SHORTAGE:
 	
Pilocarpine hydrochloride eye drops 4%
	Anticipated re-supply date: 16th June 2023
	Actions for prescribers
	Actions
	NHS Provider Trust pharmacy procurement teams, ophthalmology teams and primary care prescribers should:
	• review patients on pilocarpine 4% eye drops for open angle glaucoma or ocular hypertension and establish if they have sufficient supplies until the resupply date. If patients require further supplies:
	  ○ consider prescribing pilocarpine 1% or 2% eye drops and adjusting the frequency to control the intraocular pressure; or
	  ○ consider other therapies if appropriate (such as prostaglandins, betablockers, alpha agonists and carbonic anhydrase inhibitors) to control intraocular pressure;
	• refer to the Royal College of Ophthalmology guidelines on the management of acute angle closure glaucoma and treat all patients (irrespective of eye colour) with a stat dose of pilocarpine 2% eye drops (along with other treatments as laid out in the guideline);
	• consider prescribing unlicensed (specials) pilocarpine 4% preservative free eye drops if the options above are not suitable (see Supporting Information); and
	• review patients prescribed pilocarpine 4% eye drops off-label as treatment for dry mouth in palliative care settings and consider prescribing pilocarpine 5mg tablets, which are licensed for xerostomia (see Supporting Information).
	Alternatives
	Licensed alternatives
	Alternative strengths of pilocarpine 1% and 2% eye drops remain available and will be able to support increased demand.
	For off-label use of the 4% drops in the treatment of xerostomia (dry mouth) in palliative care, pilocarpine 5mg tablets are available and are licensed for this indication.
	Unlicensed alternatives
	Specials of pilocarpine 4% preservative free eye drops are available if the licensed alternatives are not suitable**.**
	
	For considerations and background please see here .

SHORTAGE: **Emerade 300 microgram / 0.3ml (1 in 1,000) and 500 microgram / 0.5ml (1in 1,000) solution for injection auto-injector pens**	**Anticipated re-supply date:** **Actions for prescribers:** A National Patient Safety Alert was issued on the 9th May 2023 by the MHRA for the Recall of Emerade 500 micrograms and 300 micrograms auto-injectors, due to the potential for device failure. Please refer to National Patient Safety Alert for information and advice on alternatives.
SHORTAGE: **Pethidine 50mg Tablets**	**Anticipated re-supply date:** 6 Oct 2023 **Alternatives** The following specialist importers have confirmed they can source unlicensed Pethidine 50mg tablets (please note there may be other companies that can also source supplies): • BAP Pharma • Mawdsleys **Considerations and background** **Guidance on ordering and prescribing unlicensed imports**

	• Any decision to prescribe an unlicensed medicine must consider the relevant guidance and NHS Trust or local governance procedures. Please see the links below for further information: ○ The supply of unlicensed medicinal products, Medicines and Healthcare products Regulatory Agency (MHRA) ○ Professional Guidance for the Procurement and Supply of Specials, Royal Pharmaceutical Society ○ Prescribing unlicensed medicines, General Medical Council (GMC)
SHORTAGE: **Estriol (Imvaggis) 0.03mg pessary**	**Anticipated re-supply date:** 30 June 2023 **Actions for prescribers:** Where patients have insufficient supplies to last until the re-supply date, prescribers should: • review patients to determine if this is still the most suitable therapy; • consider prescribing an alternative estriol vaginal product (or estradiol 10mcg vaginal tablets if alternative estriol products are not suitable), ensuring that the patient is not intolerant to any of the excipients, and is counselled on administration, dosing, and potential side effects (see supporting information below). **Alternatives** **Oestrogen containing vaginal HRT products:** Please note, the only indications included below are those that are in common with Imvaggis 0.03mg pessary. **Imvaggis 0.03mg pessary** Indication: Local treatment of vaginal symptoms of oestrogen deficiency in postmenopausal women. Active Ingredient: Estriol Strength: 0.03mg per pessary Dose per application: 0.03mg estriol Dosing instructions: During the first 3 weeks of treatment one pessary is administered daily. Thereafter a maintenance dose of 1 pessary twice a week is recommended. **Ovestin 1mg cream** Indication: Treatment of symptoms of vaginal atrophy due to oestrogen deficiency in postmenopausal women. Active Ingredient: Estriol Strength: 0.1% (1mg per 1g) Dose per application: 1 applicator dose (0.5g of cream) = 0.5mg estriol Dosing instructions: 1 application per day for the first weeks (maximally 4 weeks), followed by a gradual reduction, based on relief of symptoms, until a maintenance dosage (e.g.1 application twice a week) is reached. **Estriol 0.01% cream** Indication: Hormone replacement therapy for treatment of atrophic vaginitis and kraurosis in postmenopausal women. Active Ingredient: Estriol Strength: 0.01% (100micrograms per 1g) Dose per application: 1 applicator dose (5mL of cream) = 0.5mg estriol Dosing instructions: 1 application per day initially, followed by a dose of 1 application twice a week for maintenance. Excipients: include arachis oil and benzoic acid **Estradiol 10mcg vaginal tablet** Indication: Treatment of vaginal atrophy due to oestrogen deficiency in postmenopausal women

