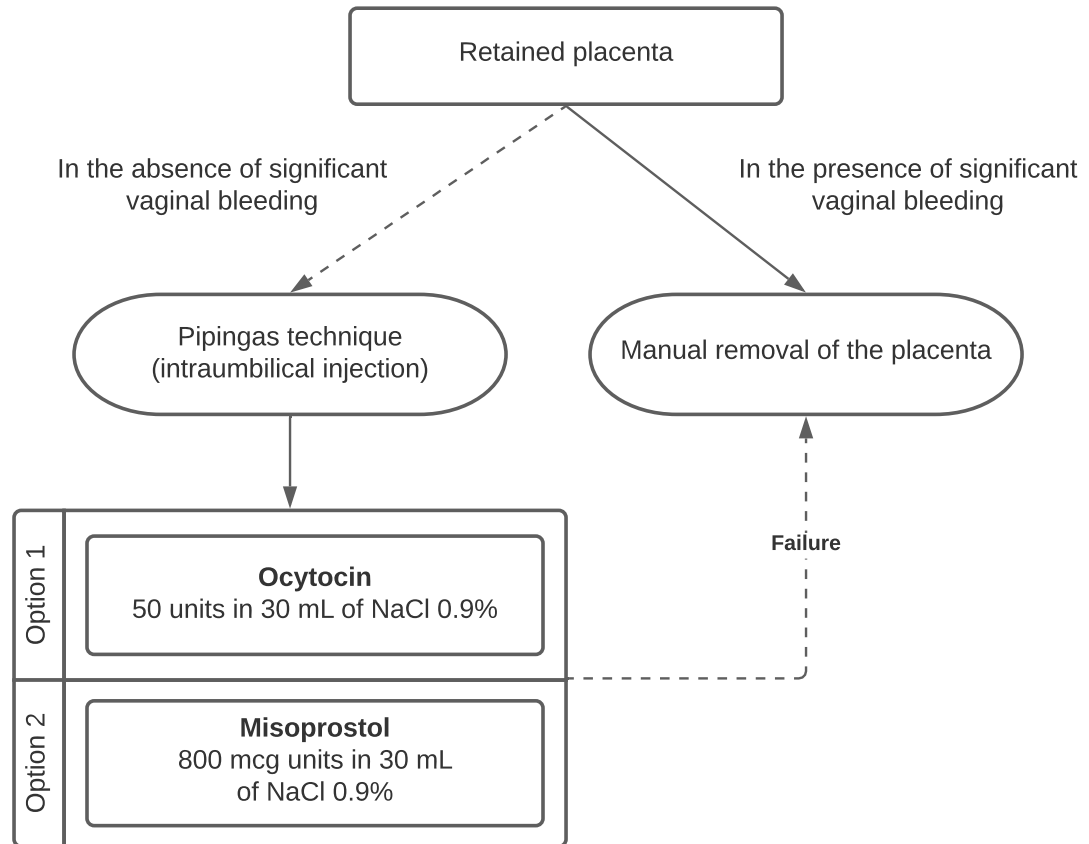
Clinical objective: Treat nipple vasospasm in breastfeeding women.

Nonpharmacological measures: Do not allow nipples to dry in ambient air. Gently massage the nipples with olive oil warmed between the fingers during the burning phase. Warm, dry compresses applied to the nipples after feeding can prevent vasospasm from occurring while relieving pain. Massage the pectoral muscles. Stretch the muscles around the chest.

Placental retention

Clinical objective: Trigger uterine contractions to promote spontaneous delivery of the placenta and thus avoid manual removal of the placenta.

Mandatory consultation:
placental retention

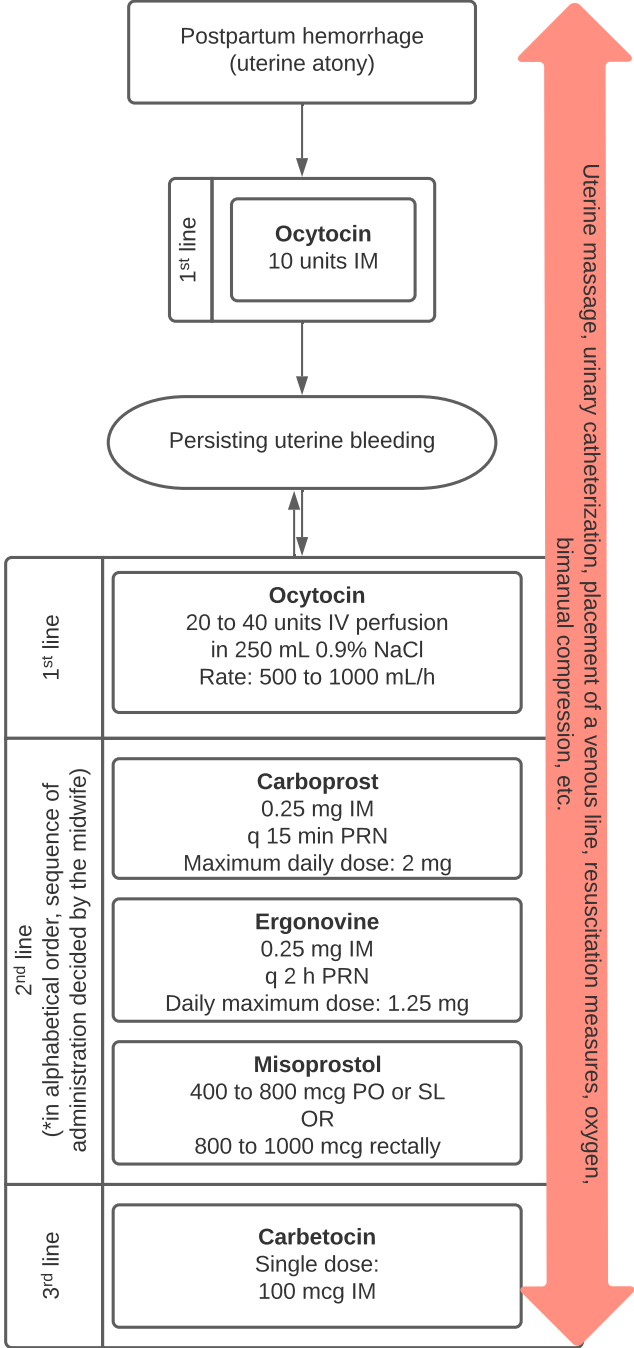


Although suggested in the literature, the preparation of misoprostol is not specified. The time required for complete dissolution of the 4 tablets is not known.

Postnatal hemorrhage (uterine atony)

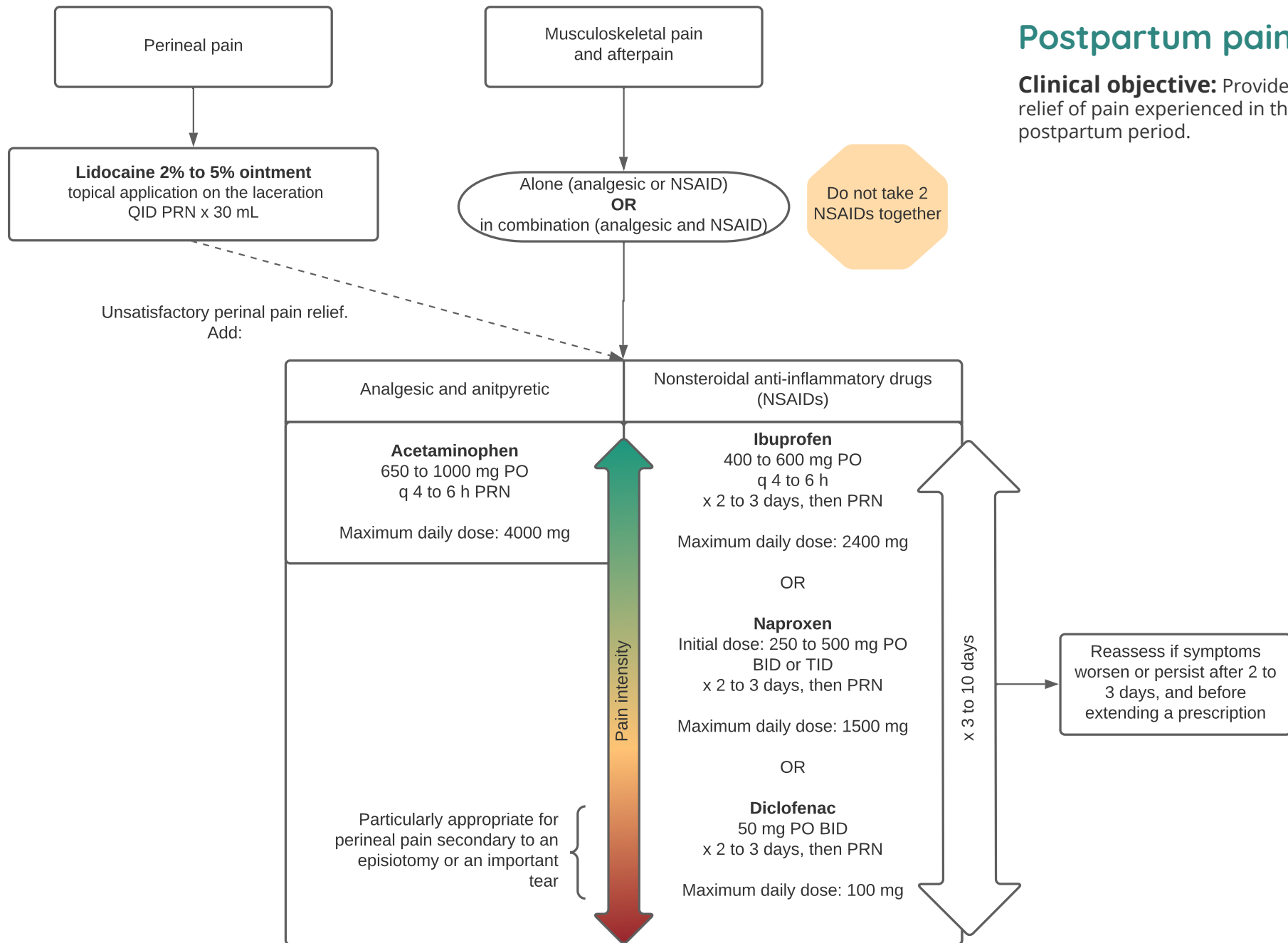
Clinical objective: Prevent and treat postpartum hemorrhage secondary to uterine atony.

Mandatory transfer: Bleeding or obstetrical shock that does not respond to treatment.



Postpartum pain

Clinical objective: Provide effective relief of pain experienced in the postpartum period.



Preterm birth or threatened preterm birth

Clinical objective: Initiate interventions to delay or avoid preterm birth. All these interventions are carried out while waiting for transfer.

Mandatory consultation:

Threat of preterm labour and delivery occurs between 34 and 36 6/7 weeks

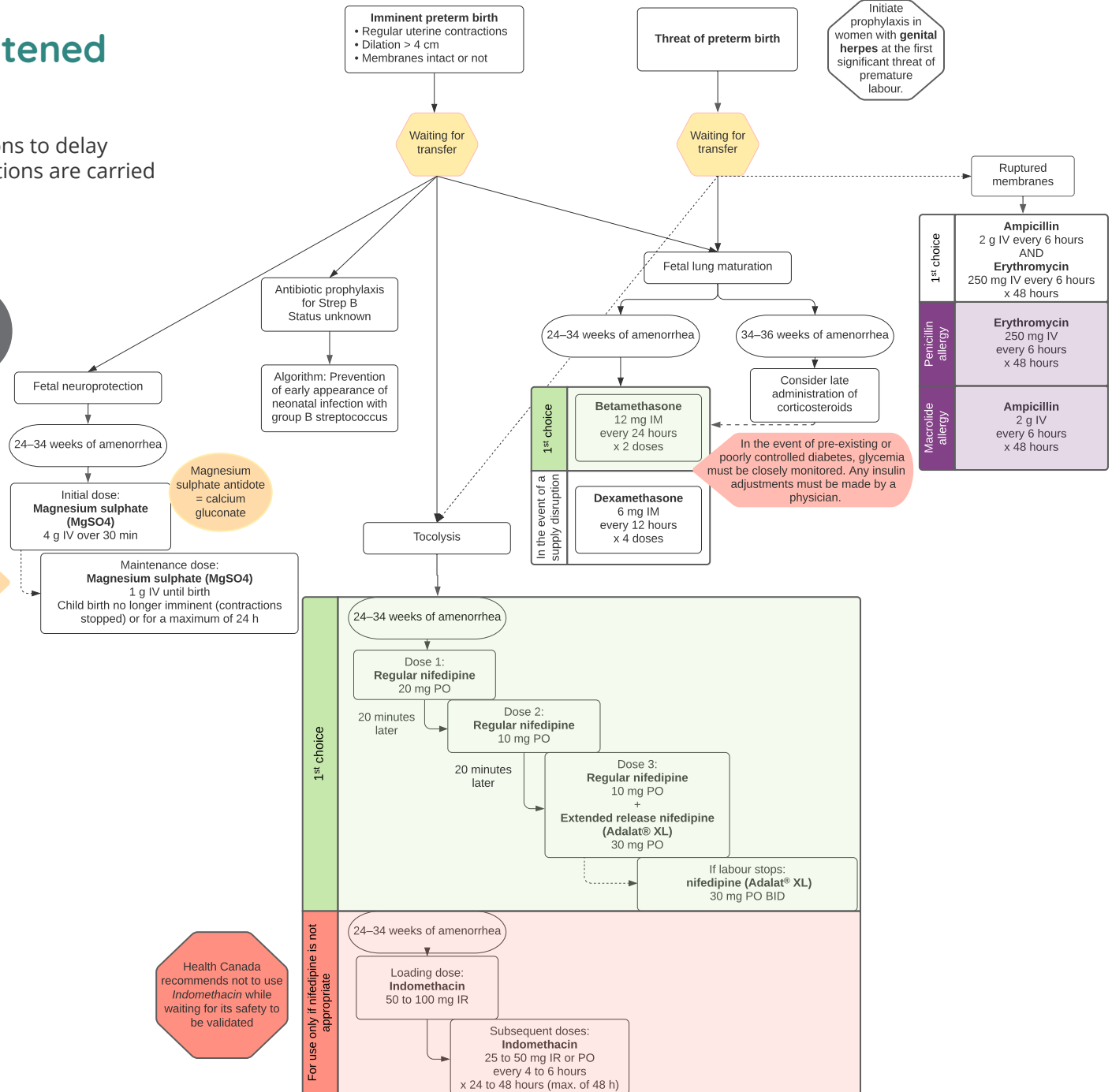
Mandatory transfer:

Labour initiated before 34 weeks.



The maintenance dose can be initiated when all 3 criteria are met:

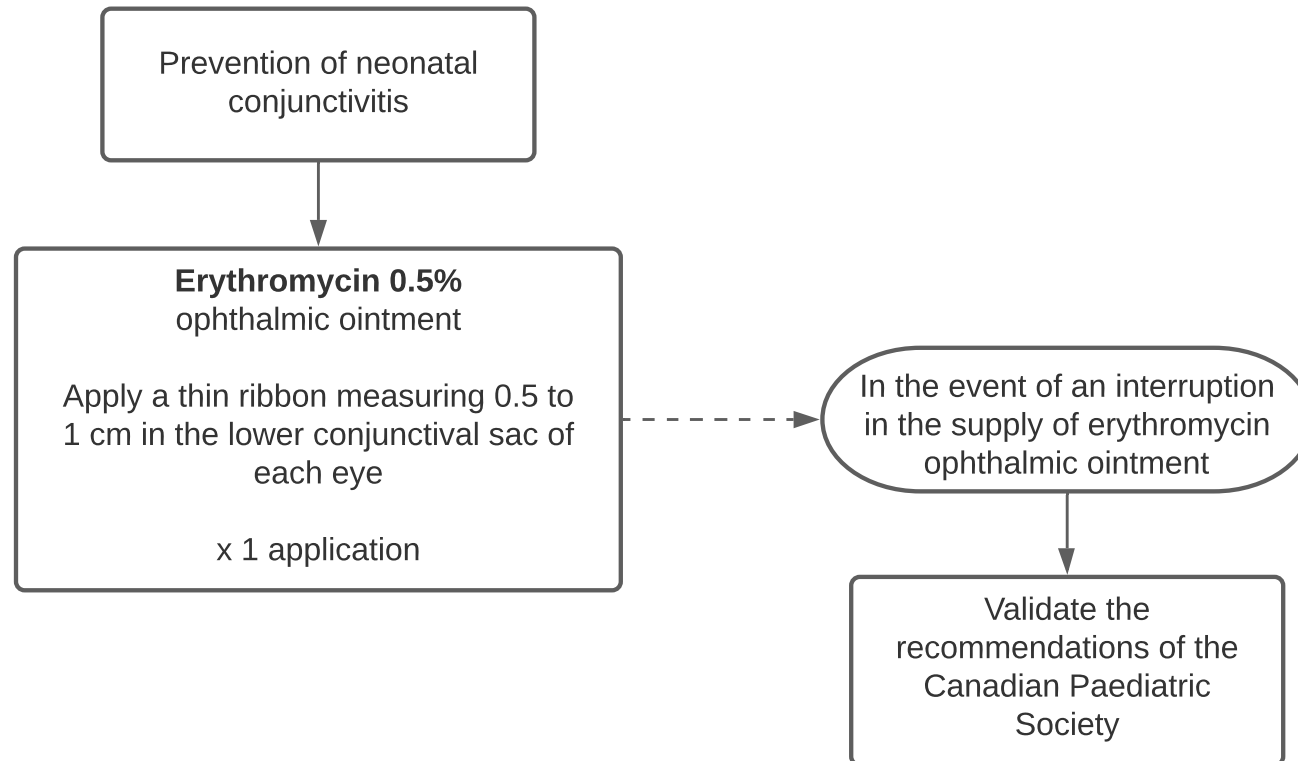
- Osteotendinous reflex observed
- RR > 12/min
- Diuresis > 100 mL/4 h



Prevention of neonatal conjunctivitis

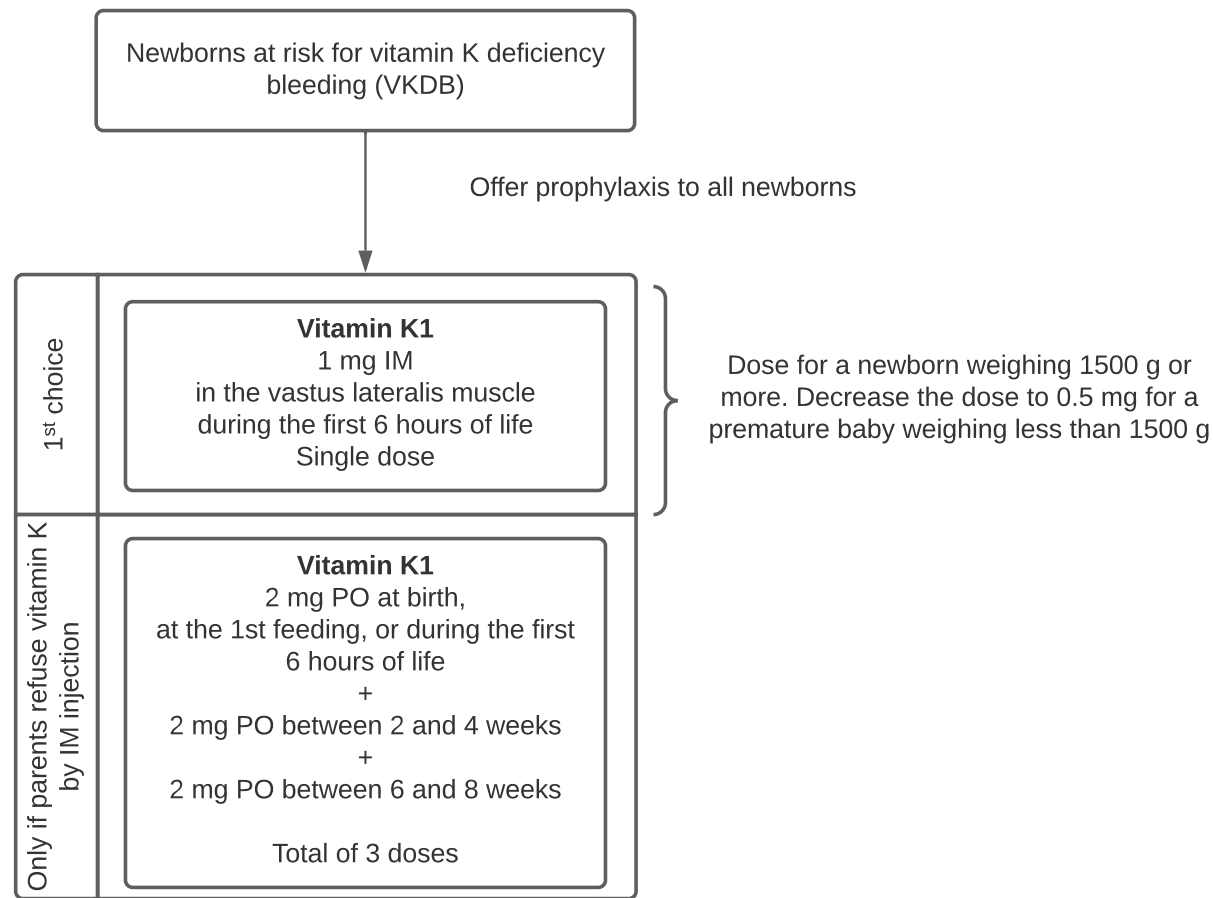
Clinical objective: Routinely offer all newborns chemoprophylaxis with erythromycin ointment to prevent neonatal conjunctivitis caused by infection with *Neisseria gonorrhoeae*. Although less effective, this procedure can also prevent neonatal conjunctivitis caused by infection with *Chlamydia trachomatis*.

Mandatory consultation: purulent eye discharge with redness of the conjunctiva



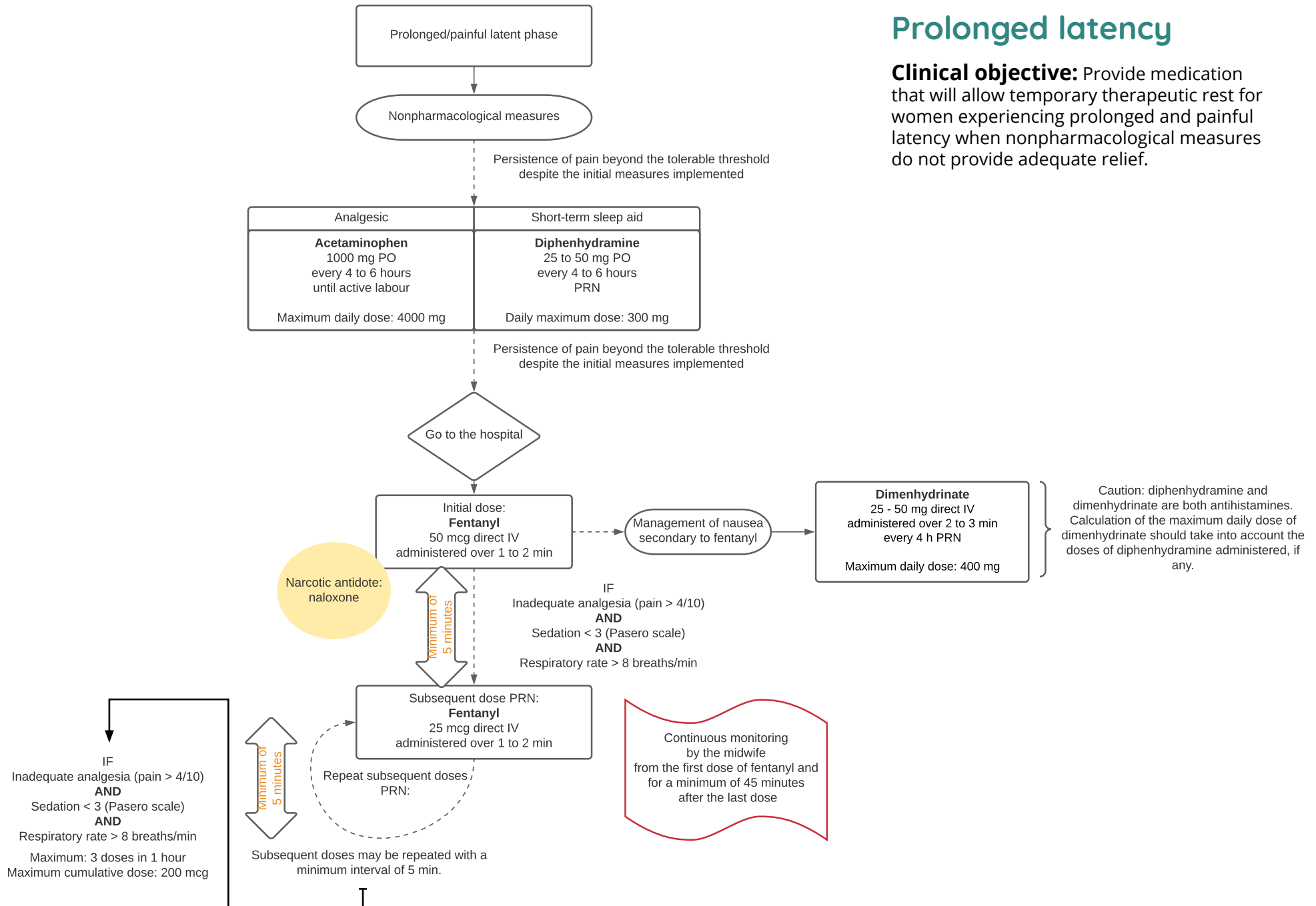
Prevention of vitamin K deficiency bleeding

Clinical objective: Prevent vitamin K deficiency bleeding in newborns.



Prolonged latency

Clinical objective: Provide medication that will allow temporary therapeutic rest for women experiencing prolonged and painful latency when nonpharmacological measures do not provide adequate relief.

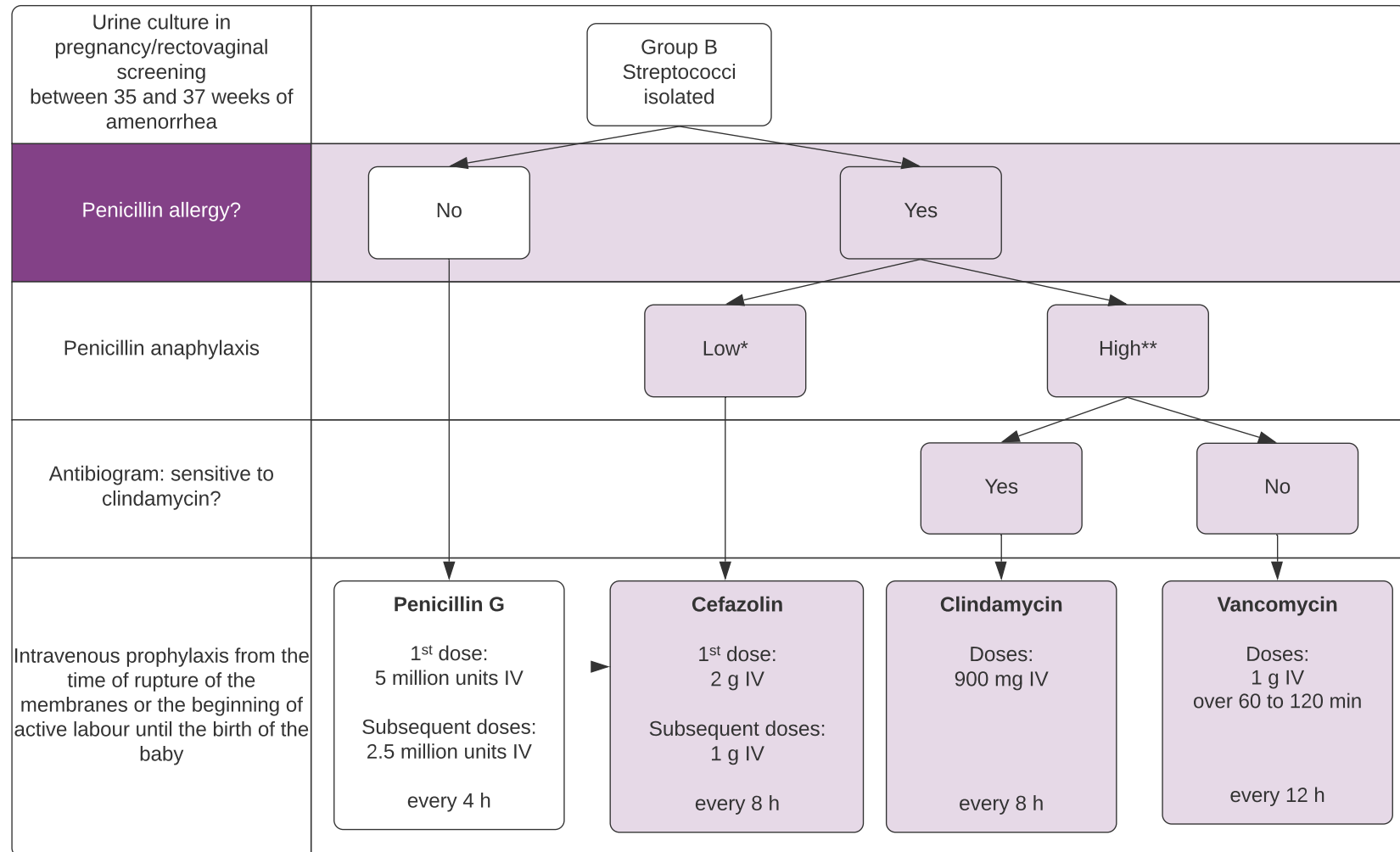


Prophylaxis • GBS

Clinical objective: Prevent early-onset neonatal group B streptococcal infection by administering antibiotic prophylaxis to women who are carriers of group B streptococcus or whose status is unknown.

***Low risk** of anaphylaxis: Isolated maculopapular rash without hives or pruritus (not itchy).

****High risk** of anaphylaxis: Anaphylaxis, angioedema, respiratory distress, urticaria, pruritus, especially if symptoms occur within 30 minutes of drug administration



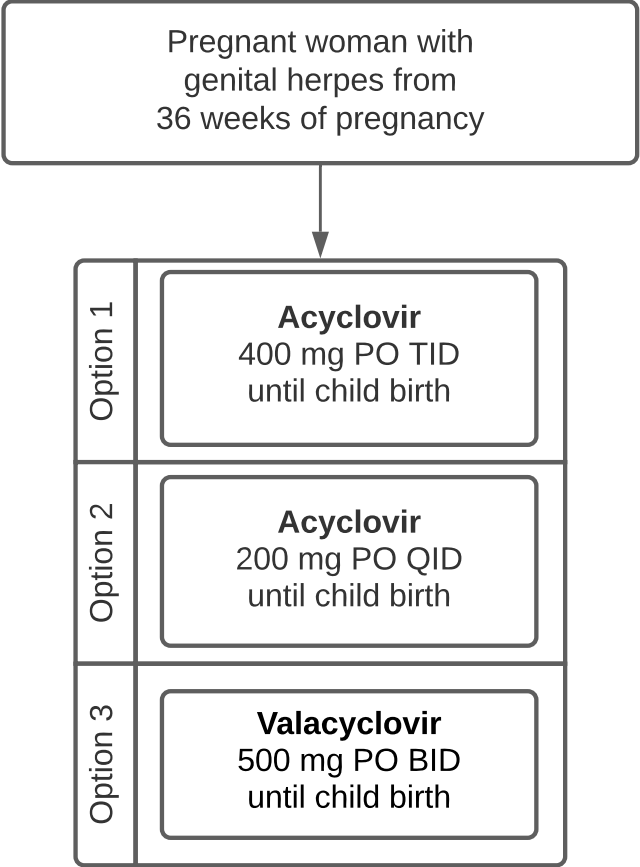
Prophylaxis • herpes

Clinical objective: All pregnant women with genital herpes should be offered antiviral prophylaxis from 36 weeks of pregnancy through delivery to reduce the presence of lesions at delivery and the risk of needing a Caesarean section. Prophylaxis could also be prescribed for a woman who wants to avoid an outbreak of oral herpes when she comes to term.

Note: A significant threat of preterm labour warrants starting prophylaxis for recurrent genital herpes earlier in pregnancy.

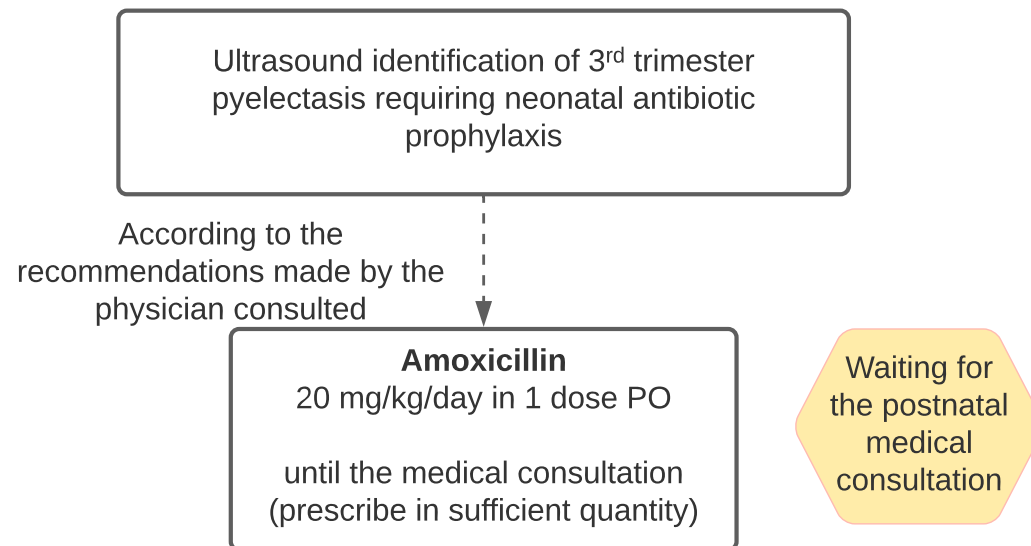
Mandatory transfer: active genital herpes.

There is no reason to prefer either of these options. The choice can be made according to the woman’s habits. For your information, valacyclovir is the ester of acyclovir. It is broken down into acyclovir in the blood.



Pyelectasis of the newborn

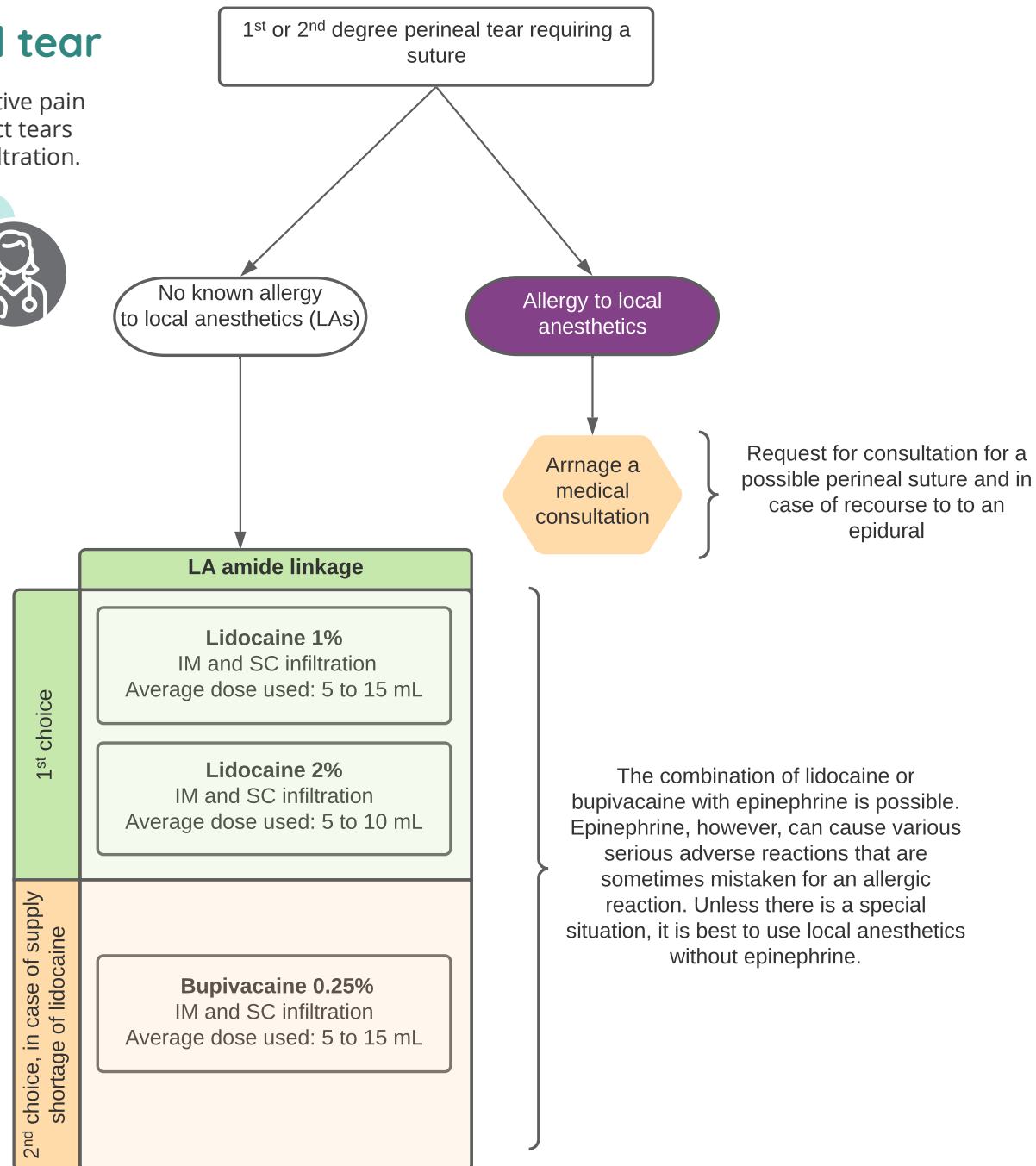
Clinical objective: If unilateral or bilateral pyelectasis is present, confirmed by ultrasound in the 3rd trimester, the physician may recommend prophylactic antibiotic therapy to prevent urinary-tract infections in the newborn until the next medical appointment. Even if a prenatal consultation was done, the physician cannot prescribe a medication for the baby before birth. The midwife's prescription allows the woman to choose the place of birth she wants without delaying the initiation of antibiotic therapy. In the event of a discrepancy between the antibiotic therapy proposed by the physician and this one, the one proposed by the physician shall take precedence.



Repair of a perineal tear

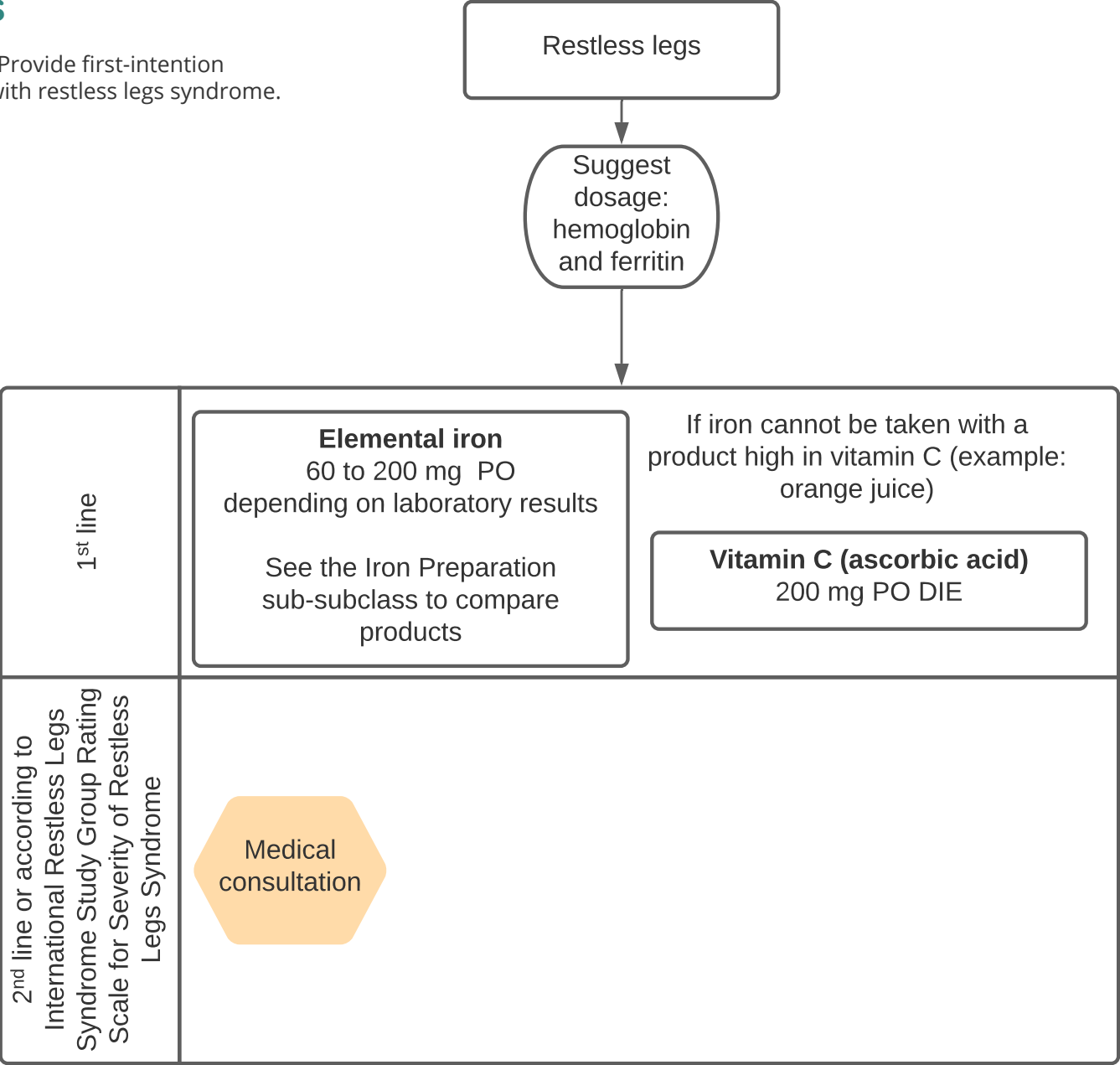
Clinical objective: Provide effective pain relief during the repair of genital-tract tears by means of local anesthetic (LA) infiltration.

Mandatory consultation:
3rd or 4th degree tear



Restless legs

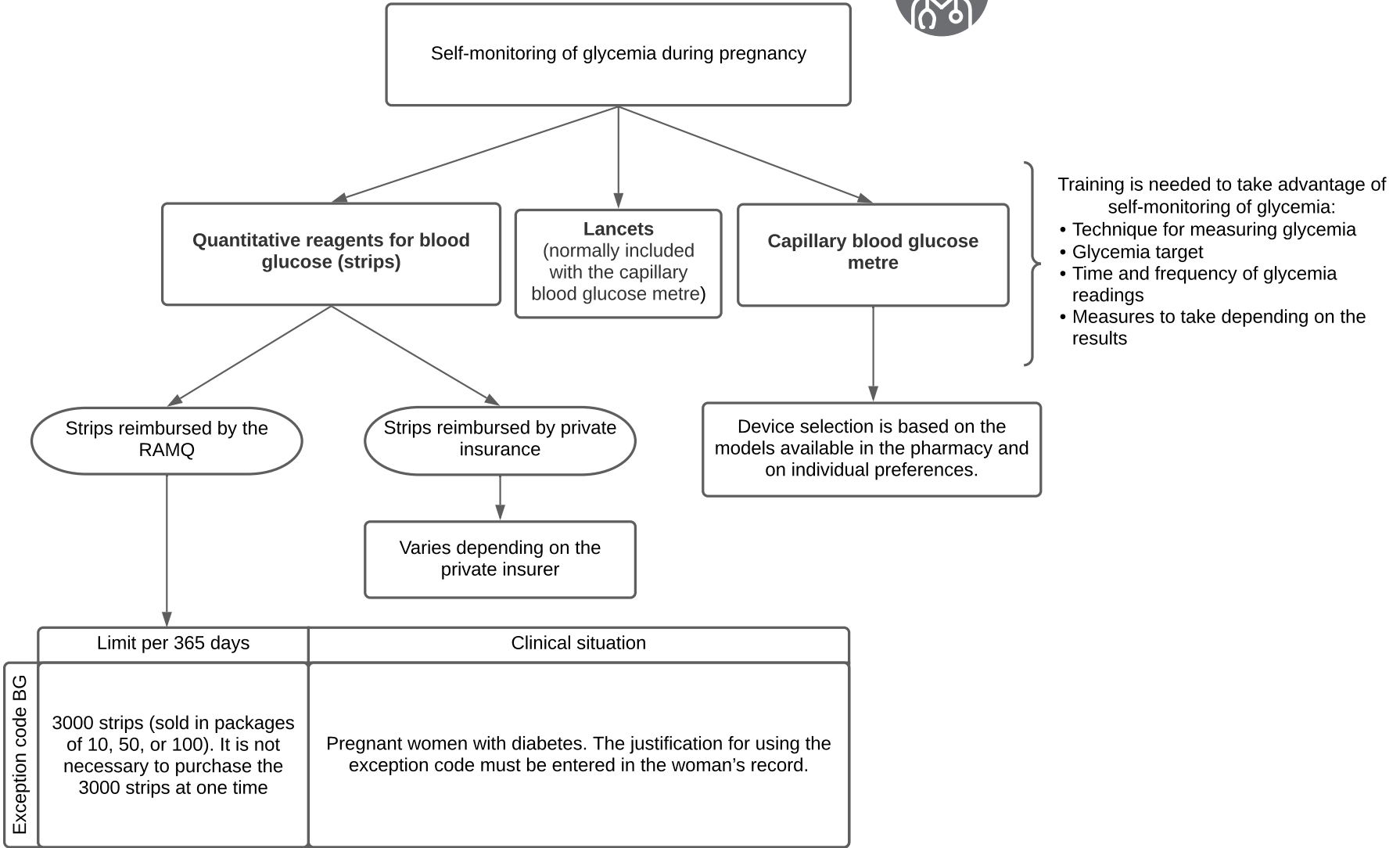
Clinical objective: Provide first-intention treatment for women with restless legs syndrome.



Self-monitoring of blood glucose during pregnancy

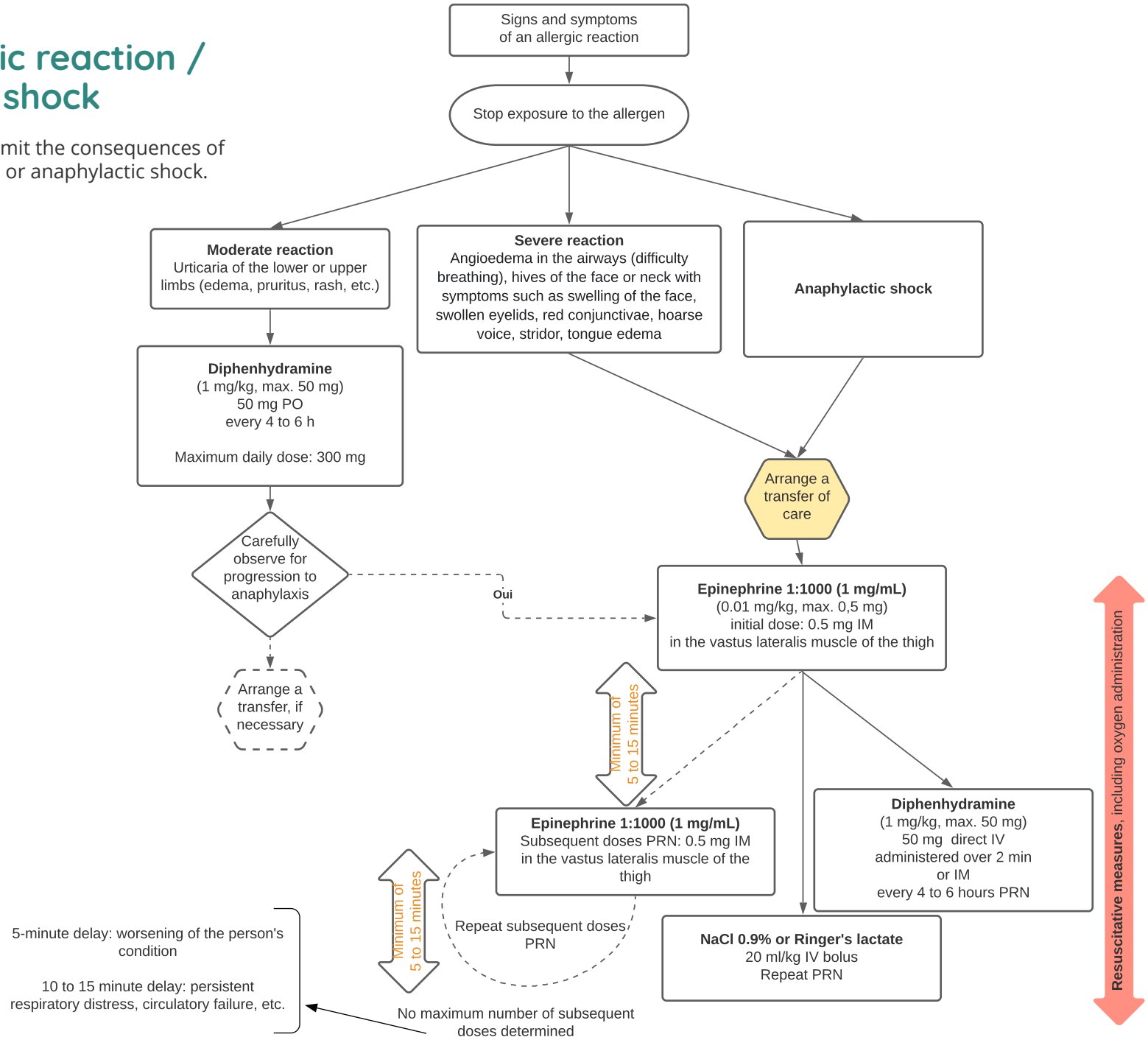
Clinical objective: Be familiar with the reimbursement of quantitative blood glucose test strips. Note: The test strips can also be prescribed. If they are used without a diagnosis of diabetes, however, the women might have to pay for them out of pocket.

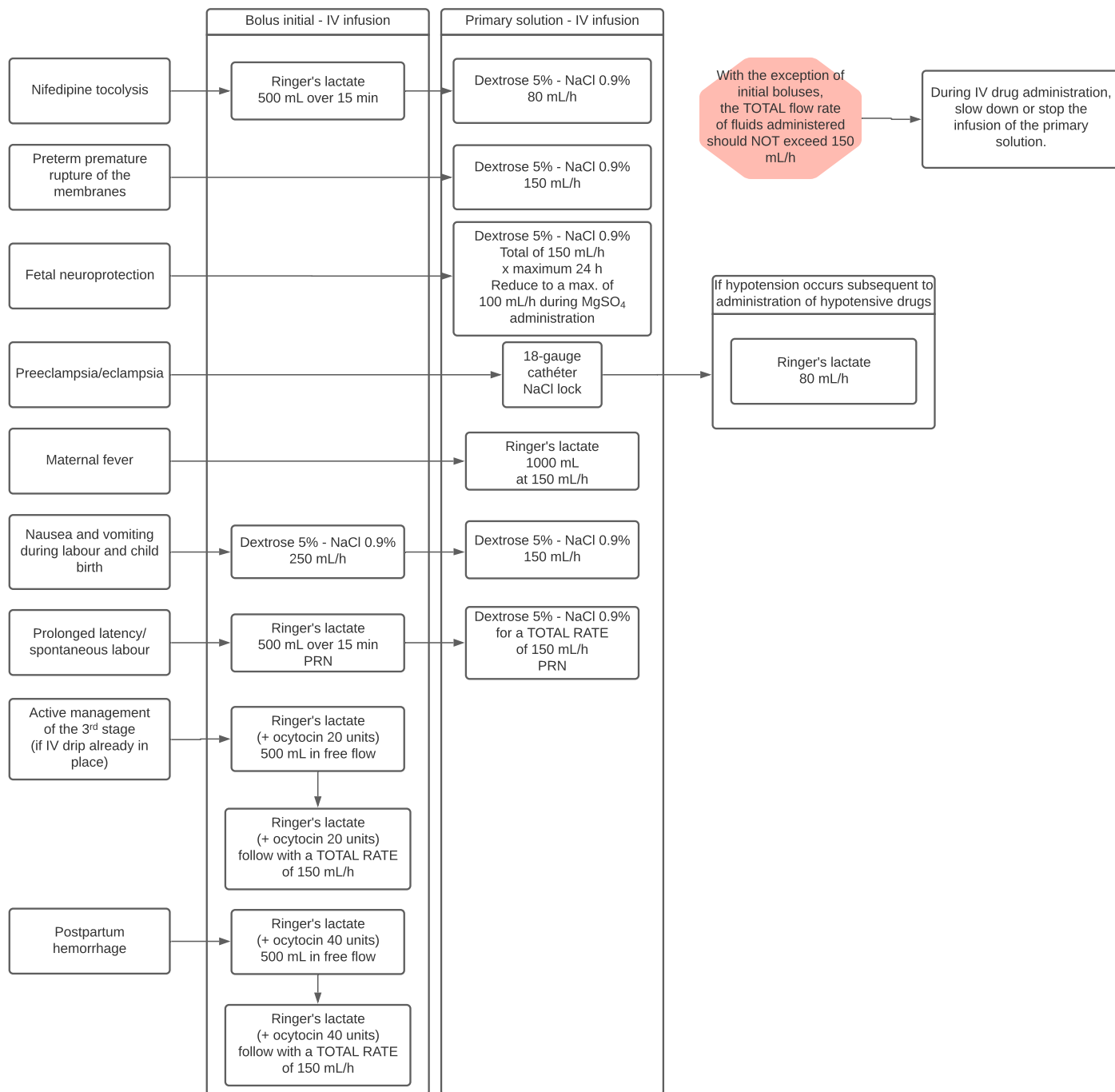
Mandatory transfer: Insulin-dependent diabetes and uncontrolled gestational hyperglycemia.



