SHORTAGE: **Methylphenidate prolonged-release tablets**	**Anticipated re-supply date:** Delmosart 18mg modified-release tablets (Accord Healthcare Ltd) 20 January 2023 Xenidate XL 18mg tablets (Viatris UK Healthcare Ltd) 6 February 2023 Xenidate XL 54mg tablets (Viatris UK Healthcare Ltd) 6 February 2023 Xaggitin XL 27mg tablets (Ethypharm UK Ltd) 23 January 2023 Xaggitin XL 54mg tablets (Ethypharm UK Ltd) 23 January 2023 **Actions for prescribers** Where patients have insufficient supplies to last until the re-supply date, clinicians should: • consider prescribing alternative bioequivalent brands (see clinical information) that are available, ensuring that the patient is not intolerant to any of the excipients; • counsel patients to reassure them that Delmosart, Xaggitin XL and Xenidate XL tablets have a similar release profile to Concerta XL (see clinical information); and • reassure patients that any changes to their prescription will be short-term and for the duration of the supply issue only, and they have the option to switch back to their original brand once the supply issue is resolved or continue the brand they have been switched to. **Alternatives** The following branded generics remain available for the presentations listed below Methylphenidate hydrochloride 18 mg prolonged-release tablet • Concerta XL 18mg prolonged-release tablets • Xaggitin XL 18mg prolonged-release tablets Methylphenidate hydrochloride 27 mg prolonged-release tablet • Concerta XL 27mg prolonged-release tablets • Xenidate XL 27mg prolonged-release tablets • Delmosart 27mg prolonged-release tablets Methylphenidate hydrochloride 36 mg prolonged-release tablet • Concerta XL 36mg prolonged-release tablets • Xenidate XL 36mg prolonged-release tablets • Delmosart 36mg prolonged-release tablets • Xaggitin XL 36mg prolonged-release tablets Methylphenidate hydrochloride 54mg prolonged-release tablet • Concerta XL 54mg prolonged-release tablets • Delmosart 54mg prolonged-release tablets **Considerations and background** **Clinical Information** Methylphenidate is a central nervous stimulant available in the UK in various licensed immediate, modified-release, oral, and solid dosage forms. It is a schedule 2 controlled drug, licensed for the treatment of attention deficit hyperactivity disorder (ADHD) in children aged over 6 years and adolescents and is the usual first line treatment for this condition for both children and adults. All the modified-release methylphenidate preparations include an immediate-release component as well as an extended-release component. This allows for rapid onset of action while avoiding the need to take further doses during the day to maintain effect. The biphasic release profiles of these products, however, are not all equivalent and contain different proportions of the immediate-release and modified-release component. The BNF states that different versions of modified-release preparations may not have the same

	clinical effect. To avoid confusion **between** these different formulations of methylphenidate, prescribers should specify the brand to be dispensed. Of the modified-release preparations, Delmosart, Xaggitin XL and Xenidate XL tablets have been approved based on bioequivalence data compared to Concerta XL tablets. Thus, these generic brands have been granted replicate marketing authorisation to Concerta XL on the basis that they have satisfied the criteria for equivalent release profile for the reference Concerta XL product. Please see the links below for further information. Links • Concerta XL prolonged-release tablets SmPC • Delmosart prolonged-release tablets SmPC • Xaggitin XL prolonged-release tablets SmPC • Xenidate XL prolonged-release tablets SmPC • NICE guideline for attention deficit hyperactivity disorder • Extended-release methylphenidate: A review of the pharmacokinetic profiles of available products
SHORTAGE: **Prochlorperazine 12.5mg/1ml solution for injection ampoules**	**Anticipated re-supply date:** 13th Feb 2023 **Actions for prescribers** NHS Provider Trust Pharmacy Procurement teams should: • review local stock holding of prochlorperazine 12.5mg/ml solution for injection ampoules, including stock being held at ward locations; and • estimate if they hold sufficient stock to meet the anticipated demand until the re-supply date Where there are insufficient stocks, the organisation should: • request mutual aid, facilitated by their Regional Pharmacy Procurement Specialist; or • take immediate action and work with appropriate clinical leads and the local Medication Safety Officer (MSO) to review the use of prochlorperazine injection and switch to an alternative agent (see Supporting Information) ensuring: • impacted clinical areas are made aware of this shortage and local mitigations; and • prescribing systems, aid memoires or guidance documents are reviewed and updated as required. Refer to BNF and local guidelines for choice of alternative antiemetic treatment options. **Alternatives** **Supporting information** **Clinical Information** Prochlorperazine injection is licenced for the treatment of nausea and vomiting. It is one of several first line treatment options in hyperemesis gravidarum and is used as a rescue anti-emetic in post-operative nausea and vomiting. Refer to BNF and local treatment guidelines for alternative treatment options. Please note in practice, prochlorperazine and alternative treatment options, are also used for off-label indications. Due to ongoing supply issues with ondansetron solution for injection ampoules and droperidol solution for injection ampoules, these cannot support the gap in the market.
SHORTAGE: **Ofloxacin 200mg Tablets**	**Anticipated re-supply date:** 31st Jan 2023 **Actions for prescribers** Clinicians involved in the prescribing of ofloxacin 200 mg should:

	• refer to local or national antimicrobial guidelines and consider prescribing an alternative fluoroquinolone taking into consideration the type of infection being treated, patient's cultures and sensitivities, if available, and contraindications (see clinical information). **Alternatives** Alternative fluoroquinolone antibiotics are available and can support a full uplift in demand. Note that ofloxacin 400mg tablets are no longer able to support uplift in demand. Considerations and background Clinical Information Ofloxacin is a fluoroquinolone antibiotic. Amongst alternative fluoroquinolones, ciprofloxacin and levofloxacin are potential options, depending on type of infection being treated, and spectrum of cover required. Please see links below for further information. Medicine Supply Notification Number MSN/2022/091 Links • SmPC: Ofloxacin 200mg tablets • SmPC: Ciprofloxacin • BNF Treatment summary - Quinolones • SmPC: Levofloxacin • NICE/PHE summary of antimicrobial prescribing guidance – managing common infections
SHORTAGE: **Dioralyte oral rehydration sachets** **MSN/2022/082**	**Anticipated re-supply date :** Supply returning but no date provided**.** **Actions for prescribers** **Actions for primary and secondary care** All clinicians should: • consider the use of alternative oral rehydration treatments where stocks of Dioralyte and Dioralyte Relief are unavailable (see clinical information). A local decision should be taken on the appropriateness of using O.R.S Hydration tablets, which are classified as a food supplement. **Alternatives** **Unlicensed alternatives** St Mark's solution St Mark's solution is available as specials and can support an uplift in demand. The following specialist importers have confirmed they can source St Mark's solution: • BCM Limited • Lexon Pharmacy • Nova Laboratories • Target Healthcare Kidderminster formula Kidderminster formula is available as specials and can support a partial uplift in demand**.** **Alternative to Specials** As an alternative to specials, the individual components can be purchased from community pharmacies and supermarkets or prescribed, but there have been intermittent supply issues with glucose powder. O.R.S Hydration tablets Oral rehydration salts soluble tablets (O.R.S Hydration tablets) (classified as food supplement) are available and can support an uplift in demand.