	Active Ingredient: Estradiol Strength: 10microgram per vaginal tablet Dose per application: 10microgram estradiol Dosing instructions: Initial dose: One vaginal tablet daily for two weeks. Maintenance dose: One vaginal tablet twice a week. **Considerations and background** **Clinical Information** Imvaggis 0.03mg pessary is licensed for local treatment of vaginal symptoms of oestrogen deficiency in postmenopausal women. Adverse effects reported by the manufacturers of intravaginal oestrogens include vulvovaginal discomfort, headache, abdominal pain, nausea and vomiting, and oestrogen-related adverse events (e.g. breast pain, postmenopausal bleeding). Patients should seek advice from prescriber If breakthrough bleeding or spotting occurs after switching treatment, or if they experience other side effects that do not subside. **Medicine Supply Notification Number** MSN/2023/041
SHORTAGE: **Glucagon 1mg powder for injection kit (GlucaGen)**	**Anticipated re-supply date:** 21 Jul 2023 **Actions for prescribers:** **Primary care** In primary care, where patients have insufficient supplies of GlucaGen to last until the re-supply date, healthcare professionals should: • prescribe or administer Ogluo (glucagon) pre-filled auto-injector pen for the treatment of severe hypoglycaemic episodes; • counsel patients how to administer the pre-filled auto-injector pen and; • limit prescriptions to two devices per patient until normal supply resumes. **Alternatives:** Ogluo 0.5mg and 1mg pre-filled auto-injector pens remain available via Alliance The following specialist importers have confirmed they can source some supplies of GlucaGen: • Mawdsleys • Target Healthcare Other importers may also be able to source stock within Europe **Considerations and background** **Summary** There are two glucagon preparations available – GlucaGen (1mg powder for injection kit) and Ogluo (0.5mg and 1mg pre-filled auto-injector pens) GlucaGen 1mg powder for injection kit will be unavailable from mid-June 2023 until to mid-July (a period of 4 weeks). Ogluo 0.5mg and 1mg pre-filled auto-injector pens can be used for the treatment of severe hypoglycaemic episodes; however, they are not suitable for treatment of beta blocker or other drug overdoses. **Clinical Information** **Hypoglycaemia** Glucagon is indicated for treatment of severe hypoglycaemic reactions, which may occur in the management of insulin treated children and adults with diabetes mellitus. It is available in two formulations: • GlucaGen (powder for reconstitution) – licensed to be given subcutaneously and intramuscularly. It is also licensed to be used diagnostically for testing gastric motility. • Ogluo (pre-filled auto-injector pen containing solution) – only licensed to be given subcutaneously.

	Beta-blocker and other Drug Overdoses Intravenous glucagon (unlicensed) is a treatment option for severe cardiovascular instability in beta-blocker overdose, and some other drug overdoses including calcium channel blockers and tricyclic antidepressants. GlucaGen vials are normally reconstituted and given as an initial bolus which may be followed by an IV infusion; Ogluo is not licensed nor suitable for the management of beta-blocker or other drug overdoses. This is a pre-filled device, and the solution cannot be removed to be added to an IV infusion, in the same way as GlucaGen normally is. Whilst there are supply problems with glucagon, clinicians treating severe hypotension in a poisoned patient e.g. with toxicity related to beta-blockers, calcium channel blockers or tricyclic antidepressants, should call the NPIS (0344 892 0111) to discuss treatment options; further detail is also available on TOXBASE. **Patient Counselling** Ogluo instruction videos for patients can be found on the manufacturer's website: Ogluo | Tetris Pharma **Guidance on ordering and prescribing unlicensed imports** Any decision to prescribe an unlicensed medicine must consider the relevant guidance and NHS Trust or local governance procedures. Please see the links below for further information: • The supply of unlicensed medicinal products, Medicines and Healthcare products Regulatory Agency (MHRA) • Professional Guidance for the Procurement and Supply of Specials, Royal Pharmaceutical Society (RPS) • Prescribing unlicensed medicines, General Medical Council (GMC)
SHORTAGE: **Micronised Progesterone (Utrogestan) 100mg Capsules**	**Anticipated re-supply date :** 29 Dec 2023 **Actions for prescribers** Prescribers should consider prescribing quantities of 2 months or less for new and existing patients. Where patients present with a prescription for more than 2 months' supply of micronised progesterone (Utrogestan) 100mg capsules: • pharmacists should consider utilising SSP 056 to limit supply to a maximum of 2 months, where appropriate, providing stock is available, and advising patients on the current supply situation; • inform the patient's GP that supply of a smaller quantity has been made to ensure the patient's next prescription is provided sooner than expected; and • where supplies are unavailable, refer patients back to prescribers to consider alternative hormone replacement therapies or the use of unlicensed progesterone 100mg capsules. **Alternatives** The following specialist importers have confirmed they can source unlicensed progesterone 100mg (Utrogest) capsules (please note there may be other companies that can also source supplies): • Target **Considerations and background** **Summary** There are intermittent supplies of micronised progesterone (Utrogestan) 100mg capsules until late 2023, resulting in brief periods every month when this product will be unavailable.

