SHORTAGE: **Dukoral cholera vaccine (inactivated, oral) effervescent powder and suspension for oral suspension**	**Anticipated re-supply date:** 29.12.23 **Actions for prescribers:** Primary care prescribers should: • consider prescribing rifampicin 100mg/5ml oral suspension, where appropriate. **Alternatives** Vaxchora effervescent powder and powder for oral suspension remains available and is able to fully support with an uplift in demand. **Considerations and background** **Supporting Information** There will be limited supplies of Dukoral cholera vaccine until late December 2023. Vaxchora cholera vaccine remains available and is able to fully support with an uplift in demand. Vaxchora is a live vaccine, so this will need to be taken into consideration. According to the SmPC, the vaccine is contraindicated in individuals with congenital immune deficiency or receiving immunosuppressive drugs or treatments. Please refer to the SmPC for further information.
SHORTAGE: **Rasagiline 1mg tablets**	**Anticipated re-supply date**: 15.12.23 **Actions** Primary and secondary care: • Where practices in primary care identify patients on rasagiline, it is helpful to determine what supply they have left so arrangements can be made to put a management plan in place as soon as possible to minimise the risk of a break in treatment. • Clinicians in secondary care should review patients admitted on rasagiline; where the hospital has no stock and the patient did not bring in their own supply, alternative management options should be considered, communicating any changes to primary care. • Supplies of unlicensed rasagiline 1mg 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 the 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). • Patients on rasagiline who did not tolerate or respond to selegiline may be considered for a switch to safinamide (possibly off-label use in some cases) or an alternative agent based on specialist advice. • Where possible, reserve any remaining stock for patients taking rasagiline as monotherapy or those who cannot tolerate or did not respond to selegiline. Where clinicians are confident to safely switch patients to an alternative therapy, they should: • consider prescribing selegiline (*Eldepryl)* 5mg and 10mg tablets if not already trialled, where appropriate (see supporting information below for important safety considerations); • counsel patients on the change to treatment and dosing, including reassurance that selegiline is a similar agent to rasagiline (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 patient's specialist teams that treatment has been switched to selegiline; and

- liaise with the patient's specialist team for advice on management options if there is concern whether a washout period is required, or if the above option is not appropriate, or if patients experience a deterioration in disease control or troublesome side effects after switching.

Specialist teams should:

- ensure no new patients are initiated on rasagiline 1mg tablets if supplies are unavailable; and
- support primary care clinicians seeking advice on managing the switch to alternative treatment, including provision of an individualised management plan, where required.

Alternatives

Licensed products

The following products remain available:

- selegiline (*Eldepryl)* 5mg and 10mg tablets
- safinamide (*Xadago*) 50mg and 100mg tablets

Unlicensed products

The following specialist importers have confirmed they can source unlicensed rasagiline 1mg tablets (please note there may be other companies that can also source supplies):

- Alium Medical
- Genetech Pharmaceuticals
- Mawdsley's Unlicensed
- Target Healthcare

Considerations and background

Supply summary

- Rasagiline 1mg tablets are in limited supply until mid-December 2023.
- Unlicensed supplies of rasagiline 1mg tablets may be sourced, lead times vary.
- Selegiline (*Eldepryl)* 5mg and 10mg tablets remain available and can support increased demand.
- Safinamide (*Xadago*) 50mg and 100mg tablets remain available and can support increased demand.

Clinical information

Switching MAO-B inhibitors

Although the SmPC's for rasagiline and safinamide recommend a washout period to avoid serotonin syndrome and hypertensive crisis, in practice, neurologists may decide to switch patients without a washout to avoid worsening of fluctuations and prolonged off periods. It has been noted that the suspension of MAO-B inhibitors even for a few days can lead to a drastic deterioration in terms of worsening of motor and non-motor symptoms.

The very limited published evidence on switching between agents suggests it can be carried out safely. An individualised approach as to the need for a washout period should be based on current disease control, comorbidities, and concomitant drugs, with advice sought from the specialist team if necessary.

Rasagiline

Rasagiline is a selective irreversible MAO-B inhibitor.

Indication

Treatment of idiopathic Parkinson's disease as monotherapy or as adjunct therapy (with levodopa) in patients with end of dose fluctuations.

Dose

1mg once daily.

Practice points

In practice, it is the preferred first line MAO-B inhibitor for most patients due to better tolerability profile than selegiline.

Switching advice in SmPC

At least 14 days must elapse between discontinuation of rasagiline and initiation of treatment with other MAO inhibitors.

Selegiline

Selegiline is a selective irreversible MAO-B inhibitor.

Indication

	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. **Dose** 10mg daily, either as a single dose in the morning or in two divided doses of 5mg, taken at breakfast and lunch. **Practice points** Selegiline has a different metabolic pathway to rasagiline and variation between respective SmPC's in what is classified as a caution and a contraindication. For example, alcohol is a caution for rasagiline but contraindication for selegiline. **Switching advice in SmPC** There is no recommendation, but caution that concomitant administration of selegiline and MAO inhibitors may cause central nervous and cardiovascular system disorders. **Safinamide** Safinamide is a selective reversible MAO-B inhibitor. **Indication** Treatment of adult patients with idiopathic Parkinson's disease as add-on therapy to a stable dose of levodopa alone or in combination with other Parkinson's disease medicinal products in mid-to late-stage fluctuating patients. **Dose** 50mg per day. This may be increased to 100mg/day. **Practice points** In practice, safinamide ia a last line oral treatment option and only to be initiated on the advice of a specialist, in line with local guidance. **Switching advice in SmPC** At least 7 days must elapse between discontinuation of safinamide and initiation of treatment with other MAO inhibitors. **Medicine Supply Notification Number** MSN/2023/107 **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: Griseofulvin 125mg and 500mg tablets	**Anticipated re-supply date** Griseofulvin 125mg tablets (Essential Generics Ltd) 26 January 2024 Griseofulvin 500mg tablets (Essential Generics Ltd) 5 April 2024 **Actions** Prescribers should: not initiate new patients on griseofulvin tablets; and review patients currently being treated with griseofulvin tablets and consider alternative therapies (see Alternatives and Supporting Information). **Alternatives** Alternative oral antifungals remain available. The following specialist importers have confirmed they can source unlicensed griseofulvin 125mg and 500mg tablets (please note there may be other companies that can also source supplies): • Alium Medical • Target Healthcare **Considerations and background**

	Supporting Information **Clinical Information** The use of an alternative oral antifungal will depend on the infection that is being treated. The following describes where terbinafine or itraconazole may be used: https://bnf.nice.org.uk/treatment-summaries/antifungals-systemic-use/ If culture and sensitivities indicate that the fungi is only sensitive to griseofulvin, then microbiology input would be required if unlicensed griseofulvin is unavailable. **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: **Co-trimoxazole 40mg/200mg/5ml oral suspension sugar free**	**Anticipated re-supply date:** 02.02.24 **Actions** All clinicians/prescribers should: consider prescribing co-trimoxazole 80mg/400mg/5ml oral suspension, 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 and volume required (see Supporting Information below); consider prescribing unlicensed products only where licensed alternatives are not appropriate. 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); if the above options are not considered appropriate, advice should be sought from specialists on management options. **Alternatives** Co-trimoxazole **80mg/400mg/5ml** oral suspension is licensed for use in children aged >12 to <18 years and adults **Unlicensed imports** The following specialist importers have confirmed they can source unlicensed co-trimoxazole 40mg/200mg/5ml oral suspension sugar free (please note there may be other companies that can also source supplies): • Alium • Genetech • Mawdsleys • Orifarm • Smartway • Target **Considerations and background** **Summary** Co-trimoxazole 40mg/200mg/5ml oral suspension sugar free is out of stock until early February 2024. Co-trimoxazole 80mg/400mg/5ml oral suspension remains available and can support increased demand Where this is not suitable, unlicensed supplies of co-trimoxazole 40mg/200mg/5ml oral suspension sugar free may be sourced, lead times vary **Supporting information** **Clinical Information** Co-trimoxazole **40mg/200mg/5ml** oral suspension sugar free is licensed for use in children aged 12 years and under (infants [>6 weeks to <2 years old] and children [>2 to <12 years old]). Co-trimoxazole **80mg/400mg/5ml** oral suspension is licensed for use in in children aged >12 to <18 years and adults.

	Co-trimoxazole 80mg/400mg/5ml oral suspension contains different excipients (see below) to co-trimoxazole 40mg/200mg/5ml oral suspension sugar free and may not be as palatable for some children. Patients with rare hereditary problems of fructose intolerance, glucose-galactose malabsorption or sucrose-isomaltase insufficiency should not take this medicine. However, in other patients, it may be considered for off-label use, once it is confirmed that the patient is not intolerant to any of the excipients, and patient/carer is counselled on the appropriate dose and volume required. **NOTE: 5ml of co-trimoxazole 40mg/200mg suspension = 2.5ml of co-trimoxazole 80mg/400mg suspension.** **Excipients specific to each presentation** Co-trimoxazole **40mg/200mg/5ml** oral suspension sugar free: • Sorbitol solution 70% (non crystallising) (E420 ii) • Sodium Carmellose • Sodium Benzoate (E211) • Flavour, Banana 81.605P Co-trimoxazole **80mg/400mg/5ml** oral suspension: • Syrup or sucrose • Sodium carboxymethylcellulose (E467) • Ammonium glycyrrhizinate • Star Anise Oil **Medicine Supply Notification Number** MSN/2023/103 **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: **Tresiba (insulin degludec) FlexTouch 100units/ml solution for injection 3ml pre-filled pens**	**Anticipated re-supply date :** 31.12.2023 **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 December 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: **Supply returning** **Permethrin 5% cream**	**No resupply date given** **Actions** Where scabies has been diagnosed and where individuals have been confirmed as contacts[b], clinicians should follow the below actions: • Existing stock of permethrin 5% cream should be prioritised for use in confirmed cases and their immediate contacts. • In secondary care, where there are insufficient stocks, the organisation should request mutual aid, facilitated by their Regional Pharmacy Procurement Specialist. • If licensed permethrin 5% cream is unavailable, prescribe unlicensed permethrin 5 % cream. Where permethrin 5% cream is unavailable, consider prescribing unlicensed special-order benzyl benzoate 25% emulsion if locally available. • If both alternatives are unavailable, consider prescribing unlicensed ivermectin 3mg tablets. • For all unlicensed alternatives, prescribers should work with local pharmacy teams to ensure orders are placed with special-order manufacturers within appropriate time frames as lead times may vary. • Infection prevention and control measures to prevent further scabies spread should be applied rigorously. For further details on alternatives see the Treatment for scabies section below. Patients and close contacts should receive counselling on how to apply the product, the frequency and duration of treatment. [b]Contacts are defined as anyone who has close physical contact with the case without appropriate PPE, for example, providing personal care with skin-to-skin contact, sharing a room or other similar household setting, and sexual partners, within the 8 weeks prior to diagnosis. **Alternatives** **Unlicensed permethrin 5% cream**

	The following specialist importers have confirmed they can source unlicensed permethrin 5% cream (please note there may be other companies that can also source supplies): • Orifarm **Unlicensed ivermectin 3mg tablets** The following specialist importers have confirmed they can source unlicensed ivermectin 3mg tablets (please note there may be other companies that can also source supplies): • Alium • Mawdsleys • Orifarm • Target Healthcare **Unlicensed benzyl benzoate emulsion** The following special-order manufacturers have confirmed they can manufacture unlicensed benzyl benzoate emulsion (please note there may be other companies that can also source supplies): • Eaststone • Target Healthcare **Considerations and background** **Supply overview** Permethrin 5% w/w cream is expected to be in limited supply until further notice due to an increase in demand. Malathion liquid, an alternative to permethrin for treatment of scabies, is unavailable until January 2024. Crotamiton 10% Cream (Eurax), which is licensed for the treatment of scabies, remains available but can only meet its current demand for other conditions. Ivermectin 3mg tablets are also licensed for treatment of scabies but are not currently marketed in the UK. Unlicensed supplies of ivermectin 3mg tablets may be sourced, lead times vary. **Supporting information** If the cases seen are suspected of being part of an outbreak in a setting associated with vulnerable people, clinicians should refer to UKHSA guidance on the management of scabies cases and outbreaks in long-term care facilities and other closed settings including the appropriate infection prevention and control measures with advice on coordinated cleaning of clothing and bedding.
SHORTAGE: **Indometacin (Indocid) 100mg suppositories**	**Anticipated re-supply date :** 08.01.2024 **Alternatives** **Parallel imports** Limited supplies of indometacin 100mg suppositories are available from Lexon UK (please note there may be other companies that can also source supplies). **Unlicensed imports** Unlicensed imports of indometacin 100mg suppositories can be sourced from Target Healthcare, lead times may vary (please note there may be other companies that can also source supplies). **Licensed alternatives** Diclofenac suppositories of various strengths remain available. NSAIDs for oral and parenteral use remain available. **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)

