SHORTAGE: Shortage of Testosterone (Tostran) 2% gel

Medicines affected
Tostran 2% gel (Kyowa Kirin Ltd)

Actions for prescribers
Clinicians should:

- review patients to determine if this is still the most suitable therapy
- consider prescribing an alternative testosterone gel, ensuring that the patient is not intolerant to any of the excipients and is counselled on the appropriate dose and how to administer it (see Clinical Information below); and
- if the above options are not considered appropriate, advice should be sought from specialists on management options.

Alternatives
- Testogel 16.2mg/g pump
- Testogel 40.5mg/2.5g gel sachets
- Testavan 23mg/1.15g pump

Clinical Information
Licensed use of topical testosterone:
Testosterone replacement therapy for male hypogonadism when testosterone deficiency has been confirmed by clinical features and biochemical tests.

Off label use:
Testosterone gel is used in women with decreased libido in the menopause.

Switching products
Please refer to table below to select an alternative product based on the current dose of testosterone that the patient is receiving. There will be slight differences in the dose of testosterone when switched and the dose may need to be titrated based on testosterone levels, and signs and symptoms related to testosterone deficiency.

Tostran 2% gel pump – Out of stock

No. Pump actuations (depressions)	Testosterone dose (mg)
1	**10**
2	**20**
4	**40**
6	**60**
8	**80**

Testogel 16.2mg/g pump – In stock with supplier

No. Pump actuations (depressions)	Testosterone dose (mg)
1	**20.25**
2	**40.5**
3	**60.75**
4	**81**

Testogel 40.5mg/2.5g gel sachets – In stock with supplier

No. Sachets	Testosterone dose (mg)
1/2 sachet	20.25
1 sachet	40.5
2 sachets	81

Testavan 23mg/1.15g pump – In stock with supplier (can support partial uplift in demand)

No. Pump actuations (depressions)	Testosterone dose (mg)
1	23
2	46
3	69

Medicine Supply Notification
MSN/2023/064

Shortage of Ketamine (Ketalar) 10mg/ml solution for injection vial (Schedule 2 controlled drug)

Anticipated re-supply date
6 October 2023

Actions
All healthcare professionals in primary and secondary care including hospices, who prescribe, dispense or administer ketamine 10mg/1ml solution for injection vials, working with their local Medication Safety Officer (MSO) should be aware of the following advice:

- Trusts are advised to manage stock locally, taking into account both current stock holding and their allocated G.L.Pharma stock plus any unlicensed Swiss Ketalar 10mg/1ml solution for injection imported via Pfizer previously supplied.
- Trusts are advised to order G.L. Pharma ketamine 10mg/ml solution for injection in line with current usage and within their specified allocation. Pharmacy teams should undertake a local risk assessment before using this product (see Supporting Information below);
- If further supplies of ketamine 10mg/1ml solution for injection are required between September and October, Trusts should contact their Regional Pharmacy Procurement Specialist.
- If essential to maintain supply, clinical teams can consider prescribing ketamine 50mg/1ml solution for injection (from September 2023 onwards) where needed. Local clinical decision making should take into account this presentation is **five times more concentrated** than ketamine 10mg/1ml solution for injection, and MUST ensure all appropriate patient safety measures are in place to avoid dosing errors (see below);
- where licensed alternatives are not available or appropriate, clinical teams may consider prescribing unlicensed imports of ketamine 10mg/1ml solution for injection, taking into account these products could be **twice as potent or in different vial sizes** (see patient safety advice in Supporting information);
- review and amend local guidance that references use of ketamine 10mg/1ml solution for injection. In these circumstances, appropriate patient safety

	measures should be applied to avoid dosing errors and patient harm when using higher strength or unlicensed ketamine, for example, before administration, the volume is checked by two staff members. **Alternatives** • Unlicensed imports of ketamine 10mg/ml solution for injection have been sourced via specialist importers have been sourced. Please see Supporting Information on how to order. • There are limited supplies of unlicensed Swiss ketamine (Ketalar) 10mg/1ml solution for injection imported by Pfizer. Please order via Regional Pharmacy Procurement Specialists (RPPS). • Ketamine 50mg/1ml solution for injection vials remain available but cannot currently support a full uplift in demand until September 2023. • There are patient safety implications which need to be considered when switching preparations. Please see Supporting Information below. **Medicines Supply Notification Number** MSN/2023/043U
Shortage of Rasburicase (Fasturtec) 7.5mg powder and solvent for solution for infusion vials	**Anticipated re-supply date** 7 June 2024 **Actions** Clinicians should: • Use multiples of the 1.5mg vials to make the required dose. FIVE x 1.5mg vials are equivalent to ONE x 7.5mg vial. • Work with their Trust's Medication Safety Officer (MSO) to: o ensure availability of stock in relevant clinical areas and emergency drug cupboards to avoid omitted or delayed doses; o ensure there is clear guidance in clinical areas outlining that the lower strength (1.5mg) vials only are currently available. **Alternatives** Rasburicase (Fasturtec) 1.5mg vials remain available and can support an uplift in demand to cover the duration of the shortage. **Clinical Information** Rasburicase is licensed for prophylaxis and treatment of acute hyperuricaemia, before and during initiation of chemotherapy, in patients with haematological malignancy and high tumour burden and at risk of rapid tumour lysis. Adult dose is 200 micrograms/kg once daily for up to 7 days according to plasma-uric acid concentration. It is administered by intravenous infusion. **Supply** To ensure timely access to rasburicase ensure: • clinical areas where rasburicase is routinely used hold sufficient stock • there is a central location where rasburicase can be obtained in a timely manner, e.g., an out of hours pharmacy service and/or 'emergency drugs cupboard' • stockholding in these areas do not fall below the minimum level without escalation to a clinical lead Organisations should cascade advice to healthcare professionals in relation to the change in available presentation to minimise delays and risks associated with incorrect preparation and under-dosing**.**