	ORS Hydration tablets can be ordered from a number of national wholesalers including: • AAH Pharmaceuticals • Sigma Pharmaceuticals • Alloga UK Please note there may be other wholesalers that can also source supplies Other alternative options Diluted apple juice has been reported to be a potential alternative to electrolyte maintenance fluids in children with mild gastroenteritis and minimal dehydration. **Considerations and background** **Supply overview** • Dioralyte oral rehydration sachets are expected to be in limited supply until further notice. • Limited stock of Dioralyte Relief oral powder sachets remain available but cannot support an uplift in demand. **Clinical information** Dioralyte and Dioralyte Relief are licensed for oral correction of fluid and electrolyte, as well as for the treatment of watery diarrhoea of various aetiologies including gastroenteritis. Dioralyte Relief contains pre-cooked rice which is claimed to return watery stools back to normal more rapidly. Dioralyte is licensed for use in infants (BNF definition: from age 28 days), children and adults while Dioralyte Relief is licensed in infants above 3 months of age (off-label use in under 3 months to be considered on case-by-case basis). Multiple sachets of Dioralyte (8 sachets) are used to make up 1L of an oral rehydration solution to be drunk over 24 hours in patients with high-output stoma or fistula, unable to maintain adequate hydration. St Mark's solution and Kidderminster Formula are unlicensed potassium free glucose-electrolyte mix oral powders, reconstituted into rehydration solutions. They are used mainly in the management of short bowel syndrome, to maintain an adequate fluid balance and minimise stool output, usually in patients with potassium 5.0mmol/L or above. When used in place of Dioralyte, some patients may require potassium supplementation. O.R.S Hydration tablets, classified as a food supplement, contain a mix of electrolytes, combined with glucose, formulated to follow World Health Organisation oral rehydration solution guidelines. They are available as soluble tablets in three flavours (lemon, strawberry and blackcurrant) and can be used in patients aged above 3 years. The company has no data on use in younger age groups or in patients with stomas. As children may not tolerate oral rehydration solutions due to unpalatability, diluted apple juice has been suggested as an alternative option for those with mild gastroenteritis and minimal dehydration. A Canadian randomised controlled trial (n=647; mean age, 28.3 [SD, 15.9] months) reported that use of half-strength apple juice (50% water and 50% apple juice) and preferred fluids as desired, may be a potential alternative to electrolyte maintenance fluids in such children. **Composition of oral rehydration solutions** Please see the table below for the composition of oral rehydration solutions based on recommended volume of water for reconstitution. Individual components can also be purchased OTC to make up St Mark's solution*****

Presentation	Dioralyte powder in sachet	Dioralyte Relief* powder in sachet	St Mark's solution*(26g ready mixed powder)	Kidderminster formula(28.4 g pack comprising 3 pots each containing a component)	O.R.S Hydration tablets
Reconstitution	1 sachet in 200 mL water.	1 sachet in 200 mL water.	Make up in water to produce 1 L solution	Make up in water to produce 1 L solution	2 tablets in 200 mL water
Glucose	3.56g	Glucose free, (contains 6g pre-cooked rice powder)	20g(4g in 200 mL)	22g(4.4g in 200 mL)	3.27g
Sodium chloride	0.47g	0.35g	3.5g(0.7g in 200 mL)	3.5g(0.7g in 200 mL)	0.292g
Potassium chloride	0.3g	0.3g	–	–	0.372g
Citrate salt	0.53g (disodium hydrogen)	0.58g (sodium)	–	2.9g (sodium)(0.58g in 200 mL)	0.598g in 200ml water
Sodium bicarbonate	–	–	2.5g(0.5g in 200 mL)		0.293 g per tablet(0.586g in 200 mL
Artificial sweetener	Saccharin	Aspartame	–	–	Sucralose (20 mg per tablet for strawberry and blackcurrant flavour and 8mg per tablet for lemon flavour)

******Individual components can also be purchased OTC to make up solution (see link to SPS document below)*

Guidance on prescribing unlicensed medicines

	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) **Medicines Supply Notification Number** **MSN/2022/082** **Links** • **SmPC Dioralyte sachets** • **SmPC Dioralyte relief sachets** • **O.R.S Hydration tablets** • **What is St Mark's Electrolyte Mix (solution)?** • **RCT: Effect of dilute apple juice and preferred fluids vs electrolyte maintenance solution on treatment failure among children with mild gastroenteritis**
SHORTAGE: **Combisal 25micrograms/dose / 50micrograms/dose inhaler (Aspire Pharma Ltd)**	**Anticipated re-supply date:** 25th Jan 2023 **Actions for prescribers** Where patients have insufficient supplies to last until the re-supply date, prescribers should: • review patients to determine if this is still the most suitable therapy; • consider prescribing an alternative brand of fluticasone 50microgram and salmeterol 25microgram inahlers (pMDI) which can support the market during this time, ensuring that the patient is not intolerant to any of the excipients, is counselled that dosing remains the same, and monitoring of asthma control is undertaken after switching inhaler treatment (see supporting information below); **Alternatives** There are two other pMDIs currently available that contain the same strength of constituents, license and dose frequency to Combisal inhaler (please see below). **Fluticasone 50microgram / Salmeterol 25microgram (Avenor) pMDI** Compatible spacer AeroChamber Plus **Availability** In stock and can support a full uplift Licensed age group 4+ years **Fluticasone 50microgram / Salmeterol 25microgram (Seretide 50 Evohaler) pMDI** **Compatible spacer** **Volumatic** **Availability** In stock and can support a full uplift Licensed age group 4+ years **Considerations and background** **Clinical Information** Fluticasone 50microgram / Salmeterol 25microgram (Combisal) inhaler is a pressurised inhalation suspension (pMDI), licensed for the treatment of asthma in patients from age 4 years upwards at a dose of 2 actuations twice a day. It is compatible with the AeroChamber Plus spacer. Asthma UK suggests a follow-up appointment with the GP or asthma nurse 6-8 weeks after starting a new inhaler; sooner if asthma control worsens after the switch.

	Reducing carbon footprint Prescribers may also consider switching to an inhaler with a lower carbon footprint if deemed appropriate for the patient, in consultation with the patient/carer (see link below for further information). **Medicine Supply Notification Number** **MSN/2022/108** **Links** • **SmPCs Fluticasone 50microgram / Salmeterol 25microgram (Avenor®) pMDI** • **SmPCs Fluticasone 50microgram / Salmeterol 25microgram (Seretide® 50 evohaler) pMDI** • **BNFC Chronic asthma summary** • **CKS: Asthma - Inhaled corticosteroids** • **Asthma UK: What to do when your medicine changes** • **How to reduce the carbon footprint of inhaler prescribing**
SHORTAGE: **Nafarelin 200micrograms/dose nasal spray**	**Anticipated re-supply date :** 24th March 2023 **Actions for prescribers** Clinicians should: • not initiate new patients on nafarelin 200microgram/dose nasal spray until the supply issue has resolved. Where patients have insufficient supplies to last until the re-supply date, clinicians should; • consider switching to an alternative gonadotropin-releasing hormone (GnRH) analogue in consultation with the appropriate specialist (see clinical information below); • where the above option is not appropriate, consider prescribing unlicensed nafarelin nasal spray. Prescribers should work with local pharmacy teams to ensure orders are placed within appropriate time frames as lead times may vary (see clinical information below); and • if the above options are not 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, and for those switched to or initiated on a subcutaneous injection, ensure they can self-administer 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** Please see below for available parenteral GnRH analogues approved for licensed indications covered by nafarelin (Synarel) 200microgram/dose nasal spray **Buserelin** Presentation Suprecur 5.5mg/5.5ml solution for injection vials. Indication Licensed for pituitary desensitisation. Dose 200 – 500 microgram subcutaneous injection daily until down regulation is achieved. Additional information

Suprefact injection is identical to Suprecur injection but differs in licensed indication, although in practice, assisted conception units use these two brands of buserelin injection interchangeably, guided by stock availability. Suprefact injection cannot support an increase in demand.

Goserelin

Presentation

Zoladex 3.6mg implant.

Indication

Licensed for endometriosis and pituitary desensitisation

Dose

One 3.6 mg depot injected subcutaneously, every 28 days.

Leuprorelin

Presentations

Prostap SR DCS 3.75 mg and Prostap 3 DCS 11.25 mg powder and solvent for prolonged-release suspension for injection in pre-filled syringe.

Indication

Licensed for endometriosis.

Dose

Prostap SR DCS 3.75 mg

3.75 mg administered as subcutaneous or intramuscular injection every month.

Prostap 3 DCS 11.25 mg

One intramuscular injection every 3 months.

Triptorelin

Presentations

Decapeptyl SR 3mg and Decapeptyl SR 11.25mg powder and solvent for suspension for injection

Indication

Licensed for endometriosis.