SHORTAGE: **Alteplase (Actilyse Cathflo®) 2mg powder for solution for injection vials**	**Anticipated re-supply date :** 04.03.24 **Actions** NHS provider trust pharmacy procurement teams should work with appropriate clinical leads and their local Medication Safety Officer (MSO) to: • consider switching to an alternative treatment option most appropriate to meet patient requirements following a local risk assessment, considering unlicensed products only where licensed alternatives are not appropriate; • be aware that nursing staff will require education and training on the administration of an alternative agent or dilution of Syner-KINASE® 100,000IU vials; • put measures in place to reduce the risk of a dose error when diluting the product, for example, ensure clear advice on dilution is available in all clinical areas using Syner-KINASE® and consider additional warning labels on the 100,000IU product regarding the potential need to dilute; and • consult a specialist pharmacist or nurse for advice when required. **Alternatives** See clinical information **Considerations and background** **Summary** • Alteplase (Actilyse Cathflo®) 2mg powder for solution for injection vials are out of stock with resupply expected in early 2024. • Other alteplase (Actilyse®) formulations remain available, however, they cannot support the increase in demand. A National Patient Safety Alert has been issued for the shortage of alteplase and tenecetplase; the actions within this alert should be followed. • TauroLock™- U25.000 devices remain available and can support an increase in demand. • Urokinase (Syner-KINASE®) 10,000IU and 25,000IU vials are currently out of stock. • Urokinase (Syner-KINASE®) 100,000IU vials remain available, however, are currently experiencing supply constraints due to the recent increase in demand. • Where the above alternatives are not suitable, unlicensed imports can be sourced, lead times vary. **Clinical Information** • Actilyse Cathflo® is the only recommended presentation of alteplase licensed for use as thrombolytic treatment of occluded central venous access devices including those used for haemodialysis. • TauroLock™- U25.000, classified as a medical device, is ONLY recommended for instillation in central venous access systems as a dwell-lock solution to prevent infection and catheter occlusion. It comprises two separate components, urokinase (25,000IU) freeze dried powder in a vial and an ampoule of TaurolockTM, which contains an antimicrobial (cyclo)-taurolidine and citrate, as a solvent. In 2021, Syner-MED, the manufacturer of urokinase (Syner-KINASE®) 100,000IU injection issued a Dear HCP Letter regarding dilution of their high strength product to desired concentration (as a substitute for Syner-KINASE® 25,000IU). Restrictions on supply of Syner-KINASE® 100,000IU injection have currently been implemented to ensure equitable supply across Trusts. Syner-Med will liaise with all affected customers on a case-by case basis. **Unlicensed imports** The following specialist importers have confirmed they can source unlicensed alteplase 2mg injection. Lead times vary (please note, there may be other companies that can also source supplies): • Alium Medical • BAP Pharma • Clinigen • Durbin PLC • Genetech Pharmaceuticals • Mawdsley's Unlicensed

	• Orifarm UK • Smartway • Target Healthcare **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 • Professional Guidance for the Procurement and Supply of Specials, Royal Pharmaceutical Society • Prescribing unlicensed medicines, General Medical Council (GMC) **Medicines Supply Notification Number** MSN/2022/045

SHORTAGE: Azithromycin (Azyter) 15mg/g eye drops (0.25g unit dose, preservative free)	**Anticipated re-supply date :** 13.01.24
	Actions
	Pharmacy, in consultation with clinicians/prescribers, should:
	• reserve existing stock of azithromycin (Azyter®)15mg/g eye drops for the treatment of trachomatous conjunctivitis
	  ○ where alternative antibiotics are unsuitable, suppliers of unlicenced imports of azithromycin 15mg/g eye drops (0.25g unit dose, preservative free have been identified and orders can be placed through them. Note: consider lead times for delivery; (see Supporting Information) and
	  ○ if the above options are not suitable, refer to genito-urinary medicine specialists for advice on alternative treatments (see Supporting Information)
	• for the treatment of purulent bacterial conjunctivitis or blepharitis, prescribers should consider an alternative antibiotic in line with local guidelines, ensuring patient is not intolerant to any excipients in the product prescribed
	Alternatives
	• Alternative topical and oral antibiotics remain available
	• The following specialist importers have confirmed they can source unlicensed azithromycin (Azyter) 15mg/g eye drops 0.25g unit dose preservative free (please note there may be other companies that can also source supplies):
	  ○ Mawdsleys
	  ○ Smartway
	Considerations and background
	Summary
	• Azithromycin (Azyter) 15mg/g eye drops are out of stock from mid-October to mid-November 2023
	• Alternative topical and oral antibiotics remain available
	• Where alternative antibiotics are unsuitable, unlicenced imports of azithromycin 15mg/g eye drops (0.25g unit dose, preservative free) can been sourced
	Supporting Information
	Azithromycin eye drops are licensed for the treatment of purulent bacterial conjunctivitis and trachomatous conjunctivitis caused by Chlamydia trachomatis in children (aged from birth to 17 years) and adults. One drop is administered in the conjunctival fornix twice a day for three days. It is also used off-label for the second line treatment of blepharitis.
	Treatment regimens for trachomatous conjunctivitis may comprise a combination of azithromycin eye drops and an oral antibiotic. Second line treatment option involves use of another oral antibiotic regimen, either as monotherapy, or in combination with the drops. The management of sexually transmitted eye infections should be carried out in conjunction with genito-urinary medicine specialists
	For purulent bacterial conjunctivitis and blepharitis, treatment guidelines recommend a number of alternative topical and/or systemic antibiotics.
	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: Benperidol (Anquil®) 250microgram tablets	**Anticipated re-supply date: 02.08.24** **Actions** Healthcare professionals in primary, secondary or specialist healthcare services should: • defer initiating new patients on benperidol until the supply issue is resolved; and • work together to identify and refer patients to the relevant specialist mental health services for an individualised review of management options (see clinical information). **Alternatives** See clinical information **Considerations and background** **Summary** • Benperidol (Anquil®) 250 microgram tablets will be out of stock from the end of March 2022 with a resupply date to be confirmed. • Management options during this shortage should be determined on a case-by-case basis, in consultation with the appropriate mental health specialist. **Clinical Information** Benperidol is an antipsychotic in the butyrophenone class licensed for the control of deviant anti-social sexual behaviour. The usual dose range is 250 micrograms to 1.5 mg per day in divided doses. Patients on this treatment should be reviewed by a relevant mental health specialist with a view to understanding why treatment was first initiated and if benperidol remains the most appropriate treatment. The review should consider the risks of stopping treatment, and whether other management options should be considered. If discontinuation of treatment is not suitable, management options should be determined on a case-by-case basis, based on history, response, tolerability, and any associated symptoms co-morbidities. Withdrawal of antipsychotic drugs after long-term therapy should normally/usually be gradual and closely monitored to avoid the risk of acute withdrawal syndromes or rapid relapse. **Links to further information** Benperidol (Anquil®) 250microgram tablets SmPC **Medicines Supply Notification Number:** MSN/2022/026
SHORTAGE: Levobupivacaine 50mg/10ml and 25mg/10ml solution for injection ampoules	**Medicines affected** Anticipated re-supply date Levobupivacaine 25mg/10ml solution for injection ampoules 29 December 2023 Levobupivacaine 50mg/10ml solution for injection ampoules 29 December 2023 **Actions** NHS provider Trust pharmacy procurement teams and clinical teams should: • regularly review current usage requirements and local wholesaler depot stock holdings to determine if sufficient stock is available to meet demand, and continue to order in line with current demand as over ordering will be challenged. • review and update local clinical protocols and policies to include bupivacaine in place of levobupivacaine, where appropriate • order additional bupivacaine from established contracted suppliers, if required. • liaise with anaesthetist on selection of alternative agent if bupivacaine is not considered an appropriate option. **Alternatives**

	Sterile overwrapped vials remain available from Fresenius Kabi but cannot support an uplift in demand. Bupivacaine 50mg/10ml vials remain available and can support a full uplift in demand. **Considerations and background** **Supporting Information** **Clinical information** Levobupivacaine is an isomer of bupivacaine. It has similar anaesthetic and analgesic properties to bupivacaine but is claimed to have an improved side effect profile. Levobupivacaine is licensed in adults for the following indications. **Surgical anaesthesia** • Major e.g. epidural (including for caesarean section), intrathecal, peripheral nerve block. • Minor e.g. local infiltration, peribulbar block in ophthalmologic surgery **Pain management** • Continuous epidural infusion, single or multiple bolus epidural for the management of pain especially post-operative pain or labour analgesia. **Paediatric use** It is also licensed in the paediatric population for use as analgesia (ilioinguinal / iliohypogastric block). **Bupivacaine** Bupivacaine is licensed for the production of local anaesthesia by peripheral nerve block(s) and central neural block (caudal or epidural), and for the relief of labour pain. In the paediatric population, it is licensed for surgical anaesthesia in adults and adolescents, and for acute pain management in adults, infants and children above 1 year of age. **Medicines Supply Notification** MSN/2023/102
SHORTAGE: **Adrenaline 150microgram (Emerade) solution for injection pre-filled disposable devices**	**Anticipated re-supply date:** 16.12.23 **Actions** • The advice remains to conserve supplies of adrenaline auto-injectors for patients who truly need them. • All healthcare professionals providing services where anaphylaxis treatment may be required should have the competency to draw up and administer adrenaline from ampoules with a normal syringe and needle. • When renewing the adrenaline in your anaphylaxis kits, alert staff to stock ampoules (ensuring you also include dosing charts, needles and syringes) and not adrenaline auto-injectors. **Alternatives** • There are currently sufficient supplies of EpiPen and Jext to meet normal UK demand for adrenaline 150microgram auto-injectors • Emerade 300microgram and 500microgram auto-injectors have returned to the market **Considerations and background** The Green Book and Resus Council guidance provides additional advice to healthcare professionals on the use of adrenaline in response to anaphylaxis.
SHORTAGE: **Fluoxetine (Olena) 20mg dispersible tablets**	**Anticipated re-supply date:** 31.05.24 **Actions** Where patients have insufficient supply of fluoxetine 20mg dispersible tablets to last until the re-supply date, prescribers should: • not initiate any new patients on fluoxetine 20mg dispersible tablets • review patients to determine if they are able to swallow solid dosage forms and consider prescribing an equivalent dose of fluoxetine using the capsules, where available strengths allow this • where patients are not able to swallow solid dosage forms, consider prescribing an equivalent dose of fluoxetine using the capsules, where available strengths allow

	this, the contents of which can be emptied out and dispersed in water (off-label use) and ensure they are counselled on how to do this (see Supporting Information); or • where the above options are not considered appropriate, and a liquid formulation is required, consider an alternative selective serotonin reuptake inhibitor (SSRI) liquid preparation (see alternatives), taking into account the indication for use, previous treatments tried, current fluoxetine dose, and also the need to seek specialist advice on more complex patients being treated for depression or patients with bulimia nervosa. **Alternatives** The following alternatives are available: • Fluoxetine capsules, including the 10mg and 20mg strengths. • Citalopram 40mg/mL oral drops and escitalopram (Cipralex) 20mg/mL oral drops **Considerations and background** **Summary** • Fluoxetine 20mg/5mL oral solution is back in stock. • Fluoxetine (Olena) 20mg dispersible tablets are out of stock until further notice. **Clinical Information** **Fluoxetine indications** Fluoxetine is a SSRI licensed in adults for the treatment of major depressive episodes, obsessive- compulsive disorder, and bulimia nervosa as a complement of psychotherapy for the reduction of binge eating and purging activity. It is also licensed in children and adolescents aged 8 years and above for the treatment of a moderate to severe major depressive episode. **Off-label administration of fluoxetine capsules** NEWT guidelines suggest that the contents of the capsules can be dispersed in 120mL of water and will dissolve in approximately 5 minutes. **Alternative SSRIs for depression** As fluoxetine is not a usual first line agent, patients may have been on other SSRIs previously and advice may need to be sought from specialists on alternative treatment options. Unlike other SSRIs, fluoxetine has a very long half-life and a washout period is required when switching to another SSRI. If the decision is made to switch, it is recommended that the alternative SSRI is started at a low dose 4 to 7 days after stopping fluoxetine. Please see the SPS article How do you switch between tricyclic, SSRI and related antidepressants? for further information. **Bulimia nervosa** Fluoxetine is the only SSRI licensed for bulimia nervosa. It has been the most studied of the SSRIs for this condition. Specialists will need to be consulted on alternative treatment options. **Medicines Supply Notification Number** MSN/2023/007
SHORTAGE: **Menopur (menotropin) 75IU ,150IU ,600IU and 1200IU solution for injection vials**	**Anticipated re-supply date:** 7th June 2024 **Actions** NHS provider Trust pharmacy procurement teams**,** clinical teams, and any outsourced partners (outpatient clinics and Homecare) to work together to: • review local stock holding of Menopur (menotropin) 75IU, 150IU, 600IU and 1200IU solution for injections and ensure remaining supplies are preserved for use in established patients to complete their full treatment cycle • ensure new patients are **not** initiated on treatment unless sufficient supply of Menopur is available to fulfil the entire treatment course; and • consider initiating new patients and/or switching existing patients to an available alternative gonadotropin in consultation with a specialist, where there is insufficient supply during this period (see Supporting Information). **Alternatives** **Alternative gonadotropins**