	To ensure that all patients have access to treatment, a Serious Shortage Protocol (SSP) has been issued on 19/05/2023 to limit the quantity of Utrogestan capsules supplied to patients to 2 months. **Medicine Shortage Notification** MSN/2023/052 **Guidance on ordering and prescribing unlicensed imports** Any decision to prescribe an unlicensed medicine must consider the relevant guidance and NHS Trust or local governance procedures. Please see the links below for further information: • The supply of unlicensed medicinal products, Medicines and Healthcare products Regulatory Agency (MHRA) • Professional Guidance for the Procurement and Supply of Specials, Royal Pharmaceutical Society (RPS) • Prescribing unlicensed medicines, General Medical Council (GMC)
SHORTAGE: **Selegeline Tablets** **Eldepryl 5mg and 10mg tablets** **(Orion Pharma (UK) Ltd)**	**Anticipated re-supply date:** 28 Jul 2023 **Actions for prescribers** **Primary and secondary care** • Practices in primary care should proactively identify any patients on selegiline, contact them to establish how much supply they have left, and make arrangements to prescribe an alternative agent if patient has insufficient supply. This should be done **as soon as possible** so that those patients who have run out or are low in supply minimise/avoid the break in treatment and risk of disease deterioration. • Clinicians in secondary care should review patients admitted on selegiline; where the hospital has no stock and the patient did not bring in their own supply, prescribe an alternative agent and communicate any changes to primary care. Where clinicians are confident to safely switch patients to an alternative therapy, they should: • consider prescribing rasagiline 1mg tablets, where appropriate (see supporting information below); • counsel patients on the change to treatment and dosing, including reassurance that rasagiline is a similar agent to selegiline (see supporting information below), and advise them to report worsening of disease control, non-motor symptoms, mood, and/or side effects; • signpost patients to Parkinson's UK helpline for further support/information, if required; • inform the patients' specialist teams that treatment has been switched to rasagiline; • liaise with the patient's specialist team for advice on management options if patients experience a deterioration in disease control or troublesome side effects after switching. Where above options are not considered appropriate, selegiline oral suspensions available via specials manufacturers and supplies of unlicensed selegiline (Eldepryl®) 5mg and 10mg tablets can be sourced. Specialist teams should be consulted if this option is to be considered as it may not be viable for patients who have run out already or are low in supply due to likely delay in obtaining these products. Contact should be made with local pharmacy teams to ensure orders are placed within appropriate time frames as lead times may vary (see supporting information below). **Specialist teams should:** • ensure no new patients are initiated on selegiline 5mg or 10mg tablets;

- support primary care clinicians seeking advice on managing the switch to alternative treatment, including provision of individualised management plan, where required.

Alternatives

The following alternative remains available and can support an uplift in demand:

- Rasagiline 1mg tablets

Considerations and background

Clinical Information

Selegiline, an MAO-B inhibitor, is licensed for the treatment of Parkinson's disease, or symptomatic parkinsonism. It may be used alone in early Parkinson's disease for symptomatic relief to delay the need for levodopa, or as an adjunct to levodopa. The recommended dose is 10 mg daily, either as a single dose in the morning or in two divided doses of 5 mg, taken at breakfast and lunch.

Rasagiline is another MAO-B inhibitor, licensed for the treatment of idiopathic Parkinson's disease as monotherapy or as adjunct therapy (with levodopa) in patients with end of dose fluctuations. In practice, it is the preferred first line MAOI-B inhibitor for most patients due to better tolerability profile. The recommended dose is 1 mg once daily.

As both drugs are selective MAO-B inhibitors, daily rasagiline treatment may be started the day after selegiline has been stopped. The SmPC for rasagiline warns that it may cause daytime drowsiness, somnolence, and, occasionally, especially if used with other dopaminergic medicinal products, falling asleep during activities of daily living. Patients must be informed of this and advised to exercise caution while driving or operating machines during treatment with rasagiline. As rasagiline has a different metabolic pathway, in that it is metabolised by cytochrome P450 1A2 (CYP1A2) rather than by CYP2B6 and CYP2C19 (as with selegiline), it has the potential to interact with inhibitors and inducers of this enzyme. The SmPC should be consulted for the full list of contraindications and interactions.

Guidance on ordering and prescribing unlicensed imports

- The following specialist importers and specials manufacturers have confirmed they can source unlicensed *Selegiline (Eldepryl®) 5mg and 10mg tablets* and various presentations of *selegiline oral suspension* (please note there may be other companies that can also source supplies):
  - Nova (specials manufacturer)
  - Temag Pharma (specials manufacturer)
  - Target (specialist importer)
- Any decision to prescribe an unlicensed medicine must consider the relevant guidance and NHS Trust or local governance procedures. Please see the links below for further information:
  - The supply of unlicensed medicinal products, Medicines and Healthcare products Regulatory Agency (MHRA)
  - Professional Guidance for the Procurement and Supply of Specials, Royal Pharmaceutical Society
  - Prescribing unlicensed medicines, General Medical Council (GMC).
- When prescribing a product that is not licensed in the UK due to a supply issue with the licensed alternative prescribers must indicate on the FP10 prescription that an unlicensed product is required. This can be done in one of the following two ways:

	○ Electronic prescriptions – if the required unlicensed product is shown on electronic prescribing systems, GPs should select: ▪ Selegiline 5mg tablets (imported) ▪ Selegiline 10mg tablets (imported) ○ Paper prescriptions – where the unlicensed product is not shown on electronic prescribing systems, GPs should use a paper prescription and annotate with the following wording: "**special order**".
SHORTAGE: **Pyridostigmine 60mg tablets**	**Anticipated re-supply date:** 16 Jun 2023 **Actions for prescribers** A National Patient Safety Alert was issued on the 24th May 2023 for the shortage of pyridostigmine 60mg tablets. Please refer to the National Patient Safety Alert for information and advice on alternatives.
SHORTAGE: **Hydrocortisone sodium phosphate 100mg / 1ml solution for injection ampoules**	**Anticipated re-supply date :** Supply returning. 1 Jun 2023 **Actions for prescribers:** See Shortage of Hydrocortisone sodium phosphate 100mg/1ml solution for injection ampoules – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice **Alternatives:** see link above
SHORTAGE: **Capimune (ciclosporin) 25mg, 50mg, and 100mg capsules**	**Anticipated re-supply date** for Capimune (ciclosporin) 25mg, 50mg and 100mg capsules updated from 31 May 2023 to 9 June 2023. **Actions for prescribers** **Primary Care** Where patients have insufficient supplies of Capimune brand of ciclosporin 25mg, 50mg and 100mg capsules to last until the re-supply date, GP prescribers should: • seek advice from the appropriate specialist team on switching to an available brand of ciclosporin (Deximune), ensuring appropriate monitoring requirements are followed (see supporting information) • ensure patients are counselled regarding any changes to their medicines and where to seek advice if needed **Alternatives** **Alternatives supporting full uplift** **The following presentations can provide a full uplift in demand** Deximune 25mg, 50mg and 100mg capsules **Alternatives supporting partial uplift** **The following presentations can support a partial uplift in demand** Neoral 25mg, 50mg and 100mg Soft gelatin capsules **Alternatives unable to provide any uplift** Vanquoral 25mg, 50mg and 100mg capsules Capsorin 25mg, 50mg and 100mg capsules Sandimmun 25mg, 50mg and 100mg capsules **Considerations and background** **Supporting information** **Brand Prescribing** Patients should be stabilised on a particular brand of oral ciclosporin because switching between formulations without close monitoring may lead to clinically important changes in ciclosporin level.

