Shared Care Guideline for Adult Patients with Attention Deficit Hyperactivity Disorder (ADHD)

Ratified for use by the Bedfordshire, Luton and Milton Keynes Area Prescribing Committee (BLMK APC) in December 2023

Version number 1.2

Applicable for Milton Keynes only*

*** Scope of document:**

- Psychiatry-UK is the commissioned provider of NHS ADHD service for adult patients in Milton Keynes. This shared care guideline (SCG) sets out how the responsibility for managing the prescribing and monitoring of ADHD medications can be shared between Psychiatry-UK specialists and Primary Care prescribers.
- Whilst this SCG is intended for Milton Keynes locality only, Primary Care prescribers from Bedfordshire and Luton may follow this SCG for any NHS adult patients in their areas who have exercised their Right To Choose (RTC) to access ADHD service provided by Psychiatry-UK and for whom shared care is requested. For these patients, the service would be provided on behalf of the NHS.
- For NHS adult patients in BLMK who have accessed ADHD service with a private provider other than Psychiatry-UK via their RTC, the respective host NHS-approved SCG, where available, should be followed. These patients are outside the scope of this SCG.
- Primary Care prescribers are not expected to be asked to participate in a shared care arrangement where no NHS-approved SCG exists, or the medicine or condition does not fall within the criteria defining suitability for inclusion in a shared care agreement.
- The BLMK position statement on shared care with private providers must be read in conjunction with this SCG.
- The contents of this SCG are largely based on the generic shared care agreement document from Psychiatry-UK (last reviewed July 2023, adapted for local use) and the RMOC shared care protocols for the individual ADHD medications.

The following organisations contribute to and participate in the BLMK APC – Bedfordshire, Luton and Milton Keynes ICB; Bedfordshire Hospitals NHS Foundation Trust; Cambridgeshire Community Services NHS Trust; Central and North West London NHS Foundation Trust; East London NHS Foundation Trust; Milton Keynes University Hospital NHS Foundation Trust

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- Medicines considered suitable for shared care are those which should be initiated by a Specialist, but where prescribing and monitoring responsibility may be transferred to Primary Care. Due to their potential side effects, shared care medicines usually require significant regular monitoring, and regular review by the Specialist is needed to determine whether the medicines should be continued. The best interest, agreement and preferences of the patient should be at the centre of any shared care agreement.

- The transfer of prescribing responsibility from the Specialist to the patient's General Practitioner (GP) or Primary Care prescriber should occur when both parties are in agreement that the patient's condition is stable or predictable, and that the Primary Care prescriber has the relevant knowledge, skills and access to equipment to allow them to monitor treatment as indicated in this shared care prescribing guideline.

- The aim of this guideline is to equip Primary Care prescribers with the information to confidently take on clinical and legal responsibility for prescribing the medication under a shared care agreement within their own level of competence.

- Within the BLMK Integrated Care System (ICS), shared care guidelines are produced and updated through a robust governance process, following consultation with a wide range of key stakeholders. On this basis for BLMK ICS approved shared care guidelines, it is anticipated that Primary Care prescribers, upon individual assessment, will accept shared care for the patient if they felt it was clinically appropriate to do so and seek patient consent.

- If the Primary Care prescriber feels that a request for shared care cannot be accepted, i.e. falls outside of their own level of competence, they should initially seek further information or advice from the clinician who is sharing care responsibilities or from another experienced colleague in line with the General Medical Council (GMC) guidance.

- If the Primary Care prescriber is still not satisfied clinically to accept shared care, they should make appropriate arrangements for the patient's continuing care where possible. This may include asking another colleague in their practice to undertake the shared care. In the event that other colleagues in the practice also decline to share care, the Primary Care prescriber could seek assistance and advice from their Primary Care Network (PCN) (e.g. PCN Pharmacist).

- If the decision, after discussion with the PCN, is to decline shared care, the Primary Care prescriber must notify the Specialist clinician of their decision and reason (See appendix 1) to decline as soon as they can and in a timely manner (within a maximum of 14 to 21 days upon receipt of request) in writing and ensure the patient is aware of the change. In this scenario, the prescribing responsibility for the patient remains entirely with the Specialist. This principle also applies where shared care needs to be terminated in primary care e.g. due to lack of patient engagement. It is anticipated that these would be very rare events.

- The requirement for the Primary Care prescriber to send confirmation in writing via letter or approved electronic communication to the Specialist team for acceptance of shared care is NOT mandated.

- Where the Specialist clinician retains responsibility for monitoring drug therapy and/or making dosage adjustments, the Primary Care prescriber must be informed of any dose changes made as soon as possible to avoid medication errors. Similarly, if the Primary Care prescriber makes changes to the patient's medication regimen, the Primary Care prescriber must inform the Specialist in a timely manner. Primary Care prescribers can contact the Specialist team for advice, training and support as required.

- An agreed method of communication of blood test results and results of investigations between the Specialist, the Primary Care prescriber, the Community Pharmacist and the patient should be agreed at the onset of shared care and documented in the patient's notes in both Secondary care and Primary Care. Blood test results can usually be accessed electronically by both Secondary Care and Primary Care prescribers in the majority of cases. For some medications and in certain cases, the patient may elect to have a patient-held monitoring booklet, e.g. those on warfarin and lithium therapy.

- The principles above apply to shared care arrangements that involve the Specialist service sharing care with GPs and/or other Primary Care prescribers, e.g. Community Nursing Services. Where patient care is transferred from one Specialist service or GP practice to another, a new shared care agreement must be completed.

Methylphenidate, Lisdexamfetamine, Dexamfetamine, Atomoxetine and Guanfacine for treatment of ADHD in Adults

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ADHD is a neurodevelopmental condition and a heterogeneous behavioural syndrome characterised by the core symptoms of persistent hyperactivity, impulsivity and inattention. While these symptoms tend to cluster together, some people are predominantly hyperactive and impulsive, while others are principally inattentive. Symptoms of ADHD are distributed throughout the population and vary in severity; only those with moderate or severe impairment meet criteria for a diagnosis of ADHD. Symptoms of ADHD can overlap with symptoms of other related disorders, therefore care in differential diagnosis is needed.

ADHD is thought to be a persistent condition from childhood and for some adolescents, ADHD may persist into adult life requiring continuation of medication.

Diagnosis and initiation of treatment must be made by a specialist in the management of ADHD. Stimulants used to treat ADHD work by increasing dopamine levels in the brain to improve focus and functioning. Note that much of the prescribing for adults with ADHD is off-licence but supported by good evidence base. After initiation, titration and dose stabilisation of ADHD medication by the specialist, prescribing and monitoring of ADHD medication may be carried out under shared care arrangements with Primary Care prescribers.

NICE guidelines on the treatment of ADHD recommend that drug treatment of ADHD should form part of a comprehensive and holistic treatment programme that addresses psychological, behavioural and educational or occupational needs. This shared care guideline (SCG) is in accordance with NICE Clinical Guideline 87 and NICE Quality Standard 39.

The remit of this SCG is to provide guidance on the shared care of patients aged 18 years and over who may be prescribed methylphenidate, lisdexamfetamine, dexamfetamine, atomoxetine and guanfacine for the treatment of ADHD.

AREAS OF RESPONSIBILITY

Secondary/Tertiary Care Prescribers or Specialist Team

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Baseline assessment & decision to share care

- Before initiating patients on medication for ADHD (for newly diagnosed adult patients or where there has been a change in medication), the specialist should undertake a full assessment in line with NICE guidance.
- To confirm and provide the working diagnosis.
- To confirm that the patient's condition has a predictable course of progression and the patient's care can be suitably maintained by Primary Care, following their medicine being optimised and stabilised.
- Using a shared decision making approach, discuss with the patient and/or their carer about treatment options, including treatment aims, benefits and risks, available options, medication and alternative/additional interventions, side effects, monitoring arrangements, ongoing responsibilities for care (specialist, shared care and transfer of care), and possibility and reasons for stopping medication if necessary.
- Obtain patient informed consent for sharing of care between the Specialist, Primary Care prescriber and patient. Consenting parties must have sufficient, accurate, timely information in an understandable form. Consent must be given voluntarily and must be documented in the patient's notes.
- If shared care is considered appropriate for the patient, the patient's treatment regimen is confirmed, and benefit from treatment is demonstrated, the Specialist will contact the Primary Care prescriber to invite them to participate in a shared care arrangement (after treatment is stabilised and optimised). Agreement to share care will be assumed unless the Primary Care prescriber advises otherwise.