	Follitropin alfa Licensed indications: **In adult women** – Infertility in women with proven hypopituitarism or who have not responded to clomifene and for superovulation treatment for assisted conception (such as in vitro fertilisation). **In adult men** – Hypogonadotrophic hypogonadism: for the stimulation of spermatogenesis in men who have congenital or acquired hypogonadotrophic hypogonadism with concomitant human Chorionic Gonadotropin (hCG) therapy. The following presentations are available and able to provide a full uplift in demand. **Bemfola** Marketed by Gedeon Richter and available as 75 units/0.125ml,150 units/0.25ml, 225 units/0.375ml, 300 units/0.5ml and 450 units/0.75ml solution for injection pre-filled pens. **Gonal-F** Marketed by Merck Serono Ltd and available as 75 unit powder and solvent for solution for injection vials, 300 units/0.5ml, 450 units/0.75ml and 900 units/1.5ml solution for injection pre-filled pens. **Ovaleap** Marketed by Theramex HQ UK Ltd and available as 300 units/0.5m, 450 units/0.75ml and 900 units/1.5ml solution for injection cartridges. **Follitropin alfa with lutropin alfa** Licensed indications: **In adult women** – Infertility in women with proven hypopituitarism or who have not responded to clomifene and for superovulation treatment for assisted conception (such as in vitro fertilisation). The following presentations are available and able to provide a full uplift in demand. **Pergovis** Marketed by Merck Serono Ltd and available as 150unit/75unit powder and solvent for solution for injection vials, 300units/150units/0.48ml, 450units/225units/0.72ml and 900units/450units/1.44ml solution for injection pre-filled pens. **Follitropin delta** Licensed indications: **In adult women –** superovulation treatment for assisted conception (such as in vitro fertilisation). The following presentations are available however, have limited ability to support any additional uplift beyond normal demand. **Rekovelle** Marketed by Ferring and available as 12micrograms/0.36ml, 36micrograms/1.08ml and 72micrograms/2.16 ml solution for injection pre-filled pens. **Lutropin alfa** Licensed indications: **In adult women** – in association with a follicle stimulating hormone (FSH) preparation is indicated for the stimulation of follicular development in adult women with severe luteinising hormone (LH) and FSH deficiency. The following presentations are available however, have limited ability to support any additional uplift beyond normal demand. **Luveris** Marketed by Merck Serono Ltd and available as 75unit powder and solvent for solution for injection vials. **Menotropin** Licensed indications: **In adult women** – Infertility in women with proven hypopituitarism or who have not responded to clomifene and Superovulation treatment for assisted conception (such as in vitro fertilisation). **In adult men** – Hypogonadotropic hypogonadism: for the stimulation of spermatogenesis in men who have congenital or acquired hypogonadotropic hypogonadism with concomitant human Chorionic Gonadotropin (hCG) therapy.

	The following presentations are available however, have limited ability to support any additional uplift beyond normal demand until the end of April 2023. **Meriofert** Marketed by Pharmasure LTD and available as 75 unit and 150 unit powder and solvent for solution for injection vials. **Urofollitropin** Licensed indications: **In adult women** – Infertility in women with proven hypopituitarism or who have not responded to clomifene and superovulation treatment for assisted conception (such as in vitro fertilisation). The following presentations are available however, have limited ability to support any additional uplift beyond normal demand. **Fostimon** Marketed by Pharmasure LTD and available as 75unit powder and solvent for solution for injection vials. **Considerations and background** **Supply Overview** Supply of Menopur (menotropin) 75IU and 150IU, solution for injection is very limited. Ongoing availability of supplies beyond March 23 is yet to be confirmed. Menopur (menotropin) 600IU and 1200IU solution for injections are currently unavailable. Resupply date is to be confirmed. **Clinical Information** Menopur (menotropin) 75IU, 150IU, 600IU and 1200IU solution for injection vials are licensed for treatment of female and male infertility in the following groups of patients: • Anovulation, including polycystic ovarian disease (PCOD) in women who have been unresponsive to treatment with clomiphene citrate: • Women undergoing controlled ovarian hyperstimulation: MENOPUR can induce the development of multiple follicles for assisted reproductive technologies (ART) (e.g. in vitro fertilisation/embryo transfer (IVF/ET), gamete intra-fallopian transfer (GIFT) and intracytoplasmic sperm injection (ICSI) • Hypogonadotropic hypogonadism in men: MENOPUR may be given in combination with human chorionic gonadotrophin (e.g. Choragon) for the stimulation of spermatogenesis. Patients with primary testicular failure are usually unresponsive. NICE clinical guideline (CG156) Fertility problems: assessment and treatment can be found here. **Medicine Supply Notification Number** MSN/2023/024
SHORTAGE: **Emerade 300micrograms/0.3ml (1 in 1,000) and 500micrograms/0.5ml (1 in 1,000) solution for injection auto-injector pens**	**Anticipated re-supply date:** 16.12.23 **Actions** 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: **GLP-1 receptor agonists (semaglutide, dulaglutide, liraglutide, exenatide)**	**Anticipated re-supply date:** 28.06.24 **Actions** A National Patient Safety Alert was issued on the 18 July 2023 for the shortage of GLP1 RA medicines. Please refer to the National Patient Safety Alert for information and advice on alternatives.

SHORTAGE: **Buserelin injection and nasal spray formulations**	**Medicines affected** Anticipated re-supply date Suprecur 150micrograms/dose nasal spray (Neon Healthcare Ltd) 6 December 2024 Suprecur 5.5mg/5.5ml solution for injection vials (Neon Healthcare Ltd) 2 February 2024 Suprefact 5.5mg/5.5ml solution for injection vials (Neon Healthcare Ltd) 2 February 2024 **Actions** For **Suprefact and Suprecur vials**, NHS Provider Trust pharmacy procurement teams should work with clinical teams to: • not initiate new patients on treatment; • request mutual aid for current patients, facilitated by Regional Pharmacy Procurement Specialists (RPPS), and • if mutual aid is not possible, review current patients on treatment, including indication for use; and consider switching to an alternative GnRH analogue in consultation with a specialist, ensuring that the patient is not intolerant to any of the excipients (see supporting information). For **Suprecur nasal spray**, NHS Provider Trust pharmacy procurement teams should work with clinical teams to: • not initiate new patients on treatment, this includes initiation with **Suprefact vials** (off label use for Suprecur indications). • request mutual aid for current patients, facilitated by RPPS and where this is not possible consider prescribing an alternative licensed GnRH analogue (see supporting information below). If none of the above options are considered appropriate, advice should be sought from specialists on management options. When considering parenteral therapy, establish that this route of administration is acceptable to the patient, that they are able to self-administer the injection, and are not intolerant to any of the excipients. In addition: • Ensure the patient receives appropriate training on the administration of a subcutaneous injection and is counselled on the appropriate dose and volume to administer if self-administering. • Signpost to online training videos if needed. • Provide the patient with the appropriate ancillaries and a sharps bin for safe disposal of needles. **Alternatives** **Alternative parenteral GnRH analogues:** • Goserelin (Zoladex) 3.6mg implant licensed for prostate cancer, endometriosis and pituitary desensitisation • Goserelin (Zoladex) 10.8mg implant licensed for prostate cancer • Leuprorelin (PROSTAP 3 DCS) 11.25 mg powder and solvent for prolonged-release suspension for injection in pre-filled syringe licensed for prostate cancer and endometriosis • Leuprorelin (PROSTAP SR DCS) 3.75 mg powder and solvent for prolonged-release suspension for injection in pre-filled syringe licensed for prostate cancer and endometriosis and preservation of ovarian function • Leuprorelin (Staladex) 11.25 mg implant licensed for prostate cancer • Triptorelin (Decapeptyl SR) 3mg powder and solvent for suspension for injection licensed for prostate cancer and endometriosis • Triptorelin (Decapeptyl SR) 11.25mg powder and solvent for suspension for injection licensed for prostate cancer and endometriosis • Triptorelin (Decapeptyl SR) 22.5mg powder and solvent for suspension for injection licensed for prostate cancer **Considerations and background** **Clinical Information:**

	Both Suprefact and Suprecur injection are identical buserelin products but differ in licensed indications. In practice, assisted conception units use these two brands of buserelin injection interchangeably, guided by stock availability. **Suprefact 5.5mg/5.5ml solution for injection:** Licensed use : Treatment of advanced hormone dependent prostatic carcinoma; administered by subcutaneous injection at eight-hourly intervals for seven days before transferring to intranasal buserelin. Off-label use: Triggering follicular maturation (where a single dose of buserelin 2mg is given via subcutaneous injection) and for pituitary desensitisation before induction of ovulation by gonadotrophins for in vitro fertilisation. Although buserelin is usually the preferred choice, specialists have the option of using other GnRH analogues (triptorelin, leuprorelin) off label. **Suprecur 5.5mg/5.5ml solution for injection:** Licensed use: Pituitary desensitisation in preparation for ovulation induction regimens using gonadotrophins. **Suprecur 150microgram/dose nasal spray:** Licensed for the treatment of endometriosis in cases that do not require surgery as primary therapy and for pituitary desensitisation in preparation for ovulation induction regimens using gonadotrophins. **Self-administration of injection** In cases where it may be appropriate to train patients to self-administer the subcutaneous injection, it is recommended that initial doses should be administered under close medical supervision due to the possibility of hypersensitivity reactions. Patients should cease injections and seek medical attention should any adverse event occur, particularly an allergic reaction.
SHORTAGE: **Carbomer '980' 0.2% eye drops**	**Anticipated re-supply date:** 12.01.24 **Medicines affected** Anticipated re-supply date Viscotears 2mg/g liquid gel (Bausch & Lomb UK Ltd) 12 January 2024 Artelac Nighttime 0.2% eye gel (Bausch & Lomb UK Ltd) 12 January 2024 GelTears 0.2% gel (Bausch & Lomb UK Ltd) 12 January 2024 **Alternatives** Alternative carbomer '980' eye drops and eye gels remain available – See BNF link below Note: with regards to alternatives, see recent MHRA press release and Field Safety Notice issued on 22 November 2023 links below. Where carbomer eye drops are not available or suitable, consider using an alternative eye drop suitable for dry eyes.
SHORTAGE: **Etoposide 50mg and 100mg capsules**	**Anticipated re-supply date:** 28.02.24 **Actions** NHS provider Trust pharmacy procurement and oncology teams should work together to review local stock holdings and where there is insufficient stock until the resupply date: • Review patient scheduling and assess if patients prescribed etoposide 50mg and 100mg capsules can be switched to intravenous etoposide treatment. The dose of intravenous etoposide will require protocol adjustment, due to the difference in bioavailability (see supporting information). • Consider the use of etoposide injection given orally (off-label) if intravenous treatment is not appropriate. Liaise with hospital Pharmacy Services to prepare ready to administer doses (see supporting information) and ensure patient/carer is