Severe allergic reaction / anaphylactic shock

Clinical objective: Limit the consequences of a severe allergic reaction or anaphylactic shock.





Solutions

Clinical objective: Choose and adapt the modalities of administration of fluids according to the clinical situation for which they are to be administered.

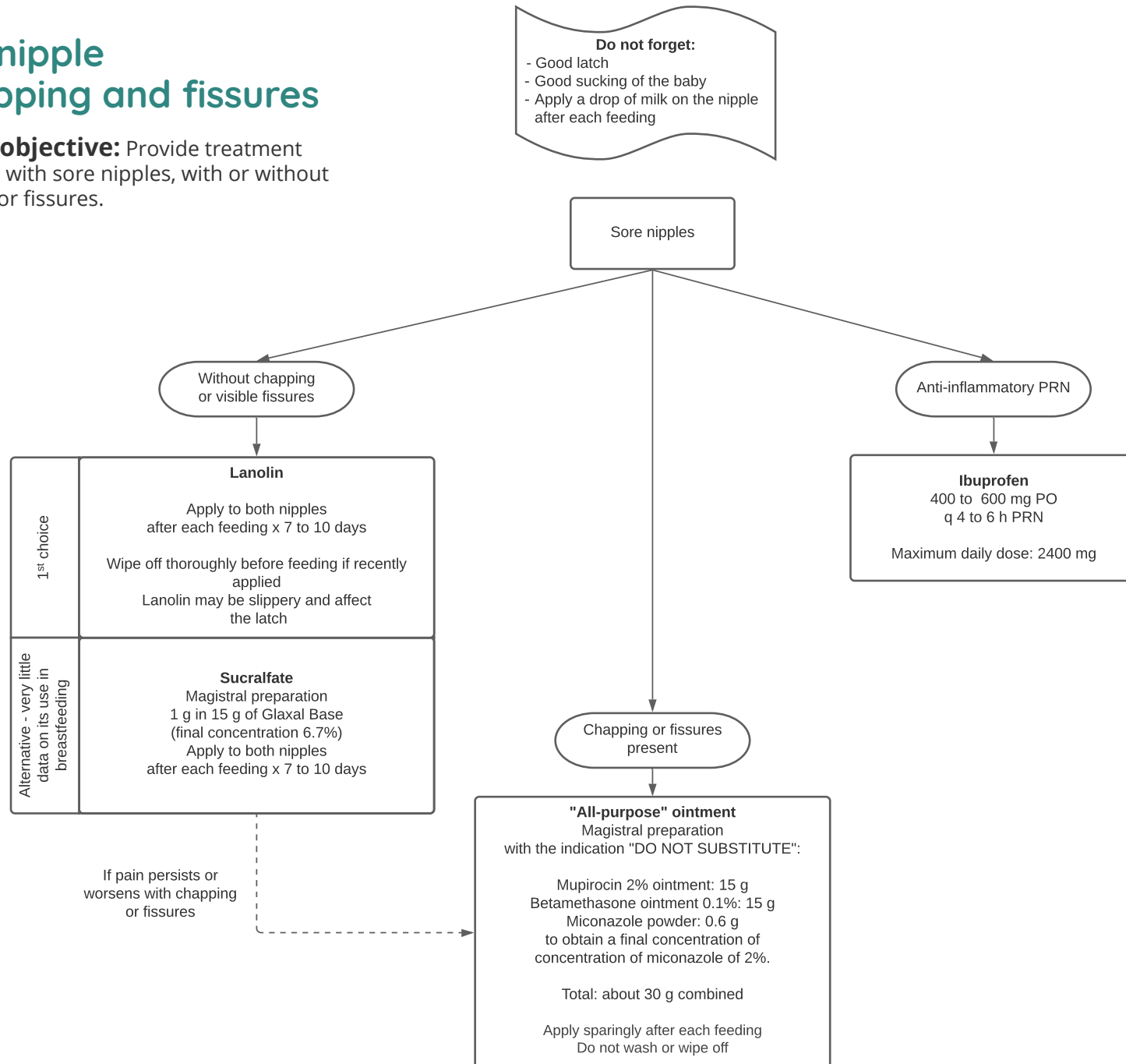
What should be done about involuntary soft tissue infiltration during intravenous drug administration?

<https://pharmactuel.com/index.php/pharmactuel/article/view/1272/1135>

Sore nipple

- chapping and fissures

Clinical objective: Provide treatment to women with sore nipples, with or without chapping or fissures.



STBBIs • gonorrhea and chlamydia

Clinical objective: Treat sexually transmitted infections (STIs) – gonorrhea and chlamydia – of the affected person.

Considering the constant evolution of the recommendations concerning STIs, the midwife must consult the documents issued by governmental authorities (MSSS, INESSS, and INSPQ) to initiate the appropriate antibiotic therapy.

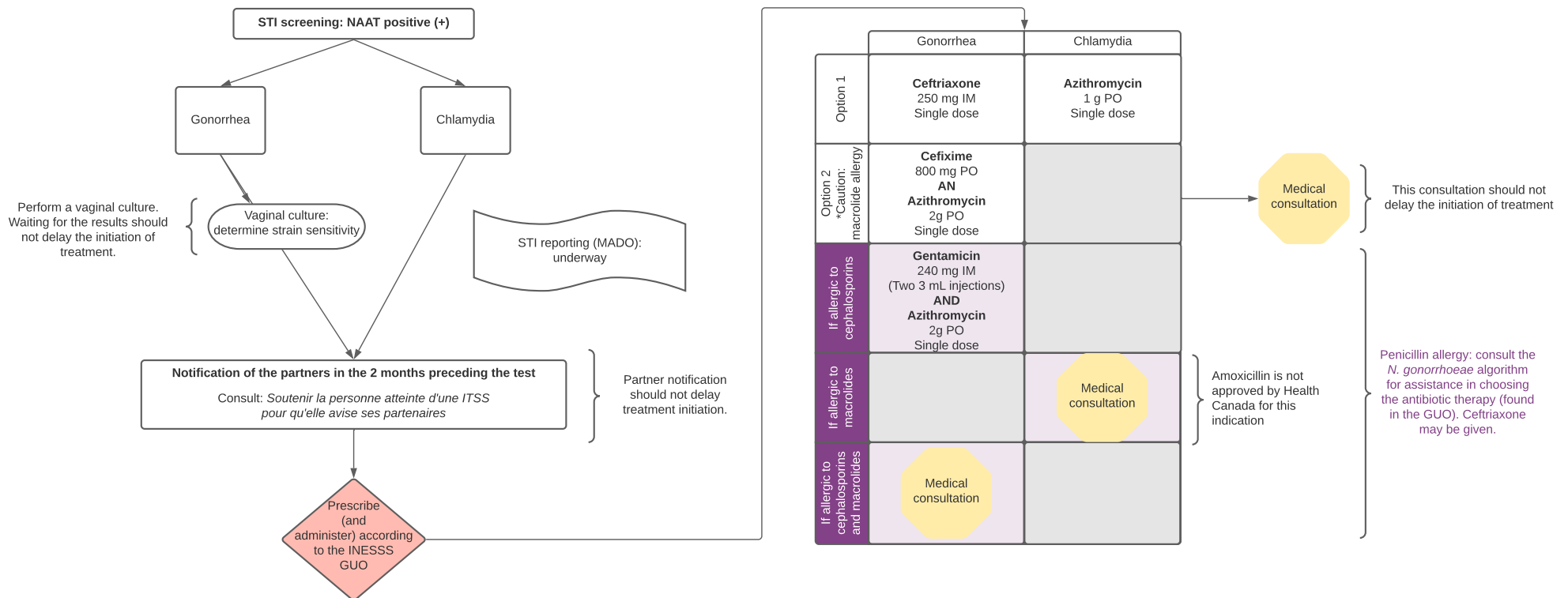
Mandatory consultation: sexually transmitted diseases: gonorrhea, syphilis, chlamydia



Appendix 3. Optimal Use Guideline: Uncomplicated *Chlamydia trachomatis* or *Neisseria gonorrhoea* infection

* Some antibiotics require intramuscular administration.

***Treatment of asymptomatic partners (chlamydia)* Doxycycline is not an antibiotic that can be prescribed by midwives. If this treatment is required, the midwife should arrange a medical consultation.



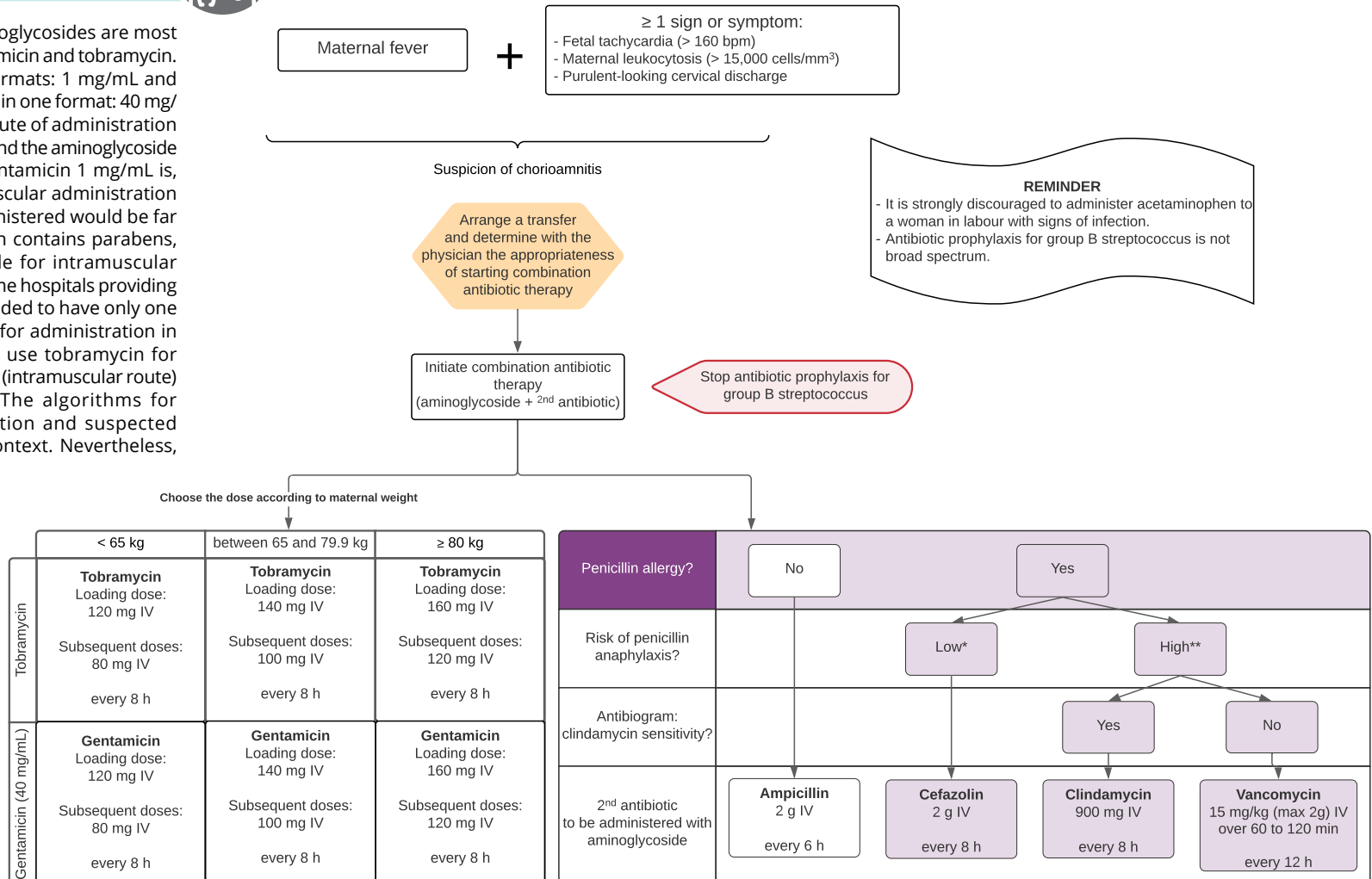
Suspicion of intra-amniotic infection

Clinical objective: Initiate antibiotic treatment in the event of maternal fever suggesting intrapartum intra-amniotic infection (formerly called chorioamnionitis) while awaiting transfer to a hospital. The algorithm is an example of common practice. The physician consulted for the transfer might recommend initiation of a different treatment.

Mandatory consultation: Suspicion of chorioamnionitis.



For your information: Two aminoglycosides are most often used in perinatal care: gentamicin and tobramycin. Gentamicin is available in two formats: 1 mg/mL and 40 mg/mL; tobramycin is available in one format: 40 mg/mL. In neonates, the preferred route of administration for antibiotics is the central route, and the aminoglycoside used is gentamicin 1 mg/mL. Gentamicin 1 mg/mL is, however, unsuitable for intramuscular administration because the volumes to be administered would be far too large. In addition, gentamicin contains parabens, which make it even less suitable for intramuscular administration. Consequently, some hospitals providing neonatal intensive care have decided to have only one format of gentamicin (1 mg/mL) for administration in neonates (central route) and to use tobramycin for administration in adults, neonates (intramuscular route) and those with endocarditis. The algorithms for suspected intra-amniotic infection and suspected neonatal infection reflect this context. Nevertheless, gentamicin remains a very good option and could be used when there is a suspicion of intra-amniotic infection.



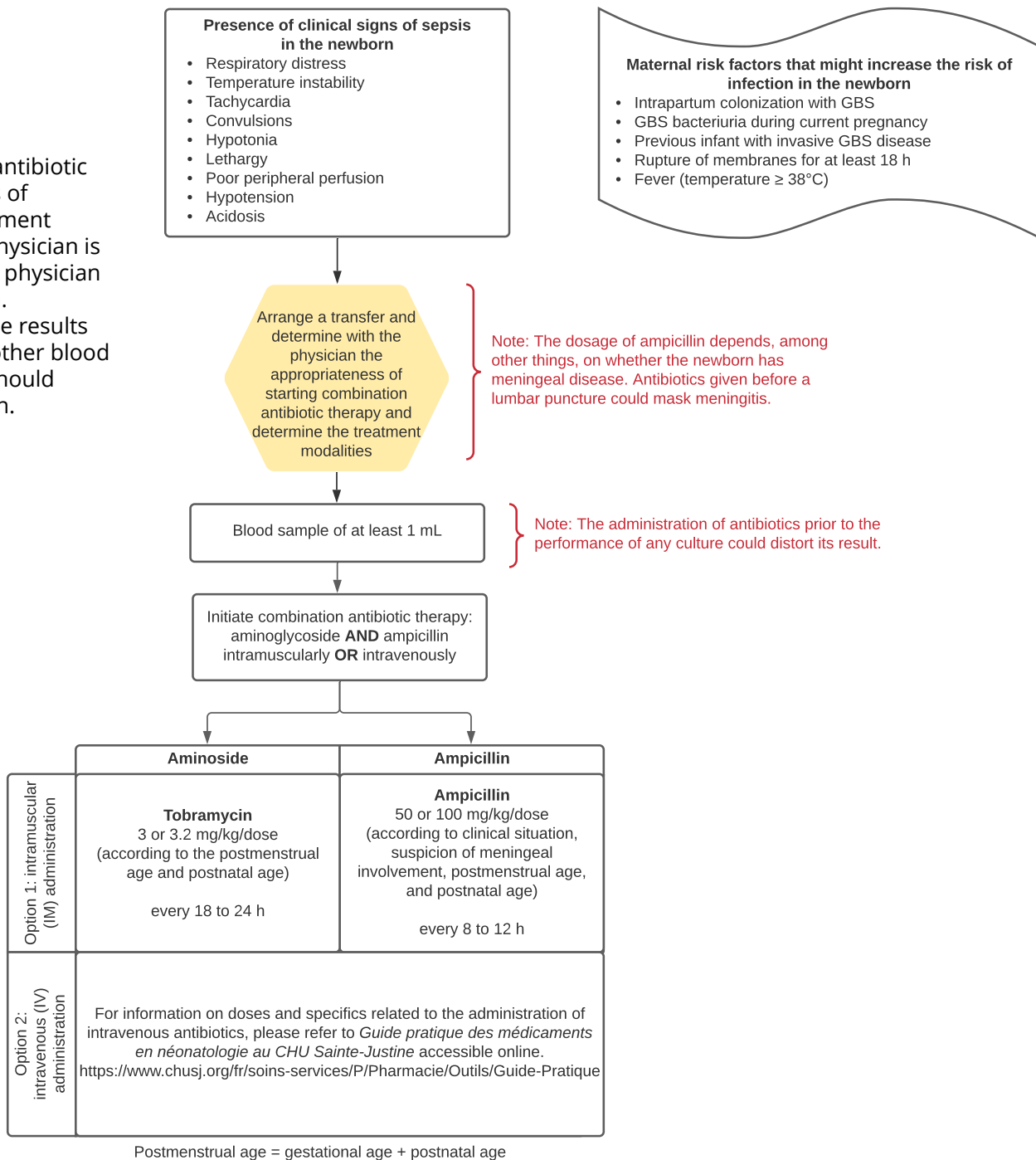
REMINDER

- It is strongly discouraged to administer acetaminophen to a woman in labour with signs of infection.
- Antibiotic prophylaxis for group B streptococcus is not broad spectrum.

Suspicion of neonatal infection

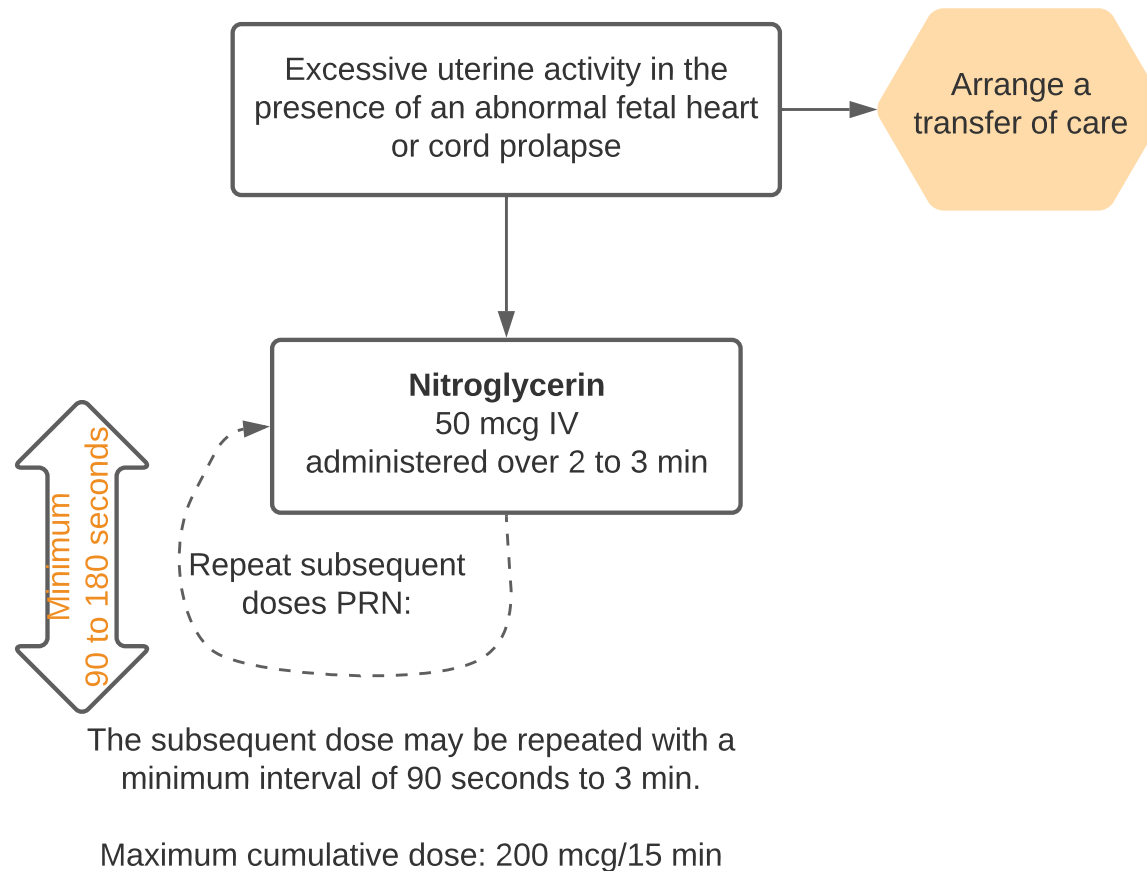
Clinical objective: Initiate combination antibiotic therapy in a term newborn with clinical signs of early-onset sepsis. Pending medical management when transfer of clinical responsibility to a physician is required. The dosages recommended by the physician may differ from those listed in this algorithm. Considering that antibiotic therapy affects the results of investigative tests (lumbar puncture and other blood cultures), the benefits of antibiotic therapy should outweigh the value of having this information.

Mandatory transfert



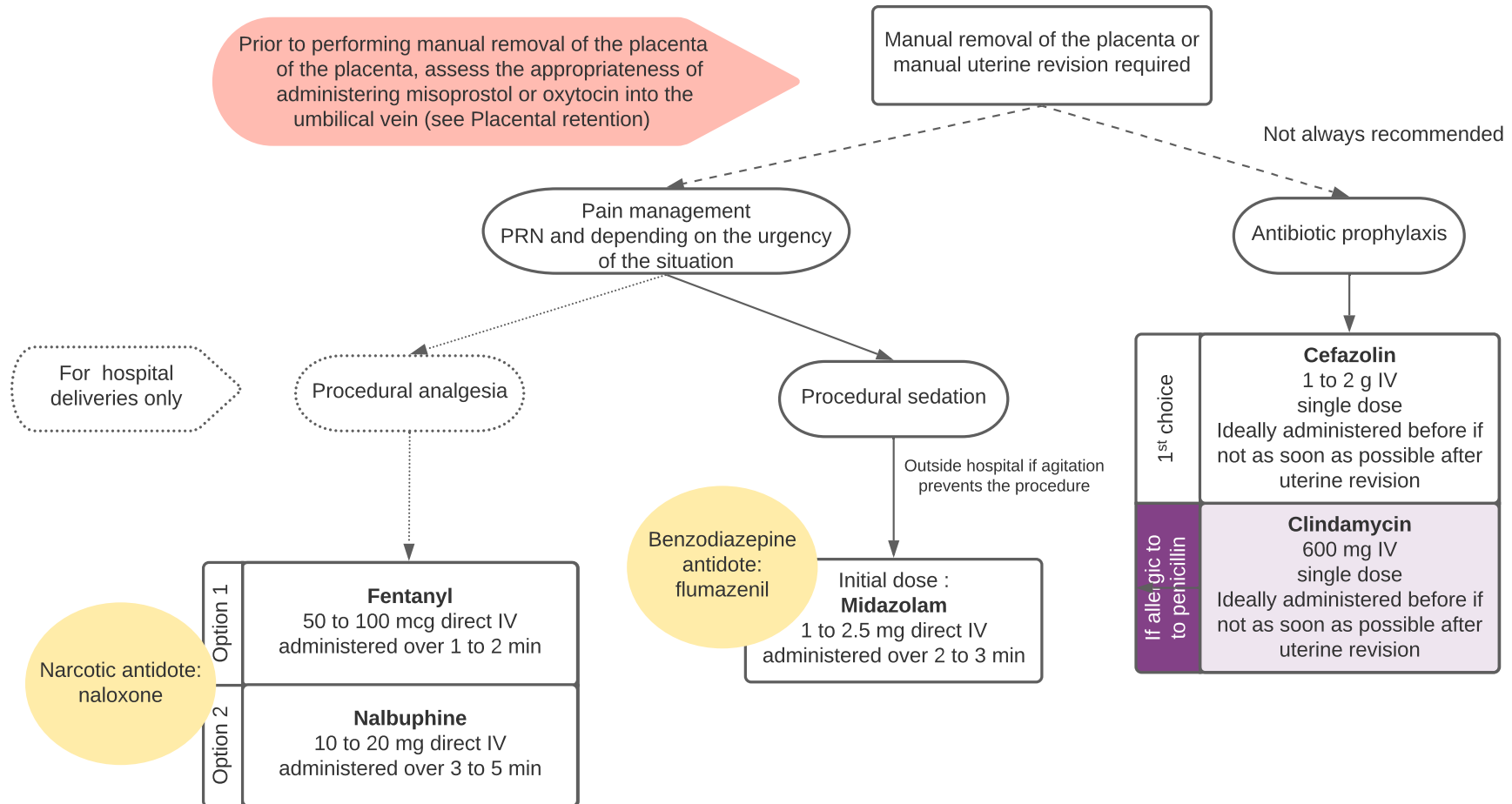
Uterine hypertonia

Clinical objective: Achieve uterine relaxation in the presence of excessive uterine activity, including abnormal fetal heart or cord prolapse.



Uterine revision and manual removal of the placenta

Clinical objective: Depending on the clinical situation for which the midwife is performing manual uterine revision, it may be appropriate to administer a dose of antibiotic to the woman to prevent endometritis. If the delivery is in a hospital, the midwife may offer intravenous pain medication. Ideally, the antibiotic is administered before uterine revision, unless the urgency of the situation requires immediate manual revision. Consider the woman's condition, the reason for the uterine revision, the presence of meconium in the amniotic fluid, the time between the rupture of the membranes and the birth of the baby, etc.

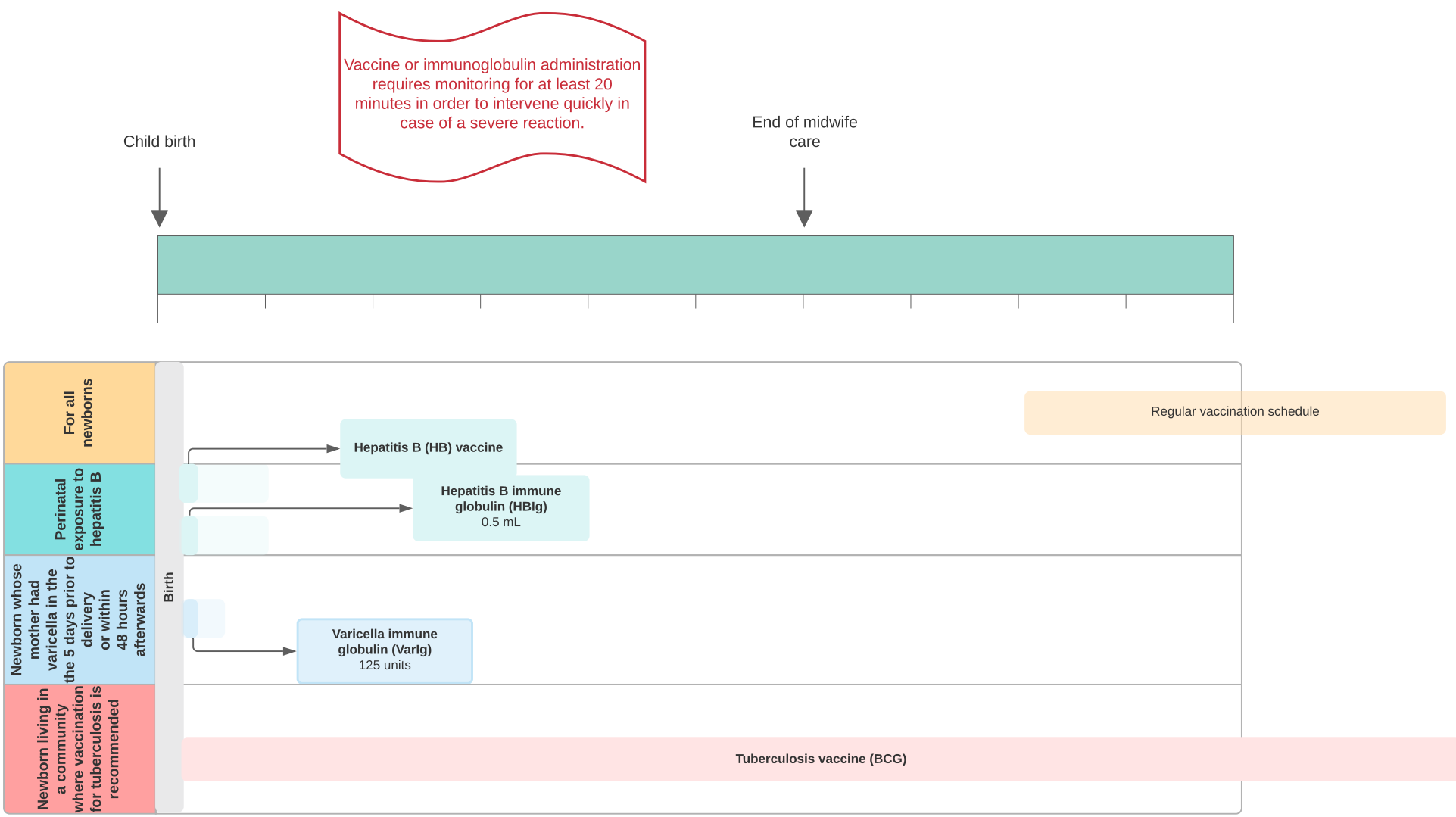


There is no advantage to using fentanyl over nalbuphine. The onset of analgesia is similar: 2 to 3 minutes when administered in direct IV. The choice is often based on local practice or personal preference.

Other opioids have a much slower onset of analgesia: 10 to 30 minutes. They are not indicated here given the usual urgency leading to uterine revision.

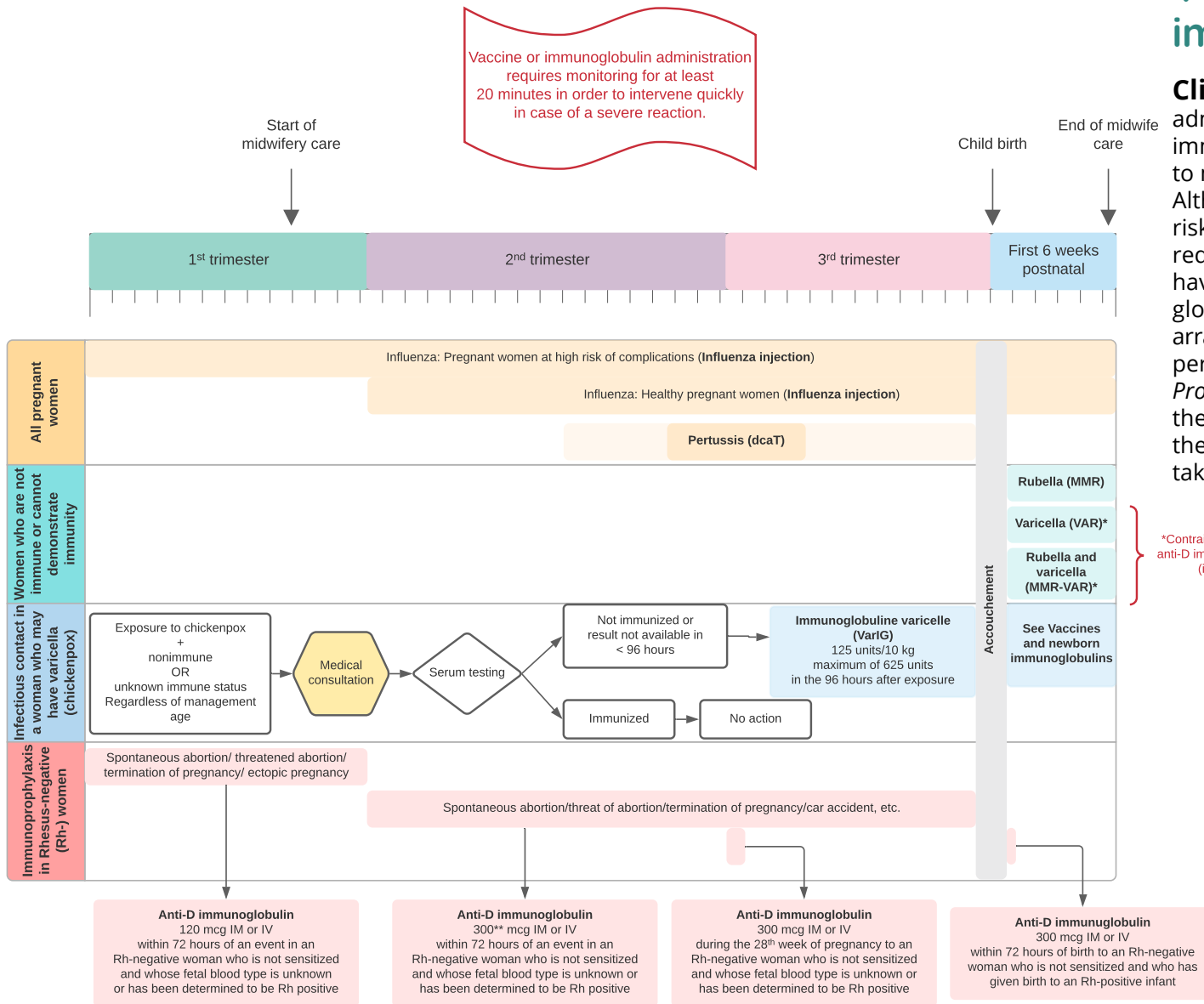
Vaccines and immunoglobulins for newborns

Clinical objective: Prescribe and administer relevant vaccines and immunoglobulins to newborns in the postnatal period. Although infectious contact in a woman at risk of developing hepatitis or chickenpox requires consultation, it is possible that the clinical situation allows for delivery under the care of the midwife. This algorithm does not replace the *Protocole d'immunisation du Québec (PIQ)*. In the event of a discrepancy between the two, the recommendations of the PIQ shall take precedence.



Vaccines and maternal immunoglobulins

Clinical objective: Prescribe and administer relevant vaccines and immunoglobulins to pregnant women and to mothers during the perinatal period. Although infectious contact of a woman at risk of developing hepatitis or chickenpox requires a consultation, the midwife might have to administer varicella zoster immune globulin if the consultation cannot be arranged before the end of the postexposure period. This algorithm does not replace the *Protocole d'immunisation du Québec (PIQ)*. In the event of a discrepancy between the two, the recommendations of the PIQ shall take precedence.



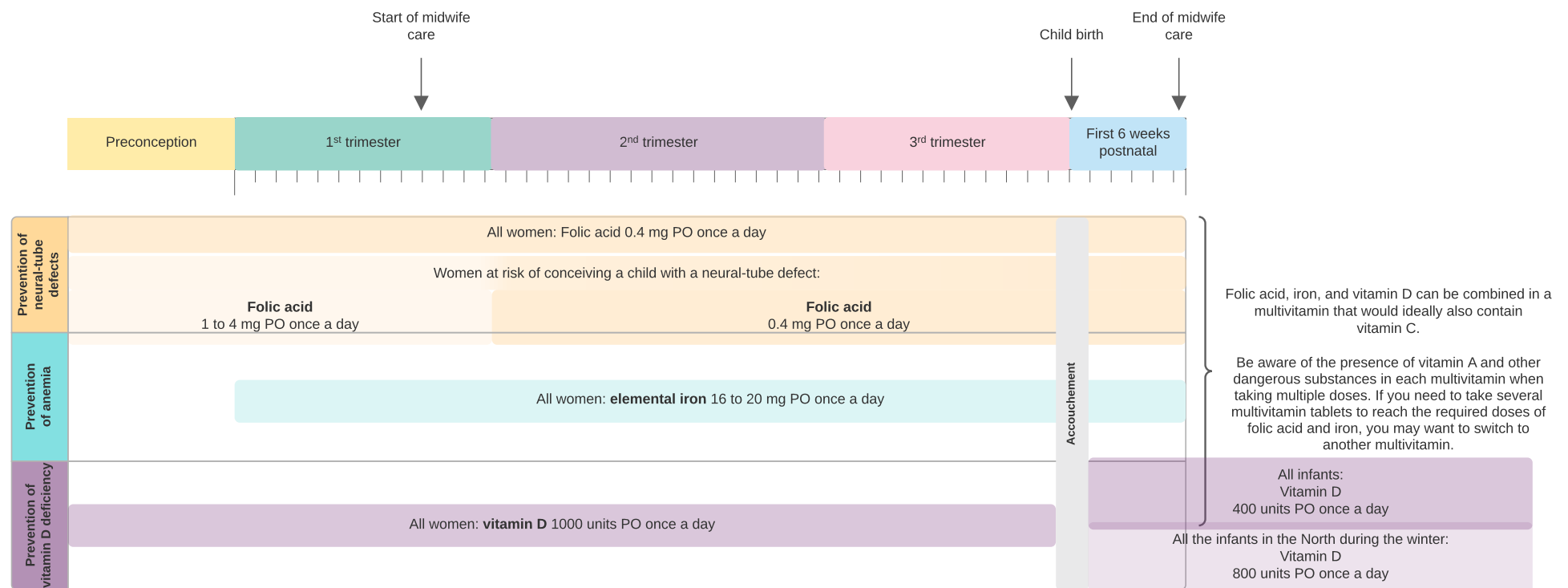
**Fetomaternal hemorrhage (> 15 mL fetal red blood cells) might warrant a higher dose.

Vitamins (prevention of vitamin D deficiency, neural tube defects, and anemia)

Clinical objective: Provide vitamin or iron supplements based on the risk factors of the mother and the newborn.

Women at risk of conceiving a child with a neural tube defect (NTD) (Pelletier-Germain, 2016):

- Personal history of NTD
- History of a pregnancy affected by an NTD
- Male partner with a personal history of NTD
- Male partner with a history of fetus with NTD



References for therapeutic indications

Abnormal vaginal discharge

INESSS. *Initier des mesures diagnostiques et un traitement pharmacologique chez une femme présentant des pertes vaginales inhabituelles*. Protocole médical national, No 628001, 2019. Consulté en ligne le 5 septembre 2020 : https://www.inesss.qc.ca/fileadmin/doc/INESSS/Ordonnances_collectives/Vaginite/INESSS_Protocole_medical_national_pertes-vaginales-inhabituelles_Final.pdf

van Schalkwyk, J et Yudin, M. *Vulvovaginite : Dépistage et prise en charge de la trichomonase, de la candidose vulvovaginale et de la vaginose bactérienne*, Directive clinique No 320, Journal d'obstétrique et de gynécologie du Canada, volume 38, issue 12, supplement, s587-s596, 2016. Consulté en ligne le 5 septembre 2020 : <https://doi.org/10.1016/j.jogc.2016.09.065>

Yudin, M et Money, D. *Dépistage et prise en charge de la vaginose bactérienne pendant la grossesse*. Directive clinique No 211, Journal d'obstétrique et de gynécologie du Canada, volume 39, issue 8, e175-e183, 2017. Consulté en ligne le 5 septembre 2020 : <https://doi.org/10.1016/j.jogc.2017.04.019>

Active management of the third stage of labour

Leduc, D, Senikas, V et Lalonde, A. *Prise en charge active du troisième stade du travail : Prévention et prise en charge de l'hémorragie postpartum*. Directive clinique No 235, Journal d'obstétrique et de gynécologie, volume 40, issue 12, e856-e873, 2018. Consulté en ligne le 28 octobre 2020 : <https://doi.org/10.1016/j.jogc.2018.09.025>

Anemia

Demers H, Lapierre M. *L'anémie ferriprive*. Le médecin du Québec. 2013;48(11) :79-82

Ferreira E, Martin B, Morin C. *Grossesse et allaitement : guide thérapeutique*. Montréal : Éditions du CHU Sainte-Justine; 2013.

Haig M. *L'anémie falciforme*. Présentation. Département d'anesthésiologie et de médecine de la douleur de l'Université de Montréal. Non datée. Consulté le 6 novembre 2020 : https://anesthesiologie.umontreal.ca/wp-content/uploads/sites/33/Anemie_Falciforme1.pdf

Doctonat. *Fer en complément : posologies et bienfaits*. Site internet; 2019. Consulté le 30 octobre 2020 : <https://doctonat.com/fer-posologies-et-bienfaits/>

Antidotes

CIUSSS de la Capitale-Nationale. *Antidote en toxicologie d'urgence - Naloxone* (extrahospitalier). Centre antipoison du Québec, 2017. Consulté le 12 octobre : <https://www.ciusss-capitalenationale.gouv.qc.ca/naloxone-en-extrahospitalier?lang=fr>

CIUSSS de la Capitale-Nationale. *Antidote en toxicologie d'urgence - Flumazénil*. Centre antipoison du Québec, 2017. Consulté le 12 octobre : <https://www.ciusss-capitalenationale.gouv.qc.ca/flumazenil?lang=fr>

CIUSSS de la Capitale-Nationale. *Antidote en toxicologie d'urgence - Calcium* (gluconate de). Centre antipoison du Québec, 2017. Consulté le 12 octobre : <https://www.ciusss-capitalenationale.gouv.qc.ca/calcium-gluconate?lang=fr>

CIUSSS de l'Est-de-l'Île-de-Montréal. Protocole d'application de l'ordonnance collective No [OC-CEMTL-00045] - *Initier et administrer la naloxone lors d'une surdose à une substance opioïde*. Département de pharmacie. Dernière révision : 2019.

Asymptomatic bacteriuria and cystitis

CISSS de Laval. *Guide de traitements des infections urinaires chez les adultes*. Comité de pharmacologie, 2006.

CIUSSS de la Mauricie et du Centre-du-Québec. *Guide de traitement empirique des infections urinaires chez l'adulte*. 2017. Consulté en ligne le 27 septembre 2020 : <https://ciusssmcq.ca/telechargement/1039/guide-de-traitement-empirique-des-infections-urinaires-chez-l-adulte-du-ciusss-m>

Uptodate. *Urinary tract infection and asymptomatic bacteriuria in pregnancy*. Mise à jour : décembre 2019.

Centre de Référence sur les Agents Tératogènes. *Fosfomycine : grossesse et allaitement*. Mise à jour : octobre 2019. Consulté en ligne le 31 août 2020 : http://lecrat.fr/spip.php?page=article&id_article=376

INESSS. (2017). Guide d'usage optimal – *Infection urinaire chez l'adulte*. Consulté en ligne le 5 octobre 2020 : https://www.inesss.qc.ca/fileadmin/doc/CDM/UsageOptimal/Guides-seriel/Guide_InfectionUrinaire.pdf

Breast candidiasis and thrush

Santé Canada. *Santé Canada met les Canadiens en garde contre le risque de cancer associé au violet cristallisé*. Rappels et avis de sécurité, 2019. Consulté en ligne le 15 novembre 2020 : <https://www.canadiensensante.gc.ca/recall-alert-rappel-avis/hc-sc/2019/70179a-fra.php>

Bortolussi, R & Martin, S. *Antifungal agents for common outpatient paediatric infections*. Practice Point, Société canadienne de pédiatrie, 2019. Consulté en ligne le 15 octobre 2020 : <https://www.cps.ca/en/documents/position/antifungal-agents-common-infections>

International Breastfeeding Centre. *Protocole pour le traitement du candida*. Feuille d'information, 2017. Consulté en ligne le 15 octobre 2020 : <https://ibconline.ca/information-sheets/candida-protocol/>

Berens, Pamela et al. *ABM Clinical Protocol #26 : Persistent Pain with Breastfeeding*. Breastfeeding medicine : the official journal of the Academy of Breastfeeding Medicine vol. 11,2 (2016) : 46-53. Consulté en ligne le 5 novembre 2020 : <https://abm.memberclicks.net/assets/DOCUMENTS/PROTOCOLS/26-persistent-pain-protocol-english.pdf>

Constipation

Ferreira E, Martin B, Morin C. *Grossesse et allaitement : guide thérapeutique*. Montréal : Éditions du CHU Sainte-Justine; 2013.

CISSS de l'Outaouais. *Traitement de la constipation aiguë et d'un fécalome chez l'adulte (X2-0310-OC-090)*. Ordonnance collective, 2020.

Contraception

INESSS. *Contraception orale d'urgence*. Outil clinique, 2020. Consulté en ligne le 2 novembre 2020 : https://www.inesss.qc.ca/fileadmin/doc/INESSS/Rapports/Medicaments/Outil_Contraception-orale-durgence_VF.pdf

Doré, Nicole; Le Hénaff, Danielle. *Mieux vivre avec notre enfant de la grossesse à deux ans : guide pratique pour les parents*. Québec, Institut national de santé publique du Québec, 2020. Consulté en ligne le 24 septembre 2020 : <https://www.inspq.qc.ca/mieux-vivre/accouchement/premiers-jours/contraception>

Éclampsia • convulsions

Magee & al. (2016). *Diagnostic, évaluation et prise en charge des troubles hypertensifs de la grossesse : résumé directif. Directive clinique*, Journal d'obstétrique et de gynécologie, volume 38, issue 12, supplément S426-S452, 2016. Consulté en ligne le 7 septembre 2020 : <https://doi.org/10.1016/j.jogc.2016.09.052>

Gastroesophageal reflux

CHU Sainte-Justine, Feuille d'ordonnance prérédigée collective (FOPRC 977) - *Traitement du reflux gastro-oesophagien chez la femme enceinte*, Département de pharmacie, 2013

Ferreira E, Martin B, Morin C. *Grossesse et allaitement : guide thérapeutique*. Montréal : Éditions du CHU Sainte-Justine; 2013.

Quirion, MP. *Les troubles digestifs traités par l'automédication*. Québec Pharmacie, volume 57, no 3, 2010, p. 15 à 19. Consulté en ligne le 16 novembre 2020 : <https://www.professionsante.ca/files/2010/07/avssso2010061.pdf>.

Healing of umbilical granuloma

CSSS du Sud de Lanaudière. *Initier un traitement au nitrate d'argent (AgNO₃), lors d'un suivi de plaie ombilicale ou sur le cordon ombilical du bébé*. GMF Polyclinique Pierre Le Gardeur, 2012.

CSSS- IUGS. *Cautériser une plaie avec du nitrate d'argent*. Ordonnance collective, 2012. Consulté en ligne le 12 septembre 2020 : <http://www.csss-iugs.ca/c3s/data/files/Ordonnances%20collectives/Ordonnance%2036%20-%20Cauteriser%20une%20plaie%20avec%20du%20nitrate%20d'argent.pdf>

Turcotte, J-J. *La dermatologie chez les nourrissons*. Présentation PowerPoint, 2010. Consulté en ligne le 7 septembre 2020 : http://www.lesommetavotreportee.qc.ca/files/PDF/dermato_bebes.pdf

Pomeranz, A., *Anomalies, abnormalities, and care of the umbilicus*. Pediatric Clinics of North America Pediatric Clinics of North America, 2004. 51(3) : p. 819-827.

Hemorrhoids

Ferreira E, Martin B, Morin C. *Grossesse et allaitement : guide thérapeutique*. Montréal : Éditions du CHU Sainte-Justine; 2013.

Hypertension • preeclampsia

Magee & al. (2016). *Diagnostic, évaluation et prise en charge des troubles hypertensifs de la grossesse : résumé directif*. Directive clinique, Journal d'obstétrique et de gynécologie, volume 38, issue 12, supplément S426-S452, 2016. Consulté en ligne le 7 septembre 2020 : <https://doi.org/10.1016/j.jogc.2016.09.052>

Incomplete abortion or terminated pregnancy

American College of Obstetricians and Gynecologists. ACOG Committee Opinion No. 427 : Misoprostol for postabortion care. *Obstetrics and gynecology* vol. 113,2 Pt 1 (2009) : 465-8. Consulté en ligne le 27 octobre 2020 : <https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2009/02/misoprostol-for-postabortion-care>

Raghavan. S. & Bynum. J. *Le misoprostol pour le traitement de l'avortement incomplet : un manuel introductif*. 2009. Récupéré en ligne le 28 octobre 2020 : https://gynuity.org/assets/resources/clinguide_pacguide_fr.pdf

Insufficient milk supply

ASSOCIATION DES SAGES-FEMMES DE L'ONTARIO (application consultée le 30 mai 2020), Domperidone, application : RM Rx Ressources for Midwives.

BELZILE, Sophie Ordonnance collective (No : OC-090-3) *Initier une thérapie à la dompéridone dans les cas de production de lait insuffisante*, Laval, CISSS de Laval [en ligne] (page consultée le 30 mai 2020). http://bibliotheques.cisslaval.ca/GED_CL/105179192335/oC-090-3_initier_la_therapie_la_domperidone_dans_les_cas_de_production_de_lait_insuffisante.pdf.

CANADA. SANTÉ CANADA (2015). *Maléate de dompéridone - Association à la survenue de rythmes cardiaques anormaux graves ou de mort subite (arrêt cardiaque)* - Pour le public [en ligne], Ottawa, Gouvernement du Canada, <https://canadiensensante.gc.ca/recall-alert-rappel-avis/hc-sc/2015/43449a-fra.php> (page consultée le 30 mai 2020).

CENTRE DE MÉDECINE FAMILIALE HERZL et CLINIQUE D'ALLAITEMENT GOLDFARB (consulté en ligne le 30 mai 2020), *Dompéridone* - Document à l'intention des patients, [en ligne] https://cdn.ciuusscentreouest.ca/documents/hgj/pfrc/Breastfeeding_clinic/domperidone_info_pour_patients_2018.pdf?1541434953.

CHU SAINTE-JUSTINE (2014). Feuille d'ordonnance préédigée externe (FOPRE – 662) – *Dompéridone dans l'insuffisance de lait maternel*, Montréal, Département de pharmacie du CHU Sainte-Justine.

DRUGS AND LACTATION DATABASE (LactMed) (page consultée le 1er juin 2020). Domperidone, Bethesda (MD), National Library of Medicine, [en ligne] <https://www.ncbi.nlm.nih.gov/books/NBK501371/>

GRZESKOWIAK, Luke & AMIR, Lisa (2014). *Pharmacological management of low milk supply with domperidone : separating fact from fiction*. The medical journal of Australia, 201 (5) : 257-258, <https://www.mja.com.au/journal/2014/201/5/pharmacological-management-low-milk-supply-domperidone-separating-fact-fiction> (page consultée le 2 juin 2020). Texte intégral.

BRODRIBB, Wendy & ACADEMY OF BREASTFEEDING MEDICINE (2018). *ABM Clinical Protocol #9 : Use of Galactagogues in Initiating or Augmenting Maternal Milk Production*, Breastfeeding Medicine, 2e révision, Volume 13, Number 5, <https://abm.memberclicks.net/assets/DOCUMENTS/PROTOCOLS/9-galactagogues-protocol-english.pdf> (page consultée le 2 juin 2020). Texte intégral.

Mastitis

International Breastfeeding Centre. *Canaux lactifères bloqués et mastites*. Feuille d'information, 2017. Consulté le 14 septembre 2020 : <https://ibconline.ca/information-sheets/blocked-ducts-mastitis/>

CISSS de Laval. (2006). *Guide de traitements de la mastite secondaire à l'allaitement*. Comité de pharmacologie.

INESSS. *Cellulite infectieuse chez l'adulte et chez l'enfant*. Guide et norme, 2017. Consulté le 17 septembre 2020 : https://www.inesss.qc.ca/fileadmin/doc/INESSS/Outils/GUO/Cellulite/INESSS-Rapport_GUO_Cellulite.pdf

Nausea and vomiting: labour and birth

Ferreira E, Martin B, Morin C. *Grossesse et allaitement : guide thérapeutique*. Montréal : Éditions du CHU Sainte-Justine; 2013.

CHU Ste-Justine. *Feuille d'ordonnance préédigée individuelle* (FOPRI 0067) - Unité des naissances - Travail spontané. Département de pharmacie. 2013.