	Switching between a branded and a generic formulation, or between generic formulations, should be carried out in consultation with the specialist team. If switching is necessary, the patient should be monitored closely for changes in ciclosporin level where clinically appropriate (specialist decision), serum creatinine, blood pressure, and disease control/ transplant function and adverse effects. **Medicine Supply Notification Number** MSN/2022/096
SHORTAGE: **Rifampicin 300mg / Isoniazid 150mg tablets** **"Rifinah"**	**Anticipated re-supply date:** 2 June 2023 **Actions for prescribers:** Pharmacy procurement teams, relevant clinical teams (including Tuberculosis nurses and other clinicians), and outsourced partners (outpatient clinics and Homecare) should work together to: • limit prescriptions for Rifinah 300mg/150mg tablets to a maximum of 1 month's supply to ensure the maximum number of patients can receive treatment during this period; • review current stock holding of Rifinah 300mg/150mg tablets and where appropriate work with their RPPS in urgent cases to facilitate mutual aid between NHS provider trusts; and • ensure patients are appropriately counselled about any changes to their medications. **Alternatives:** • Rifinah 150mg/100mg tablets remain available but are unable to support any increase in demand. • Rifampicin 300mg capsules and isoniazid 100mg tablets remain available and can support a limited uplift in demand. • Isoniazid 50mg tablets are currently unavailable. **Considerations and background** **Supporting Information** • Regional Pharmacy Procurement Specialist (RPPS), where possible, will facilitate mutual aid of Rifinah 300mg/150mg tablets between NHS provider trusts.
SHORTAGE: **Bromfenac (Yellox) 900 microgram / ml eye drops**	**Anticipated re-supply date:** 3 Jul 2023 **Actions for prescribers:** Where supply of licensed bromfenac 900 micrograms/ml eye drops is not available, clinicians should: • consider prescribing ketorolac 0.5% w/v eye drops which is able to support the market during this time, ensuring that the patient is not intolerant to any of the excipients and is counselled on the appropriate dose to administer; or • consider prescribing unlicensed products only where licensed alternatives are not appropriate. **Alternatives:** The following non-steroidal anti-inflammatory eye drops remains available and can support an uplift in demand: • Ketorolac trometamol 0.5% w/v eye drops The following specialist importers have confirmed they can source unlicensed bromfenac 900 micrograms/ml eye drops (please note there may be other companies that can also source supplies): • Mawdsleys (lead time 3 weeks) • Target Healthcare Other non-steroidal anti-inflammatory eye drops also remain available but are unable to provide an uplift in demand. **Considerations and background**

	Clinical information Bromfenac eye drops are licensed for use in adults for the treatment of postoperative inflammation following cataract surgery. One drop is instilled in the affected eye(s) twice daily, beginning the next day after cataract surgery and continuing through the first 2 weeks of the postoperative period. Treatment should not exceed 2 weeks as safety data beyond this is not available. Alternative non-steroidal anti-inflammatory eye drops includes ketorolac trometamol, diclofenac, flurbiprofen and nepafenac eye drops, but only ketorolac trometamol can support an uplift in demand at present. Ketorolac trometamol 0.5% w/v eye drops are licensed for the prophylaxis and reduction of inflammation and associated symptoms following ocular surgery in adults. One drop is instilled into the eye three times daily starting 24 hours pre-operatively and continuing for up to three weeks post-operatively. **Medicine Supply Notification Number** MSN/2023/054 **Guidance on ordering and prescribing unlicensed imports** Any decision to prescribe an unlicensed medicine must consider the relevant guidance and NHS Trust or local governance procedures. Please see the links below for further information: • The supply of unlicensed medicinal products, Medicines and Healthcare products Regulatory Agency (MHRA) • Professional Guidance for the Procurement and Supply of Specials, Royal Pharmaceutical Society (RPS) • Prescribing unlicensed medicines, General Medical Council (GMC)
SHORTAGE: **Imiquimod (Aldara 5%, Bascellex 50mg/g and Zyclara 3.75%) Cream**	**Anticipated re-supply date:** Bascellex 50mg/g cream 250mg sachets (Sun Pharmaceutical Industries Europe B.V.) - 16 June 2023. Aldara 5% cream 250mg sachets (Viatris UK Healthcare Ltd) - 11 August 2023. Zyclara 3.75% cream 250mg sachets (Viatris UK Healthcare Ltd) 1 December 2023 **Actions for prescribers:** Please see Shortage of Imiquimod (Aldara 5% , Bascellex 50mg/g and Zyclara 3.75%) cream – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice **Alternatives:** see link above
DISCONTINUATION: **Insuman Comb 25 Cartridges and pre-filled Solostar pens**	**Discontinuation date:** 28 Feb 2023 **Actions for prescribers:** Prescribers should: • not initiate any new patients on Insuman products • review all patients prescribed Insuman Comb 25 100units/ml suspension for injection 3ml cartridges; and consider prescribing Humulin M3 in the first instance (see Clinical Information) • consider prescribing another biphasic insulin preparation if the above option is not deemed suitable (see Clinical Information) • ensure that after switching, patients are counselled on new dose regimen and how to use the new device, as well as explaining further adjustments may be needed depending on blood glucose levels and signs of hypoglycaemia **Alternatives:** **Biphasic Isophane Insulin** **Brands include:** • Novomix 30 cartridge and pre-filled pen • Humalog Mix 25 vials, cartridges and pre-filled pens • Humalog Mix 50 cartridges and pre-filled pens • Humulin M3 vials, cartridges and pre-filled pens