	counselled and provided with information to ensure safe administration and correct disposal of used syringes. • Consider prescribing unlicensed products only where licensed alternatives are not appropriate. Prescribers should work with local pharmacy teams to ensure orders are placed within appropriate time frames as lead times may vary (see guidance on ordering below). **Alternatives** Etoposide 20mg/ml concentrate for solution for infusion vials remain available and can support increased demand. Oral administration of etoposide injection (unlicensed) may be considered, if appropriate. Unlicensed supplies of etoposide 50mg and 100mg capsules may be sourced, lead times vary. The following specialist importers have confirmed they can source unlicensed etoposide 100mg and 50mg capsules (please note there may be other companies that can also source supplies): • Alium Medical • Durbin • Mawdsleys • Q Med Pharma • Tanner Pharma • Smartway **Considerations and background** **Supporting Information** The SmPC highlights that the dose of etoposide capsules is based on the recommended intravenous dose, taking into account the dose-dependent bioavailability of etoposide capsules. Some centres administer the injection orally in patients unable to swallow the capsules (unlicensed use). These are prepared by the Pharmacy Department in ready-filled syringes or glass vials/bottles containing the dose to be given. Patients/carers will be provided with information on safe oral administration of the injection and provided with a sharps bin to dispose of the oral syringe and cap after taking the dose. A document produced by the SW Strategic Clinical Network in 2016 recommends that etoposide injection taken orally should be administered at a dose of 70% of the usual oral capsule dose. However, as oral absorption of etoposide is variable, dosing must be discussed and agreed with the specialist. **Medicines Supply Notification** MSN/2023/106 **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: Dicycloverine 10mg/5ml oral solution	**Anticipated re-supply date:** 05.01.24 **Actions** **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; review if patients are able to swallow solid dosage forms and consider prescribing dicycloverine 10mg tablets if appropriate; and consider prescribing a liquid formation of an alternative antispasmodic for patients unable to swallow solid dosage forms (see supporting information below). **In patients unable to swallow solid dosage forms for whom dicycloverine liquid is determined to be the most appropriate therapy:**

	consider prescribing dicycloverine 10mg tablets and counsel patients on crushing and mixing with water for administration (off-label); and if the above option is not considered appropriate, consider prescribing unlicensed dicycloverine 10mg/5ml oral solution. 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). **Secondary Care only:** where there is insufficient stock, and where clinical judgement determines that a patient should remain on dicycloverine 10mg/5ml oral solution, liaise with pharmacy services to request mutual aid, facilitated by their Regional Pharmacy Procurement Specialist. **Alternatives** **Licensed products** Dicycloverine 10mg tablets remain available and can support increased demand. Mebeverine 50mg/5ml sugar free oral suspension. Peppermint water BP 1973. **Unlicensed products** Unlicensed dicycloverine 10mg/5ml oral solution is available from the following suppliers (other suppliers may be available) lead times vary; • Alium Medical **Considerations and background** **Supporting Information** **Clinical Information** Dicycloverine is an anticholinergic antispasmodic, licensed for the treatment of functional conditions involving smooth muscle spasm of the gastrointestinal tract. The liquid is licensed for use in patients from age 6 months and above. There are no other oral anticholinergic antispasmodics available in a liquid formulation. NEWT guidelines suggest dicycloverine tablets may be crushed and mixed with water for administration (off-label manipulation). Other antispasmodics available as a liquid include: • Mebeverine 50mg/5ml sugar free oral suspension (licensed for use from age 10 years and above but BNFC includes off-label use from 3 years and above) • Peppermint water BP 1973 (licensed for use from age 12 years and above, but off-label use in paediatric practice from age 3 months and above, consult local formulary) **Medicines Supply Notification Number** MSN/2023/109 **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: **Acetylcholine chloride (Miphtel) 20mg powder and solvent for solution for intraocular irrigation**	**No return date given** **Actions** NHS provider Trust pharmacy procurement teams should work with appropriate clinical leads and their local Medication Safety Officer (MSO) to: identify where acetylcholine chloride (Miphtel) 20mg powder and solvent for solution for intraocular irrigation is used in your organisation; consider prescribing unlicensed acetylcholine chloride (Miochol E) 20mg powder and solvent for solution, if suitable. 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); agree a plan for communicating this supply issue to relevant teams within the organisation; and

	if the above options are not considered appropriate, advice should be sought from specialists on management options. **Alternatives** The following specialist importers have confirmed they can source unlicensed acetylcholine chloride (Miochol E) 20mg powder and solvent for solution for intraocular irrigation (please note there may be other companies that can also source supplies): • Orifarm • Smartway Pharma **Considerations and background** **Summary** Acetylcholine chloride (Miphtel) 20mg powder and solvent for solution for intraocular irrigation is out of stock with a re-supply date to be confirmed. **Clinical Information** Both Miphtel and the unlicensed Miochol-E contain 20mg acetylcholine powder, and should be reconstituted with the solvent provided to make a 1% solution. The solution is used for intraocular irrigation in the anterior chamber of the eye during surgery. It is used to obtain rapid and complete miosis after delivery of the lens in cataract surgery as well as in penetrating keratoplasty, iridectomy and other anterior segment surgery where rapid complete miosis is required. **Medicines Supply Notification Number** MSN/2023/110 **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: **Lanreotide 60mg/0.5ml, 90mg/0.5ml and 120mg/0.5ml solution for injection pre-filled syringes**	**Anticipated re-supply date:** 05.01.24 **Actions** NHS provider Trust pharmacy procurement teams, working with the appropriate clinical specialists and their local pharmacy homecare lead should: • not initiate new patients on any strength of Advanz Pharma's lanreotide solution for injection pre-filled syringes until the shortage resolves; • prescribe Somatuline Autogel (lanreotide) solution for injection pre-filled syringes for new patient initiations; • be aware that patients on Advanz Pharma's lanreotide 60mg and 90mg pre-filled syringes may receive Somatuline Autogel 90mg pre-filled syringes as a substitution during this period to ensure continuity of treatment (see supporting information below); and • be aware that all patients established on Advanz Pharma's sponsored homecare scheme for all strengths of lanreotide solution for injection pre-filled syringes may have their delivery schedule reduced to 4 weekly to ensure supplies remain available for all patients. Homecare providers should: • ensure that every affected patient is notified of any changes to their delivery cycle and volume of supplies during this period; • ensure that patients receiving substitution with Somatuline Autogel pre-filled syringes are informed directly of the switch and offered nursing support; and • work with the prescriber and the Trust homecare-lead to ensure nurse led training is provided or, if available, administration support is offered where requested.

	Alternatives Ipsen's lanreotide (Somatuline Autogel) 60mg/0.5ml, 90mg/0.5ml and 120mg/0.5ml solution for injection pre-filled syringes remain available and can support increased demand. **Considerations and background** **Supporting Information** **Summary** Advanz Pharma's lanreotide 60mg/0.5ml and 90mg/0.5ml solution for injection pre-filled syringes are out of stock until early January 2024. Advanz Pharma's lanreotide 120mg/0.5ml solution for injection pre-filled syringes are in limited supply until early January 2024. **Clinical Information** Sciensus and HealthNet currently provide generic lanreotide 60mg/0.5ml, 90mg/0.5ml and 120mg/0.5ml solution for injection pre-filled syringes via Advanz Pharma's manufacturer sponsored homecare scheme. HealthNet currently have sufficient supplies to maintain established patients on Advanz Pharma lanreotide syringes without any changes to existing supply cycles. Sciensus is impacted by the current issue and issued a Dear Healthcare Professional Letter to its customers on 17 November 2023 outlining the management plans implemented to ensure continuity of supplies to patients during this period. This includes: • The annotation of all affected prescriptions to allow for the substitution with lanreotide (Somatuline Autogel) 90mg/0.5ml for injection pre-filled syringes • Clarifying that all delivery fees and nurse support fees irrespective of the brand of lanreotide dispensed would be funded by Advanz Pharma • Clarifying that where there is substitution of Ipsen Somatuline Autogel pre-filled syringes, the Ispen price will be charged to the NHS. **Medicines Supply Notification** MSN/2023/111
SHORTAGE: **Fluticasone 400microgram/unit nasal drops**	**Anticipated re-supply date: 02.02.24** **Actions** Where patients have insufficient supply of fluticasone 400microgram/unit dose nasal drops prescribers should: check with pharmacy for availability of generic fluticasone propionate 400 micrograms (1mg/ml) nasal drops suspension (Aspire Pharma), where this is unavailable; consider prescribing an alternative steroid nasal drop or spray for the treatment of nasal polyps, ensuring the patient is counselled on use and is not intolerant to any of the excipients; or consider prescribing other steroid formulations off-label for oral ulceration and inflammation, in line with local guidance; consider prescribing unlicensed products only where above mentioned options are not available/appropriate. 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). **Alternatives** Flixonase Nasal Drops are being discontinued, with stock to be exhausted by the end of December 2023. Generic fluticasone 400microgram/unit dose nasal drops (Aspire Pharma) are in limited supply until the resupply date. Betamethasone 0.1% nose drops remain available and can support increased demand. For oral ulceration and inflammation, other steroid formulations have been used off-label (soluble tabs, multi dose inhaler, nebules, ointment, nasal spray). Mometasone 50micrograms/dose nasal spray remains available but cannot support an uplift in demand. **Unlicensed imports** The following specialist importers have confirmed they can source unlicensed fluticasone propionate 400microgram nasal drops (please note there may be other companies that can also source supplies): • Mawdsleys

	Considerations and background **Supporting information** **Clinical information** Fluticasone nasal drops are licensed for the regular treatment of nasal polyps and associated symptoms of nasal obstruction. Betamethasone 0.1% nose drops which are indicated in non-infected inflammatory conditions of the nose remain available and can support an uplift in demand. Mometasone 50micrograms/dose nasal spray is indicated for the treatment of the symptoms of seasonal allergic or perennial rhinitis in adults and children 3 years of age and older, and for the treatment of nasal polyps in adults. It remains available but would be unable to support an uplift in demand at present. They are also used off-label for oral ulceration and inflammation, other steroid formulations have been used off-label (soluble tabs, multi dose inhaler, nebules, ointment, nasal spray). **Medicine Supply Notification Number** MSN/2023/108
SHORTAGE: **Glucagon 1mg powder for injection kit (Glucagen)**	**Anticipated re-supply date: 30.09.24** **Actions** **Secondary care** Pharmacy staff in secondary care should: • ensure any short dated GlucaGen stock kept back in pharmacy is used up before it expires Clinicians considering the use of glucagon in secondary care settings should: • Call the NPIS (0344 892 0111) to discuss treatment options if treating severe hypotension in a poisoned patient e.g. toxicity related to beta-blockers, calcium channel blockers or tricyclic antidepressants, please; further detail is also available on TOXBASE. • Use Ogluo (glucagon) pre-filled auto-injector pen to treat severe hypoglycaemic episodes when GlucaGen is not available. **Ambulances** Ambulance clinicians should: • conserve GlucaGen for use when IV glucose 10% has failed or there is no IV access • only use a GlucaGen kit ONCE in patients who are unconscious and unresponsive to IV glucose 10% • follow the JRCALC guidelines for the treatment of severe hypoglycaemic episodes **Alternatives** GlucaGen is available in limited quantities via Alliance, trusts are limited to 50 packs per month. Further supplies may be available on request. 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** All stock must be conserved as much as possible. There are two glucagon preparations available — GlucaGen (1mg powder for injection kit) and Ogluo (0.5mg and 1mg pre-filled auto-injector pens). There will be intermittent supply of GlucaGen 1mg powder for injection kit until 2024. 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 **Medicine Supply Notification Number** MSN/2023/051 UPDATED
SHORTAGE: Guanfacine (Intuniv) modified-release tablets	**Medicines affected** Anticipated re-supply date Intuniv 1mg modified-release tablets (Takeda UK Ltd) 22 December 2023 Intuniv 2mg modified-release tablets (Takeda UK Ltd) 22 December 2023 Intuniv 3mg modified-release tablets (Takeda UK Ltd) 19 January 2024 Intuniv 4mg modified-release tablets (Takeda UK Ltd) 8 December 2023 **Actions** A National Patient Safety Alert was issued on the 27 September 2023 for the shortage of methylphenidate prolonged-release capsules and tablets, lisdexamfetamine capsules, and guanfacine prolonged-release tablets. Please refer to the National Patient Safety Alert for information and advice. **Alternatives** The following specialist importers have confirmed they can source unlicensed guanfacine prolonged-release tablets, lead times may vary (please note there may be other companies that can also source supplies): • Smartway • Genetech • Target • Alium **Considerations and background** DHSC will continue to provide updates on stock availability on the Medicine Supply Tool and designated 'Prescribing available medicines to treat ADHD' page on the Specialist Pharmacy Service (SPS) website. **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: Methylphenidate prolonged-release tablets	**Medicines affected** Medicine Anticipated re-supply date Xenidate XL 18mg tablets (Viatris UK Healthcare Ltd) 22 December 2023 Xenidate XL 27mg tablets (Viatris UK Healthcare Ltd) 22 December 2023 Xaggitin XL 18mg tablets (Ethypharm UK Ltd) 1 February 2024 Xaggitin XL 36mg tablets (Ethypharm UK Ltd) 1 February 2024 Affenid XL 27mg tablets (Zentiva Pharma UK Ltd) 15 December 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** DHSC will continue to provide updates on stock availability on the Medicine Supply Tool and designated 'Prescribing available medicines to treat ADHD' page on the Specialist Pharmacy Service (SPS) website. **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.