	Medicine Supply Notification MSN/2023/065
Shortage of Bromfenac (Yellox) 900 micrograms/ml eye drops	**Anticipated re-supply date** 3 November 2023 **Actions** Where supply of licensed bromfenac 900 micrograms/ml eye drops is not available, clinicians should: • consider prescribing ketorolac 0.5% w/v eye drops which is able to support the market during this time, ensuring that the patient is not intolerant to any of the excipients and is counselled on the appropriate dose to administer; or • consider prescribing unlicensed products only where licensed alternatives are not appropriate. **Alternatives** The following non-steroidal anti-inflammatory eye drops remains available and can support an uplift in demand: • Ketorolac trometamol 0.5% w/v eye drops The following specialist importers have confirmed they can source unlicensed bromfenac 900 micrograms/ml eye drops (please note there may be other companies that can also source supplies): • Mawdsleys (lead time 3 weeks) • Target Healthcare Other non-steroidal anti-inflammatory eye drops also remain available but are unable to provide an uplift in demand. **Clinical information** Bromfenac eye drops are licensed for use in adults for the treatment of postoperative inflammation following cataract surgery. One drop is instilled in the affected eye(s) twice daily, beginning the next day after cataract surgery and continuing through the first 2 weeks of the postoperative period. Treatment should not exceed 2 weeks as safety data beyond this is not available. Alternative non-steroidal anti-inflammatory eye drops includes ketorolac trometamol, diclofenac, flurbiprofen and nepafenac eye drops, but only ketorolac trometamol can support an uplift in demand at present. Ketorolac trometamol 0.5% w/v eye drops are licensed for the prophylaxis and reduction of inflammation and associated symptoms following ocular surgery in adults. One drop is instilled into the eye three times daily starting 24 hours pre-operatively and continuing for up to three weeks post-operatively. **Medicine Supply Notification Number** MSN/2023/054
Shortage of Dulaglutide (Trulicity) 0.75mg, 1.5mg, 3mg and 4.5mg solution for injection devices	**Anticipated re-supply date** 3 June 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

	Enquiries about page or supply issue You can send any enquiries about this page or the individual supply issue raised to: DHSCmedicinesupplyteam@dhsc.gov.uk
Shortage of Semaglutide (Ozempic and Rybelsus) presentations	**Anticipated re-supply date** 28 August 2023 **Medicines affected** Anticipated re-supply date **Ozempic 0.5mg/0.37ml solution for injection 1.5ml pre-filled pens (Novo Nordisk Ltd) 1 pre-filled disposable injection** 28 June 2024 **Ozempic 1mg/0.74ml solution for injection 3ml pre-filled pens (Novo Nordisk Ltd) 1 pre-filled disposable injection** 28 June 2024 **Ozempic 0.25mg/0.19ml solution for injection 1.5ml pre-filled pens (Novo Nordisk Ltd) 1 pre-filled disposable injection** 28 June 2024 **Rybelsus 3mg tablets (Novo Nordisk Ltd**) 28 August 2023 **Rybelsus 7mg tablets (Novo Nordisk Ltd)** 28 August 2023 **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. **Enquiries about page or supply issue** You can send any enquiries about this page or the individual supply issue raised to: DHSCmedicinesupplyteam@dhsc.gov.uk
Shortage of Glucagon 1mg powder for injection kit (GlucaGen)	**Anticipated re-supply date** 5 January 2024 **Actions** **Primary care** In primary care, where patients have insufficient supplies of GlucaGen to last until the re-supply date, healthcare professionals should: • prescribe or administer Ogluo (glucagon) pre-filled auto-injector pen for the treatment of severe hypoglycaemic episodes; • counsel patients how to administer the pre-filled auto-injector pen and; • limit prescriptions to two devices per patient until normal supply resumes. **Secondary care** Pharmacy staff in secondary care should: • use Ogluo or GlucaGen® stock where available; • 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
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

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/2023/051UPDATED

Shortage of GLP-1 receptor agonists (semaglutide, dulaglutide, liraglutide, exenatide)	**Anticipated re-supply date** 28 June 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. **Enquiries about page or supply issue** You can send any enquiries about this page or the individual supply issue raised to: DHSCmedicinesupplyteam@dhsc.gov.uk
Shortage of Liraglutide (Victoza) 6mg/ml solution for injection	**Anticipated re-supply date** 28 June 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 **Enquiries about page or supply issue** You can send any enquiries about this page or the individual supply issue raised to: DHSCmedicinesupplyteam@dhsc.gov.uk
Shortage of Liraglutide (Saxenda) 6mg/ml solution for injection 3ml pre-filled disposable devices	**Anticipated re-supply date** 28 June 2024 **Actions** Actions for Clinicians / Weight Management Programme Specialists • Do not initiate new patients on liraglutide (Saxenda®) during the national shortage • Identify patients prescribed liraglutide 6mg/mL solution for injection (Saxenda®) and determine how much supply they have at home to prioritise the urgency for review • Review the clinical need against the licensed indication and NICE Obesity guidance • Discontinue liraglutide 6mg/ml solution for injection (Saxenda®) if at least 5% of initial body-weight has not been lost after 12 weeks at maximum dose • Consider the use of Orlistat for patients who have not previously tried this medicine • Avoid switching to using any other GLP1-RA off-label • Review all patients under a multidisciplinary team with dietetic and psychological support in place to discuss further non-pharmacological options during the time where liraglutide 6mg/ml solution for injection (Saxenda®) is unavailable **Alternatives** Liraglutide is one of three medicines recommended by NICE for weight loss in adults; the other two include another GLP-1 analogue, semaglutide (Wegovy) injection, which has not yet been launched, and orlistat. See NICE obesity guidance for further information and non-pharmacological advice **Supply overview**

	Liraglutide 6mg/ml solution for injection (Saxenda®) is currently out of stock and there will be intermittent supply available until mid-2024. There are very limited, intermittent supplies of all glucagon-like peptide-1 receptor agonists (GLP-1 RAs) • Supply is not expected to return to normal until at least mid-2024. • See Shortage of GLP-1 receptor agonists National Patient Safety Alert for further advice. **Enquiries about page or supply issue** You can send any enquiries about this page or the individual supply issue raised to: DHSCmedicinesupplyteam@dhsc.gov.uk
Shortage of Selegiline tablets	**Anticipated re-supply date** 4 September 2023 **Medicines affected** Anticipated re-supply date **Eldepryl 5mg tablets (Orion Pharma (UK) Ltd)** 4 September 2023 **Eldepryl 10mg tablets (Orion Pharma (UK) Ltd)** 4 September 2023 **Actions** 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