Dose

Decapeptyl SR 3mg

One intramuscular injection every 28 days.

Decapeptyl SR 11.25mg

One intramuscular injection every 6 months

Unlicensed Imports

The following specialist importers have confirmed they can source unlicensed nafarelin (Synarel) 200microgram/dose nasal spray (please note there may be other companies that can also source supplies):

- Alium Medical Limited
- Oripharm UK Limited

Prescribers should work with local pharmacy teams to ensure orders are placed within appropriate time frames as lead times may vary.

Considerations and background

Clinical Information

Nafarelin (Synarel) 200microgram/dose nasal spray contains a GnRH analogue, administered twice daily. It is licensed for the hormonal management of endometriosis, including pain relief and reduction of endometriotic lesions, and for use in controlled ovarian stimulation programmes prior to in-vitro fertilisation, under the supervision of an infertility specialist.

Off-label use

Triggering follicular maturation in in-vitro fertilisation cycles.

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.

	Please refer to the links below for further information. **Guidance on 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) **Medicine Supply Notification Number** **MSN/2022/081** **Links** • **BNF Buserelin** • **BNF Goserelin** • **BNF Leuprorelin** • **BNF Nafarelin** • **BNF Triptorelin** • **SmPC Suprecur®** • **SmPC Zoladex®** • **SmPC Prostap®** • **SmPC Synarel®** • **SmPC Decapeptyl®**

SHORTAGE:
Buserelin injection and nasal spray formulations
	Anticipated re-supply date: Suprecur 150micrograms/dose nasal spray (Neon Healthcare Ltd) - 29 December 2023
	
	Actions for prescribers
	For Suprefact® 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, such as:
	  ○ an alternative GnRH analogue licenced for the treatment of prostate cancer, ensuring that the patient is not intolerant to any of the excipients;
	  ○ short-dated stock of Suprecur® vials where Suprefact® was being used off-label in place of Suprecur® vials for pituitary desensitisation in preparation for ovulation induction regimens*. Patients should be advised of short expiry and counselled on safe disposal of the medication if not used before the expiry date; and
	  ○ prescribing an alternative GnRH analogue (see clinical information and alternatives) if above options are not considered appropriate.
	For Suprecur® vials, clinicians, homecare providers and community pharmacies should:
	• use short-dated stock of Suprecur® vials where appropriate, in particular, patients with cancer undergoing fertility reservation treatment, egg donors and patients with high ovarian reserve. Patients should be advised of short expiry and counselled on safe disposal of the medication if not used before the expiry date; and
	• where stock of the short dated Suprecur® vials is not available and/or the above option is not appropriate, consider switching to an alternative GnRH analogue in consultation with the specialist (see clinical information and alternatives).
	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 the following:
    - for pituitary desensitisation, consider prescribing the short dated Suprecur® vials as per advice above, and where this stock is not available, consider switching to an alternative GnRH analogue in consultation with the specialist (see clinical information and alternatives below);
    - for the treatment of endometriosis and for patients using Suprecur® nasal spray for off-label indications, consider prescribing an alternative licensed GnRH analogue (see clinical information and alternatives 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

Summary

Suprecur 5.5mg/5.5ml solution for injection vials (Neon Healthcare Ltd) is back in stock as of 19 August 2022

Suprefact 5.5mg/5.5ml solution for injection vials (Neon Healthcare Ltd) is back in stock as of 31 August 2022

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. Availability: Stock remains available via Alliance healthcare UK but is due to expire 31st July 2022. Neon Healthcare will be replenishing wholesalers with new stock from mid-August 2022. **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**.** **Links** • **BNF Buserelin** • **BNF Goserelin** • **BNF Leuprorelin** • **BNF Nafarelin** • **BNF Triptorelin** • **SmPC Suprecur®** • **SmPC Zoladex®** • **SmPC Prostap®** • **SmPC Synarel®** • **SmPC Decapeptyl®** • **SmPC Staladex®**
SHORTAGE: **FemSeven Sequi Transdermal Patches**	Anticipated re-supply date: 1st Jan 2024 Alternatives Specialist importers can source unlicensed products. Lead times vary. Use other available HRT products where appropriate.
SHORTAGE: **Acarbose Tablets**	**Anticipated re-supply date:** Acarbose 50mg tablets shortage has now resolved as of 4/01/2023. Resupply date for the shortage of acarbose 100mg tablets changed from 23/12/2022 to 3/02/2023 **Actions for prescribers:** Please see SPS supply tool **Alternatives:** Please see SPS supply tool
SHORTAGE:	**Anticipated re-supply date: 25mg, 50mg and 100mg – 1st March 2023**

Capimune (ciclosporin) 25mg, 50mg and 100mg capsules	**Actions for prescribers** **Primary Care** Where patients have insufficient supplies of Capimune brand of ciclosporin 25mg, 50mg and 100mg capsules to last until the re-supply date, GP prescribers should: • seek advice from the appropriate specialist team on switching to an available brand of ciclosporin (Deximune), ensuring appropriate monitoring requirements are followed (see supporting information) • ensure patients are counselled regarding any changes to their medicines and where to seek advice if needed **Alternatives** **Alternatives supporting full uplift** The following presentations can provide a full uplift in demand Deximune 25mg, 50mg and 100mg capsules **Alternatives supporting partial uplift** The following presentations can support a partial uplift in demand Neoral 25mg, 50mg and 100mg Soft gelatin capsules Alternatives unable to provide any uplift Vanquoral 25mg, 50mg and 100mg capsules Capsorin 25mg, 50mg and 100mg capsules Sandimmun 25mg, 50mg and 100mg capsules **Considerations and background** **Supporting information** **Brand Prescribing** Patients should be stabilised on a particular brand of oral ciclosporin because switching between formulations without close monitoring may lead to clinically important changes in ciclosporin level. Switching between a branded and a generic formulation, or between generic formulations, should be carried out in consultation with the specialist team. If switching is necessary, the patient should be monitored closely for changes in ciclosporin level where clinically appropriate (specialist decision), serum creatinine, blood pressure, and disease control/ transplant function and adverse effects**.** **Medicine Supply Notification Number** **MSN/2022/096** **Links** • SPS: Example medicines to prescribe by brand name in primary care • BNF Ciclosporin • SmPC Ciclosporin • BSR and BHPR guideline for the prescription and monitoring of non-biologic disease-modifying anti-rheumatic drugs • British Association of Dermatologists guidelines for the safe and effective prescribing of oral ciclosporin in dermatology 2018 • Ciclosporin (oral) for patients within adult services (non-transplant indications)
SHORTAGE: Norditropin FlexPro 10mg/1.5ml solution for injection pre-filled pens and Norditropin NordiFlex solution for injection pre-filled pens 5mg/1.5ml, 10mg/1.5ml, and 15mg/1.5ml	**Anticipated re-supply date:** Norditropin FlexPro 10mg/1.5ml solution for injection pre-filled pens (Novo Nordisk Ltd) 17 February 2023 Norditropin NordiFlex 5mg/1.5ml solution for injection pre-filled pens (Novo Nordisk Ltd) 1 pre-filled disposable injection 5 January 2024 Norditropin NordiFlex 10mg/1.5ml solution for injection pre-filled pens (Novo Nordisk Ltd) 5 January 2024 Norditropin NordiFlex 15mg/1.5ml solution for injection pre-filled pens (Novo Nordisk Ltd) 5 January 2024 **Actions for prescribers** **Actions for GP surgeries:**