SHORTAGE: Benzoyl peroxide 3% / Clindamycin 1% (Duac Once Daily) gel	**Anticipated re-supply date: 05.01.24** **Alternatives** The following products for use in people with mild to moderate acne remain available: • Adapalene 0.1% / benzoyl peroxide 2.5% (Epiduo) gel • Adapalene 0.3% / benzoyl peroxide 2.5% (Epiduo) gel • Benzoyl peroxide 5% gel • Benzoyl peroxide 5% / Clindamycin 1% gel **Links** • Management of acne vulgaris in primary care • BNF - Benzoyl peroxide with clindamycin • SmPC - Epiduo • SmPC - Benzoyl peroxide gel
SHORTAGE: Midazolam (Epistatus) 2.5mg/0.25ml and 10mg/1ml oromucosal solution pre-filled oral syringes	**Medicines affected** Anticipated re-supply date Midazolam 2.5mg/0.25ml oromucosal solution pre-filled oral syringes 1 March 2024 Midazolam 10mg/1ml oromucosal solution pre-filled oral syringes 26 January 2024 **Actions** **Until the shortage resolves, prescribers should:** • not initiate new patients on Epistatus 2.5mg/0.25ml or 10mg/1ml oromucosal solution pre-filled oral syringes and • consider prescribing midazolam (Buccolam or the generic) 2.5mg/0.5ml or Buccolam 10mg/2ml oromucosal solution pre-filled oral syringes where appropriate, ensuring that the parent/carer is advised on the change in volume being administered, counselled on how to administer the dose, and shown the patient information leaflet (see Supporting Information below) **Alternatives** • Buccolam 2.5mg/0.5ml oromucosal solution pre-filled oral syringes • Buccolam 10mg/2ml oromucosal solution pre-filled oral syringes • Midazolam (generic) 2.5mg/0.5ml oromucosal solution pre-filled oral syringes **Considerations and background** **Supporting Information** **Clinical information** Epistatus is indicated for the treatment of prolonged, acute, convulsive seizures. The 2.5mg/0.25ml strength is licensed for use in infants between 3-6 months of age in the hospital setting and the 10mg/1ml for use in children and adolescents from age 10 years to < 18 years. Buccolam/generic midazolam oromucosal solution pre-filled oral syringes 2.5mg/0.5ml and 10mg/2ml are licensed for the same indication and age groups as Epistatus but are formulated in twice the volume of Epistatus and also differ in administration technique. It is good practice to prescribe midazolam oromucosal solution by brand name and express strength in both milligrams and millilitres **Please note an MHRA medicine recall was issued for Epistatus 2.5mg oromuscosal solution, pre-filled syringes on 30th August 2023.** **Medicine Supply Notification Number** MSN/2023/086 **Links** • SmPCs: Midazolam oromucosal solution • BNFc: Repeated or cluster seizures, prolonged seizures, and status epilepticus • BNF Midazolam • Patient Information Leaflet: Buccolam • SmPCs and PILs: generic midazolam oromucosal solution

SHORTAGE: Lisdexamfetamine (Elvanse) capsules	**Medicines affected** Anticipated re-supply date Elvanse 20mg capsules (Takeda UK Ltd) 19 January 2024 Elvanse 30mg capsules (Takeda UK Ltd) 5 January 2024 Elvanse Adult 30mg capsules (Takeda UK Ltd) 19 January 2024 Elvanse 40mg capsules (Takeda UK Ltd) 11 December 2023 Elvanse Adult 50mg capsules (Takeda UK Ltd) 15 March 2024 Elvanse 70mg capsules (Takeda UK Ltd) 31 January 2024 Elvanse Adult 70mg capsules (Takeda UK Ltd) 12 January 2024 Show less **Actions** A National Patient Safety Alert was issued on the 27 September 2023 for the shortage of methylphenidate prolonged-release capsules and tablets, lisdexamfetamine capsules, and guanfacine prolonged-release tablets. Please refer to the National Patient Safety Alert for information and advice. **Alternatives** The following specialist importers have confirmed they can source unlicensed imports of lisdexamfetamine (Vyvanse) capsules (please note there may be other companies that can also source supplies and lead times vary): • Alium • Target **Considerations and background** **Supply overview** DHSC will continue to provide updates on stock availability on the Medicine Supply Tool and designated 'Prescribing available medicines to treat ADHD' page on the Specialist Pharmacy Service (SPS) website. **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** • **SmPC Lisdexamfetamine**
SHORTAGE: Methylphenidate (Equasym XL) modified release capsules	**Medicines affected** Anticipated re-supply date Equasym XL 10mg capsules (Takeda UK Ltd) 5 February 2024 Equasym XL 30mg capsules (Takeda UK Ltd) 15 February 2024 **Actions**

	A National Patient Safety Alert was issued on the 27 September 2023 for the shortage of methylphenidate prolonged-release capsules and tablets, lisdexamfetamine capsules, and guanfacine prolonged-release tablets. Please refer to the National Patient Safety Alert for information and advice. **Alternatives** Limited parallel imports of methylphenidate (Equasym XL) modified release capsules remain available but cannot support an uplift in demand. **Considerations and background** **Supply Overview** Equasym XL 10mg capsules are out stock Equasym XL 30mg capsules are limited supply and will be out of stock from January 2024. Equasym XL 20mg capsules remain available. DHSC will continue to provide updates on stock availability on the Medicine Supply Tool and designated 'Prescribing available medicines to treat ADHD' page on the Specialist Pharmacy Service (SPS) website. **Links** • **SmPC Equasym XL capsules**
SHORTAGE: Levomepromazine 25mg and 50mg tablets	**Medicines affected** Medicine Anticipated re-supply date Levomepromazine 25mg tablets (Morningside Healthcare Ltd) 29 December 2023 Levomepromazine 50mg tablets (Morningside Healthcare Ltd) 5 January 2024 **Actions** Where supply of generic levomepromazine 25mg tablets are unavailable, clinicians should: • consider prescribing the branded levomepromazine (Nozinan) 25mg tablets. Where supply of generic levomepromazine 50mg tablets are unavailable, clinicians should: • consider prescribing the branded levomepromazine (Nozinan) 25mg tablets; • counsel patients on the requirement to take two tablets to make a 50mg dose for those patients who are usually prescribed levomepromazine 50mg tablets; • if the above is not appropriate, consider prescribing Levomepromazine (Levorol) 5mg/ml oral solution, **taking into consideration any cautions and contraindications** (see Supporting Information). **Alternatives** • Levomepromazine (Nozinan) 25mg tablets remain available from Neuraxpharm UK Limited and are able to fully support demand. Stock is available via Phoenix and Alliance Healthcare. • Levomepromazine (Levorol) 5mg/ml oral solution remains available from Galvany Pharma Limited and are able to support with covering demand. Hospitals can order from either Alloga UK or Alliance Healthcare. Retail/community pharmacies can order from Alliance Healthcare. **Considerations and background** **Supporting Information** **Clinical Information** Levomepromazine oral solution is contraindicated in children and adolescents under 16 years old. The oral solution has cautions linked to its excipients and therefore prescribers would need to ensure patients do not have liver or renal impairment before prescribing this medicine: • Benzyl alcohol – this medicine contains 0.03 mg of benzyl alcohol in each 1 ml of oral solution. It may cause allergic reactions. High volumes should be used with caution and only if necessary, especially in patients with liver or kidney impairment because of the risk of accumulation and toxicity (metabolic acidosis). • Propylene glycol – this medicine contains 150.95 mg of propylene glycol in each 1 ml of oral solution. Medical monitoring is required in patients with impaired renal or hepatic functions because various adverse events attributed to propylene glycol have

	been reported such as renal dysfunction (acute tubular necrosis), acute renal failure and liver dysfunction. While propylene glycol has not been shown to cause reproductive or developmental toxicity in animals or humans, it may reach the foetus and was found in milk. As a consequence, administration of propylene glycol to pregnant or lactating patients should be considered on a case by case basis. **Links** • **BNF Levomepromazine** • **SmPC Nozinan 25 mg tablets** • **SmPC Levorol 5 mg/ml oral solution**
SHORTAGE: **Propantheline bromide 15mg tablets**	**Anticipated re-supply date: 08.04.24** **Actions** Where patients have insufficient supplies to last until the re-supply date, clinicians should: • review patients to determine if this is still the most suitable therapy • consider prescribing an alternative oral antimuscarinic agent in line with local formularies/guidelines, and current availability (see supporting information below); and • consider prescribing unlicensed products only where licensed alternatives are not appropriate. 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) **Alternatives** Propantheline 15mg tablets are out of stock until early April 2024. Alternative oral antimuscarinic agents remain available. Where these are not suitable, unlicensed supplies of propantheline 15mg tablets may be sourced, lead times vary. **Unlicensed imports** The following specialist importers have confirmed they can source unlicensed propantheline 15mg tablets (please note there may be other companies that can also source supplies): • Alium Medical • Mawdsley's Unlicensed • Target Healthcare **Considerations and background** **Supporting Information** **Clinical Information** Propantheline is an oral antimuscarinic licensed for adjunctive use in adults with hyperhidrosis, adult enuresis, and gastrointestinal disorders characterised by smooth muscle spasm. **Alternative antimuscarinic treatment options;** **Indication** Adult enuresis: • oxybutynin • tolterodine • darifenacin Gastro-intestinal smooth muscle spasm: • dicycloverine hydrochloride • hyoscine butylbromide Hyperhidrosis: • oxybutynin (off-label), • glycopyrronium bromide (off-label) **Medicine Supply Notification Number** MSN/2023/113
SHORTAGE: **Diazepam 2mg/5ml oral**	**Anticipated re-supply date: 05.02.24** **Actions** Where patients have insufficient supplies to last until the re-supply date, clinicians should:

solution sugar free	• review patients to determine if this is still the most appropriate therapy; • reserve remaining supplies of diazepam 2mg/5ml oral solution sugar free for paediatric patients where possible; • consider prescribing diazepam tablets for patients able to swallow solid dosage forms, halving the tablets if needed to make up the dose; • consider crushing and dispersing tablets in water in patients unable to swallow tablets (off-label manipulation); and • where the above options are not deemed appropriate, consider prescribing unlicensed diazepam 2mg/5ml oral suspension (sugar free) from a Specials manufacturer (see supporting information below). Prescribers should work with local pharmacy teams to ensure orders are placed within appropriate time frames as lead times may vary. **Alternatives** Diazepam 2mg/5ml oral solution sugar free is out of stock until February 2024. Diazepam 2mg/5ml oral suspension is not currently marketed in the UK. Diazepam tablets remain available. Unlicensed diazepam 2mg/5ml oral suspension (sugar free) 'Specials' can be sourced. **Unlicensed imports** The following Specials manufacturers have confirmed they can manufacturer diazepam 2mg/5ml oral suspension sugar free (please note, there may be other companies): • IPS Pharma • Lexon • Nova Laboratories • PCCA Specials • Rokshaw Laboratories • Target Healthcare **Considerations and background** **Supporting Information** Most diazepam tablets are described as having a break line, but halving to administer a part dose would be an off-label manipulation, unless the SmPC explicitly states the tablet can be divided into equal doses. According to the Drug Administration via Enteral Feeding Tubes resource, diazepam tablets can be crushed and dispersed in water (off-label manipulation). **Medicine Supply Notification Number** MSN/2023/112 **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 Diazepam** • **SmPC Diazepam 2mg/5ml oral solution sugar free**
SHORTAGE: Mannitol 50g/500ml (10%), 75g/500ml (15%) infusion viaflo bags and mannitol	**Anticipated re-supply date: 29.12.23** **Actions** NHS provider trust pharmacy procurement teams and their local Medication Safety Officer should work with the appropriate clinical leads to ensure clinical areas using mannitol are consulted (this is likely to include involvement from anaesthetists, neurology, operating theatres, intensivists, critical care units and emergency medicine departments and ophthalmology) to;