	All of the above alternative insulin preparations can support a full uplift in demand. **Considerations and background** **Supply Overview** **Cartridges** Insuman Comb 25 100units/ml suspension for injection 3ml cartridges are discontinued and stocks are expected to exhaust at the end of February 2023. **Pre-filled pens** Insuman Comb 25 prefilled pens are discontinued and stocks are expected to exhaust at the end of June 2023. **Clinical Information about Insulin** Choice of alternative will be determined by onset of action, peak activity and duration of action. Patients should be advised to be more vigilant with checking their blood glucose following a switch to an alternative. Patients should also be counselled on the symptoms of hypoglycaemia. Following specialist input, it is advised that patients switched from Insuman Comb 25 to Humulin M3 should have their dose reduced by 10% when commenced on Humulin M3 and glucose levels reviewed at two weeks to consider further dose titration. As the injector device will also be different, patients should be counselled on how to use the new device. **Insuman Comb 25** Insuman Comb 25 is a biphasic isophane insulin consisting of 25% dissolved insulin and 75% crystalline protamine insulin. Humulin M3 (30% soluble insulin and 70% isophane insulin) is available as a Kwikpen, a disposable pre-filled pen containing 3ml (100units/ml) of insulin and also in a 3ml cartridge for use in a Lilly 3ml pen. Insuman Comb 25 is injected subcutaneously 30 to 45 minutes before a meal and Humulin M3 30 minutes before a meal. Other biphasic insulin preparations include Humalog Mix 50, Humalog Mix 25 and NovoMix 30 (insulin aspart). **Medicine Supply Notification Number** MSN/2023/002U – this also refers to Discontinuation of Insuman Basal cartridges and pre-filled Solostar pens and Discontinuation of Insuman Rapid cartridges
SHORTAGE: **Norditropin (Somatropin) Flexpro 10mg/1.5ml, 15mg/1.5ml and Norditropin (Somatropin) NordiFlex 5mg / 1.5ml, 10mg/1.5ml, and 15mg/1.5ml solution**	**Anticipated re-supply date:** Norditropin FlexPro 5mg/1.5ml solution for injection pre-filled pens (Novo Nordisk Ltd) 1 September 2023 Norditropin FlexPro 10mg/1.5ml solution for injection pre-filled pens (Novo Nordisk Ltd) 1 September 2023 Norditropin FlexPro 15mg/1.5ml solution for injection pre-filled pens (Novo Nordisk Ltd) 1 September 2023 Norditropin NordiFlex 5mg/1.5ml solution for injection pre-filled pens (Novo Nordisk Ltd) 1 pre-filled disposable injection 5 January 2024 Norditropin NordiFlex 10mg/1.5ml solution for injection pre-filled pens (Novo Nordisk Ltd) 5 January 2024 Norditropin NordiFlex 15mg/1.5ml solution for injection pre-filled pens (Novo Nordisk Ltd) 5 January 2024 **Actions for prescribers:** **Actions for GP surgeries:** GP surgeries who prescribe Norditropin should: • proactively identify all patients on these products and refer them to their specialist prescribing centre for review and switching to Omnitrope

	Alternatives: See Shortage of Norditropin (somatropin) Flexpro 10mg/1.5ml, 15mg/1.5ml and Norditropin (somatropin) NordiFlex 5mg/1.5ml, 10mg/1.5ml and 15mg/1.5ml solution – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice
SHORTAGE: **Ethinylestradiol 20 microgram / Drospirenone 3mg (Eloine) Tablets**	**Anticipated re-supply date:** 25 Aug 2023 **Actions for prescribers:** Where patients have insufficient supplies to last until the re-supply date, prescribers should: • review patients to determine if this is still the most suitable therapy; • consider prescribing an alternative combined oral contraceptive (COC), ensuring that the patient is not intolerant to any of the excipients and is counselled on the dosing regimen required (see clinical information below). **Alternatives:** **Alternative combined oral contraceptives** The following combined oral contraceptives remain available: **Ethinylestradiol 30microgram with drospirenone 3mg** Dretine tablets Lucette tablets Yacella tablets Yasmin tablets Yiznell tablets **Ethinylestradiol 20microgram with desogestrel 150microgram** Bimizza tablets Gedarel tablets Mercilon tablets **Ethinylestradiol 20microgram with gestodene 75microgram** Femodette tablets Millinette tablets Sunya tablets **Considerations and background** **Clinical Information** Ethinylestradiol 20microgram / Drospirenone 3mg (Eloine) tablets are the only drospirenone containing COC that contains ethinylestradiol at this dose. Other brands contain 30 micrograms ethinylestradiol per tablet . These could be considered as suitable alternatives for many women. However, for women considered to be at increased risk of arterial thrombolic disease (such as increasing age, higher BMI) then it might be considered more appropriate to select a COC which contains 20microgram of ethinylestradiol with a different progestogen. If prescribing a preparation with a different progesterone, the suitability of this should be considered as there is differing risk of venous thromboembolism with different progesterones. **Medicine Supply Notification Number** MSN/2023/055
SHORTAGE: **Dulaglutide (Trulicity) 0.75mg, 1.5mg, 3mg and 4.5mg solution for injection devices**	**Anticipated re-supply date:** 2 Oct 2023 **Actions for prescribers:** **Actions for primary and secondary care** Clinicians should: • not initiate new patients on dulaglutide solution for injection pre-filled pens until the supply issue has resolved; and • consider initiating patients on an alternative GLP-1 receptor agonists (RAs) until the shortage of dulaglutide has resolved (see clinical information). **Alternatives:** **Liraglutide** The following brand is available in the presentation below: • Victoza 6mg/ml solution for injection in prefilled pen **Dose**