Prescribing

- Assess the patient for cautions, contraindications and interactions of the available options of ADHD medication.
- Conduct required baseline investigations and initial monitoring.
- Initiate, titrate and optimise treatment as outlined in the dosing section.
- Dose adjustment will usually be the responsibility of the initiating Specialist (unless care has been transferred to the Primary Care prescriber after a formal transfer of care and directions have been specified in the medical letter).
- Prescribe the stabilised maintenance treatment for at least 4 weeks and until optimised.
- Ensure the patient has an adequate supply of ADHD medication until shared care arrangements are agreed and in place.
- Further prescriptions will be issued if, for unforeseen reasons, arrangements for shared care are not in place by the anticipated start date of the shared care. Patients should not be put in a position where they are unsure where to obtain supplies of their medication.
- Prescribe in line with controlled drug prescription requirements where applicable.

Communication with patient and Primary Care

- Ensure that the Primary Care prescriber has sufficient information to enable them to monitor treatment, identify medicines interactions, and prescribe safely. This should include access or direction to a current copy of the SCG and contact details for the initiating Specialist.
- As a partner in the shared care agreement, the patient should also be provided with access or direction to a copy of the shared care guideline where appropriate, including details of their treatment, follow-up appointments, monitoring requirements and specialist contact details. Any other appropriate patient information leaflets should also be provided.
- Provide the Primary Care prescriber with the following information in writing:
  - diagnosis of the patient's condition with the relevant clinical details/test results
  - details of the patient's specialist treatment to date (including dose and frequency of treatment)

- details of treatment to be undertaken by the Primary Care prescriber (including reasons for choice of treatment, medicine or medicine combination, brand to be prescribed if relevant, dose and frequency of treatment)
- the date from which the Primary Care prescriber should prescribe the treatment
- details of other specialist treatments being received by the patient that are not included in shared care
- details of monitoring arrangements required
- details for fast-track referral back to specialist care, including contact information

- Provide advice and guidance to primary care to support the shared care agreement, including advice on the management of adverse effects if required.
- Provide continued support for the Primary Care prescriber and answer any questions they may have on the treatment and the ADHD condition.
- Prior to transfer of prescribing, ensure that patients and/or their carers are aware of and understand their responsibilities to attend appointments and the need for continued monitoring arrangements. Ensure their understanding that treatment may be stopped if they do not attend for monitoring and treatment review.

Maintenance, monitoring and review of medication

- Monitor the effectiveness of medication for ADHD and adverse effects, and document in the patient's notes.
- Conduct the required monitoring (e.g. patient's physical health) and communicate the results to primary care.
- Encourage people taking medication for ADHD to monitor and record any adverse effects.
- Consider using standard symptom and adverse effect rating scales for clinical assessment and throughout the course of treatment.
- Ensure that patients receiving treatment for ADHD have review and follow-up according to the severity of their condition, regardless of whether or not they are taking medication.
- Review ADHD medication at least once a year and discuss with the person with ADHD (and their families and carers as appropriate) whether medication should be continued. The date of annual review will be calculated a year from the date of stabilisation.
- Send a written summary of follow-up reviews to the Primary Care prescriber in a timely manner, noting details of any relevant results or investigations if applicable, and confirming that ongoing treatment with the monitored medicine at the current dosage is appropriate.
- Any changes made to the patient's treatment will be communicated clearly in writing to the Primary Care prescriber and the patient.
- Trial discontinuations should be managed by the Specialist.
- Reassume prescribing responsibilities if a woman becomes or wishes to become pregnant.
- Report any adverse effects from the treatment to the MHRA via the Yellow Card Scheme https://yellowcard.mhra.gov.uk/.

Primary Care Prescribers

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Decision to share care

- If accepting the shared care request from the Specialist, commencement of shared care must be clearly documented in the patient's Primary Care medical notes. The requirement for the Primary Care prescriber to send confirmation to the Specialist in writing via letter or approved electronic communication for acceptance of shared care is not mandated.
- If declining the request for shared care, the decision and rationale should be explained to the Specialist in writing as soon as possible and in a timely manner, within a maximum of 14 to 21 days upon receipt of request. The patient should also be informed of the decision.
- Undergo any additional training necessary, or seek further information or guidance from the Specialist if necessary, in order to understand the therapeutic issues relating to the patient's clinical condition and to carry out the prescribing and monitoring of ADHD medication.

Prescribing

- If shared care is accepted, prescribe the ADHD medication following recommendations of the Specialist and in accordance with the written instructions contained within the SCG.
- Prescribe within their own level of competence. The (GMC) guidance on "Good practice in prescribing and managing medicines and devices" states that doctors are responsible for the prescriptions they sign and their decisions and actions when they supply and administer medicines and devices, or authorise or instruct others to do so. They must be prepared to explain and justify their decisions and actions when prescribing, administering and managing medicines.
- The same principles apply to non-medical prescribers as well as medical prescribers as outlined in the "Competency Framework for all Prescribers".
- Prescribe in line with controlled drug prescription requirements where applicable.
- Assess for possible interactions with the ADHD medication when initiating new medicines.

Communication with patient and the Specialist

- Provide the Specialist with any relevant medical history and background information as needed.
- Contact the Specialist if concerned about any aspects of the patient's treatment and condition, including any emerging side effects or if there is suspicion of abuse of stimulant medication.
- Communicate any dose changes of the ADHD medication made in Primary Care to the patient. It is the responsibility of the prescriber making a dose change to communicate this to the patient. The Specialist should also be made aware of any changes made to the ADHD medication regimen.
- Report significant deviations from the prescribing pattern to the Specialist.
- When transfer of care is requested, respond to the Specialist's request as soon as practicable. NB: Acceptance of transfer of care is not assumed as it is for shared care, and therefore a response is required.

Maintenance, monitoring and review of medication

- The Primary Care prescriber will ensure that the patient is monitored as outlined in the SCG (see section 3 - monitoring requirements) and will take the advice of the referring Specialist if there are any amendments to the suggested monitoring schedule.
- The Primary Care prescriber will ensure a robust monitoring system is in place to ensure that the patient attends the appropriate appointments in Primary Care for follow-up and monitoring, and that defaulters from follow-up are contacted to arrange alternative appointments. It is the Primary Care prescriber's responsibility to decide whether to continue treatment for a patient who does not attend appointments required for follow-up and monitoring, and to inform the Specialist of any action taken.
- Encourage people taking medication for ADHD to monitor and record any adverse effects.
- Manage any adverse effects as detailed in the SCG and discuss with the Specialist when required.
- Make an urgent referral for appropriate care if suicidal behaviour or ideation, syncope, or other signs or symptoms of cardiovascular adverse effects occur.
- Report any adverse effects from the treatment to the MHRA via the Yellow Card Scheme https://yellowcard.mhra.gov.uk/.
- In the event of destabilisation or treatment failure in primary care, whilst under shared care or following transfer of care, the Primary Care prescriber should refer back to the Specialist for review.
- Refer any patient who becomes pregnant, or who wishes to plan a pregnancy, back to the Specialist.
- Following transfer of care, conduct an annual review which should include discussion with the patient about whether they wish to continue treatment and any planned dose reductions.

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Patient and/or carer

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- Provide their informed consent for sharing of their care with the Specialist and Primary Care prescriber. Consenting parties must have sufficient, accurate, timely information in an understandable and accessible format. Consent must be given voluntarily and must be documented in the patient's notes. Supporting information is available from NICE "Making decisions about your care".
- Take their medication as prescribed, and avoid abrupt withdrawal of their medication, unless otherwise instructed by an appropriate healthcare professional.
- Meet all necessary monitoring arrangements to ensure the safe prescribing of their medication, and to alert the prescriber where these arrangements are not met.
- Attend all follow-up and monitoring appointments with the Primary Care prescriber and Specialist. If the patient is unable to attend any appointments, they should inform the relevant practitioner as soon as possible and arrange an alternative appointment. Be aware that medicines may be stopped if they do not attend.
- Inform healthcare professionals of their current medications prior to receiving any new prescribed medication. It is also important that the Specialist or Primary Care prescriber is made aware of any other medications being taken that may not appear in the patient's medical records, such as over-the-counter (OTC) products, any medicinal products obtained privately, and any recreational drugs.
- Where the patient is under the care of multiple healthcare professionals/specialists or clinics (whether they are with the NHS and/or a private provider), the patient/carer should raise any potential prescribing of new medications or any items with medicinal properties with all the healthcare professionals involved in the patient's care. This is to ensure that any potential drug interactions are identified and clinically reviewed.
- Discuss the use of their ADHD medication with a pharmacist before purchasing any OTC products.
- Read the information supplied by their Primary Care prescriber, Specialist and Pharmacist. Contact the relevant practitioner if they do not have a clear understanding of the treatment prescribed and any of the information given, or if they have any concerns in relation to their treatment.
- Keep contact details up to date and any changes are to be informed to both prescribers.
- Store their medication securely away from children and according to the medication instructions.
- Report any suspected adverse events/reactions to the Specialist or Primary Care prescriber.
- Seek immediate medical attention if they develop any symptoms of concern as detailed in the SCG.
- Not to drive or operate heavy machinery if their ADHD condition or the medication affects their ability to do so safely, and inform the DVLA (and their vehicle insurance provider if relevant) if their ability to drive safely is affected. This also applies to patients who hold a provisional driving license.
- Avoid alcohol during treatment as it may make some side effects worse. Avoid recreational drugs.
- Some ADHD medications (stimulants) are schedule 2 controlled drugs, therefore they may be required to prove their identity when collecting prescriptions. Patients should store their medication safely and securely, and must not share with anyone else.
- Patients of childbearing potential should take a pregnancy test if they think they could be pregnant, and inform the Specialist or Primary Care prescriber immediately if they become pregnant or wish to become pregnant.