Clinical Information

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

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

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

Guidance on ordering and prescribing unlicensed imports

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

	○ Electronic prescriptions – if the required unlicensed product is shown on electronic prescribing systems, GPs should select: ▪ Selegiline 5mg tablets (imported) ▪ Selegiline 10mg tablets (imported) ○ Paper prescriptions – where the unlicensed product is not shown on electronic prescribing systems, GPs should use a paper prescription and annotate with the following wording: "special order".
Shortage of Meptazinol (Meptid) 200mg tablets	**Anticipated re-supply date** 14 August 2023 **Actions** Clinicians should: • not start any new patients on meptazinol tablets • review existing patients on meptazinol, given its indication for the short-term management of moderate pain, to determine if analgesia is still required; and whether use has been on an acute or chronic basis • assess risk of drug withdrawal syndrome upon abrupt cessation or dose reduction of meptazinol in patients who have been taking it on chronic basis • determine if patients who have been on chronic therapy and deriving no benefit or no longer requiring treatment, have enough stock left to enable dose tapering and cessation of treatment (see link to Faculty of Pain Medicine guidance) • consider prescribing an alternative analgesic if treatment is still needed (see Supporting Information), ensuring that the patient is counselled on the new medication and dose; and • seek advice from specialist pain teams if above options are not considered appropriate **Alternatives** Alternative analgesic products including non-opioids remain available (see clinical information). **Clinical Information** Meptazinol is a centrally acting analgesic, which has demonstrated mixed agonist and antagonist activity at opioid receptors. It is licensed for the short-term treatment of moderate pain. The usual dose is 200mg every 3-6 hours. The BNF notes it is claimed to have a low incidence of respiratory depression, though the SmPC advises that caution should be exercised in patients whose respiratory system is already compromised. As with other opioids, it warns that withdrawal syndrome may occur upon abrupt cessation or dose reduction of meptazinol. Meptazinol tablets do not feature in pain management guidelines as a treatment option. NICE CKS guidance on analgesia for mild-to-moderate pain recommends weak opioids such as codeine, dihydrocodeine, or tramadol for patients who have an inadequate response to paracetamol and/or a nonsteroidal anti-inflammatory drug (such as ibuprofen or naproxen). Guidance from the Faculty of Pain Medicine of the Royal College of Anaesthetists highlights that an individualised approach is necessary when switching opioids as conversion factors are an approximate guide only due to the lack of comprehensive data and significant inter-individual variation. **Opioid dose equivalence of weak oral opioids to oral morphine**

	The guidance suggests that in most cases, when switching between different opioids, the calculated dose-equivalent must be reduced to ensure safety. The starting point for dose reduction from the calculated equi-analgesic dose is around 25-50%. Dose equivalence of meptazinol is not covered in this guidance or other standard sources. Hospital guidelines that include meptazinol suggest that *200mg is approximately equivalent to oral morphine 4mg to 8mg.* **Codeine, dihydrocodeine and tramadol at a dose of 50mg is equivalent to a 5mg dose of oral morphine**. Thus 200mg of meptazinol would equate to a dose range of 40 to 80mg of above mentioned weak opioids. As it is recommended to start on 50-75% dose equivalence of the original opioid, the usual licensed dose for the weak opioids could be prescribed and titrated according to individual response and side effects. **Medicine Supply Notification Number** MSN/2023/019
Shortage of Topotecan	**Anticipated re-supply date** 31 August 2023 **Medicines affected** Anticipated re-supply date **Topotecan 4mg powder for solution for infusion vials** 31 August 2023 **Topotecan 1mg capsules** 30 September 2023 **Topotecan 250microgram capsules** 30 September 2023 **Actions** For **topotecan 4mg powder for concentrate for solution for infusion**, NHS provider Trust pharmacy procurement teams and clinical teams should: • review local stock holding and ensure stock is available for patients already commenced on treatment; • review chemotherapy scheduling systems to identify all patients due to start treatment with topotecan infusion during the period of shortage; • only order sufficient stock from established distribution routes to meet actual demand during the period of shortage; • consider using topotecan hydrochloride **1mg powder for concentrate for solution for infusion** to make up dose if unable to source sufficient volumes of 4mg vials; • consider placing orders for unlicensed imports if a larger than usual number of patients are scheduled for treatment during the period of shortage; and • contact Regional Pharmacy Procurement specialist if unable to source both **1mg powder for concentrate for solution for infusion** or unlicensed imports as they may be able to facilitate mutual aid between hospitals. For **topotecan (Hycamtin®) 0.25mg and 1mg capsules,** where patients have insufficient supply to last until the re-supply date, all healthcare professionals in secondary care who prescribe or dispense topotecan capsules should: • review local stock holding of topotecan 0.25mg and 1mg capsules and ensure stock is available for all patients already commenced on treatment;

- review chemotherapy patient scheduling systems to identify all patients due to start treatment with topotecan capsules during the period of shortage;
- if unable to source either 0.25mg and 1mg topotecan capsules, contact Regional Pharmacy Procurement specialist who may be able to facilitate mutual aid between hospitals;
- 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); and
- if the above options are not considered appropriate, advice should be sought from specialists on management options.

Alternatives

- Topotecan hydrochloride **1mg powder for concentrate for solution for infusion** remains available and can support an uplift in demand for topotecan **4mg powder for concentrate for solution for infusion.**
- Unlicensed supplies of topotecan 1mg/1ml and 4mg/4ml solution for injection may be sourced, lead times vary

Clinical Information

Topotecan intravenous infusion as monotherapy is licensed for the treatment of patients with metastatic carcinoma of the ovary after failure of first-line or subsequent therapy, and for patients with relapsed small cell lung cancer (SCLC) for whom re-treatment with the first-line regimen is not considered appropriate. Topotecan infusion in combination with cisplatin is licensed for treatment of patients with carcinoma of the cervix recurrent after radiotherapy and for patients with stage IVB disease.