Nausea and vomiting: pregnancy

Campbell, K & al. *Prise en charge des nausées et vomissements de la grossesse*. Directive clinique, Journal d'obstétrique et de gynécologie du Canada, volume 38, issue 12, p1138-1149, 2016. Consulté en ligne le 5 septembre 2020 : <https://doi.org/10.1016/j.jogc.2016.11.003>

Neonatal resuscitation

Weiner, GM et Zaichkin J, American Heart A, *American Academy of Pediatrics*. Manuel de réanimation néonatale – 7^e édition. American Heart Association and American Academy of Pediatrics; 2016.

Nipple vasospasm

International Breastfeeding Centre. *Vasospasme et syndrome de Raynaud*. Fiche d'information, 2016. Consultée en anglais et en ligne le 6 octobre 2020 : <https://ibconline.ca/information-sheets/vasospasm/>

Placental retention

Leduc, D, Senikas, V et Lalonde, A. No 235 - *Prise en charge active du troisième stade du travail : Prévention et prise en charge de l'hémorragie postpartum*. Directive clinique, Journal d'obstétrique et de gynécologie du Canada, volume 40, issue 12, e856-e873, 2018. Consulté en ligne le 28 octobre 2020 : <https://doi.org/10.1016/j.jogc.2018.09.025>

Postnatal hemorrhage (uterine atony)

Leduc, D, Senikas, V et Lalonde, A. *Prise en charge active du troisième stade du travail : Prévention et prise en charge de l'hémorragie postpartum. Directive clinique No 235*, Journal d'obstétrique et de gynécologie, volume 40, issue 12, e856-e873, 2018. Consulté en ligne le 28 octobre 2020 : <https://doi.org/10.1016/j.jogc.2018.09.025>

Association of Ontario Midwives, Canadian Association of Midwives, *Urgences obstétricales, Manuel de formation*, 5^e édition, 2013, version française (2015)

Postpartum pain

College of Midwives of British Columbia. *Standards, limits and conditions for prescribing, ordering and administering therapeutics*. 2019. Consulté en ligne le 19 septembre 2020 : <https://www.cmbc.bc.ca/wp-content/uploads/2019/10/Standards-Limits-and-Conditions-for-Prescribing-Ordering-and-Administering-Therapeutics.pdf>

Preterm birth or threatened preterm birth

Berger, H & al. *Le diabète pendant la grossesse*. Directive clinique N° 393, Journal of Obstetrics and Gynaecology Canada, Volume 41, Issue 12, 1826 - 1839.e1, 2019. Consulté en ligne le 9 novembre 2020 : <https://doi.org/10.1016/j.jogc.2019.03.022>

Magee, L A et al. *Recours au sulfate de magnésium aux fins de neuroprotection foetale*. Directive clinique No 376, Journal of Obstetrics and Gynaecology Canada, Volume 41, Issue 4, 523 - 542, 2019. Consulté en ligne le 13 septembre 2020 : <https://doi.org/10.1016/j.jogc.2018.11.033>

Skoll, A et al. *La corticothérapie prénatale pour améliorer les issues néonatales*. Directive clinique N° 364, Journal of Obstetrics and Gynaecology Canada, Volume 40, Issue 9, 1240 - 1262, 2018. Consulté en ligne le 20 septembre 2020 : <https://doi.org/10.1016/j.jogc.2018.06.025>

Yudin, M et al. *Antibiothérapie et rupture prématurée des membranes préterme*. Directive clinique No 233, Journal of Obstetrics and Gynaecology Canada, Volume 39, Issue 9, e213 - e219, 2017. Consulté en ligne le 28 octobre 2020 : <https://doi.org/10.1016/j.jogc.2017.06.004>

Haas, David M et al. *Short-term tocolytics for preterm delivery - current perspectives*. International journal of women's health vol. 6 343-9, 2014. Consulté le 2 novembre 2020 : doi :10.2147/IJWH.S44048

Santé Canada. *Prise d'anti-inflammatoires non stéroïdiens (AINS) à partir de la 20^e semaine de grossesse et le risque de problèmes rénaux chez le fœtus, qui entraînerait une quantité insuffisante de liquide amniotique*, Rappels et avis, 2020. Consulté en ligne le 4 novembre 2020 : <https://canadiensensante.gc.ca/recall-alert-rappel-avis/hc-sc/2020/74239a-fra.php>

Prevention of neonatal conjunctivitis

Moore, D & MacDonald, A. *La prévention de la conjonctivite néonatale*. Document de principes, Société canadienne de pédiatrie, 2018. Consulté en ligne le 6 octobre 2020 : <https://www.cps.ca/fr/documents/position/conjonctivite-neonatale>

Société canadienne de pédiatrie. *La prophylaxie oculaire néonatale : pénurie d'onguent ophtalmique d'érythromycine pour les nouveau-nés*. Relations avec les médias, 2019. Consulté en ligne le 6 octobre 2020 : <https://www.cps.ca/fr/media/la-prophylaxie-oculaire-neonatale-penurie-donguent-ophtalmique-derythromycine-pour-les-nouveau-nés>

Ministère de la santé et des services sociaux. *Prévention de la conjonctivite néonatale au Québec*. Position ministérielle, 2017. Consulté en ligne le 6 octobre 2020 : https://publications.msss.gouv.qc.ca/msss/fichiers/2017/17-06-28-prevention_conjonctivite.pdf

Prevention of vitamin K deficiency bleeding

Ng, E & Loewy, A. *Lignes directrices sur la prophylaxie à la vitamine K chez les nouveau-nés*. Document de principes, Société canadienne de pédiatrie, 2018. Consulté en ligne le 6 octobre 2020 : <https://www.cps.ca/fr/documents/position/prophylaxie-a-la-vitamine-k-chez-les-nouveau-nés>

Prolonged latency

Durand, S, Brodeur, J et Thibault, C. *Surveillance clinique des clients qui reçoivent des médicaments ayant un effet dépressif sur le système nerveux central*. Avis, Ordre des infirmières et infirmiers du Québec, 2e édition, 2009. Consulté en ligne le 15 octobre 2020 : https://www.oiiq.org/documents/20147/237836/193_doc.pdf

CIUSSS de l'Est-de-l'Île-de-Montréal. [OIP 3324-10] - *Relais analgésique en contexte obstétrical avant la prise en charge par l'anesthésiologie*. Hôpital Maisonneuve-Rosemont, 2015.

Prophylaxis • GBS

Money, D et Allen, V. *Prévention de l'infection néonatale à streptocoques du groupe B d'apparition précoce*. Directive clinique No 298, Journal d'obstétrique et de gynécologie du Canada, volume 40, issue 8, e675-e686, 2018. Consulté en ligne le 31 août 2020 : <https://doi.org/10.1016/j.jogc.2018.05.033>

Prophylaxis • herpes

Money, D et Steben, M. No 208-Directive clinique sur la prise en charge du virus de l'herpès simplex pendant la grossesse. Directive clinique, Journal d'obstétrique et de gynécologie du Canada, volume 39, issue 8, e192-e198, 2017. Consulté en ligne le 5 septembre 2020 : <https://doi.org/10.1016/j.jogc.2017.04.017>

Pyelectasis of the newborn

Malo, J et Martin, B. *Guide pratique des médicaments en néonatalogie au CHU Sainte-Justine - Amoxicilline*. Département de pharmacie, 2018, 4e édition. Récupéré en ligne le 1er octobre 2020 : <https://www.chusj.org/fr/soins-services/P/Pharmacie/Outils/Guide-Pratique/Medicaments/A/Amoxicilline>

Repair of a perineal tear

Laplanche F. *L'anesthésie locale à l'urgence*. Le médecin du Québec. 2005;40(2):45-53.

College of Midwives of British Columbia. *Standards, limits and conditions for prescribing, ordering and administering therapeutics*. 2019. Consulté en ligne le 19 septembre 2020 : <https://www.cmbc.bc.ca/wp-content/uploads/2019/10/Standards-Limits-and-Conditions-for-Prescribing-Ordering-and-Administering-Therapeutics.pdf>

Restless legs

Ferreira E, Martin B, Morin C. *Grossesse et allaitement : guide thérapeutique*. Montréal : Éditions du CHU Sainte-Justine; 2013

Self-monitoring of blood glucose during pregnancy

Diabète Québec. *Vivre avec le diabète - Autosurveillance de la glycémie*. 2017. Consulté en ligne le 9 novembre 2020 : <https://www.diabete.qc.ca/fr/vivre-avec-le-diabete/soins-et-traitements/autocontrôle/autocontrôle-de-la-glycémie/>

Régie de l'assurance maladie du Québec. *Nouvelles modalités de remboursement des réactifs quantitatifs du glucose dans le sang (bandelettes)*. Infolettre #310, 2017. Consulté en ligne le 9 novembre : <https://www.ramq.gouv.qc.ca/SiteCollectionDocuments/professionnels/infolettres/2017/info310-6.pdf>

Severe allergic reaction / anaphylactic shock

Ministère de la Santé et des Services Sociaux. *Protocole d'immunisation du Québec*. Guide, 2018. Consulté en ligne le 18 octobre 2020 : <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-urgences-liees-a-la-vaccination/adrenaline-1-1000/>

Vincent, M et al. *Allergie - Anaphylaxie*. Guide clinique, CHU Sainte-Justine : urgence, 2019. Consulté en ligne le 31 août 2020 : <http://www.urgencehsj.ca/protocoles/allergie-anaphylaxie/>

CSSS de Charlevoix. *Réaction allergique : Initier des mesures diagnostiques et thérapeutiques OCU -14*, Ordonnance collective lors de découverte médicale, 2010. Consulté en ligne le 31 août 2020 : https://www.ciusss-capitalnationale.gouv.qc.ca/sites/default/files/ocu-14_reaction_allergique.pdf

Solutions

Paré J, Pasquier J-C, Lewin A, et al. *Reduction of total labor length through the addition of parenteral dextrose solution in induction of labor in nulliparous : results of DEXTRONS prospective randomized controlled trial*. Am J Obstet Gynecol 2017;216 :508.e1-7.

Sore nipple • chapping and fissures

International Breastfeeding Centre. *Les mamelons douloureux*. Fiche d'information, 2009. Consulté en ligne le 5 novembre 2020 : <https://ibconline.ca/wp-content/uploads/2017/03/Les-mamelons-douloureux.pdf>

Berens, Pamela et al. *ABM Clinical Protocol #26 : Persistent Pain with Breastfeeding*. Breastfeeding medicine : the official journal of the Academy of Breastfeeding Medicine vol. 11,2 (2016) : 46-53. Consulté en ligne le 5 novembre 2020 : <https://abm.memberclicks.net/assets/DOCUMENTS/PROTOCOLS/26-persistent-pain-protocol-english.pdf>

STBBIs: gonorrhea and chlamydia

INESSS. Infection non compliquée à *Chlamydia trachomatis* ou à *Neisseria gonorrhoeae*. *Guide d'usage optimal*, 2020. Consulté en ligne le 4 septembre 2020 : https://www.inesss.qc.ca/fileadmin/doc/INESSS/Outils/Guides_ITSS/Guide_ITSS-Chlamydia_gonorrhoeae.pdf

Suspicion of intra-amniotic infection

American College of Obstetricians and Gynecologists. *Intrapartum Management of Intraamniotic Infection*. ACOG Committee Opinion No. 712, 2017. Consulté en ligne le 16 novembre 2020 : <https://www.acog.org/-/media/project/acog/acogorg/clinical/files/committee-opinion/articles/2017/08/intrapartum-management-of-intraamniotic-infection.pdf>

CIUSSS de l'Est-de-l'Île-de-Montréal. [OIP-CEMTL-00046] - *Antibiothérapie peri-partum – fièvre en travail*. Hôpital Maisonneuve-Rosemont, 2017.

Suspicion of neonatal infection

Malo, J et Martin, B. *Guide pratique des médicaments en néonatalogie au CHU Sainte-Justine - Tobramycine*. Département de pharmacie, 2018, 4e édition. Récupéré en ligne le 28 septembre 2020 : <https://www.chusj.org/fr/soins-services/P/Pharmacie/Outils/Guide-Pratique/Medicaments/T/Tobramycine>

Malo, J et Martin, B. *Guide pratique des médicaments en néonatalogie au CHU Sainte-Justine - Ampicilline*. Département de pharmacie, 2018, 4e édition. Récupéré en ligne le 1er octobre 2020 : <https://www.chusj.org/fr/soins-services/P/Pharmacie/Outils/Guide-Pratique/Medicaments/A/Ampicilline>

Jefferies, A. *La prise en charge des nouveau-nés à terme à risque de sepsis bactérien d'apparition précoce*. Document de principes, Société canadienne de pédiatrie, 2017. Consulté en ligne le 28 septembre 2020 : <https://www.cps.ca/fr/documents/position/prise-en-charge-nourrisson-septicemie>.

Uterine hypertonia

Dore, S et Ehman, W. *Surveillance du bien-être foetal : Directive clinique de consensus des soins intrapartum*. Directive clinique No 396, Journal d'obstétrique et de gynécologie du Canada, volume 42, issue 3, p349-384.e10, 2020. Consulté en ligne le 15 novembre 2020 : <https://doi.org/10.1016/j.jogc.2019.12.006>

College of Midwives of British Columbia. *Standards, limits and conditions for prescribing, ordering and administering therapeutics*. 2019. Consulté en ligne le 15 novembre 2020 : <https://www.cmbc.bc.ca/wp-content/uploads/2019/10/Standards-Limits-and-Conditions-for-Prescribing-Ordering-and-Administering-Therapeutics.pdf>

Uterine revision and manual removal of the placenta

Durand, S, Brodeur, J et Thibault, C. *Surveillance clinique des clients qui reçoivent des médicaments ayant un effet dépressif sur le système nerveux central*. Avis, Ordre des infirmières et infirmiers du Québec, 2e édition, 2009. Consulté en ligne le 15 octobre 2020.

Institut universitaire de cardiologie et de pneumologie de Québec - Université Laval. *Guide d'administration intraveineuse des médicaments critiques*, 11e édition.

van Schalkwyk, J et van Eyk, N. *Antibioprophylaxie dans le cadre d'interventions obstétricales*. Directive clinique No 247, Journal of Obstetrics and Gynaecology Canada , Volume 39, Issue 9, e300 - e308, 2017. Consulté en ligne le 5 septembre 2020 : <https://doi.org/10.1016/j.jogc.2017.06.008>

Vaccines and immunoglobulins for newborns

Ministère de la Santé et des Services Sociaux. *Protocole d'immunisation du Québec*. Guide, 2018. Consulté en ligne le 18 octobre 2020 : <https://www.msss.gouv.qc.ca/professionnels/vaccination/protocole-d-immunisation-du-quebec-piq/>

Vaccines and maternal immunoglobulins

Ministère de la Santé et des Services Sociaux. *Protocole d'immunisation du Québec*. Guide, 2018. Consulté en ligne le 18 octobre 2020 : <https://www.msss.gouv.qc.ca/professionnels/vaccination/protocole-d-immunisation-du-quebec-piq/>

Fung Kee Fung, K et Eason, E. *Prévention de l'allo-immunisation foeto-maternelle Rh*. Directive clinique No 133, Journal d'obstétrique et de gynécologie du Canada, volume 40, issue 1, e11-e21, 2018. Consulté en ligne le 7 octobre 2020 : <https://doi.org/10.1016/j.jogc.2017.11.008>

Vitamins (prevention of vitamin D deficiency, neural tube defects, and anemia)

O'Connor, D et al. *Consensus canadien sur la nutrition féminine : adolescence, reproduction, ménopause et au-delà*. Directive clinique No 333, Journal d'obstétrique et de gynécologie du Canada, volume 38, issue 6, p555-609.e19, 2016. Consulté en ligne le 6 octobre 2020 : <https://doi.org/10.1016/j.jogc.2016.05.008>

Godel, J. *Les suppléments de vitamine D : Recommandations pour les mères et leur nourrisson au Canada*. Document de principes, Société canadienne de pédiatrie, 2017. Consulté en ligne le 5 novembre 2020 : <https://www.cps.ca/fr/documents/position/vitamine-d>

Pelletier-Germain, A. *Supplémentation vitaminique en périnatalité. Algorithme d'aide à la décision*, 2016. Consulté en ligne le 15 novembre 2020 : abcpq.ca

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4:00 Antihistamines

Subclass

4:04 First Generation Antihistamines

Sub-subclass

4:04.04 Ethanolamine derivatives

Agent

Diphenhydramine

Therapeutic indications

- Severe allergic reaction and anaphylaxis
- Prolonged latency

Adverse effects	Medical contraindications
• Tightness in the chest • Hypotension • Palpitation • Tachycardia • Shivering • Confusion • Convulsions • Dizziness • Fatigue • Headache • Insomnia • Irritability • Anxiety • Agitation • Sedation • Drowsiness • Constipation • Diarrhea • Dry mouth • Nausea and vomiting	• Hypersensitivity to diphenhydramine or any of its ingredients • Acute asthma attack

IMPORTANT

- Protect the vials from light.
- Recognized as a short-term sleep aid for use during latency.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• The maximum serum concentration is reached in 1 hour. • The sedative effect lasts from 1 to 3 hours.	• Antihistamines compete with histamine to bind to H1 receptors in cells of the gastrointestinal tract, blood vessels, and airways. • They have a sedative and antiemetic effect.	• Half-life: 2 to 10 hours

Special considerations for intramuscular or intravenous administration

Form: 1 mL vial (50 mg/mL)

Intravenous administration

Reconstitution: not applicable

Compatibility with solutions: NaCl 0.9%, D5%, D10%, Ringer's lactate

Preparation: To facilitate intravenous administration, add 9 mL of NaCl to the 1 mL syringe of diphenhydramine to obtain a final volume of 10 mL.

Administration: Administer by slow direct IV at a maximum rate of 25 mg/minute:

- Undiluted diphenhydramine = 0.5 mL/minute = 1 mL/2 minutes
- Diluted diphenhydramine = 5 mL/minute = 10 mL/2 minutes

Intramuscular administration

Reconstitution: not applicable

Compatibility with solutions: not applicable

Preparation: not applicable

Administration: Administer 1 mL (undiluted) of diphenhydramine intramuscularly.

References

CIUSSS de la Capitale-Nationale. *Antidote en toxicologie d'urgence —Diphenhydramine*. Centre antipoison du Québec, 2017. Récupéré le 4 novembre 2020: <https://www.ciusss-capitalenationale.gouv.qc.ca/diphenhydramine?lang=fr>

8:00 Anti-infective Agents

Subclass

8:12 Antibacterials

Sub-subclass

8:12.02 Aminoglycosides

Agent

Gentamicin

Therapeutic indications

- Sexually transmitted and blood-borne infections (STBBIs) – infection with *Neisseria gonorrhoeae* (in case of allergy to penicillins and cephalosporins)
- Suspicion of intra-amniotic infection

Adverse effects	Medical contraindications
• Skin rash • Vertigo • Hearing impairment • Nephrotoxicity • Ototoxicity • Prolongation of the duration of paralysis in a patient treated with a neuromuscular blocker	• Hypersensitivity to aminoglycosides • Hypersensitivity to gentamicin • Severe renal failure • Myasthenia

Precautions

- Potentiation of adverse effects of gentamicin when administered with other neurotoxic or ototoxic drugs

IMPORTANT

- Aminoglycosides can inactivate the effects of clindamycin, penicillins, and cephalosporins. Rinse the venous line thoroughly after IV administration to avoid mixing with other medications.
- Renal impairment and asphyxia slow elimination of gentamicin. As a result, the doses administered could be reduced.
- Antibiotic use by a breastfeeding mother or administration of an antibiotic to a newborn might cause the newborn to have stools more watery than usual. This could cause a change in their bacterial flora.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• The maximum serum concentration is reached in 30 to 60 minutes.	• Aminoglycosides form a bond with the 30S subunits of bacterial ribosomes and interfere with protein synthesis. These proteins become nonfunctional, resulting in cell death.	• Half-life in adults: 2 hours • Half-life in neonates: 5 to 5.5 hours • Aminoglycosides are excreted in the urine.

Special considerations for administration to adults

Intramuscular administration

Form: 2 mL vial of gentamicin (40 mg/1 mL)

Reconstitution: none

Compatibility of solutions: not applicable

Preparation: Prepare 2 different syringes—120 mg (3 mL) each—(2 mL from one vial + 1 mL from a 2nd vial).

Administration: Administer intramuscularly at two different sites.

Intravenous administration

Form: 2 mL vial of gentamicin (40 mg/1 mL)

Reconstitution: none

Compatibility: NaCl 0.9% or dextrose 5% – NaCl 0.9%

Preparation: Draw the gentamicin volume according to the maternal weight ranges included in the Suspicion of intra-amniotic infection algorithm. Depending on the dose to be administered, 2 to 4 full or partial vials will be required to prepare the gentamicin treatment. The unused volume of gentamicin should be discarded.

Inject the required volume of gentamicin into 250 mL of NaCl 0.9%

Administration: Administer intravenously over 60 minutes.

References

Sandoz Canada. *Pr GENTAMICINE INJECTION USP. Product monograph*, 2017. Retrieved online on October 14, 2020: <https://www.sandoz.ca/sites/www.sandoz.ca/files/Gentamicin%20Inj%20Monographie%20de%20produit.pdf>

8:00 Anti-infective Agents

Subclass

8:12 Antibacterials

Sub-subclass

8:12.02 Aminoglycosides

Agent

Tobramycin

Therapeutic indications

- Suspicion of neonatal infection
- Suspicion of intra-amniotic infection

Adverse effects	Medical contraindications
• Skin rash • Vertigo • Hearing impairment • Nephrotoxicity • Ototoxicity • Prolongation of the duration of paralysis in a patient treated with a neuromuscular blocker	• Hypersensitivity to aminoglycosides • Severe renal failure • Myasthenia

Precautions

- Potentiation of adverse effects of tobramycin when administered with other nephrotoxic or ototoxic drugs

IMPORTANT

- Aminoglycosides can inactivate the effects of clindamycin, penicillins, and cephalosporins. Rinse the venous line thoroughly after IV administration to avoid mixing with other medications.
- Renal impairment and asphyxia slow elimination of gentamicin. As a result, the doses administered could be reduced.
- Antibiotic use by a breastfeeding mother or administration of an antibiotic to a newborn might cause the newborn to have stools more watery than usual. It can also produce changes in bacterial flora.
- Tobramycin assay should be performed before and after the 3rd dose.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• The maximum serum concentration is reached in 30 to 60 minutes.	• Aminoglycosides form a bond with the 30S subunits of bacterial ribosomes and interfere with protein synthesis. These proteins become nonfunctional, resulting in cell death.	• Half-life in adults: 2 hours • Half-life in neonates: 5 to 5.5 hours • Aminoglycosides are excreted in the urine.

Special considerations for administration to adults

Administration in adults by the intravenous route

Form: 2 mL vial of tobramycin sulfate (40 mg/mL)

Reconstitution: not applicable

Compatibility with solutions: dextrose 5% or NaCl 0.9%

Preparation: Draw the tobramycin volume according to the maternal weight ranges included in the Suspicion of intra-amniotic infection algorithm. Depending on the dose to be administered, 2 to 4 full or partial vials will be required to prepare the tobramycin treatment. The unused volume of tobramycin should be discarded.

Inject the required volume of tobramycin into 250 mL of NaCl 0.9%.

Administration: Administer intravenously over 20 to 30 minutes.

Use in neonates

Intramuscular administration in neonates

Form: 2 mL vial of tobramycin sulfate (40 mg/mL)

Reconstitution: not applicable

Dose calculation (40 mg/mL):

Neonate weight (kg)	Volume to be drawn without reconstitution 40 mg/mL (mL)	
	3 mg/kg/dose	3.2 mg/kg/dose
2.5	0.19	0.2
2.6	0.2	0.21
2.7	0.2	0.22
2.8	0.21	0.22
2.9	0.22	0.23
3	0.23	0.24
3.1	0.23	0.25
3.2	0.24	0.26
3.3	0.25	0.26
3.4	0.26	0.27
3.5	0.26	0.28
3.6	0.27	0.29
3.7	0.28	0.3
3.8	0.29	0.3
3.9	0.29	0.31

Neonate weight (kg)	Volume to be drawn without reconstitution 40 mg/mL (mL)	
	3 mg/kg/dose	3.2 mg/kg/dose
4	0.30	0.32
4.1	0.31	0.33
4.2	0.32	0.34
4.3	0.32	0.34
4.4	0.33	0.35
4.5	0.34	0.36

Compatibility of solutions: not applicable

Preparation: Draw the volume of tobramycin according to the weight of the neonate.

Administration: Administer intramuscularly into the vastus lateralis muscle.

References

Sandoz Canada. *Pr TOBRAMYCINE INJECTION USP. Product monograph*, 2017. Retrieved online on September 29, 2020: <https://www.sandoz.ca/sites/www.sandoz.ca/files/Tobramycin%20Injection%20Monographie%20de%20produit.pdf>

Malo, J et Martin, B. Guide pratique des médicaments en néonatalogie au CHU Sainte-Justine — Tobramycine. *Département de pharmacie*, 2018, 4e édition. Retrieved online on September 28, 2020: <https://www.chusj.org/fr/soins-services/P/Pharmacie/Outils/Guide-Pratique/Medicaments/T/Tobramycine>

8:00 Anti-infective Agents

Subclass

8:12 Antibacterials

Sub-subclass

8:12.06 Cephalosporins

Agent

Cefadroxil

Therapeutic indications

- Asymptomatic bacteriuria and cystitis
- Mastitis

Adverse effects	Medical contraindications
• Allergic reaction of varying severity: skin rash, angioedema, hives, itching • Increase or decrease of certain white blood cells • Nausea and vomiting • Diarrhea, flatulence, abdominal pain • Pyrosis • Dizziness, weakness, drowsiness, dizziness, nervousness, and headaches • Increased liver enzymes (AST, ALT) • Inflammation of the vagina • Candida vaginitis Very rarely: • Allergic shock • Stevens-Johnson syndrome • Erythema multiforme • Serum sickness-like reactions regressing without sequelae within a few days of discontinuing treatment. • Pseudomembranous enterocolitis (diarrhea and abdominal pain)	• Hypersensitivity to cefadroxil • Should not be used in cases of fructose intolerance, glucose-galactose malabsorption syndrome, or sucrase-isomaltase deficiency (rare metabolic diseases).

Precautions

- Hypersensitivity to beta-lactams (including penicillins, cephalosporins, carbapenems, monobactams)
- Use with caution in cases of renal insufficiency.

IMPORTANT

- **PROPERTIES SIMILAR TO PENICILLINS** – If allergy to penicillins is confirmed or suspected, assess the risk of allergic reaction to cefadroxil with the INESSS *Decision Support Tool for Penicillin-Related Allergies*: https://www.inesss.qc.ca/fileadmin/doc/INESSS/Rapports/Medicaments/Outil_aide-decision_allergies-EN_VF.pdf
- Antibiotic use by a breastfeeding mother or administration of an antibiotic to a newborn might cause the newborn to have stools more watery than usual. It can also produce changes in bacterial flora.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Beware of bacterial resistance • The maximum serum concentration is reached in 1 hour 30 minutes.	• Like penicillins, cephalosporins inhibit cell-wall production (by binding to "penicillin-binding proteins") and are selective inhibitors of peptidoglycan synthesis. These actions lead to cell death.	• Half-life: 1 hour 30 minutes

References

Teve Canada Limitée. *Pr TEVA-CEFADROXIL. Product monograph*, 2017. Retrieved online on September 27, 2020: https://pdf.hres.ca/dpd_pm/00042648.PDF.

8:00 Anti-infective Agents

Subclass

8:12 Antibacterials

Sub-subclass

8:12.06 Cephalosporins

Agent

Cefazolin

Therapeutic indications

- Prevention of early-onset neonatal group B streptococcal infection
- Uterine revision

Adverse effects	Medical contraindications
• Allergic reaction of varying severity: skin rash, angioedema, hives, itching • Diarrhea • Oral candidiasis • Pseudomembranous colitis	• Hypersensitivity to cefazolin • Use with caution in cases of renal impairment.

Precautions

- Hypersensitivity to beta-lactams (including penicillins, cephalosporins, carbapenems, monobactams)

IMPORTANT

- Aminoglycosides can inactivate the effects of clindamycin, penicillins, and cephalosporins. Rinse the venous line thoroughly after IV administration to avoid mixing with other medications.
- **PROPERTIES DIFFERENT FROM PENICILLINS** – If allergy to penicillins is confirmed or suspected, assess the risk of allergic reaction to cefazolin with the INESSS *Decision Support Tool for Penicillin-Related Allergies*: https://www.inesss.qc.ca/fileadmin/doc/INESSS/Rapports/Medicaments/Outil_aide-decision_allergies-EN_VF.pdf
- Antibiotic use by a breastfeeding mother or administration of an antibiotic to a newborn might cause the newborn to have stools more watery than usual. It can also produce changes in bacterial flora.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Beware of bacterial resistance • The maximum serum concentration is reached in 0.5 to 2 hours.	• Like penicillins, cephalosporins inhibit cell-wall production (by binding to "penicillin-binding proteins") and are selective inhibitors of peptidoglycan synthesis. These actions lead to cell death.	• Half-life: 2 hours

Special considerations for administration:

Form: vial containing 1 g of cefazolin powder

Reconstitution: Add 2.5 mL of sterile water to the vial containing 1 g of cefazolin powder. Shake well. Approximate volume after reconstitution: 3 mL

To obtain 2 g, repeat the same procedure with a 2nd vial or according to the instructions on the cefazolin vial.

Compatibility with solutions: NaCl 0.9%, dextrose 5% – NaCl 0.9% and Ringer's lactate.

Preparation: Dilute 1 or 2 g of reconstituted cefazolin in 100 mL of NaCl 0.9%.

Administration: Administer intravenously over 15 to 20 minutes.

References

Sandoz Canada. *Pr* CEFAZOLIN POUR INJECTION. *Product monograph*, 2010. Retrieved online on November 6, 2020: <https://www.sandoz.ca/sites/www.sandoz.ca/files/Cefazolin%20Monographie.pdf>

8:00 Anti-infective Agents

Subclass

8:12 Antibacterials

Sub-subclass

8:12.06 Cephalosporins

Agent

Cephalexin

Therapeutic indications

- Mastitis

Adverse effects	Medical contraindications
• Severe allergic reaction	• Hypersensitivity to cephalexin • Mononucleosis, confirmed or suspected

Precautions

- Hypersensitivity to beta-lactams (including penicillins, cephalosporins, carbapenems, monobactams)

IMPORTANT

- **PROPERTIES SIMILAR TO PENICILLIN** – If allergy to penicillins is confirmed or suspected, assess the risk of allergic reaction to cephalexin with the INESSS *Decision Support Tool for Penicillin-Related Allergies*: https://www.inesss.qc.ca/fileadmin/doc/INESSS/Rapports/Medicaments/Outil_aide-decision_allergies-EN_VF.pdf
- Antibiotic use by a breastfeeding mother or administration of an antibiotic to a newborn might cause the newborn to have stools more watery than usual. It can also produce changes in bacterial flora.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Beware of bacterial resistance • The maximum serum concentration is reached in approximately 1 hour.	• Like penicillins, cephalosporins inhibit cell-wall production (by binding to "penicillin-binding proteins") and are selective inhibitors of peptidoglycan synthesis. These actions lead to cell death.	• Half-life: less than 1 hour • Excretion mainly through urine

References

Pro Doc Ltée. *Pr CEPHALEXIN-500. Product monograph*, 2018. Retrieved online on November 14, 2020: https://pdf.hres.ca/dpd_pm/00043814.PDF

8:00 Anti-infective Agents

Subclass

8:12 Antibacterials

Sub-subclass

8:12.06 Cephalosporins

Agent

Cefixime

Therapeutic indications

- Asymptomatic bacteriuria and cystitis
- Sexually transmitted and blood borne infections (STBBIs) – *Neisseria gonorrhoeae*

Adverse effects	Medical contraindications
• Allergic reaction of varying severity: skin rash, angioedema, hives, itching • Diarrhea • Loose stools • More frequent bowel movements • Abdominal pain • Anorexia • Nausea • Vomiting • Flatulence • Headache • Pseudomembranous colitis	• Hypersensitivity to cefixime • Use with caution in cases of renal impairment.

Precautions

- Hypersensitivity to beta-lactams (including penicillins, cephalosporins, carbapenems, monobactams)

IMPORTANT

- **PROPERTIES DIFFERENT FROM PENICILLINS** – If allergy to penicillins is confirmed or suspected, assess the risk of allergic reaction to cefixime with the INESSS *Decision Support Tool for Penicillin-Related Allergies*: https://www.inesss.qc.ca/fileadmin/doc/INESSS/Rapports/Medicaments/Outil_aide-decision_allergies-EN_VF.pdf
- Antibiotic use by a breastfeeding mother or administration of an antibiotic to a newborn might cause the newborn to have stools more watery than usual. It can also produce changes in bacterial flora.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Beware of bacterial resistance • The maximum serum concentration is reached in 2.5 to 4.5 hours.	• Like penicillins, cephalosporins inhibit cell-wall production (by binding to "penicillin-binding proteins") and are selective inhibitors of peptidoglycan synthesis. These actions lead to cell death.	• Half-life: 2.4 to 4 hours

References

sanofi-aventis Canada inc. *PrSUPRAX. Product monograph*, 2016. Retrieved online on November 14, 2020: <http://products.sanofi.ca/fr/suprax.pdf>

8:00 Anti-infective Agents

Subclass

8:12 Antibacterials

Sub-subclass

8:12.06 Cephalosporins

Agent

Ceftriaxone

Therapeutic indications

- Sexually transmitted and blood borne infections (STBBIs) – *Neisseria gonorrhoeae*

Adverse effects	Medical contraindications
- Eosinophilia - Thrombocytosis - Leukopenia - Diarrhea - Loose stools - Nausea - Vomiting - Skin rash - Allergic reaction of varying severity: - Pain at the injection site - Pseudomembranous colitis	- Hypersensitivity to ceftriaxone - Use with caution in cases of renal impairment.

Precautions

- Hypersensitivity to beta-lactams (including penicillins, cephalosporins, carbapenems, monobactams)
- Do not combine with an aminoglycoside; ensure a theoretical interval of one hour between the two drugs. In practice, a 30-minute interval is acceptable.

IMPORTANT

- PROPERTIES DIFFERENT FROM PENICILLINS** – If allergy to penicillins is confirmed or suspected, assess the risk of allergic reaction to ceftriaxone with the INESSS *Decision Support Tool for Penicillin-Related Allergies*: https://www.in-esss.qc.ca/fileadmin/doc/INESSS/Rapports/Medicaments/Outil_aide-decision_allergies-EN_VF.pdf
- Antibiotic use by a breastfeeding mother or administration of an antibiotic to a newborn might cause the newborn to have stools more watery than usual. It can also produce changes in bacterial flora.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
- Beware of bacterial resistance - The maximum serum concentration is reached in 1 to 4 hours.	Like penicillins, cephalosporins inhibit cell-wall production (by binding to "penicillin-binding proteins") and are selective inhibitors of peptidoglycan synthesis. These actions lead to cell death.	Half-life: 5.4 to 10.9 hours

Special considerations for intramuscular administration

Form: vial containing 250 mg of sterile ceftriaxone sodium powder

Reconstitution: Add 0.9 mL of sterile water to the vial to obtain a 250 mg/mL solution. Shake well until fully diluted or as directed on the ceftriaxone vial.

Compatibility with solutions: not applicable

Preparation: not applicable

Administration: Administer intramuscularly

References

Pfizer Canada inc. *Pf Ceftriaxone sodique pour injection BP. Product monograph, 2018*. Retrieved online on November 12, 2020: https://www.pfizer.ca/sites/default/files/201811/Ceftriaxone_Sodium_for_Injection_BP_PM_F_220668_9Nov2018.pdf

8:00 Anti-infective Agents

Subclass

8:12 Antibacterials

Sub-subclass

8:12.12 Macrolides

Agent

Erythromycin

Therapeutic indications

- Threat of preterm labour or delivery

Adverse effects	Medical contraindications
• Abdominal pain • Diarrhea • Nausea and vomiting	• Allergy to erythromycin

IMPORTANT

- Erythromycin may antagonize the effects of clindamycin. They should not be coadministered.
- Drug interaction with theophylline, carbamazepine, ergotamine, cyclosporin, lincomycin/clindamycin/chloramphenicol, triazolam/midazolam, alfentanil, lovastatin, and atorvastatin.
- Antibiotic use by a breastfeeding mother or administration of an antibiotic to a newborn might cause the newborn to have stools more watery than usual. It can also produce changes in bacterial flora.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
	• Prevents cell barrier synthesis by binding to the 50S ribosome.	• Metabolized by the liver. • A small amount is excreted in the urine without being metabolized.

Special considerations for intravenous administration

Form: bottle containing 500 mg of lyophilized powder as erythromycin lactobionate

Reconstitution: Add 10 mL of sterile water to the bottle containing 500 mg of erythromycin powder to make a 50 mg/mL solution or as directed on the erythromycin bottle.

Compatibility with solutions: NaCl 0.9% or Ringer's lactate

Preparation:

250 mg dose: Add 250 mg (approximately 5 mL, depending on the total volume obtained) of the reconstituted erythromycin in 100 mL of NaCl 0.9%. The final concentration should be 1 to 5 mg/mL.

Administration: Administer intravenously within 1 hour (faster infusion might cause significant pain in the vein).

References

Amdipharm Limited. *Pr ERYTHROCINE® I.V. Product monograph*, 2018. Retrieved online on November 6, 2020: https://pdf.hres.ca/dpd_pm/00051528.PDF

8:00 Anti-infective Agents

Subclass

8:12 Antibacterials

Sub-subclass

8:12.12 Macrolides

Agent

Azithromycin

Therapeutic indications

- Sexually transmitted and blood-borne infections (STBBIs) – *Neisseria gonorrhoeae* and *Chlamydia Trachomatis*

Adverse effects	Medical contraindications
- Abdominal pain - Diarrhea - Nausea and vomiting - Skin rash - Pseudomembranous colitis (rare)	Allergy to azithromycin

IMPORTANT

- Azithromycin may antagonize the effects of clindamycin. They should not be coadministered.
- Possible drug interaction with ergotamine, cyclosporine, digoxin, phenytoin, pimozide, warfarin (medical supervision required).
- Antibiotic use by a breastfeeding mother or administration of an antibiotic to a newborn might cause the newborn to have stools more watery than usual. It can also produce changes in bacterial flora.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
The maximum serum concentration is reached in approximately 2.5 hour.	Prevents cell barrier synthesis by binding to the 50S ribosome.	Half-life: 54.5 hours

References

Sandoz Canada inc. *Pr SANDOZ AZITHROMYCIN. Product monograph*, 2016. Retrieved online on September 30, 2020: <https://www.sandoz.ca/sites/www.sandoz.ca/files/Azithromycin%20TAB%20Monographie.pdf>

8:00 Anti-infective Agents

Subclass

8:12 Antibacterials

Sub-subclass

8:12.16 Penicillins

Agent

Penicillin G sodium

Therapeutic indications

- Prevention of early-onset neonatal group B streptococcal infection

Adverse effects	Medical contraindications
• Anxiety • Confusion • Dizziness • Trembling • Nausea • Vomiting • Diaphoresis	• Hypersensitivity to penicillin G

Precautions

- Hypersensitivity to beta-lactams (including penicillins, cephalosporins, carbapenems, monobactams)
- Adjust dose in the presence of renal insufficiency.

IMPORTANT

- If allergy to penicillins is confirmed or suspected, assess the risk of allergic reaction to penicillin with the INESSS *Decision Support Tool for Penicillin-Related Allergies*: https://www.inesss.qc.ca/fileadmin/doc/INESSS/Rapports/Medicaments/Outil_aide-decision_allergies-EN_VF.pdf
- Antibiotic use by a breastfeeding mother or administration of an antibiotic to a newborn might cause the newborn to have stools more watery than usual. It can also produce changes in bacterial flora.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• The maximum serum concentration is reached within 1 hour.	• Penicillins inhibit cell-wall production (by binding to "penicillin-binding proteins") and are selective inhibitors of peptidoglycan synthesis. These actions lead to cell death.	• Half-life: 30 to 50 minutes

Special considerations for intravenous administration

Form: vial containing 5 million units of penicillin G sodium powder

Reconstitution: Shake the powder in the vial. Holding the vial horizontally, slowly inject 3.1 mL of sterile water by aiming at the wall of the vial and rotating the syringe on its axis of rotation. Shake vigorously. The final volume of the solution is 5 mL.

Compatibility with solutions: NaCl 0.9% or dextrose 0.5% – NaCl 0.9% Not compatible with Ringer's lactate.

Preparation: Take 2.5 to 5 mL (or depending on the final volume: 2.5 million units or 5 million units) of the reconstituted penicillin and inject into 100 mL of NaCl 0.9%.

Administration: Administer intravenously over 30 to 50 minutes (1 MU/10 minutes).

References

Bédard, Mario, Anne Massicotte, Marilyn E. Morris, et Sangeeta Prasad. *Manuel de pharmacothérapie parentérale de l'Hôpital d'Ottawa*. Ottawa: Hôpital d'Ottawa, 2010.

Fresenius Kabi Canada Ltée. *Pr Pénicilline G sodique pour injection, USP. Product monograph*, 2019. Retrieved online on November 9, 2020: <https://www.fresenius-kabi.com/fr-ca/documents/Penicillin-G-Sodium-Prescribing-Information-FRE-v1.0-071319.pdf>

8:00 Anti-infective Agents

8:12 Antibacterials

8:12.16 Penicillins

Amoxicillin

Therapeutic indications

- Asymptomatic bacteriuria and cystitis
- Sexually transmitted and blood-borne infections (STBBIs) – *Chlamydia trachomatis* (pregnant women)
- Pyelectasis of the newborn (prophylactic antibiotic therapy)

Adverse effects	Medical contraindications
• Abdominal pain • Diarrhea • Vomiting • Vaginal candida infection • Mild skin rash Refer to a physician in the case of: • Severe rash • Itching • Urticaria • Difficulty breathing or swallowing • Wheezing • Abnormal bleeding or bruising • Sore throat • Painful sores in the mouth or throat • Jaundice • Diarrhea	• Hypersensitivity to amoxicillin

Precautions

- Hypersensitivity to beta-lactams (including penicillins, cephalosporins, carbapenems, monobactams)
- Adjust dose in the presence of renal insufficiency.
- Use with caution in a person with asthma.

IMPORTANT

- If allergy to penicillins is confirmed or suspected, assess the risk of allergic reaction to penicillin with the INESSS *Decision Support Tool for Penicillin-Related Allergies*: https://www.inesss.qc.ca/fileadmin/doc/INESSS/Rapports/Medicaments/Outil_aide-decision_allergies-EN_VF.pdf
- Antibiotic use by a breastfeeding mother or administration of an antibiotic to a newborn might cause the newborn to have stools more watery than usual. It can also produce changes in bacterial flora.
- Pyelectasis: An oral suspension of amoxicillin should be prepared by a pharmacist. Be sure to note the weight of the newborn on the prescription to calculate the daily dose.
- A sugar-reduced formulation is available for oral suspensions that can be administered to neonates.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Beware of bacterial resistance • Rapid onset of action. Food does not affect the absorption of amoxicillin.	• Penicillins inhibit cell-wall production (by binding to "penicillin-binding proteins") and are selective inhibitors of peptidoglycan synthesis. These actions lead to cell death.	• Half-life: 1 hour to 1 hour 40 minutes

References

Teva Canada Limitée. *Pr NOVAMOXIN. Product monograph*, 2020. Retrieved online on November 9, 2020.

Malo, J et Martin, B. *Guide pratique des médicaments en néonatalogie au CHU Sainte-Justine — Amoxicilline*. Département de pharmacie, 2018, 4^e édition. Retrieved online on October 1, 2020: <https://www.chusj.org/fr/soins-services/P/Pharmacie/Outils/Guide-Pratique/Medicaments/A/Amoxicilline>

8:00 Anti-infective Agents

Subclass

8:12 Antibacterials

Sub-subclass

8:12.16 Penicillins

Agent

Amoxicillin-clavulanate

Therapeutic indications

- Asymptomatic bacteriuria and cystitis
- Mastitis

Adverse effects	Medical contraindications
• Nausea and vomiting • Diarrhea • Abdominal cramps • Flatulence • Constipation • Anorexia • Vaginal candidiasis Pseudomembranous colitis has been reported with almost all clavulanate-containing antibiotics. This differential diagnosis should be ruled out in anyone presenting with diarrhea following the use of amoxicillin-clavulanate	• Hypersensitivity to amoxicillin • Mononucleosis, confirmed or suspected • History of jaundice or liver insufficiency associated with amoxicillin-clavulanate use • Use with caution in the presence of phenylketonuria

IMPORTANT

- Contains aspartame
- If allergy to penicillins is confirmed or suspected, assess the risk of allergic reaction to penicillin with the INESSS *Decision Support Tool for Penicillin-Related Allergies*: https://www.inesss.qc.ca/fileadmin/doc/INESSS/Rapports/Medicaments/Outil_aide-decision_allergies-EN_VF.pdf
- Antibiotic use by a breastfeeding mother or administration of an antibiotic to a newborn might cause the newborn to have stools more watery than usual. It can also produce changes in bacterial flora.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• The maximum serum concentration is reached in approximately 1 hour 30 minutes.	• Penicillins inhibit cell-wall production (by binding to "penicillin-binding proteins") and are selective inhibitors of peptidoglycan synthesis. These actions lead to cell death. • Clavulanate specifically inhibits beta-lactamases produced by certain microorganisms.	• Half-life: 1 hour • Excretion mainly in the urine

References

APOTEX INC. *Pr* APOTEX INC. *Product monograph*, 2018. Retrieved online on August 30, 2020: https://pdf.hres.ca/dpd_pm/00045333.PDF.

8:00 Anti-infective Agents

Subclass

8:12 Antibacterials

Sub-subclass

8:12.16 Penicillins

Agent

Cloxacillin

Therapeutic indications

- Mastitis

Adverse effects	Medical contraindications
• Gastrointestinal problems: diarrhea, vomiting • Vaginitis • Mild skin rash • Allergy • Anaphylaxis	• Hypersensitivity to cloxacillin

Precautions

- Hypersensitivity to beta-lactams (including penicillins, cephalosporins, carbapenems, monobactams)
- Effect of warfarin potentiated by cloxacillin; increased risk of bleeding

IMPORTANT

- If allergy to penicillins or beta-lactams is confirmed or suspected, assess the risk of allergic reaction to cloxacillin with the INESSS *Decision Support Tool for Penicillin-Related Allergies*: https://www.inesss.qc.ca/fileadmin/doc/INESSS/Rapports/Medicaments/Outil_aide-decision_allergies-EN_VF.pdf
- Antibiotic use by a breastfeeding mother or administration of an antibiotic to a newborn might cause the newborn to have stools more watery than usual. It can also produce changes in bacterial flora.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Beware of bacterial resistance • The maximum serum concentration is reached in about 1 hour	• Penicillins inhibit cell-wall production (by binding to "penicillin-binding proteins") and are selective inhibitors of peptidoglycan synthesis. These actions lead to cell death.	• Half-life: 0.5 to 1.5 hours • Metabolized by the liver • Excretion in urine and feces

References

Teva Canada Ltée. *Pr TEVA-CLOXACILLIN. Product monograph*, 2018. Retrieved online on November 14, 2020: https://pdf.hres.ca/dpd_pm/00046142.PDF

8:00 Anti-infective Agents

Subclass

8:12 Antibacterials

Sub-subclass

8:12.16 Penicillins

Agent

Ampicillin sodium

Therapeutic indications

- Threat of preterm labour or delivery
- Suspicion of intra-amniotic infection
- Suspicion of neonatal infection

Adverse effects	Medical contraindications
• Fever • Skin rash • Nausea and vomiting • Encephalopathy • Convulsions	• Hypersensitivity to ampicillin • Use with caution in cases of renal failure

Precautions

- Hypersensitivity to beta-lactams (including penicillins, cephalosporins, carbapenems, monobactams)

IMPORTANT

- If allergy to penicillins or beta-lactams is confirmed or suspected, assess the risk of allergic reaction to ampicillin with the INESSS *Decision Support Tool for Penicillin-Related Allergies*: https://www.inesss.qc.ca/fileadmin/doc/INESSS/Rapports/Medicaments/Outil_aide-decision_allergies-EN_VF.pdf
- Aminoglycosides can inactivate the effects of clindamycin, penicillins, and cephalosporins. Rinse the venous line thoroughly after IV administration to avoid mixing with other medications.
- Do NOT administer through the umbilical catheter.
- **PAY CAREFUL ATTENTION TO DILUTION.**
- Antibiotic use by a breastfeeding mother or administration of an antibiotic to a newborn might cause the newborn to have stools more watery than usual. It can also produce changes in bacterial flora.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• The maximum serum level is reached as soon as administration has been completed.	• This broad-spectrum antibiotic inhibits cell-barrier synthesis.	• Half-life: 0.7 to 1.5 hours • Rapidly excreted by the kidneys

Special considerations for administration

To adults

Form: vial containing 1 g of ampicillin sodium powder (use 2 vials to make a full dose).

RECONSTITUTION:

1 g vial: Inject 3.5 mL of sterile water into the vial containing 1 g of ampicillin sodium. Total volume of ampicillin sodium: 4 mL (final concentration: 250 mg/mL). Repeat with the 2nd vial. Use the solution within 1 hour of reconstitution.

Compatibility with solutions: NaCl 0.9% or dextrose 5% – NaCl 9%

Preparation: Take the entire contents of the 2 vials and dilute in 100 mL of NaCl 0.9%.

Administration: Administer intravenously over 20 minutes. Rinse the venous line thoroughly after administration.

Form: vial containing 2 g of ampicillin sodium powder.

RECONSTITUTION:

2 g vial: Inject 6.8 mL of sterile water into the vial containing 2 g of ampicillin sodium. Total volume of ampicillin sodium: 8 mL (final concentration: 250 mg/mL). Use the solution within 1 hour of reconstitution.

Compatibility with solutions: NaCl 0.9% or dextrose 5% – NaCl 9%

Preparation: Take the entire contents of a vial and dilute in 100 mL of NaCl 0.9%.

Administration: Administer intravenously over 20 minutes. Rinse the venous line thoroughly after administration.

Use in neonates

INTRAMUSCULAR ADMINISTRATION IN NEONATES

Form: vial containing 1 g of ampicillin sodium powder.

Reconstitution: Inject 3.5 mL of sterile water into the vial containing 1 g of ampicillin sodium. Total volume of ampicillin sodium: 4 mL (final concentration: 250 mg/mL). Use the solution within 1 hour of reconstitution.

Compatibility of solutions: not applicable

Dose calculation:

Neonate weight (kg)	Volume to be withdrawn without reconstitution (mL) 250 mg/mL	
	50 mg/kg/dose	100 mg/kg/dose
2.5	0.5	1.0
2.6	0.5	1.0
2.7	0.55	1.1
2.8	0.55	1.1
2.9	0.6	1.2
3.0	0.6	1.2
3.1	0.6	1.2
3.2	0.65	1.3
3.3	0.65	1.3
3.4	0.7	1.4
3.5	0.7	1.4
3.6	0.7	1.4
3.7	0.75	1.5
3.8	0.75	1.5
3.9	0.8	1.6
4.0	0.8	1.6
4.1	0.8	1.6
4.2	0.85	1.7
4.3	0.85	1.7
4.4	0.9	1.8
4.5	0.9	1.8

Preparation: Draw the volume of solution according to the weight of the neonate.

Administration: Administer intramuscularly into the vastus lateralis muscle. In neonates, maximum volume/injection/muscle = 0.5 mL. The number of injections will have to be adjusted depending on the volume to be administered.

INTRAVENOUS ADMINISTRATION IN NEONATES

Form: vial containing 1 g of ampicillin sodium powder.

Reconstitution: Inject 9.6 mL of sterile water into the vial containing 1 g of ampicillin sodium. Final concentration: 100 mg/mL. Use the solution within 1 hour of reconstitution.

Compatibility of solutions: not applicable

Dose calculation:

Neonate weight (kg)	Volume to be withdrawn without reconstitution (mL) 100 mg/mL	
	50 mg/kg/dose	100 mg/kg/dose
2.5	1.3	2.5
2.6	1.3	2.6
2.7	1.4	2.7
2.8	1.4	2.8
2.9	1.5	2.9
3.0	1.5	3
3.1	1.6	3.1
3.2	1.6	3.2
3.3	1.7	3.3
3.4	1.7	3.4
3.5	1.8	3.5
3.6	1.8	3.6
3.7	1.9	3.7
3.8	1.9	3.8
3.9	2	3.9
4.0	2	4
4.1	2.1	4.1
4.2	2.1	4.2
4.3	2.2	4.3
4.4	2.2	4.4
4.5	2.3	4.5

Preparation: Draw the volume of solution according to the weight of the neonate.

Administration: Administer directly intravenously over 3 to 5 minutes.