See Appendix 2 (on page 31) for further advice for patients and carers relating to ADHD medications which the Specialist will counsel the patient on, alongside any other relevant information/patient leaflets that may be provided on individual medicines.

Community Pharmacist

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- Know where and how to access this locally agreed SCG to aid professional clinical check of prescription for ADHD medication prior to dispensing.
- Professionally check prescriptions to ensure they are safe for the patient and contact the Primary Care prescriber if necessary to clarify their intentions.
- Fulfil legal prescriptions for ADHD medication for the patient unless they are considered unsafe.
- Ensure all legal requirements relating to the prescribing and dispensing of controlled drugs are met where applicable.
- Counsel the patient on the proper use of their ADHD medication.
- Advise patients suspected of experiencing an adverse reaction to their medicines to contact their Primary Care prescriber or Specialist.

COMMUNICATION AND SUPPORT

Specialist contact information

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Psychiatry-UK
Trewalder Chapel
Trewalder
Cornwall, PL33 9ET

Tel: 0330 124 1980 (Monday to Friday 08:00-20:00, Saturday to Sunday 09:00-17:00)
Fax: 020 3744 2961
Email: p-uk.miltonkeynes-adultadhd-referrals@nhs.net for any clinical/medication queries
(Or p-uk.admin@nhs.net for general enquiries)
Website**:** www.psychiatry-uk.com

Adult ADHD Clinical Lead: Dr Stephen Ilyas, Consultant Psychiatrist
CAMHS Clinical Lead: Dr Monica Shaha, Consultant in Child and Adolescent Psychiatry

TRANSFER OF CARE OF STABLE PATIENTS

In the longer term, following the first annual review, the Specialist and Primary Care prescriber may agree to a transfer of care arrangement where the Primary Care prescriber agrees to take over the full clinical responsibility for the patient. This should only be considered when the patient's clinical condition is stable and predictable. This could be approximately 12 months after stabilisation of ADHD treatment following a period of shared care and after the first annual review by the Specialist (subject to a satisfactory annual review).

The Specialist must contact the Primary Care prescriber to request transfer of care, and the Primary Care prescriber is required to formally accept in writing. This differs from the shared care arrangement whereby it has been agreed that it is assumed the Primary Care prescriber will accept shared care unless they state otherwise. Prior to transfer of care, the Specialist should provide the Primary Care prescriber with a clear management plan which should include:

- Recommendations around the continuation of ADHD treatment in the long term
- Details of annual health check criteria
- Details of a step-up or step-down plan should any problems arise in the future
- Details of an easy route back into the specialist's care and access to immediate specialist advice for these patients. This will include a direct access telephone number and email address.

If the request for transfer of care is accepted, the Primary Care prescriber will continue the prescribing of ADHD treatment and the monitoring of the patient, and will also complete subsequent annual reviews.

In the event of destabilisation or treatment failure in primary care following transfer of care, the Primary Care prescriber should refer back to the Specialist for review and assessment.

CLINICAL INFORMATION

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In addition to using this guideline, please ensure that the current Summaries of Product Characteristics (SPCs), British National Formulary (BNF), Medicines and Healthcare products Regulatory Agency (MHRA) website and NICE websites are reviewed for up-to-date information and full details of any medicine.

Indication and therapeutic summary (including licensing information)	Attention Deficit Hyperactivity Disorder (ADHD) Stimulants: • **Methylphenidate** • **Lisdexamfetamine** • **Dexamfetamine** These stimulants are all schedule 2 Controlled Drugs; prescribers must follow all legal requirements for prescribing controlled drugs. (See NICE Guidance NG46 Controlled drugs: safe use and management) Non-stimulants: • **Atomoxetine** • **Guanfacine** These non-stimulants are not Controlled Drugs; normal prescription requirements apply. Licensing information: Prescribers should note that ADHD medications are not generally licensed for use in adult patients, therefore much of the prescribing for adults with ADHD is regarded as off-licence, i.e. “off label” use of a licensed product. However, the use of ADHD medications in adults is established and supported by various sources and bodies including the BNF and NICE. A summary of the licensing information for each of the ADHD medications is given below. Note that licensed indications vary by manufacturer. For full up-to-date details for each of the ADHD medications, clinicians should refer to the individual Summary of Product Characteristics (SPCs) at www.medicines.org.uk/emc. **Methylphenidate:** Licensed for use in children aged 6 years of age and over. It is not licensed for initiation in adults as such, however it is acknowledged that it may be appropriate to continue treatment into adulthood in adolescents whose symptoms persist into adulthood and who have shown clear benefit from treatment. Dosing information for treatment of ADHD in adults is available in the BNF. NB: Not all preparations of methylphenidate have a UK marketing authorisation for treating symptoms of ADHD in adults. Also note that the safety and efficacy of methylphenidate has not been established in patients older than 65 years of age. **Lisdexamfetamine:** Indicated as part of a comprehensive treatment programme for ADHD in children aged 6 years and over when response to previous methylphenidate treatment (6-week trial) is considered clinically inadequate. In adolescents whose symptoms persist into adulthood and who have shown clear benefit from treatment, it may be appropriate to continue treatment into adulthood. Dosing information for treatment of ADHD in adults is available in the BNF. **Dexamfetamine:** Indicated as part of a comprehensive treatment programme for ADHD in children and adolescents aged 6 to 17 years when response to previous methylphenidate treatment is considered clinically inadequate. Not licensed for use in adults for ADHD. The safety and efficacy of dexamfetamine in adults with ADHD have not been established. Dosing information for treatment of ADHD in adults is available in the BNF. Use in adults is off licence (off-label use).

Back to top	**Atomoxetine:** Licensed for the treatment of ADHD in children of 6 years and older, in adolescents and in adults as part of a comprehensive treatment programme. Licensed for adults when symptoms of ADHD pre-existed in childhood and in those who have shown clear benefit from treatment in childhood. Dosing information for treatment of ADHD in adults is available in the BNF. NB: The safety and efficacy of atomoxetine has not been systemically evaluated in patients over 65 years of age. **Guanfacine:** Indicated as part of a comprehensive treatment programme for ADHD in children and adolescents aged 6 to 17 years for whom stimulants are not suitable, not tolerated or have been shown to be ineffective. Not licensed for use in adults for ADHD as the safety and efficacy of guanfacine in adults with ADHD have not been established. Use in adults is therefore off licence (off-label use). It should only be considered on the advice of a tertiary ADHD service as recommended in the NICE guidance (Psychiatry-UK is a tertiary ADHD service).

Place in therapy
(Specialist responsible for initiation, titration and stabilisation of ADHD medication)
 	
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	• Whilst NICE recommends methylphenidate or lisdexamfetamine as first line choices, **methylphenidate** is the preferred first line treatment for adults with ADHD due to a lower cost compared with lisdexamfetamine.
	• Where more than one agent is considered suitable, the drug with the lowest acquisition cost should be chosen.
	• If patient cannot tolerate methylphenidate, **lisdexamfetamine** may be offered as an alternative first line treatment.
	• Consider switching from **methylphenidate** to **lisdexamfetamine** after a 6-week trial of methylphenidate, at an adequate dose, that leads to insufficient benefit in terms of reduced ADHD symptoms and associated impairment.
	• If methylphenidate or lisdexamfetamine are ineffective or unacceptable, **dexamfetamine** may be considered especially for those whose ADHD symptoms are responding to lisdexamfetamine but are unable to tolerate the drug's longer effect profile.
	• Offer **atomoxetine** if:
	  ○ Patient cannot tolerate methylphenidate or lisdexamfetamine **or**
	  ○ Their symptoms have not responded to separate 6-week trials of methylphenidate and lisdexamfetamine, having considered alternative preparations and adequate doses.
	• Consider **guanfacine** as a last line treatment option.