For ovarian and SCLC, the recommended dose is 1.5 mg/m^2 per day for five consecutive days with a three-week interval between the start of each course. If well tolerated, treatment may continue until disease progression. For cervical carcinoma, the recommended dose is 0.75 mg/m^2/day on days 1, 2 and 3, with cisplatin administered day 1 following the topotecan dose. This treatment schedule is repeated every 21 days for six courses or until progressive disease.

Topotecan capsules are licensed as monotherapy for the treatment of adult patients with relapsed SCLC for whom re-treatment with the first-line regimen is not considered appropriate. The recommended dose is 2.3mg/m^2 per day for five consecutive days with a three-week interval between the start of each course. If well tolerated, treatment may continue until disease progression. The capsule(s) must be swallowed whole and must not be chewed crushed or divided.

Guidance on ordering and prescribing unlicensed imports

The following specialist importers have confirmed they can source unlicensed topotecan 1mg/1ml solution for injection (please note there may be other companies that can also source supplies):

- Mawdsleys
- Target Healthcare

The following specialist importers have confirmed they can source unlicensed topotecan 1mg/1ml solution for injection (please note there may be other companies that can also source supplies):

- Alium
- Mawdsleys
- Orifarm

	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), * Please note no specialist importers can source unlicensed topotecan capsules **Medicine Supply Notification** MSN/2023/067
Shortage of Atomoxetine 40mg and 60mg capsules	**Anticipated re-supply date** 30 September 2023 **Actions** **Primary and secondary care:** Clinicians/prescribers in primary and secondary care should: • proactively identify any patients on atomoxetine 40mg and 60mg capsules; • 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 capsules until the shortage is resolved • support primary care clinicians seeking advice for patients currently taking atomoxetine 40mg and 60mg capsules, 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 40mg and 60mg 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 and formulations of atomoxetine remain available but in insufficient quantities to meet increased demand. Guanfacine (Intuniv) prolonged release tablets remain available. 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 40mg and 60mg capsules (please note there may be other companies that can also source supplies and lead times vary): • Alium • BAP Pharma • Qmed Pharma • Target **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)
Shortage of Clarithromycin 125mg/5ml and 250mg/5ml oral suspension	**Anticipated re-supply date** 29 September 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. **Summary** Clarithromycin 125mg/5ml and 250mg/5ml oral suspension are in limited supply until end of September 2023. Serious Shortage Protocols (SSP) for clarithromycin 125mg/5ml and 250mg/5ml oral suspension were 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
Shortage of Capsaicin 0.075% (Axsain) and 0.025% (Zacin) cream	**Anticipated re-supply date** 30 September 2023 **Actions** Where patients have insufficient supplies to last until the resupply dates, prescribers should: • refer to local and national treatment guidelines for choice of an alternative agent, taking into account treatments already tried, and reasons for being on a topical agent (see clinical information below); and • where topical capsaicin is still considered the most suitable therapy, consider prescribing unlicensed products where appropriate. Prescribers should work with local pharmacy teams to ensure orders are placed within appropriate time frames as lead times may vary (see alternatives below). **Alternatives** The following specialist importers have confirmed they can source unlicensed capsaicin 0.025% and 0.075% cream (please note there may be other companies that can also source supplies and lead times may vary): • Target Healthcare

	Clinical Information Axsain (capsaicin 0.075% cream) is licensed for the symptomatic relief of neuralgia associated with and following Herpes Zoster infections (post-herpetic neuralgia) after open skin lesions have healed, and the symptomatic management of painful diabetic peripheral polyneuropathy. Zacin (capsaicin 0.025% cream) is licensed for the symptomatic relief of pain associated with osteoarthritis. *Neuropathic pain* NICE guidance recommends oral therapies such as amitriptyline, duloxetine, gabapentin or pregabalin as initial treatment for neuropathic pain in the non-specialist settings; if the initial treatment is not effective or is not tolerated, one of the remaining three drugs should be offered, and switching again if the second and third drugs tried are also not effective or not tolerated. Use of capsaicin cream is supported as an option for people with localised neuropathic pain who wish to avoid, or who cannot tolerate, oral treatments. *Osteoarthritis* NICE guidance notes that there was some evidence showing that topical capsaicin reduces pain in knee osteoarthritis, but not hand osteoarthritis, and it has minimal adverse events. However, it is more expensive and topical NSAIDs were considered a better option. If topical medicines are ineffective or unsuitable, an oral NSAID is recommended, taking into account potential gastrointestinal, renal, liver and cardiovascular toxicity, and any risk factors the person may have, including age, pregnancy, current medication and comorbidities. Paracetamol or weak opioids are not recommended unless they are only used infrequently for short-term pain relief and all other pharmacological treatments are contraindicated, not tolerated or ineffective. Please refer to the links below for further information **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 (RPS) • Prescribing unlicensed medicines, General Medical Council (GMC) **Medicine Supply Notification Number** MSN/2022/028
Shortage of Estradiol (Progynova TS) 100micrograms/24hours transdermal patches	**Anticipated re-supply date** 1 September 2023 **Actions** **For patients with insufficient supplies of estradiol (Progynova TS) 100micrograms/24hours transdermal patches:** • community pharmacists may supply FemSeven (estradiol) 100mcirograms/24hours transdermal patches in accordance with the Serious Shortage Protocol (SSP) for Progynova TS 100micrograms/24hours patches for eligible patients (see Supporting Information); • pharmacists must ensure that the patient's prescriber and/or GP practice is notified when supplying a patient in accordance with this SSP; and