References

Teva Canada ltée. *Pr AMPICILLINE SODIQUE POUR INJECTION. Product monograph*, 2018. Retrieved online on September 28, 2020: https://pdf.hres.ca/dpd_pm/00048946.PDF

Malo, J et Martin, B. *Guide pratique des médicaments en néonatalogie au CHU Sainte-Justine — Ampicilline*. Département de pharmacie, 2018, 4^e édition. Retrieved online on October 1, 2020: <https://www.chusj.org/fr/soins-services/P/Pharmacie/Outils/Guide-Pratique/Medicaments/A/Ampicilline>

8:00 Anti-infective Agents

Subclass

8:12 Antibacterials

Sub-subclass

8:12.20 Sulfonamides

Agent

Sulfamethoxazole and trimethoprim (TMP-SMX)

Therapeutic indications

- Asymptomatic bacteriuria and cystitis

Adverse effects	Medical contraindications
• Crystalluria (encourage good hydration) • Photosensitivity • Blood dyscrasia (megaloblastic anemia, leukopenia, granulocytopenia) • Itchy skin rash • Allergic reaction	• Hypersensitivity to TMP-SMX • Diagnosis of megaloblastic anemia due to folic-acid deficiency • Possibly problematic in the presence of G6PD deficiency • Contraindicated in the 1st trimester* • Contraindicated in the 3rd trimester • Contraindicated during labour • Contraindicated when child birth is imminent

Precautions

- Hypersensitivity to sulfonamides
- Broad-spectrum antibiotic: could cause bacterial or fungal superinfections
- Nursing mothers taking TMP-SMX or TMP-SMX may make jaundice worse in their newborns.
- *TMP-SMX use in the 1st trimester decreases folic-acid levels and might be teratogenic. If clinically required during the 1st trimester, supplementation with 4 g of folic acid once a day is absolutely necessary. At term, TMP-SMX can cause hemolytic anemia and jaundice in newborns.

IMPORTANT

- For use only in the 2nd trimester.
- Approximately 3% of the population is allergic to sulfonamides. The most common allergy symptom is urticaria. In rare cases, the allergy results in Stevens-Johnson syndrome and toxic epidermal necrolysis.
- Should not be used with other antibiotics because of its antagonistic effect.
- Antibiotic use by a breastfeeding mother or administration of an antibiotic to a newborn might cause the newborn to have stools more watery than usual. It can also produce changes in bacterial flora.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Beware of bacterial resistance • The maximum serum concentration is reached within 1 to 4 hours.	• Trimethoprim selectively inhibits dihydrofolate reductase (folic-acid agonist). • Sulfamethoxazole competes with para-aminobenzoic acid (PABA) which inhibits folic-acid synthesis.	• Half-life of trimethoprim: 8 to 11 hours • Half-life of sulfamethoxazole: 10 to 13 hours • Elimination in the stool and urine

References

Apotex inc. *PR APO-SULFATRIM DS. Product monograph*, 2017. Accessed online on November 18, 2020: https://pdf.hres.ca/dpd_pm/00039881.PDF

8:00 Anti-infective Agents

Subclass

8:12 Antibacterials

Sub-subclass

8:12.28 Antibacterials, Miscellaneous

Agent

Clindamycin

Therapeutic indications

- Abnormal vaginal discharge (bacterial vaginosis)
- Antibiotic prophylaxis of group B streptococcus in situations of severe and immediate reaction to beta-lactams (urticaria or anaphylaxis)
- Mastitis
- Suspicion of intra-amniotic infection in situations of immediate severe reaction to beta-lactams (urticaria or anaphylaxis)

Adverse effects	Medical contraindications
• Stomachache • Diarrhea • Vomiting • Vaginal infection • Minor skin rash • Pseudomembranous colitis	• Allergy to clindamycin • Do not give at the same time as erythromycin.

IMPORTANT

- **Bacterial resistance to clindamycin of approximately 25% to 35% of group B streptococci might occur. If a bacterium is resistant to clindamycin, it is very likely also resistant to erythromycin.**
- The effects of clindamycin may be antagonized by erythromycin, aminoglycosides, penicillins, and cephalosporins. They should not be coadministered. When these drugs are administered intravenously, it is important to thoroughly rinse the catheter to prevent direct contact between them.
- Antibiotic use by a breastfeeding mother or administration of an antibiotic to a newborn might cause the newborn to have stools more watery than usual. It can also produce changes in bacterial flora.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Rapid absorption • Wide distribution in most tissues and fluids, including the gallbladder, liver, kidney, bone, sputum, bile, and pleural or synovial fluids	• Narrow-spectrum lincosamide (gram positive) • Its binding to ribosomal units inhibits protein synthesis, leading to cell death.	• Half-life: 2 to 3 hours • Clindamycin is metabolized by the liver.

Special considerations for intravenous administration

900 mg

Form: 6 mL vial (150 mg/mL)

Reconstitution: not applicable

Compatibility with solutions: NaCl 0.9%, Ringer's Lactate, and dextrose 5%

Preparation: Dilute 6 mL of clindamycin (150 mg/mL) in 100 mL of NaCl 0.9%. The final concentration must not exceed 18 mg/mL.

Administration: Administer intravenously over 30 minutes. Do not exceed 30 mg/min.

References

Fresenius Kabi Canada Ltée. *CLINDAMYCINE INJECTABLE. Product monograph*, 2017. Accessed online on November 5, 2020: https://pdf.hres.ca/dpd_pm/00040647.PDF

8:00 Anti-infective Agents

Subclass

8:12 Antibacterials

Sub-subclass

8:12.28 Antibacterials, Miscellaneous

Agent

Vancomycin

Therapeutic indications

- Prevention of early-onset neonatal group B streptococcal infection in situations of immediate severe reaction to beta-lactams (urticaria or anaphylaxis) and clindamycin resistance
- Suspicion of intra-amniotic infection in situations of immediate severe reaction to beta-lactams (urticaria or anaphylaxis) and clindamycin resistance

Adverse effects	Medical contraindications
• Anaphylaxis • Hypotension • Pruritus • Skin rash • Urticaria • Vasculitis • Nausea • Chills • Drug-induced fever	• Hypersensitivity to vancomycin

IMPORTANT

- Vancomycin irritates tissues and can cause drug-induced fever and pain.
- Intramuscular administration is associated with necrosis.
- **Overly rapid administration may result in severe hypotension leading to shock.**
- Antibiotic use by a breastfeeding mother or administration of an antibiotic to a newborn might cause the newborn to have stools more watery than usual. It can also produce changes in bacterial flora.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• The onset occurs immediately after the end of infusion.	• Vancomycin inhibits cell-barrier synthesis and affects cell-barrier permeability. It also selectively inhibits RNA synthesis.	• Half-life: 5 to 11 hours

Special considerations for administration:

Form: vial of 1 g of lyophilized vancomycin powder

Reconstitution: Add 19.6 mL of sterile water to the 1 g vancomycin vial. The final volume of the solution is 20 mL. The final concentration is 50 mg/mL.

Calculation of the dose and volume to be withdrawn

Example for an 82 kg woman:

Dose calculation: 15 mg/kg (suspicion of intra-amniotic infection)

$$15 \text{ mg/kg} \times 82 \text{ kg} = 1230 \text{ mg}$$

Calculation of the volume to be withdrawn: 50 mg/mL

$$1230 \text{ mg} / 50 \text{ mg/mL} = 24.6 \text{ mL}$$

To prepare this dose, take the entire 20 mL of reconstituted solution from a vial. Then add 4.6 mL of the reconstituted solution from a 2nd vial.

Total volume: 24.6 mL

The maximum dose that can be administered is 2 g (133 kg)

Compatibility with solutions: NaCl 0.9% or dextrose 5% – NaCl 0.9%

Preparation: Dilute in a 250 mL or 500 mL bag of NaCl 0.9%. The maximum concentration to avoid the risk of thrombophlebitis is 5 mg/mL.

Administration: Administer intravenously at a maximum rate of 10 mg/min OR over a period of at least 60 to 120 minutes.

References

Pfizer Canada inc. *Pr CHLORHYDRATE DE VANCOMYCINE POUR INJECTION, USP. Product monograph*, 2018. Accessed online on November 9, 2020: https://www.pfizer.ca/sites/default/files/201806/2018.06.07_Vancomycin_Hydrochloride_PM_F_213061.pdf

Class

8:00 Anti-infective Agents

Subclass

8:14 Antifungals

Sub-subclass

8:14.08 Azoles

Agent

Fluconazole

RESTRICTION

None

Therapeutic indications

- Breast candidiasis and thrush

Adverse effects	Medical contraindications
• Vomiting • Diarrhea • Abdominal pain • Skin rash	• Hypersensitivity to azoles • Personal or family history of QT interval prolongation • Renal failure • Liver failure • Taking a drug known to prolong the QT interval (domperidone, selective serotonin reuptake inhibitor, etc.)

Precautions

- Pregnancy: A single dose of 150 mg may be prescribed during pregnancy.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• The maximum serum concentration is reached within 1 to 2 hours.	• Inhibition of ergosterol biosynthesis in the fungal-cell membrane	• Half-life: 30 hours, when taken orally

References

Ferreira E, Martin B, Morin C. *Grossesse et allaitement: guide thérapeutique*. Montréal: Éditions du CHU Sainte-Justine; 2013.

M.D. de Pfizer Products inc. *Pf DIFLUCAN^{MD} (fluconazole). Product monograph*, 2020. Accessed online on November 18, 2020: https://www.pfizer.ca/sites/default/files/202007/Diflucan_PM_F_237806_30June2020.pdf

8:00 Anti-infective Agents

Subclass

8:14 Antifungals

Sub-subclass

8:14.28 Polyenes

Agent

Nystatin

Therapeutic indications

- Breast candidiasis and thrush

Adverse effects	Medical contraindications
• Generally well tolerated • Possible local irritation (cream and ointment)	• Hypersensitivity to polyenes

IMPORTANT

- For breast-fed neonates: In the case of oral candidiasis in the baby or breast candidiasis in the mother, it is essential to treat the infant and mother simultaneously, even if there are no clinical symptoms of infection in either of them.
- According to the Canadian Paediatric Society, an oral treatment with nystatin in a newborn with thrush is 80% effective if given over two weeks. Usually, treatment failure is secondary to misidentification of thrush or too short a treatment duration.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Onset of action in 24 to 72 hours	• Fungistatic or fungicidal by binding to ergosterol of the fungal-cell membrane	• Half-life: not known

References

Malo, J et Martin, B. *Guide pratique des médicaments en néonatalogie au CHU Sainte-Justine — Nystatine*. Département de pharmacie, 2018, 4e édition. Retrieved online on October 15, 2020: <https://www.chusj.org/fr/soins-services/P/Pharmacie/Outils/Guide-Pratique/Medicaments/N/Nystatine>

8:00 Anti-infective Agents

Subclass

8:18 Antivirals

Sub-subclass

8:18.32 Nucleosides and nucleotides

Agent

Acyclovir

Therapeutic indications

- Prophylaxis of recurrent genital herpes

Adverse effects	Medical contraindications
• Nausea and vomiting • Diarrhea • Dehydration • Headache Rarely: • Agitation • Confusion • Skin rash • Anemia • Muscular pain • Hypersensitivity (convulsions and hepatitis)	• Hypersensitivity to acyclovir or valacyclovir

Precautions

- Use with caution in cases of renal or hepatic impairment, or in the presence of electrolyte imbalance.

IMPORTANT

- A primary herpes infection (genital or otherwise) during pregnancy requires medical attention.
- The presence of a genital lesion at the time of delivery requires a transfer of care.
- If there is a threat of premature delivery, prophylaxis for genital herpes should be started earlier in the pregnancy.
- Encourage good hydration for the duration of the prophylaxis.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• The maximum serum concentration is reached within 1.5 to 2.5 hours.	• Antiviral agents inhibit the synthesis of viral DNA, which prevents the virus from replicating.	• Half-life: 3 hours

References

GlaxoSmithKline inc. *Pr ZOVIRAX®. Product monograph*, 2016. Accessed online on November 18, 2020: <https://ca.gsk.com/media/673689/zovirax.pdf>

8:00 Anti-infective Agents

8:18 Antivirals

8:18.32 Nucleosides and nucleotides

Valacyclovir

Therapeutic indications

- Prophylaxis of recurrent genital herpes

Adverse effects	Medical contraindications
• Nausea and vomiting • Diarrhea • Dehydration • Headache Rarely: • Agitation • Confusion • Skin rash • Anemia • Muscular pain • Hypersensitivity (convulsions and hepatitis)	• Hypersensitivity to acyclovir or valacyclovir

Precautions

- Use with caution in cases of renal or hepatic impairment, or in the presence of electrolyte imbalance.

IMPORTANT

- A primary herpes infection (genital or otherwise) during pregnancy requires medical attention.
- The presence of a genital lesion at the time of delivery requires a transfer of care.
- If there is a threat of premature delivery, prophylaxis for genital herpes should be started earlier in the pregnancy.
- Encourage good hydration for the duration of the prophylaxis.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• The maximum serum concentration is reached within 1.5 to 2 hours.	• Antiviral agents inhibit the synthesis of viral DNA, which prevents the virus from replicating.	• Half-life: 3 hours

References

Sandoz Canada inc. *Pr SANDOZ VALACYCLOVIR. Product monograph*, 2015. Accessed online on November 18, 2020: https://www.sandoz.ca/sites/www.sandoz.ca/files/Valacyclovir_TAB_Monographie.pdf

8:00 Anti-infective Agents

Subclass

8:30 Antiprotozoals

Sub-subclass

8:30.92 Antiprotozoals, Miscellaneous

Agent

Metronidazole

Therapeutic indications

- Abnormal vaginal discharge (bacterial vaginosis and trichomoniasis)

Adverse effects	Medical contraindications
• Nausea and vomiting • Diarrhea • Pruritus • Flushing • Brownish urine • Headache • Dry mouth • Metallic taste in the mouth • When given with alcohol, disulfiram effect (increased effects of alcohol): flushing, tachycardia, palpitations, hypotension, dyspnea, hyperventilation, vomiting, sedation • Neutropenia and thrombocytopenia (rare) • Peripheral neuropathy (rare) • Convulsions (rare) • Prolongation of the QT interval	• Hypersensitivity to metronidazole or other nitroimidazole derivatives • History of blood dyscrasia • Hypothyroidism • Hypoadrenalism (Addison's disease) • Avoid concomitant use of metronidazole with amprenavir, busulfan, or lithium

IMPORTANT

- **Take with food to reduce stomach upset.**
- **Do not consume alcohol during treatment or for 24 hours after the last dose.**
- Dosage adjustments required in cases of renal insufficiency or severe hepatic impairment.
- The urine may change colour to reddish brown.
- Antibiotic use by a breastfeeding mother or administration of an antibiotic to a newborn might cause the newborn to have stools more watery than usual. It can also produce changes in bacterial flora.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• With oral administration, the maximum serum level is reached after 1 to 2 hours.	Prodrug: The pharmacological form administered is inactive. Activation occurs in interaction with anaerobic bacteria or protozoa by the addition of an electron. Metronidazole becomes a nitro radical anion that binds to the DNA of microorganisms, preventing protein synthesis that eventually leads to cell death.	• Half-life: 6 to 12 hours • Metronidazole is readily absorbed in the intestinal tract. • Metronidazole is metabolized by the liver and excreted in the urine.

References

AA PHARMA INC. *METRONIDAZOLE. Renseignements thérapeutiques*, 2019. Accessed online on November 18, 2020: https://www.aapharma.ca/downloads/fr/PIL/2019/Metronidazole_FR_PI.pdf

8:00 Anti-infective Agents

8:36 Urinary Anti-infectives

Fosfomycin

Therapeutic indications

- Asymptomatic bacteriuria and cystitis

Adverse effects	Medical contraindications
• Diarrhea • Nausea and vomiting • Headache • Vertigo • Vaginal inflammation • Abdominal pain • Mild skin rash • Itching • Allergic reaction (angioedema)	• Hypersensitivity to fosfomycin or any of its ingredients • Contains sucrose: should not be used in cases of fructose intolerance, glucose-galactose malabsorption syndrome, or sucrase-isomaltase deficiency (rare metabolic diseases).

IMPORTANT

- Antibiotic use by a breastfeeding mother or administration of an antibiotic to a newborn might cause the newborn to have stools more watery than usual. It can also produce changes in bacterial flora.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Beware of bacterial resistance • The maximum serum concentration is reached within 2 hours.	• Inhibits peptidoglycan synthesis • Bactericide in urine	• Half-life: 5.7 hours • Elimination in the stool and urine

References

Jamp Pharma Corporation. *Pr JAMP-FOSFOMYCIN. Product monograph*, 2018. Accessed online on November 18, 2020: https://pdf.hres.ca/dpd_pm/00044255.PDF

8:00 Anti-infective Agents

8:36 Urinary Anti-infectives

Nitrofurantoin (MacroBID®)

Therapeutic indications

- Asymptomatic bacteriuria and cystitis

Adverse effects	Medical contraindications
- Nausea and vomiting - Diarrhea - Drowsiness - Dizziness - Transient peripheral neuropathy - Respiratory symptoms (drug-induced pneumonitis) Rare: - Hepatitis	- Contraindicated at term (37 to 42 weeks)* - Contraindicated during labour* - Contraindicated when child birth is imminent - Hypersensitivity to furantoin

Precautions

- Use with caution in women with G6PD deficiency or anemia.
- Renal insufficiency, diabetes, vitamin B deficiency, or electrolyte imbalance might increase the risk of transient peripheral neuropathy.

IMPORTANT

- Nitrofurantoin might cause hemolytic anemia in neonates when used during the above periods.
- USE ONLY IN THE 1st AND 2nd TRIMETERS
- Antibiotic use by a breastfeeding mother or administration of an antibiotic to a newborn might cause the newborn to have stools more watery than usual. It can also produce changes in bacterial flora.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
- Beware of bacterial resistance - The maximum serum concentration is reached in about 30 minutes.	Interferes with bacterial metabolism and cell synthesis.	- Half-life: 45 to 60 minutes - Excreted in urine

References

PHARMASCIENCE INC. *Pr pms-NITROFURANTOIN. Product monograph*, 2016. Accessed online on November 18, 2020: https://pdf.hres.ca/dpd_pm/00035249.PDF

12:00 Autonomic Drugs

12:12 Sympathomimetic (Adrenergic) Agents

12:12.12 α - and β -Adrenergic Agonists

Epinephrine 1 mg/mL (adults)

Therapeutic indications

- Severe allergic reaction or anaphylactic shock

Adverse effects	Medical contraindications
• Angina • Cardiac arrhythmia • Chest pain • Redness • Hypertension • Pallor • Palpitations • Vasoconstriction • Anxiety • Apprehension • Cerebral hemorrhage • Dizziness • Headache • Agitation • Xerostomia • Nausea and vomiting	• None when the vital prognosis is compromised.

IMPORTANT

- **Intravenous administration is NOT recommended: greater risk of cardiovascular complications and dosing errors. Doses administered by auto-injector are smaller than doses obtained by preparing them with a syringe and vial. A subsequent dose may have to be administered more quickly in this case. Consider cumulative dosing.**
- Prior to 2016 – epinephrine 1:1000. Changes in expression of strength: https://www.ismp-canada.org/download/safetyBulletins/2016/ISMPCSB2016-02_ChangesInExpressionStrength.pdf

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Rapid onset of action	• Stimulates α- and β-adrenergic receptors.	• Half-life: 2 to 3 minutes

Special considerations for administration

Form: 1 mL vial (1 mg/mL)

Dosage: 0.01 mL/kg, maximum dose of 0.5 mL/injection

Epinephrine 1:1000 dosage by age

Age	Dosage	Route of administration
2 to 6 months	0.07 mL	IM
7 to 17 months	0.10 mL	
18 months to 4 years	0.15 mL	
5 years	0.20 mL	
6 to 9 years	0.30 mL	
10 to 13 years	0.40 mL	
≥ 14 years	0.50 mL	

Reconstitution: none

Compatibility with solutions: not applicable

Preparation: none

Administration: Prefer the IM route because of the more rapid diffusion of adrenaline.

Administer epinephrine at a site other than the site of allergen administration or 2.5 cm from the allergen injection site. Avoid the dorsogluteal muscle because of the risk of poor absorption. When epinephrine is administered in the vastus lateralis muscle, it reaches higher plasma levels more rapidly than when administered in the deltoid muscle. Alternate between thighs if subsequent doses are administered.

References

Ministère de la Santé et des Services sociaux. *Protocole d'immunisation du Québec (PIQ). Guide*, 2018. Consulté en ligne le 18 octobre 2020: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-urgences-liees-a-la-vaccination/adrenaline-1-1000/>

Pfizer Canada inc. ÉPINÉPHRINE INJECTABLE USP. Product monograph, 2018. Accessed online on October 18, 2020

12:00 Autonomic Drugs

12:12 Sympathomimetic (Adrenergic) Agents

12:12.12 α - and β -Adrenergic Agonists

Epinephrine 0.1 mg/mL (neonate)

Therapeutic indications

- Neonatal resuscitation

Adverse effects	Medical contraindications
• Angina • Cardiac arrhythmia • Chest pain • Redness • Hypertension • Pallor • Palpitations • Vasoconstriction • Anxiety • Apprehension • Cerebral hemorrhage • Dizziness • Headache • Agitation • Xerostomia • Nausea and vomiting	• None when the vital prognosis is compromised.

IMPORTANT

- Be sure to identify the syringes used for endotracheal administration so that they are not used for administration through the umbilical catheter.
- The umbilical vein catheter is the preferred route of administration.
- Prior to 2016 – epinephrine 1:10,000. Changes in expression of strength: https://www.ismp-canada.org/download/safetyBulletins/2016/ISMPCSB2016-02_ChangesInExpressionStrength.pdf

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Rapid onset of action.	• Stimulates α- and β-adrenergic receptors.	• Half-life: 2 to 3 minutes

Special considerations for neonate administration:

Endotracheal administration

Form: syringe for injection 0.1 mg/mL, 10 mL

Dosage: as recommended by the National Neonatal Resuscitation Program.

Reconstitution: none

Compatibility with solutions: not applicable

Preparation: Draw 3 mL of 1:10,000 epinephrine from the injectable syringe.

Administration: Administer promptly by endotracheal route. DO NOT rinse.

Intravenous administration (umbilical catheter)

Form: syringe for injection 0.1 mg/mL, 10 mL

Dosage: as recommended by the National Neonatal Resuscitation Program.

Reconstitution: none

Compatibility with solutions: not applicable

Preparation: Draw the dose in a 1 mL syringe for injection.

Administration: Administer rapidly by intravenous route and rinse with 1 to 5 mL of NaCL 0.9%.

References

Malo, J et Martin, B. *Guide pratique des médicaments en néonatalogie au CHU Sainte-Justine* — Épinéphrine. Département de pharmacie, 2018, 4^e édition. Retrieved online September 6, 2020: <https://www.chusj.org/fr/soins-services/P/Pharmacie/Outils/Guide-Pratique/Medicaments/E/EPInephrene>

Class

RESTRICTION

None

20:00 Blood Formation, Coagulation, and Thrombosis

Subclass

20:04 Antianemia Drugs

Sub-subclass

20:04.04 Iron Preparations

Agent

Ferrous fumarate

Therapeutic indications

- Anemia
- Restless legs

Adverse effects	Medical contraindications
• Constipation • Diarrhea • Stomachache • Nausea and vomiting • Blackish stool • Liquid form: can stain teeth	• Hemosiderosis • Hemochromatosis

Precautions

- Sickle-cell anemia
- Thalassemia
- Coffee, tea, and calcium reduce the absorption of iron, while vitamin C promotes its absorption.
- Iron might decrease the absorption of some medications: bisphosphonates, tetracyclines, quinolones, levodopa, methyldopa, and levothyroxine (not an exhaustive list). Medication should be taken 2 hours before or after taking oral iron.

IMPORTANT

- Excessive iron intake can lead to iron poisoning.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Bioavailability 5% to 10% • An effect on hemoglobin should be seen 3 to 4 weeks after the start of treatment.	• Replenishment of iron stores in the bone marrow and incorporation into hemoglobin; oxygen transport by hemoglobin.	

References

Demers H, Lapierre M. *L'anémie ferriprive*. Le médecin du Québec. 2013;48(11):79-82

Class

RESTRICTION

None

20:00 Blood Formation, Coagulation, and Thrombosis

Subclass

20:04 Antianemia Drugs

Sub-subclass

20:04.04 Iron Preparations

Agent

Ferrous gluconate

Therapeutic indications

- Anemia
- Restless legs

Adverse effects	Medical contraindications
• Constipation • Diarrhea • Stomachache • Nausea and vomiting • Blackish stool	• Hemosiderosis • Hemochromatosis

Precautions

- Sickle-cell anemia
- Thalassaemia
- Coffee, tea, and calcium reduce the absorption of iron, while vitamin C promotes its absorption.
- Iron might decrease the absorption of some medications: bisphosphonates, tetracyclines, quinolones, levodopa, methyldopa, and levothyroxine (not an exhaustive list). One of these medications should be taken 2 hours before or after taking oral iron.

IMPORTANT

- Excessive iron intake can lead to iron poisoning.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Bioavailability 5% to 10% • An effect on hemoglobin should be seen 3 to 4 weeks after the start of treatment.	• Replenishment of iron stores in the bone marrow and incorporation into hemoglobin; oxygen transport by hemoglobin	

References

Demers H, Lapierre M. *L'anémie ferriprive*. Le médecin du Québec. 2013;48(11):79-82

Class

RESTRICTION

None

20:00 Blood Formation, Coagulation, and Thrombosis

Subclass

20:04 Antianemia Drugs

Sub-subclass

20:04.04 Iron Preparations

Agent

Ferrous sulphate

Therapeutic indications

- Anemia
- Restless legs

Adverse effects	Medical contraindications
• Constipation • Diarrhea • Stomachache • Nausea and vomiting • Blackish stool • Liquid form: can stain teeth	• Hemosiderosis • Hemochromatosis

Precautions

- Sickle-cell anemia
- Thalassemia
- Coffee, tea, and calcium reduce the absorption of iron, while vitamin C promotes its absorption.
- Iron might decrease the absorption of some medications: bisphosphonates, tetracyclines, quinolones, levodopa, methyl dopa, and levothyroxine (not an exhaustive list). One of these medications should be taken 2 hours before or after taking oral iron.

IMPORTANT

- Excessive iron intake can lead to iron poisoning.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Bioavailability 5% to 10% • An effect on hemoglobin should be seen 3 to 4 weeks after the start of treatment.	• Replenishment of iron stores in the bone marrow and incorporation into hemoglobin; oxygen transport by hemoglobin.	

References

Demers H, Lapierre M. *L'anémie ferriprive*. Le médecin du Québec. 2013;48(11):79-82

Class

RESTRICTION

None

20:00 Blood Formation, Coagulation, and Thrombosis

Subclass

20:04 Antianemia Drugs

Sub-subclass

20:04.04 Iron Preparations

Agent

Iron polysaccharide complex

Therapeutic indications

- Anemia
- Restless leg

Adverse effects	Medical contraindications
• Pyrosis (heartburn) • Constipation • Nausea and vomiting • Black stool	• Hemosiderosis • Hemochromatosis

Precautions

- Sickle-cell anemia
- Thalassemia
- Coffee, tea, and calcium reduce the absorption of iron, while vitamin C promotes its absorption.
- Iron might decrease the absorption of some medications: bisphosphonates, tetracyclines, quinolones, levodopa, methyl dopa, and levothyroxine (not an exhaustive list). One of these medications should be taken 2 hours before or after taking oral iron.

IMPORTANT

- Excessive iron intake can lead to iron poisoning.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Would be better than ferrous sulphate, fumarate, or gluconate according to the manufacturer. • An effect on hemoglobin should be seen 3 to 4 weeks after the start of treatment.	• Replenishment of iron stores in the bone marrow and incorporation into hemoglobin; oxygen transport by hemoglobin.	

References

Doctonat. Fer en compléments: posologie et bienfaits. Site internet; 2019. Accessed online on October 30, 2020 : <https://doctonat.com/fer-posologies-et-bienfaits/#:~:text=Dosages%20et%20posologies,risque%20rien%20pour%20sa%20sant%C3%A9.>

Class

RESTRICTION

None

20:00 Blood Formation, Coagulation, and Thrombosis

Subclass

20:04 Antianemia Drugs

Sub-subclass

20:04.04 Iron Preparations

Agent

Heme iron polypeptide

Therapeutic indications

- Anemia
- Restless legs

Adverse effects	Medical contraindications
• Constipation • Nausea • Stomachache • Black stool Adverse effects are said to be less than with iron salts.	• Hemosiderosis • Hemochromatosis

Precautions

- Sickle-cell anemia
- Thalassemia
- Coffee, tea, and calcium reduce the absorption of iron, while vitamin C promotes its absorption.
- Iron might decrease the absorption of some medications: bisphosphonates, tetracyclines, quinolones, levodopa, methyldopa, and levothyroxine (not an exhaustive list). One of these medications should be taken 2 hours before or after taking oral iron.

IMPORTANT

- Excessive iron intake can lead to iron poisoning.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Bioavailability: 25%. • An effect on hemoglobin should be seen 3 to 4 weeks after the start of treatment.	• Replenishment of iron stores in the bone marrow and incorporation into hemoglobin; oxygen transport by hemoglobin.	

References

Doctonat. *Fer en compléments: posologie et bienfaits*. Site internet; 2019. Accessed online on October 30, 2020: <https://doctonat.com/fer-posologies-et-bienfaits/#:~:text=Dosages%20et%20posologies,risque%20rien%20pour%20sa%20sant%C3%A9>.

24:00 Cardiovascular Drugs

24:12 Vasodilating Agents

24:12.08 Nitrates and Nitrites

Nitroglycerin

Therapeutic indications

- Uterine hypertonia

Adverse effects	Medical contraindications
• Headache • Dizziness • Paresthesia • Dyspnea • Skin vasodilatation • Hypotension • Tachycardia	• Hypersensitivity to nitroglycerin • Severe anemia • Angle-closure glaucoma • Hypotension • Uncorrected hypovolemia

IMPORTANT

- In view of the hypotension that can result from nitroglycerin administration, an IV infusion should be started prior to its administration.
- Nitroglycerin cannot be administered through tubing used to administer another drug.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Onset of action in 40 to 90 seconds • Duration of action: 1 minute	• Smooth muscle relaxation • Vasodilator (decreases blood pressure by 10 to 14 mmHg)	• Half-life: 1 to 4 minutes

Special considerations for administration

Form: 10 mL multi-dose vial (5 mg/mL) of nitroglycerin

Reconstitution: Draw 1 mL of nitroglycerin and add to 100 mL of NaCL 0.9% to achieve a final concentration of 50 mcg/mL.

Compatibility with solutions: NaCL 0.9% and dextrose 5%

Preparation: Draw 1 mL of the reconstituted nitroglycerin (50 mcg/mL)

Administration: Administer into the lowest injection site of the tubing over 2 to 3 minutes.

References

Laboratoires Oméga Limitée. *NITROJECT®. Monographie de produit*, 2012. Accessed online on September 15, 2020 : file:///C:/Users/vaka8300/Downloads/Monographie_-_Nitroject.pdf

24:00 Cardiovascular Drugs

24:24 β -Adrenergic Blocking Agents

Labetalol

RESTRICTION
Waiting for a transfer

Therapeutic indications

- Severe hypertension with or without comorbidities and non-severe hypertension with comorbidities

Adverse effects	Medical contraindications
• Fetal or maternal bradycardia • Orthostatic hypotension • Cardiac insufficiency • Bronchospasm • Hypoglycemia • Digestive disorders • Vertigo • Headaches • Muscle weakness • Urinary retention	• Asthma • Chronic obstructive pulmonary disease • Cardiac insufficiency • Severe hypotension • Bradycardia < 50 beats/minute • Atrioventricular blocks • Raynaud's syndrome • Hepatic insufficiency • Avoid or monitor association with mefloquine, digoxin, amiodarone, diltiazem, verapamil (risk of bradycardia), tricyclic antidepressants, neuroleptics, other antihypertensive drugs (risk of hypotension). • Administer with caution in cases of diabetes (risk of hypoglycemia). • Reduce dosage in case of renal insufficiency.

IMPORTANT

- **If hypotension occurs, use Ringer's lactate to maintain diastolic BP at about 90 mmHg.**
- Monitor the neonate: risk of hypoglycemia, bradycardia, respiratory distress, most often occurring in the first 24 hours and up to 72 hours after birth.
- In case of anaphylactic shock, risk of resistance to epinephrine treatment.
- Overly rapid intravenous administration of labetalol or an overdose of it can result in a severe drop in maternal blood pressure with placental hypoperfusion and fetal death. ++ **VIGILANCE**

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• The onset of action of labetalol is 5 minutes • The maximum serum concentration is reached within 30 minutes. • Labetalol's duration of action is about 4 hours.	• Labetalol lowers blood pressure by blocking α-adrenergic receptors in arterioles, causing peripheral resistance. • Labetalol is a competitive inhibitor of catecholamines at β-adrenergic receptors, particularly in the heart, vessels, and bronchi.	• Half-life: 5.5 hours • Labetalol is excreted in the urine and feces.

Special considerations for administration

Form: 20 mL multi-dose bottle (5 mg/mL)

Reconstitution: not applicable

Compatibility with solutions: Incompatible bypass with penicillin G (if the woman is receiving penicillin G, use alternate venous access to administer labetalol or discontinue penicillin G while labetalol is being administered. The vein should be flushed with NaCl before and after administration of each drug).

Preparation: 20 mg dose = remove 4 mL from the multi-dose vial

Other doses: Adjust the volume withdrawn from the vial according to a rule of 3.

Administration: Administer intravenously over 2 minutes.

References

Institut universitaire de cardiologie et de pneumologie de Québec — Université Laval. *Guide d'administration intraveineuse des médicaments critiques*, 11^e édition.

Mylan Pharmaceuticals ULC. *Pr CHLORHYDRATE DE LABÉTALOL INJECTABLE, USP. Monographie de produit*, 2104. Accessed online on September 22, 2020: https://pdf.hres.ca/dpd_pm/00028554.PDF

24:00 Cardiovascular Drugs

24:28 Calcium-Channel Blocking Agents

24:28.08 Dihydropyridines

Nifedipine

Therapeutic indications

- Preterm birth or threatened preterm birth
- Severe hypertension with or without comorbidities and non-severe hypertension with comorbidities
- Nipple vasospasm

Adverse effects	Medical contraindications
• Hypotension • Tachycardia • Peripheral edema	• History of myocardial infarction • History of cardiovascular shock • Hypersensitivity to nifedipine • Severe hypotension: risk of syncope

IMPORTANT

- For women taking it for vasospasm, explain the signs of hypotension, tachycardia, and edema.
- **Be attentive to the various forms of nifedipine:**
 - **Hypertension regular nifedipine (short acting)**
 - **Vasospasm: nifedipine sustained release (Adalat® XL)**
- Do not drink grapefruit juice during treatment.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
Regular nifedipine: • The onset of action of nifedipine is 5 to 10 minutes (short-acting capsules). • The maximum serum concentration is reached in 0.5 to 2 hours. • Its duration of action is approximately 6 hours. Nifedipine sustained release: • The maximum serum concentration is reached within 6 hours.	• Inhibition of calcium entering smooth muscle cells results in a decrease in peripheral vascular resistance and blood pressure.	• Half-life: 2 to 4 hours • The XL form has a significantly longer half-life.

References

Bayer inc. *Pr ADALAT® XL®. Monographie de produit*, 2016. Accessed online on September 5, 2020: <https://www.bayer.ca/omr/online/adalat-xl-pm-fr.pdf>

AA PHARMA INC. *NIFEDIPINE. Monographie de produit*, 2010. Accessed online on September 5, 2020: https://www.aapharma.ca/downloads/fr/PIL/2014/Nifedipine_PM_FR.PDF

28:00 Central Nervous System Agents

28:08 Analgesics and Antipyretics

28:08.04 Nonsteroidal Anti-inflammatory Agents

Diclofenac

Therapeutic indications

- Postnatal pain

Adverse effects	Medical contraindications
• Short-term postpartum use tends to produce few adverse effects. • Long-term use: • Bleeding • Exacerbation of hemorrhoids • Anal irritation and inflammation • Diarrhea • Dizziness • Headache • Gastrointestinal problems • Liver damage	• Hypersensitivity to nonsteroidal anti-inflammatory agents • Allergy to acetylsalicylic acid (ASA) • Taking another drug in the nonsteroidal anti-inflammatory agent family • 1st trimester of pregnancy (teratogenic) • 3rd trimester of pregnancy (premature closure of the ductus arteriosus) • Active bleeding • Coagulation disorder • Severe thrombocytopenia (platelets: $50 \times 10^9/L$) • Significant oliguria • Active sepsis NSAIDs administered rectally: • Avoid rectal administration if there is a recent history of rectal/anal inflammation or bleeding.

Precautions

- Concomitant use of a selective serotonin reuptake inhibitor might potentiate the risks of bruising and bleeding from nonsteroidal anti-inflammatory drugs.
- Taking an anticoagulant or antiplatelet medication.
- Heart, liver, or kidney disease

IMPORTANT

- Two formulations of diclofenac sodium (diclofenac SR) and diclofenac potassium (diclofenac). In the context of acute postnatal pain, regular diclofenac should be prescribed. The SR form is used for the treatment of chronic pain.
- Health Canada recommends that nonsteroidal anti-inflammatory agents not be prescribed or administered during pregnancy until their safety has been validated: <https://healthycanadians.gc.ca/recall-alert-rappel-avis/hc-sc/2020/74239a-eng.php>

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• The maximum serum concentration is reached in 2 hours.	• Decreased production of prostaglandins by non-selective inhibition of the enzyme prostaglandin H2 synthetase (or cyclooxygenase-1 and cyclooxygenase-2 or COX-1 and COX-2)	• Half-life: 1 to 2 hours

References

Sandoz Canada inc. *Pr SANDOZ DICLOFENAC Pr SANDOZ DICLOFENAC SR. Product monograph*, 2016. Accessed online on October 15, 2020: https://www.sandoz.ca/sites/www.sandoz.ca/files/Sandoz%20Diclofenac%20PM_FR.pdf

Class

28:00 Central Nervous System Agents

Subclass

28:08 Analgesics and Antipyretics

Sub-subclass

28:08.04 Nonsteroidal Anti-inflammatory Agents

Agent

Ibuprofen

RESTRICTION

None

Therapeutic indications

- Postnatal pain
- Sore nipple
- Mastitis

Adverse effects	Medical contraindications
• Dizziness • Epigastric pain • Esophageal reflux • Constipation • Nausea and vomiting • Skin rash • Tinnitus • Edema • Fluid retention • Headache	• Hypersensitivity to nonsteroidal anti-inflammatory agents • 1st trimester of pregnancy (teratogenic) • 3rd trimester of pregnancy (premature closure of the ductus arteriosus) • Allergy to acetylsalicylic acid (ASA) • Taking another drug in the nonsteroidal anti-inflammatory agent family

IMPORTANT

- Health Canada recommends that nonsteroidal anti-inflammatory agents not be prescribed or administered during pregnancy until their safety has been validated: <https://healthycanadians.gc.ca/recall-alert-rappel-avis/hc-sc/2020/74239a-eng.php>

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• The onset of action is about 30 minutes (gelcap).	• Decreased production of prostaglandins by non-selective inhibition of the enzyme prostaglandin H2 synthetase (or cyclooxygenase-1 and cyclooxygenase-2 or COX-1 and COX-2)	• Half-life: 2 hours

References

APOTEX INC. *IBUPROFEN*. Product monograph, 2018. Accessed online on October 15, 2020 2020: https://pdf.hres.ca/dpd_pm/00045656.PDF

28:00 Central Nervous System Agents

28:08 Analgesics and Antipyretics

28:08.04 Nonsteroidal Anti-inflammatory Agents

Indomethacin

Therapeutic indications

- Threat of labour or preterm delivery: use only if nifedipine cannot be used

Adverse effects	Medical contraindications
• Headache • Digestion problems • Dizziness • Diarrhea • Increased blood pressure • Makes the skin more sensitive to the sun or sun lamps	• Hypersensitivity to nonsteroidal anti-inflammatory agents • Allergy to acetylsalicylic acid (ASA) • Taking another drug in the nonsteroidal anti-inflammatory agent family • 1st trimester of pregnancy (teratogenic) • 3rd trimester of pregnancy (premature closure of the ductus arteriosus) • Active bleeding • Coagulation disorder • Severe thrombocytopenia (platelets: $50 \times 10^9/L$) • Significant oliguria • Active sepsis NSAIDs administered rectally: • Avoid rectal administration if there is a recent history of rectal/anal inflammation or bleeding.

Precautions

- Concomitant use of a selective serotonin reuptake inhibitor might potentiate the bruising and bleeding risks of nonsteroidal anti-inflammatory agents.
- Taking an anticoagulant or antiplatelet medication.
- Heart, liver, or kidney disease

IMPORTANT

- **Do NOT administer after 32 weeks of amenorrhea.**
- Health Canada recommends that nonsteroidal anti-inflammatory agents not be prescribed or administered during pregnancy until their safety has been validated: <https://healthycanadians.gc.ca/recall-alert-rappel-avis/hc-sc/2020/74239a-eng.php>

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• 90% of indomethacin is absorbed within 4 hours. • The maximum serum concentration is reached in 30 to 120 minutes.	• Decreased production of prostaglandins by non-selective inhibition of the enzyme prostaglandin H2 synthetase (or cyclooxygenase-1 and cyclooxygenase-2 or COX-1 and COX-2)	• Half-life: 4.5 hours • Indomethacin is excreted in the urine and feces.

References

Santé Canada. *Prise d'anti-inflammatoires non stéroïdiens (AINS) à partir de la 20^e semaine de grossesse et le risque de problèmes rénaux chez le fœtus, qui entraînerait une quantité insuffisante de liquide amniotique*, Rappels et avis, 2020. Accessed online on November 4, 2020: <https://canadiensensante.gc.ca/recall-alert-rappel-avis/hc-sc/2020/74239a-fra.php>

Sandoz Canada inc. *Pr SANDOZ INDOMÉTHACIN*. Product monograph, 2007. Accessed online on September 20, 2020: https://pdf.hres.ca/dpd_pm/00027302.PDF

28:00 Central Nervous System Agents

28:08 Analgesics and Antipyretics

28:08.04 Nonsteroidal Anti-inflammatory Agents

Naproxen

Therapeutic indications

- Postnatal pain

Adverse effects	Medical contraindications
• Abdominal pain or cramps • Skin rash • Tinnitus • Headache • Dizziness • Diarrhea or constipation • Exacerbation of hemorrhoids • Anal irritation and inflammation, especially if administered as a rectal suppository	• Hypersensitivity to nonsteroidal anti-inflammatory agents • Allergy to acetylsalicylic acid (ASA) • Taking another drug in the nonsteroidal anti-inflammatory agent family • 1st trimester of pregnancy (teratogenic) • 3rd trimester of pregnancy (premature closure of the ductus arteriosus) • Active bleeding • Coagulation disorder • Severe thrombocytopenia (platelets: $50 \times 10^9/L$) • Significant oliguria • Active sepsis NSAIDs administered rectally: • Avoid rectal administration if there is a recent history of rectal/anal inflammation or bleeding.

Precautions

- Concomitant use of a selective serotonin reuptake inhibitor might potentiate the bruising and bleeding risks of nonsteroidal anti-inflammatory agents.
- Taking an anticoagulant or antiplatelet medication.
- Heart, liver, or kidney disease

IMPORTANT

- Naproxen is available in two forms: naproxen and naproxen sodium. In the algorithm for postnatal pain, only naproxen is mentioned. Note that the drug concentration of naproxen sodium is different from that of naproxen. If a midwife wants to use naproxen sodium, she would have to adjust the dosage accordingly.
- Health Canada recommends that nonsteroidal anti-inflammatory agents not be prescribed or administered during pregnancy until their safety has been validated: <https://healthycanadians.gc.ca/recall-alert-rappel-avis/hc-sc/2020/74239a-eng.php>

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• The analgesic effect is felt 1 hour after taking the drug. • Naproxen must be taken for 2 weeks to have an anti-inflammatory effect. • The maximum serum level is reached in 1 to 4 hours.	• Decreased production of prostaglandins by non-selective inhibition of the enzyme prostaglandin H2 synthetase (or cyclooxygenase-1 and cyclooxygenase-2 or COX-1 and COX-2)	• Half-life: 12 to 17 hours

References

Teva Canada Limitée. *Pr TEVA-NAPROXEN*. Product monograph, 2013. Accessed online on September 20, 2020: https://pdf.hres.ca/dpd_pm/00027458.PDF

28:00 Central Nervous System Agents

28:08 Analgesics and Antipyretics

28:08.08 Opiate Agonists

Fentanyl

Therapeutic indications

- Uterine revision
- Prolonged or painful latency

Adverse effects	Medical contraindications
• Nausea • Respiratory depression • Muscle stiffness • Dermatitis • Erythema • Pruritus • Hypersensitivity • Edema at the injection site	• Delivery expected within 30 minutes of fentanyl administration • Concomitant use of another opioid • Preterm labour (< 34 weeks) • Abnormal fetal heart • Maternal respiratory rate < 8 breaths/min (initial and subsequent dose of IV fentanyl) • SaO₂ < 94% (at any time, initial and subsequent dose of IV fentanyl)

Precautions

- Obesity (BMI > 45): The dose might need to be adjusted for weight and the risk of accumulation in fatty tissue.
- If the woman has taken CNS depressants within the last 24 hours (e.g., benzodiazepines or antipsychotics), consult the anesthesiologist before administering fentanyl.

IMPORTANT

- **Quebec Poison Control Centre: 1-800-463-5060**
- **Narcotic antidote: naloxone**
- Monitoring of:
 - blood pressure
 - pulse rate
 - **respiratory rate**
 - SpO₂ saturation
 - level of sedation
 - state of consciousness
 - skin condition/colour/temperature

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
- Onset of action: 1 to 5 minutes - Duration of action: 30 to 60 minutes	- Analgesic effect: mu receptor agonist, causing inhibition of ascending pain pathways, altered pain perception, and response. - Central nervous system depression - Respiratory depression - Suppression of the cough reflex	Half-life: elimination occurs in 3 phases: up to 6 hours for the half-life in the 3rd phase.

Special considerations for administration to adults

Form: 2 mL vial (50 mcg/mL)

Reconstitution: not applicable

Compatibility of solutions: not applicable

Preparation:

50 mcg dose: Draw 1 mL from a 2 mL vial.

25 mcg dose: Draw 0.5 mL from the 2 mL vial

Administration: Administer as a direct IV over 30 to 60 seconds

References

Institut universitaire de cardiologie et de pneumologie de Québec — Université Laval. *Guide d'administration intraveineuse des médicaments critiques*, 11^e édition.

Sandoz Canada inc. *CITRATE DE FENTANYL INJECTION USP*. Product monograph, 2014. Accessed online on October 7, 2020: https://www.sandoz.ca/sites/www.sandoz.ca/files/Fentanyl_Citrate_PMfr_20140729%281%29.pdf

28:00 Central Nervous System Agents

Subclass

28:08 Analgesics and Antipyretics

Sub-subclass

28:08.12 Opiate Partial Agonists

Agent

Nalbuphine

Therapeutic indications

- Uterine revision (procedural analgesia)

Adverse effects	Medical contraindications
• Sedation • Excessive perspiring • Dampness • Nausea and vomiting • Dizziness • Vertigo • Xerostomia • Myosis • Headache	• Hypersensitivity to nalbuphine • Hypersensitivity to sulphites (depending on the commercial formulation) • Concomitant use of another opioid • Abdominal pain of unknown cause

Precautions

- If the woman has taken CNS depressants within the last 24 hours (e.g., benzodiazepines or antipsychotics), consult the anesthesiologist before administering nalbuphine.
- Nalbuphine is both an agonist and antagonist opioid, and can precipitate withdrawal in individuals with an opioid dependence.
- Asthma

IMPORTANT

- **Quebec Poison Control Centre: 1-800-463-5060**
- **Narcotic antidote: naloxone**
- Monitoring of:
 - blood pressure
 - pulse rate
 - **respiratory rate**
 - SpO₂ saturation
 - level of sedation
 - state of consciousness
 - skin condition/colour/temperature

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Onset of action: 2 to 3 minutes • Duration of action: 3 to 4 hours	• Analgesic effect: kappa receptor agonist and mu receptor antagonist • Produces respiratory depression due to decreased brainstem response. • Reduces the cough reflex	• Half-life: 2.4 hours

Special considerations for administration to adults

Form: 1 mL vial (10 mg/mL)

Reconstitution: not applicable

Compatibility of solutions: not applicable

Preparation:

10 mg dose: Draw 1 mL from a 1 mL vial.

20 mg dose: Combine 1 mL from two 1 mL vials.

Administration: Administer as a direct IV over 3 to 5 minutes

References

<https://www.sandoz.ca/sites/www.sandoz.ca/files/Nubain%20Monographie%20de%20produit.pdf>

Class

RESTRICTION

None

28:00 Central Nervous System Agents

Subclass

28:08 Analgesics and Antipyretics

Sub-subclass

28:08.92 Analgesics and Antipyretics, Miscellaneous

Agent

Acetaminophen

Therapeutic indications

- Postnatal pain
- Sore nipple
- Prolonged or painful latency

Adverse effects	Medical contraindications
• Severe hepatotoxicity with overdose or chronic use	• Hypersensitivity to acetaminophen • Liver disease

IMPORTANT

- Be aware of concomitant medications containing acetaminophen (maximum daily dose: 4000 mg or less, in cases of renal impairment)
- Signs and symptoms of hepatotoxicity: nausea and vomiting, weakness, diaphoresis. In case of overdose, arrange for urgent transfer to a hospital.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• The maximum serum concentration is reached in 1.5 hours. • Onset of action in 30 to 60 minutes.	• Limited knowledge of its mechanisms of action. Might act on the synthesis of prostaglandins in the central nervous system.	• Half-life: 1 to 4 hours

References

Teva Canada Limitée. *NOVO-GESIC (acétaminophène)*. Product monograph, 2016. Accessed online on September 15, 2020: https://www.tevacanada.com/globalassets/canada-ph2/product-monographs/novo-gesic-acetaminophen-caplets-325-mg-and-500-mg-pm-june7_2016-wis-fr.pdf

Class

28:00 Central Nervous System Agents

Subclass

28:10 Opiate Antagonists

Agent

Naloxone

RESTRICTION

In a hospital and waiting for a transfer

Therapeutic indications

- Antidotes: narcotics

Adverse effects	Medical contraindications
• Precipitation of withdrawal syndrome in individuals with opioid dependence • Nausea, especially if the PCO₂ is high due to catecholamine discharge • Exacerbation of pain if the opioid is administered as an analgesic	• History of maternal opioid dependence (risk of seizures upon administration in the neonate)

IMPORTANT

- In cases of narcotic intoxication, primary management (assessment of airway, breathing, and circulation) should be prioritized over naloxone administration.
- LIMIT sensory stimuli. They can stimulate breathing and give the false impression that the opioid is no longer working.
- Opioids often have a longer duration of action than naloxone, requiring subsequent doses.
- *Textbook of Neonatal Resuscitation (NRP), 7th Ed*: Naloxone is no longer recommended for use in neonatal resuscitation because of the lack of data on its efficacy and safety.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Delay of action: about 1 to 2 minutes • Duration of action: 1 to 4 hours	• Competitive inhibition of opiates binding to their receptors in the central nervous system	• Half-life: 1 to 1.5 hours

Clinical monitoring recommended after naloxone administration

- State of consciousness
- Vital signs, especially respiratory rate
- Saturation in ambient air
- If oxygen is administered, use a capnograph
- Signs of opioid withdrawal
 - <https://www.mdcalc.com/cows-score-opiate-withdrawal>
- Signs of pain exacerbation

Special considerations for intravenous administration in adults

Form: 1 mL vial (0.4 mg/mL)

Reconstitution: not applicable

Compatibility of solutions: not applicable

Preparation: Draw the desired quantity. Do not dilute.

Administration: Administer intramuscularly into the vastus lateralis or deltoid muscle.