50g/500ml (10%) polyfuser infusion bottles	• identify and agree if there are any indications that should be prioritised for mannitol use; • ensure remaining licensed supplies are preserved for use in these priority indications and clinical areas as agreed locally until further stock becomes available; • review and update local guidelines to reflect any agreed changes at Trust level including use of alternatives such as hypertonic saline, where required; and • ensure all impacted clinical areas are made aware of this issue and any changes. Additionally, where there is insufficient supply to meet required demand during this period and supplies of mannitol are essential, NHS provider trust pharmacy procurement teams should: • urgently place order for unlicensed imports; and • where appropriate work with their RPPS in urgent cases to facilitate mutual aid between NHS provider trusts. **Alternatives** Mannitol 50g/250ml (20%) polyfuser infusion bottles remain available but **cannot** support an uplift in demand. Mannitol 50g/500ml (10%) polyfuser infusion bottles are also out of stock and have been discontinued. The following specialist importers have confirmed they can source unlicensed mannitol 50g/500ml (10%) infusion (please note there may be other companies that can also source supplies): • Genetech Pharmaceuticals • Qmed Pharma The following specialist importers have confirmed they can source unlicensed mannitol 75g/500ml (15%) infusion (please note there may be other companies that can also source supplies): • BAP Pharma **Considerations and background** **Supporting Information** **Clinical Information** There is very limited use of mannitol as an osmotic diuretic agent across licensed indications including the promotion of diuresis in the prevention and/or treatment of the oliguric phase of acute renal failure, the reduction of elevated intraocular pressure and the promotion of elimination of renally excreted toxic substances in poisoning. When used for the reduction of intracranial pressure, there is a view that hypertonic saline solutions may be as effective as mannitol. Hypertonic saline solutions (2.7%, 5% and 30% sodium chloride) remain available. **Medicines Supply Notification** MSN/2023/114 **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 Mannitol** • **SmPC Mannitol**
Shortage of Urokinase injection	**Medicines affected** Medicine Anticipated re-supply date Syner-KINASE 10,000unit powder for solution for injection vials (Syner-Med (Pharmaceutical Products) Ltd)

	31 March 2024 Syner-KINASE 25,000unit powder for solution for injection vials (Syner-Med (Pharmaceutical Products) Ltd) 31 March 2024 **Actions** • Following local risk assessment consider switching to an alternative treatment option most appropriate to meet patient requirements (see below) • Nursing staff will require education and training on the administration of an alternative agent or dilution of Syner-KINASE 100,000IU • If Syner-KINASE 100,000IU injection is used, put measures in place to reduce the risk of a dose error when diluting the product, for example, ensure clear advice on dilution is available in all clinical areas using Syner-KINASE and consider additional warning labels on the 100,000IU product regarding the potential need to dilute • Consult a specialist pharmacist or nurse for advice when required. **Alternatives** **TauroLock™-U25.000** TauroLock™-U25.000 lock solution containing urokinase 25,000IU **Actilyse Cathflo (alteplase) 2mg powder for solution for injection and infusion** Actilyse Cathflo [alteplase] 2mg is currently out of stock. **Syner-KINASE (urokinase) 100,000IU injection** The manufacturer has issued a Dear HCP Letter regarding dilution of their high strength product to desired concentration (as substitute for Syner-KINASE 25,000IU). **Considerations and background** **SPS advice** Please refer to the SPS owned page Clinical management of Urokinase injection shortage for further advice on this issue. **Links to further information** **Please refer to the SmPC's for further information:** Syner-KINASE (urokinase) 100,000IU injection
Shortage of Atomoxetine capsules and oral solution	**Medicines affected** Medicine Anticipated re-supply date Atomoxetine 25mg capsules 6 December 2023 Strattera 4mg/1ml oral solution (Eli Lilly and Company Ltd) 15 December 2023 **Actions** **Primary and secondary care:** Clinicians/prescribers in primary and secondary care should: • proactively identify any patients on atomoxetine presentations; • contact patients to establish how much supply they have left; and • liaise with the patient's specialist team for advice on management options. **Specialist teams** Specialist teams should: • ensure no new patients are initiated on atomoxetine presentations until the shortage is resolved • support primary care clinicians seeking advice for patients currently taking atomoxetine presentations , including provision of individualised management plans, where required; and • offer alternatives in line with NICE ADHD guidance NG87 where required. Where the above options are not considered appropriate, supplies of unlicensed atomoxetine capsules may be sourced. Contact should be made with local pharmacy teams to ensure orders are placed within appropriate time frames as lead times may vary (see clinical information below). **Alternatives**

	Other strengths of atomoxetine capsules remain available but in insufficient quantities to meet increased demand. Refer to the following link for further information on the availability of methylphenidate prolonged release tablets, **Unlicensed imports** The following specialist importers have confirmed they can source unlicensed atomoxetine capsules (please note there may be other companies that can also source supplies and lead times vary): • Alium • BAP Pharma • Qmed Pharma • Target **Considerations and background** **Supply summary** Atomoxetine 10, 18, 25, 40, 60, 80 and 100mg capsules are currently in stock. Atomoxetine (Strattera) 4mg/ml oral solution is currently out of stock. **Clinical information** Stimulants such as lisdexamfetamine or methylphenidate are recommended first-line treatments for attention deficit hyperactivity disorder (ADHD). Treatment with non-stimulants (e.g. atomoxetine or guanfacine) are an option in patients who are intolerant to both methylphenidate and lisdexamfetamine, or who have not responded to separate 6-week trials of both drugs (NICE ADHD guidance NG87). These treatments must be initiated by a specialist in the treatment of ADHD. Atomoxetine selectively inhibits pre-synaptic noradrenaline reuptake and is licensed for the treatment of ADHD in children aged 6 years and older, in adolescents, and in adults. In the paediatric population up to 70 kg body weight, atomoxetine should be initiated at a total daily dose of approximately 0.5 mg/kg and dose titrated upwards after a minimum of 7 days. according to clinical response and tolerability. The recommended maintenance dose is approximately 1.2 mg/kg/day. For paediatric population over 70 kg, the initial dose is 40mg for minimum of 7 days followed by upwards dose titration. The recommended maintenance dose is 80mg. In adults, atomoxetine is initiated at 40 mg for a minimum of 7 days prior to upward dose titration and the recommended maintenance daily dose is 80 mg to 100 mg. Guanfacine, a selective alpha2A-adrenergic receptor agonist, is licensed for the treatment of ADHD in children and adolescents aged 6-17 years for whom stimulants are not suitable, not tolerated or have been shown to be ineffective. Use of atomoxetine and guanfacine in children aged 5 years as per NICE guidance is off label, as is the use of guanfacine in adults, which should not be initiated without advice from a tertiary ADHD service. Patients on atomoxetine should be periodically reviewed in line with NICE guidance. **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** • **Atomoxetine capsules SmPC** • **BNF: Attention deficit hyperactivity disorder** • **NICE guideline [NG87]: Attention deficit hyperactivity disorder: diagnosis and management**
Shortage of Exenatide	**Medicines affected** Medicine

<table>
<tr>
<td>(Byetta) 10microgram/0.04ml solution for injection</td>
<td>Anticipated re-supply date
Exenatide 10micrograms/0.04ml solution for injection 2.4ml pre-filled disposable devices
15 January 2024
Actions
A National Patient Safety Alert was issued on the 18 July 2023 for the shortage of GLP1 RA medicines.
Please refer to the National Patient Safety Alert for information and advice on alternatives
Alternatives
DHSC will continue to provide updates on GLP-1 RA's stock availability on the Medicine Supply Tool and designated 'Prescribing available GLP-1 receptor agonists' page on the SPS website.</td>
</tr>
<tr>
<td>Shortage of Atenolol 5mg/10ml solution for injection ampoules</td>
<td>Anticipated re-supply date
29 March 2024
Alternatives
Metoprolol 1mg/ml injection remains available and can support increased demand.</td>
</tr>
<tr>
<td>Discontinuation of Pancrease HL gastro-resistant capsules</td>
<td>Discontinuation
10 November 2023
Impact tier
2 · Medium impact
BNF chapters
01 - Gastro-Intestinal System
Actions
Clinicians/prescribers should review patients currently prescribed Pancrease HL capsules and prescribe an alternative high strength pancreatin preparation, titrating dose according to symptoms, and ensuring patient is not intolerant to any of the excipients (See Supporting Information below).
Alternatives
Table 1: High strength pancreatin preparations enzyme content
<table>
<tr><th>Product</th><th>Protease units</th><th>Amylase units</th><th>Lipase units</th></tr>
<tr><td>Pancrease HL capsule</td><td>1250</td><td>22500</td><td>25000</td></tr>
<tr><td>Creon 25,000 capsule</td><td>1000</td><td>18000</td><td>25000</td></tr>
<tr><td>Nutrizyme 22 capsule*</td><td>1100</td><td>19800</td><td>22000</td></tr>
</table>
*Nutrizyme 22 capsule will be out of stock from mid-December to late January 2024.
Considerations and background
Summary

Pancrease HL gastro-resistant capsules are being discontinued with stock expected to be exhausted by mid-November 2023
Alternative high strength pancreatin preparations remain available and will be able to support increased demand

Supporting Information
Pancrease HL gastro-resistant capsules is a high strength pancreatin preparation licensed for exocrine pancreatic enzyme deficiency as in cystic fibrosis, chronic pancreatitis, post pancreatectomy, post gastro-intestinal bypass surgery (eg Billroth II gastroenterostomy), and ductal obstruction from neoplasm (eg of the pancreas or common bile duct).
Alternative high strength preparations include Creon 25,000 and Nutrizyme 22. The preparations differ slightly in the levels of enzymes (see Table 1). Prescribers may need to re-titrate the dose according to symptoms of maldigestion and malabsorption, as well as ensure there is no intolerance to excipients. Of note, Nutrizym 22 contains castor oil which may cause cause stomach upset and diarrhoea.</td>
</tr>
</table>

	Links • **SmPC - Pancrease HL Capsules** • **SmPC – Creon 25,000 capsule** • **SmPC – Nutrizyme 22 capsule** • **BNF - Pancreatin** • **BNF- Exocrine pancreatic insufficiency** • **Cystic Fibrosis Trust - Pancreatic enzyme supplement and cystic fibrosis**
Shortage of Prilocaine 100mg/5ml solution for injection ampoules	**Medicines affected** Medicine Anticipated re-supply date Prilotekal 100mg/5ml solution for injection ampoules (B.Braun Medical Ltd) 14 December 2023 **Actions** NHS provider trust pharmacy procurement teams should work with appropriate clinical leads and their local Medication Safety Officer (MSO) to: • identify where prilocaine (Prilotekal) 100mg/5ml injection is used within your organisation; • following local risk-assessment switch to an alternative treatment option most appropriate to meet patient requirements; • agree a plan for communicating this supply issue to relevant teams within the organisation; and • consult an anaesthetist for advice where required NHS provider Trust pharmacy procurement teams should; • only order sufficient stock to meet actual demand during the period of shortage • where there is insufficient stock, liaise with pharmacy services to request mutual aid, facilitated by their Regional Pharmacy Procurement Specialist. Updated ordering information provided by B Braun;

New MPC	Description	Previous EAN	New EAN	Previous Mawdsleys PIP	New Mawdsleys PIP	Previous AAH Code	New AHH Code
3655760	Prilotekal 20mg/ml – 5ml Ampoule (10 pack)	5060540780010	4030539223461	6915433	350033	PRI0411C	PRI0426J