	• if the patient is deemed ineligible or does not consent to receive an alternative product via the SSP, they should be referred to the prescriber to establish if ongoing treatment is required and switch to an alternative hormone replacement therapy (HRT), taking into consideration wider supply issues. **Alternatives** FemSeven (estradiol) 100mcirograms/24hours transdermal patches remain available and can support a full uplift in demand. **Supporting Information** An SSP for Estradiol (Progynova TS) 100microgram/24hours patches was issued on 28/03/2023. DHSC will continue to provide updates on HRT stock availability on the Medicine Supply Tool and designated 'Prescribing available HRT products' page on the Specialist Pharmacy Service (SPS) website. **Medicines Supply Notification Number** MSN/2023/035
Shortage of Solivito N powder for concentrate for solution for infusion vials	**Anticipated re-supply date** 28 June 2024 **Actions** **Inpatient Parenteral Nutrition:** **Nutritional teams and/or other clinicians prescribing Solivito N (for inpatients) should follow the below advice:** Complete a multi-disciplinary review of all patients prescribed Solivito N and only where it is safe, switch patients to an alternative treatment or regime as per agreed local guidance; Special consideration should be given to the highest risk patients including neonates, paediatrics and clinically vulnerable adults with supply being prioritised for these patient groups. It is essential that neonates receive multivitamin supplementation when prescribed; Review local stock holding and anticipated demand for that month, and order Solivito N in line with allocations from Fresenius Kabi (FK); RPPS will assess stock levels and may ask Trusts to reallocate any excess stock via mutual aid; or Where Trusts have a deficit in supply, Pharmacy teams should escalate to their RPPS to engage with FK to request a review of allocations or facilitate stock sharing where appropriate. From w/c 21st August 2023, clinical teams can consider prescribing Cernevit. Orders should be conservative and in line with usual Solivito N requirements to cover the deficit. **Home Parenteral Nutrition:** **Home Parenteral Nutrition patients are not affected by this supply disruption. However, due to the ongoing issues, clinical teams should:** not initiate any new Home Parenteral Nutrition patients on Solivito N without liaising with their commercial compounder to establish if supply can be fulfilled**.**

	Alternatives The following products remain available: • Cernevit powder for solution for injection vials but can only support an increase in demand from w/c 21st August 2023. • Forceval capsules • Forceval Soluble tablets • Forceval Soluble Junior tablets • Nutratain 932mg powder for solution for infusion vials • Pabrinex Intravenous High Potency solution for injection 5ml and 5ml ampoules **Summary** Solivito N is used in the compounding of parenteral nutrition (PN). Solivito N vials will be in limited supply until mid-2024. Trusts will receive allocated stock of Solivito N vials for the duration of this period. Home Parenteral Nutrition patients are not affected by this shortage. Cernevit powder for solution for injection vials remain available but cannot support a full uplift in demand until w/c 21st August 2023. **MSN Number** MSN/2023/070
Shortage of Paracetamol 100mg/10ml solution for infusion ampoules	**Anticipated re-supply date** 30 November 2023 **Actions** **NHS provider Trust pharmacy procurement teams, working with the appropriate clinical specialists should:** • update clinical guidance/formularies, where necessary, to ensure paracetamol intravenous 1g/100ml is only initiated when clinically appropriate and switched to either oral paracetamol or an alternative treatment as soon as practical or to alternative parenteral analgesia if administration via the oral route is not possible (see NICE guidance or refer to local guidelines). • ensure stock of paracetamol 500mg/50ml is reserved for use in children's and neonatal services, where alternative treatments are not suitable. Over ordering stock will be challenged, and; • order a maximum of 1 week of stock at 75% of historic demand of paracetamol 1g/100ml at any one point, over ordering will be challenged. **Alternatives** • Paracetamol suppositories remain available but cannot support an uplift in demand • Paracetamol 500mg/50ml solution for infusion remains available but cannot support an uplift in demand and should be reserved for use in children and neonates where alternative treatments are not suitable **Supporting information** • Paracetamol solution for infusion is licensed for the short-term treatment of moderate pain, especially following surgery, and for the short-term treatment of fever, when intravenous administration is clinically justified by an urgent need to treat pain or hyperthermia and/or when other routes of administration are not possible. • The 1g/100 ml presentation is restricted to use in adults, adolescents and children weighing more than 33 kg (approximately 11 years of age). The

	500mg/50 ml presentation is adapted to term newborn infants, infants, toddlers and children weighing less than 33 kg. Dosing is based on patient weight as outlined in the dose tables in the SmPC. • NICE guidance on perioperative care in adults recommends oral paracetamol before and after surgery, including dental surgery, irrespective of pain severity, and intravenous paracetamol should only be used if patients cannot take oral medicine.
Shortage of Microgynon 30 ED tablets	**Anticipated re-supply date** 24 November 2023 **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
Shortage of Triamcinolone hexacetonide 20mg/1ml suspension for injection ampoules	**Anticipated re-supply date** 26 January 2024 **Actions** **Actions for prescribers** Clinicians should consider: • prescribing an alternative steroid injection during this time **Alternatives** Triamcinolone acetonide and other steroid injections remain available.
Shortage of Cisplatin 50mg/50ml and 100mg/100ml concentrate for solution for infusion vials	**Anticipated re-supply date** 22 September 2023 **Actions** **NHS provider pharmacy procurement teams in Pfizer (CESW, LSNE & DNW) contracted regions should:** • urgently place orders for unlicensed imports (see supporting information) to meet the needs of patients; • work with the aseptic and quality assurance leads in Trusts to be ready to use unlicensed imports in aseptic units on receipt; and • work with their pharmacy aseptic lead to ensure appropriate mitigations are put in place to minimise the risk of product confusion and dosing errors if

	Trusts are likely to have multiple unlicensed products in use within the organisation at the same time. **NHS provider pharmacy procurement teams in Accords (DLN) contracted region should:** • continue to place orders in line with forecasted demand. Any over ordering will be challenged. **Alternatives** Accord remains in stock of both strengths and can continue to supply their contracted region (London North & East of England (DLN). Accord cannot support the demand from non-contracted regions (North West (DNW), East Midlands, West Midlands, South West and South-Central regions (CESW) & South London, South East Coast, North East, and Yorkshire & Humber (LSNE)) during this period. Supplies from commercial compounders will remain available but they are not able to increase capacity or accept new customers during this period. Any new or increased ordering will be challenged. **Unlicensed Imports** The following specialist importers have confirmed they can source unlicensed cisplatin 50mg/50ml and 100mg/100ml concentrate for solution for infusion vials (please note there may be other companies that can also source supplies): • Clinigen Healthcare* • Orifarm • Qmed Pharma • Smartway* • Target Healthcare ** Specialist importer has applied for MHRA letter of no objection.* **Medicine Supply Notification Number** MSN/2023/066 Please note this MSN has now been superseded by MSN/2023/072 Platinum-based Chemotherapy Agents: Cisplatin, Carboplatin and Oxaliplatin **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 Irinotecan hydrochloride 330mg/ 220ml and 360mg/ 240ml bags	**Anticipated re-supply date** 27 August 2023 **Actions** **NHS provider Trust pharmacy procurement teams, Aseptic units and their local Medication Safety Officer should:** • assess current stock holding of irinotecan hydrochloride 330mg/ 220ml bags and 360mg/ 240ml bags to ensure current stock levels are correctly recorded in pharmacy systems