	GP surgeries who prescribe Norditropin should: • proactively identify all Norditropin patients and refer them to their specialist prescribing centre for review and switching to Omnitrope SurePal **Alternatives** Omnitrope (somatropin) SurePal 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 SurePal is not an appropriate alternative, other products containing somatropin remain available**.** **Considerations and background** **Supply Overview** • Norditropin (somatropin) Flexpro 10mg pen is out of stock until early February 2023. Once supplies return, stock of all strengths, will be limited for the remainder of 2023 and will need to be reserved only for patients already established on this therapy. • Norditropin (somatropin) NordiFlex 5mg, 10mg and 15mg pens will be out of stock from mid-February 2023 for the remainder of 2023 and cannot support an uplift in demand for the above shortage. • Sciensus and Alcura have the capacity to offer virtual device training for all switched patients. • All Omnitrope (somatropin) SurePal patients will receive 4 weekly deliveries until all patients have been switched. **Clinical Information** The three presentations referenced in this Medicine Supply Notification all contain the same active ingredient, somatropin. This therefore means the monitoring of clinical parameters following a change in device is not required however, clinicians and providers should ensure that patients and their carers are thoroughly counselled on the use of the new device. **Medicines Supply Notification Number** **MSN/2023/001** **Links** • **SmPC Norditropin** • **SmPC Omnitrope** • **SmPC Saizen** • **SmPC NutropinAq** • **BNF Somatropin**
SHORTAGE: Matrifen (Fentanyl) 25micrograms/hour and 50micrograms/hour transdermal patches	**Anticipated re-supply date:** 27 January 2023 **Actions for prescribers** Clinicians should • consider prescribing alternative fentanyl transdermal matrix patches at the same dose, which are able to support the market during this time • ensure that patients are not intolerant to any of the excipients and are counselled on the appropriate dose • advise patients to be aware of signs and symptoms of decreased pain control relief and adverse events **Alternatives** The following presentations of fentanyl 25microgram/hour transdermal patches are available: • Durogesic DTrans 25micrograms/hour transdermal patches • FENCINO 25micrograms/hour transdermal patches

	• Mezolar Matrix 25micrograms/hour transdermal patches • Opiodur 25micrograms/hour transdermal patches • Victanyl 25micrograms/hour transdermal patches • Yemex 25micrograms/hour transdermal patches The following presentations of fentanyl 50microgram/hour transdermal patches are available: • Durogesic DTrans 50micrograms/hour transdermal patches • FENCINO 50micrograms/hour transdermal patches • Mezolar Matrix 50micrograms/hour transdermal patches • Opiodur 50micrograms/hour transdermal patches • Victanyl 50micrograms/hour transdermal patches • Yemex 50micrograms/hour transdermal patches Links • BNF - Fentanyl • SmPC - Durogesic DTrans transdermal patches • SmPC- FENCINO transdermal patches • SmPC - Mezolar Matrix transdermal patches • SmPC - Opiodur transdermal patches • SmPC - Victanyl transdermal patches • SmPC - Yemex transdermal patches
SHORTAGE: Venlafaxine (Venlalic) XL 37.5mg tablets	**Anticipated re-supply date:** 3 March 2023 **Actions for prescribers** Where patients have insufficient supplies to last until the re-supply date, prescribers should: • consider prescribing an alternative modified release venlafaxine 37.5mg prolonged release preparation **Alternatives** Alternate brands of venlafaxine 37.5mg prolonged release capsules remain available and can support a full uplift in demand.
SHORTAGE: Varenicline 0.5mg and 1mg Tablets	**Anticipated re-supply date:** none **Actions for prescribers** Please refer to the updated Supply Disruption Alert issued on 28th October 2021 for management advice.

SHORTAGE: Pilocarpine hydrochloride 4% eye drops	**Anticipated re-supply date:** 6 Jan 2023
	Actions for prescribers
	NHS Provider Trust pharmacy procurement teams, ophthalmology teams and primary care prescribers should:
	• review patients on pilocarpine 4% eye drops for open angle glaucoma or ocular hypertension and establish if they have sufficient supplies until the resupply date. If patients require further supplies:
	  ○ consider prescribing pilocarpine 1% or 2% eye drops and adjusting the frequency to control the intraocular pressure; or
	  ○ consider other therapies if appropriate (such as prostaglandins, betablockers, alpha agonists and carbonic anhydrase inhibitors) to control intraocular pressure;
	• refer to the Royal College of Ophthalmology guidelines on the management of acute angle closure glaucoma and treat all patients (irrespective of eye colour) with a stat dose of pilocarpine 2% eye drops (along with other treatments as laid out in the guideline);
	• consider prescribing unlicensed (specials) pilocarpine 4% preservative free eye drops if the options above are not suitable (see Supporting Information); and

- review patients prescribed pilocarpine 4% eye drops off-label as treatment for dry mouth in palliative care settings and consider prescribing pilocarpine 5mg tablets, which are licensed for xerostomia (see Supporting Information).

Alternatives

Licensed alternatives

Alternative strengths of pilocarpine 1% and 2% eye drops remain available and will be able to support increased demand.

For off-label use of the 4% drops in the treatment of xerostomia (dry mouth) in palliative care, pilocarpine 5mg tablets are available and are licensed for this indication**.**

Unlicensed alternatives

Specials of pilocarpine 4% preservative free eye drops are available if the licensed alternatives are not suitable.

Considerations and background

Supporting information

Primary glaucoma is classified according to appearance of the iridocorneal angle. Aqueous humour drains mainly via the trabecular meshwork, in the iridocorneal angle. Depending on whether the iris is, or is not, occluding the angle, two variants are termed primary angle closure glaucoma (PACG) and primary open angle glaucoma (POAG) respectively.

Pilocarpine eye drops are licensed for the treatment of:

- chronic simple glaucoma
- acute (closed angle) glaucoma alone, or in conjunction with other agents to decrease intra-ocular pressure prior to surgical treatment
- miosis to counteract the effects of cycloplegic or mydriatic eye drops.

There is no other topical miotic licensed in the UK for the treatment of glaucoma.

In the treatment of open angle glaucoma, the dosage is usually one or two drops every six hours. The strength of the preparation and the frequency of use are determined by the severity of the condition and the response to treatment. When used prior to surgery for acute attacks of closed-angle glaucoma, the dosage is one drop every five minutes until miosis is obtained. To overcome weaker mydriatics, the normal dosage is one drop every five minutes until the effect is counteracted.

Acute angle closure glaucoma

Recent guidance from the Royal College of Ophthalmologists on the management of acute angle glaucoma recommends the use of a stat dose of 2% pilocarpine (along with other treatments) before performing laser treatment. It notes that although there are known differences in the behaviour of the iris between blue-eyed patients of Caucasian descent and brown-eyed patients of Asian and African descent, no race-specific management pathways have been developed or proven in objective research.

Primary open angle glaucoma and ocular hypertension

CKS guidance on the management of primary open angle glaucoma and ocular hypertension suggests that pilocarpine is one of a number of options that can be switched to or added in after first-line treatment is unsuccessful or not tolerated, but there are no recommendations on strength of product. It recommends that for acute angle closure crisis where immediate admission is not possible, one drop of 2% pilocarpine should be used for patients with blue eyes and one drop of 4% for those with brown eyes. This recommendation is based on guidance from the College of Optometrists, which acknowledges this is supported by low level of evidence.

In practice, some clinicians may start patient on pilocarpine 2% and if it does not control the intraocular pressure, move to the 4% drops, and some may determine strength based on eye colour. Other clinicians are of the opinion that 4% eye drops may not be as well tolerated, may cause headaches and are not necessarily more effective than 2% eye drops.

Use in palliative care

Pilocarpine 4% eye drops are included in the Palliative Care Formulary (PCF) as an off-label treatment for dry mouth, particularly after radiotherapy for head and neck cancer. It is used as an alternative to pilocarpine tablets 5mg (3 drops of 4% solution contain 6mg of pilocarpine) as it is less costly, but the PCF notes the eye drops appear to be less effective and are not always acceptable to patients.