References

CIUSSS de la Capitale-Nationale. *Antidote en toxicologie d'urgence — Naloxone (extrahospitalier)*. Centre antipoison du Québec, 2017. Accessed online on October 12, 2020: <https://www.ciusss-capitalenationale.gouv.qc.ca/naloxone-en-extrahospitalier?lang=fr>

28:00 Central Nervous System Agents

Subclass

28:12 Anticonvulsants

Sub-subclass

28:12.92 Anticonvulsants, Miscellaneous

Agent

Magnesium sulphate (MgSO₄)

Therapeutic indications

- Preterm birth or threatened preterm birth
- Severe hypertension with or without comorbidities and non-severe hypertension with comorbidities
- Eclampsia

Adverse effects	Medical contraindications
• Sweating, redness, feeling of warmth when starting the treatment More rarely: • Nausea, vomiting, palpitations, headache • Hypotension, confusion, respiratory depression: requires immediate discontinuation of treatment First signs of overdose: • Abolition of osteotendinous reflexes • Decreased respiratory rate • Drowsiness	• Cardiac insufficiency • Heart rhythm disorders • Digitalizing treatment • Severe fluid and electrolyte disorders • Renal failure • Myasthenia • Maternal or fetal distress requiring emergency extraction (< 30 minutes)

IMPORTANT

- With intermittent IV administration, overdosing or too rapid administration may result in flushing, vasodilation, hypotension, bradycardia, conduction block-type arrhythmias, and may even be fatal. **If hypotension or a skin reaction occurs, the bolus rate should be slowed by 50%. If there is a disturbance of consciousness, bradycardia, arrhythmia, or respiratory depression, the bolus should be discontinued and the need for calcium gluconate should be assessed.**
- Management during administration: diuresis, blood pressure, respiratory rate, and neurological status.
- **Antidote for magnesium sulphate: calcium gluconate: 10 mL at 10% as a slow IV infusion over 5 minutes**

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Onset of action: immediate • Duration of action: 30 minutes after the end of the infusion	• 99% intracellular cation, involved in several enzymatic processes and playing an essential role in neurotransmission and muscle excitability; vasodilator and bronchodilator effects; membrane stabilizing effect with antiarrhythmic, anticonvulsant, and central nervous system depressant actions.	• Half-life: 4 to 5 hours

Special considerations for administration to adults

4 g bolus:

Form: 10 mL vial (5 g/10 mL)

Reconstitution: not applicable

Compatibility with solutions: NaCl 0.9%, dextrose 5%, and Ringer's lactate.

Preparation: Dilution is necessary before administration.

Prepare a bolus of 4 g of magnesium sulphate:

- Add 8 mL (4 g) IV magnesium sulphate (5 g/10 mL) to 50 mL NaCl 0.9% (total volume: 58 mL)

Administration: Administer over 30 minutes.

Maintenance infusion (25 g at 1 g/h)

Form: 50 mL vial (5 g/10 mL)

Reconstitution: not applicable

Compatibility with solutions: NaCl 0.9%, dextrose 5%, and Ringer's lactate.

Preparation: Dilution is necessary before administration.

Prepare the maintenance infusion of magnesium sulphate:

- Draw 50 mL from a 250 mL bag of NaCl 0.9%: total = 200 mL
- Add 25 g of magnesium sulphate (50 mL) to 200 mL NaCl 0.9% (total volume: 250 mL)

Administration: Administer at a rate of 1 g/h or 10 mL/h

References

CHU Sainte-Justine. *Feuille d'ordonnance préédictée individuelle ou collective (FOPRI 0012) — Hypertension grave en obstétrique*. Département de pharmacie. 2014.

CHU Sainte-Justine. *Feuille d'ordonnance préédictée individuelle ou collective (FOPRI 709) — Sulfate de magnésium à des fins de neuroprotection fœtale*. Département de pharmacie. 2014.

Fresenius Kabi Canada Inc. *SULFATE DE MAGNÉSIUM INJECTABLE, USP À 50%*. Product monograph, 2016. Accessed online on September 13, 2020: <https://docs.google.com/document/d/1qR4fVGAUdzJbYmo-Wjk6zU4WKE5J1ZIN/edit#>

28:00 Central Nervous System Agents

28:24 Anxiolytics, Sedatives, and Hypnotics

28:24.08 Benzodiazepines

Midazolam

Therapeutic indications

- Uterine revision (procedural analgesia)

Adverse effects	Medical contraindications
• Respiratory depression • Altered level of consciousness • Hypotension • Bradycardia • Prolonged sedation when the volume of distribution is increased (obesity, renal failure, etc.)	• Hypersensitivity to midazolam or benzodiazepines • Hypotension

IMPORTANT

- **Quebec Poison Control Centre: 1-800-463-5060**
- **Antidote for benzodiazepines: flumazenil**
- Midazolam has no analgesic effect.
- The need for benzodiazepine administration should be accompanied by an adjustment of sensory stimuli: reduce noise, light, and activities.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Onset of action: IV = 1 to 5 minutes, IM = 15 minutes • Peak action: IV = 5 to 10 minutes, IM = 30 to 60 minutes • Duration of action: 30 to 120 minutes	• Increased inhibitory action of gamma-aminobutyric acid on the central nervous system	• Half-life: 1 to 3 hours

Special considerations for administration to adults

Intramuscular administration

Form: 1 mL vial (5 mg/mL)

Reconstitution: not applicable

Compatibility of solutions: not applicable

Preparation: Draw 0.2 to 0.5 mL of midazolam. Do not dilute.

Administration: Administer intramuscularly.

Intravenous administration

Form: 5 mL vial (1 mg/mL)

Reconstitution: not applicable

Compatibility of solutions: not applicable

Preparation: Draw 1 to 2.5 mL of midazolam. Do not dilute.

Administration: Administer IV directly or through IV tubing at a rate of 1 mg/min (1 mL/min).

Clinical monitoring recommended following administration of midazolam:

- blood pressure
- pulse rate
- **respiratory rate**
- SpO₂ saturation
- level of sedation
- state of consciousness
- skin condition/colour/temperature

References

Institut universitaire de cardiologie et de pneumologie de Québec — Université Laval. *Guide d'administration intraveineuse des médicaments critiques*, 11^e édition.

Pfizer Canada inc. *MIDAZOLAM INJECTABLE USP*. Product monograph, 2017. Accessed online on October 27, 2020: https://www.pfizer.ca/sites/default/files/201712/2017.10.25_Midazolam_PM_WP_F_210318.pdf

28:00 Central Nervous System Agents

28:92 Central Nervous System Agents, Miscellaneous

Flumazenil

Therapeutic indications

- Antidotes: benzodiazepines

Adverse effects	Medical contraindications
• Nausea and vomiting • Agitation • Trembling • Convulsions • Arrhythmia	• Epilepsy • Benzodiazepine dependence

IMPORTANT

- Since the duration of action of flumazenil (1 h) is shorter than that of most benzodiazepines, close monitoring of the patient is essential for 3 to 4 hours after administration, as additional doses may be required.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Onset of action: 1 to 3 minutes • Peak action: 6 to 10 minutes	• Competitive inhibition of benzodiazepines binding to their site of action on GABA receptors	• Half-life: 1 hour

Special considerations for administration

Form: 5 mL vial (0.1 mg/mL)

Reconstitution: not applicable

Compatibility of solutions: not applicable

Preparation: not applicable

Administration: Administer the undiluted IV dose over 30 seconds.

Clinical monitoring recommended following flumazenil administration

- state of consciousness
- vital signs (**breathing**, blood pressure, heart rate, SpO₂ saturation)
- level of sedation (risk of rebound sedation)
- pain
- adverse effects
- ECG (as soon as possible)

References

CIUSSS de la Capitale-Nationale. *Antidote en toxicologie d'urgence — Flumazénil*. Centre antipoison du Québec, 2017. Accessed online on October 12, 2020: <https://www.ciuiss-capitalenationale.gouv.qc.ca/flumazenil?lang=fr>

Institut universitaire de cardiologie et de pneumologie de Québec — Université Laval. *Guide d'administration intraveineuse des médicaments critiques*, 11^e édition.

36:00 Diagnostic Agents

36:26 Diabetes Mellitus

Quantitative blood glucose test strips

Therapeutic indications

- Self-monitoring of blood glucose during pregnancy

IMPORTANT

- To find out how to get reimbursed for the strips: <https://www.ramq.gouv.qc.ca/SiteCollectionDocuments/professionnels/infolettres/2017/info310-6.pdf>
- The exception code "BG" must be on the prescription for RAMQ reimbursement of strips for women with diabetes.
- For privately insured women, reimbursement for strips is based on the terms of their coverage.
- The strips are sold in packages of 10, 50, and 100.
- Strips can still be prescribed even if the patient is not going to be reimbursed by the RAMQ or private insurance.

References

Diabète Québec. *Vivre avec le diabète — Autosurveillance de la glycémie*. 2017. Accessed online on November 9, 2020: <https://www.diabete.qc.ca/fr/vivre-avec-le-diabete/soins-et-traitements/autocontrole/autocontrole-de-la-glycemie/>

Régie de l'assurance maladie du Québec. *Nouvelles modalités de remboursement des réactifs quantitatifs du glucose dans le sang (bandelettes)*. Infolettre #310, 2017. Accessed online on November 9, 2020: <https://www.ramq.gouv.qc.ca/SiteCollectionDocuments/professionnels/infolettres/2017/info310-6.pdf>

40:00 Electrolytic, Caloric, and Water Balance

40:12 Replacement Preparations

Calcium gluconate

Therapeutic indications

- Antidotes: magnesium sulphate

Adverse effects	Medical contraindications
• Hypotension, bradycardia, and arrhythmias might occur with rapid intravenous injection • Burning sensation at the injection site when administered as a bolus. • Subcutaneous calcinosis and tissue necrosis, if extravasation • Arterial spasm during calcium infusion • Hypercalcemia (possible deterioration of myocardial function in cases of significant hypercalcemia)	• Ceftriaxone intake (crystal formation with risk of vascular deposition leading to death) • Hypercalcemia

IMPORTANT

- If calcium gluconate is administered too rapidly, there is a risk of cardiotoxicity, local phlebitis, flushing, and bradycardia, hence the importance of administering it over 5 minutes.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
	• Mineral salt found mainly in bones and which plays an essential role in the functioning of the body's cells, including muscle and nerve cells; calcium is essential for blood clotting and several enzymatic processes.	

Special considerations for administration

Form: 10 mL vial (100 mg/mL) = 1 g/10 mL

Reconstitution: none

Compatibility of solutions: normal saline, dextrose 5%, dextrose 10%, Ringer's lactate

Preparation: none

Administration: Administer the 100 mg/mL (10%) concentrated solution by direct IV injection solution over 5 minutes.

Flush the catheter after each injection with 2.5 to 30 mL of NS to reduce the risk of thrombophlebitis.

Clinical monitoring recommended following administration of calcium gluconate:

- magnesium dose (magnesemia) as soon as possible
- vital signs
- assessment of consciousness
- ECG (as soon as possible)

References

CIUSSS de la Capitale-Nationale. *Antidote en toxicologie d'urgence — Calcium (gluconate de)*. Centre antipoison du Québec, 2017. Accessed online on October 12, 2020: <https://www.ciusss-capitalenationale.gouv.qc.ca/calcium-gluconate?lang=fr>

CIUSSS de l'Est-de-l'Île-de-Montréal. Ordonnance individuelle préformatée N° [OIP 331] - *Soins et surveillance lors de la prévention des convulsions et du traitement de la prééclampsie/éclampsie par le sulfate de magnésium*. / Last revision: 2014.

Association of Ontario Midwives, Canadian Association of Midwives, *Urgences obstétricales, Manuel de formation*, 5^e édition, 2013, version française (2015).

Class

40:00 Electrolytic, Caloric, and Water Balance

Subclass

40:12 Replacement Preparations

Agent

Magnesium

RESTRICTION

None

Therapeutic indications

- Nipple vasospasm

Adverse effects	Medical contraindications
• Gastrointestinal irritation • Nausea and vomiting • Diarrhea Rarely: • Hypermagnesemia (symptoms include: thirst, hypotension, drowsiness, confusion, loss of tendon reflexes, muscle weakness, respiratory depression, cardiac arrhythmia, coma, cardiac arrest, and death)	• History of heart block, kidney disease, or bleeding disorder Precautions: • Taking magnesium with drugs or herbs that affect platelet aggregation may increase the risk of bleeding. • Magnesium forms an insoluble complex with quinolones, reducing their effectiveness. These medications should not be taken within 2 hours before or 6 hours after taking magnesium.

IMPORTANT

- When for the treatment of vasospasm, magnesium should be taken with a calcium supplement.
- Magnesium gluconate, citrate, and chloride are the forms least likely to have a laxative effect.
- Avoid taking more than 350 mg of elemental magnesium per dose.

References

Sandoz Canada inc. *MONOGRAPHIE DES SUPPLÉMENTS DE MULTIVITAMINES/MINÉRAUX. Monographie de produits*, 2016. Consulté en ligne le 18 novembre 2020: https://www.sandoz.ca/sites/www.sandoz.ca/files/Multivitaminesmineraux-supplements-de-sous-consultation_Product%20Monograph.pdf

Class

40:00 Electrolytic, Caloric, and Water Balance

Subclass

40:12 Replacement Preparations

Agent

Ringer's lactate

RESTRICTION

None

Therapeutic indications

- Solutions

Adverse effects	Medical contraindications
• Fever • Infection at the injection site • Phlebitis • Thrombosis • Extravasation • Hypervolemia	• Hypersensitivity to sodium lactate • Lactic acidosis

Rate of administration precautions

- Cardiac insufficiency
- Renal failure
- Edema with sodium retention
- Respiratory or metabolic alkalosis
- Hypertension

IMPORTANT

- Monitor total volume of venous fluid to avoid overload.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Immediate	• Lactate is converted to bicarbonate in the liver.	

References

CORPORATION BAXTER. *Lactate de Ringer USP, Injectable*. Prescribing information, 2018. Accessed online on November 5, 2020: https://www.baxter.ca/sites/g/files/ebysai1431/files/2019-01/Lactate_de_Ringer_USP_Injectable_FR.pdf

Class

40:00 Electrolytic, Caloric, and Water Balance

Subclass

40:12 Replacement Preparations

Agent

Normal saline (NaCl 0.9%)

RESTRICTION

None

Therapeutic indications

- Solutions

Adverse effects	Medical contraindications
• Hyponatremia • Edema and fluid overload (monitoring required in cardiac or renal failure) • Pain at the injection site • Phlebitis and thrombosis • Extravasation	

Precautions

- Renal failure
- Cardiac insufficiency
- Monitor the injection site for extravasation.

IMPORTANT

- Monitor total volume of venous fluid to avoid overload.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Immediate	• Main extracellular cation, essential for maintaining electrolyte and water balance and for body water distribution	

References

CORPORATION BAXTER. *Chlorure de sodium injectable à 0,9%, USP*. Prescribing information, 2013. Accessed online on November 5, 2020: https://www.baxter.ca/sites/g/files/ebysai1431/files/2018-12/0.9pct_NaCl_Inj_AVIVA_22Nov2013_FR_0.pdf

Class

40:00 Electrolytic, Caloric, and Water Balance

Subclass

40:20 Caloric Agents

Agent

Dextrose 5% – NaCl 0.9%

RESTRICTION

None

Therapeutic indications

- Solutions

Adverse effects	Medical contraindications
• Hyperglycemia • Pain at the injection site • Phlebitis and thrombosis • Extravasation (tissue necrosis)	• Use with caution in women with impaired glucose tolerance or diabetes. • Severe corn allergy • Risk of red blood cell agglutination when blood is administered on the same intravenous line.

IMPORTANT

- Monitor total volume of venous fluid to avoid overload.
- The administration of dextrose 5% alone may result in electrolyte dilution (hyponatremia, hypocalcemia, etc.), overhydration and edema, hence the choice to use dextrose 5% – NaCl 0.9%.
- In neonates and persons with impaired sugar metabolism, do not stop the infusion abruptly, as there is a risk of rebound hypoglycemia (gradual decrease in flow rate required before stopping) when the flow rate is greater than 40 mL/h.
- Monitor the injection site for extravasation.
- Glucose solutions are not suitable for effective vascular filling.

References

CORPORATION BAXTER. *Solution injectable de dextrose et de chlorure de sodium, USP*. Prescribing information, 2018. Accessed online on November 5, 2020 : https://www.baxter.ca/sites/g/files/ebysai1431/files/2019-01/Solution_injectable_de_dextrose_et_de_chlorure_de_sodium_FR.pdf

Class

RESTRICTION

None

52:00 Eye, Ear, Nose, and Throat (EENT) Preparations

Subclass

52:04 Anti-infectives

Sub-subclass

52:04.04 Antibacterials

Agent

Erythromycin (ophthalmic ointment)

Therapeutic indications

- Prevention of neonatal conjunctivitis

Adverse effects	Medical contraindications
• Allergy or hypersensitivity to erythromycin • Local irritation, redness, or swelling • Temporary blurred vision	• Hypersensitivity to erythromycin

IMPORTANT

- In the event of a supply shortage of erythromycin ophthalmic ointment, see the Canadian Paediatric Society recommendations: <https://www.cps.ca/en/documents/position/ophthalmia-neonatorum>.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Uncertain	• Antibiotic in the macrolide class • Inhibits protein synthesis	

References

PENDOPHARM, division de Pharmascience inc. *Pr pdp-ERYTHROMYCIN*. Dosing information, 2017. Accessed online on November 16, 2020: https://pdf.hres.ca/dpd_pm/00043734.PDF

Class

56:00 Gastrointestinal Drugs

Subclass

56:04 Antacids and Absorbents

Agent

Calcium carbonate

RESTRICTION

Over-the-counter drug
(not targeted in Schedule
1 of the *Regulation
respecting Drugs That a
Midwife May Prescribe or
Administer in the Practice
of Midwifery.*)

Therapeutic indications

- Gastroesophageal reflux

Adverse effects	Medical contraindications
• Constipation • Diarrhea • Nausea • Hypercalcemia • Rebound effect (gastric hyperacidity) • Belching • Flatulence	• Known hypercalcemia • History of lithiasis

IMPORTANT

- Do NOT take within 2 hours of taking bisphosphonates, quinolones, tetracyclines, or levothyroxine (not an exhaustive list).

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
	• Dissolves into a salt that neutralizes hydrochloric acid (HCl) in the stomach.	• Half-life: not known

References

Sandoz Canada inc. *MONOGRAPHIE DES SUPPLÉMENTS DE MULTIVITAMINES/MINÉRAUX*. Product monograph, 2016. Accessed online on November 18, 2020: https://www.sandoz.ca/sites/www.sandoz.ca/files/Multivitaminesmineraux-supplements-de-sous-consultation_Product%20Monograph.pdf

Class

56:00 Gastrointestinal Drugs

Subclass

56:04 Antacids and Absorbents

Agent

Aluminum and magnesium hydroxide

RESTRICTION

Over-the-counter drug
(not targeted in Schedule
1 of the *Regulation
respecting Drugs That a
Midwife May Prescribe or
Administer in the Practice
of Midwifery.*)

Therapeutic indications

- Gastroesophageal reflux

Adverse effects	Medical contraindications
• Constipation • Decreased motility • Dehydration • Nausea • Belching • Flatulence • Diarrhea	

IMPORTANT

- Do NOT take within 2 hours of taking bisphosphonates, quinolones, tetracyclines, or levothyroxine (not an exhaustive list).

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
	• Dissolves into a salt that neutralizes hydrochloric acid (HCl) in the stomach.	• Half-life: not known

References

Vidal. *Gamme de médicaments Maalox maux d'estomac*. Product monographs, 2020. Accessed online on November 2, 2020: <https://www.vidal.fr/medicaments/gammes/maalox-maux-d-estomac-5772.html>

Class

56:00 Gastrointestinal Drugs

Subclass

56:04 Antacids and Absorbents

Agent

Alginic acid

RESTRICTION

Over-the-counter drug
(not targeted in Schedule
1 of the *Regulation
respecting Drugs That a
Midwife May Prescribe or
Administer in the Practice
of Midwifery*.)

Therapeutic indications

- Gastroesophageal reflux

Adverse effects	Medical contraindications
• Constipation • Diarrhea • Nausea • Belching • Flatulence	

IMPORTANT

- Do NOT take within 2 hours of taking bisphosphonates, quinolones, tetracyclines, or levothyroxine (not an exhaustive list).

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
	• Dissolves into a salt that neutralizes hydrochloric acid (HCl) in the stomach.	• Half-life: not known

References

Base Claude Bernard. GAVISCON *Suspension buvable flacon de 250 mL Alginate de sodium + bicarbonate de sodium*. Product monograph. Accessed on November 2, 2020:

<https://www.bcbdexther.fr/BcbDextherWeb/monographie/get?idProduit=23447&p=rO0ABXNyACBmci5yZXNpcC5zZXJ2aWNlcy5vYmplY3RzLktF-WVVybAAAAAAMJXBAGAESQAJaWRQcm9kdWl0SQAEbW9kZUwAAmNldAASTGphdmEvbGFuZy9TdHJpbmc7TAACc2VxAH4AAxhwaABblwAAAAJ0AB-NSRVNJUC1MRS1DT05TRUIMTEVSdAAVNzE3ODk4MTI4MzExMTc3MjEyMTEx>

56:00 Gastrointestinal Drugs

Subclass

56:22 Antiemetics

Sub-subclass

56:22.08 Antihistamines

Agent

Dimenhydrinate

Therapeutic indications

- Nausea and vomiting: pregnancy
- Nausea and vomiting: labour and child birth
- Prolonged latency (if narcotic administration)

Adverse effects	Medical contraindications
• Drowsiness • Paradoxical stimulation of the central nervous system • Headache • Blurred vision • Dryness of the throat and respiratory tract • Lack of coordination • Palpitations • Hypotension • Dizziness	• Hypersensitivity to dimenhydrinate • Hypersensitivity to diphenhydramine

Precautions

- A dye in dimenhydrinate chewable tablets might trigger asthma in some people at risk.
- Use with caution in epileptic clients.
- Dimenhydrinate might mask the symptoms of ototoxicity of certain drugs.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Onset of action – IV: immediate – PO: 15 to 30 minutes – IM: 20 to 30 minutes • Duration of action: 3 to 6 hours	• Competes with histamine in binding to H1 receptors found in the respiratory tract, gastrointestinal tract, and blood vessels. • The adverse effects are secondary to the anticholinergic actions of dimenhydrinate.	• Half-life: 1 to 4 hours

Special considerations for intramuscular or intravenous administration

Form: 1 mL ampoule (50 mg/mL)

Intramuscular administration

Reconstitution: not applicable

Compatibility with solutions: not applicable

Preparation: Draw 0.5 to 1 mL of dimenhydrinate. Do not dilute.

Intravenous administration

Reconstitution: not applicable

Compatibility with solutions: NaCL 0.9%

Preparation: Draw 0.5 to 1 mL of dimenhydrinate and add at least 9 mL of NaCl 0.9% (1:10).

Administration: Administer as a direct IV over 2 minutes.

References

Sandoz Canada inc. *DIMENHYDRINATE INJECTION USP*. Product monograph, 2017. Accessed online on October 14, 2020: https://www.sandoz.ca/sites/www.sandoz.ca/files/SUPPOSITOIRES%20DIMENHYDRINATE_Monographie%20Produit.PDF

56:00 Gastrointestinal Drugs

Subclass

56:22 Antiemetics

Sub-subclass

56:22.08 Antihistamines

Agent

Doxylamine + pyridoxine

Therapeutic indications

- Nausea and vomiting: pregnancy

Adverse effects	Medical contraindications
• Drowsiness • Vertigo • Anxiety • Epigastric pain • Headache • Palpitations • Diarrhea • Disorientation • Irritability • Convulsions • Urinary retention • Insomnia	• Hypersensitivity to antihistamines • Angle-closure glaucoma • Peptic ulcer • Pyloroduodenal obstruction • Bladder neck obstruction • Current use of monoamine oxidase inhibitor antidepressants

Precautions

- Possible alternative for breastfeeding women (see <https://www.chusj.org/fr/soins-services/P/Pharmacie/Centre-IM-AGe/Capsule-d-information>)
- History of asthma
- History of hyperthyroidism

IMPORTANT

- Slow-acting tablets. The delayed effect might be prolonged if the tablets are taken with food. Taken on an empty stomach, allow 4 to 6 hours before the usual time of nausea.
- Regular daily intake for several days is required to obtain an optimal effect of the treatment.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Peak action: fasting: 5 hours; with food: 15 hours	• Antihistamine and antiemetic effect	• Half-life: 10 to 12 hours

References

Duchesnay Inc. *Pr Diclectin*®. Product monograph, 2017. Accessed online on November 5, 2020: https://www.duchesnay.com/files/pdf/diclectin_monographie.pdf

Class

56:00 Gastrointestinal Drugs

Subclass

56:28 Antiulcer Agents and Acid Suppressants

Sub-subclass

56:28.12 Histamine H2-Antagonists

Agent

Ranitidine

RESTRICTION

Over-the-counter drug
(not targeted in Schedule
1 of the *Regulation
respecting Drugs That a
Midwife May Prescribe or
Administer in the Practice
of Midwifery*.)

Therapeutic indications

- Gastroesophageal reflux

Adverse effects	Medical contraindications
• Headache • Dizziness • Nausea • Gastric problems • Diarrhea	• Hypersensitivity to ranitidine

IMPORTANT

- Do NOT take within 2 hours of antineoplastic agents, HIV transcriptase or protease inhibitors, potassium-channel blockers, and certain azoles (not an exhaustive list).

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Onset of action: 1 to 3 hours	• Reduces the amount of gastric acid in the stomach.	• Half-life: 2 to 3 hours

References

Sanofi santé grand public. ZANTAC®. Monograph, 2019. Accessed online on November 18, 2020: <http://products.sanofi.ca/fr/zantac.pdf>

Class

56:00 Gastrointestinal Drugs

Subclass

56:28 Antiulcer Agents and Acid Suppressants

Sub-subclass

56:28.28 Prostaglandins

Agent

Misoprostol

RESTRICTION

None

Therapeutic indications

- Postpartum hemorrhage (uterine atony)
- Placental retention
- Incomplete abortion and terminated pregnancy

Adverse effects	Medical contraindications
• Pyrexia (more common with oral intake) • Chills • Nausea and vomiting • Diarrhea The adverse effects are dose-dependent.	• None in a postpartum hemorrhage situation • Pregnancy

IMPORTANT

- Indication not approved by Health Canada

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• PO or SL: rapid onset of action (8 and 11 minutes) and duration of action: 2 and 3 hours, respectively • PR: slower onset of action and duration of action of 4 hours	• Interacts with prostanoid receptors on the uterus, causing uterine contractions.	• Half-life: 20 to 40 minutes

Particularity related to administration through the umbilical vein (placental retention)

Figure 1. Pipingas technique for injection of the intraumbilical vein if the placenta has not separated or delivered within 45 minutes after delivery of the baby.

-
- Prepare a syringe of misoprostol (800 µg) or oxytocin (50 IU) dissolved in 30 mL of normal saline.
 - Insert a size 10 nasogastric suction catheter along the umbilical vein. If resistance is felt, retract the catheter 1 to 2 cm and advance it further, if possible. If the catheter cannot be advanced further without force, inject the solution in this position.
 - If most of the catheter has been inserted when resistance is felt, indicating that it has reached the placenta, retract it 3 to 4 cm to ensure that the tip is in the umbilical vein and not in a placental branch.
 - Connect the syringe to the catheter and inject the solution. Clamp the catheter in situ and record the time of the injection.
 - Allow 30 minutes for the placenta to deliver before undertaking further intervention.
-

References

Leduc, D, Senikas, V et Lalonde, A. No 235 — *Prise en charge active du troisième stade du travail: Prévention et prise en charge de l'hémorragie postpartum. Directive clinique*, Journal d'obstétrique et de gynécologie du Canada, volume 40, issue 12, e856-e873, 2018. Accessed online on October 28, 2020: <https://doi.org/10.1016/j.jogc.2018.09.025>

AA PHARMA INC. *MISOPROSTOL*. Product monograph, 2010. Accessed online on October 28, 2020: <https://www.aapharma.ca/downloads/en/PIL/2016/Misoprostol-PM.pdf>

56:00 Gastrointestinal Drugs

56:28 Antiulcer Agents and Acid Suppressants

56:28.32 Protectants

Sucralfate

Therapeutic indications

- Sore nipple: chapping and fissures

Adverse effects	Medical contraindications
• No adverse effects reported in the studies	• Hypersensitivity to sucralfate

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Limited data. Sucralfate has only been studied for its use in reducing pain related to breastfeeding.	• Skin healing and repairing agent.	

References

Beaulac-Baillargeon, L. *Comparaison de l'effet du sucralfate et de la lanoline versus un placebo dans la prévention des douleurs et gerçures aux mamelons au moment de l'allaitement maternel*, *Pharmactuel*, Vol. 41, No 1, 2008. Accessed online on October 15, 2020

<https://pharmactuel.com/index.php/pharmactuel/article/view/664#:~:text=Conclusion%203A%20The%20application%20of%20sucralfate,cr%C3%A8me%20inerte%20servant%20as%20placebo.>

APTALIS PHARMA CANADA INC. *Pr SULCRATE®*. Product monograph, 2013. Accessed online on October 15, 2020: https://pdf.hres.ca/dpd_pm/00022277.PDF

56:00 Gastrointestinal Drugs

56:28 Antiulcer Agents and Acid Suppressants

56:28.36 Proton-pump Inhibitors

Omeprazole

Therapeutic indications

- Gastroesophageal reflux

Adverse effects	Medical contraindications
• Diarrhea • Nausea • Constipation • Abdominal pain • Vomiting • Flatulence • Dizziness • Headache	• Hypersensitivity to omeprazole

Precautions

- Administration of warfarin, an antifungal, diazepam, or digoxin (not an exhaustive list)

IMPORTANT

- Prolonged use of a proton-pump inhibitor might increase the risk of osteoporosis.
- In order to receive reimbursement for omeprazole during pregnancy, the prescription must be coded "PP12": <https://www.ramq.gouv.qc.ca/SiteCollectionDocuments/professionnels/infolettres/2017/info307-6.pdf>.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• The maximum serum concentration is reached within 3 hours.	• Decreases the secretion of gastric acid in the stomach	• Half-life: 40 minutes

References

Sandoz Canada inc. *Pr Sandoz Omeprazole. Product monograph*, 2018. Accessed online on October 20, 2020: <https://www.sandoz.ca/sites/www.sandoz.ca/files/9673-Sandoz%20Omeprazole%20Monographie%20de%20produit.pdf>

Domperidone**RESTRICTION**
breastfeeding (BF)**Therapeutic indications**

- Insufficient milk supply

Adverse effects	Medical contraindications
• Xerostomia (dry mouth) • Headache • Abdominal cramps, diarrhea, and constipation • Cardiac symptoms (palpitations, arrhythmias) • Cardiac toxicity (increased QT interval)** Advise the woman to contact the midwife if any of these symptoms occur.	• Cardiac arrhythmia (current or history of) • Family history of severe cardiac arrhythmias (e.g., long QT syndrome) • Pituitary tumor • Pre-existing gastrointestinal perforation, obstruction, or bleeding • Liver failure • Personal history of breast cancer • Uncorrected electrolyte disorders • Hypersensitivity to domperidone • Taking a drug that is not compatible with domperidone *** See the list below.

IMPORTANT

- Domperidone alone is not enough to increase milk production. Breast stimulation is still essential despite the use of this medication. In addition, certain maternal conditions can affect production (e.g., **anemia, hypothyroidism**).
- Some clinicians sometimes prescribe higher doses when the usual dosage seems insufficient. At this time, the data do not support the conclusion that these higher doses are more effective than the dosage proposed here. In addition, these doses may require special monitoring (e.g., ECG) that should be performed by a medical professional.
- **Grapefruit juice should be avoided while taking domperidone because it increases blood levels of the drug.**

* A reduction in dose may be suggested to reduce adverse effects.

** Domperidone-induced QT prolongation and torsades de pointes have been reported in the medical literature. Nonpharmacological factors that may be associated with QT interval prolongation include female gender, advanced age, bradycardia, heart disease, and electrolyte imbalances. Most reports have revealed the use of multiple concomitant medications and a complex medical history. The causal link is therefore difficult to establish in these cases (Health Canada).

*** **To avoid drug interactions with domperidone, consult the IMAGE centre and/or the institutional pharmacist if the woman is already taking another medication: (the following list is not exhaustive and is subject to change).**

Drug interaction - Absolute contraindications	Drug interaction - Relative contraindications (use to be discussed on a case-by-case basis)
• Antiarrhythmic agents: sotalol, amiodarone, quinidine, procainamide, etc. • Some calcium-channel blockers: diltiazem, verapamil • Conventional antipsychotics: chlorpromazine, thioridazine, haloperidol, pimozide, etc. • Psychotropic agents: lithium • MAOI antidepressants: tranylcypromine, phenelzine, moclobemide • Systemic azole antifungals: ketoconazole, itraconazole, fluconazole, voriconazole • Macrolide antibiotics: erythromycin, clarithromycin, azithromycin • Fluoroquinolone antibiotics: moxifloxacin, ofloxacin, levofloxacin, ciprofloxacin • Other: ondansetron, granisetron, methadone, chloroquine, hydroxychloroquine, cisapride, pentamidine, grapefruit juice	• Psychotropic agents: tricyclic antidepressants (e.g., amitriptyline), trazodone, SSRI antidepressants (e.g., citalopram), venlafaxine, mirtazapine, quetiapine, olanzapine, risperidone, etc. • Other: famotidine, trimethoprim-sulfamethoxazole, tacrolimus, diuretics

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Taking domperidone after meals increases its bioavailability • Before concluding that the treatment is ineffective, a minimum duration of 6 weeks is recommended.	• Domperidone promotes prolactin production.	• Onset of action after 48 to 72 hours • Maximum effect after 2 to 3 weeks • Half-life: 7 hours • Domperidone is rapidly absorbed when taken orally. • Domperidone is metabolized by the liver.

Domperidone withdrawal:

As a point of information, these are the procedures for terminating domperidone when used to increase milk production. Considering the time required to establish adequate milk production, the midwife should not have to counsel a woman to wean off domperidone during the first six weeks postpartum.

Once milk production is well established, domperidone can be reduced gradually by 10 mg per day every week.

- For example, if the woman is receiving 10 mg PO TID (10 mg – 10 mg – 10 mg), decrease to 10 mg – 0 mg – 10 mg for one week, then to 10 mg – 0 mg – 0 mg, then stop completely.
- If a decrease in milk production is observed during weaning, resume at the previous effective level and maintain this dose for one to two weeks before decreasing again.

References

CANADA. SANTÉ CANADA (2015). *Maléate de dompéridone — Association à la survenue de rythmes cardiaques anormaux graves ou de mort subite (arrêt cardiaque)* — For the public [online], Ottawa, Gouvernement du Canada, <https://canadiensensante.gc.ca/recall-alert-rappel-avis/hc-sc/2015/43449a-fra.php> (page accessed on May 30, 2020).

CHU SAINTE-JUSTINE (2014). *Feuille d'ordonnance préédigée externe (FOPRE – 662) – Dompéridone dans l'insuffisance de lait maternel*, Montréal, Département de pharmacie du CHU Sainte-Justine.

DRUGS AND LACTATION DATABASE (LactMed) (page consulted online on June 1, 2020). *Domperidone*, Bethesda (MD), National Library of Medicine, <https://www.ncbi.nlm.nih.gov/books/NBK501371/>

APOTEX INC. *Pr APO-DOMPERIDONE*. Product monograph, 2015. Accessed online on June 1, 2020 : https://pdf.hres.ca/dpd_pm/00031789.PDF

68:00 Hormones and Synthetic Substitutes

68:04 Adrenals

Betamethasone

Therapeutic indications

- Preterm birth or threatened preterm birth

Adverse effects	Medical contraindications
• Increased leukocytosis • Decreased fetal heart rate oscillations around D2-D3 spontaneously resolving by D4 • Decreased active fetal movements for 12 to 24 hours after injection • Neonatal hypoglycemia	• Viral keratitis in the mother • Severe septic syndrome

IMPORTANT

- **Risk of diabetic imbalance for about a week: maintain close monitoring of blood glucose and intervene as needed. In women on insulin therapy, close monitoring of blood glucose levels and adjustment of insulin doses should be under the responsibility of a physician.**
- **Screening for diabetes should be done before or at least 7 days after administration of a corticosteroid.**
- For lung maturation, salvage treatment can be given no earlier than 14 days after the first treatment.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
	• Corticosteroids increase surfactant production by acting on type II pneumocytes, which appear between 24 and 28 weeks in the fetal lung.	• Half-life: 5 hours

Special considerations for administration

Form: 1 mL vial (6 mg/mL)

Reconstitution: not applicable

Compatibility of solutions:

Preparation: Draw 1 mL from 2 vials for a total of 2 mL in the syringe.

Administration: intramuscular injection into the gluteal muscle

References

Sandoz Canada inc. *Pr BETAJECT®. Renseignements d'ordonnance*, 2018. Accessed online on September 20, 2020: <https://www.sandoz.ca/sites/www.sandoz.ca/files/Betaject%20Monographie%20de%20produit.pdf>

68:00 Hormones and Synthetic Substitutes

68:04 Adrenals

Dexamethasone

Therapeutic indications

- Preterm birth or threatened preterm birth

Adverse effects	Medical contraindications
• Increased leukocytosis • Decreased fetal heart rate oscillations around D2-D3 spontaneously resolving by D4 • Decreased active fetal movements for 12 to 24 hours after injection • Neonatal hypoglycemia	• Viral keratitis in the mother • Severe septic syndrome

IMPORTANT

- **Risk of diabetic imbalance for about a week: maintain close monitoring of blood glucose and intervene as needed. In women on insulin therapy, close monitoring of blood glucose levels and adjustment of insulin doses should be under the responsibility of a physician.**
- **Screening for diabetes should be done before or at least 7 days after administration of a corticosteroid.**
- For lung maturation, salvage treatment can be given no earlier than 14 days after the first treatment.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
	• Corticosteroids increase surfactant production by acting on type II pneumocytes, which appear between 24 and 28 weeks in the fetal lung.	• Half-life: 3 to 4.7 hours

Special considerations for administration

Form: single-use vial of 1 mL (10 mg/mL) or 5 mL (4 mg/mL)

Reconstitution: not applicable

Compatibility with solutions: not applicable

Preparation: Draw 0.6 mL (6 mg) from a 1 mL (10 mg/mL) vial or 1.5 mL (6 mg) from a 5 mL (4 mg/mL) vial.

Administration: intramuscular (IM) injection into the gluteal muscle

References

Sandoz Canada inc. *PrDEXAMETHASONE SODIUM PHOSPHATE INJECTION USP*. Product monograph, 2020. Accessed online on November 5, 2020: <https://www.sandoz.ca/sites/www.sandoz.ca/files/Dexamethasone%20Sodium%20Phosphate%20%20Injection%20Monographie%20de%20produit.pdf>

68:00 Hormones and Synthetic Substitutes

68:12 Contraceptives

Levonorgestrel intrauterine

Therapeutic indications

- Postnatal contraception

Adverse effects	Medical contraindications
• Abdominal pain and cramping at the time of insertion and several days/weeks after • Longer or heavier menstrual bleeding • Irregular bleeding • Risk of uterine perforation	• Hypersensitivity to levonorgestrel • Pregnancy, confirmed or suspected • Presence or history of hormone-dependent progesterone cancer • Breast cancer, confirmed or suspected • Liver tumor, benign or malignant • Liver disease • Abnormal vaginal bleeding of unknown cause • Untreated acute postpartum cervicitis or vaginitis • Pelvic inflammatory disease • Uterine malformation Precautions: • History or risk of ectopic pregnancy • Thromboembolism • Coagulation disorder • Diabetes • Migraine or severe headache • Immunodepression

IMPORTANT

- To ensure optimal effectiveness, teach the woman to check the IUD position.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• 99.8% in typical and perfect use • Average duration of effectiveness of 5 years	• Exact mechanism of action not known • Hypothesis: might thicken or change cervical mucus or might inhibit sperm capacitation.	• Half-life: 14 to 17 hours • Excreted in urine and feces

References

Bayer inc. PrJAYDESS®. Monograph, 2018. Accessed online on September 24, 2020: <https://www.bayer.ca/omr/online/jaydess-pm-fr.pdf>

Bayer inc. PrKYLEENA®. Monograph, 2019. Accessed online on September 24, 2020: https://pdf.hres.ca/dpd_pm/00051683.PDF

Bayer inc. PrMIRENA®. Monograph, 2019. Accessed online on September 24, 2020: <https://www.bayer.ca/omr/online/mirena-pm-fr.pdf>

68:00 Hormones and Synthetic Substitutes

68:12 Contraceptives

Levonorgestrel

Therapeutic indications

- Contraception: emergency oral contraception (EOC)

Adverse effects	Medical contraindications
• Headache • Nausea and vomiting • Fatigue • Vertigo • Dysmenorrhea • Abdominal pain	• Hypersensitivity to levonorgestrel • Concomitant use of ulipristal acetate Precautions: • Concomitant use of a CYP3A4-inducing drug. This could affect the effectiveness of levonorgestrel.

IMPORTANT

- **EOC selection (EOC or ulipristal acetate) may be influenced by the woman's weight, time since last intercourse, recommendation to stop breastfeeding x 24 hours with ulipristal acetate, etc.)**
- **If VOMITING within 3 hours of administration, give a 2nd dose.**
- Use as an emergency oral contraceptive in the event of a delay of ≥ 3 hours between the time of usual intake and the time of actual intake of norethindrone (progestin alone).
- Levonorgestrel is not considered an abortifacient. Taking it during pregnancy does not seem to have any impact on the pregnancy or the embryo/fetus.
- It is NOT necessary to stop breastfeeding before starting levonorgestrel.
- See the INESSS clinical tool for information on resuming regular oral contraception, the need for a back-up method of contraception, and resuming sexual relations: https://www.inesss.qc.ca/fileadmin/doc/INESSS/Rapports/Medicaments/Outil_Contraception-orale-durgence_VF.pdf.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• EOC effectiveness can be affected by three main factors: the time since the last unprotected sexual encounter, the phase of the menstrual cycle at the time of treatment, and the woman's weight.	• EOC can inhibit or delay ovulation. • Levonorgestrel acts on the development of the dominant follicle before the luteinizing hormone has an effect on the ovulatory peak. It does not affect the endometrium.	• Half-life: 26 hours

References

Foundation Consumer Healthcare, LLC et Laboratoires Paladin inc. *PLAN B^{MD}*. Product monograph, 2018. Accessed online on September 24, 2020: https://www.paladin-labs.com/our_products/PM_PlanB1.5_FR.pdf

68:00 Hormones and Synthetic Substitutes

68:12 Contraceptives

Ulipristal acetate

Therapeutic indications

- Contraception: emergency oral contraception (EOC)

Adverse effects	Medical contraindications
• Headache • Nausea and vomiting • Fatigue • Vertigo • Dysmenorrhea • Abdominal pain	• Hypersensitivity to ulipristal acetate • Concomitant use of levonorgestrel acetate Precautions: • Concomitant use of a CYP3A4-inducing drug. This could affect the effectiveness of ulipristal

Precautions

- Concomitant use of a CYP3A4-inducing drug. This could affect the effectiveness of ulipristal.

IMPORTANT

- **EOC selection (EOC or ulipristal acetate) may be influenced by the woman's weight, time since last intercourse, recommendation to stop breastfeeding x 24 hours with ulipristal acetate, etc.)**
- **If VOMITING within 3 hours of administration, give a 2nd dose.**
- Use as an emergency oral contraceptive in the event of a delay of ≥ 3 hours between the time of usual intake and the time of actual intake of norethindrone (progestin alone). In this situation, the use of ulipristal acetate should be done with caution.
- Ulipristal acetate is not considered an abortifacient. Taking it during pregnancy does not seem to have any impact on the pregnancy or the embryo/fetus.
- **Temporary cessation of breastfeeding for 24 hours should be considered prior to taking ulipristal acetate. Weigh the risks of transfer into the milk versus the risks of not breastfeeding for both the woman and her baby. Sainte-Justine UHC short on the subject to be published: <https://www.chusj.org/fr/soins-services/P/Pharmacie/Centre-IMAGe/Capsule-d-information>.**
- See the INESSS clinical tool for information on resuming regular oral contraception, the need for a back-up method of contraception, and resuming sexual relations: https://www.inesss.qc.ca/fileadmin/doc/INESSS/Rapports/Medicaments/Outil_Contraception-orale-durgence_VF.pdf.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• EOC effectiveness can be affected by three main factors: the time since the last unprotected sexual encounter, the phase of the menstrual cycle at the time of treatment, and the woman's weight.	• EOC can inhibit or delay ovulation. • Ulipristal acetate inhibits the rupture of the dominant follicle and remains effective until the ovulatory peak of the luteinizing hormone. It does not affect the endometrium.	• Half-life: 32 hours on average

References

Laboratoire HRA Pharma. *Prella*™. Product monograph, 2015.

68:00 Hormones and Synthetic Substitutes

68:12 Contraceptives

Norethindrone

Therapeutic indications

- Postnatal contraception

Adverse effects	Medical contraindications
• Headache • Dizziness • Irregularity of the menstrual cycle • Irregular vaginal bleeding • Nausea, rarely vomiting • Breast sensitivity	• Hypersensitivity to norethindrone or any of the ingredients of the drug • Hypersensitivity to progestins • Confirmed or suspected breast cancer • Confirmed or suspected pregnancy • Active liver disease • Presence or history of a benign or malignant liver tumor • Abnormal vaginal bleeding of unknown cause Precautions: • Some medications might decrease the effectiveness of norethindrone.

IMPORTANT

- To be taken at the same time each day, otherwise its effectiveness may be diminished.
- **If there is a delay of more than 3 hours between the usual time of taking and the actual taking of the tablet:** When more than three hours have passed since a progestin-only pill (POP) should have been taken, the action to be taken depends on whether or not there has been unprotected sex in the last five days. When the woman has not had such relations, she should take a pill as soon as possible and continue to take a pill at the same time each day. Back-up contraception should be used for 48 hours. When unprotected sex has occurred, emergency contraception is recommended. When emergency contraception involving levonorgestrel is used, the woman should resume taking POPs the next day and use back-up contraception for an additional 48 hours.
- When using emergency contraception with ulipristal acetate, the woman should resume taking POPs 5 days after the initiation of emergency contraception and use back-up contraception for an additional 14 days. The use of ulipristal acetate might require discontinuation of breastfeeding for 24 hours.
- Women who frequently miss POPs might need to consider using contraceptive methods that are less demanding in terms of adherence.
- **Emergency contraception:** https://www.inesss.qc.ca/fileadmin/doc/INESSS/Rapports/Medicaments/Outil_Contraception-orale-durgence_VF.pdf.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
- Norethindrone is theoretically 99.7% effective. - In practice, its rate of efficacy is 92%.	- Thickens cervical mucus, which impedes the passage of sperm to the uterus. - Thins the endometrium, which is detrimental to implantation. - Prevents ovulation in 60% of cases.	

References

Janssen Inc. *PrMICRONOR*®. Product monograph, 2018. Accessed online on September 24, 2020: https://pdf.hres.ca/dpd_pm/00044768.PDF

68:00 Hormones and Synthetic Substitutes

68:32 Progestins

Medroxyprogesterone

Therapeutic indications

- Postnatal contraception

Adverse effects	Medical contraindications
• Menstrual cycle irregularities • Weight gain • Abdominal pain • Decreased libido • Acne • Headache • Amenorrhea • Reaction at the injection site • Dizziness • Pelvic pain • Anxiety • Cramps in the legs • Alopecia • Distended abdomen • Skin rash • Edema • Leukorrhea • Heat • Vaginitis • Melasma/chloasma • Glucose intolerance • Hirsutism • Arthralgia • Thromboembolism • Anaphylaxis • Angioedema • Convulsions • Depression • Breast cancer • Loss of bone density • Delayed fertility after stopping injections	• Hypersensitivity to medroxyprogesterone or progestins • Confirmed or suspected pregnancy • Abnormal vaginal bleeding of unknown cause • Confirmed or suspected breast cancer

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• The maximum serum concentration is reached in 3 weeks. • 99.7% effectiveness (comparable to tubal ligation)	• Inhibits pituitary gonadotropin secretion. • Transforms proliferative endometrium into secretory endometrium. • Inhibits ovulation.	• Half-life: 50 days • Excreted in the stool • 15% to 22% not metabolized before excretion

Special considerations for intramuscular administration

Form: 1 mL vial (150 mg/mL)

Reconstitution: not applicable

Compatibility with solutions: not applicable

Preparation: not applicable

Administration: Administer 1 mL of medroxyprogesterone (150 mg/mL) into the arm or buttock.

References

Pfizer Canada inc. *PrPROVERA*. Monograph, 2014. Accessed online on September 24, 2020:
https://www.pfizer.ca/sites/default/files/201701/Provera_PM_FR.pdf

72:00 Local Anesthetics

Agent

Lidocaine 1% or 2% ± epinephrine

Therapeutic indications

- Repair of a perineal tear

Adverse effects	Medical contraindications
• Hypotension • Anxiety • Dizziness • Nausea and vomiting • Dyspnea • Allergic reaction or anaphylactic shock	• Hypersensitivity to lidocaine, amide-type local anesthetics (bupivacaine, mepivacaine, ropivacaine), or ester-type local anesthetics

Precautions

- Liver disease

IMPORTANT

- Lidocaine 4%, which was sometimes used to spray a perineal wound for suturing, is no longer available on the market. For topical application of a local anesthetic, refer to class 84:00 Skin and Mucous Membrane Agents and subclass 84:08 Antipruritic and Local Anesthetics.
- CAUTION with intravascular administration: aspirate frequently during infiltration to ensure that the needle is not in a blood vessel.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• See the table.	• Amide-bound local anesthetic. Blocks the initiation of nerve impulse conduction.	• Half-life: 1.5 to 2 hours

Special considerations for administration

Form: 5 mL vial**Reconstitution:** none**Compatibility with solutions:** not applicable**Preparation:** Fill a syringe with 5 to 10 mL of lidocaine ± epinephrine.**Administration:** Infiltrate lidocaine subcutaneously and intramuscularly. Be careful not to inject it into blood vessels. Use the lowest dose that achieves the desired local anesthesia.

Local anesthetics administered by infiltration for perineal suturing (free adaptation Laplante, F.)

	Concentration	Onset of action	Duration of action (min)
Lidocaine	1% 2%	5 to 10 minutes	30 to 60
Lidocaine + epinephrine (0.005 mg/mL)	1% 2%	5 to 10 minutes	90 to 120
Bupivacaine	0.25%	10 to 15 minutes	120 to 240
Bupivacaine+ epinephrine (0.005 mg/mL)	0.25%	10 to 15 minutes	360 to 480

References

Laplante F. L'anesthésie locale à l'urgence. *Le médecin du Québec*. 2005;40(2):45-53.

AstraZeneca Canada inc. XYLOCAINE® EN SOLUTIONS PARENTÉRALES. Therapeutic Information, 2011. Accessed online on October 15, 2020: https://pdf.hres.ca/dpd_pm/00014279.PDF

72:00 Local Anesthetics

Agent

Bupivacaine ± epinephrine

Therapeutic indications

- Repair of a perineal tear

Adverse effects	Medical contraindications
• Hypotension • Nausea and vomiting • Headache • Drowsiness • Diffuse pain • Blurred vision • Allergic reaction or anaphylactic shock • Toxicity • Cardiac arrest • Convulsions	• Hypersensitivity to bupivacaine, amide-type local anesthetics (lidocaine, mepivacaine, ropivacaine), or ester-type local anesthetics

Precautions

- Liver or heart disease

IMPORTANT

- CAUTION with intravascular administration: aspirate frequently during infiltration to ensure that the needle is not in a blood vessel.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• See the table.	• Amide-bound local anesthetic. Inhibits calcium channels. The nerve impulse cannot be initiated and conduction is blocked.	• Half-life: 2.7 hours

Special considerations for administration

Form: 10 mL single-use bottle (bupivacaine) and 20 mL single-use bottle (bupivacaine + epinephrine)

Reconstitution: none

Compatibility with solutions: not applicable

Preparation: Fill a syringe with 5 to 15 mL of bupivacaine ± epinephrine.

Administration: Infiltrate bupivacaine subcutaneously and intramuscularly. Be careful not to inject it into blood vessels. Use the lowest dose that achieves the desired local anesthesia.

Local anesthetics administered by infiltration for perineal suturing (free adaptation Laplante, F.)

	Concentration	Onset of action	Duration of action (min)
Lidocaine	1% 2%	5 to 10 minutes	30 to 60
Lidocaine + epinephrine (0.005 mg/mL)	1% 2%	5 to 10 minutes	90 to 120
Bupivacaine	0.25%	10 to 15 minutes	120 to 240
Bupivacaine+ epinephrine (0.005 mg/mL)	0.25%	10 to 15 minutes	360 to 480

References

Laplante F. L'anesthésie locale à l'urgence. *Le médecin du Québec*. 2005;40(2):45-53.

Pfizer Canada SRI. *MARCAINE^{MD} MARCAINE^{MD} E*. Product monograph, 2019. Accessed online on October 15, 2020: https://www.pfizer.ca/sites/default/files/201908/Marcaine_and_Marcaine_Spinal_PM_F_L3_04Feb2019.pdf.