Considerations when prescribing ADHD medication
 	
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	• Offer the same medication choices to people with ADHD and anxiety, tic disorder or autism spectrum disorder as other people with ADHD.
	• For adults with ADHD experiencing an acute psychotic or manic episode:
	  ○ Stop any medication for ADHD.
	  ○ Consider restarting or starting new ADHD medication after the episode has resolved, taking into account the individual circumstances, risks and benefits of the ADHD medication, and potentially in combination with an antipsychotic.
	• When prescribing medication for ADHD, think about modified-release once-daily preparations for convenience, improving adherence, reducing stigma (as potentially avoids the need to take a dose in the workplace), and the risk of stimulant misuse and diversion with immediate-release preparations.
	• Consider pharmacokinetic profiles especially long-acting methylphenidate preparations.
	• Immediate-release preparations may be suitable if more flexible dosing regimens are needed, or during initial titration to determine the best dosage level.

Preparations available	**Methylphenidate:** • **Tablets immediate release** – 5mg, 10mg, 20mg • **Tablets modified release (M/R)** – 18mg, 27mg, 36mg, 54mg. **Xaggitin XL® brand preferred** – prescribe for new patients due to lower cost. (Concerta XL® brand may be continued for existing patients but consider switching to Xaggitin XL® at the next review appointment.) – licensed for children aged 6

	years and over • See local formulary for current product choices. Modified release preparations of methylphenidate are preferable to immediate release preparations as they pose a lower risk of misuse/abuse and improve adherence. **** All modified release formulations of methylphenidate must be prescribed by brand name **** This is because the ratio of immediate to extended-release methylphenidate components varies between products, affecting release profiles, bioavailability and clinical effect. See Drug Safety Update from MHRA for further details and advice regarding long-acting (modified-release) methylphenidate preparations and caution if switching between products due to differences in formulations. - Xaggitin XL: consists of an immediate-release component (22% of dose) and a modified-release component (78% of dose). - Concerta XL: consists of an immediate-release component (22% of dose) and a modified-release component (78% of dose). - Equasym XL: consists of an immediate-release component (30% of dose) and a modified-release component (70% of dose). - Medikinet XL: consists of an immediate-release component (50% of dose) and a modified-release component (50% of dose). NB: Methylphenidate M/R tablets are licensed for continuation in adults who have shown clear benefit from treatment in childhood and/or adolescence. They are not licensed for intiation in adults; use in this way is considered off-label. **Lisdexamfetamine: Capsules** (Elvanse®) – 30mg, 50mg, 70mg **Dexamfetamine: Tablets** – 5mg **Atomoxetine: Capsules** – 10mg, 18mg, 25mg, 40mg, 60mg, 80mg, 100mg **Guanfacine: Tablets M/R** (Intuniv®) – 1mg, 2mg, 3mg, 4mg
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Dose regimen (initiation and maintenance) and administration ***For full details, see BNF and individual SPCs.***	*Note: Transfer of monitoring and prescribing to Primary Care is normally after at least 12 weeks and when the patient's dose has been optimised and with satisfactory investigation results for at least 4 weeks.* *The choice of formulation will be decided by the treating Specialist on an individual basis. All dose or formulation adjustments will also be the responsibility of the initiating Specialist unless directions have been discussed and agreed with the Primary Care prescriber.* **Initial stabilisation:** *(The initial dosing period must be prescribed by the initiating Specialist)* **Methylphenidate:** Treatment may be started using a modified-release preparation. Adults with ADHD who have shown clear benefit from methylphenidate in childhood or adolescence may continue treatment into adulthood at the same daily dose. Consult SPC for the full dosing schedules for the individual brands/preparations. **Immediate release tablets:** Initially 5mg 2-3 times daily, increased if necessary at weekly intervals according to response up to a maximum of 100mg daily in 2 to 3 divided doses. Discontinue if no response after one month. Evening dose: If effect wears off in evening (with rebound hyperactivity) a dose at

bedtime may be appropriate (establish need with trial bedtime dose).

Xaggitin ® XL (M/R tablets): Initially 18mg once daily in the morning, increased in steps of 18mg every week, adjusted according to response up to a maximum of 54mg once daily. Discontinue if no response after one month.
NB: Xaggitin ® XL 18mg once daily is equivalent to 5mg TDS methylphenidate immediate release.
Administration: Xaggitin XL must be swallowed whole with the aid of liquids, and must not be chewed, divided, or crushed.

Concerta ® XL (M/R tablets): Initially 18mg once daily in the morning, adjusted at weekly intervals according to response, up to a maximum of 108mg once daily.
NB: Concerta ® XL 18mg once daily is equivalent to 5mg TDS methylphenidate immediate release.
Administration: Concerta XL must be swallowed whole with the aid of liquids, and must not be chewed, divided, or crushed.
The tablet membrane can pass through the GI tract unchanged. This formulation is not appropriate if there is dysphagia, or if the GI lumen is restricted.

Lisdexamfetamine:

Initially 30mg once daily in the morning. The dose may be increased in steps of 20mg at weekly intervals if required according to response and tolerability. Maximum 70mg per day (50mg per day in severe renal impairment where creatinine clearance is less than 30ml/min). The final dosage should be the lowest effective. Discontinue if response insufficient after one month.

Afternoon doses should be avoided because of the potential for insomnia; however, if the effect wears off in the evening (with rebound hyperactivity), a dose of short-acting dexamfetamine at bedtime or earlier may be appropriate (establish need with trial bedtime dose).

Administration: Lisdexamfetamine may be taken with or without food. It may be swallowed whole, or the capsule opened and the entire contents emptied and mixed with soft food such as yogurt, or in a glass of water or orange juice. If the contents include any compacted powder, a spoon may be used to break apart the powder in the soft food or liquid. The contents should be stirred until completely dispersed. The entire mixture of soft food or liquid should be consumed immediately by the patient and should not be stored. The active ingredient dissolves completely once dispersed; however, a film containing the inactive ingredients may remain in the glass or container once the mixture is consumed.

Dexamfetamine:

Initially 5mg twice daily, increase if necessary at weekly intervals according to response and tolerability. Maximum 60mg per day. Maintenance dose given in 2 to 4 divided doses. Dexamfetamine should not be taken too late after lunchtime to avoid disturbances of sleep.

Atomoxetine:

Adults weighing < 70 kg: Initially 500 micrograms/kg daily for 7 days, then dose increased according to response and tolerability. Usual maintenance dose 1.2mg/kg daily, but this may be increased to up to 1.8mg/kg daily (higher doses up to a maximum of 120mg per day are off-label). Total daily dose may be given either as a single dose in the morning or in 2 divided doses with last dose no later than early evening.

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Adults weighing 70 kg and above: Initially 40mg daily for 7 days, then dose

increased according to response and tolerability. Usual maintenance dose 80 – 100mg daily, but this may be increased to a maximum recommended total daily dose of 120mg. Total daily dose may be given either as a single dose in the morning or in 2 divided doses with last dose no later than early evening. (Higher doses up to a maximum of 120mg per day are off-label). Halve dose in moderate hepatic impairment, and quarter dose in severe hepatic impairment.

If known CYP2D6 poor metaboliser genotype: Due to several-fold increase in atomoxetine exposure, consider a lower starting dose and slower up-titration.

Administration: Capsules should not be opened for administration (risk of irritation).

Guanfacine:

Initially 1mg once daily (morning or evening), adjusted in steps of 1mg every week if necessary according to response and if tolerated. Maintenance dose range 0.05 – 0.12 mg/kg once daily. Maximum dose 7mg per day. Adults who have shown clear benefit from guanfacine in childhood or adolescence may continue treatment into adulthood at the same daily dose.

Dose titration should be done carefully at the start of treatment as clinical improvement and risks for clinically significant adverse reactions are dose related (syncope, hypotension, bradycardia, somnolence and sedation). Avoid abrupt withdrawal of treatment; if discontinuing treatment, taper the dose gradually to minimise potential withdrawal effects and reduce the risk of blood pressure increase. During dose downward titration (and following discontinuation of treatment), monitor blood pressure and heart rate.

Missed doses: If 2 or more consecutive doses are missed, re-titration is recommended, a lower starting dose may be required based on the patient's tolerance to guanfacine. Discuss with the specialist for advice on re-titrating guanfacine.

Administration: Tablets should be swallowed whole and not be crushed, chewed or broken before swallowing because this increases the rate of guanfacine release. Guanfacine can be administered with or without food, but should not be administered with high fat meals as this may increase drug absorption and exposure.

Maintenance dose (following initial stabilisation):

Individualised and titrated according to response and tolerability, as per dosing information above for each individual drug.

The initial maintenance dose must be prescribed by the initiating Specialist.

The decision to stop treatment will be the responsibility of the Specialist.

Conditions requiring dose adjustment:

Lower doses may be required in renal and hepatic impairment and in presence of certain side effects that are clinically significant or persistent. Dose adjustments may also be required in patients prescribed concurrent interacting medicines. (See other sections of the SCG as relevant.)