Medicines Supply Notification Number

	MSN/2022/107
SHORTAGE: Antibiotics for the treatment of Group A Strep	**Anticipated re-supply date:** Status – supply returning **Actions for prescribers** **Actions for community pharmacists** Where a prescription for phenoxymethylpenicillin is presented and cannot be fulfilled community pharmacists should: • supply an alternative phenoxymethylpenicillin preparation where available and according to the products specified in SSPs 040 – 042; • if SSPs 040 – 042 cannot be utilised, refer to SSPs 043 – 047, to consider supply of an alternative antibiotic as specified; • 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 or medicine including the appropriate dose 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 to the prescriber. **Actions for prescribers** Where SSPs cannot be utilised, and patients are referred back to their prescriber, clinicians should: • consider prescribing an alternative antibiotic, if the first line option is unavailable, taking into account any allergies, and referring to national guidance (see supporting information below); and • if the above options are not considered appropriate, seek advice from specialists on management options. **Alternatives** UKHSA and NHSE have developed updated clinical guidance on the management of patients with Group A Strep, which includes information on what antibiotics can be used if first line treatment is not available. **Considerations and background** **Supply overview** • Supplies of antibiotics for the treatment of Group A Strep have seen a surge in demand and may be temporarily in limited supply at certain wholesalers and pharmacies • Supplies are available with manufacturers, and deliveries into wholesalers and pharmacies are being expedited. • Alternative antibiotics remain available, however, due the dynamic situation at present, some of these products may be intermittently unavailable. • Eight Serious Shortage Protocols (SSPs) were issued on 15th and 16th December 2022. Five SSPs (SSP 043 – 047) were updated on 23rd December 2022. Phenoxymethylpenicillin courses longer than 10 days For prescriptions of phenoxymethylpenicillin for longer than 10 days, only erythromycin can be supplied via an SSP where needed. Where erythromycin is not available, patients will need to be referred to prescribers to consider alternative products for long-term prophylaxis conditions. Information about SSPs Please note SSPs 043 – 047 were updated on 23rd December 2022 to: • include azithromycin as one of the alternative antibiotics that can be supplied instead of phenoxymethylpenicillin where appropriate and available as above; and • amend the dosing regimen for erythromycin in line with continued expert advice and BNF guidance.

	The Royal Pharmaceutical Society have created an infographic providing an illustration of serious shortage protocol supply options for antibiotics. Guidance on using solid oral dosage form antibiotics in children Children 5 years and above may be able to swallow tablets/capsules. Where children are unable to swallow oral solid dose forms, SPS have provided advice on how to give doses by dispersing or crushing tablets or opening capsules. Use in this way is outside the product license ('off-label'). **Medicine Supply Notification Number** **MSN/2022/105 and 105U** **Links** • NHSBSA Serious Shortage Protocols • SPC amoxicillin • BNF interactions amoxicillin • BNF side effects amoxicillin • SPC clarithromycin • BNF interactions clarithromycin • BNF side effects clarithromycin • SPC flucloxacillin • BNF interactions flucloxacillin • BNF side effects flucloxacillin • SPC azithromycin • BNF interactions azithromycin • BNF side effects azithromycin • SPC cefalexin • BNF interactions cefalexin • BNF side effects cefalexin • SPC co-amoxiclav • BNF interactions co-amoxiclav (as amoxicillin and clavulanate) • BNF side effects co-amoxiclav • SPC erythromycin • BNF interactions erythromycin • BNF side effects erythromycin
SHORTAGE: **Selegeline**	**Anticipated re-supply date: 28 April 2023** **Actions for prescribers** **Primary and secondary care** • Practices in primary care should proactively identify any patients on selegiline, contact them to establish how much supply they have left, and make arrangements to prescribe an alternative agent if patient has insufficient supply. This should be done as soon as possible so that those patients who have run out or are low in supply minimise/avoid the break in treatment and risk of disease deterioration. • Clinicians in secondary care should review patients admitted on selegiline; where the hospital has no stock and the patient did not bring in their own supply, prescribe an alternative agent and communicate any changes to primary care. Where clinicians are confident to safely switch patients to an alternative therapy, they should: • consider prescribing rasagiline 1mg tablets, where appropriate (see supporting information below); • counsel patients on the change to treatment and dosing, including reassurance that rasagiline is a similar agent to selegiline (see supporting information below), and advise them to report worsening of disease control, non-motor symptoms, mood, and/or side effects; • signpost patients to Parkinson's UK helpline for further support/information, if required; • inform the patients' specialist teams that treatment has been switched to rasagiline;

- liaise with the patient's specialist team for advice on management options if patients experience a deterioration in disease control or troublesome side effects after switching.

Where above options are not considered appropriate, selegiline oral suspensions available via specials manufacturers and supplies of unlicensed selegiline (Eldepryl®) 5mg and 10mg tablets can be sourced. Specialist teams should be consulted if this option is to be considered as it may not be viable for patients who have run out already or are low in supply due to likely delay in obtaining these products. Contact should be made with local pharmacy teams to ensure orders are placed within appropriate time frames as lead times may vary (see supporting information below).

Specialist teams should:

- ensure no new patients are initiated on selegiline 5mg or 10mg tablets;
- support primary care clinicians seeking advice on managing the switch to alternative treatment, including provision of individualised management plan, where required.

Alternatives

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

- **Rasagiline 1mg tablets**

Considerations and background

Clinical Information

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

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

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

Guidance on ordering and prescribing unlicensed imports

- The following specialist importers and specials manufacturers have confirmed they can source unlicensed *Selegiline (Eldepryl®) 5mg and 10mg tablets* and various presentations of *selegiline oral suspension* (please note there may be other companies that can also source supplies):
  - Nova (specials manufacturer)
  - Temag Pharma (specials manufacturer)
  - Target (specialist importer)
- Any decision to prescribe an unlicensed medicine must consider the relevant guidance and NHS Trust or local governance procedures. Please see the links below for further information:
  - The supply of unlicensed medicinal products, Medicines and Healthcare products Regulatory Agency (MHRA)
  - Professional Guidance for the Procurement and Supply of Specials, Royal Pharmaceutical Society
  - Prescribing unlicensed medicines, General Medical Council (GMC).

	• When prescribing a product that is not licensed in the UK due to a supply issue with the licensed alternative prescribers must indicate on the FP10 prescription that an unlicensed product is required. This can be done in one of the following two ways:
	  ○ Electronic prescriptions – if the required unlicensed product is shown on electronic prescribing systems, GPs should select:
	  ▪ Selegiline 5mg tablets (imported)
	  ▪ Selegiline 10mg tablets (imported)
	  ○ Paper prescriptions – where the unlicensed product is not shown on electronic prescribing systems, GPs should use a paper prescription and annotate with the following wording: "special order".
	Links
	• SmPC: selegiline
	• SmPC: rasagiline
	• BNF: Parkinson's disease
	• CKS: Parkinson's disease
	• NICE guideline: Parkinson's disease in adults
	• Parkinson's UK helpline

DISCONTINUATION: Dalteparin Sodium (Fragmin) 10,000units/1ml solution for injection ampoules	**Date stock to be exhausted: May 2023 (discontinuation June 2023)**
	Action for prescribers
	Clinicians in primary and secondary care, including paediatric tertiary centres should:
	• not prescribe dalteparin (Fragmin) 10,000 units/1mL ampoules for adults where possible and consider alternative dalteparin presentations;
	• continue to prescribe dalteparin (Fragmin) 10,000 units/1mL ampoules for paediatrics and neonates (off-label) where appropriate until local protocols have been amended (see below);
	• identify all patients discharged with dalteparin (Fragmin) 10,000 units/1mL ampoules and ensure they have enough supplies to complete their course;
	• where patients do not have sufficient supplies for their course, consider prescribing an alternative dalteparin (Fragmin) preparation taking into account the confidence of the patient/carer to use an alternative presentation;
	  ○ be mindful of the potential risk of dosing errors and patient harm if an alternative presentation is not prescribed and dispensed correctly;
	  ○ ensure doses and volumes are recalculated correctly and patients/carers are counselled on changes in dose and administration technique;
	  ○ annotate prescriptions to highlight changes to dispensing pharmacies to ensure calculations are rechecked and counselling is provided to patients/carers on dose and administration method. For example, a prescription can be annotated with 'please be aware of change in strength and presentation from the previous prescription and consider this when dispensing.'
	  ○ higher concentration multidose vials (dalteparin (Fragmin) 100,000 units/4mL) should not be prescribed/dispensed to paediatric and neonate patients;
	• ensure local guidelines and formularies are reviewed and amended to replace dalteparin (Fragmin) 10,000 units/1mL solution for injection ampoules with an alternative low molecular weight heparin preparation taking into account the age of the patient being treated, presentation, strength and administration guidance. This should be done in advance of May 2023;
	  ○ local guidelines and protocols should not include the higher concentration multidose vials (dalteparin (Fragmin) 100,000 units/4mL) as an alternative option to the discontinued product, particularly for paediatrics and neonates, to reduce the risk of dosing errors;
	• provide appropriate education and training to all those prescribing and administering this product on the new protocol (see Supporting Information below).