	• consider placing orders of irinotecan hydrochloride 330mg/ 220ml bags and 360mg/ 240ml bags from commercial compounders where there are insufficient supplies during this period (see Supporting Information); or • consider in-house aseptic preparation of irinotecan hydrochloride 330mg/ 220ml and 360mg/ 240ml bags for the duration of this shortage, ensuring work systems including appropriate documentation and worksheets are updated to support this **Alternatives** **Able to support demand** The following suppliers can provide a full uplift in demand with the following vials sizes. Consilient Irinotecan 40mg/ 2ml, 100mg/5ml, 300mg/15ml vials Fresenius Kabi Irinotecan 100mg/5ml, 300mg/15ml, 500mg/25ml vials Seacross Pharmaceuticals LTD Irinotecan 100mg/5ml, 300mg/15ml vials **Unable to support demand** The following suppliers cannot support an increase in demand with the following vials sizes. Accord Irinotecan 100mg/5ml, 300mg/15ml, 500mg/25ml vials, 1000mg/50ml vials Pfizer Campto (Irinotecan) 40mg/ 2ml ,100mg/5ml, 300mg/15ml vials **Supporting information** **Commercial Compounders** Commercial compounders have confirmed they have capacity to accept new customers for the compounding of irinotecan hydrochloride 330mg/ 220ml and 360mg/ 240ml bags during this period. The following commercial compounders have confirmed they can support with the compounding of Irinotecan hydrochloride 330mg/ 220ml and 360mg/ 240ml bags during this period and have provided contact email addresses (please note there may be other compounders that can also support): • ITH Pharma: commercial@ithpharma.com • Quantum: west@quantumpharma.co.uk: caroline.munday@quantumpharma.co.uk • Sciensus: Appleby@sciensus.com • Bath ASU: limited capacity – individual Trusts need to approach Bath ASU and they will advise on a case-by-case basis: gailey@pharmaxo.com **Medicine Supply Notification Number** MSN/2023/022
Shortage of Disopyramide 100mg capsules and 250mg modified-release tablets	**Anticipated re-supply date** 18 August 2023 **Medicines affected** Anticipated re-supply date **Disopyramide 100mg capsules 84 capsule** 1 September 2023 **Disopyramide 250mg modified-release tablets 60 tablet** 18 August 2023 **Alternatives**

	Parallel imports of disopyramide 100mg capsules and 250mg modified release tablets are available and can cover the demand for the duration of the shortage. Orders can be placed directly with the following suppliers: • DrugsRUs Limited – via DrugsRUs Limited by contacting Veer@drugsrus.co.uk **Enquiries about page or supply issue** You can send any enquiries about this page or the individual supply issue raised to: DHSCmedicinesupplyteam@dhsc.gov.uk
Platinum-based Chemotherapy Agents: Cisplatin, Carboplatin and Oxaliplatin	**Anticipated re-supply date** 22 September 2023 **Medicines affected** Anticipated re-supply date **Cisplatin 100mg/100ml solution for infusion vials** **13 October 2023** **Cisplatin 50mg/50ml solution for infusion vials** 30 October 2023 **Carboplatin 600mg/60ml solution for infusion vials (Pfizer Ltd) 1 vial** 22 September 2023 **Actions** **Cisplatin and Carboplatin** NHS provider pharmacy procurement teams in **all** regions should: • urgently place orders for unlicensed imports (see Supporting Information) to meet the needs of patients during this period; • work with the aseptic and quality assurance leads in trusts to be ready to use unlicensed imports in aseptic units on receipt (see Supporting Information); and • work with their pharmacy aseptic lead to ensure appropriate mitigations are put in place to minimise the risk of product confusion and dosing errors in the event that trusts have multiple unlicensed products in use within the organisation at the same time. **Oxaliplatin** NHS provider pharmacy procurement teams in **all** regions should continue to order oxaliplatin in line with historic order patterns acknowledging that unusual orders will be challenged. **Alternatives** **Oxiplatin** Whilst oxaliplatin solution for infusion vials remain available, these, cannot support any uplift in demand. **Cisplatin and carboplatin unlicensed imports** Cisplatin and carboplatin unlicensed imports are available from a range of suppliers. The SPS Quality Assurance team has produced advice on both available cisplatin products and available carboplatin products. These lists and assessments will be kept up-to-date with advice and available unlicensed products as the situation changes. **Supporting information** • There are supply constraints facing the platinum-based chemotherapy agents. • Supplies of all strengths of cisplatin solution for infusion vials are in very limited supply and unable to meet full UK demand until at least early October 23. A resupply date is yet to be confirmed. • Supplies of all strengths of carboplatin solution for infusion vials are in limited supply and unable to meet full UK demand until mid- September 2023.

	• Availability of carboplatin 600mg/60ml solution for infusion vials are expected to be significantly impacted during this period. • Supplies from Independent Aseptic Compounders will remain available, but they will not be able to increase capacity or accept new customers during this period. Any new or increased ordering will be challenged. • Trusts should place orders immediately for unlicensed imports to support during this period. • The NHSE Commercial Medicines Unit is actively working with the appropriate clinical advisers to provide clinical guidance in to support management during this time. Further information will be shared when finalised. • Please note, this MSN supersedes MSN/2023/066 Cisplatin 50mg/50ml and 100mg/100ml solution for infusion vials. **Medicine Supply Notification Number** MSN/2023/072 **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 Tegretol (carbamazepine) 100mg tablets	**Anticipated re-supply date** 1 September 2023 **Medicines affected** Anticipated re-supply date **Tegretol 100mg tablets (Novartis Pharmaceuticals UK Ltd)** 1 September 2023 **Actions** Where patients have insufficient supplies to last until the re-supply date, clinicians should: consider prescribing half of a Tegretol 200mg tablet (unlicensed manipulation), ensuring patients are able to split the tablet, and understand they are receiving the same dose (see Supporting Information); consider prescribing Tegretol 100mg/5ml liquid for patients unable to split a Tegretol 200mg tablet, ensuring the patient is counselled on the appropriate volume to take; and seek advice from specialists on alternative management options, if the above are not considered appropriate. **Alternatives** The following products remains available and can support an uplift in demand: • Tegretol (carbamazepine) 200mg tablet • Tegretol (carbamazepine) 100mg/5ml liquid Generic carbamazepine 100mg tablets remain available but are unable to support an increase in demand. **Clinical information**