For instance, dose adjustment is recommended for patients taking guanfacine and concomitant moderate/strong CYP3A4/5 inhibitors (e.g. ketoconazole, grapefruit juice) or strong CYP3A4 inducers (e.g. carbamazepine). In case of concomitant use of CYP3A inhibitors, a 50% dose reduction of guanfacine is recommended, and further dose titration may be needed. In case of concomitant use of CYP3A inducers, a re-titration to increase the dose up to a maximum daily dose of 7mg may be

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Duration of treatment Back to top	The duration of treatment and frequency of review will be determined by the specialist based on the patient's clinical response and tolerability. Consider trial periods of stopping medication or reducing the dose when assessment of the overall balance of benefits and harms suggests this may be appropriate. This should be undertaken and supervised by the specialist who will advise the patient and primary care prescriber of the outcome. Termination of treatment will be the responsibility of the specialist.

Summary of adverse effects *(See Summary of Product Characteristics (SPC) for full list)* **Any serious adverse reactions should be reported to the MHRA via the Yellow Card scheme.**	**Adverse effect** **Methylphenidate, Lisdexamfetamine, Dexamfetamine** – Adverse effects listed below are common unless specified otherwise. Gastrointestinal symptoms: Stomach ache, abdominal pain, decreased appetite, dry mouth, nausea, vomiting Psychiatric disorders: Insomnia, mood changes, abnormal behaviour, aggression, agitation, anxiety, stimulant-related tics, hallucinations (uncommon) Nervous system disorders: Dizziness, drowsiness, headache, dyskinesia Cardiac disorders: Arrhythmia, palpitations, tachycardia, increased blood pressure Skin & subcutaneous tissue: Rash, pruritus, urticaria, alopecia Others: Weight loss, sexual dysfunction, arthralgia	**Management by Primary Care prescriber** **Methylphenidate, Lisdexamfetamine, Dexamfetamine** • If there is a change in **cardiovascular health**, e.g. development of hypertension, persistent tachycardia, or any other cardiac disorders, refer back to the specialist for further advice. • Discontinue treatment and discuss with specialist for further advice if there is **development of new, or worsening of pre-existing, psychiatric disorders,** e.g. severe depression, psychotic or manic symptoms, aggressive or hostile behaviour, suicidal ideation, uncontrolled bipolar disorder, motor or verbal tics including Tourette's syndrome. (Specialist to consider whether the tics are related to the stimulant and if the impairment associated with the tics outweighs the benefits of ADHD.) • **Nervous system disorders**: Discontinue treatment with stimulant and refer urgently for appropriate assessment and care (e.g. neurological specialist), and discuss with ADHD specialist for further advice, if patient develops any of the following: - **Symptoms of cerebral ischaemia** (e.g. severe headache, numbness, weakness, paralysis) - **New or worsening/more frequent seizures** (After investigation, the specialist may cautiously reintroduce the ADHD medication if deemed unlikely to be the cause of the seizures) - **Symptoms of serotonin syndrome** (e.g. agitation, hallucinations, coma, labile BP, tachycardia, hyperthermia, hyperreflexia, incoordination, rigidity, nausea, vomiting, diarrhoea) • **Haematological disorders** including leukopenia, thrombocytopenia, anaemia or other alterations (NB: no haematological monitoring is recommended), contact specialist and consider discontinuation. • **Insomnia or other sleep disturbance**: Review timing of doses and continue treatment unless severe. Give advice on sleep hygiene. Discuss with specialist if difficulty persists.

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	Atomoxetine – Adverse effects listed below are common unless specified otherwise. Gastrointestinal symptoms: Decreased appetite, constipation, dry mouth, flatulence, dyspepsia, nausea, vomiting, gastrointestinal discomfort, abdominal pain Psychiatric disorders: Insomnia, agitation, anxiety or tension, depression, mood changes, emergence of suicidal ideas or behaviour (uncommon), hostility & emotional lability (uncommon) Nervous system disorders: Dizziness, drowsiness, headache, tremor Cardiac disorders: Arrhythmias, palpitations, tachycardia, increased blood pressure, increased heart rate Skin & subcutaneous tissue: Dermatitis, rash, hyperhidrosis Reproductive system: Dysmenorrhoea, menstrual cycle irregularities, sexual dysfunction, prostatitis Others: Asthenia, chills, fatigue, lethargy, thirst, irritability, urinary disorders, weight loss, severe liver disorders (rare)* * Be vigilant for abdominal pain, unexplained nausea, malaise, darkening of urine or jaundice. Back to top	**Atomoxetine** • If there is a change in **cardiovascular health**, e.g. development of hypertension, persistent tachycardia, or any other cardiac disorders, refer back to the specialist for further advice. • **Liver function**: Whilst routine testing of LFTs is not generally recommended when treating with ADHD medication, it is advisable to check LFTs at baseline and throughout therapy with Atomoxetine if indicated. In presence of hepatic adverse effects, perform LFTs including serum bilirubin and discuss with specialist. Discontinue Atomoxetine permanently in patients with jaundice or laboratory evidence of liver injury. If any concerns, discuss urgently with the specialist. • Discontinue Atomoxetine and refer urgently for appropriate assessment and care (e.g. neurological specialist), and discuss with ADHD specialist for further advice, if patient develops any of the following: - **Symptoms of cerebral ischaemia** (e.g. severe headache, numbness, weakness, paralysis) - **New or worsening/more frequent seizures** (After investigation, the specialist may cautiously reintroduce ADHD medication if deemed unlikely to be the cause of the seizures) • Discontinue Atomoxetine and discuss with specialist for further advice if there is **development of new, or worsening of pre-existing, psychiatric disorders** (e.g. psychotic or manic symptoms, severe depression, hallucinations, delusional thinking, uncontrolled bipolar disorder, aggressive or hostile behaviour, motor or verbal tics). • **Suicidal ideation and self-harming behaviour**: Patients and carers should be warned about the potential. Refer back to the specialist for advice and refer for urgent psychiatric assessment. • **Insomnia or other sleep disturbance**: Review timing of doses and continue treatment unless severe. Give advice on sleep hygiene. Discuss with specialist if difficulty persists. • **Somnolence or sedation, and gastrointestinal disorders**: Review and provide advice on dosing; patients may benefit from taking atomoxetine in two equally divided doses (morning and late afternoon). Generally resolves.

	Guanfacine – Adverse effects listed below are common unless specified otherwise. Gastrointestinal symptoms: Abdominal pain, gastrointestinal discomfort, diarrhoea, constipation, nausea, vomiting, dry mouth, decreased appetite Psychiatric disorders: Insomnia, sleep disturbance, nightmare, depression, anxiety, mood lability, irritability Nervous system disorders: Somnolence, drowsiness, headache, sedation, dizziness, lethargy Cardiac / vascular disorders: Bradycardia, arrhythmias, hypotension, orthostatic hypotension Skin & subcutaneous tissue disorders: Rash Others: Fatigue, asthenia, enuresis, urinary disorders, weight increased.	**Guanfacine** • If there is development of **cardiovascular symptoms**, e.g. palpitations, exertional chest pain, unexplained syncope, dyspnoea or any other signs/symptoms suggestive of cardiac disease, refer for urgent specialist cardiac evaluation and also the ADHD specialist team for further advice. • **Marked decrease in heart rate** from baseline: discuss with the specialist; dose reduction or cardiac evaluation may be required. • **Hypotension, orthostatic hypotension or fainting episodes**: provide lifestyle advice, (e.g. drinking plenty of fluids, getting up slowly from standing/sitting) and repeat monitoring. If BP decreases markedly from baseline, reduce dose by 1mg and discuss with the specialist. • **Somnolence and sedation** typically occur during the first 2-3 weeks of treatment and with dose increases. Review timing of dose and lifestyle factors. Reinforce that alcohol should be avoided. If symptoms are clinically significant or persistent, seek specialist advice. Dose reduction or discontinuation may be indicated (see dosing section re: careful dose tapering and monitoring following discontinuation). • **Insomnia or other sleep disturbance**: Review timing of dose and advise as appropriate. Give advice on sleep hygiene. Discuss with specialist if difficulty persists. • **Suicidal ideation and self-harming behaviour**: Patients and carers should be warned about the potential and encouraged to report any distressing thoughts or feelings at any time to their healthcare professional. Monitor patients for signs of suicide-related events, including at dose initiation/optimisation and drug discontinuation. Exclude other causes. If any concerns, refer back or discuss with specialist for advice, and refer for urgent psychiatric assessment as appropriate. Consider discontinuing guanfacine.
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Monitoring requirements by Specialist Back to top	**Baseline investigations:** *(Baseline parameters can be monitored by either the GP or specialist)* • **Height / Weight / body mass index (BMI)** • **Heart rate** • **Blood pressure** • **Medical history and cardiovascular risk assessment** – taking into account conditions that may be contraindications or require caution. Do not offer routine blood tests (including liver function tests) or an electrocardiogram (ECG) to people taking medication for ADHD unless there is a clinical indication. E.g. ECG at baseline and cardiology opinion are recommended if patient has any of the following: - History of congenital heart disease, congenital cardiac abnormalities or previous cardiac surgery - Family history of cardiovascular disease - Sudden death in a first-degree relative before the age of 40 years suggesting a cardiac disease - Shortness of breath on exertion compared with peers - Syncope - Fainting on exertion or in response to fright or noise - Palpitations - Chest pain suggestive of cardiac origin - Signs of heart failure, heart murmur or hypertension ECG is recommended if the patient has a co-existing condition treated with a medicine that may increase cardiac risk. **Initial monitoring:** *(Monitoring during initiation and titration of ADHD medication is the responsibility of the Specialist until the patient is optimised and stabilised on the medicine with no anticipated further changes expected in immediate future)* • **Weight / BMI** – at/before each dose change and every 6 to 12 months. • **Heart rate** – compare with the normal range for age before and after each dose change and then every 6 months thereafter. • **Blood pressure** – compare with the normal range for age before and after each dose change and then every 6 months thereafter. • **Cardiovascular risk assessment** if indicated or if on Guanfacine – after any dose change and then every 6 months thereafter. • **Any new or worsening psychiatric symptoms** – after every dose change. • **Assessment of ADHD symptom improvement** – discontinue medication if no improvement observed after one month (or after 4-8 weeks for Atomoxetine). • More frequent monitoring needed for Guanfacine* * Guanfacine: - Cardiovascular assessment at baseline including identifying patients at high risk of hypotension, bradycardia, somnolence or sedation, QT prolongation, or arrhythmias. - Signs of these should be monitored weekly during titration/stabilisation, then every 3 months in the first year, and then every 6 months. - Weight and BMI should be measured at baseline, then every 3 months for the first year, and then every 6 months. - Monitor blood pressure and pulse during downward titration and following discontinuation. - More frequent monitoring is recommended following dose adjustment. - Prescribers may find the guanfacine risk minimisation materials helpful, particularly with the ongoing monitoring requirements.