Alternatives
Licensed alternatives
• Other anaesthetics i.e. lidocaine
Unlicensed alternatives
The following specialist importers have confirmed they can source unlicensed imports of prilocaine 100mg/5ml solution for injection (please note there may be other companies that can also source supplies and lead times vary):
• Smartway Pharma
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 • **SmPC - Prilotekal 20mg/ml solution for injection**
Shortage of Calcitonin (salmon) 50units/1ml solution for injection ampoules	**Medicines affected** Medicine Anticipated re-supply date Calcitonin (salmon) 50units/1ml solution for injection ampoules (Essential Pharma Ltd) 15 January 2024 **Alternatives** Calcitonin (salmon) 100units/1ml solution for injection ampoules remain available and can support the uplift in demand if required.
Shortage of Verteporfin 15mg powder for solution for infusion vials **Supply returning**	**Medicines affected** Medicine Anticipated re-supply date Visudyne 15mg powder for solution for infusion vials (Neon Healthcare Ltd) 2 December 2024 **Actions** A National Patient Safety Alert was issued on 28 September 2023 advising on accessing limited stock of verteporfin for the management of Central Serous Retinopathy, the alert can be found at the following link: CAS-ViewAlert (mhra.gov.uk) On 11 December 2023, further verteporfin was made available for CSR. Trusts who can order stock will be informed of how to obtain supplies by their Regional Pharmacy Procurement Specialist and orders can be placed from 11 December 2023. The Royal College of Ophthalmologists has developed clinical guidance to aid prioritisation of patients with Central Serous Retinopathy. This guidance can be found at the following link: Clinical-Prioritisation-Guidance-for-Limited-Stock-of-Verteporfin-Visudyne-for-Photodynamic-Therapy-PDT-for-Central-Serous-Chorioretinopathy-CSR.pdf (rcophth.ac.uk) Ocular cancer centres can continue to order stock for patients requiring treatment with no change to current process. **Actions for pharmacy teams and prescribers** **Ocular cancer centres** Pharmacy procurement teams at the four ocular cancer centres (Sheffield, Liverpool, Moorfields and Glasgow) should: • Order via Alloga. For supply enquiries contact Neon Healthcare: 01992 926 330 or office@neonhealthcare.com and • contact your Regional Pharmacy Procurement Specialist who may assist sharing stock via mutual aid from Trusts who do not treat ocular cancer. **Use outside ocular cancer** For verteporfin (Visudyne) used outside of the treatment of ocular cancer, please refer to the National Patient Safety Alert for advice and actions. Regional Pharmacy Procurement Specialists have advised the Trusts that can order stock and any queries should be escalated to your Regional Pharmacy Procurement Specialist who can liaise with the national team as appropriate. Some specialist importer companies can source verteporfin, lead times may vary. **Alternatives** The following specialist importers have confirmed they can source unlicensed verteporfin (Visudyne): • Alium (lead time to be confirmed) • Durbin (in stock) • Mawdsley's (lead time > 1-2 weeks) • Orifarm (lead time > 4-6 weeks) • Target (lead time > 1-2 weeks) **Considerations and background** **Supply Summary**

	Verteporfin (Visudyne) is currently in limited supply with full resupply expected in December 2024. **Guidance on 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) **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 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	**Medicines affected** Medicine Anticipated re-supply date 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** **Actions for secondary care** Secondary care pharmacy teams should work with clinical specialists and their local pharmacy homecare lead to: • ensure that new patients are not initiated on Norditropin Flexpro or Norditropin NordiFlex for the full duration of 2023; • review all patients, including those under shared care arrangements, prescribed Norditropin Flexpro or Nordiflex and where clinically appropriate, issue a new prescription for the appropriate strength of Omnitrope SurePal (to be used with SurePal injection device • ensure all new Omnitrope prescriptions are sent to your current Norditropin homecare service provider or outpatient dispensary. Please note that Sciensus and Alcura can provide the Omnitrope SurePal service and new registration forms are not required for existing patients; • communicate with home care providers if nurse led injection training is required on the new Omnitrope SurePal prescription; • review prescription duration and frequency and where clinically appropriate issue 6 month prescriptions, with up to 4 weekly delivery cycles; and • ensure that contractual arrangements are discussed with the homecare provider. **Actions for homecare providers** Homecare providers should: • ensure that once a new prescription for Omnitrope is received, the patient's existing Norditropin Flexpro or Nordiflex prescription is immediately cancelled; • call patients to inform them of the change to their prescription while arranging delivery and offer nursing support to counsel on the change in device; and

	• work with the prescriber and the Trust homecare lead to ensure nurse led training or, if available, administration support is offered where requested. **Actions for outpatient dispensaries** Outpatient dispensaries should ensure that: • once a new prescription for Omnitrope is received, the patient's existing Norditropin Flexpro or Nordiflex prescription is cancelled; • patients receive a patient education pack and are counselled about their change in prescription at the point of first dispensing; and • patients are directed back to their specialist team if they flag a need for additional nurse-led training or ongoing nursing support. **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** Omnitrope (somatropin) 5mg/1.5ml, 10mg/1.5ml and 15mg/1.5ml solution for injection cartridges remain available and will be able to support a full increase in demand during this time If Omnitrope® is not an appropriate alternative, other products containing somatropin remain available however switching to these alternatives may involve switching formulation and dosing regimen so clinicians and providers should ensure the patients and their carer are counselled appropriately on the new formulation and dose. **Considerations and background** **Supply Overview** • Norditropin (somatropin) Flexpro 5mg, 10mg and 15mg pens will be in limited supply until further notice. • Norditropin (somatropin) NordiFlex 5mg, 10mg and 15mg pens will be out of stock for the remainder of 2023. • Omnitrope (somatropin) 5mg/1.5ml, 10mg/1.5ml and 15mg/1.5ml solution for injection cartridges remain available and will be able to support a full increase in demand during this time • Sciensus and Alcura have the capacity to offer virtual device training for all switched patients. • Other alternative somatropin products remain available but may require a change in formulation and/or dosing regimen. **Clinical Information** Both Norditropin and Omnitrope contain somatropin, therefore no change in clinical monitoring requirements is anticipated following a switch. Omnitrope cartridges are administered with the SurePal injection device. There are three types of SurePal for use with the three strengths of cartridges (5 mg, 10 mg and 15 mg). Clinicians and providers should ensure that patients and their carers are counselled on use of the new device. **Medicines Supply Notification Number** MSN/2023/001U **Links** • **SmPC Norditropin** • **SmPC Omnitrope** • **BNF Somatropin**
Shortage of Fludarabine phosphate 50mg/2ml concentrate for solution for injection and powder for	**Medicines affected – No date given** Medicine Anticipated re-supply date Fludarabine phosphate 50mg/2ml solution for injection vials – Fludarabine phosphate 50mg powder for solution for injection vials – **Actions**

solution for injection	NHS provider Trust pharmacy procurement teams should work with the appropriate clinical leads to: • ensure there is currently sufficient stock of fludarabine injection at Trusts, for patients scheduled for chimeric antigen receptor (CAR) T-Cell therapy and bone marrow transplants (BMT), over the next 4-6 weeks to prevent treatment delays or cancellations due to intermittent supplies of fludarabine; • work with the Regional Pharmacy Procurement Specialists (RPPS), who will facilitate Trusts level allocations/access during this time for these indications; • review pharmacy systems to ensure stockholding information is accurate to support the RPPS's in the allocation process: • minimise fludarabine wastage by scheduling patients to allow for vial sharing, where possible; and • order fludarabine for indications other than the aforementioned in line with normal fortnightly demand. **Alternatives** Trusts are expected to use the concentrate for solution for injection and the powder for solution for injection formulations interchangeably when required. Where licensed alternatives are not appropriate or available, limited supplies of unlicensed fludarabine phosphate 50mg/2ml powder and concentrate for solution for injection may be sourced, lead times vary. The following specialist importers have confirmed they can source unlicensed fludarabine phosphate 50mg/2ml powder and/or concentrate for solution for injection (please note there may be other companies that can also source supplies): • BAP Pharma • Clinigen Healthcare LTD* • Genetech Pharmaceuticals Ltd • Smartway* *received MHRA letter of no objection **Considerations and background** **Supporting information** **Summary** • There will be intermittent supply issues with fludarabine phosphate 50mg/2ml concentrate for solution for injection and powder for solution for injection for the foreseeable future, with only one formulation expected to be available at a given time. • Fludarabine phosphate 50mg/2ml *concentrate for solution for injection* will be out of stock from mid to late December until January 2024. • Fludarabine phosphate 50mg/2ml *powder for solution for injection* will be unavailable until late December and again from late January until March 2023. **Medicines Supply Notification** MSN/2023/115 **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 Fludarabine** • **SmPC Fludarabine**
Shortage of Microgynon 30 ED tablets	**Anticipated re-supply date** 24 January 2024 **Actions**

	Clinicians should: • Prescribe alternative brands of oral contraceptives that provide ethinylestradiol 30mcg and levonorgestrel 150mcg providing appropriate counselling to ensure the patient understands the difference between the ED regimen and the 21-day cycle regimen • If the above option is unsuitable and it is considered necessary to prescribe an ED presentation, prescribe an alternative contraceptive which comes as ED packs ensuring that the patient is not intolerant to any of the excipients **Alternatives** **Alternative ethinylestradiol 30mcg and levonorgestrel 150mcg preparations (21-day pack) available:** • Ambelina 150microgram/30microgram tablets • Elevin 150microgram/30microgram tablets • Levest 150/30 tablets • Maexeni 150microgram/30microgram tablets • Microgynon 30 tablets • Rigevidon tablets **Alternative ED preparations:** • Logynon ED • Femodene ED **Considerations and background** Alternative ED preparations: • Logynon ED involves taking ethinylestradiol 30mcg and levonorgestrel 150mcg on days 1-6 and days 12-21 but on days 7-11 the tablets contain ethinylestradiol 40mcg rather than 30mcg. Placebo tablets are provided for days 22-28 • Femodene ED contains 30mcg of ethinyloestradiol but the tablets contain gestodene instead of levonorgestrel. A switch to this oral contraceptive would seem more problematic as it may be associated with a slightly higher risk of VTE in the short-term at least and therefore should only be viewed as a 3rd line option in managing this shortage **Links** • **SmPC: Ambelina 150microgram/30microgram tablets** • **SmPC: Elevin 150microgram/30microgram tablets** • **SmPC: Levest 150/30 tablets** • **SmPC: Maexeni 150microgram/30microgram tablets** • **SmPC: Microgynon 30 tablets** • **SmPC: Rigevidon tablets** • **SmPC: Logynon ED** • **SmPC: Femodene ED**
Shortage of Imiquimod (Zyclara 3.75%) cream	**Medicines affected** Medicine Anticipated re-supply date Zyclara 3.75% cream 250mg sachets (Viatris UK Healthcare Ltd) 20 December 2023 **Actions** NHS Provider Trust Pharmacy Procurement teams should: • review local stock holding of Zyclara 3.75% cream, including stock being held at ward locations • estimate if they hold sufficient stock to meet the anticipated demand until the re-supply date; and • where there are insufficient stocks, the organisation should request mutual aid, facilitated by their Regional Pharmacy Procurement Specialist Where patients have insufficient supplies to last until the re-supply date, clinicians/prescribers should: • defer initiating new patients on Zyclara 3.75% cream until the shortage has resolved

- where this is not appropriate, consider prescribing an alternative presentation or agent with reference to the licensed indication, ensuring that the patient is not intolerant to any of the excipients and is counselled on dosing and administration (see Clinical Information and Alternatives)
- consider prescribing unlicensed products only where licensed alternatives are not appropriate, working with local pharmacy teams to ensure orders are placed within appropriate time frames as lead times may vary (see information below); and
- if the above options are not considered appropriate, advice should be sought from specialists on management options

Alternatives

For actinic (solar) keratosis

Aldara 5% cream

Indication: Clinically typical, nonhyperkeratotic, nonhypertrophic actinic keratoses (AKs) on the face or scalp in immunocompetent adult patients when size or number of lesions limit the efficacy and/or acceptability of cryotherapy and other topical treatment options are contraindicated or less appropriate.

Bascellex 50 mg/g cream (Imiquimod)

Indication: The topical treatment of clinically typical, nonhyperkeratotic, nonhypertrophic actinic keratoses on the face or scalp in immunocompetent adult patients when size or number of lesions limit the efficacy and/or acceptability of cryotherapy and other topical treatment options are contraindicated or less appropriate.