76:00 Oxytocics

Agent

Oxytocin

Therapeutic indications

- Postpartum hemorrhage (uterine atony)
- Active management of the 3rd stage of labour
- Placental retention

Adverse effects	Medical contraindications
• Nausea and vomiting • Antidiuretic effects • Hypotension • Prolonged administration may lead to water intoxication.	• None when used in the management of postpartum hemorrhage • Pregnancy (except for induction or stimulation of labour)

IMPORTANT

- Direct IV administration, if too rapid, is associated with hypotension, tachycardia, and ECG changes. This route of administration is not preferred.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Onset of action: – IM: 2 to 3 minutes • Duration of action: 60 minutes	• Action on the oxytocin receptors of the smooth muscle to stimulate contraction of the uterus.	• Half-life: 3 to 17 minutes

Special considerations for intramuscular administration

Form: 1 mL single-use vial (10 units/mL)

Reconstitution: not applicable

Compatibility of solutions: not applicable

Preparation: Draw 1 mL of oxytocin.

Administration: Administer intramuscularly (IM) into the vastus lateralis muscle.

Special considerations for administration in the umbilical vein

Form: 1 mL vial (10 IU/1 mL)

Reconstitution: none

Compatibility with solutions: NaCl 0.9% or Ringer's lactate

Preparation: For intravenous administration, add 20 to 40 IU in 1000 mL of crystalloid solution (NaCl 0.9% or Ringer's lactate).

Administration: Administer through a large-bore catheter. Bolus administration: flow rate of 500 to 1000 mL/hour or slower, 150 mL/hour, depending on the intensity of bleeding.

Umbilical vein injection (placental retention)

Pipingas technique

Figure 1. Pipingas technique for injection of the intraumbilical vein if the placenta has not separated or delivered within 45 minutes after delivery of the baby.

- Prepare a syringe of misoprostol (800 µg) or oxytocin (50 IU) dissolved in 30 mL of normal saline.
 - Insert a size 10 nasogastric suction catheter along the umbilical vein. If resistance is felt, retract the catheter 1 to 2 cm and advance it further, if possible. If the catheter cannot be advanced further without force, inject the solution in this position.
 - If most of the catheter has been inserted when resistance is felt, indicating that it has reached the placenta, retract it 3 to 4 cm to ensure that the tip is in the umbilical vein and not in a placental branch.
 - Connect the syringe to the catheter and inject the solution. Clamp the catheter in situ and record the time of the injection.
 - Allow 30 minutes for the placenta to deliver before undertaking further intervention.
-

References

- Leduc, D, Senikas, V et Lalonde, A. *Prise en charge active du troisième stade du travail: Prévention et prise en charge de l'hémorragie postpartum*. Directive clinique No 235, Journal d'obstétrique et de gynécologie, volume 40, issue 12, e856-e873, 2018. Accessed online on October 28, 2020: <https://doi.org/10.1016/j.jogc.2018.09.025>
- Association of Ontario Midwives, Canadian Association of Midwives, *Urgences obstétricales, Manuel de formation*, 5^e édition, 2013, version française (2015).
- Pfizer Canada ULC. *P^rOxytocin Injection USP. Prescribing information*, 2018. Consulté en ligne le 19 octobre 2020: https://www.pfizer.ca/sites/default/files/201905/Oxytocin_PI_221052_18Dec2018_E.pdf

76:00 Oxytocics

Agent

Carboprost

Therapeutic indications

- Postpartum hemorrhage (uterine atony)

Adverse effects	Medical contraindications
• Nausea and vomiting • Diarrhea • Chills • Trembling • Transient pyrexia • Transient bronchoconstriction • Headache • Redness • Moderate increase in blood pressure	• Heart, lung, or kidney disease • Hypersensitivity to prostaglandins • Pelvic inflammatory disease Relative contraindications • Hypertension • Hypotension • Anemia • Asthma • Scarred uterus • Diabetes mellitus • History of convulsions

IMPORTANT

- Keep refrigerated.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• The maximum serum concentration is reached within 15 minutes.	• Carboprost is a synthetic analogue of PGF₂ methyl-15-α, which is a prostaglandin and a potent stimulant of myometrial contractility. • In addition to stimulating the uterus, carboprost has vasoactive effects, affects platelet function, and stimulates smooth muscles (effects on the gastrointestinal tract).	

Special considerations for intramuscular administration

Form: 1 mL single-use vial (0.25 mg/mL)

Reconstitution: not applicable

Compatibility with solutions: not applicable

Preparation: Draw 1 mL of carboprost.

Administration: Administer intramuscularly (IM) into the vastus lateralis muscle.

References

Pfizer Canada inc. *HEMABATE^{MD} SOLUTION STÉRILE*. Monograph, 2014. Accessed online on October 15, 2020: https://www.pfizer.ca/sites/default/files/201701/Hemabate_PM_FR.pdf

76:00 Oxytocics

Agent

Ergonovine (ergometrine)

Therapeutic indications

- Postpartum hemorrhage (uterine atony)
- Active management of the 3rd stage of labour

Adverse effects	Medical contraindications
• Nausea and vomiting • Diarrhea • Hypertension • Dizziness • Abdominal pain	• Hypertension, preeclampsia, or eclampsia • Receiving medication to treat HIV

IMPORTANT

- Mixed information on the risk of placental retention when used prior to delivery of the placenta.
- Keep refrigerated and protected from light.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Onset of action: – IM: 2 to 5 minutes • Duration of action: 3 hours	• Stimulates uterine and vascular smooth muscle contractions. Gives rise to sustained tonic uterine contraction by stimulating myometrial α-adrenergic receptors. • Stimulation of the entire uterus, including the lower segment.	• Half-life: 30 minutes

Special considerations for intramuscular administration

Form: 1 mL single-use vial (0.25 mg/mL)

Reconstitution: not applicable

Compatibility of solutions: not applicable

Preparation: Draw 1 mL of ergonovine.

Administration: Administer intramuscularly (IM) into the vastus lateralis muscle.

References

Alveda Pharmaceuticals Inc. ^{Pr}Ergonovine Maleate Injection. *Prescribing information*, 2015. Accessed online on October 15, 2020: https://pdf.hres.ca/dpd_pm/00030502.PDF

76:00 Oxytocics

Agent

Carbetocin

Therapeutic indications

- Postpartum hemorrhage (uterine atony)

Adverse effects	Medical contraindications
• Nausea and vomiting • Feeling of heat • Headache • Hypotension • Flushed face • Pruritus	• None when used in the management of postpartum hemorrhage

IMPORTANT

- Keep refrigerated.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Onset of action: – IM: 2 minutes • Duration of action: 60 minutes	• Synthetic oxytocin analogue with prolonged action	• Half-life: 30 to 60 minutes

Special considerations for intramuscular administration

Form: 1 mL single-use vial (100 mcg/mL)

Reconstitution: not applicable

Compatibility of solutions: not applicable

Preparation: Draw 1 mL of carbetocin.

Administration: Administer intramuscularly (IM) into the vastus lateralis muscle.

References

Ferring Inc. *PrDURATOCIN*®. Product monograph, 2018. Accessed online on October 19, 2020: https://pdf.hres.ca/dpd_pm/00044450.PDF

80:00 Serums, Toxoids and Vaccines

Subclass

80:04 Serums

Agent

Anti-D human immunoglobulin

Therapeutic indications

- Prevention of alloimmunization in Rhesus negative women (vaccines and immunoglobulins)

Adverse effects	Medical contraindications
• Reaction at the injection site • Mild fever • Allergic reaction • Anaphylaxis • Headache • Fatigue • Pallor • Diarrhea • Nausea and vomiting • Muscular pain • Drowsiness • Skin rash • Pruritus • Perspiration • Hypotension • Hypertension	• Hypersensitivity to human immunoglobulin • IgA deficiency and anti-IgA antibodies • Autoimmune hemolytic anemia • History of hemolysis or present risk of hemolysis • Rhesus positive • Identification of sufficient antibody (anti-D) secondary to previous administration of anti-D immunoglobulin • Confirmation of alloimmunization

Precautions

- The administration of anti-D immunoglobulin might decrease the effectiveness of live attenuated virus vaccines, such as for chickenpox. It is recommended to wait 11 weeks between the administration of anti-D immunoglobulin and the administration of Var or MMRVar vaccine.

IMPORTANT

- Anti-D human immunoglobulin provides protection for approximately 12 weeks.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Passive immunization with anti-D immunoglobulin prevents Rh(D) immunization in more than 99% of cases, provided that a sufficient dose of anti-D immunoglobulin is administered early enough after exposure to Rh(D)-positive fetal red blood cells.	• The mechanism by which anti-D immunoglobulin suppresses immunization against Rh(D)-positive red blood cells has not been elucidated. This suppression might be related to the removal of red blood cells from circulation before they reach immunocompetent sites, or to more complex mechanisms involving recognition of the foreign antigen and presentation of that antigen by appropriate cells at competent sites, in the presence or absence of antibody.	• Half-life: 3 to 4 weeks

Special considerations for administration

Form: bottle containing 600 units (120 mcg) or 1500 units (300 mcg)

Reconstitution: not applicable

Compatibility with solutions: NaCL 0.9%

Dextrose is incompatible with anti-D immunoglobulin.

Preparation: Draw the liquid from the bottle with the aim of achieving the target filling quantities.

WinRho SDF target doses and filling quantities

Bottle volume	Target filling quantity* (%)
600 units (120 mcg)	0.5 mL
1500 units (300 mcg)	1.3 mL

For IV administration, the liquid can be diluted with NaCL 0.9%.

Administration:

IM administration: Administer the product in the arm or outer thigh. Avoid injecting the product into the buttock.

IV administration: Administer over 5 to 15 seconds.

References

Saol Therapeutics Research Limited. *WINRHOMD SDF*. Product monograph, 2007. Accessed online on November 10, 2020: <https://winrho.com/pdfs/WinRho%20PM-french-042420.pdf>

80:00 Serums, Toxoids and Vaccines

Subclass

80:04 Serums

Agent

Varicella zoster immunoglobulin (VarIg)

Therapeutic indications

- Vaccines and maternal immunoglobulins (infectious contact in a woman susceptible to chickenpox)

Adverse effects	Medical contraindications
• Pain • Erythema • Headache • Skin rash • Myalgia • Chills • Fatigue • Nausea • Flushing • Severe allergic reaction	• Anaphylaxis following a previous dose of the same product or another product with an identical component.

Precautions

Administer VarIg after medical assessment to individuals with:

- a bleeding disorder or severe thrombocytopenia.
- isolated IgA deficiency (congenital immunodeficiency).

IMPORTANT

- See *Protocole d'immunisation du Québec (PIQ)* for significant infectious contacts: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-immunoglobulines/varig-immunoglobulines-contre-le-virus-varicelle-zona/>.
- MMR, Var, and MMR-Var vaccines should be given at least 2 weeks prior to VarIg administration or no earlier than 5 months after, as passive immunization might affect the response to these vaccines.
- If these intervals are not met, the vaccine should be given again 5 months after the VarIg.
- VarIg can extend the incubation period of chickenpox to 28 days.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
In pregnant women: • VarIg reduces the risk of chickenpox when administered within the recommended time frame. • It can lead to asymptomatic maternal infection. • Its effectiveness in preventing congenital varicella syndrome is unknown. In neonates: • VarIg does not prevent infection, but it does reduce the severity of symptoms. • The duration of protection is unknown.		• Half-life: 21 days

Special considerations for administration

Form: single-use vial containing at least 125 IU of varicella immunoglobulin in approximately 1.2 mL of solution.

Administration: See *Quebec Immunization Protocol (CIP)*.

Administration technique: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-administration-des-produits-immunisants/techniques-d-administration/>

References

Ministère de la Santé et des Services sociaux. Varlg: immunoglobulines contre le virus varicelle-zona. *Protocole d'immunisation du Québec*, 2018. Accessed online on October 18, 2020: <https://msss.gouv.qc.ca/professionnels/vaccination/piq-immunoglobulines/varig-immunoglobulines-contre-le-virus-varicelle-zona/>

80:00 Serums, Toxoids, and Vaccines

Subclass

80:04 Serums

Agent

Hepatitis B immunoglobulin (HBIG)

Therapeutic indications

- Vaccines and immunoglobulins: neonate (perinatal exposure to hepatitis B)

Adverse effects	Medical contraindications
• In the majority of cases, HBIG does not cause any reaction. • Pain at the injection site • Urticaria • Angioedema • Severe allergic reaction	• Anaphylaxis following a previous dose of the same product or another product with an identical component.

Precautions

Administer Varlg after medical assessment to individuals with:

- a bleeding disorder or severe thrombocytopenia.
- isolated IgA deficiency (congenital immunodeficiency).

IMPORTANT

- See *Protocole d'immunisation du Québec (PIC)* to find out who is susceptible: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-immunoglobulines/hbig-immunoglobulines-contre-l-hepatite-b/>.
- MMR, Var, and MMR-Var vaccines should be given at least 2 weeks prior to Varlg administration or no earlier than 5 months after, as passive immunization might affect the response to these vaccines.
- If these intervals are not met, the vaccine should be given again 5 months after the Varlg.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Antibodies are detectable between 1 and 6 days after injection and reach their peak plasma concentration between 3 and 21 days. • The HB vaccine and HBIG prevent at least 95% of infections in babies born to HBsAg "positive" mothers. It is important to administer HBIG within hours of birth, as its effectiveness is greatly reduced after 48 hours.		• Half-life: 17 to 25 days; longer in neonates

Special considerations for administration

Form: hyperHEP B S/D: Single-dose syringes of 0.5 mL (for neonates) and 1 mL

Administration: See *Quebec Immunization Protocol (CIP)*.

Administration technique: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-administration-des-produits-immunisants/techniques-d-administration/>.

References

Ministère de la Santé et des Services sociaux. HBIG: immunoglobulines contre l'hépatite B. *Protocole d'immunisation du Québec*, 2018. Accessed online on October 18, 2020: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-immunoglobulines/hbig-immunoglobulines-contre-l-hepatite-b/>

80:00 Serums, Toxoids, and Vaccines

80:12 Vaccines

Injectable influenza vaccine

Therapeutic indications

- Vaccines and immunoglobulins: mother

Adverse effects	Medical contraindications
• Clinical manifestations associated with vaccination: https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-manifestations-cliniques-apres-la-vaccination/presentation-des-manifestations-cliniques/. • Pain at the injection site • Headache • Discomfort • Myalgia • Fever	• Anaphylaxis following a previous dose of the same product or another product with an identical component. • Egg anaphylaxis is no longer considered as a contraindication to vaccines.

Precautions

- Pregnant women with any of the above conditions; the vaccine can be given at any stage of pregnancy.
- Healthy pregnant women who are in the 2nd or 3rd trimester of pregnancy (13 weeks or more).
- Persons with an oculorespiratory syndrome with severe respiratory symptoms (e.g., difficulty breathing, wheezing, chest tightness) at the time of their last influenza vaccination. These individuals should be vaccinated after an assessment of the risks and benefits of vaccination for them (see Clinical events after vaccination).
- People who have had Guillain–Barré syndrome within 6 weeks of influenza vaccination. It would be prudent to avoid giving the vaccine to these people again.

IMPORTANT

- Injectable influenza vaccines vary from year to year: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-vaccins/inf-injectable-vaccin-injectable-contre-l-influenza/>.
- Intranasal influenza vaccine is contraindicated in pregnancy.

Additional information

Efficacy	Immunogenicity	Pharmacokinetics
• A reduction of the flu in the order of 30% to 60%. Vaccine efficacy is around 60% for influenza A (H1N1) and influenza B, while it is lower for influenza A (H3N2) (around 30% to 40%).	• Antibody titers are usually high 2 weeks after vaccination. The duration of immunity after inactivated vaccine administration may vary from person to person, but a protective antibody titer persists for several months in the vast majority of people who seroconvert after vaccination.	

Special considerations for administration

Administration: See *Quebec Immunization Protocol (CIP)*.

Administration technique: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-administration-des-produits-immunisants/techniques-d-administration/>

References

Ministère de la Santé et des Services sociaux. Inf injectable: vaccin injectable contre l'influenza. *Protocole d'immunisation du Québec*, 2018. Accessed online on October 18, 2020: <https://msss.gouv.qc.ca/professionnels/vaccination/piq-vaccins/inf-injectable-vaccin-injectable-contre-l-influenza/>

80:00 Serums, Toxoids, and Vaccines

80:12 Vaccines

Diphtheria, pertussis, tetanus (dapt) vaccines

Therapeutic indications

- Vaccines and immunoglobulins: mother

Adverse effects	Medical contraindications
• Clinical manifestations associated with vaccination: https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-manifestations-cliniques-apres-la-vaccination/presentation-des-manifestations-cliniques/ • Pain at the injection site • Fatigue • Headache • Discomfort • Dizziness • Nausea • Diarrhea • Chills • Fever • Decreased appetite • Vomiting • Irritability • Drowsiness • Skin rash	• Anaphylaxis following a previous dose of the same product or another product with an identical component. • Do not give the vaccine again to a pregnant woman who has already received it before 26 weeks of pregnancy.

Precautions

- Precautions for vaccinology: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-vaccinologie-pratique/precautions/>
- Persons who have experienced severe local reactions with or without fever after one dose of tetanus toxoid should not receive further doses of this toxoid for at least 10 years. This could be an immune complex hypersensitivity reaction.

IMPORTANT

- dapt vaccination in pregnant women: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-vaccins/diphtherie-coqueluche-tetanos-et-poliomyelite-dt-dcat-dcat-vpi/>
- Optimal strategy for vaccination against pertussis in Quebec: <https://www.inspq.qc.ca/publications/2369>

Additional information

Efficacy	Immunogenicity	Pharmacokinetics
• Routine vaccination of pregnant women against pertussis prevents about 90% of hospitalizations and 95% of deaths from this infection in children under 3 months of age.	• Vaccination between 26 and 32 weeks of pregnancy would allow optimal transfer of pertussis antibodies to the neonate. Immunogenicity data suggest that the vaccine is best administered at least 4 weeks before child birth.	

Special considerations for administration

Administration: See *Quebec Immunization Protocol (CIP)*.

Administration technique: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-administration-des-produits-immunisants/techniques-d-administration/>

References

Ministère de la Santé et des Services sociaux. dcaT, dcaT-VPI et dT: vaccins contre la diphtérie, la coqueluche, le tétanos et la poliomyélite. *Protocole d'immunisation du Québec*, 2018. Accessed online on October 18, 2020: <https://msss.gouv.qc.ca/professionnels/vaccination/piq-vaccins/diphterie-coqueluche-tetanos-et-poliomyelite-dt-dcat-dcat-vpi/>

80:00 Serums, Toxoids, and Vaccines

Subclass

80:12 Vaccines

Agent

Measles, mumps, and rubella (MMR) vaccine

Therapeutic indications

- Vaccines and immunoglobulins: mother

Adverse effects	Medical contraindications
• Clinical manifestations associated with vaccination: https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-manifestations-cliniques-apres-la-vaccination/presentation-des-manifestations-cliniques/ • Pain at the injection site • Erythema • Fever • Irritability • Drowsiness • Generalized rash • Conjunctivitis • Arthropathy • Cough • Chills • Nausea and vomiting • Diarrhea	• Anaphylaxis following a previous dose of the same vaccine or another product with an identical component, excluding eggs. • Immunocompromised states • Pregnancy • Untreated active tuberculosis

Precautions

- Precautions for vaccinology: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-vaccinologie-pratique/precautions/>
- Persons who develop thrombocytopenia within one month of receiving a vaccine containing the measles component should be revaccinated only after medical assessment. A previous episode of non-vaccine related thrombocytopenia, however, does not preclude vaccination, as the benefits of vaccination are considered to outweigh the risks. It should be noted that natural measles and rubella cause this complication much more often than the vaccine.

IMPORTANT

- Criteria for considering a person immune to measles, mumps, and rubella: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-vaccins/rro-vaccin-contre-la-rougeole-la-rubeole-et-les-oreillons/>
- Following the administration of immunoglobulin or other blood products, an interval of up to 11 months should be observed before administering MMR vaccine.
- Anti-D immunoglobulin given before or with MMR vaccine does not interfere with the immune response to the rubella component of the vaccine.
- The rubella-negative pregnant woman vaccinated postpartum does not need to undergo serological testing for antibodies after vaccination or in subsequent pregnancies. If, despite this, a new serology test is performed and is negative for rubella, the woman does not need to be revaccinated.

Additional information

Efficacy	Immunogenicity	Pharmacokinetics
• In rubella outbreaks, the demonstrated efficacy after 1 dose is 95%. • Cases of asymptomatic reinfection, as evidenced by an increase in antibody titer, have been observed in vaccinated individuals. • Exceptionally, transient viremia occurs in individuals immune to the virus by natural infection or previous vaccination, but transmission to the fetus is rare, and no cases of congenital rubella syndrome in these circumstances have been documented.	• After 1 dose, more than 97% of people achieve a protective antibody titer (≥ 10 IU/mL). • When the person has proof of immunity (vaccination or serology), the absence of antibodies does not necessarily mean the absence of protection because of the persistence of the immune memory.	

Special considerations for administration

Administration: See *Protocole d'immunisation du Québec (PIC)*.

Administration technique: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-administration-des-produits-immunisants/techniques-d-administration/>

References

Ministère de la Santé et des Services sociaux. RRO: vaccin contre la rougeole, la rubéole et les oreillons. *Protocole d'immunisation du Québec*, 2018. Accessed online on October 18, 2020: <https://msss.gouv.qc.ca/professionnels/vaccination/piq-vaccins/rro-vaccin-contre-la-rougeole-la-rubeole-et-les-oreillons/>

80:00 Immunizing Agents

Subclass

80:12 Vaccines

Agent

Varicella vaccine (Var)

Therapeutic indications

- Vaccines and immunoglobulins: mother

Adverse effects	Medical contraindications
• Clinical manifestations associated with vaccination: https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-manifestations-cliniques-apres-la-vaccination/presentation-des-manifestations-cliniques/ • Pain at the injection site • Local erythema • Cough • Cold • Irritability • Fatigue • Headache • Fever • Diarrhea • Sleep disorders • Decreased appetite • Otagia	• Anaphylaxis following a previous dose of the same vaccine or another product with an identical component, excluding eggs. • Immunocompromised states • Pregnancy • Untreated active tuberculosis

Precautions

- Precautions for vaccinology: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-vaccinologie-pratique/precautions/>
- There is a slight risk of transmission of the varicella-zoster vaccine virus to people around vaccinated individuals, who develop a varicella-like rash. This rash may occur within 4 weeks of vaccination. The varicella caused by the vaccine virus is, however, less severe than that caused by the wild virus. As a precautionary measure, vaccinated persons who develop a rash should avoid close contact with nonimmune persons at high risk of complications (e.g., immunocompromised persons, premature infants) for the duration of the rash. If such contact were to occur, it would not warrant routine administration of Varlg.

IMPORTANT

- Criteria for considering a person immune to varicella: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-vaccins/var-vaccin-contre-la-varicelle/>
- Varicella vaccine can be given on the same day as another live attenuated injectable vaccine or intranasal influenza vaccine, or at least 4 weeks apart. This is particularly true for the MMR vaccine. An American study showed that the risk of contracting varicella was 2.5 times higher when the Var vaccine was given to children less than 4 weeks after the MMR vaccine.

- It is possible that taking antivirals that are effective against herpes viruses (acyclovir, valacyclovir, famciclovir) might decrease the response to the Var vaccine. In the absence of published data and based on expert opinion, the National Advisory Committee on Immunization (NACI) recommends that individuals on prolonged treatment with these antivirals discontinue them if possible at least 24 hours prior to and up to 14 days after administration of the Var vaccine.
- Varicella vaccine should be given 2 weeks prior to the administration of immunoglobulin, blood, or other blood products, including anti-D immunoglobulin: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-vaccinologie-pratique/principes-pour-l-administration-des-vaccins/#immunoglobulines>.
- After the administration of immunoglobulin or other blood products, an interval of up to 11 months should be observed before administering the Var vaccine.

Additional information

Efficacy	Immunogenicity	Pharmacokinetics
• According to US data, protection would persist for at least 15 years after vaccination. Japanese data indicate 25 years of protection after vaccination. The duration of protection in the absence of exposure to the wild virus is, however, not known.	• In healthy adults and adolescents 13 years of age and older, 75% to 95% achieve a protective antibody titer after the 1st dose, while more than 99% achieve such an antibody titer 4 to 6 weeks after the 2nd dose. Antibodies are still present in 97% of cases 5 years after the 2nd dose. It is likely that exposure to wild-type virus helped to maintain the immunity shown in these studies.	

Special considerations for administration

Administration: See *Quebec Immunization Protocol (PIQ)*.

Administration technique: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-administration-des-produits-immunisants/techniques-d-administration/>

References

Ministère de la Santé et des Services sociaux. Var: vaccin contre la varicelle. *Protocole d'immunisation du Québec*, 2018. Accessed online on October 18, 2020: <https://msss.gouv.qc.ca/professionnels/vaccination/piq-vaccins/var-vaccin-contre-la-varicelle/>

80:00 Immunizing Agents

80:12 Vaccines

Measles, mumps, rubella, and varicella vaccine (MMR-Var)

Therapeutic indications

- Vaccines and immunoglobulins: mother

Adverse effects	Medical contraindications
• Clinical manifestations associated with vaccination: https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-manifestations-cliniques-apres-la-vaccination/presentation-des-manifestations-cliniques/ • Pain at the injection site • Local erythema • Fever • Fatigue • Irritability • Drowsiness • Diarrhea • Irritability • Decreased appetite • Conjunctivitis	• Anaphylaxis following a previous dose of the same vaccine or another product with an identical component, excluding eggs. • Immunocompromised states • Pregnancy • Untreated active tuberculosis

Precautions

- Precautions for vaccinology: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-vaccinologie-pratique/precautions/>
- Persons who develop thrombocytopenia within one month of receiving a vaccine containing the measles component should be revaccinated only after medical assessment. A previous episode of non-vaccine related thrombocytopenia, however, does not preclude vaccination, as the benefits of vaccination are considered to outweigh the risks. It should be noted that natural measles and rubella cause this complication much more often than the vaccine.
- There is a very small risk of transmission of the varicella-zona vaccine virus to those around vaccinated people who develop a varicella-like rash; This rash may occur within 4 weeks of vaccination. The varicella caused by the vaccine virus is, however, less severe than that caused by the wild virus. As a precautionary measure, vaccinated persons who develop a rash should avoid close contact with nonimmune persons at high risk of complications (e.g., immunocompromised persons, premature infants) for the duration of the rash. If such contact were to occur, it would not warrant routine administration of Varlg.
- Persons under 18 years of age receiving the Var vaccine should not use any medication containing acetylsalicylic acid for 6 weeks after vaccination due to the theoretical risk of Reye's syndrome.

IMPORTANT

- Presentation of the MMR-Var vaccine: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-vaccins/rro-var-vaccin-contre-la-rougeole-la-rubeole-les-oreillons-et-la-varicelle/>
- The Var vaccine can be given on the same day as another live attenuated injectable vaccine or as an intranasal influenza vaccine or at least 4 weeks apart. This is particularly true for the MMR vaccine. An American study showed that the risk of contracting varicella was 2.5 times higher when the Var vaccine was given to children less than 4 weeks after the MMR vaccine.
- It is possible that taking antivirals that are effective against herpes viruses (acyclovir, valacyclovir, famciclovir) might decrease the response to the Var vaccine. In the absence of published data and based on expert opinion, the National Advisory Committee on Immunization (NACI) recommends that individuals on prolonged treatment with these antivirals discontinue them if possible at least 24 hours prior to and up to 14 days after administration of the Var vaccine.
- Varicella vaccine should be given 2 weeks prior to the administration of immunoglobulin, blood, or other blood products.
- Following the administration of immunoglobulin or other blood products, including anti-D immunoglobulin, an interval of up to 11 months should be observed before administering the Var vaccine: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-vaccinologie-pratique/principes-pour-l-administration-des-vaccins/#immunoglobulines>.

Additional information

Efficacy	Immunogenicity	Pharmacokinetics
• In the absence of studies on the efficacy of the MMR-Var vaccine, it is reasonable to assume that it is comparable to the MMR vaccine and the Var vaccine.	• The proportions of children achieving protective antibody titers after administration of the MMR-Var vaccine, MMR vaccine, and Var vaccine are comparable.	

Special considerations for administration

Administration: See *Quebec Immunization Protocol (PIQ)*.

Administration technique: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-administration-des-produits-immunisants/techniques-d-administration/>

References

Ministère de la Santé et des Services sociaux. RRO-Var: vaccin contre la rougeole, la rubéole, les oreillons et la varicelle. *Protocole d'immunisation du Québec*, 2018. Accessed online on October 18, 2020: <https://msss.gouv.qc.ca/professionnels/vaccination/piq-vaccins/rro-var-vaccin-contre-la-rougeole-la-rubeole-les-oreillons-et-la-varicelle/>

80:00 Immunizing Agents

80:12 Vaccines

Hepatitis B vaccine

Therapeutic indications

- Vaccines and immunoglobulins: newborn

Adverse effects	Medical contraindications
• Clinical manifestations associated with vaccination: https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-manifestations-cliniques-apres-la-vaccination/presentation-des-manifestations-cliniques/ • Pain at the injection site • Local reaction • Headache • Digestive problems • Dizziness • Fatigue • Respiratory infection	• Anaphylaxis following a previous dose of the same vaccine or another product with an identical component.

Precautions

- Precautions for vaccinology: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-vaccinologie-pratique/precautions/>

IMPORTANT

- Identification des nouveau-nés à vacciner contre l'hépatite B et interprétation de la sérologie postvaccinale: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-vaccins/hb-vaccin-contre-l-hepatite-b/#indications>.
- Outil Aide à la décision pour l'interprétation de la sérologie postvaccinale contre l'hépatite B: <https://www.msss.gouv.qc.ca/aide-decision-app/accueil.php?situation=sero-hb>.

Additional information

Efficacy	Immunogenicity	Pharmacokinetics
In healthy people, the protection provided by the vaccine is very long lasting, probably for life. Studies on vaccine efficacy also show good protection after 1 dose of vaccine. A 2nd dose is required, however, for long-term protection.	- Several studies on infants at birth have shown lower immunogenicity, more rapid loss of antibodies, and greater loss of immune memory 10 to 30 years after vaccination. - For these reasons, hepatitis B vaccination at birth is recommended only for babies born to HBsAg-positive mothers. For these babies, a response check at the end of the vaccination series is recommended. For other infants, it is best to wait until they are 2 months old before starting the vaccination. It is also preferable to give the last dose of the vaccine series at age 1 or older to promote long-term persistence of immunity.	

Special considerations for administration

Administration: see *Quebec Immunization Protocol (PIQ)*

Administration technique: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-administration-des-produits-immunisants/techniques-d-administration/>

References

Ministère de la Santé et des Services sociaux. HB: vaccin contre l'hépatite B. *Protocole d'immunisation du Québec*, 2018. Accessed online on October 18, 2020: <https://msss.gouv.qc.ca/professionnels/vaccination/piq-vaccins/hb-vaccin-contre-l-hepatite-b/>

80:00 Immunizing Agents

80:12 Vaccines

Tuberculosis vaccine (BCG)

Therapeutic indications

- Vaccines and immunoglobulins: newborn

Adverse effects	Medical contraindications
• Clinical manifestations associated with vaccination: https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-manifestations-cliniques-apres-la-vaccination/presentation-des-manifestations-cliniques/ • Pain at the injection site • Irritation • Fever • Conjunctivitis • Iritis • Erythema multiforme	• Anaphylaxis following a previous dose of the same vaccine or another product with an identical component. • Immunocompromised states: – In order to ensure that a newborn or young child does not have a congenital immunodeficiency, a family history of congenital immunodeficiency should be sought in the immediate family, especially in siblings. It is also necessary to check whether any relatives within second-degree relatives (cousins, nephews) have already had congenital immunodeficiency problems. • HIV infection: – To ensure that a newborn or young child is not infected with HIV, the mother must have tested negative for HIV during her pregnancy or, in the absence of such a result, a negative HIV test result for the mother or young child. • Extensive skin disease or extensive burns. • Previous significant TST result.

Precautions

- Precautions for vaccinology: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-vaccinologie-pratique/precautions/>
- Postpone vaccination of pregnant women until after delivery, even if no adverse effects have been observed in the fetus.
- Do not give the BCG vaccine to people who are taking antituberculosis agents because they might be active against the vaccine strain.
- Consult a physician before administering BCG vaccine to infants 6 months of age and younger whose mothers took biologic agents during pregnancy such as TNF α inhibitors (e.g., infliximab, etanercept).

IMPORTANT

- Vaccinate infants and children who live in communities where a vaccination intervention has been recommended by public-health authorities because of an increased risk of TB infection (e.g. high incidence of contagious TB in the community): <https://msss.gouv.qc.ca/professionnels/vaccination/piq-vaccins/tuberculose-bcg/>.

Additional information

Efficacy	Immunogenicity	Pharmacokinetics
In newborns, the vaccine is estimated to be 74% effective tuberculosis, 73% effective against tuberculous meningitis, and 78% effective against disseminated (miliary) tuberculosis.	The protective effect of BCG vaccine can last for 50 to 60 years.	

Special considerations for administration

Administration: see *Quebec Immunization Protocol (PIQ)*

Administration technique: <https://www.msss.gouv.qc.ca/professionnels/vaccination/piq-administration-des-produits-immunisants/techniques-d-administration/>

References

Ministère de la Santé et des Services sociaux. BCG: vaccin contre la tuberculose. *Protocole d'immunisation du Québec*, 2018. Accessed online on October 18, 2020: <https://msss.gouv.qc.ca/professionnels/vaccination/piq-vaccins/tuberculose-bcg/>

Class

RESTRICTION
None

84:00 Skin and Mucous Membrane Agents

Subclass

84:04 Anti-infectives

Sub-subclass

84:04.04 Antibacterials

Agent

Vaginal clindamycin

Therapeutic indications

- Abnormal vaginal discharge (bacterial vaginosis)

Adverse effects	Medical contraindications
• Vaginal candidiasis • Vulvovaginal disorder • Abnormal labour • Fungal infection • Pruritus	• Hypersensitivity to clindamycin or lincosamides

IMPORTANT

- Refrain from sexual relations during treatment.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Less effective than clindamycin PO in preventing the complications of bacterial vaginosis in pregnancy. • The maximum serum concentration is reached within 10 hours.	• Narrow-spectrum lincosamide (gram-positive) • Its binding to ribosomal units inhibits protein synthesis, leading to cell death.	• Half-life: 1.5 to 2.6 hours

References

Pfizer Canada SRI. *PrCRÈME VAGINALE DALACIN^{MD}*. Monograph, 2018. Accessed online on November 5, 2020: https://www.paladin-labs.com/our_products/Dalacin_fr.pdf

84:00 Skin and Mucous Membrane Agents

Subclass

84:04 Anti-infectives

Sub-subclass

84:04.04 Antibacterials

Agent

Metronidazole vaginal

Therapeutic indications

- Abnormal vaginal discharge (bacterial vaginosis)

Adverse effects	Medical contraindications
• Leucorrhea, varying in colour and consistency • Levurose • Vulvar/vaginal irritation • Gastrointestinal discomfort (abdominal cramps or stomach pain) • Headaches • Nausea and vomiting • Pelvic discomfort	• Hypersensitivity to metronidazole or any of its ingredients

IMPORTANT

- Refrain from sexual relations for the duration of the treatment.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• The maximum serum concentration is reached within 6 to 12 hours.	• Prodrug: The pharmacological form administered is inactive. Activation occurs in interaction with anerobic bacteria or protozoa by the addition of an electron. Metronidazole becomes a nitro radical anion that binds to the DNA of microorganisms, preventing protein synthesis that eventually leads to cell death.	• Not known

References

Valeant Canada S.E.C. *PrNIDAGEL*^{MD}. Product monograph, 2017. Accessed online on November 5, 2020: https://pdf.hres.ca/dpd_pm/00038859.PDF

Class

RESTRICTION

None

84:00 Skin and Mucous Membrane Agents

Subclass

84:04 Anti-infectives

Sub-subclass

84:04.04 Antibacterials

Agent

Mupirocin topical

Therapeutic indications

- Sore nipple: chapping and fissures
- Breast candidiasis and thrush

Adverse effects	Medical contraindications
• Burning sensation • Tingling • Pain • Pruritus • Contact dermatitis • Erythema • Xerosis	• Hypersensitivity to mupirocin

IMPORTANT

- Mupirocin should not be used alone for breast candidiasis or uninfected chapped skin. Used as a magistral preparation in combination with miconazole and betamethasone ("all-purpose ointment").

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Narrow-spectrum topical antibiotic (aerobic bacteria) (<i>Staphylococcus aureus</i>, <i>Streptococcus pyogenes</i>, etc.)	• Antibiotic produced by culturing <i>Pseudomonas fluorescens</i> • Mupirocin inhibits RNA synthesis.	• Minimum absorption

References

GlaxoSmithKline Soins de santé aux consommateurs inc. *BACTROBAN*®. Product monograph, 2016. Accessed online on October 20, 2020: https://pdf.hres.ca/dpd_pm/00036149.PDF

Class

RESTRICTION
None

84:00 Skin and Mucous Membrane Agents

Subclass

84:04 Anti-infectives

Sub-subclass

84:04.08 Antifungals

Agent

Clotrimazole topical or vaginal

Therapeutic indications

- Sore nipple: chapping and fissures
- Breast candidiasis and thrush
- Abnormal vaginal discharge: vaginal candidiasis

Adverse effects	Medical contraindications
• Allergic dermatitis • Burning sensation • Irritation • Itching Intravaginal application: • Genital discomfort	• Hypersensitivity to clotrimazole or any of its ingredients

IMPORTANT

- With the exception of its use in candidiasis, clotrimazole should be used in a magistral preparation with betamethasone and mupirocin.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Intravaginal: The maximum serum concentration is reached within 24 hours.	• Inhibits ergosterol biosynthesis affecting the development of the fungal cell membrane.	• Minimum absorption

References

Bayer inc. *CANESTEN® CRÈME TOPIQUE À 1%*. Monograph, 2020. Accessed online on September 17, 2020: <https://www.bayer.ca/omr/online/canesten-topical-pm-fr.pdf>

Class

RESTRICTION

None

84:00 Skin and Mucous Membrane Agents

Subclass

84:04 Anti-infectives

Sub-subclass

84:04.08 Antifungals

Agent

Miconazole topical or vaginal

Therapeutic indications

- Sore nipple: chapping and fissures
- Breast candidiasis and thrush
- Abnormal vaginal discharge: vaginal candidiasis

Adverse effects	Medical contraindications
• Allergic dermatitis • Burning sensation • Maceration • Irritation • Itching	• Hypersensitivity to miconazole or any of its ingredients

IMPORTANT

- With the exception of its use in candidiasis, miconazole should be used in a magistral preparation with betamethasone and mupirocin.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
	• Antifungals work by altering the permeability of the cell membrane of the fungus, leading to its death.	• Half-life: 24 hours (vaginal application)

References

Insight Pharmaceuticals Corp. MONISTAT* Derm Cream. *Product monograph*, 2011. Accessed online on September 20, 2020: https://pdf.hres.ca/dpd_pm/00014905.PDF

Class

RESTRICTION

None

84:00 Skin and Mucous Membrane Agents

Subclass

84:04 Anti-infectives

Sub-subclass

84:04.08 Antifungals

Agent

Terconazole vaginal

Therapeutic indications

- Abnormal vaginal discharge: vaginal candidiasis

Adverse effects	Medical contraindications
• Vulvovaginal burning sensation • Pruritus • Irritation • Itching • Fever • Chills	• Hypersensitivity to terconazole or any of its ingredients

IMPORTANT

- The oil in vaginal suppositories might interact with the latex or rubber in some contraceptive methods (e.g., condoms, diaphragms, etc.). Refrain from sexual intercourse during the course of the treatment if no other method of contraception can be used.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
	• Antifungals work by altering the permeability of the cell membrane of the fungus, leading to its death.	• Minimum absorption

References

Taro Pharmaceuticals inc. *TARO-TERCONAZOLE*. Monograph, 2003. Accessed online on September 20, 2020: <http://rxproduct.taro.ca/media/oMedia/FreTaro-Terconazole%20Vag%20Cr%20PM.pdf>

84:00 Skin and Mucous Membrane Agents

Subclass

84:04 Anti-infectives

Sub-subclass

84:04.92 Local Anti-infectives, Miscellaneous

Agent

Silver Nitrate

Therapeutic indications

- Healing of umbilical granuloma

Adverse effects	Medical contraindications
• Burning sensation • Greyish discolouration of cauterized tissue	• Signs and symptoms consistent with omphalitis • Absence of minor bleeding or hypergranulation

IMPORTANT

- Silver nitrate is a violent poison when ingested. Keep out of reach of children.
- It comes as a stick with a silver nitrate (AgNO_3) coating on the tip consisting of 75% silver nitrate and 25% potassium nitrate.
- Use a maximum of 2 sticks per treatment.
- Do NOT clean with saline (NaCl , normal saline) before applying silver nitrate, as the combination with ionized silver produces sodium chloride (inactivation of silver nitrate).

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Not applicable	• Produces tissue cauterization.	• Not applicable

Materials

- nonsterile gloves
- compresses
- sterile water
- silver nitrate sticks
- NaCl
- PRN bandage

Procedure

- Wash your hands and wear gloves.
- Clean the wound with sterile water and dry the surrounding tissue.
- Assess the wound and identify the tissue to be cauterized.

-
- Apply the silver nitrate.
 - If the wound has little exudate, moisten the end of the stick on gauze moistened with sterile water. The active strength of silver nitrate is controlled by the degree of humidity and the time of application.
 - Roll the stick over the tissue to be cauterized.
 - On contact with the wound, the cauterized tissue quickly turns grey and a burning sensation may be felt by the newborn.
 - The newborn might start to cry when the silver nitrate is applied due to the burning sensation. The effect of silver nitrate can be neutralized by applying saline (NaCl 0.9%) to the exposed tissue.
 - Make a single application (roll the stick only once).
 - Use a maximum of 2 sticks.
 - A dry dressing can be applied PRN.
 -

References

CSSS du Sud de Lanaudière. Initier un traitement au nitrate d'argent (AgNO_3), lors d'un suivi de plaie ombilicale ou sur le cordon ombilical du bébé. GMF Polyclinique Pierre Le Gardeur, 2012. Accessed online on September 7, 2020: http://www.cisss-lanaudiere.gouv.qc.ca/fileadmin/internet/cisss_lanaudiere/Professionnels/Ordonnances_collectives/Soins_infirmiers/GMF/PMPLG/GMF_OC_18_Nitrate_argent_plaie_ombilicale.pdf

CSSS — IUGS. Cautériser une plaie avec du nitrate d'argent. Collective prescription, 2012. Accessed online on September 12, 2020: <http://www.cisss-iugs.ca/c3s/data/files/Ordonnances%20collectives/Ordonnance%2036%20-%20Cauteriser%20une%20plaie%20avec%20du%20nitrate%20dargent.pdf>

Class

RESTRICTION

None

84:00 Skin and Mucous Membrane Agents

Subclass

84:06 Anti-inflammatory Agents

Sub-subclass

84:06.08 Corticosteroids

Agent

Betamethasone topical

Therapeutic indications

- Sore nipple: chapping and fissures
- Breast candidiasis and thrush

Adverse effects	Medical contraindications
• No serious adverse events reported • Tingling • Erythema • Local irritation • Dryness • Long-term application might cause thinning of the skin.	• Hypersensitivity to corticosteroids or to any other ingredient in the ointment

IMPORTANT

- Do NOT use alone. It should be prescribed in a magistral preparation with mupirocin and miconazole (all-purpose ointment).

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
	• Topical corticosteroids prevent macrophage and leukocyte migration in the treated areas by inhibiting blood-vessel dilation and decreasing their permeability.	

References

Taro Pharmaceuticals inc., PrBetaderm®. *Prescribing information*, 2006. Accessed online on November 2, 2020: <https://www.taro.com/sites/default/files/CANADA-Products/Betaderm%20Prescribing%20Information.pdf>

Class

RESTRICTION

None

84:00 Skin and Mucous Membrane Agents

Subclass

84:06 Anti-inflammatory Agents

Sub-subclass

84:06.08 Corticosteroids

Agent

Hydrocortisone 0.5 % or 1%

Therapeutic indications

- Hemorrhoids

Adverse effects	Medical contraindications
• Burning sensation • Dryness • Irritation • Itching • Dermatitis • Skin infection	• Hypersensitivity to corticosteroids or to any other ingredient in the ointment • Do not apply to the nipples.

IMPORTANT

- Do NOT use alone. Prescribe in combination with zinc sulphate or zinc oxide ± pramoxine 1%.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Duration of action: 6 to 8 hours	• Topical corticosteroids prevent the migration of macrophages and leukocytes into the treated areas by inhibiting the dilation of blood vessels and decreasing their permeability.	

References

Sandoz Canada inc. PrSANDOZ® HYDROCORTISONE. *Prescribing information*, 2018. Accessed online on November 2, 2020: <https://www.sandoz.ca/sites/www.sandoz.ca/files/11372-Sandoz%20Hydrocortisone%20Product%20Monograph.pdf>

84:00 Skin and Mucous Membrane Agents

84:08 Antipruritics and Local Anesthetics

Lidocaine topical 2% to 5%

Therapeutic indications

- Postnatal pain
- Hemorrhoids

Adverse effects	Medical contraindications
• Allergic reaction • Sensation of heat, cold, or numbness where lidocaine has been applied. • Drowsiness: first sign of high plasma concentration	• Hypersensitivity to amide-type local anesthetics or to other ingredients of the ointment

IMPORTANT

- Overly frequent application of lidocaine, even as a topical application, can result in elevated plasma concentrations of lidocaine. It is IMPORTANT to comply with the indicated dosage. Consider all drugs containing lidocaine.
- Avoid eye contact: wash hands thoroughly after application.
- Lidocaine is ineffective on intact skin.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Anesthesia is usually achieved in 3 to 5 minutes and lasts about 4 hours.	• Lidocaine stabilizes the neuronal membrane by inhibiting the ionic flow necessary for the initiation and conduction of nerve impulses, thus exerting a local anesthetic action.	• Half-life: 1.5 to 2 hours

Special considerations for topical application:

Control the symptoms by applying a thin layer of ointment to the area to be treated. Use a sterile gauze pad to apply the ointment to skin lacerations. Wash your hands thoroughly afterwards; avoid touching the neonate's mouth and eyes until you have washed your hands thoroughly.

References

AstraZeneca Canada inc. XYLOCAINE® OINTMENT 5%. *Prescribing information*, 2006. Accessed online on November 2, 2020: https://pdf.hres.ca/dpd_pm/00003402.PDF

Class

84:00 Skin and Mucous Membrane Agents

Subclass

84:08 Antipruritics and Local Anesthetics

Agent

Pramoxine 1%

RESTRICTION

None

Therapeutic indications

- Hemorrhoids

Adverse effects	Medical contraindications
• Burning or stinging sensation • Irritation • Swelling • Pain	• Hypersensitivity to local anesthetics

IMPORTANT

- Avoid contact with nose and eyes; wash hands thoroughly after application.
- Do not use topical forms for hemorrhoids. Preparations designed for this purpose should be used.
- Do not use alone. Use in combination with zinc oxide or zinc sulfate ± hydrocortisone 0.5% to 1% (Anusol™ or Anugesic™).

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Onset of action: 2 to 5 minutes	• Pramoxine acts by preventing the ionic fluctuations necessary for depolarization of the neuronal membrane and propagation of the action potential.	• Data not available

Class

88:00 Vitamins

Subclass

88:08 Vitamin B Complex

Agent

Vitamin B complex

RESTRICTION

None

Therapeutic indications

- Nipple vasospasm

Adverse effects	Medical contraindications
• Constipation • Digestion problems	• Hypersensitivity to any of the ingredients in the complex

IMPORTANT

- The vitamin B complex used for the treatment of vasospasm should provide 100 mg of vitamin B₆ and niacin (vitamin B₃) per dose. The number of tablets to be taken should be adjusted accordingly.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Take with a meal and a large glass of water. • There are no studies confirming the efficacy of vitamin B₆ + niacin (vitamin B complex) in the treatment of vasospasm. On the other hand, there is sufficient evidence to recommend it.	• Involved in many enzymatic reactions.	• Half-life: unknown • B vitamins are water-soluble; the risk of overdose is minimal.

References

Sandoz Canada inc. *MONOGRAPHIE DES SUPPLÉMENTS DE MULTIVITAMINES/MINÉRAUX*. Product monograph, 2016. Accessed online on November 18, 2020: https://www.sandoz.ca/sites/www.sandoz.ca/files/Multivitaminesmineraux-supplements-de-sous-consultation_Product%20Monograph.pdf

88:00 Vitamins

88:08 Vitamin B Complex

Vitamin B₆ (pyridoxine)

Therapeutic indications

- Nipple vasospasm
- Nausea and vomiting of pregnancy

Adverse effects	Medical contraindications
• Nausea • Digestion problems • Headache • Drowsiness • Tingling in hands and feet	• Hypersensitivity to any of the nonmedicinal ingredients Allergy to vitamin B₆ is exceedingly rare.

Precautions

Pyridoxine can alter the effectiveness of some drugs:

- primidone
- fosphenytoin
- phenytoin
- phenobarbital

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• There are no studies confirming the efficacy of vitamin B₆ + niacin (vitamin B complex) in the treatment of vasospasm. On the other hand, there is sufficient evidence to recommend it.	• Involved in many enzymatic reactions.	• Half-life: 10 to 20 days; • B vitamins are water-soluble; the risk of overdose is minimal.

References

Sandoz Canada inc. *MONOGRAPHIE DES SUPPLÉMENTS DE MULTIVITAMINES/MINÉRAUX*. Product monograph, 2016. Accessed online on November 18, 2020: https://www.sandoz.ca/sites/www.sandoz.ca/files/Multivitaminesmineraux-supplements-de-sous-consultation_Product%20Monograph.pdf

Class

88:00 Vitamins

Subclass

88:08 Vitamin B Complex

Agent

Vitamin B₉ (folic acid)

RESTRICTION

None

Therapeutic indications

- Vitamins and supplements (prevention of neural tube defects)

Adverse effects	Medical contraindications
• Nausea and vomiting • Sleep disorders • Bitter taste in the mouth	• Hypersensitivity to any of the nonmedicinal ingredients Allergy to vitamin B₉ is exceedingly rare. • Undetermined cause of anemia Precautions: • Renal disease • Alcoholism • Pernicious anemia • Hemolytic anemia

IMPORTANT

- Adjust the dosage according to the woman's risk of malformations.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
	• Involved in many enzymatic reactions.	• Half-life: unknown • B vitamins are water-soluble; the risk of overdose is minimal.

References

Sandoz Canada inc. *MONOGRAPHIE DES SUPPLÉMENTS DE MULTIVITAMINES/MINÉRAUX*. Product monograph, 2016. Accessed online on November 18, 2020: https://www.sandoz.ca/sites/www.sandoz.ca/files/Multivitaminesmineraux-supplements-de-sous-consultation_Product%20Monograph.pdf

Class

88:00 Vitamins

Subclass

88:08 Vitamin B Complex

Agent

Vitamin B₁₂ (cobalamin)

RESTRICTION

None

Therapeutic indications

- Vitamins and supplements

Adverse effects	Medical contraindications
• Diarrhea • Itching • Urticaria	• Hypersensitivity to any of the nonmedicinal ingredients Allergy to vitamin B₁₂ is exceedingly rare.

IMPORTANT

- Water-soluble vitamin
- Oral administration is sometimes insufficient when vitamin B₁₂ deficiency is due to malabsorption. Consider intramuscular administration (medical consultation) if there is no response to oral therapy.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• The maximum serum concentration is reached in approximately 1 hour.	• Cofactor in 2 enzymatic reactions: one is necessary for lipid and protein metabolism; the other is necessary for the methylation of nucleic acids, proteins, and lipids	• Half-life: unknown • B vitamins are water-soluble; the risk of overdose is minimal.