	Tegretol (carbamazepine) tablets are licensed for the management of generalised tonic-clonic and partial seizures in epilepsy, the prophylaxis of manic-depressive psychosis in patients unresponsive to lithium therapy, and for trigeminal neuralgia. As carbamazepine is a category 1 anti-epileptic drug, there are clear indications that clinically relevant differences between different manufacturers' products might occur, even when the pharmaceutical forms are the same and bioequivalence has been shown, thus patients should be maintained on a specific manufacturer's product. Tegretol 200mg tablets are scored but they are not licensed to be halved to deliver a part dose, and there may be slight variation in bioavailability from halving a 200mg tablet or switching to the liquid, but these are pragmatic options that have to be considered whilst Tegretol 100mg tablets are out of stock. Patients should be advised to report any loss of disease or seizure control, and adverse effects, after the switch. Patients prescribed Tegretol 200mg tablets, or their carer, should be counselled on dosing, ensuring they are able to halve the tablet, and to use a tablet cutter if there are manual dexterity issues. They should also be advised to only halve one tablet at a time for immediate use, and store the remaining half for the next dose, in the tablet cutter if using one, or in an empty tablet bottle. **Medicine Supply Notification Number** MSN/2023/074
Shortage of TicoVac Junior vaccine suspension for injection 0.25ml pre-filled syringes	**Anticipated re-supply date** 25 August 2023 **Actions** Please refer to the following resource which includes practical advice for travellers and advice for health professionals: NaTHNaC – Tick-borne encephalitis risk: practical advice during vaccine shortage (travelhealthpro.org.uk) Links • SmPC TicoVac Junior 0.25 ml Suspension for injection in a pre-filled syringe • BNF Tick-borne encephalitis vaccine, inactivated **Enquiries about page or supply issue** You can send any enquiries about this page or the individual supply issue raised to: DHSCmedicinesupplyteam@dhsc.gov.uk
Shortage of Varenicline 0.5mg and 1mg tablets	**Actions** Please refer to the updated Supply Disruption Alert issued on 28th October 2021 for management advice. **Alternatives** In addition to the advice in the updated Supply Disruption Alert [28th October 2021], the following specialist importers have confirmed they can source unlicensed varenicline 500micrograms tablets and/or varenicline 1mg tablets (please note there may be other companies that can also source supplies): • Thistle Pharma (please contact for further information- Tel: 0330 123 3001, E: Contactus@thistlepharma.com) **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) **Enquiries about page or supply issue** You can send any enquiries about this page or the individual supply issue raised to: DHSCmedicinesupplyteam@dhsc.gov.uk
Shortage of Reboxetine (Edronax) 4mg tablets	**Anticipated re-supply date** 3 November 2023 **Actions** **Clinicians in primary and secondary care:** • Should not initiate new patients on reboxetine (Edronax) 4mg tablets until the shortage has resolved. • Use unlicensed imports (see details below) where available until the resupply date **Where an import is not readily available:** • In secondary care, where there are insufficient stocks, request mutual aid, facilitated by Regional Pharmacy Procurement Specialist. • In primary care, if stock is unavailable, consider referring the patient back to the initiating hospital specialist where stock may still be available. This should be checked before a referral is made. • If there are insufficient supplies, prescribers in primary and secondary care should consider switching to an alternative antidepressant (with noradrenergic properties) such as lofepramine or venlafaxine, if not contra-indicated or previously tried. • If stopping or switching to alternative treatment, national guidance on tapering (see below) should be followed, involving the patient so that a shared decision can be reached on the preferred treatment options **Alternatives** **Guidance on ordering and prescribing unlicensed imports** The following specialist importer has confirmed they can source unlicensed reboxetine 4mg tablets (please note there may be other companies that can also source supplies): • Mawdsleys • Target Healthcare **Summary** **Reboxetine (Edronax) 4mg tablets are out of stock from mid-August until the end of October 2023.** **Unlicensed imported stock is available.** If local stock holding, imported stock and mutual aid cannot meet anticipated demand until the re-supply date, alternative antidepressants with noradrenergic properties should be considered. **Supporting information** Reboxetine, a noradrenaline reuptake inhibitor, is licensed for the acute treatment of depressive illness/major depression and for maintaining clinical improvement in patients initially responding to treatment. **Stopping medication**

	If it is considered appropriate to stop antidepressants, the Royal College of Psychiatrists have issued guidance on stopping antidepressants (see link below). **Medicine Supply Notification Number** MSN/2023/073 **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 Permethrin 5% cream	**Anticipated re-supply date** 4 August 2023 **Considerations and background** In recent weeks there have been delays in resupply of some brands of permethrin 5% cream During this period, alternative suppliers remained in stock but supplies may have been limited. It has now been confirmed that by Friday 4th August 2023 there will be a large quantity of permethrin 5% cream available to the market that is sufficient to meet demand. Further large deliveries are scheduled for delivery in mid-September 2023, with regular monthly supplies at a similar volume thereafter. To manage supply, wholesalers may have maximum order caps in place however, if there is a requirement for large quantities of stock then local services should engage with wholesalers to alert them to the need for a large quantity of stock for the treatment of an outbreak.
Shortage of Fluvoxamine (Faverin) 50mg and 100mg tablets	**Anticipated re-supply date** 18 August 2023 **Medicines affected** Anticipated re-supply date **Fluvoxamine 100mg tablets** 18 August 2023 **Fluvoxamine 50mg tablets** 6 October 2023 **Actions** **Actions for primary and secondary care:** If the patient has insufficient stock to last until the resupply date, consider unlicensed imports of fluvoxamine 50mg and 100mg tablets (see below for guidance on ordering and prescribing unlicensed imports). **Following resupply of licenced fluvoxamine 100mg tablets:** For patients with insufficient supply of fluvoxamine 50mg, if suitable, consider prescribing fluvoxamine 100mg tablets (when resupply is confirmed) which can be halved along a score line into two equal doses. Splitting of the tablet along the break line is within the product licence and therefore this would not be off-label use of the medicine.