	Initially 0.6 mg **once daily** for at least 1 week, then increased to 1.2 mg once daily for at least 1 week, then increased if necessary to 1.8 mg once daily. **Indication** Type 2 diabetes mellitus as monotherapy (if metformin inappropriate), or in combination with other antidiabetic drugs, (including insulin) if existing treatment fails to achieve adequate glycaemic control. **Exenatide** The following brands are available in the presentations below: • Byetta 5micrograms/0.02ml solution for injection 1.2ml pre-filled pens • Byetta 10micrograms/0.04ml solution for injection 1.2ml pre-filled pens • Bydureon 2mg/0.85ml prolonged-release suspension for injection 1.2ml pre-filled pens **Dose** **Byetta** Initially 5 micrograms **twice daily** for at least 1 month, then increased if necessary up to 10 micrograms twice daily, dose to be taken within 1 hour before 2 main meals (at least 6 hours apart) **Bydureon** 2 mg **once weekly** **Indication** Type 2 diabetes mellitus in combination with other antidiabetic drugs (including insulin) if existing treatment fails to achieve adequate glycaemic control. **Semaglutide** Semaglutide is available as the brand Ozempic however it is unable to support any uplift in demand. **Considerations and background** **Supply overview** Supplies of dulaglutide (Trulicity) 0.75mg, 1.5mg, 3mg and 4.5mg solution for injection devices are limited until January 2023, supply will only be available for existing patients. **Clinical Information** Dulaglutide (Trulicity) is a parenteral GLP-1 RA licensed for the treatment of adults with insufficiently controlled type 2 diabetes mellitus as an adjunct to diet and exercise, as monotherapy, when metformin is considered inappropriate, or as add-on therapy. It is administered once weekly. The once weekly GLP-1 RA, semaglutide (Ozempic), is currently facing supply constraints and cannot support an uplift in demand , please refer to MSN/2022/080 for more information. The parenteral GLP-1 RAs, exenatide and liraglutide, are able to support an uplift in demand. They differ in dose schedule and tolerability, as well as evidence base for effectiveness and clinical outcomes. Local formularies and guidelines will aid product selection. Please see the following links for further information **Medicine Supply Notification Number** MSN/2022/079
SHORTAGE: **Methylphenidate prolonged release tablets**	**Anticipated re-supply date:** Xenidate XL 27mg tablets (Viatris UK Healthcare Ltd) 28 July 2023 Concerta XL 27mg tablets (Janssen-Cilag Ltd) 16 June 2023 **Actions:** Where patients have insufficient supplies to last until the re-supply date, clinicians should: • consider prescribing alternative bioequivalent brands (see clinical information) that are available, ensuring that the patient is not intolerant to any of the excipients; • counsel patients to reassure them that Delmosart, Xaggitin XL and Xenidate XL tablets have a similar release profile to Concerta XL (see clinical information); and

- reassure patients that any changes to their prescription will be short-term and for the duration of the supply issue only, and they have the option to switch back to their original brand once the supply issue is resolved or continue the brand they have been switched to.

Alternatives:

The following branded generics remain available for the presentations listed below

Methylphenidate hydrochloride 18 mg prolonged-release tablet

- Concerta XL 18mg prolonged-release tablets
- Xaggitin XL 18mg prolonged-release tablets
- Delmosart 18mg prolonged-release tablets
- Xenidate XL 18mg prolonged-release tablets

Methylphenidate hydrochloride 27 mg prolonged-release tablet

- Delmosart 27mg prolonged-release tablets
- Xaggitin XL 27mg prolonged-release tablets

Methylphenidate hydrochloride 36 mg prolonged-release tablet

- Concerta XL 36mg prolonged-release tablets
- Xenidate XL 36mg prolonged-release tablets
- Delmosart 36mg prolonged-release tablets
- Xaggitin XL 36mg prolonged-release tablets

Methylphenidate hydrochloride 54mg prolonged-release tablet

- Concerta XL 54mg prolonged-release tablets
- Delmosart 54mg prolonged-release tablets
- Xaggitin XL 54mg prolonged-release tablets
- Xenidate XL 54mg prolonged-release tablets

Considerations and background

Clinical Information

Methylphenidate is a central nervous stimulant available in the UK in various licensed immediate, modified-release, oral, and solid dosage forms. It is a schedule 2 controlled drug, licensed for the treatment of attention deficit hyperactivity disorder (ADHD) in children aged over 6 years and adolescents and is the usual first line treatment for this condition for both children and adults.

All the modified-release methylphenidate preparations include an immediate-release component as well as an extended-release component. This allows for rapid onset of action while avoiding the need to take further doses during the day to maintain effect.

The biphasic release profiles of these products, however, are not all equivalent and contain different proportions of the immediate-release and modified-release component. The BNF states that different versions of modified-release preparations may not have the same clinical effect. To avoid confusion between these different formulations of methylphenidate, prescribers should specify the brand to be dispensed.

Of the modified-release preparations, Delmosart, Xaggitin XL and Xenidate XL tablets have been approved based on bioequivalence data compared to Concerta XL tablets. Thus, these generic brands have been granted replicate marketing authorisation to Concerta XL on the basis that they have satisfied the criteria for equivalent release profile for the reference Concerta XL product.