Ongoing monitoring requirements by Primary Care prescriber	Monitoring parameter	Frequency	Action for Primary Care prescriber
	Height, weight, BMI (and appetite)	At each dose change and every 12 months in primary care[#] (More frequent monitoring advised for guanfacine – see notes above in the 'Initial Monitoring' section)	• Request patients to keep a track of their weight and report any changes. • If BMI outside of healthy range including anorexia or weight loss, exclude other reasons for weight loss. Give advice as per NICE NG87. Recommend small, frequent meals and/or snacks, and high calorie foods of good nutritional value. • For Atomoxetine, recommend taking dose with or after meals, and not before. • For Guanfacine, provide appropriate support on multi-component interventions to increase physical activity levels, improve eating behaviour and quality of diet. • If there has been weight change as a result of ADHD medication and the weight change persists, discuss with specialist; dose reduction, treatment break or change of medication may be required.
	Heart rate and blood pressure (BP)	Before and after each dose change, and then every 12 months in primary care[#] (More frequent monitoring advised for guanfacine – see notes above in the 'Initial Monitoring' section)	• Compare with the normal range for patient's age. • If a person taking ADHD medication has sustained resting tachycardia (more than 120 beats per minute), arrhythmia/ palpitations or clinically significant systolic BP greater than the 95th percentile (or a clinically significant increase) measured on two occasions, consider dose reduction and discuss with specialist or cardiology for further advice. • In context of recent dose increase, revert to previous dose and discuss with specialist for ongoing management. • If BP significantly raised whilst on atomoxetine, reduce dose by half and discuss with specialist for further advice.
	Cardiovascular risk assessment (if indicated or if on Guanfacine)	After any dose change, and then every 12 months in primary care[#]	• Assess for cardiovascular signs or symptoms. See notes above in the 'Baseline investigations' section and also the section on adverse effects & management by primary care prescriber. • More frequent monitoring advised for guanfacine, shared between the specialist and primary care (see notes above).
	Assessment for clinically significant adverse effects	After any dose change, and then every 12 months in primary care[#]	• Assess patient for any clinically significant adverse effects (e.g. new or worsening psychiatric or neurological disorders). See section on adverse effects for guidance on management by primary care prescriber. • More frequent monitoring advised for guanfacine – see notes above in the 'Initial Monitoring' section.

	Assessment of adherence, and any indication of medication abuse, misuse, or diversion	As required, based on the patient's needs and individual circumstances	• Healthcare professionals and parents/carers should monitor changes in the patient's potential for stimulant misuse and diversion throughout therapy, which may come with changes in circumstances and age. • Any concerns regarding potential substance misuse in patient or a close family member/carer, or concerns about requests for frequent prescriptions deemed unnecessary, should be communicated to the Specialist.
	Assessment of ADHD symptom improvement	Throughout therapy	Refer back to the Specialist for review in the event of destabilisation or treatment failure in primary care whilst under shared care.
Back to top	[#] **The Specialist will undertake the above physical health monitoring before and after any dose change and annually after stabilisation. Primary care will be asked to monitor physical health as described, via the shared care arrangement, at least annually. This ensures monitoring of the patient is undertaken 6 monthly and is shared between the Specialist and Primary care.**		
Clinically relevant/ significant drug interactions and advice on management ***Note: The following list is NOT exhaustive and does not replace the SPC. Please refer to the SPC and current BNF for comprehensive information and recommended management.***	**Methylphenidate, Lisdexamfetamine, Dexamfetamine:** ▪ Enhance anticoagulant effect of warfarin ▪ Can increase the plasma levels of some anticonvulsants (e.g. phenytoin, primidone, phenobarbital) and tricyclic antidepressants; dose adjustment may be required when starting or stopping stimulant. ▪ Can exacerbate adverse CNS effects of alcohol (abstention advised) ▪ Concurrent use of methylphenidate and atomoxetine does ***not*** cause increased side effects of either drug. ▪ Use of clonidine may result in an increased duration of action of dexamfetamine, reduced antihypertensive action of clonidine. ▪ Monoamine oxidase inhibitors (MAOIs): amphetamines should not be administered during or within 14 days following the administration of MAOIs, since this may precipitate a hypertensive crisis ▪ Dopaminergic drugs, including antipsychotics: increased risk of pharmacodynamic interactions including dyskinesias or hypertensive crisis (e.g. risperidone, paliperidone, selegiline, rasagiline) ▪ Antihypertensives – effectiveness may be reduced by stimulants ▪ Other drugs which elevate blood pressure: risk of additive effects (e.g. linezolid) ▪ Amphetamines potentiate the analgesic effect of narcotic analgesics. ▪ Effect of stimulants can be decreased by: beta-blockers (e.g. propranolol), lithium and phenothiazines ▪ Concurrent use of beta-blockers may result in severe hypertension. ▪ Beta-blockers: risk of severe hypertonia when given with dexamfetamine, may reduce effects of dexamfetamine ▪ Concurrent use of tricyclic antidepressants may increase risk of cardiovascular adverse events ▪ Selective serotonin reuptake inhibitors (SSRIs): metabolism may be inhibited by stimulant; dose adjustment may be required when starting or stopping stimulant. ▪ Serotonergic drugs, including SSRIs and MAOIs: increased risk of adverse CNS effects, risk of serotonin syndrome ▪ Opioids (including tapentadol and tramadol): analgesic effects may be increased		

by lisdexamfetamine/dexamfetamine.
- Apraclonidine: effects decreased by stimulants
- Carbamazepine: may decrease methylphenidate levels
- Ozanimod: may increase risk of hypertensive crisis
- Atomoxetine: increased risk of adverse effects

Atomoxetine:

- MAOIs: Avoid atomoxetine use whilst using MAOIs and for a minimum of 14 days after stopping MAOIs. Increased risk of adverse effects.
- CYP2D6 inhibitors: increased atomoxetine exposure. E.g. selective serotonin reuptake inhibitors (SSRIs), quinidine, terbinafine, bupropion, cinacalcet, dacomitinib, and panobinostat. Slower dose titration and lower final dose may be necessary. Clinical response and tolerability should be re-evaluated if a CYP2D6 inhibitor is started or stopped.
- High dose nebulised or systemically administered salbutamol (and other high dose $beta_2$ agonists) may potentiate cardiovascular effects.
- Potential increased risk of QT interval prolongation when atomoxetine is administered with other QT prolonging drugs (e.g. neuroleptics, class IA and III anti-arrhythmics, ciprofloxacin, moxifloxacin, erythromycin, methadone, mefloquine, tricyclic antidepressants, citalopram, lithium)
- Drugs which cause electrolyte imbalance when administered with atomoxetine may also increase risk of QT interval prolongation (e.g. thiazide diuretics).
- Increased risk of seizures with drugs known to lower the seizure threshold (e.g. tricyclic antidepressants, SSRIs, neuroleptics, phenothiazines or butyrophenone, mefloquine, chloroquine, bupropion and tramadol). Use caution when stopping concomitant medications that may induce seizures on withdrawal, such as benzodiazepines.
- Atomoxetine may decrease the effectiveness of anti-hypertensive drugs. Monitoring is required.
- Drugs that increase blood pressure: possible additive effects, monitoring is required.
- Possible additive effects when used with drugs that affect noradrenaline, e.g. antidepressants (imipramine, venlafaxine, and mirtazapine) or decongestants (pseudoephedrine or phenylephrine)