Alternatives

Alternative dalteparin (Fragmin) solution for injection products remain available (see below), however, the risk of dosing errors is high without appropriate consideration and training being implemented (see Patient Safety Considerations).

Ampoules

- 10,000 units/4mL

Note that supplies of 10,000 units/4mL ampoules will not be able to support an increase in demand until Q2 2023.

Multidose vials

- 100,000 units/4mL

Graduated pre-filled syringe

- 10,000 units/1mL

Pre-filled syringes

- 2,500 units/0.2mL
- 5,000 units/0.2mL
- 7,500 units/0.3mL
- 10,000 units/0.4mL
- 12,500 units/0.5mL
- 15,000 units/0.6mL
- 18,000 units/0.72mL

Alternative Low Molecular Weight Heparins

Alternative low molecular weight heparins, including enoxaparin and tinzaparin, may be a suitable alternative for some patients.

For Trusts

If protocols are changed to use enoxaparin or tinzaparin instead of dalteparin and Trusts do not already have access to these products; Trusts should reach out to suppliers of enoxaparin and/or tinzaparin to ensure stock can be supplied for ongoing use.

Considerations and background

Summary

- Dalteparin (Fragmin) 10,000 units/1mL solution for injection ampoule has been discontinued. Based on forecasted UK demand, stock will be exhausted by May 2023.
- Alternative strengths and formulations of dalteparin and other low molecular weight heparins remain available and will be able to support increased demand.

Off-label use

Dalteparin (Fragmin) is used off-label in neonates and paediatrics for the treatment and prevention of any thrombotic event. Dalteparin (Fragmin) 10,000 unit/1mL solution for injection ampoule is a commonly used presentation in this patient cohort as it allows for doses with high concentrations in low volumes to be achieved. In this patient population, there is a high risk of dosing errors when changing between dalteparin preparations of differing strengths and forms.

Pfizer, the sole supplier of dalteparin (Fragmin), have a 10,000 unit/1mL graduated syringe available as well as alternative strength ampoules, vials and pre-filled syringe preparations, but not all presentations will be deemed suitable for use in neonates and paediatrics.

Patient Safety Considerations

Local guidelines and protocols *should not* include the higher concentration multidose vials (dalteparin (Fragmin) 100,000 units/4mL) as an alternative option to the discontinued product, particularly for paediatrics and neonates, to reduce the risk of dosing errors. There are also increased risks of errors if using 'part-doses' from pre-filled syringes.

In addition, where patients/parents/carers are supplied with take-home doses to administer, if an alternative presentation is prescribed, they should be appropriately counselled on the new dose and how to use the device (see links below). Higher concentration multidose vials *should not* be prescribed/dispensed to paediatric and neonate patients.

	Training should be provided to all healthcare professionals on new protocols which advise on prescribing an alternative product or presentation. This is to ensure changes in drug, concentrations, strengths and formulations are clearly understood. Specific training should also be provided for those administering alternative formulations, particularly in neonates. Particular care should be taken if using alternative dalteparin (Fragmin) presentations, for example: • Fragmin 10,000 unit/1mL graduated pre-filled syringe is the same strength as the discontinued product but will have a different administering process; or • Fragmin 10,000 unit/4mL ampoule (which will be available as a vial presentation in Q2 2023) is currently the same formulation but different strength. Please note, this presentation will not be able to support an increase in demand until Q2 2023. **Medicine Supply Notification Number** **MSN/2022/109** **Links** • SPC's for dalteparin (Fragmin) • BNF Dalteparin Sodium
SHORTAGE: Sterculia (Normacol) granules	**Anticipated re-supply date:** 10 March 2023 **Alternatives** Isphagula Husk is an alternative to sterculia granules, provided patients do not have intolerances to the product or its excipients.
DISCONTINUATION: Itraconazole (Sporanox) 100mg capsules	**Date stock to be exhausted:** 31 Dec 2022 **Alternatives** Generic itraconazole 100mg capsules remain available.
SHORTAGE: Sulfasalazine 250mg/5ml oral suspension sugar free	**Anticipated re-supply date:** 2nd June 2023 **Actions for prescribers** Where patients have insufficient supplies to last until the re-supply date, prescribers should: • consider prescribing non-enteric coated sulfasalazine 500mg tablets, which are scored, and so can be split to facilitate administration of whole dose, noting that halving the tablet to deliver 250mg dose or crushing the tablets and dispersing in water to deliver a part dose, would be an unlicensed manipulation (see Supporting Information below); • review patients taking doses that are not in increments of 250mg to consider a dose adjustment to increments of 250mg, where possible; • counsel patients on the benefits of using a pill splitter (which can be purchased from a pharmacy or other retail outlets) to ensure a dose as close to 250mg as possible could be obtained, if the decision is taken to halve the tablet; • if above options are not appropriate, consider prescribing unlicensed sulfasalazine 250mg/5ml oral suspension available from Specials manufacturers (see Supporting Information below). **Alternatives** **Licensed alternatives** Sulfasalazine 500mg non-enteric coated tablets remain available. **Unlicensed alternatives** The following Specials manufacturers have currently confirmed they can manufacturer sulfasalazine 250mg/5ml oral suspension (please note, there may be other companies that can also manufacture): • IPS Pharma

	• Nova Labs • Rokshaw **Considerations and background** **Supporting information** Non-enteric coated sulfasalazine 500mg tablets are scored to facilitate administration of the tablet as two halves in patients who may find it difficult to swallow the tablet whole. Halving the tablet to deliver a 250 mg dose would be an unlicensed manipulation. If the patient cannot swallow the half tablet, it could be crushed and mixed in 15 to 30 mL water or soft foodstuff and swallowed. This is also an unlicensed manipulation. **Information about halving tablets** A recently published systematic review of the concerns regarding tablet splitting concluded that with the exception of sustained-release tablets, which should not be split, and excepting those older people who may struggle to split tablets based on physical limitations, there is little evidence to support tablet-splitting concerns**.** The halving of tablets to ease administration, to deliver a 250mg dose or the crushing tablets and dispersing in water to deliver a part dose, falls outside of the product licence and therefore, prescribers must consider relevant guidance and NHS Trust or local governance procedures as well as consulting with the patient or their carer. **Guidance on ordering and prescribing unlicensed medicines** 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) Medicines Supply Notification Number **MSN/2022/110**
SHORTAGE: Estradiol (Sandrena) 500 microgram and 1mg gel sachets	**Anticipated re-supply date:** 13th Jan 2023 **Actions for prescribers** Where supplies of estradiol (Sandrena) 500microgram and/or 1mg gel sachets are available, community pharmacists should consider; • limiting supply to three months in accordance with SSP 029 for eligible patients presenting with a prescription for more than three months' supply of estradiol (Sandrena®) 500microgram and/or 1mg gel sachets (see supporting information). Where supplies of estradiol (Sandrena) 500microgram and/or 1mg gel sachets are not available, pharmacists should consider; • offering a near equivalent (see dose equivalence information) strength of estradiol patch, taking into account the patient's current daily dose of estradiol, in accordance with SSP 030 for eligible patients presenting with a prescription for supply of three months or less of estradiol (Sandrena) 500microgram and/or 1mg gel sachets (see supporting information); or • offering a near equivalent (see dose equivalence information) strength of estradiol patch, taking into account the patient's current daily dose of estradiol, and limiting supply to three months of supply in accordance with SSP 031 for eligible patients presenting with a prescription for supply of more than three months' supply of estradiol (Sandrena) 500microgram and/or 1mg gel sachets (see supporting information). If the patient is deemed ineligible to receive an alternative product via the SSP, clinicians can consider prescribing: • a maximum of three months' supply of an alternative hormone replacement therapy liaising with local pharmacy teams to identify which products are currently available; or

- 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).