Please see the links below for further information.

Links

- **Concerta XL prolonged-release tablets SmPC**
- **Delmosart prolonged-release tablets SmPC**
- **Xaggitin XL prolonged-release tablets SmPC**

	• Xenidate XL prolonged-release tablets SmPC • NICE guideline for attention deficit hyperactivity disorder • Extended-release methylphenidate: A review of the pharmacokinetic profiles of available products
SHORTAGE: **Tresiba (insulin degludec) FlexTouch 100 units/ml solution for injection 3ml pre-filled pens**	**Anticipated re-supply date:** 5 Jan 2024 **Actions:** **Prescribers should:** • not initiate new patients on Tresiba FlexTouch 100units/ml pens during this time • consider prescribing Tresiba Penfill cartridges, which are able to support the market during this time, taking into account the patient's manual dexterity and ability to use the new device correctly • when prescribing Tresiba Penfill cartridges, ensure that the patient is prescribed a Novo Nordisk insulin delivery system and appropriate needles (see supporting information) • seek advice from specialist diabetes team on use of an alternative insulin, if the above option is not considered suitable • ensure that all patients initiated on a new device are counselled on the change in device, and provided with training on their use, including signposting to training videos (see Supporting Information), as well as potential need for closer monitoring of blood glucose levels **Pharmacists and dispensing doctors should:** • ensure that all patients presenting with a new prescription for Tresiba Penfill cartridges have access to an appropriate device and needles, and can use the device correctly (see supporting information) • ensure that all patients are counselled on the change in device and the potential need for closer monitoring of blood glucose levels during this time **Alternatives:** Tresiba Penfill (Insulin degludec) 100units/ml solution for injection 3ml cartridges remain available and can support the increased demand. **Considerations and background** **Supply overview** Tresiba FlexTouch (Insulin degludec) 100units/ml pens will be out of stock from August 2023 until January 2024. **Clinical Information** Insulin degludec is a once-daily ultra-long-acting basal insulin licensed for the treatment of diabetes mellitus in adults, adolescents and children from the age of 1 year. In NICE guidance on use of long-acting insulin for type 1 diabetes in adults, insulin degludec (100 units/ml) is suggested as an alternative basal insulin therapy to twice-daily insulin detemir if there is a particular concern about nocturnal hypoglycaemia or if people need help from a carer or healthcare professional to administer injections. Once-daily insulin glargine (100 units/ml) is another recommendation if insulin detemir is not tolerated or the person has a strong preference for once-daily basal injections. **Counselling points for clinicians, dispensing doctors and pharmacists** Tresiba Penfill cartridges can be used with the NovoPen 6 and NovoPen Echo Plus. It should be noted that Tresiba FlexTouch U100 pens are calibrated to adjust the dose in 1 unit increments and:

	• NovoPen 6 dials in 1 unit increments • NovoPen Echo Plus dials in ½ unit increments Ensure that patients have access to a suitable device and that the patient is thoroughly counselled on how to use this device. Further information for patients can be found inside the NovoPen 6 and Echo Plus packaging **Medicine Supply Notification Number** MSN/2023/053
SHORTAGE: **Mucogel oral suspension**	**Anticipated re-supply date:** 11 Aug 2023 **Actions:** **Actions for primary and secondary care:** **All clinicians should:** Consider the use of alternative treatments where stocks of Mucogel oral suspension are unavailable (see Alternatives) ensuring that the patient is not intolerant to any of the excipients and is counselled on the appropriate dose. **Alternatives:** **Maalox 175mg/200mg Oral Suspension** Maalox 175mg/200mg oral suspension remains available and can support an uplift in demand. **Considerations and background** **Supply overview:** • Mucogel oral suspension is out of stock • Maalox 175mg/200mg Oral Suspension remains available and can support an uplift in demand • Both products are general sale products (GSLs) **Clinical information:** Mucogel oral suspension is licensed for the treatment of dyspepsia. Maalox 175mg/200mg Oral Suspension is indicated as antacid therapy in gastric and duodenal ulcer, gastritis, heartburn and gastric hyperacidity. Both preparations contain the same ingredients but at different concentrations. • Mucogel oral suspension: Each 5ml contains 220 mg dried aluminium hydroxide and 195 mg magnesium hydroxide • Maalox 175mg/200mg Oral Suspension: Each 5 ml of oral solution contains: Aluminium hydroxide 175mg, Magnesium hydroxide 200mg **Links** • **BNF Co-magaldrox suspensions**

SHORTAGE:
Clomid 50mg Tablets
	Anticipated re-supply date:22 Sep 2023
	Actions:
	Where patients have insufficient supplies to last until the re-supply date, all healthcare professionals in primary and secondary care who prescribe or dispense clomifene 50mg tablets should:
	• review patients to determine if this is still the most suitable therapy;
	• prioritise clomifene 50mg tablets for patients who are not suitable for other infertility treatment regimens;
	• prescribe and supply only one 30 tablet pack. This is sufficient to cover 3 courses of treatment;
	• where there is insufficient stock:
	  ○ prescribe generic clomifene tablets. When supplies of this product are exhausted;
	  ○ consider prescribing unlicensed clomifene 50mg tablets.