Guanfacine:

- Drugs which prolong the QT interval (e.g. antipsychotics). Concomitant use with guanfacine is not recommended.
- Antihypertensive medicines: risk of additive effects, e.g. hypotension, syncope.
- CNS depressants, e.g. alcohol, sedatives, hypnotics, benzodiazepines, barbiturates, antipsychotics, antidepressants – risk of additive effects such as sedation and somnolence.
- CYP3A4 and CYP3A5 inhibitors, e.g. ketoconazole, clarithromycin, erythromycin, ciprofloxacin, diltiazem, fluconazole, verapamil, grapefruit juice, ritonavir: increased exposure to guanfacine. Dose reduction may be required (see dosing section).
- CYP3A4 inducers, e.g. carbamazepine, modafinil, phenytoin, rifampicin, St John's wort: reduced exposure to guanfacine. Dose increase may be required.
- Valproic acid: concomitant use may increase concentrations of valproic acid.
- Administration with high fat meals: increased exposure to guanfacine. Avoid administering guanfacine with high fat meals.

Care should be taken on initiation, dose adjustment and discontinuation of any interacting medicines. The onset and degree of the interaction can vary. Discuss with the specialist team if necessary.

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Clinically relevant cautions/precautions and contraindications ***Note: The following list is NOT exhaustive and does not replace the SPC. Please refer to the SPC and current BNF for comprehensive information and recommended management.*** Back to top	**Cautions:** **Methylphenidate:** Family history of sudden cardiac or unexplained death, malignant arrhythmia (cardiovascular status should be carefully monitored), underlying conditions which might be compromised by increases in blood pressure or heart rate, family history of Tourette syndrome, psychiatric and neuropsychiatric disorders (including manic or psychotic symptoms, aggressive or hostile behaviour, motor or verbal tics including Tourette's syndrome, anxiety, agitation, depressive symptoms, bipolar disorder), alcohol or drug dependence, potential for abuse/misuse of CNS stimulants, epilepsy (may lower seizure threshold; discontinue if increased seizure frequency), susceptibility to angle-closure glaucoma, leukopenia, thrombocytopenia, anaemia, other haematological abnormalities, and renal/hepatic insufficiency (due to lack of data). Caution for Xaggitin® XL: Dysphagia or severe narrowing of the gastrointestinal tract (dose form not appropriate). Cautions for Concerta® XL: Dysphagia or severe narrowing of the gastrointestinal tract (dose form not appropriate); restricted gastro-intestinal lumen (dose form not appropriate). **Lisdexamfetamine:** Bipolar disorder, psychiatric disorders including manic or psychotic symptoms, aggressive/hostile behaviour, tics, Tourette's syndrome, anxiety, history of substance or alcohol abuse, potential for abuse/misuse of CNS stimulants, history of cardiovascular disease* or abnormalities (such as structural cardiac abnormalities, arrhythmias, coronary artery disease, mild hypertension, recent myocardial infarction, or heart failure), family history of sudden cardiac or unexplained death, underlying medical conditions or concomitant drugs which can increase the QT-interval or heart rate, may lower seizure threshold (discontinue if seizures occur), susceptibility to angle-closure glaucoma. * Cardiovascular disease: Manufacturer advises caution in patients with underlying conditions that might be compromised by increases in blood pressure or heart rate (see also *Contraindications*). **Dexamfetamine:** History of epilepsy (discontinue if seizures occur), mild hypertension, history of cardiovascular disease, family history of sudden cardiac or unexplained death or malignant arrhythmia, concomitant medications that elevate blood pressure, susceptibility to angle-closure glaucoma, psychiatric symptoms or disorders (including manic or psychotic symptoms, aggressive or hostile behaviour, tics, Tourette syndrome*, anxiety, agitation, bipolar disorder), anorexia, depressive symptoms. *Tics and Tourette syndrome: Discontinue use if tics occur. **Atomoxetine:** Cardiovascular disease, known serious structural cardiac abnormalities (consultation with a cardiac specialist required before treatment), QT-interval prolongation (congenital or acquired or family history of), hypertension, concomitant medications that elevate blood pressure (assess for neurological signs and symptoms at every monitoring visit), tachycardia, any condition that may predispose patients to hypotension or conditions associated with abrupt heart rate or blood pressure changes (risk of orthostatic hypotension), cerebrovascular disease, other conditions that may precipitate or otherwise induce cerebrovascular conditions (assess for neurological signs and symptoms at every monitoring visit), history of seizures, susceptibility to angle-closure glaucoma, psychiatric and neuropsychiatric symptoms

or disorders (including psychotic symptoms, aggressive or hostile behaviour, emotional lability, suicide-related behaviour, suicidal ideation, motor or verbal tics, anxiety, depressive symptoms, and mania), known CYP2D6 poor metaboliser genotype (dose reduction required).

Guanfacine:

Risk factors for torsade de pointes (e.g. bradycardia, heart block, hypokalaemia, history of QT interval prolongation, concomitant use of other medicines which may prolong the QT interval), history of cardiovascular disease, hypotension, orthostatic hypotension, history of syncope or a condition that may predispose patient to syncope (e.g. dehydration), family history of cardiac or unexplained death, alcohol consumption (not recommended during treatment), concomitant treatment with centrally acting depressants or antihypertensives, suicidal ideation or behaviour.

Contraindications:

Methylphenidate:

Hypersensitivity to methylphenidate or to any of the excipients, anorexia nervosa/anorexic disorders, severe depression, suicidal tendencies, psychosis, psychopathic/borderline personality disorder, mania, schizophrenia, uncontrolled bipolar disorder, severe mood disorders, hyperthyroidism or thyrotoxicosis, phaeochromocytoma, pre-existing cerebrovascular disorders, cerebral aneurysm, vascular abnormalities including vasculitis or stroke, and cardiovascular disease* (these include severe hypertension, heart failure, arterial occlusive disease, angina, haemodynamically significant congenital heart disease, cardiomyopathy, myocardial infarction, potentially life-threatening arrhythmias, and structural cardiac abnormalities).

* Although listed as a contraindication, in some circumstances, methylphenidate can be used with caution and careful monitoring by a specialist.

Methylphenidate should not be administered during or within 14 days following the administration of MAOIs, as this may precipitate a hypertensive crisis.

Lisdexamfetamine:

Hypersensitivity to lisdexamfetamine or to any of the excipients, symptomatic cardiovascular disease, moderate to severe hypertension, advanced arteriosclerosis; hyperthyroidism or thyrotoxicosis, agitated states (hyperexcitability or agitation).

Lisdexamfetamine should not be administered during or within 14 days following the administration of MAOIs, as this may precipitate a hypertensive crisis.

Dexamfetamine:

Hypersensitivity to dexamfetamine or to any of the excipients, cardiovascular disease*, advanced arteriosclerosis, cerebrovascular disorders (cerebral aneurysm, vascular abnormalities including vasculitis or stroke), hyperthyroidism or thyrotoxicosis, history of alcohol or drug abuse, hyperexcitability or agitation, anorexia nervosa/anorexic disorders, psychiatric disorders**.

* Certain pre-existing cardiovascular disorders constitute contraindications unless specialist cardiac advice is obtained and documented. These include: structural cardiac abnormalities and/or moderate or severe hypertension, heart failure, arterial occlusive disease, angina, haemodynamically significant congenital heart disease, cardiomyopathies, myocardial infarction, potentially life-threatening arrhythmias and channelopathies (disorders caused by the dysfunction of ion channels).