	These patients prescribed fluvoxamine 100mg tablets who require a 50mg dose should be counselled on the splitting of tablets, including the following points: • For a 50mg dose, half a tablet = 50 mg fluvoxamine • The remaining half of the tablet should be disposed of in accordance with local requirements • For patients who may have issues breaking the tablets, e.g., poor dexterity, a tablet cutter should be provided, or a carer should be counselled on the splitting of tablets **Alternatives** Fluvoxamine 50mg and 100mg tablets are currently available as an import via 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 (MHRA) • Professional Guidance for the Procurement and Supply of Specials, Royal Pharmaceutical Society (RPS) • Prescribing unlicensed medicines, General Medical Council (GMC)
Shortage of Aspirin Suppositories	**Medicines affected** Anticipated re-supply date **Aspirin 150mg suppositories (Martindale Pharmaceuticals Ltd)** 25 August 2023 **Actions** **Clinicians should** • review all patients on aspirin suppositories and switch patients to oral therapy if possible; • consider using an alternative licensed medication(s) where a switch to oral therapy is not possible; • prescribe appropriate Specials or unlicensed imports where the above actions are not considered appropriate (see information below). **Alternatives** Use oral therapy if possible. Consider an alternative licensed medication where oral therapy is not possible. Use specials or unlicensed imports where licensed alternatives are not considered appropriate (see information below) **Clinical Information** Aspirin suppositories are licensed for the treatment of mild to moderate pain, pyrexia due to colds and influenza, and musculoskeletal pain and inflammation. They are also used off-label for their antiplatelet effect (e.g., after a stroke or MI) in patients who cannot swallow oral medicines, including those who do not have an enteral feeding tube in situ. **Specials** The following companies have indicated they can supply specials of aspirin suppositories (please note, there may be other companies that can manufacture supplies):

	• Mandeville Medicines • PCCA **Unlicensed imports** The following importer companies have indicated they can source supplies of aspirin suppositories (please note, there may be other companies that can also source supplies): • Alium Medical Pharma • Smartway Pharma • UL Global • Target • Mawdsleys 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); and • Prescribing unlicensed medicines, General Medical Council (GMC). Please see the following links for further information: • SmPC aspirin 150mg suppositories • SmPC aspirin 300mg suppositories **Medicines Supply Notification Number** MSN/2022/004
Shortage of Diazepam 10mg/2.5ml rectal solution tube	**Anticipated re-supply date** 1 September 2023 **Medicines affected** Anticipated re-supply date **Diazepam 10mg/2.5ml rectal solution tube (Desitin Pharma Ltd)** 1 September 2023 **Actions** **Where supply of diazepam 10mg/2.5ml rectal solution tubes are not available, clinicians should:** • review patients and consider prescribing midazolam oromucosal solution which can support the market during this time, ensuring that the patient is not intolerant to any of the excipients and parent/carer is counselled on the appropriate dose and volume required, and advised on how to administer the dose • if midazolam oromucosal solution is not appropriate, consider prescribing diazepam 5mg/2.5ml rectal solution tubes to make up the dose required for the patient: – The parent or carer will need to be counselled on the number of rectal tubes to administer to make up the required dose and reminded that they will need to repeat this process for any subsequent doses • consider prescribing unlicensed diazepam 10mg/2.5ml rectal solution tubes only where licensed alternatives are not appropriate; and • if the above options are not considered appropriate, advice should be sought from specialists for individualised review and consideration of alternative management options. **Ambulance service staff should:**

	• use diazepam 5mg/2.5ml rectal solution tubes to make up the dose required for the patient. **Alternatives** The following midazolam oromucosal solution pre-filled syringes remain available and can support an uplift in demand: • Midazolam 2.5mg/0.5mL oromucosal solution pre-filled syringes • Midazolam 5mg/1mL oromucosal solution pre-filled syringes • Midazolam 7.5mg/1.5mL oromucosal solution pre-filled syringes • Midazolam 10mg/2 mL oromucosal solution pre-filled syringes The following specialist importers have confirmed they can source unlicensed diazepam 10mg/2.5ml rectal solution tubes (please note there may be other companies that can also source supplies): • Orifarm **Clinical information** Diazepam rectal solution tubes are licensed in epileptic and febrile convulsions, to relieve muscle spasm caused by tetanus, as a sedative in minor surgical and dental procedures, and for initial use in acute severe anxiety and agitation. Midazolam oromucosal solution is licensed in the treatment of prolonged, acute, convulsive seizures in infants, toddlers, children, and adolescents (from 3 months to < 18 years). Midazolam oromucosal solution is not licensed for use in children under 3 month or in adults over 18 years. It is used off-label for status epilepticus in these age groups **Medicine Supply Notification Number** MSN/2023/063
Shortage of Imiquimod (Aldara 5% and Zyclara 3.75%) cream	**Anticipated re-supply date** 16 June 2023 **Medicines affected** Anticipated re-supply date **Bascellex 50mg/g cream 250mg sachets (Sun Pharmaceutical Industries Europe B.V.)** 16 June 2023 **Aldara 5% cream 250mg sachets (Viatris UK Healthcare Ltd)** 3 November 2023 **Zyclara 3.75% cream 250mg sachets (Viatris UK Healthcare Ltd)** 1 December 2023 **Actions** **NHS Provider Trust Pharmacy Procurement teams should:** • review local stock holding of Aldara 5% cream and 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 Aldara 5% cream and 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

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.

Clinical Information
Imiquimod preparations

Aldara 5% Cream is licensed for the topical treatment of:

- External genital and perianal warts (condylomata acuminata) in adults
- Small superficial basal cell carcinomas (sBCCs) in adults
- 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

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

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 14th August 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.