Alternatives

Estradiol patches – see clinical information for advice on switching, counselling points and dose equivalence between estradiol (Sandrena) gel sachets and estradiol patches.

Considerations and background

Supply Summary

- Estradiol (Sandrena) 500microgram and 1mg gel sachets are experiencing intermittent supply issues and the next resupply is expected in early June 2022.
- Three Serious Shortage Protocols (SSP) were issued on 19/05/2022 to allow community pharmacists to limit supply to three months and where appropriate and supplies of Sandrena are not available supply estradiol patches, which remain available.
- Where this is not appropriate, alternative hormone replacement therapies also remain available.
- Where the above alternatives are not suitable, unlicensed supplies of Sandrena 1mg gel sachets can be sourced, lead times vary.

Clinical information

Switching to estradiol patches

- If a patient has been referred from the community pharmacy to the prescriber as they are unable to utilise the SSP to switch to an appropriate strength of estradiol patch, clinicians should investigate the reasons behind this with the patient.
- If referral has been made by a community pharmacist as the patient has reported previous adverse reactions to estradiol patches, consider whether an alternative brand of patch would be suitable, see dose equivalence below. If the previous reaction was severe, consider alternative hormone replacement therapy or unlicensed imports.
- Patients may require titration of their dose if symptom control is not achieved within 8 weeks.

Patient counselling points

- Patients should be made aware of the following and advised to return to the prescriber;
- for further investigation if they experience persistent side effects including vaginal 'breakthrough bleeding' for further;
- for consideration of alternative therapies if they are switching to estradiol patches and experience any patch adhesion issues or skin irritation; and
- for dose titration if they feel the symptoms of menopause have gotten worse 8 weeks after switching to a new product.
- Patients with an intact uterus should be advised to continue taking the progestogen component of their HRT regimen, even after switching to an alternative oestrogen preparation including estradiol patches**.**

Dose equivalence between estradiol (Sandrena) gel sachets and estradiol patches

The dose equivalents are subject to individual variations in absorption and metabolism.

Current daily dosing regime of estradiol (Sandrena®) gel:

500microgram of estradiol daily

Equivalent dose of estradiol patch:

25 microgram patch

Patch options and dosing:

- Evorel – Apply one patch TWICE WEEKLY

Current daily dosing regime of estradiol (Sandrena®) gel:

1mg of estradiol daily

Equivalent dose of estradiol patch:

50 microgram patch

Patch options and dosing:

	• Progynova TS – Apply one patch WEEKLY • FemSeven – Apply one patch WEEKLY • Evorel – Apply one patch TWICE WEEKLY • Estraderm MX – Apply one patch TWICE WEEKLY **Current daily dosing regime of estradiol (Sandrena®) gel:** **1.5mg of estradiol daily** Equivalent dose of estradiol patch: 75 microgram patch Patch options and dosing: • FemSeven – Apply one patch WEEKLY • Evorel – Apply one patch TWICE WEEKLY • Estraderm MX – Apply one patch TWICE WEEKLY **Note: All patches can only support a partial uplift in demand.** **Links to further information** **Please see the link for further information on the SSP's for estradiol (Sandrena®) 500microgram and/or 1mg gel sachets** **Please see links for further advice on alternative hormone replacement therapies:** • CKS Hormone replacement therapy • British Menopause Society – HRT preparations and equivalent alternatives • Specialist Pharmacy Service – prescribing available HRT products • Hormone replacement therapy treatment summary – BNF **Additional information** • Estraderm MX® SmPC • Evorel® SmPC • Femseven® SmPC • Progynova TS® SmPC • Sandrena 500microgram gel sachets SmPC • Sandrena 1mg gel sachets SmPC **Guidance on ordering and prescribing unlicensed imports** The following specialist importers have confirmed they can source unlicensed Sandrena® 1mg gel sachets (please note there may be other companies that can also source supplies): • Target Healthcare Any decision to prescribe an unlicensed medicine must consider the relevant guidance and NHS Trust or local governance procedures. Please see the links below for further information: • The supply of unlicensed medicinal products, Medicines and Healthcare products Regulatory Agency (MHRA) • Professional Guidance for the Procurement and Supply of Specials, Royal Pharmaceutical Society • Prescribing unlicensed medicines, General Medical Council (GMC), When prescribing a product that is not licensed in the UK due to a supply issue with the licensed alternative prescribers must indicate on the FP10 prescription that an unlicensed product is required. This can be done in one of the following two ways: • Electronic prescriptions – if the required unlicensed product is shown on electronic prescribing systems, GPs should select: ○ Sandrena 1mg gel 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". **Medicines Supply Notification Number** **MSN/2022/048**
SHORTAGE:	**Anticipated re-supply date:** Balneum 84.75% bath oil (Almirall Ltd)

Balneum and Balneum Plus Bath Oil	30 January 2023 Balneum Plus bath oil (Almirall Ltd) 15 March 2023 **Actions for prescribers** Clinicians should be aware that: • Balneum Bath Oil and Balneum Plus Bath Oil are out of stock; • bath and shower products are no longer considered an essential component of total emollient therapy, as the amount of bath additives deposited on the skin is lower than with directly applied emollient creams or ointments. They provide no clinical benefit when added to standard eczema care in children (BATHE Study); • an alternative approach is to use a regular leave-on emollient as a soap substitute. Many standard emollients can be used in this way e.g. by applying it to the skin before showering then rinsing it off. Alternatively, 1-2 tablespoons of any ointment (except LP:WSP 50/50 Ointment) can be dissolved in some hot water and added into bath water, as a bath additive; • bath products will coat the bath and make it slippery, and patients should be warned to take extra care; and • dermatologists may in exceptional circumstances, recommend bath/shower emollient products in cases of severe atopic eczema and ichthyosis when the patient requires more intensive emollient therapy and standard emollients used as soap substitutes have already been trialled. This is on the basis that these patients have severe skin disease, which is not represented in the BATHE study. **Alternatives** Alternative bath and shower products and creams continue to remain available. **Further information** **Please refer to the links below for further information** **Links** • BNF emollient bath and shower products, soya-bean oil-containing monograph • NHSE Items which should not routinely be prescribed in primary care: Guidance for CCGs
SHORTAGE: Glycerol 1g Suppositories	**Anticipated re-supply date:** Glycerol 1g suppositories (Thornton & Ross Ltd) – no date Glycerol 1g suppositories (Martindale Pharmaceuticals Ltd)- 27 January 2023 **Actions for prescribers** All clinicians should: • consider prescribing half a 2g suppository in infants who require a 1g dose and where relevant, advise parents/carers to cut the suppository lengthways to ensure a more accurate dose is administered; • consider prescribing docusate sodium enemas in adults who require a rectal stool softener, if glycerol 4g suppositories are unavailable, and the oral route is not suitable; • seek specialist advice on management options if a glycerol 'chip' from the 1g suppository was being used in neonates; and • be aware that other laxatives remain available; choice will depend on stool consistency and products already tried. **Alternatives** Glycerol 2g suppositories remain available and can support an increase in demand in place of the 1g suppositories. **Supporting Information** **Please refer to the links below for further information:** **SmPC Glycerol suppositories** **SmPC Docusate sodium (Norgalax®) 10g micro-enema**