	○ liaise with pharmacy in secondary care to request mutual aid, facilitated by their Regional Pharmacy Procurement Specialist; Where generic clomifene 50mg tablets are no longer able to support an uplift in demand (from end of July 2023), all healthcare professionals in primary and secondary care who prescribe or dispense clomifene 50mg tablets should; • consider prescribing unlicensed clomifene 50mg tablets. Prescribers should work with local pharmacy teams to ensure orders are placed within appropriate time frames as lead times may vary (see Supporting information below) • prescribe and supply only one 30 tablet pack. This is sufficient to cover 3 courses of treatment; If the above options are not considered appropriate, advice should be sought from specialists for individualised review and consideration of alternative treatment regimens (see Supporting information below). **Alternatives:** Generic clomifene 50mg tablets remain available from Wockhardt who are able to partially uplift supplies until end of July 2023. Unlicensed supplies of clomifene 50mg tablets may be sourced, lead times vary. Alternative medicines for use in infertility remain available. **Considerations and background** **Clinical Information** In NICE fertility guidance (published 2013, revisited in 2017), in addition to clomifene, metformin alone or in combination with clomifene, is also listed as a first-line treatment option for ovarian stimulation in women with WHO Group II anovulatory infertility, taking into account potential adverse effects, ease and mode of use, BMI, and monitoring needed. However, some specialists do not consider metformin to be an appropriate alternative to clomifene as monotherapy, though it may be used as add-on therapy. NICE guidance does NOT recommend use of clomifene for unexplained infertility. In the US, first-line options for ovulation induction in anovulatory women with polycystic ovary syndrome include letrozole (off-label) as well as clomifene. Evidence to date suggests that letrozole and clomifene are more effective than metformin for live-birth rates. Some specialists are of the view letrozole is an evidence-based alternative that is likely as effective as clomifene. Off-label use Clomifene has also been used to treat men with hypogonadotrophic hypogonadism (off-label use). Gonadotrophins are an alternative treatment option. **Guidance on ordering and prescribing unlicensed imports** Any decision to prescribe an unlicensed medicine must consider the relevant guidance and NHS Trust or local governance procedures. Please see the links below for further information: • The supply of unlicensed medicinal products, Medicines and Healthcare products Regulatory Agency (MHRA) • Professional Guidance for the Procurement and Supply of Specials, Royal Pharmaceutical Society (RPS) • Prescribing unlicensed medicines, General Medical Council (G
SHORTAGE:	**Anticipated re-supply date:** 1 Jun 2024 **Actions:**

Hydrocortisone 2.5mg muco-adhesive buccal tablets sugar free	Clinicians considering treatment for patients presenting with oral ulcers should: • assess the severity of the patient's ulcers including frequency and interference with daily activities; • if treatment is required, establish whether over-the-counter products (purchased or prescribed) have already been tried, and whether it is appropriate to use/retry; • if above mentioned treatments are not suitable, consider prescribing betamethasone soluble tablets for off-label topical use as a mouthwash, counselling patients on how to administer treatment, and stressing that the mouthwash must ***not*** be swallowed; • if neither of the above options are appropriate, prescribers should seek specialist advice from the oral medicine clinic. **Alternatives:** see Supporting Information **Considerations and background** **Summary** • Other over-the-counter preparations such as topical anaesthetics, topical analgesics/anti-inflammatory agents and topical antimicrobial agents marketed as oral gels, mouthwashes and oral sprays remain available. • Betamethasone soluble tablets for off-label topical use in the treatment of aphthous ulcers remain available. **Supporting Information** **Clinical Information** Hydrocortisone muco-adhesive buccal tablets are licensed for local use in previously diagnosed aphthous ulceration of the mouth. Topical corticosteroids are usually considered to be first-line treatment of aphthous ulcers if simple therapies such as topical anaesthetics (e.g. lidocaine hydrochloride), topical analgesics/anti-inflammatory agents (e.g. benzydamine hydrochloride), and topical antimicrobial agents (e.g. chlorhexidine mouthwash) have not provided sufficient symptomatic relief. Betamethasone 500 microgram soluble tablet prepared as a mouthwash is used off label to treat aphthous ulceration. The BNF recommends a dose for oral ulceration in adults and children age 12 to 17 years of 500micrograms four times a day. The tablet should be dissolved in 20 mL water, rinsed around the mouth, and ***not*** swallowed. Please see the below links for further information. **Medicines Supply Notification Number:** MSN/2022/054
SHORTAGE: **Diazoxide 50mg tablets**	**Anticipated re-supply date:** 30 Jun 2023 **Alternatives:** The following specialist importers have confirmed they can source diazoxide 50mg tablets: • Durbin The following specialist importers have confirmed they can source unlicensed diazoxide 50mg/ml oral suspensions (please note there may be other companies that can also source supplies): • Durbin The following specialist importers have confirmed they can source unlicensed diazoxide 25mg and 100mg capsules (please note there may be other companies that can also source supplies): • Mawdsleys

	Considerations and background **Guidance on ordering and prescribing unlicensed imports** Any decision to prescribe an unlicensed medicine must consider the relevant guidance and NHS Trust or local governance procedures. Please see the links below for further information: • The supply of unlicensed medicinal products, Medicines and Healthcare products Regulatory Agency (MHRA) • Professional Guidance for the Procurement and Supply of Specials, Royal Pharmaceutical Society (RPS) • Prescribing unlicensed medicines, General Medical Council (GMC) **Links** • **BNF Diazoxide** • **SmPC Eudemine 50mg Tablets**

All Serious Shortage Protocols (SPP's) can be found:
https://www.nhsbsa.nhs.uk/pharmacies-gp-practices-and-appliance-contractors/serious-shortage-protocols-ssps
Shortage update taken from SPS Medicines Supply Toolkit on 12th June 2023. Information provided by DHSC and NHSEI Medicines Supply Teams and published on Specialist Pharmacy Services Medicines Supply Tool. Not formally reviewed by NHS Kent and Medway Medicines Optimisation. Practices are encouraged to register for access to the SPS website https://www.sps.nhs.uk/ and access this tool directly in real time.