References

Sandoz Canada inc. *MONOGRAPHIE DES SUPPLÉMENTS DE MULTIVITAMINES/MINÉRAUX*. Product monograph, 2016. Accessed online on November 18, 2020: https://www.sandoz.ca/sites/www.sandoz.ca/files/Multivitaminesmineraux-supplements-de-sous-consultation_Product%20Monograph.pdf

Class

88:00 Vitamins

Subclass

88:12 Vitamin C

Agent

Vitamin C (ascorbic acid)

RESTRICTION

None

Therapeutic indications

- Anemia

Adverse effects	Medical contraindications
• Dose-related; rare at 200 mg/day • Nausea and vomiting • Diarrhea • Gastric acidity • Pyrosis (heartburn) • Abdominal cramps • Gastrointestinal obstruction • Fatigue • Redness • Headache • Insomnia • Drowsiness	• None

IMPORTANT

- Water-soluble vitamin
- CAUTION: Vitamin C excreted in the urine can affect urine stick results, since vitamin C reacts with the reagents in the urine.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
	• Prevents the formation of insoluble and nonabsorbable compounds and the transformation of ferric iron into ferrous iron facilitating absorption by mucosal cells.	• Half-life: Not known

References

Sandoz Canada inc. *MONOGRAPHIE DES SUPPLÉMENTS DE MULTIVITAMINES/MINÉRAUX*. Product monograph, 2016. Accessed online on November 18, 2020: https://www.sandoz.ca/sites/www.sandoz.ca/files/Multivitaminesmineraux-supplements-de-sous-consultation_Product%20Monograph.pdf

Class

88:00 Vitamins

Subclass

88:16 Vitamin D

Agent

Vitamin D

RESTRICTION

None

Therapeutic indications

- Vitamins and supplements

Adverse effects	Medical contraindications
• Generally well tolerated (drops > oral solutions) • Chronic excessive intake of vitamin D can be toxic.	• Hepatic or renal insufficiency: Vitamin D₃ requires hydroxylation in the liver and then in the kidney to be converted to calcitriol, the active form. A different form of vitamin D might be required. • Hypersensitivity to vitamin D or any of its ingredients

IMPORTANT

- Fat-soluble vitamin
- Newborns:
 - Recommended for all breastfed newborns for one year (commercial infant formula (CIF) is supplemented with vitamin D)
 - Oral drops for neonates: 400 units/drop
 - Oral solutions for neonates: 400 units/mL
 - The Canadian Paediatric Society recommends increasing vitamin D intake to 800 units/day during the winter months in northern Aboriginal communities.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
	• Increased intestinal absorption of calcium and phosphorus, renal tubular reabsorption of phosphorus, and mobilization of calcium from bone into the bloodstream. • Stimulation of bone mineralization. • Inhibition of parathyroid hormone synthesis and secretion.	• Half-life: 14 hours

References

Sandoz Canada inc. *MONOGRAPHIE DES SUPPLÉMENTS DE MULTIVITAMINES/MINÉRAUX*. Product monograph, 2016. Accessed online on November 18, 2020: https://www.sandoz.ca/sites/www.sandoz.ca/files/Multivitaminesmineraux-supplements-de-sous-consultation_Product%20Monograph.pdf

Malo, J et Martin, B. Guide pratique des médicaments en néonatalogie au CHU Sainte-Justine - Vitamine D. *Département de pharmacie*, 2018, 4e édition. Retrieved online September 28, 2020: <https://www.chusj.org/fr/soins-services/P/Pharmacie/Outils/Guide-Pratique/Medicaments/V/Vitamine-D>

88:00 Vitamins

88:24 Vitamin K Activity

Vitamin K₁ (phytonadione)

Therapeutic indications

- Prevention of vitamin K deficiency bleeding

Adverse effects	Medical contraindications
• Transient swelling at the injection site • Pain	• None

IMPORTANT

- Oral route: decreased efficacy in preventing late bleeding due to vitamin K deficiency. Oral administration of vitamin K₁ should be offered ONLY when parents decline vitamin K₁ by intramuscular injection. It is not an equivalent alternative to vitamin K₁ IM. Prematurity, the presence of cholestasis (a condition predisposing to malabsorption), or exposure in utero to an enzyme-inducing antiepileptic drug are incompatible with oral administration of vitamin K₁.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Prophylaxis reduced the incidence of vitamin K deficiency bleeding to less than 1 in 100,000 neonates.	• Participation in the synthesis of coagulation factors II, VII, IX, and X.	• Half-life: 70 hours

Special considerations for intramuscular administration

Form: 1 mL single-use vial (1 mg/mL)

Reconstitution: not applicable

Compatibility of solutions: not applicable

Preparation: Draw 1 mL of vitamin K.

Administration: Administer intramuscularly into the vastus lateralis muscle.

References

Malo, J et Martin, B. Guide pratique des médicaments en néonatalogie au CHU Sainte-Justine - Vitamine K. *Département de pharmacie*, 2018, 4e édition. Retrieved online September 28, 2020: [https://www.chusj.org/fr/soins-services/P/Pharmacie/Outils/Guide-Pratique/Medicaments/V/Vitamine-K\(\(1\)\)](https://www.chusj.org/fr/soins-services/P/Pharmacie/Outils/Guide-Pratique/Medicaments/V/Vitamine-K((1)))

Sandoz Canada inc. *MONOGRAPHIE DES SUPPLÉMENTS DE MULTIVITAMINES/MINÉRAUX*. Product monograph, 2016. Accessed online on November 18, 2020: https://www.sandoz.ca/sites/www.sandoz.ca/files/Multivitaminesmineraux-supplements-de-sous-consultation_Product%20Monograph.pdf

Class

88:00 Vitamins

Subclass

88:28 Multivitamin Preparations

Agent

Multivitamin preparations

RESTRICTION

Aucune

Therapeutic indications

- Vitamins and supplements

Adverse effects	Medical contraindications
• Gastric discomfort • Nausea • Constipation • Diarrhea • Black stool	• None

IMPORTANT

- One prenatal multivitamin tablet should contain at least 0.4 mg of folic acid, 20 to 30 mg of elemental iron, 200 units of vitamin D, and 250 mg of calcium
- Pregnant women should be reminded to follow the manufacturer's dosage instructions to avoid excessive vitamin A intake.

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Coffee, tea, and calcium decrease the absorption of iron from multivitamin tablets. • Vitamin C promotes its absorption.	• Depending on the composition of the selected multivitamin	• Half-life: varies depending on the composition of the selected multivitamin.

References

Sandoz Canada inc. *MONOGRAPHIE DES SUPPLÉMENTS DE MULTIVITAMINES/MINÉRAUX*. Product monograph, 2016. Accessed online on November 18, 2020: https://www.sandoz.ca/sites/www.sandoz.ca/files/Multivitaminesmineraux-supplements-de-sous-consultation_Product%20Monograph.pdf

Therapeutic indications

- Postnatal contraception

Adverse effects	Medical contraindications
• Abdominal pain and cramping at the time of insertion and for several days or weeks afterwards • Longer or heavier menstrual bleeding • Irregular bleeding • Risk of uterine perforation	• Hypersensitivity to copper • Confirmed or suspected pregnancy • Genital infections • Uterine malformation

Additional information

Efficacy	Mechanism of action	Pharmacokinetics
• Average duration of effectiveness of 3 to 10 years • 99.1% efficacy in typical and perfect use	• Induces an unfavourable environment for sperm survival. • Also causes inflammation of the lining of the uterus, which prevents implantation	

References

Fédération du Québec pour le planning des naissances. Stérilet en cuivre. *Les méthodes contraceptives*, 2020. Accessed online on September 24, 2020: <https://www.fqpn.qc.ca/?methodes=sterilet>

Devices

Capillary blood glucose meter

Therapeutic indications

- Self-monitoring of blood glucose during pregnancy

IMPORTANT

- Each capillary blood glucose meter includes:
 - lancets
 - a lancing pen
 - strips (See the Blood Glucose Quantitative Reagents (Strips) information sheet for prescribing and reimbursement information.)
 - a blood glucose logbook
- Selecting a capillary blood glucose meter depends on the models available in pharmacies and individual preferences.

APPENDIX 1.

Regulation respecting Drugs That a Midwife May Prescribe or Administer

(French only)

chapitre S-0.1, r. 15

RÈGLEMENT SUR LES NORMES RELATIVES À LA FORME ET AU CONTENU DES ORDONNANCES VERBALES OU ÉCRITES FAITES PAR UNE SAGE-FEMME

Loi sur les sages-femmes

(chapitre S-0.1, a. 5, 1^e al., par. 1).

1. La sage-femme qui délivre par écrit une ordonnance doit y faire apparaître :

- 1° son nom, imprimé ou en lettres moulées, son numéro de téléphone, son numéro de prescripteur et sa signature;
- 2° la date de délivrance de l'ordonnance;
- 3° le nom et la date de naissance de la femme ou de son enfant;
- 4° s'il s'agit d'un médicament :
 - a) le nom intégral du médicament, en lettres moulées, lorsqu'il existe une similitude de nom avec un autre médicament susceptible de prêter à confusion;
 - b) la forme pharmaceutique;
 - c) la concentration;
 - d) la quantité prescrite ou la durée du traitement;
 - e) la posologie;
 - f) la voie d'administration;
 - g) le nombre de renouvellements autorisés sans toutefois que la date prévue pour le dernier renouvellement dépasse la période de 6 semaines après l'accouchement ou l'indication qu'aucun renouvellement n'est autorisé;
- 5° s'il s'agit d'un accessoire thérapeutique, sa nature et, le cas échéant, la durée de son utilisation;
- 6° s'il s'agit d'un examen ou d'une analyse, sa nature;
- 7° la période de validité de l'ordonnance, lorsqu'elle est justifiée par une condition de la femme ou de son enfant consignée au dossier, sans toutefois que la date de l'ordonnance dépasse la période de 6 semaines après l'accouchement;

Ne satisfont pas aux exigences des paragraphes 4, 5 et 6 du premier alinéa, les mentions « usage connu » ou « tel que prescrit », ou toute autre mention au même effet.

Décision 2002-06-19, a. 1.

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2. La sage-femme doit rédiger l'ordonnance lisiblement.

De plus, elle doit rayer d'un trait oblique la partie non utilisée de la feuille d'ordonnance.

Décision 2002-06-19, a. 2.

3. La sage-femme qui délivre par écrit une ordonnance doit, le cas échéant, inscrire de sa main toute interdiction de procéder à une substitution de médicaments.

Décision 2002-06-19, a. 3.

4. La sage-femme qui rédige une ordonnance dans le but d'obtenir d'un pharmacien des médicaments pour usage professionnel doit y faire apparaître :

- 1° son nom, imprimé ou en lettres moulées, son numéro de téléphone, son numéro de prescripteur et sa signature;
- 2° le nom, la forme pharmaceutique et la quantité du médicament;
- 3° la mention « usage professionnel ».

Décision 2002-06-19, a. 4.

5. La sage-femme qui communique verbalement une ordonnance doit mentionner au pharmacien ou à la personne habilitée légalement à exécuter l'ordonnance :

- 1° son nom, son numéro de téléphone et son numéro de prescripteur;
- 2° les éléments mentionnés dans les paragraphes 3 à 7 du premier alinéa de l'article 1 ou, selon le cas, dans les paragraphes 2 et 3 de l'article 4;
- 3° l'indication, le cas échéant, qu'il ne doit procéder à aucune substitution de médicaments.

Décision 2002-06-19, a. 5.

6. (Omis).

Décision 2002-06-19, a. 6.

RÉFÉRENCES

Décision 2002-06-19, 2002 G.O. 2, 4869

APPENDIX 2.

Regulation respecting cases requiring consultation with a physician or transfer of clinical responsibility to a physician

chapter S-0.1, r. 4

REGULATION RESPECTING CASES REQUIRING CONSULTATION WITH A PHYSICIAN OR TRANSFER OF CLINICAL RESPONSIBILITY TO A PHYSICIAN

Midwives Act

(chapter S-0.1, s. 5, 1st par., subpar. 3).

DIVISION I

CONSULTATION

1. The midwife shall initiate a consultation with a physician in the cases for mandatory consultation prescribed in a schedule to this Regulation and shall ensure that a consultation takes place within an appropriate time period, considering the severity of the woman's or child's condition and the harm that could result from that condition.

O.C. 455-2004, s. 1.

2. The midwife shall inform the woman of the reasons for the consultation.

O.C. 455-2004, s. 2.

3. The midwife shall provide the physician consulted with all the information and documents relevant to the consultation and specify the case for consultation referred to in a schedule to this Regulation.

O.C. 455-2004, s. 3.

4. After the consultation, the midwife shall inform the woman of the results of the consultation and, taking into account the medical recommendations,
 - (1) continue with the follow-up;
 - (2) continue with the follow-up during the period of simultaneous care;
 - (3) transfer the clinical responsibility of the woman or child to a physician in accordance with sections 6 to 10.

O.C. 455-2004, s. 4.

DIVISION II

TRANSFER

5. The midwife shall transfer the clinical responsibility of the woman or child to a physician where mandatory transfer of that responsibility is prescribed in a schedule to this Regulation.

O.C. 455-2004, s. 5.

6. The midwife shall inform the woman of the reasons for the transfer.

O.C. 455-2004, s. 6.

7. The midwife shall take the appropriate measures to facilitate the transfer according to the nature of the case of mandatory transfer.

O.C. 455-2004, s. 7.

8. The midwife who is with the woman or child at the time of transfer shall accompany the woman or child until she or he is under medical care, where the circumstances require it.

O.C. 455-2004, s. 8.

9. The midwife shall provide the physician with all the information and documents relevant to the transfer of care of the woman or child and specify the case for transfer referred to in a schedule to this Regulation.

O.C. 455-2004, s. 9.

10. In cases where the transfer is mandatory and where urgency, distance to travel or climatic conditions make the transfer impossible, the midwife must seek advice from a physician by telephone or by another appropriate means of communication.

O.C. 455-2004, s. 10.

DIVISION III

FINAL

11. This Regulation replaces the Regulation respecting obstetrical and neonatal risks (O.C. 413-93, 93-04-07).

O.C. 455-2004, s. 11.

12. (Omitted).

O.C. 455-2004, s. 12.

SCHEDULE I

(ss. 1 and 5)

CLASSIFICATION: HISTORY

Cases for mandatory consultation

- (1) genetic, hereditary or congenital disease that could affect the baby's life
- (2) repeated spontaneous abortions up to the 16th week without full term delivery
- (3) cone biopsy of the cervix
- (4) myomectomy
- (5) more than 1 preterm birth
- (6) more than 1 low-birth-weight infant
- (7) perinatal mortality that could present a potential risk

Cases for mandatory transfer

- (1) cervical amputation
- (2) incompetent cervix with no history of a normal delivery
- (3) repeated spontaneous abortions after the 16th week without full term delivery
- (4) subarachnoid hemorrhage
- (5) thromboembolic disease
- (6) isoimmunization

O.C. 455-2004, sch. I.

SCHEDULE II

(ss. 1 and 5)

CLASSIFICATION: PRESENT PREGNANCY

Cases for mandatory consultation

- (1) age less than 14 years
- (2) thrombocytopenia
- (3) Crohn's disease
- (4) ulcerative colitis
- (5) mitral valve prolapse
- (6) risks related to a pathology that could influence the course of the present pregnancy, for example: endocrine, hepatic, neurologic, psychiatric, heart, pulmonary or renal pathologies

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- (7) the mother's use of medication, drugs or alcohol having a potential impact on the fetus or newborn
 - (8) active cancer
 - (9) severe vomiting of pregnancy
 - (10) suspected extrauterine pregnancy
 - (11) uterine malformation
 - (12) presence of fibroid
 - (13) abnormal cervical smear test
 - (14) sexually transmitted diseases: gonorrhea, syphilis, chlamydia
 - (15) seroconversion during pregnancy for herpes
 - (16) infectious contact of a non-immunized woman with hepatitis, measles or chickenpox
 - (17) anemia: less than 100 g/litre Hb unresponsive to treatment
 - (18) threatened preterm labour
 - (19) bleeding of unknown origin after 20 weeks
 - (20) polyhydramnios or oligohydramnios
 - (21) any diagnosed foetal anomaly
 - (22) presentation other than cephalic after 37 weeks
 - (23) pregnancy at 42 weeks

Cases for mandatory transfer

- (1) insulin-dependent diabetes
- (2) Addison's and Cushing's disease
- (3) collagenosis
- (4) hyperthyroidism
- (5) multiple sclerosis
- (6) hypertension
- (7) active tuberculosis
- (8) HIV seropositivity and AIDS
- (9) seroconversion during pregnancy for the following infectious diseases: toxoplasmosis, rubella, cytomegalovirus, HIV and tuberculosis
- (10) cardiac, renal or respiratory disease with failure

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- (11) presence of significant irregular antibodies
 - (12) thrombocytopenia, if severe
 - (13) coagulation abnormality
 - (14) incompetent cervix
 - (15) extrauterine pregnancy
 - (16) multiple gestation
 - (17) placental abruption
 - (18) placenta praevia
 - (19) intrauterine growth retardation
 - (20) uncontrolled glucose intolerance of pregnancy
 - (21) preeclampsia or eclampsia
 - (22) HELLP syndrome
 - (23) intrauterine death

O.C. 455-2004, sch. II.

SCHEDULE III

(ss. 1 and 5)

CLASSIFICATION: LABOUR AND DELIVERY

Cases for mandatory consultation

- (1) prolonged rupture of membranes
- (2) failure to progress in active labour
- (3) retained placenta
- (4) third or fourth degree perineal laceration
- (5) delivery will take place between 34 and 36 6/7 weeks
- (6) labour begins after 42 weeks
- (7) thick or particulate meconium-stained amniotic fluid
- (8) unusual blood loss during labour
- (9) suspected placental abruption
- (10) suspected chorioamnionitis

Cases for mandatory transfer

- (1) labour begins before 34 weeks
- (2) any presentation other than vertex
- (3) multiple gestation
- (4) intrauterine death
- (5) active genital herpes
- (6) hypertension with diastolic pressure above 90 mm Hg for more than 2 hours
- (7) signs or symptoms of preeclampsia or eclampsia
- (8) vasa praevia palpated during a vaginal examination
- (9) cord prolapse
- (10) placenta praevia
- (11) foetal distress
- (12) arrest of descent of presenting part during the second stage
- (13) obstetric shock
- (14) hemorrhage unresponsive to treatment
- (15) suspected uterine rupture
- (16) uterine inversion

O.C. 455-2004, sch. III.

SCHEDULE IV

(ss. 1 and 5)

CLASSIFICATION: POSTPARTUM (MATERNAL)

Cases for mandatory consultation

- (1) subinvolution of the uterus unresponsive to treatment
- (2) persistent bleeding unresponsive to treatment
- (3) suspected partially retained placenta
- (4) vulval hematoma causing problems of micturition
- (5) infection of the perineal wound
- (6) uterine prolapse
- (7) serious psychological problems
- (8) suspected preeclampsia

Cases for mandatory transfer

- (1) severe infection
- (2) postpartum psychosis
- (3) phlebitis and risk of thromboembolism
- (4) suspected uterine rupture
- (5) eclampsia
- (6) persistent hypertension

O.C. 455-2004, sch. IV.

SCHEDULE V

(ss. 1 and 5)

CLASSIFICATION: NEWBORN

Cases for mandatory consultation

- (1) abnormal pigmentation
- (2) birth trauma
- (3) enlarged fontanelles according to criteria in effect
- (4) palpable thyroid gland
- (5) 1 major malformation or 2 or more minor malformations suspected or apparent at birth
- (6) suspected spina bifida
- (7) abnormal crying
- (8) absent or abnormal primitive reflexes after sequential evaluation
- (9) abnormal neurological signs
- (10) heart murmur
- (11) hepatomegaly > 3 cm below costal margin
- (12) palpable spleen
- (13) single umbilical artery
- (14) inguinal mass
- (15) testicular mass at birth
- (16) undescended or impalpable testes
- (17) 36-36 6/7 weeks gestational age
- (18) clinical examination suggesting gestational age less than 37 weeks

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- (19) persistent tachypnea at more than 60 respirations/minute
 - (20) weight below the 3rd percentile
 - (21) failure to regain birth weight after 14 days of life, unresponsive to treatment
 - (22) slow or poor infant weight gain according to the growth curve adapted to the sex and race
 - (23) inappropriate growth less than the 3rd percentile or greater than the 97th percentile according to the head circumference curve
 - (24) asymmetrical skull (absence of round shape) after 3 days
 - (25) irritability, hypertonia if more than 24 hours
 - (26) anuria beyond 24 hours of life
 - (27) absence of the passage of meconium after 24 hours of life
 - (28) abnormal laboratory results that may have a clinical impact
 - (29) jaundice requiring phototherapy
 - (30) persistent jaundice after 14 days of life
 - (31) suspected infections in the baby, or in the mother, having a potential impact on the baby
 - (32) periumbilical erythema compatible with an omphalitis
 - (33) skin eruption other than neonatal erythema or diaper rash
 - (34) purulent eye discharge with redness of the conjunctiva
 - (35) heart beat which is abnormal or irregular, less than 100 beats/min or more than 200 beats/min
 - (36) impalpable or asymmetrical femoral pulses
 - (37) absent red reflex of the eye
 - (38) abdominal mass
 - (39) hip instability or subluxation of the hips
 - (40) bulging anterior fontanelle

Cases for mandatory transfer

- (1) hypothermia (36 °C rectal or 35.5 °C axillary) persisting beyond 2 hours of life or hyperthermia (38.5 °C rectal or 38 °C axillary) persisting beyond 12 hours of life
- (2) respiratory distress or apnoea
- (3) jaundice within the first 24 hours
- (4) less than 36 weeks gestational age

-
- (5) APGAR less than 7 at 5 minutes
 less than 9 at 10 minutes
 - (6) central cyanosis
 - (7) newborn having required endotracheal intubation or positive pressure ventilation beyond the second minute of life
 - (8) any major anomaly requiring immediate intervention
 - (9) persistent pallor beyond 1 hour of life
 - (10) unilateral or bilateral choanal atresia
 - (11) jitteriness or convulsions
 - (12) lethargy or hypotonia
 - (13) generalized ecchymoses or petechiae
 - (14) signs of withdrawal
 - (15) distended abdomen with food intolerance
 - (16) gastrointestinal hemorrhage
 - (17) vomiting bile or diarrhea

O.C. 455-2004, sch. V.

REFERENCES

O.C. 455-2004, 2004 G.O. 2, 1633

APPENDIX 3. Optimal Use Guideline: Uncomplicated Chlamydia trachomatis or Neisseria gonorrhoea infection

(French only)

Merci à l'*Institut national d'excellence en santé et services sociaux* (INESSS) pour la permission d'intégrer le *Guide d'usage optimal* dans notre Guide.



Le présent guide d'usage optimal s'adresse aux cliniciens de première ligne. Il est fourni à titre indicatif et ne remplace pas le jugement du clinicien qui exerce les activités qui lui sont réservées par la loi ou par un règlement. Les recommandations s'adressent aux personnes de 14 ans et plus¹. Elles ont été élaborées à l'aide d'une démarche systématique et sont soutenues par la littérature scientifique ainsi que par le savoir et l'expérience de cliniciens et d'experts québécois. Pour plus de détails, consulter la section [Guides d'usage optimal du site inesss.qc.ca](#).

GÉNÉRALITÉS

- ▶ Ce guide d'usage optimal s'applique aux personnes chez qui les analyses microbiologiques appropriées ont été réalisées **ET** dont les résultats révèlent la présence de *C. trachomatis* ou de *N. gonorrhoeae* (détails complémentaires en [annexe](#)).
- ▶ Pour le dépistage de l'infection à *C. trachomatis* ou à *N. gonorrhoeae*, consulter l'outil [Prélèvements et analyses recommandés chez une personne asymptomatique - Infections à Chlamydia trachomatis ou à Neisseria gonorrhoeae - Lymphogranulomatose vénérienne](#).
- ▶ Lorsqu'une infection est détectée, il faut s'assurer que les analyses microbiologiques ont été réalisées **pour tous les sites exposés**.
- ▶ Si une infection gonococcique a été détectée uniquement par test d'amplification des acides nucléiques (TAAN), un prélèvement des sites infectés pour culture visant à déterminer la sensibilité de la souche devrait être effectué avant le début du traitement. Le prélèvement pour culture ne doit toutefois pas retarder le traitement.
- ▶ La prise en charge d'une infection à *C. trachomatis* dont le génotype est associé à la lymphogranulomatose vénérienne (LGV) n'est pas présentée dans ce guide. Au besoin, consulter l'[outil clinique sur la LGV](#) produit par le MSSS.
- ▶ En présence de signes et symptômes associés à ces ITSS et avant l'obtention des résultats des analyses microbiologiques, consulter le [Guide d'usage optimal sur le traitement pharmacologique des ITSS – Approche syndromique](#).

PRISE EN CHARGE

INTERVENTION AUPRÈS DE LA PERSONNE ATTEINTE

L'intervention devrait inclure :

- ▶ un traitement adéquat et un suivi de la personne atteinte ;
- ▶ une recommandation indiquant de s'abstenir d'avoir des contacts sexuels jusqu'à 7 jours après la fin d'un traitement à dose unique **OU** jusqu'à la fin d'un traitement à doses multiples **ET** jusqu'à la résolution des symptômes² :
 - ▷ en cas de doute quant à l'abstinence, une recommandation indiquant d'utiliser des méthodes barrières pour tout type de contact sexuel (génital, oro-génital, anal ou oro-anal);
- ▶ le soutien auprès de la personne atteinte dans sa démarche visant la notification et le traitement de ses partenaires. La [direction de santé publique](#) (DSP) régionale peut offrir du soutien dans cette démarche.

INTERVENTION AUPRÈS DES PARTENAIRES

Partenaires à joindre s'ils ont eu un contact sexuel avec la personne atteinte :

- ▶ dans les 60 jours précédant les premiers symptômes ou le prélèvement ; **OU**
- ▶ pendant que la personne avait des symptômes ; **OU**
- ▶ avant la fin du traitement à doses multiples ou moins de 7 jours après un traitement à dose unique.

Il peut être justifié, dans certaines situations, de rechercher des partenaires sur une plus longue période.

L'intervention devrait inclure :

- ▶ une évaluation clinique comprenant l'identification des facteurs de risque d'ITSS ;
- ▶ un dépistage de l'infection à laquelle la personne a été exposée et des autres ITSS selon les facteurs de risque décelés, consulter l'outil [ITSS à rechercher selon les facteurs de risque décelés](#) ;
- ▶ en l'absence de signes et de symptômes, un traitement épidémiologique sans attendre les résultats du dépistage : [algorithme décisionnel](#) ;
- ▶ en présence de signes ou de symptômes : [une approche syndromique](#) ;
- ▶ le soutien auprès de cette personne dans sa démarche visant la notification et le traitement de ses partenaires si les résultats des analyses microbiologiques sont positifs.

Pour plus d'informations, consulter les outils [Personne exposée à une ITSS : que faire?](#) et [Soutenir la personne atteinte d'une ITSS pour qu'elle avise ses partenaires : quatre étapes](#).

Traitement accéléré du partenaire (TAP) :

- ▶ Il est préférable de faire l'évaluation de la condition de santé du partenaire sexuel avant l'activité de prescription afin qu'il reçoive les meilleurs soins préventifs.
- ▶ Dans certaines circonstances, le traitement accéléré du partenaire (TAP) peut être utilisé après une analyse judicieuse des avantages et des inconvénients. Le TAP demeure une mesure d'exception.

Pour plus d'informations, consulter l'[aide-mémoire pour les cliniciens](#) et l'[aide-mémoire pour les pharmaciens](#).

1. Si un cas d'abus sexuel est suspecté, se référer au [Guide d'intervention médicosociale pour répondre aux besoins des victimes d'agression sexuelle](#).
2. En cas de non-respect de la consigne d'abstinence, consulter un collègue expérimenté pour connaître la prise en charge appropriée.

INFECTION À *CHLAMYDIA TRACHOMATIS*

PRINCIPES DE TRAITEMENT

Précision pour le choix du traitement de la personne atteinte ou du partenaire asymptomatique en l'absence de grossesse :

- ▶ Le traitement avec la doxycycline devrait toujours être privilégié, particulièrement lors d'infections rectales ou dans les cas où une exposition rectale est rapportée.

TRAITEMENT

	INFECTION URÉTRALE, ENDOCERVICALE, PHARYNGÉE ¹ OU RECTALE	
	PERSONNE ATTEINTE	
	Doxycycline ² 100 mg, PO, BID x 7 jours	
	OU	
	Azithromycine ³ 1 g, PO, en dose unique : <i>devrait être réservé aux personnes avec un problème anticipé d'adhésion au traitement</i>	
	Lors d'une infection rectale, en présence d'un résultat positif à <i>C. trachomatis</i> avec un géotype associé à la LGV : commencer ou poursuivre le traitement avec la doxycycline ² 100 mg PO BID pour un total de 21 jours consécutifs. Pour plus de détails, consulter l' outil clinique sur la LGV .	
	TOUT TYPE D'EXPOSITION	
	PARTENAIRE ASYMPTOMATIQUE DE LA PERSONNE ATTEINTE	
	Doxycycline ² 100 mg, PO, BID x 7 jours	
	OU	
	Azithromycine ³ 1 g, PO, en dose unique : <i>devrait être considéré seulement lorsque le partenaire doit être traité par TAP ou lorsqu'un problème d'adhésion au traitement est anticipé</i>	
	INFECTION URÉTRALE, ENDOCERVICALE, PHARYNGÉE ¹ OU RECTALE (PERSONNE ATTEINTE) ET TOUT TYPE D'EXPOSITION (PARTENAIRE ASYMPTOMATIQUE DE LA PERSONNE ATTEINTE)	
	FEMME ENCEINTE	
	1^{er} CHOIX Azithromycine ³ 1 g, PO, en dose unique	
	2^e CHOIX Amoxicilline ⁴ 500 mg, PO, TID x 7 jours	

1. Malgré l'absence d'indication pour le dépistage de *C. trachomatis* au niveau de la gorge, des cas d'infection pharyngée à *C. trachomatis* peuvent être détectés puisque le dépistage de *N. gonorrhoeae* est effectué à l'aide d'un TAAN qui détecte aussi *C. trachomatis*.

2. La doxycycline est contre-indiquée chez les femmes enceintes. Elle est compatible, si nécessaire, avec l'allaitement si traitement de moins de 3 semaines.

3. Si vomissements dans l'heure suivant l'administration de l'azithromycine, administrer un antiémétique prophylactique puis une autre dose d'azithromycine.

4. Non homologué par Santé Canada pour cette indication.

INFECTION À *NEISSERIA GONORRHOEAE*

PRINCIPES DE TRAITEMENT

- ▶ La prévalence de la co-infection avec *C. trachomatis* est élevée. Lorsque la ceftriaxone est employée en monothérapie, un traitement contre l'infection à *C. trachomatis* doit être prescrit si la présence de cette infection ne peut pas être exclue.
- ▶ Lorsque le schéma thérapeutique combinant la céfixime et l'azithromycine est employé, en présence d'une **infection à *C. trachomatis* au niveau rectal combinée à une infection à *N. gonorrhoeae* au niveau urétral, endocervical ou rectal**, utiliser une **trithérapie** en ajoutant de la doxycycline¹ (100 mg, PO, BID x 7 jours) au traitement recommandé pour l'infection à *N. gonorrhoeae*.

TRAITEMENT²

(incluant la femme enceinte ou qui allaite)

PERSONNE ATTEINTE	INFECTION URÉTRALE, ENDOCERVICALE OU RECTALE	INFECTION PHARYNGÉE	
	Ceftriaxone 250 mg, IM, en dose unique OU Céfixime 800 mg, PO, en dose unique ET Azithromycine ³ 2 g, PO, en dose unique	Ceftriaxone 250 mg, IM, en dose unique	
PARTENAIRE ASYMPTOMATIQUE DE LA PERSONNE ATTEINTE	AUCUNE EXPOSITION ORALE	EXPOSITION ORALE	
	Ceftriaxone 250 mg, IM, en dose unique OU Céfixime 800 mg, PO, en dose unique ET Azithromycine ³ 2 g, PO, en dose unique	Option A Ceftriaxone 250 mg, IM, en dose unique	Option B Céfixime 800 mg, PO, en dose unique ET Azithromycine ³ 2 g, PO, en dose unique
Option A : disponibilité de la ceftriaxone et acceptabilité du mode d'administration IM par la personne. Option B : observance anticipée à une visite de contrôle advenant un résultat positif au test de dépistage. L'option B est acceptable seulement si des prélèvements pharyngés pour TAAN et culture ont été effectués chez le partenaire.			
ANTÉCÉDENT DE RÉACTION ALLERGIQUE ⁴			
À UN ANTIBIOTIQUE DE LA CLASSE DES PÉNICILLINES ⁵		À UNE CÉPHALOSPORINE	
Cliquer  pour consulter l'algorithme spécifique à l'infection à <i>N. gonorrhoeae</i> pour aider dans le choix de l'antibiothérapie.		Se référer à l'option de traitement ci-dessous.	
Gentamicine ⁶ 240 mg IM (en deux injections de 3 ml) ET Azithromycine ³ 2 g PO en dose unique			

1. La doxycycline est contre-indiquée chez les femmes enceintes. Elle est compatible, si nécessaire, avec l'allaitement si traitement de moins de 3 semaines.
2. Pour les cas d'allergie ou de résistance à l'azithromycine ou de résistance aux céphalosporines, consulter un médecin spécialiste.
3. Si vomissements dans l'heure suivant l'administration de l'azithromycine, administrer un antiémétique prophylactique puis une autre dose d'azithromycine.
4. Les quinolones peuvent être considérées comme traitement chez les adultes de 18 ans ou plus (à l'exception des femmes enceintes ou qui allaitent) seulement si la sensibilité de la souche aux quinolones est démontrée par des épreuves de sensibilité. Le traitement recommandé est alors le suivant : ciprofloxacine 500 mg, PO, en dose unique.
5. Pénicilline G ou V, ampicilline, amoxicilline, cloxacilline, pipéracilline.
6. Non homologué par Santé Canada pour cette indication.

INFECTION NON COMPLIQUÉE À
CHLAMYDIA TRACHOMATIS OU À
NEISSERIA GONORRHOEAE

TESTS DE CONTRÔLE

	INFECTION À <i>C. TRACHOMATIS</i>	INFECTION À <i>N. GONORRHOEAE</i>
INDICATIONS	Un test de contrôle n'est pas recommandé dans les cas d'infection à <i>C. trachomatis</i>, sauf dans les situations suivantes : ► Persistance ou apparition de signes ou symptômes ► Grossesse ► Problème anticipé d'adhésion au traitement ► Utilisation d'un schéma thérapeutique autre que ceux recommandés ► Infection rectale à <i>C. trachomatis</i> traitée avec azithromycine ► Infection à <i>C. trachomatis</i> de génotype L₁₋₃ (LGV)	Un test de contrôle est recommandé dans tous les cas d'infection gonococcique, en particulier dans les situations suivantes : ► Persistance ou apparition de signes ou symptômes ► Grossesse ► Problème anticipé d'adhésion au traitement ► Utilisation d'un schéma thérapeutique autre que ceux recommandés ► Infection pharyngée (même si traitée avec ceftriaxone) ► Utilisation du schéma thérapeutique combinant la gentamicine et l'azithromycine dans le cadre d'un antécédent de réaction allergique ► Résistance démontrée ou sensibilité réduite¹ à l'un des antibiotiques utilisés ► Partenaire d'une personne chez qui une résistance ou une sensibilité réduite¹ à l'un des antibiotiques utilisés a été démontrée
PRÉLÈVEMENTS ET ANALYSES	TAAN effectué le plus tôt possible à partir de 3 semaines après la fin du traitement	En cas d'infection pharyngée² : TAAN³ et culture effectués le plus tôt possible à partir de 2 semaines après la fin du traitement OU culture⁴ effectuée le plus tôt possible à partir de 3 jours et jusqu'à 2 semaines après la fin du traitement. En cas d'infection autre que pharyngée² : TAAN effectué le plus tôt possible à partir de 2 semaines après la fin du traitement⁵. Si la personne présente des symptômes au moment de la visite de contrôle, procéder également à un prélèvement pour culture. Une culture effectuée le plus tôt possible à partir de 3 jours et jusqu'à 2 semaines après la fin du traitement est également envisageable.

1. Seuil de sensibilité réduite à la céfixime établi à une concentration minimale inhibitrice (CMI) $\geq 0,125$ mg/L.

2. Si un rendez-vous de suivi est proposé 2 semaines après le traitement, la personne devrait être avisée de se présenter plus rapidement si persistance ou apparition de symptômes. Dans ce cas, des prélèvements pour culture devront être effectués.

3. Un TAAN effectué à partir d'un prélèvement pharyngé peut être associé à des résultats faux positifs. Pour les TAAN de contrôle positifs au site pharyngé, consulter l'annexe 4 du [guide explicatif de l'INSPQ](#) pour des détails complémentaires sur la prise en charge.

4. Un prélèvement supplémentaire pour TAAN peut être effectué à partir de 2 semaines selon le jugement du clinicien.

5. En présence d'un résultat positif au TAAN de contrôle, il est souhaitable de procéder à un prélèvement pour culture à la condition de ne pas retarder le traitement.

ANTIBIORÉSISTANCE

La croissance de la résistance de *N. gonorrhoeae* aux différents antibiotiques est rapide et les traitements recommandés pourraient éventuellement être modifiés selon l'évolution de la sensibilité des souches au traitement. La vigilance des praticiens s'impose. Voici un sommaire de l'antibiorésistance de *N. gonorrhoeae* au Québec. Pour plus de détails, consulter le [site Web du LSPQ](#).

- La résistance aux quinolones et aux tétracyclines est bien installée.
- La résistance à l'azithromycine est en progression rapide.
- La résistance aux céphalosporines de troisième génération est en émergence.

RÉINFECTION

Afin de détecter une possible réinfection, recommander un dépistage 3 à 6 mois après le traitement de l'infection initiale à toutes les personnes infectées par *C. trachomatis* ou *N. gonorrhoeae*. Le dépistage suivant une infection documentée s'ajoute au test de contrôle préalablement effectué, si indiqué.

INFORMATION COMPLÉMENTAIRE

MALADIE À DÉCLARATION OBLIGATOIRE (MADO)

Les infections à *C. trachomatis*, *N. gonorrhoeae* ainsi que la LGV documentées par une analyse de laboratoire doivent être déclarées par le clinicien à la [DSP](#) régionale (détails complémentaires en [annexe](#)).

GRATUITÉ DE LA MÉDICATION

Pour les personnes inscrites au régime d'assurance maladie du Québec (RAMQ) et détentrices d'une carte d'assurance maladie, d'un carnet de réclamation ou d'une preuve temporaire d'admissibilité aux médicaments valides : inscrire sur l'ordonnance le code **K** (pour la personne atteinte), le code **L** (pour les partenaires) ou le code **M** (pour les partenaires traités par TAP). Le coût de la lidocaïne 1 % sans épinéphrine est couvert par le programme de gratuité dans le cadre du traitement d'une ITS ou d'un syndrome associé lorsqu'il est précisé sur l'ordonnance : « diluant à la ceftriaxone ».

INTERVENTIONS PRÉVENTIVES RELATIVES AUX ITSS

Lorsqu'une personne consulte, notamment pour une ITSS, pour la contraception ou dans le cas d'un examen clinique préventif, les praticiens devraient :

- Rechercher les facteurs de risque pour les ITSS et dépister selon les indications, puisque plusieurs personnes sont asymptomatiques et ignorent qu'elles sont infectées;
- Informer la personne sur les pratiques sexuelles à risques réduits et lui conseiller de les utiliser de façon constante;
- Vacciner contre les hépatites A et B et le virus du papillome humain selon les indications du [Protocole d'immunisation du Québec](#).

La prophylaxie préexposition (PPrE) peut être envisagée chez certains groupes de personnes à risque de contracter le VIH. Au besoin, consulter l'outil du MSSS : [Guide PPrE pour les professionnels de la santé du Québec](#).

Différents outils associés à l'intervention préventive relative aux ITSS sont disponibles sur le [site du MSSS](#), notamment les suivants :

- [ITSS à rechercher selon les facteurs de risque décelés](#)
- [Prélèvements et analyses recommandés chez une personne asymptomatique - Infections à Chlamydia trachomatis ou à Neisseria gonorrhoeae - Lymphogranulomatose vénérienne](#)
- [Prélèvements et analyses recommandés chez une personne asymptomatique - Syphilis, hépatites B et C, VIH](#)
- [Personne exposée à une ITSS : que faire?](#)
- [Soutenir la personne atteinte d'une ITSS pour qu'elle avise ses partenaires : quatre étapes](#)
- [Site Internet, dépliants et brochures à l'intention des patients](#) (p. ex. [Entre caresses et baisers, une ITSS s'est faufilée... Il faut en parler](#))
- [Estimation du risque associé aux activités sexuelles](#)
- [Vaccination et ITSS](#)
- [Ressources – Intervention préventive relative aux ITSS](#)
- [Intervention préventive relative aux ITSS : outil d'aide à la pratique, visite initiale et visite subséquente](#)
- [Guide québécois de dépistage des ITSS](#)
- [Recrudescence de la lymphogranulomatose vénérienne au Québec : détection et traitement](#)
- Traitement accéléré du partenaire : [aide-mémoire pour les cliniciens](#) et [aide-mémoire pour les pharmaciens](#)

RÉFÉRENCES

Pour consulter les références, voir le [rapport en soutien au GUO](#) et le [rapport de revue systématique](#).



SÉVÉRITÉ DE LA RÉACTION ALLERGIQUE ANTÉRIEURE AUX ANTIBIOTIQUES DE LA CLASSE DES PÉNICILLINES

ÉVALUER LA SÉVÉRITÉ DE LA RÉACTION INITIALE

Histoire floue

Réaction non sévère

Réaction sévère

Réaction très sévère

Histoire peu convaincante rapportée par le patient ou sa famille

Réaction immédiate¹

Atteinte cutanée isolée
(urticaire et/ou angioedème)

Réaction immédiate

Anaphylaxie⁴

Réaction immédiate

Choc anaphylactique
(avec ou sans intubation)

Réaction retardée^{2,3}

Atteinte cutanée isolée
(EMP et/ou urticaire et/ou angioedème)

Réaction retardée

Réaction cutanée sévère
(présence de desquamation, pustules, vésicules, purpura avec fièvre ou arthralgie, mais **sans** DRESS, SJS/TEN, AGEP)

Maladie sérique³

Réaction retardée

Anémie hémolytique
Atteinte rénale
Atteinte hépatique
DRESS, SJS/TEN, AGEP

Réaction dans l'enfance³

Réaction à l'âge adulte

Lointaine
(≥ 10 ans)

Récente

Allergie aux pénicillines
CONFIRMÉE⁵

(réaction non sévère et sévère uniquement)

JE PRESCRIS DE FAÇON SÉCURITAIRE



Céphalosporines DIFFÉRENTES

Céfixime OU **Ceftriaxone**
selon les recommandations
de traitement

JE PRESCRIS AVEC PRUDENCE



Céphalosporines DIFFÉRENTES

Céfixime OU **Ceftriaxone**
selon les recommandations
de traitement

La 1^{re} dose devrait **toujours** être administrée sous surveillance médicale.

Si antécédents de réactions :

- **immédiates**, un test de provocation devrait être réalisé;
- **retardées**, le patient ou sa famille doivent être avisés du risque de récurrence possible dans les jours suivant l'utilisation de l'antibiotique.

SI UNE BÊTA-LACTAMINE⁶ NE PEUT ÊTRE ADMINISTRÉE, JE PEUX PRESCRIRE...

selon la recommandation de traitement
en présence d'un antécédent
de réaction allergique

J'ÉVITE DE PRESCRIRE



Bêta-lactamine⁶

Privilégier une autre classe d'antibiotique.

JE PRESCRIS

selon la recommandation de traitement
en présence d'un antécédent
de réaction allergique

1. Réaction immédiate (de type I ou IgE-médiée) : se déclare généralement en moins d'une heure suivant la prise de la **première dose** d'un antibiotique.
2. Réaction retardée (de types II, III et IV) : peut survenir à tout moment à partir d'une heure suivant l'administration de l'antibiotique.
3. Les réactions cutanées retardées et les réactions de type maladie sérique qui apparaissent chez les enfants sous antibiothérapie sont généralement non allergiques et peuvent être d'origine virale.
4. Anaphylaxie sans choc ou intubation : nécessite un niveau supplémentaire de vigilance.
5. Sans recommandations pour d'autres bêta-lactamines.
6. Pénicillines, céphalosporines et carbapénèmes.

AGEP : acute generalized exanthematous pustulosis;
DRESS : drug reaction with eosinophilia and systemic symptoms;
EMP : éruption maculo-papuleuse;
SJS : Stevens–Johnson syndrome;
TEN : toxic epidermal necrolysis.

Pour plus d'information, consultez
[l'outil interactif](#) et [l'outil d'aide à la décision](#).

PRISE DE DÉCISION CONCERNANT LE CHOIX DE LA BÊTA-LACTAMINE ET LES CONDITIONS D'ADMINISTRATION



Précision pour les TAAN positifs à *N. gonorrhoeae* au site pharyngé

- ▶ Pour les infections pharyngées à *N. gonorrhoeae* détectées par TAAN, le spécimen est acheminé au LSPQ pour confirmation. Consulter le [guide explicatif de l'INSPQ](#) pour les recommandations à propos de la prise en charge à la suite d'un résultat préliminaire positif par TAAN pour *N. gonorrhoeae* à partir d'un prélèvement pharyngé. Ces recommandations sont regroupées dans le guide de l'INSPQ sous la forme d'un algorithme de prise en charge :
 - Annexe 3 – « Algorithme clinique pour la prise en charge des infections à *N. gonorrhoeae* ; prélèvement initial »

Précision sur la maladie à déclaration obligatoire (MADO)

- ▶ Lorsque l'échantillon est acheminé au LSPQ pour une analyse de confirmation de TAAN *N. gonorrhoeae* positif, le laboratoire de microbiologie procède immédiatement à la déclaration du cas à la DSP, sur la base du résultat préliminaire.
- ▶ Le LSPQ se chargera de transmettre à la DSP le résultat final de l'analyse de confirmation; le déclarant initial n'a pas à retransmettre un nouveau formulaire, et ce, peu importe le résultat de l'analyse de confirmation.

Appendix 4. Decision Support Tool for Penicillin-Related Allergies

(French only)

Merci à l'*Institut national d'excellence en santé et services sociaux* (INESSS) pour la permission d'intégrer cet *Outil d'aide à la décision* dans notre Guide.

OUTIL D'AIDE À LA DÉCISION EN CAS D'ALLERGIE AUX PÉNICILLINES

Le présent outil est préférentiellement destiné aux professionnels de la santé non spécialisés en allergie. Les renseignements sont à titre informatif, ne remplacent pas le jugement du professionnel et doivent être utilisés uniquement comme une aide à la décision. L'outil, élaboré grâce à une démarche systématique, est soutenu par la littérature scientifique ainsi que par le savoir expérimentiel d'experts québécois. Pour plus de détails, cliquez [ici](#).



RAPPELEZ-VOUS QUE...

- Les réelles allergies aux pénicillines sont peu fréquentes. Pour en savoir davantage cliquez [ici](#).
- Certaines infections virales couplées à la prise d'un antibiotique (p. ex., amoxicilline) entraînent l'apparition d'éruptions cutanées pouvant faire poser à tort le diagnostic d'allergie, surtout chez les enfants;
- Trop de patients sont faussement étiquetés «allergiques» aux pénicillines, ce qui entraîne la prescription d'antibiotiques à large spectre ayant plus d'effets indésirables.

ÉLÉMENTS CLÉS À IDENTIFIER & ÉVALUATION DE LA SÉVÉRITÉ DE LA RÉACTION INITIALE

IDENTIFIER & ÉVALUER

- Quel est le **statut d'allergie** du patient ?
 - Quel était l'**antibiotique** de la classe des pénicillines pouvant être en cause ?
 - Combien de temps** après la prise de l'antibiotique la réaction s'est-elle déclenchée ?
 - Quels étaient les **principaux signes**, symptômes ou atteintes observés ?
 - si présence d'atteintes cutanées, quelle en était la **sévérité** ?
 - est-ce que la réaction présentait des **critères de gravité** ?
- Tout élément de l'histoire clinique qui suggère la possibilité d'une réaction immédiate ou retardée sévère nécessite un niveau supplémentaire de vigilance lors de la réadministration d'une bêta-lactamine.
- En présence de critères de gravité (p. ex., atteintes des organes ou des muqueuses, desquamation, etc.), il est conseillé d'obtenir une consultation auprès des **services spécialisés**.

PRISE DE DÉCISION CONCERNANT L'ADMINISTRATION D'UNE NOUVELLE BÊTA-LACTAMINE

CHOISIR

- Quels sont les éléments à prendre en considération lors de la réadministration d'une bêta-lactamine ?

- La probabilité que la réaction initiale soit de nature allergique et la sévérité de celle-ci;
- Le **risque de réaction croisée** entre la bêta-lactamine indiquée et la pénicilline incriminée qui peut augmenter lorsque les deux antibiotiques partagent des propriétés structurales et physicochimiques **SIMILAIRES** (tableau 1).

Propriétés structurales et physicochimiques des bêta-lactamines

Tableau 1.

Propriétés **SIMILAIRES** aux pénicillines[†]

Céfadroxil [1 ^{re}] R1 100% Amoxicilline
Céphalexine [1 ^{re}] R1 100% Ampicilline
Cefprozil [2 ^e] R1 100% Amoxicilline
*Céfaclor [2 ^e] R1 100% Ampicilline
Céfoxitine [2 ^e]

Tableau 2.

Propriétés **DIFFÉRENTES** des pénicillines[†]

Céfazoline [1 ^{re}]	Ceftriaxone [3 ^e]
Céfuroxime [2 ^e]	Céfépime [4 ^e]
Céfotaxime [3 ^e]	Meropenem
Ceftazidime [3 ^e]	Imipénem
Céfixime [3 ^e]	Ertapénem

- Est-ce que je peux prescrire une bêta-lactamine ? Si oui, quelles seraient les **conditions d'administration** ?

- Engager le patient ou sa famille dans la décision.

SUIVI DU PATIENT APRÈS L'ADMINISTRATION DE LA NOUVELLE BÊTA-LACTAMINE

NOTER

- Quelles sont les **actions** à poser après l'administration de la nouvelle bêta-lactamine en cas d'allergie à une pénicilline ?

- Documenter clairement la réaction obtenue (réaction allergique ou tolérance à l'antibiotique);
- Si réaction allergique, remplir le **formulaire** de déclaration d'une nouvelle réaction d'allergie médicamenteuse.

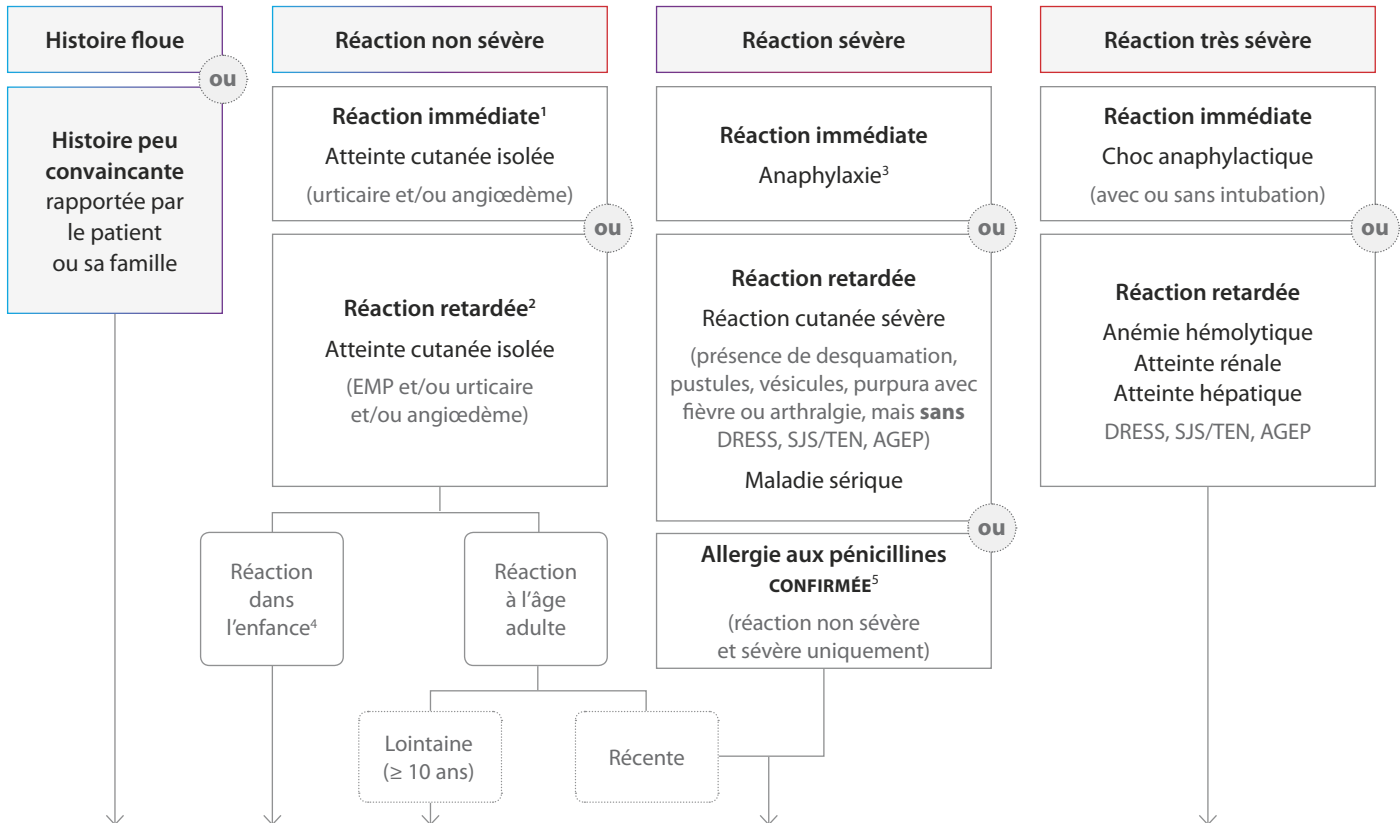
Légende : † = pénicillines G et V, amoxicilline et ampicilline; ‡ = sont incluses les pénicillines mentionnées précédemment en plus de la cloxacilline et la pipéracilline;

* = Le céfclor est discontinué au Canada; R1 100 % = céphalosporine possédant une chaîne latérale R1 100 % identique avec celle de l'ampicilline ou l'amoxicilline;

[1^{re}, 2^e, 3^e, 4^e] = génération des céphalosporines.