	BNF Treatment Summary – Constipation **BNFC Treatment Summary – Constipation**
SHORTAGE: Fentanyl Nasal Sprays	**Anticipated re-supply date**: Instanyl 50micrograms/dose, 100micrograms/dose and 200micrograms/dose nasal sprays (Takeda UK Ltd) – no date **Alternatives** Immediate release fentanyl products are not interchangeable and when considering switching patients from one product to another, patients should not be converted on a microgram per microgram basis from one to another; it is necessary to titrate the new formulation with advice from a specialist. **SPS advice** Please refer to the SPS owned page: Clinical management of Fentanyl nasal sprays shortage for further advice on alternatives. **Considerations and background** Refer to the UK recall notice for Instanyl 100microgram if necessary.
SHORTAGE: Fentanyl (Effentora) 200 microgram and 400 microgram buccal tablets	**Anticipated re-supply date:** Fentanyl 200microgram buccal tablets sugar free 28 tablet - 29 December 2022 Fentanyl 400microgram buccal films sugar free -6 January 2023 **Actions for prescribers** For Effentora 200 microgram and 400 microgram buccal tablets, where patients do not have sufficient stock to last until the resupply date, clinicians should: • consider prescribing Effentora 100 microgram to patients using Effentora 200 microgram • if the above is not considered appropriate and for all patients on Effentora 400 microgram, consider prescribing alternative immediate-release fentanyl products, taking into consideration the patient's preferences (see clinical information); • ensure that the patient is not intolerant to any of the excipients in the alternative product and is counselled on any changes including changes to their dosing regimen and; • seek specialist advice, as necessary, to titrate the new formulation taking into consideration that immediate release fentanyl products are not interchangeable and patients should not be converted on a microgram per microgram basis from one product to another (see clinical Information). **Alternatives** **Effentora preparations** The following Effentora preparations remain available: • Effentora 100 microgram buccal tablets – can support a partial uplift in demand • Effentora 600 microgram and 800 microgram buccal tablets • Effentora 200 micrograms buccal tablets (pack size of 4) – back in stock **Immediate release fentanyl formulations** The following alternative formulations of immediate release fentanyl remain available and will be able to support increased demand. **Actiq lozenges** Bioavailability 65% Time to response (minutes) 20 **Abstral sublingual tablets** Bioavailability 50% Time to response (minutes) 20 – 40 **Cynril lozenges** Bioavailability 50%

Time to response (minutes)
2 – 40
Fenhuma sublingual tablets
Bioavailability
54%
Time to response (minutes)
22.5 – 240
PecFent nasal spray
Bioavailability
Not available
Time to response (minutes)
15 – 20
Considerations and background
Clinical Information
First line treatment of breakthrough pain in cancer related pain
For cancer patients who require breakthrough pain relief, immediate-release oral morphine is the preferred treatment option. However, for those patients where immediate-release morphine is not considered appropriate, or in whom breakthrough pain management with immediate-release morphine has been unsuccessful, specialist advice should be sought to consider the most appropriate immediate release fentanyl dose and formulation.
Patients on Effentora buccal tablets (200 microgram and 400 microgram)
In considering an alternative immediate-release fentanyl product, the general recommendation is that patients need to be re-titrated according to manufacturer's instructions. For patients on relatively high doses of fentanyl for breakthrough pain specialist advice should always be sought to determine recommended starting doses. Transmucosal fentanyl including Effentora, is not licensed for the management of breakthrough pain in non-cancer related pain and therefore should not be considered as a first-line option for breakthrough pain relief in this setting.
For existing patients currently on Effentora 200 microgram, Effentora 100 microgram can partially support an uplift in demand. Where this is not appropriate and for patients currently on Effentora 400 microgram, an alternative immediate-release fentanyl product may be substituted. For patients where immediate-release fentanyl is considered necessary, sublingual/lozenge formulations (see alternatives) may be preferred in those who have frequent nose bleeds, whilst the nasal formulation may be considered in those with dry mouth. It is important to note that, bioavailability across products is not equivalent. Patients should therefore not be converted on a microgram per microgram basis from one form to another, as this may result in variability in therapeutic efficacy, increase the risk of fentanyl related side effects and affect the patient's overall ability to tolerate the medicine.
Effentora bioavailability
Effentora lozenges
Bioavailability
65%
Time to response (minutes)
20
Medicine Supply Notification Number
MSN/2022/090
Please see links below for further information.
Links

- SmPC - Actiq Lozenges
- SmPC - Cynril Lozenges
- SmPC - Effentora buccal tablets
- SmPC - Abstral sublingual tablets
- SmPC - Fenhuma sublingual tablets
- SmPC - PecFent nasal spray

SHORTAGE: Calcichew 500mg Chewable Tablets	**Anticipated re-supply date:** 15 Jan 2023 **Actions for prescribers** Clinicians should be aware that: • Calcichew 500mg chewable tablets currently remain out of stock until mid-January 2023 **Alternatives** The following alternatives remain available and can support an uplift in demand: • Calcichew-D3 500 mg/200 IU chewable tablets Other calcium carbonate chewable tablets remain available Considerations and background **Please see the links below for further information** **Links** • SmPC Calcichew 500mg Chewable Tablet • SmPC Calcichew-D3 500 mg/200 IU Chewable Tablets • BNF Calcium carbonate
SHORTAGE: Hydrocortisone 2.5mg muco-adhesive buccal tablets sugar free	**Anticipated re-supply date:** 24 June 2023 **Actions for prescribers** Clinicians considering treatment for patients presenting with oral ulcers should: • assess the severity of the patient's ulcers including frequency and interference with daily activities; • if treatment is required, establish whether over-the-counter products (purchased or prescribed) have already been tried, and whether it is appropriate to use/retry; • if above mentioned treatments are not suitable, consider prescribing betamethasone soluble tablets for off-label topical use as a mouthwash, counselling patients on how to administer treatment, and stressing that the mouthwash must *not* be swallowed; • if neither of the above options are appropriate, prescribers should seek specialist advice from the oral medicine clinic. **Alternatives** **see Supporting Information** **Considerations and background** **Summary** • Other over-the-counter preparations such as topical anaesthetics, topical analgesics/anti-inflammatory agents and topical antimicrobial agents marketed as oral gels, mouthwashes and oral sprays remain available. • Betamethasone soluble tablets for off-label topical use in the treatment of aphthous ulcers remain available. **Supporting Information** **Clinical Information** Hydrocortisone muco-adhesive buccal tablets are licensed for local use in previously diagnosed aphthous ulceration of the mouth. Topical corticosteroids are usually considered to be first-line treatment of aphthous ulcers if simple therapies such as topical anaesthetics (e.g. lidocaine hydrochloride), topical analgesics/anti-inflammatory agents (e.g. benzydamine hydrochloride), and topical antimicrobial agents (e.g. chlorhexidine mouthwash) have not provided sufficient symptomatic relief. Betamethasone 500 microgram soluble tablet prepared as a mouthwash is used off label to treat aphthous ulceration. The BNF recommends a dose for oral ulceration in adults and children age 12 to 17 years of 500micrograms four times a day. The tablet should be dissolved in 20 mL water, rinsed around the mouth, and *not* swallowed. Please see the below links for further information. **Medicines Supply Notification Number:** **MSN/2022/054** **Links**

	• **Hydrocortisone 2.5 mg Muco-Adhesive Buccal Tablets** • **BNF: Treatment summary - Oral ulceration and inflammation** • **NICE CKS - Scenario: Management of aphthous ulcer** • **SPS: Understanding safety risks with betamethasone soluble tablets used as mouthwash** • **PIL: Betamethasone 500 microgram soluble tablets used as a mouthwash**
SHORTAGE: **Alpha tocopheryl acetate 500mg/5ml oral suspension**	**Anticipated re-supply date:** 31 March 2023 **Alternatives** The following alternative brands are available and can provide a full uplift in demand: Liqua-E (alpha tocopheryl acetate) 500mg/5ml oral suspension AlphaToc-E (alpha tocopheryl acetate) 500mg/5ml oral suspension **Considerations and background** Generic alpha tocopheryl acetate 500mg/5ml oral suspension is out of stock until the end of March 2023.

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 16th January 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.