Solaraze 3% gel (Diclofenac sodium gel)

Indication: Treatment of actinic keratosis

Efudix 5% cream (Fluorouracil)

Indication – topical treatment of:

- superficial pre-malignant and malignant skin lesions;
- keratoses including senile, actinic and arsenical forms;
- keratoacanthoma;
- Bowen's disease;
- superficial basal-cell carcinoma.
- Fluorouracil produces a more marked inflammatory reaction than diclofenac sodium, but lesions resolve faster

Actikerall 5mg/g + 100mg/g Cutaneous Solution (Fluorouracil with salicylic acid)

Indication: Topical treatment of slightly palpable and/or moderately thick hyperkeratotic actinic keratosis (grade I/II) in immunocompetent adult patients.

Klisyri 10 mg/g ointment (Tirbanibulin)

Indication: Field treatment of non-hyperkeratotic, non-hypertrophic actinic keratosis (Olsen grade 1) of the face or scalp in adults.

This is a new product and is subject to additional monitoring

For superficial basal cell carcinomas

Efudix 5% Cream (Fluoruracil)

Indication – topical treatment of:

- superficial pre-malignant and malignant skin lesions;
- keratoses including senile, actinic and arsenical forms;
- keratoacanthoma;
- Bowen's disease;
- superficial basal-cell carcinoma.
- Deep, penetrating, or nodular basal cell and squamous cell carcinomas do not usually respond to Efudix therapy. It should be used only as a palliative therapy in such cases where no other form of treatment is possible

For anogenital warts

Warticon Cream and Solution (Podophyllotoxin)

Indication: Topical treatment of condylomata acuminata affecting the penis or the external female genitalia.

Catephen 10% Ointment

Indication: Cutaneous treatment of external genital and perianal warts (condylomataacuminata) in immunocompetent patients from the age of 18 years

	Note: Condyline 0.5% solution (podophyllotoxin) has been discontinued so would has been removed as an alternative option for anogenital warts indication. **Other therapies** Cryotherapy or other forms of physical ablative therapy (e.g., surgery, laser treatment) may also be considered for anogenital warts, particularly for patients with a small number of low-volume warts, irrespective of type. **Unlicensed Imports** Where the above licensed alternatives are not suitable, unlicensed supplies may be sourced, lead times vary. **Considerations and background** **Supply Overview** Bascellex 50mg/g cream 250mg sachets and Aldara 5% cream are now back in stock. **Clinical Information** Zyclara 3.75% cream is licensed for the topical treatment of clinically typical, nonhyperkeratotic, nonhypertrophic, visible or palpable actinic keratosis of the full face or balding scalp in immunocompetent adults when other topical treatment options are contraindicated or less appropriate. *In the USA, imiquimod (Zyclara) 3.75% cream is approved to treat external genital and perianal warts/condyloma acuminata in patients 12 years or older. **Medicine Supply Notification Number** MSN/2023/010 **Links** • **BNF treatment summary - Photodamage** • **BNF treatment summary - Anogenital warts** • **BASHH guidelines: anogenital warts** • **British Association of Dermatologists' guidelines: actinic keratosis** • **British Association of Dermatologists guidelines: basal cell carcinoma** • **SmPC Imiquimod preparations** • **SmPC Solaraze 3% Gel** • **SmPC Efudix 5% Cream** • **SmPC Condyline 5 mg/ml Cutaneous Solution** • **SmPC Warticon Cream and Solution** • **SmPC Catephan 10% Ointment** • **SmPC Klisyri 10 mg/g ointment** • **SmPC Actikerall 5mg/g + 100mg/g Cutaneous Solution**
Shortage of Clarithromycin 125mg/5ml and 250mg/5ml oral suspension	**Medicines affected** Medicine Anticipated re-supply date Clarithromycin 125mg/5ml oral suspension 31 December 2023 **Actions** **Actions for pharmacists** Where a prescription for clarithromycin 125mg/5ml or 250mg/5ml oral suspension is presented and cannot be fulfilled community pharmacists and dispensing doctors should: • supply an alternative clarithromycin preparation where available and according to the products specified in SSP053 or SSP054. • ensure the patients age, weight (where appropriate), cautions and exclusion criteria are taken into account when considering using an SSP; and • ensure patients/parents/carers are counselled regarding any switch in formulation including the appropriate dose and volume of the substitute product; • ensure the patient's prescriber and/or GP practice is notified when supplying a patient in accordance with any of these SSPs; and • if the patient is deemed ineligible or does not consent to receive an alternative product via the SSP, they should be promptly referred back to the prescriber. **Actions for prescribers**

	Remaining clarithromycin oral suspensions should be reserved for patients prescribed doses lower than clarithromycin 250mg as these doses cannot be substituted with the 250mg tablets. • Consider use of clarithromycin tablets in the first instance if suitable (see Supporting information below) • If clarithromycin tablets are not suitable, and clarithromycin is the most appropriate antibiotic, consider prescribing clarithromycin oral suspension, working with local pharmacy teams to understand availability; and • If the above options are unsuitable or unavailable, consider prescribing an alternative antibiotic taking into account any allergies and referring to local guidance. **Considerations and background** **Summary** Clarithromycin 125mg/5ml in limited supply until late December 2023. Supply issues affecting Clarithromycin 250mg/5ml oral suspension are now resolved. A Serious Shortage Protocol (SSP) for clarithromycin 125mg/5ml was issued on 06/04/2023 **Supporting information** Clarithromycin is a macrolide antibiotic used in the treatment of infections caused by aerobic and anaerobic gram-positive and gram-negative organisms, as well as certain atypical organisms that do not respond to beta-lactams. It is also a potential treatment option in penicillin-allergic patients. Clarithromycin oral suspension is licensed for use in children aged 6 months to 12 years. Clarithromycin tablets are unlicensed in children under 12 years, so use of the tablets in this age group would be considered "off-label". Where children are unable to swallow solid oral dosage forms of antibiotics, SPS have provided advice on crushing or dispersing immediate release clarithromycin tablets (off label manipulation). Consideration should be given to local and national guidance on antimicrobial prescribing **Medicine Supply Notification Number** MSN/2023/044 **Links** • **NHSBSA Serious Shortage Protocols** • **SmPCs clarithomycin** • **BNF interactions clarithromycin** • **BNF side effects clarithromycin** • **SPS - Using solid oral dosage form antibiotics in children**
Shortage of Valganciclovir (Valcyte) 250mg/5ml oral solution	**Medicines affected – no date given** Medicine Anticipated re-supply date Valcyte 50mg/ml oral solution (Neon Healthcare Ltd) 100 ml – **Actions** NHS provider Trust pharmacy procurement teams and clinical teams should work together to review local stock holdings and where there is insufficient stock until the resupply date: • consider prescribing valganciclovir 450mg tablets as a first line option to deliver full doses, where appropriate; • contact Regional Pharmacy Procurement specialist in urgent cases as they may be able to facilitate mutual aid between hospitals; and • consider prescribing unlicensed valganciclovir 250mg/5ml oral suspension available from Specials manufacturers or unlicensed imports of valganciclovir 250mg/5ml oral solution during this period (see Supporting Information). **Alternatives** **Licensed alternatives** Valganciclovir 450mg tablets remain available and can support an uplift in demand. **Unlicensed alternatives** **Unlicensed specials**

	The following Specials manufacturer can manufacturer valganciclovir 250mg/5ml oral suspension (please note there may be other Specials manufacturers that can provide supplies): • Nova Labs **Unlicensed Imports** The following specialist importers have confirmed they can source unlicensed valganciclovir 250mg/5ml oral solution, lead times may vary (please note there may be other companies that can also source supplies): • Alium Medical • Target Healthcare **Considerations and background** **Supporting information** • Stock held in NHS provider hospitals may allow for mutual aid between hospitals; local procurement teams should contact Regional Pharmacy Procurement Specialists to discuss if this is possible. **Clinical Information** Valganciclovir is licensed for: • Induction and maintenance treatment of cytomegalovirus (CMV) retinitis in adult patients with acquired immunodeficiency syndrome (AIDS). • Prevention of CMV disease in CMV-negative adults and children (aged from birth to 18 years) who have received a solid organ transplant from a CMV-positive donor. Valganciclovir is marketed as a 250mg/5ml sugar free oral solution and 450mg film-coated tablets. The off-label crushing and dispersal of the tablets in water is not recommended as valganciclovir is teratogenic. **Medicine Supply Notification Number** MSN/2023/092 **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 Valganciclovir** • **SmPC valganciclovir products**
Shortage of Minoxidil 2.5mg tablets	**Anticipated re-supply date** 18 December 2023 **Actions** When the 2.5mg tablet is not available, clinicians should consider prescribing minoxidil 5mg tablets (supplied by Roma Pharmaceutical Ltd.) that are scored and can be divided into equal doses, in accordance with the SmPC. A change in prescription will be required to use the 5mg tablets. . **Alternatives** **Licensed alternative** Limited supplies of minoxidil 2.5mg tablets from Pfizer ltd remain available. Minoxidil 5mg tablets remain available from Roma Pharmaceutical Ltd and Pfizer Ltd (see considerations and background). **Considerations and background** Roma Pharmaceutical Ltd's minoxidil 5 mg tablets are licenced to be divided into equal doses of 2.5mg, users should be counselled to discard the remaining half tablet. Pfizer Ltd's minoxidil 5mg tablets are not licenced to be divided.

	Links • **SmPC: Minoxidil 2.5mg tablets** • **SmPC: Minoxidil 5mg tablets (Roma Pharmaceutical Ltd)** • **SmPC: Minoxidil 5mg tablets (Pfizer Ltd)** • **BNF: Treatment Summary**
Discontinuation of Hydrogen Peroxide 3%, 6% and 9% solution	**Medicines affected** Hydrogen peroxide 3% solution (Thornton & Ross Ltd) Hydrogen peroxide 6% solution (Thornton & Ross Ltd) Hydrogen peroxide 9% solution (Thornton & Ross Ltd) **Actions** The following specialist importers have confirmed they can source unlicensed hydrogen peroxide solution 3% (please note there may be other companies that can also source supplies): • Alium **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)
Shortage of Sevelamer oral powder sachets	**Medicines affected** Anticipated re-supply date Sevelamer 800mg oral powder sachets sugar free 21 December 2023 Sevelamer 2.4g oral powder sachets sugar free 21 December 2023 **Actions** Where patients have insufficient supplies to last until the re-supply date, clinicians/prescribers should: • review patients to determine if this is still the most suitable phosphate binder; • review if patients are able to swallow solid dosage forms and consider prescribing sevelamer 800mg tablets for patients able to swallow them; and • consider whether an alternative phosphate-binding agent is appropriate for patients unable to swallow solid dosage forms, in consultation with specialists (see supporting information below). In patients unable to swallow solid dosage forms and not suitable for a switch to an alternative phosphate-binder: • consider prescribing sevelamer 800mg tablets and counsel patients on crushing and mixing with water for administration (off-label) Where none of the above options are appropriate, consider prescribing unlicensed sevelamer oral powder sachets (see supporting information below). **Alternatives** **Licensed presentations** • Sevelamer 800mg tablets are widely available • Alternative phosphate-binding agents (see BNF treatment summary) **Unlicensed presentations** The following specialist importers have confirmed they can source unlicensed presentations of sevelamer 800mg and 2.4g oral powder sachets sugar free (please note there may be other companies that can also source supplies): • Orifarm (sevelamer 800mg oral powder sachets sugar free only) • Target Healthcare

- Alium Medical

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:
  - sevelamer 800mg oral powder sachets (imported)
  - sevelamer 2.4g oral powder sachets (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**".

Considerations and background

Sevelamer, a non-calcium-based phosphate binder, is licensed for the control of hyperphosphataemia in:

- adult patients receiving haemodialysis or peritoneal dialysis
- adult patients with chronic kidney disease not on dialysis with serum phosphorus ≥1.78 mmol/L.
- paediatric patients (>6 years of age and a body surface area of >0.75 m^2) with chronic kidney disease.

Prior to availability of the powder for oral suspension there is anecdotal evidence of off label crushing of sevelamer tablets. It was reported to be easy to prepare and not expected to have different characteristics to the powder for oral suspension.

There is limited data to support the administration of crushed sevelamer tablets. A study in 2021 investigated this method for administration via enteral feeding tubes and concluded that crushed sevelamer tablets did not increase the risk of tube blockage and did not affect phosphorus levels compared to the powder for oral suspension.

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

- **SmPC Sevelamer (Renvela) 800mg powder for oral suspension**
- **SmPC Sevelamer (Renvela) 2.4g powder for oral suspension**
- **SmPC Sevelamer (Renvela) 800mg tablets**
- **BNF Treatment Summary - Phosphate imbalance**

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 13th December 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.