SÉVÉRITÉ DE LA RÉACTION ANTÉRIEURE

ÉVALUER LA SÉVÉRITÉ DE LA RÉACTION INITIALE



JE PRESCRIS DE FAÇON SÉCURITAIRE



Carbapénèmes⁶
Céphalosporines DIFFÉRENTES*
Céphalosporines SIMILAIRES* si
 l'antécédent d'allergie ne suggère pas
 une réaction immédiate...

En cas de doute quant à la possibilité d'une
 réaction immédiate...
 une période d'observation d'une heure
 après l'administration de la 1^{re} dose sous la
 supervision d'un professionnel de la santé,
 pourrait être conseillée selon le jugement
 du clinicien.

JE PRESCRIS AVEC PRUDENCE



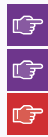
Pénicillines

La 1^{re} dose devrait **toujours** être administrée
 sous surveillance médicale.

Si antécédents de réactions :

- **immédiates**, un test de provocation
devrait être réalisé;
- **retardées**, le patient ou sa famille doivent
être avisés du risque de récurrence possible
dans les jours suivant l'utilisation de
l'antibiotique.

JE PRESCRIS AVEC PRUDENCE



Carbapénèmes⁶
Céphalosporines DIFFÉRENTES*
Céphalosporines SIMILAIRES* **seulement**
 pour les antécédents de réactions
 non sévères récentes chez l'adulte
ou pour les réactions de type
 maladie sérique chez l'enfant⁴.

La 1^{re} dose devrait **toujours** être administrée
 sous surveillance médicale.

Si antécédents de réactions :

- **immédiates**, un test de provocation
devrait être réalisé;
- **retardées**, le patient ou sa famille doivent
être avisés du risque de récurrence possible
dans les jours suivant l'utilisation de
l'antibiotique.

J'ÉVITE DE PRESCRIRE



Pénicillines



Céphalosporines SIMILAIRES* pour
 toute autre situation clinique
 (exception faite pour les antécédents
 de réactions non sévères récentes
 chez l'adulte **ou** des réactions de type
 maladie sérique chez l'enfant⁴, tels
 que décrits ci-dessus).

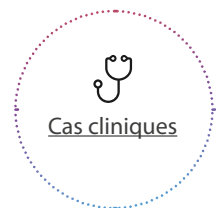
J'ÉVITE DE PRESCRIRE



Bêta-lactamine

Privilégier une autre classe d'antibiotique.
 Si indication forte d'une bêta-lactamine,
 obtenir une consultation auprès des
services spécialisés.

* Pour plus d'information sur les céphalosporines similaires
 et différentes des pénicillines, consultez les [tableaux 1 et 2](#).



Pour plus d'informations sur les manifestations cliniques,
 consultez [l'outil interactif](#).

1. Réaction immédiate (de type I ou IgE médiée) : se déclare généralement en moins d'une heure suivant la prise de la **première dose** d'un antibiotique.
 2. Réaction retardée (de types II, III et IV) : peut survenir à tout moment à partir d'une heure suivant l'administration d'un médicament.
 3. Anaphylaxie sans choc ou intubation : nécessite un niveau supplémentaire de vigilance.
 4. Les réactions cutanées retardées et les réactions de type maladie sérique qui apparaissent chez les enfants sous antibiothérapie sont généralement non allergiques et peuvent être d'origine virale.
 5. Sans recommandations pour d'autres bêta-lactamines.
 6. Utiliser avec parcimonie compte-tenu de l'augmentation de la prévalence des entérobactéries productrices de carbapénémases.

PRISE DE DÉCISION CONCERNANT LE CHOIX DE LA BÊTA-LACTAMINE
 ET LES CONDITIONS D'ADMINISTRATION

1. QUEL EST LE STATUT D'ALLERGIE DU PATIENT ?

L'allergie aux pénicillines est **CONFIRMÉE...**

Si des tests diagnostiques conformes et valides (test cutané ou de provocation) ont été effectués par un médecin.

L'allergie aux pénicillines est **SOUPÇONNÉE...**

Si un patient rapporte une histoire d'allergie aux pénicillines n'ayant jamais été confirmée par des tests diagnostiques.



RAPPELEZ-VOUS QUE...

- L'atopie et les allergies alimentaires ne sont pas des facteurs de risque d'allergie aux médicaments;
- Les personnes qui ont des antécédents familiaux d'allergies médicamenteuses ne sont pas plus susceptibles de réagir à leur tour aux médicaments incriminés.



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2. QUEL ÉTAIT L'ANTIBIOTIQUE DE LA CLASSE DES PÉNICILLINES POUVANT ÊTRE EN CAUSE ?



IDENTIFIEZ...

Le ou les antibiotique(s) soupçonné(s) ou évoqué(s) par le patient :

- Quel était le nom de l'antibiotique pouvant être en cause ?
- Quelles étaient la dose, la voie d'administration et la durée du traitement ?



VÉRIFIEZ SI...

- Depuis l'épisode dit allergique, le patient a repris, sans problème et sans réaction :
 - **le même antibiotique** : il n'est donc pas allergique à cet antibiotique;
 - **un autre antibiotique de la classe des pénicillines** : ceci n'exclut pas la possibilité qu'il soit encore allergique à l'antibiotique qui a causé la réaction initiale (p. ex., un patient pourrait être allergique à la pipéracilline/tazobactam, mais tolérer l'amoxicilline).
- Le patient a déjà subi des tests d'allergie (test cutané ou de provocation) pour la pénicilline incriminée ou pour une autre bêta-lactamine.



MISE EN GARDE

Chez les patients ayant une maladie chronique et qui sont fréquemment exposés aux antibiotiques (p. ex., ceux atteints de fibrose kystique), garder un niveau de vigilance plus élevé que dans la population générale puisqu'il s'agit d'un important facteur de risque pour le développement d'une allergie médicamenteuse, surtout aux bêta-lactamines.



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3. COMBIEN DE TEMPS APRÈS LA PRISE DE L'ANTIBIOTIQUE LA RÉACTION S'EST-ELLE DÉCLENCHÉE ?



IDENTIFIEZ...

La chronologie de la réaction obtenue :

- Au souvenir du patient, quel âge avait-il au moment de la réaction ?
- Combien de temps après la prise de l'antibiotique la réaction s'est-elle déclenchée ?
 - Moins d'une heure après la prise de la **première dose** de l'antibiotique ?
 - Si c'était en cours de traitement, combien de jours après le début du traitement ?
 - Si c'était après la fin du traitement, combien de jours après la fin du traitement ?



RAPPELEZ-VOUS QUE...

L'allergie confirmée aux pénicillines se résout souvent avec le temps chez la majorité des gens (p. ex., plus de la moitié des patients ne seront plus allergiques à une pénicilline après 10 ans).

Pour m'aider à différencier le type de réaction, je peux consulter le tableau suivant ou [l'outil interactif](#)

Type de réaction allergique*	Réaction immédiate	Réaction retardée		
	Type I	Type II	Type III	Type IV
Exemples cliniques	• Anaphylaxie • Angioedème • Bronchospasme • Hypotension • Urticaire	• Anémie hémolytique	• Maladie sérique • Purpura palpable • Vasculite	• EMP • DRESS • SJS/TEN • AGEP
Délai d'apparition des symptômes (post-exposition au médicament)	De quelques minutes à une heure (peut aller jusqu'à 6 heures)	De quelques heures à plusieurs jours (peut aller jusqu'à 6 semaines pour le DRESS)		

* Adaptée de la classification de Gell et Coombs.



MISE EN GARDE

Toute réaction survenant moins d'une heure après la première dose de l'antibiotique suggère une allergie IgE-médiée et pourrait donc occasionner une [réaction anaphylactique](#) lors d'une ré-exposition (le risque d'une réaction anaphylactique est très faible).



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4. QUELS ÉTAIENT LES PRINCIPAUX SIGNES, SYMPTÔMES OU ATTEINTES OBSERVÉS ?

Pour m'aider à identifier les différents symptômes, je peux consulter [l'outil interactif](#)



IDENTIFIEZ...

Les différents types d'atteintes observées ou rapportées :

- Cutanée (p. ex., bulles, pustules, urticaire);
- Digestive (p. ex., vomissements, diarrhées graves);
- Hématologique (p. ex., adénopathie, anémie, éosinophilie, lymphocytose);
- Hépatique (p. ex., augmentation des transaminases);
- Rénale (p. ex., protéinurie, augmentation de l'urée et/ou de la créatinine);
- Respiratoire (p. ex., difficulté respiratoire, bronchospasme, dyspnée, dysphonie, stridor);
- Systémique (p. ex., choc, atteinte de l'état général, hypotension, fièvre > 38,0°C).



RAPPELEZ-VOUS QUE...

- Chez les enfants, certaines présentations cliniques (p. ex., urticaire importante avec arthralgie) sont souvent diagnostiquées à tort comme une maladie sérique (*serum sickness like syndrome*).
- Certains symptômes qui apparaissent sous antibiotiques peuvent suggérer une intolérance plutôt qu'une allergie (p. ex., diarrhée sous amoxicilline-clavulanate).



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4. QUELS ÉTAIENT LES PRINCIPAUX SIGNES, SYMPTÔMES OU ATTEINTES OBSERVÉS ?

a. Si présence d'atteintes cutanées, quelle était la sévérité ?



VÉRIFIEZ SI...

La réaction présentait-elle une atteinte cutanée? Si oui, quelle était la sévérité de l'atteinte observée ou rapportée ?

- Combien de temps avait-elle duré ?
- Y a-t-il eu desquamation ?
- Y avait-il du prurit associé ?
- Était-ce davantage une éruption maculo-papuleuse (EMP ou *Rash*) ou une urticaire ?

Pour m'aider à identifier la sévérité de l'atteinte cutanée, je peux consulter le tableau suivant et [l'outil interactif](#)

Distinction	Réaction allergique cutanée immédiate	Réaction allergique cutanée retardée		
		NON SÉVÈRE	SÉVÈRE	TRÈS SÉVÈRE
Exemples cliniques	Urticaire	EMP (<i>Rash</i>)	EMP (<i>Rash</i>) avec fièvre ou desquamation	SJS/TEN, DRESS, AGEP
Délai d'apparition des symptômes	Généralement < 1 heure après la prise de la 1 ^{re} dose de l'antibiotique	Généralement après quelques jours de traitement	À partir d'une heure suivant la prise de l'antibiotique; en général de quelques heures à plusieurs jours, voire jusqu'à 6 semaines pour le syndrome de DRESS	
Durée de la réaction	Quelques heures (< 24 heures suivant l'arrêt de l'antibiotique) ¹	Quelques jours	Plusieurs jours à quelques semaines	Quelques semaines à plusieurs semaines
Type de lésions et caractéristiques	Lésions papuleuses surélevées	Lésions maculeuses sans relief et/ou lésions papuleuses surélevées	Idem à EMP non sévère + desquamation, pustules, vésicules, purpura avec fièvre ou arthralgie, mais sans DRESS, SJS/TEN, AGEP	Présence de vésicules, bulles ou pustules, de couleur très foncée, purpura, desquamation
	Aspect évanescent	S'effacent temporairement à la pression		
Distribution des lésions	Localisation limitée à une seule partie du corps ou qui s'étend sur plusieurs régions (généralisée)	Localisation préférentielle et progression anatomique généralement du tronc vers les membres (dépend du syndrome et du type de lésions)		
Prurit associé	+++	++	++	+ (syndrome de DRESS)
Œdème associé	Angioœdème généralement localisé et superficiel du derme sans changement épidermique (pas de squames, ni vésicules, etc.) ²	Aucun	Aucun	Œdème facial
Autres caractéristiques	Se résout généralement sans laisser de trace sur la peau et sans desquamation	Se résout habituellement sans desquamation et ne s'accompagne d'aucun autre symptôme	Fièvre, atteinte de l'état général, atteinte légère des organes internes	Atteinte des muqueuses, fièvre, atteinte de l'état général et atteinte sévère des organes internes

Légende :

1 S'il s'agit d'urticaire pathognomonique décelée au questionnaire, une durée de plus de 48 h suivant l'arrêt du médicament exclut généralement une allergie de type I.

2 Lorsque l'urticaire est plus profonde, les lésions siègent dans le derme profond et l'hypoderme. Il s'agit alors d'un angioœdème ou d'une urticaire sous-cutanée aiguë.



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4. QUELS ÉTAIENT LES PRINCIPAUX SIGNES, SYMPTÔMES OU ATTEINTES OBSERVÉS ?

b. Est-ce que la réaction présentait des critères de gravité ?



IDENTIFIEZ...

Les critères de gravité, les signes, symptômes ou atteintes importantes :

- Est-ce que la réaction possiblement allergique a mené le patient à l'urgence ou aux soins intensifs ?
- Est-ce que la réaction a nécessité un traitement ? Si oui, quel était le traitement prescrit et quelle en était la réponse ?



MISE EN GARDE

La présence d'un seul de ces signes, symptômes ou atteintes est suffisante pour nécessiter une évaluation plus approfondie ou une consultation auprès des services spécialisés.

TYPE D'ATTEINTE	CRITÈRES DE GRAVITÉ Signes, symptômes et atteintes	Réaction immédiate		Réaction retardée					
		Type I		Type II	Type III	Type IV			
		Anaphylaxie		Anémie hémolytique	Maladie sérique	SJS	TEN	DRESS	AGEP
		Sévère	Très sévère	Très sévère	Sévère	Très sévère			
Systémique	Choc avec ou sans intubation		✓						
	Atteinte de l'état général	✓	✓		✓	✓	✓	✓	✓
	Hypotension	✓	✓					✓	
	Fièvre > 38,0°C				✓	✓	✓	✓	✓
Cutanée	Peau douloureuse					✓	✓	✓	
	Pétéchies et purpura palpable				✓				
	Atteinte des muqueuses					✓	✓		
	Vésicules, bulles, pustules							✓	✓
	Desquamation de la peau					✓	✓	✓	✓
	Décollement cutané complet (ulcère)					✓	✓	✓	
	% surface corporelle atteinte					≤ 10 %	≥ 30 %	≥ 50 %	
Œdème	Angioœdème (lèvres, langue, gorge, visage)	✓	✓						
	Œdème facial							✓	
Respiratoire	Dyspnée	✓	✓					✓	
	Dysphonie	✓	✓						
	Bronchospasme (ou sibilance)	✓	✓						
	Stridor	✓	✓						
Hématologique	Éosinophilie urinaire							✓	✓
	Lymphocytose et/ou lymphocytose atypique							✓	
	Adénopathies							✓	
	Anémie			✓				✓	
	Élévation importante de la CRP (> 100 mg/L) ou de la ferritine (> 500 ug/L)				✓	✓	✓	✓	✓
Autres	Atteinte des articulations (arthrite, arthralgie)				✓				
	Atteinte rénale (protéinurie ↑, urée et créatinine)				✓			✓	
	Atteinte hépatique (↑transaminases)				✓	✓	✓	✓	



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CE QUE VOUS DEVEZ SAVOIR SUR... LES CRITÈRES D'ORIENTATION VERS LES SERVICES SPÉCIALISÉS

Qui sont les patients qui pourraient bénéficier d'une consultation auprès des services spécialisés et d'une évaluation en allergologie ?

Pour les situations où l'accessibilité à un allergologue est plus difficile, les critères suivants pourraient être utilisés pour guider une demande auprès des services spécialisés :

Réaction allergique immédiate (IgE-médiée)

- Patient ayant eu une réaction anaphylactique soupçonnée, dont l'historique est mal documenté ou d'étiologie inconnue (p. ex., toute réaction anaphylactique inexpliquée lorsqu'une bêta-lactamine a été administrée conjointement avec plusieurs autres agents).

Réactions allergiques retardées très sévères

- Patient ayant des antécédents de réactions retardées très sévères (soupçonnées ou confirmées) comme le syndrome de DRESS, le SJS/TEN et l'AGEP.

Réactions allergiques chez un sous-groupe de patients particuliers

- Patient ayant des antécédents de réactions allergiques (soupçonnées ou confirmées) aux bêta-lactamines (immédiates ou retardées) s' :
 - il est susceptible d'avoir recours à ce type d'antibiotique de manière fréquente (comme les patients atteints d'infections bactériennes récurrentes ou de MPOC accompagnée de surinfections fréquentes, de fibrose kystique ou d'un déficit immunitaire);
 - il a besoin d'un traitement pour une maladie ou un état qui ne peut être traité que par une bêta-lactamine (p. ex., neurosyphilis).
- Patient d'âge pédiatrique ayant des antécédents de réactions allergiques (soupçonnées ou confirmées) aux bêta-lactamines (immédiates ou retardées) afin d'éviter qu'il soit étiqueté faussement comme patient allergique et lui permettre d'avoir recours à de meilleurs outils thérapeutiques.
- Patient polymédicamenté (p. ex., personne âgée) ayant des antécédents de réactions allergiques (soupçonnées ou confirmées) aux bêta-lactamines (immédiates ou retardées) et qui présente un risque plus élevé d'interactions médicamenteuses ou chez qui les choix sécuritaires sont plus restreints (p. ex., patient qui prend déjà des médicaments qui allongent l'intervalle QT).

Allergie multiple

- Patient ayant des antécédents de réactions allergiques aux bêta-lactamines et à au moins une autre classe d'antibiotiques, plus particulièrement les patients allergiques aux :
 - pénicillines et quinolones;
 - pénicillines et macrolides;
 - pénicillines et triméthoprim-sulfaméthoxazole.



RAPPELEZ-VOUS QUE...

À la suite de la réception du diagnostic après une consultation auprès des services spécialisés, les informations complètes de l'allergie médicamenteuse devraient être mises à jour dans le dossier du patient ou dans un endroit réservé à cet effet dans les dossiers informatisés/électroniques (DCI, DME) et incluses minimalement dans les documents suivants :

- Rapport de consultation au médecin traitant;
- Dossier pharmacologique (hôpital ou communautaire);
- Service des archives médicales de l'hôpital.

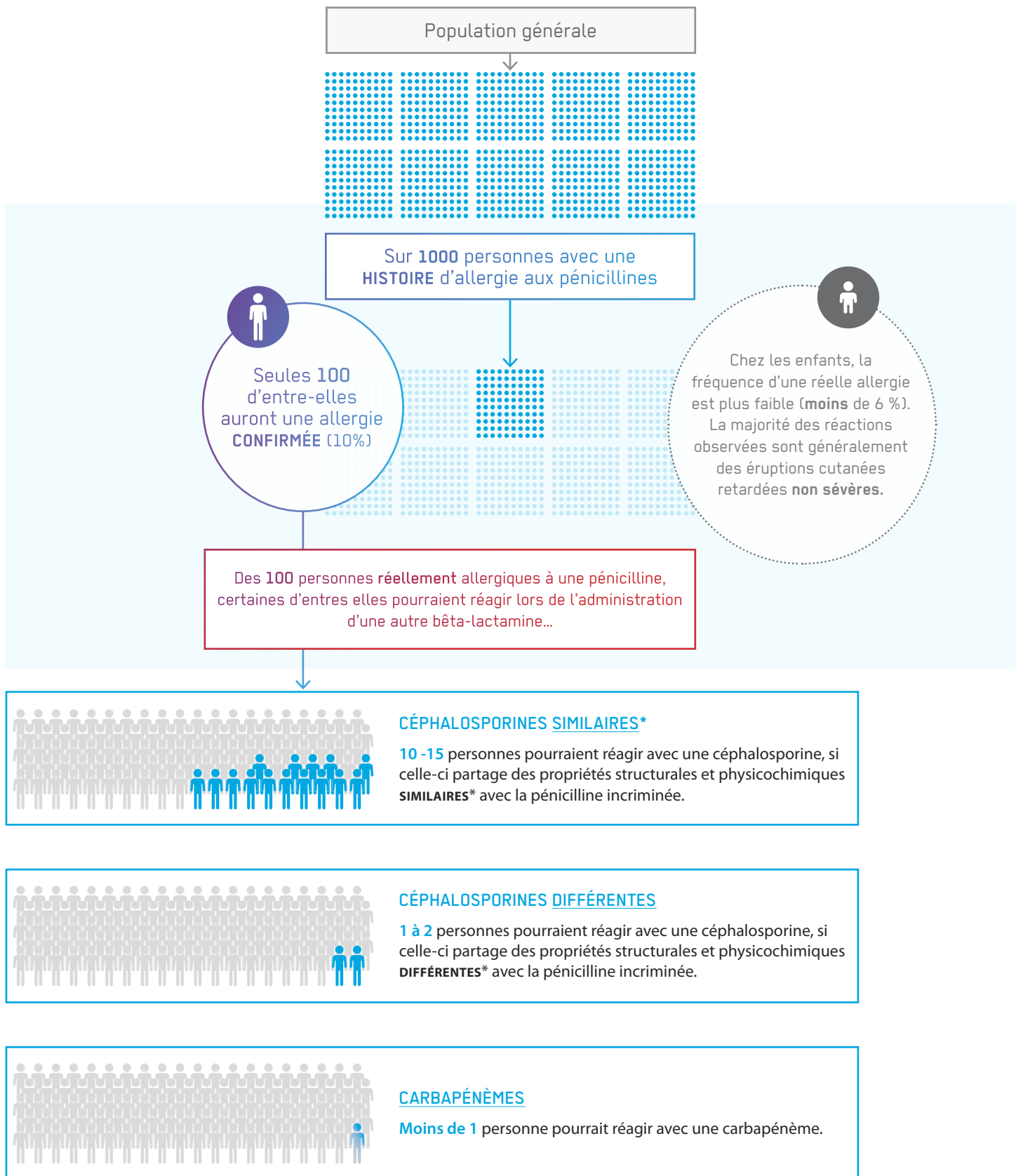


Retour à l'algorithme



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5. QUELS SONT LES RISQUES ASSOCIÉS À LA RÉINTRODUCTION D'UNE BÊTA-LACTAMINE ?



Remarques : Les chiffres sont présentés à titre indicatif. Ils sont corroborés par les données provenant de la littérature scientifique et sont en lien avec plusieurs lignes directrices.

Légende :

* Les similitudes entre les pénicillines et les céphalosporines ont été évaluées en fonction des propriétés structurales (chaîne latérale R1) et physicochimiques (p. ex., pKa, charge, polarité, hydrophobicité, donneur/accepteur de lien hydrogène, etc.). Pour plus d'information, cliquez [ici](#).



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6. QUELLE EST LA MARCHÉ À SUIVRE ET LES CONDITIONS PRÉALABLES NÉCESSAIRES À LA RÉALISATION DES TESTS DE PROVOCATION EN CAS D'ANTÉCÉDENT DE RÉACTION IgE MÉDIÉE (TYPE I) EN PREMIÈRE LIGNE ?



CE QUE VOUS DEVEZ SAVOIR SUR... LES TESTS DE PROVOCATION

- Les tests de provocation doivent être réalisés sous surveillance médicale, par un personnel formé et dans des milieux de soins munis d'équipement de réanimation.
- L'administration de l'antibiotique devrait se faire idéalement en deux étapes :
 - **10 %** de la dose totale (un délai de **30 minutes*** est conseillé avant l'administration de la 2^e dose);
 - **90 %** de la dose totale.
- Une période d'observation du patient de **60 minutes** après l'administration de la dernière dose est conseillée.

* peu importe la voie d'administration (orale ou injectable)



MISE EN GARDE

- Une marche à suivre en 3 étapes commençant à 1 % de la dose totale avec paliers de 60 minutes est préférable pour les patients qui ont des antécédents d'anaphylaxie.
- Les tests de provocation sont contre-indiqués dans les cas de réactions allergiques très sévères (p. ex., choc anaphylactique, SJS/TEN, DRESS, AGEP).
- Un consentement verbal du patient devrait être obtenu et documenté au dossier (ou selon les modalités de chaque établissement).
- Une réaction tardive (généralement une éruption cutanée accompagnée de démangeaisons) peut survenir dans les jours suivant le test en cas de réaction allergique retardée (il est important d'en aviser le patient).



Retour à l'algorithme



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7. QUELLES SONT LES ACTIONS À POSER APRÈS L'ADMINISTRATION D'UNE NOUVELLE BÊTA-LACTAMINE CHEZ UN PATIENT QUI A UNE ALLERGIE SOUPÇONNÉE OU CONFIRMÉE À UNE PÉNICILLINE ?

Si réaction allergique :

Santé et Services sociaux Québec

DÉCLARATION D'UNE NOUVELLE RÉACTION D'ALLERGIE MÉDICAMENTEUSE

Cliquez sur les mots soulignés pour voir les directives.

MÉDICAMENTS SOUPÇONNÉS (Pensez aux autres de probabilité)

N°	Nom du médicament	Début du traitement	Fin du traitement
N° 1			
N° 2			
N° 3			

Manifestations cliniques principales

Début : Mois Année Fin : Mois Année En cours lors de la déclaration : ☐ Oui ☐ Non ☐ Inconnu

Délai d'apparition de la manifestation suite à la prise du médicament (p. ex. : min, heures, jours) : _____

Allergie connue

Manifestations cliniques	Autres types d'allergies	Renseignements complémentaires
☐ Démangeaisons ou prurit ☐ Atteinte des muqueuses ☐ Rinite ☐ Desquamation ☐ Éruption maculo-papuleuse ☐ Œdème ☐ Pruritus papuleux ☐ Urticaire	☐ Digestif ☐ Fièvre > 38°C ☐ Hépatite ☐ Hépatite ☐ Hypotension ☐ Rhabdomyolyse ☐ Respiratoire	(p. ex. : localisation des lésions, autres effets)

Manifestations cliniques disparues après l'arrêt d'utilisation du médicament : ☐ Oui ☐ Non ☐ Inconnu

Hospitalisation requise (Si oui, préciser la date, l'urgence, autres interventions) : ☐ Oui ☐ Non ☐ Inconnu

Traitement des manifestations cliniques

☐ Aucun ☐ Antihistaminique ☐ Réponse au traitement : ☐ Oui ☐ Non, probables :	☐ Corticostéroïde systémique ☐ Corticostéroïde topique ☐ Autre :	☐ Épidémiologie ☐ Autre :
--	---	--

Statut de l'allergie au moment de la déclaration

☐ Allergie confirmée : ☐ Allergie soupçonnée :	☐ Oui ☐ Non ☐ Oui ☐ Non	☐ Date : _____ ☐ Année : _____
---	--	---

Commentaires (Précisez la sévérité de la réaction allergique observée)

☐ Réaction immédiate (type I) : précisez la sévérité : _____

☐ Réaction retardée (de type II, III ou IV) : précisez la sévérité : _____

☐ Ne sais pas

Signature : _____ N° de poste : _____ Date : _____

- Arrêter l'antibiotique et traiter la réaction, au besoin.*
- Remplir le formulaire de déclaration d'une nouvelle réaction d'allergie médicamenteuse ([Français : n° AH-707 DT-9308](#)) ([Anglais : n° AH-707A DT-9309](#)).
- Mettre à jour les informations complètes sur le statut d'allergie médicamenteuse au minimum dans les documents suivants :
 - Dossier du patient ou dans un endroit réservé à cet effet dans les dossiers informatisés/électroniques (DCI, DME);
 - Demande de consultation au médecin spécialiste ou rapport de consultation au médecin traitant;
 - Dossier pharmacologique (hôpital ou communautaire);
 - Service des archives médicales de l'hôpital.
- Aviser clairement le patient du diagnostic, du type de réaction qu'il a eu ainsi que du nom du médicament en cause.
- Évaluer le besoin d'une consultation auprès des services spécialisés.

* Consultez au besoin les critères cliniques relatifs au diagnostic de l'anaphylaxie.

Si tolérance à l'antibiotique ou effet indésirable :

Documenter clairement la réaction observée :

- Au dossier du patient;
- Dans un endroit réservé à cet effet dans les dossiers informatisés/électroniques.



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CAS CLINIQUES

Les cas cliniques présentés ici sont à titre indicatif et ne remplacent pas le jugement du professionnel. Ils doivent être utilisés comme un outil d'aide à la décision uniquement.

1

Antécédent de réaction cutanée isolée retardée non sévère chez l'enfant

- Enfant de 3 ans avec une pneumonie acquise en communauté ayant besoin d'un antibiotique.
- A développé il y a près de 2 ans, une éruption maculo-papuleuse non-immédiate après 3 jours de traitement sous amoxicilline pour le traitement d'une otite moyenne aiguë.

■ Rappelez vous que...

chez les enfants, certaines infections virales couplées à la prise d'un antibiotique (p. ex., amoxicilline) entraînent l'apparition d'éruptions cutanées pouvant faire poser à tort un diagnostic d'allergie.

Est-ce que je peux prescrire une bêta-lactamine ?

Si oui, quelles seraient les conditions d'administration ?

JE PRESCRIS DE FAÇON SÉCURITAIRE



Cefprozil ou Céfuroxime axétil

JE PRESCRIS AVEC PRUDENCE



Amoxicilline ou Amoxicilline-Clavulanate

Si j'opte pour une de ces options...

- La 1^{re} dose devrait toujours être administrée sous surveillance médicale.
- Le patient ou la famille devrait être avisé du risque de récurrence possible.

2

Antécédent de réaction cutanée isolée retardée non sévère récente chez l'adulte

- Adulte de 40 ans avec une pharyngite-amygdalite à streptocoque du groupe A ayant besoin d'un antibiotique.
- A développé il y a 5 ans une éruption maculo-papuleuse non-immédiate surtout au niveau du tronc après ± 5 jours de traitement sous amoxicilline pour traiter une rhinosinusite aiguë bactérienne.

Est-ce que je peux prescrire une bêta-lactamine ?

Si oui, quelles seraient les conditions d'administration ?

JE PRESCRIS AVEC PRUDENCE



Céphalexine

Si j'opte pour cette option...

- La 1^{re} dose devrait toujours être administrée sous surveillance médicale.
- Le patient ou la famille devrait être avisé du risque de récurrence possible.

J'ÉVITE DE PRESCRIRE



Pénicilline V et Amoxicilline

3

Antécédent de réaction immédiate (IgE-médiée) sévère chez l'adulte

- Adulte de 66 ans avec une rhinosinusite aiguë bactérienne présentant des symptômes persistants depuis plus de 10 jours et ayant besoin d'un antibiotique.
- A développé il y a 10 ans une urticaire généralisée avec bronchospasme (anaphylaxie probable) moins d'une heure après la première prise de la pénicilline V pour traiter une pharyngite-amygdalite.

Est-ce que je peux prescrire une bêta-lactamine ?

Si oui, quelles seraient les conditions d'administration ?

JE PRESCRIS AVEC PRUDENCE



Céfixime ou Céfuroxime axétil

Si j'opte pour une de ces options...

- La 1^{re} dose devrait toujours être administrée sous surveillance médicale.
- Comme c'est un antécédent de réaction immédiate, un test de provocation devrait être réalisé.

J'ÉVITE DE PRESCRIRE



Amoxicilline-Clavulanate



Retour à l'algorithme

LÉGENDE

 VÉRIFIEZ SI...  IDENTIFIEZ...	
Série d'éléments importants à vérifier ou à identifier lors de l'interrogatoire clinique.	Administration sans précaution particulière.
 RAPPELEZ-VOUS QUE...	
Rappel de renseignements pertinents pouvant aider au processus diagnostique.	Administration possible avec certaines précautions : en fonction de l'histoire de la réaction initiale et du confort du clinicien, du patient ou de la famille vis-à-vis du faible risque.
 CE QUE VOUS DEVEZ SAVOIR SUR...	
Information pertinente à connaître pour une prise en charge optimale du patient.	Administration possible avec certaines précautions UNIQUEMENT pour les conditions précisées.
 MISE EN GARDE	
Zones de vigilance ou attention particulière à prendre en considération lors de l'évaluation clinique.	Administration généralement déconseillée : privilégier un antibiotique d'une autre classe que celle des bêta-lactamines et obtenir une consultation auprès des <u>services spécialisés</u> .

ABRÉVIATIONS

AGEP : *acute generalized exanthematous pustulosis*,
 DCI : dossier clinique informatisé,
 DME : dossiers médicaux électroniques,
 DRESS : *drug reaction with eosinophilia and systemic symptoms*,

EMP : éruption maculo-papuleuse,
 MPOC : maladie pulmonaire obstructive chronique,
 SJS : Stevens-Johnson *syndrome*,
 TEN : *toxic epidermal necrolysis*.

RÉFÉRENCES

- American Academy of Allergy Asthma and Immunology (AAAAI) (2016). Position statement : Penicillin allergy. Milwaukee, WI, AAAAI : 4.
- Gruchalla, R. S. and M. Pirmohamed (2006). «Clinical practice. Antibiotic allergy.» *N Engl J Med* 354(6) : 601-609.
- INESSS 2017, [ADDENDA Avis sur la standardisation des pratiques relatives aux allergies aux bêta-lactamines](#).
- INESSS 2017, [Avis sur la standardisation des pratiques relatives aux allergies aux bêta-lactamines](#).
- INESSS 2017, Méta-analyse sur l'évaluation du risque de réactions croisées aux céphalosporines et carbapénèmes chez des patients avec une allergie CONFIRMÉE aux pénicillines.
- Macy, E. and E. W. Ngor (2013). «Safely diagnosing clinically significant penicillin allergy using only penicilloyl-poly-lysine, penicillin, and oral amoxicillin.» *J Allergy Clin Immunol Pract* 1(3) : 258-263.
- Mill, C., M. N. Primeau, et al. (2016). «Assessing the Diagnostic Properties of a Graded Oral Provocation Challenge for the Diagnosis of Immediate and Nonimmediate Reactions to Amoxicillin in Children.» *JAMA Pediatr* 170(6) : e160033.
- Picard, M., P. Begin, et al. (2013). «Treatment of patients with a history of penicillin allergy in a large tertiary-care academic hospital.» *J Allergy Clin Immunol Pract* 1(3) : 252-257.
- Pichichero, M. E. and R. Zagursky (2014). «Penicillin and cephalosporin allergy.» *Ann Allergy Asthma Immunol* 112(5) : 404-412.

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APPENDIX 5.

Table of Brand Names

Nom commercial	Generic name	Monography
Tylenol ^{md} , paracétamol	Acetaminophen	https://go.drugbank.com/drugs/DB00316
Adalat ^{md} et Adalat XL ^{md}	Nifedipine	https://www.aapharma.ca/downloads/en/PIL/2016/Nifedipine-PM.pdf , https://www.bayer.ca/omr/online/adalat-xl-pm-eng.pdf
Adrénaline	Epinephrine 1: 10,000 (newborn)	https://www.pfizer.ca/sites/default/files/201804/2018.04.13_Epinephrine_Presc_Info_E_Level_3.pdf
Advil ^{md} , Motrin ^{md}	Ibuprofen	https://www.pfizer.ca/sites/default/files/201901/Advil_TabsCapsGelESMuscleJoint12HR_PM%20Pristine%20PM.pdf
Amoxil ^{md}	Amoxicillin	https://pdf.hres.ca/dpd_pm/00042790.PDF
Ancef ^{md}	Cefazolin	https://www.sandoz.ca/sites/www.sandoz.ca/files/Cefazolin%20Monograph.pdf
Anexate ^{md}	Flumazenil	https://www.sandoz.ca/sites/www.sandoz.ca/files/Flumazenil_Inj_PMe_20130612.doc.pdf
Anusol ^{md} ou Anugesic ^{md} ou Proctodan ^{md}	Pramoxine 1% (never used alone)	https://www.canada.ca/en/health-canada/services/drugs-health-products/drug-products/applications-submissions/guidance-documents/nonprescription-drugs-labeling-standards/topical-anaesthetic-analgesic-antipruritic-labelling-standard.html
Bactrim ^{md} , Sulfatrim ^{md}	Sulfamethoxazole + trimethoprim (TMP-SMX)	https://pdf.hres.ca/dpd_pm/00049327.PDF
Bactroban ^{md}	Topical mupirocin	https://pdf.hres.ca/dpd_pm/00047763.PDF
Benadryl ^{md}	Diphenhydramine	https://www.fresenius-kabi.com/en-ca/documents/Diphenhydramine-PI-ENG-v2.1-Proposed.pdf
Bétaderm ^{md}	Topical betamethasone	https://www.taro.com/sites/default/files/CANADA-Products/Betaderm%20Prescribing%20Information.pdf
C ₁₂ H ₂₂ CaO ₁₄	Calcium gluconate for injection	https://pdf.hres.ca/dpd_pm/00054708.PDF
Canesten ^{md}	Topical or vaginal clotrimazole	https://www.bayer.ca/omr/online/canesten-pm-en.pdf
Celestone Soluspan ^{md}	Betamethasone	https://www.merck.ca/static/pdf/C_ELESTONE_SOLUSPAN-PM_E.pdf
Clavulin ^{md}	Amoxicillin + clavulanate	https://ca.gsk.com/media/590864/clavulin.pdf
Cytotec ^{md}	Misoprostol	https://www.aapharma.ca/downloads/en/PIL/2016/Misoprostol-PM.pdf
Dalacin C ^{md}	Clindamycin	https://www.pfizer.ca/sites/default/files/201908/Dalacin_C_PM_E_220110_12Aug2019.pdf
Dalacin ^{md}	Vaginal clindamycin	https://www.pfizer.ca/sites/default/files/201901/DALACIN_VAGINAL_CREAM_PI_E_220921_21Dec2018.pdf

Nom commercial	Generic name	Monography
Ddrops ^{md} , D-Vi-Sol ^{md} , cholécalciférol, Vitamine D3	Vitamin D	https://www.sandoz.ca/sites/www.sandoz.ca/files/Multivitaminmineral-supplements-under-consultation_Product%20Monograph.pdf
Decadron ^{md}	Dexamethasone	https://www.sandoz.ca/sites/www.sandoz.ca/files/Dexamethasone%20Sodium%20Phosphate%20Injection%20Product%20Monograph.pdf
Depo-provera ^{md}	Medroxyprogesterone	https://www.pfizer.ca/sites/default/files/201803/DEPO-PROVERA_PM_E_210121_13Feb2018.pdf
Diclectin ^{md}	Doxylamine + pyridoxine	https://www.duchesnay.com/files/pdf/diclectin_monograph.pdf
Diflucan ^{md}	Fluconazole	https://www.pfizer.ca/sites/default/files/202007/Diflucan_PM_E_237806_30June2020.pdf
Duratocin ^{md}	Carbetocin	https://ferring.ca/media/1022/duratocin-rt-s-pm-control-no-207185-en_28feb2018.pdf
Duricef ^{md}	Cefadroxil	https://www.tevacanada.com/globalassets/canada-ph2/product-monographs/cefadroxil-capsules-500mg-teva-pm-july16_2018-wis-eng.pdf
Ella ^{md}	Ulipristal acetate	https://allergan-web-cdn-prod.azureedge.net/allergan-canadaspecialty/allergan-canadaspecialty/media/actavis-canada-specialty/en/products/pms/ella-pm-jan-22-2015-eng.pdf
Épipen, Allergect, Emerade	Epinephrine 1: 1000 (adults)	https://www.pfizer.ca/sites/default/files/201804/2018.04.13_Epinephrine_Presc_Info_E_Level_3.pdf
Ergotrate ^{md}	Ergonovine (ergometrine)	https://pdf.hres.ca/dpd_pm/00052891.PDF
Ferodan ^{md}	Ferrous sulphate	https://www.sandoz.ca/sites/www.sandoz.ca/files/Fer-Product%20Monograph.pdf
Fertinic ^{md}	Ferrous gluconate	https://www.sandoz.ca/sites/www.sandoz.ca/files/Fer-Product%20Monograph.pdf
Flagyl vaginal ^{md} , Nidagel ^{md}	Vaginal metronidazole	https://pdf.hres.ca/dpd_pm/00038612.PDF
Flagyl ^{md}	Metronidazole	https://pdf.hres.ca/dpd_pm/00040051.PDF
Garamycin ^{md}	Gentamicin	https://www.sandoz.ca/sites/www.sandoz.ca/files/Gentamicin%20Inj%20Product%20Monograph.pdf
Gaviscon ^{md}	Alginic acid	
Gravol ^{md}	Dimenhydrinate	https://www.sandoz.ca/sites/www.sandoz.ca/files/Dimenhydrinate%20Product%20Monograph.pdf
Hémabate ^{md}	Carboprost	https://www.pfizer.ca/sites/default/files/201710/Hemabate_PM_E_170114_21Feb2014.pdf
HyperHEP B S/D ^{md}	Hepatitis B immune globulin (HbIg)	https://www.grifols.com/documents/17006/133313/HyperHEP-B-SD-en.pdf/fd9bfd8c-d3a1-4ec6-be17-c3e-df3e660ac
Ilotycin ^{md}	Erythromycin (eye ointment)	https://pdf.hres.ca/dpd_pm/00047896.PDF
Indocid ^{md}	Indomethacin	https://pdf.hres.ca/dpd_pm/00022262.PDF
Keflex ^{md}	Cephalexin	https://pdf.hres.ca/dpd_pm/00045523.PDF

Nom commercial	Generic name	Monography
Losec ^{md}	Omeprazole	https://www.astrazeneca.ca/content/dam/az-ca/downloads/productinformation/losec-capsules-product-mono-graph-en.pdf
Maalox ^{md}	Aluminum magnesium hydroxide	https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/dhp-mps/alt_formats/hpfb-dgpsa/pdf/prodpharma/antacid_antiacid-eng.pdf
MacroBID ^{md}	Nitrofurantoin (macroBID)	https://pdf.hres.ca/dpd_pm/00048177.PDF
Marcaïne ^{md} et Marcaïne ^{Emd}	Bupivacaine ± epinephrine	https://www.pfizer.ca/sites/default/files/202009/Marcaïne_E_PM_E_Level_3_rev_2019.02.04.pdf
Micronor ^{md}	Norethindrone	https://pdf.hres.ca/dpd_pm/00018763.PDF
Mirena ^{md} , Kyleena ^{md} , Jaydess ^{md}	Intrauterine levonorgestrel	https://www.bayer.ca/omr/online/mirena-pm-en.pdf , https://www.bayer.ca/omr/online/kyleena-pm-en.pdf , https://www.bayer.ca/omr/online/jaydess-pm-en.pdf
Monistat ^{md}	Topical or vaginal miconazole	https://pdf.hres.ca/dpd_pm/00014905.PDF
Monuro ^{md}	Fosfomycin	https://pdf.hres.ca/dpd_pm/00044185.PDF
Motilium ^{md}	Domperidone	https://pdf.hres.ca/dpd_pm/00029629.PDF
Mycostatin ^{md}	Nystatin	https://www.tevacanada.com/globalassets/canada-ph2/product-monographs/teva-nystatin-oral-susp-100000units-ml-vaginal-cream-100000-unitg-ratio-nystatin-cream--ointment-100000-units-g_pi.pdf
n.a.	Lactate Ringer	https://www.baxter.ca/sites/g/files/ebysai1431/files/2018-11/Lactated_Ringers_Inj_EN.pdf
n.a.	Magnesium Sulphate (MgSO ₄)	https://www.fresenius-kabi.com/en-ca/documents/Mag-Sulfate-PI-Eng-v1.1-Clean.pdf
n.a.	Nitroglycerine	https://pdf.hres.ca/dpd_pm/00016984.PDF
n.a.	Physiological serum (NaCl 0.9%)	https://www.baxter.ca/sites/g/files/ebysai1431/files/2018-11/0.9pct_NaCl_Inj_Viaflex_EN.pdf
n.a.	Silver nitrate	
Naprosyn ^{md}	Naproxen	https://pdf.hres.ca/dpd_pm/00038933.PDF
Narcan ^{md}	Naloxone	https://www.sandoz.ca/sites/www.sandoz.ca/files/Naloxone_HCl_PMe_20111104.pdf
Nebcin ^{md}	Tobramycin	https://www.sandoz.ca/sites/www.sandoz.ca/files/Tobramycin%20Injection%20Product%20Monograph.pdf
Nubain ^{md}	Nalbuphine	https://www.sandoz.ca/sites/www.sandoz.ca/files/Nubain%20Product%20Monograph.pdf
Orbenine ^{md} , Tegopen ^{md}	Cloxacillin	https://pdf.hres.ca/dpd_pm/00046029.PDF
Palafer ^{md}	Ferrous fumarate	https://www.sandoz.ca/sites/www.sandoz.ca/files/Fer-Product%20Monograph.pdf
Penbritine	Ampicillin sodium	https://pdf.hres.ca/dpd_pm/00048885.PDF
Pénicilline G ^{md}	Penicillin G sodium	https://www.fresenius-kabi.com/en-ca/documents/Penicillin-G-Sodium-Prescribing-Information-ENG-v4.0-071319.pdf

Nom commercial	Generic name	Monography
Plan B ^{md}	Levonorgestrel	https://planb.ca/build/assets/pdf/consumer-information-part3.c7868bf8.pdf
Plusieurs différentes marques	Multivitamins	https://www.sandoz.ca/sites/www.sandoz.ca/files/Multivitaminmineral-supplements-under-consultation_Product%20Monograph.pdf
Plusieurs marques	Vitamin B complex	https://www.sandoz.ca/sites/www.sandoz.ca/files/Multivitaminmineral-supplements-under-consultation_Product%20Monograph.pdf
Plusieurs marques	Vitamin B12 (cobalamin)	https://www.sandoz.ca/sites/www.sandoz.ca/files/Multivitaminmineral-supplements-under-consultation_Product%20Monograph.pdf
Plusieurs marques	Vitamin B6 (pyridoxine)	https://www.sandoz.ca/sites/www.sandoz.ca/files/Multivitaminmineral-supplements-under-consultation_Product%20Monograph.pdf
Plusieurs marques	Vitamin B9 (folic acid)	https://www.sandoz.ca/sites/www.sandoz.ca/files/Multivitaminmineral-supplements-under-consultation_Product%20Monograph.pdf
Plusieurs marques	Vitamin C (ascorbic acid)	https://www.sandoz.ca/sites/www.sandoz.ca/files/Multivitaminmineral-supplements-under-consultation_Product%20Monograph.pdf
Proferrin ^{md}	Heme iron polypeptide	https://www.sandoz.ca/sites/www.sandoz.ca/files/Fer-Product%20Monograph.pdf
Rocephin ^{md}	Ceftriaxone	https://www.sandoz.ca/sites/www.sandoz.ca/files/Ceftriaxone%20Product%20Monograph.pdf
Sulcrate ^{md}	Sucralfate	https://allergan-web-cdn-prod.azureedge.net/allergan-canadaspecialty/allergan-canadaspecialty/media/actavis-canada-specialty/en/products/pms/sulcrate_pm_12sep2013_eng.pdf
Suprax ^{md}	Cefixime	https://pdf.hres.ca/dpd_pm/00040170.PDF
Syntocinon ^{md}	Oxytocin	https://www.pfizer.ca/sites/default/files/201905/Oxytocin_PI_221052_18Dec2018_E.pdf
Terazol ^{md}	Vaginal terconazole	https://pdf.hres.ca/dpd_pm/00026484.PDF
Trandate ^{md}	Labetalol	https://www.pfizer.ca/sites/default/files/202005/Labetalol_PM_E_236791_05.04.2020.pdf
Tums ^{md}	Calcium carbonate	https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/dhp-mps/alt_formats/hpfb-dgpsa/pdf/prodpharma/antacid_antiacid-eng.pdf
Valtrex ^{md}	Valacyclovir	https://ca.gsk.com/media/593038/valtrex.pdf
Vancocin ^{md}	Vancomycin	https://www.pfizer.ca/sites/default/files/201806/2018.06.07_Vancomycin_Hydrochloride_PM_E_213061.pdf
VariZIG ^{md}	Varicella Zoster Immune Globulin (VarIG)	https://pdf.hres.ca/dpd_pm/00042681.PDF

Nom commercial	Generic name	Monography
Versed ^{md}	Midazolam	https://www.pfizer.ca/sites/default/files/201712/2017.10.25_Midazolam_PM_PF_E_210318.pdf
Voltaren ^{md}	Diclofenac	https://www.novartis.ca/sites/www.novartis.ca/files/voltaren_scrip_e.pdf
WinRho ^{md} , RhoGAM ^{md}	Human anti-D immunoglobulin	https://winrho.com/pdfs/WinRho_CDN_PM_English_Ap-tevo_approved_May_2016.pdf
Xylocaine ^{md}	Lidocaine 1 or 2% ± epinephrine	https://www.pfizer.ca/sites/default/files/201812/Lidocaine_PM_E_219745_09Nov2018.pdf
Zantac ^{md}	Ranitidine	http://products.sanofi.ca/en/zantac.pdf
Zithromax ^{md}	Azithromycin	https://www.sandoz.ca/sites/www.sandoz.ca/files/Sandoz%20Azithromycin%20PM_EN.pdf
Zovirax ^{md}	Acyclovir	https://pdf.hres.ca/dpd_pm/00028904.PDF
	Dextrose 5% - NaCl 0.9%	https://www.baxter.ca/sites/g/files/ebysai1431/files/2019-01/Dextrose_and_Sodium_Chloride_Injection_ENG.pdf
	Erythromycin	https://pdf.hres.ca/dpd_pm/00041085.PDF
	Fentanyl	https://www.sandoz.ca/sites/www.sandoz.ca/files/Fentanyl%20Citrate%20Product%20Monograph.pdf
	Hydrocortisone 0.5 or 1%	https://www.sandoz.ca/sites/www.sandoz.ca/files/11372-Sandoz%20Hydrocortisone%20Product%20Monograph.pdf
	Iron polysaccharide complex	https://www.sandoz.ca/sites/www.sandoz.ca/files/Fer-Product%20Monograph.pdf
	Magnesium	https://www.sandoz.ca/sites/www.sandoz.ca/files/Multivitaminmineral-supplements-under-consultation_Product%20Monograph.pdf
	Topical 2 to 5% Lidocaine	https://pdf.hres.ca/dpd_pm/00003402.PDF
	Vitamin K1 (phytonadione)	https://www.sandoz.ca/sites/www.sandoz.ca/files/Multivitaminmineral-supplements-under-consultation_Product%20Monograph.pdf

Appendix 6.

Pasero Opioid-Induced Sedation Scale

Parameter to be assessed	Clinical considerations
Pain intensity	- It is important to use a recognized and validated scale (e.g., verbal numerical scale between 0 and 10, Gélinas Scale, 2004). - It is also crucial to use the same scale for the same patient throughout the continuum of care to ensure assessment reliability.
Degree of sedation: - S: Normal sleep, easy to rouse 1: Awake and alert 2: Slightly drowsy, easy to rouse 3: Drowsy; wakes up, but falls asleep during conversation 4: Deeply asleep; minimal or no response to verbal or physical stimulation	- It is important to use a recognized scale (e.g., Pasero Opioid-Induced Sedation Scale [Pasero et al., 2007]). - It is also crucial to recognize the various degrees of sedation and to be able to differentiate between them in order to detect the slightest change quickly. - Increased sedation is a better indicator of CNS depression than decreased respiratory rate (ANZCA, 2005).
Respiratory status: - Frequency - Rhythm - Amplitude - Snoring - Pulsatile oxygen saturation	- Respiratory depression as a result of CNS depression should be constantly watched for since it can be fatal. - Although useful, pulse oximeters are less reliable when there is an O₂ supply (Weinger, 2006). This is why they are only reliable for patients who are not on O₂. In addition, this device does not detect altered respiratory status (e.g., the presence of a heart attack); change in respiratory rate, respiratory pauses), but only its late consequences. Neither does it detect CO₂ accumulation in the blood (Hutchison and Rodriguez, 2008; Weinger, 2006).

(Free translation of)

Durand, S, Brodeur, J et Thibault, C. Surveillance clinique des clients qui reçoivent des médicaments ayant un effet dépressif sur le système nerveux central. Avis, Ordre des infirmières et infirmiers du Québec, 2^e édition, 2009. Consulté en ligne le 15 octobre 2020 : https://www.oiiq.org/documents/20147/237836/193_doc.pdf