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** Psychiatric disorders: include severe depression, suicidal ideation, psychosis or

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Renal impairment Back to top	**Methylphenidate:** Methylphenidate has not been studied in patients with renal impairment. Caution should be exercised in these patients. **Lisdexamfetamine:** Manufacturer advises a maximum dose of 50mg daily in severe impairment (creatinine clearance less than 30 ml/min). **Dexamfetamine:** Dexamfetamine has not been studied in patients with renal impairment. Caution should be exercised in these patients by taking care with dosage. **Atomoxetine:** No information available. Dose adjustment is unlikely to be necessary but be aware that atomoxetine may exacerbate hypertension in patients with end stage renal disease. **Guanfacine:** Dose reduction may be required in severe renal impairment (GFR 15-29 ml/min) and end-stage renal disease (GFR <15 ml/min) or in patients requiring dialysis.
Hepatic impairment Back to top	**Methylphenidate:** Methylphenidate has not been studied in patients with hepatic impairment. Caution should be exercised in these patients. **Lisdexamfetamine:** No information available. Caution should be exercised. **Dexamfetamine:** Dexamfetamine has not been studied in patients with hepatic impairment. Caution should be exercised in these patients by taking care with dosage. **Atomoxetine:** Manufacturer advises to reduce starting and target doses to 50% of usual dose in moderate hepatic impairment (Child-Pugh Class B), and to 25% of usual dose in severe hepatic insufficiency (Child-Pugh Class C). In addition, following rare reports of hepatic disorders, patients and carers should be advised of the risk and how to recognise symptoms; prompt medical attention should be sought in case of abdominal pain, unexplained nausea, malaise, darkening of the urine, or jaundice. Atomoxetine should be discontinued in patients with jaundice or laboratory evidence of liver injury, and should not be restarted. **Guanfacine:** Dose reduction may be required in patients with hepatic impairment. Manufacturer advises caution.

Pregnancy, paternal exposure, and breastfeeding:

It is the Specialist's responsibility to provide advice on the need for contraception to male and female patients, where applicable, on initiation and at each review.
The ongoing responsibility for providing this advice rests with both the Primary Care prescriber and the Specialist.

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Pregnancy:

If a patient becomes pregnant or is planning a pregnancy during treatment for ADHD, they should discuss treatment options with their specialist. The specialist will reassume prescribing responsibility, ending the shared care agreement.

Methylphenidate: Methylphenidate is not recommended for use during pregnancy unless a clinical decision is made that postponing treatment may pose a greater risk to the pregnancy. Methylphenidate can potentially cause short term withdrawal symptoms in the newborn if taken in the weeks before delivery, therefore infants should be monitored for symptoms such as jitteriness, difficulty sleeping and breathing problems. Methylphenidate has also been linked to reduced foetal growth; this is thought to be due to altered blood flow through the placenta. Clinicians should be aware that patients may have other risk factors which independently alter the risks. Patient information available from: https://www.medicinesinpregnancy.org/Medicine--pregnancy/Methylphenidate/

Lisdexamfetamine: The active metabolite of lisdexamfetamine, dexamfetamine, is thought to cross the placenta. The limited data available shows an increased risk of premature birth and pre-eclampsia. Use in later pregnancy might slow foetal growth by altering blood flow through the placenta. If taken in the weeks before delivery, newborn infants may also develop short term withdrawal symptoms such as dysphoria, hyperexcitability and pronounced exhaustion; this may require monitoring for symptoms such as jitteriness, difficulty sleeping, and breathing and feeding problems. Lisdexamfetamine can be used in pregnancy if the potential benefit outweighs the risks and if ADHD symptoms cannot be treated any other way. Patient information available from: https://www.medicinesinpregnancy.org/Medicine--pregnancy/Lisdexamfetamine/

Dexamfetamine: Dexamfetamine is thought to cross the placenta. It is not recommended for use during pregnancy. The limited data available shows an increased risk of premature birth and reduced birth weight. Use in later pregnancy might slow foetal growth by altering blood flow through the placenta. If taken in the weeks before delivery, newborn infants may also develop short term withdrawal symptoms such as dysphoria, hyperexcitability and pronounced exhaustion. The infant may need to be monitored after birth to check for jitteriness, difficulty sleeping, and breathing and feeding problems. Dexamfetamine can be used in pregnancy if the potential benefit outweighs the risks and if ADHD symptoms cannot be treated any other way. Patient information available from: https://www.medicinesinpregnancy.org/Medicine--pregnancy/Dexamfetamine/

Atomoxetine: Atomoxetine may occasionally be used in pregnancy if ADHD symptoms cannot be treated any other way and if a clinical decision is made that the potential benefit outweighs the risks to the foetus. Atomoxetine use in pregnancy is not thought to cause birth defects in the baby, but further evidence is required to confirm this. If taken in the weeks before delivery, newborn infants may develop short term withdrawal symptoms such as dysphoria, hyperexcitability and pronounced exhaustion. The infant may need to be monitored after birth to check for jitteriness, difficulty sleeping, and breathing and feeding problems. Clinicians should be aware that patients may have other risk factors which independently alter the risks. Patient information available from: https://www.medicinesinpregnancy.org/Medicine--pregnancy/Atomoxetine1/

Guanfacine: Guanfacine is not recommended for use during pregnancy. There are no or limited data from the use of guanfacine in pregnant women, and animal studies have shown reproductive toxicity.

Breastfeeding:

Healthcare professional information available from: https://www.sps.nhs.uk/articles/safety-in-lactation-drugs-for-adhd/

Methylphenidate: has been found in breast milk in small amounts. Published evidence for safety in breastfeeding is limited. Decisions to use while breastfeeding should be made on a case-by-case basis, taking into account the risks to the infant and benefits of therapy. Infants should be monitored for symptoms of CNS stimulation (e.g. decreased appetite/weight gain, sleep disturbances, irritability), although these may be difficult to detect.

Lisdexamfetamine: There is no published evidence for safety of lisdexamfetamine in breastfeeding. The manufacturers recommend against use, and the UK Drugs in Lactation Service recommend caution. Lisdexamfetamine metabolites, including dexamfetamine, are excreted in breast milk in small amounts, therefore a risk to infants cannot be excluded. An individual risk assessment must be made, taking into account the benefit of breastfeeding for the child and the benefit of therapy for the woman. If breastfeeding does take place, monitor infant for symptoms of CNS stimulation such as decreased appetite/weight gain, sleep disturbances and irritability, although these may be difficult to detect.

Dexamfetamine: There is very limited published evidence for safety of dexamfetamine in breastfeeding. Dexamfetamine is excreted in breast milk in potentially significant amount, therefore a risk to infants cannot be excluded and caution should be exercised. An individual risk assessment and decision must be made, taking into account the benefit of breastfeeding for the child and the benefit of therapy for the woman. If breastfeeding does take place, monitor infant for symptoms of CNS stimulation such as decreased appetite/weight gain, sleep disturbances and irritability, although these may be difficult to detect.

Atomoxetine: There is no published evidence on the safety of atomoxetine in breastfeeding. Decisions to use atomoxetine while breastfeeding should be made on a case-by-case basis, taking into account the risks to the infant and the benefits of therapy for the mother. The long half-life in slow metabolisers increases risk of accumulation in some breastfed infants. Infants should be monitored for symptoms of CNS stimulation (e.g. decreased appetite or slow weight gain, sleep disturbances, and gastrointestinal symptoms such as pain, vomiting, constipation), although these may be difficult to detect.

Guanfacine: There is no published evidence on the safety of guanfacine in breastfeeding. Decisions on whether to use guanfacine while breastfeeding should be made on a case-by-case basis with specialist input, taking into account the risks to the infant and benefits of therapy for the mother. The long half-life increases the risk of accumulation in breastfed infants. It may interfere with lactation, as guanfacine decreases prolactin levels in the mother. Infants should be monitored for decreased appetite/weight gain, sleep disturbances, and gastrointestinal symptoms such as pain, vomiting, constipation, although some of these may be difficult to detect.

Paternal exposure:

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No evidence regarding adverse outcomes following paternal exposure was identified.

Key references:

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- NICE guideline NG87: Attention deficit hyperactivity disorder: diagnosis and management. Published March 2018, last updated September 2019. Accessed via https://www.nice.org.uk/guidance/ng87/
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- Gov.uk: Drugs and driving: the law. Accessed via https://www.gov.uk/drug-driving-law
- Gov.uk Home Office: Guidance: Travelling with medicine containing controlled drugs. Published August

2019, last updated April 2023. Accessed via https://www.gov.uk/guidance/controlled-drugs-personal-licences

This shared care guideline should be read in conjunction with the following documents:

For information relating to shared care:

- **Shared Care for Medicines Guidance – A Standard Approach (RMOC)** https://www.sps.nhs.uk/articles/rmoc-shared-care-guidance/
- **NHS England guidance – Responsibility for prescribing between primary & secondary/tertiary care** https://www.england.nhs.uk/publication/responsibility-for-prescribing-between-primary-and-secondary-tertiary-care/
- **General Medical Council – Good practice in prescribing and managing medicines and devices: Shared care.** https://www.gmc-uk.org/ethical-guidance/ethical-guidance-for-doctors/good-practice-in-prescribing-and-managing-medicines-and-devices/shared-care
- **NICE guideline NG197: Shared decision making.** Published/last updated June 2021. https://www.nice.org.uk/guidance/ng197/
- **NHS England policy guidance – Items which should not be routinely prescribed in primary care** https://www.england.nhs.uk/publication/items-which-should-not-routinely-be-prescribed-in-primary-care-policy-guidance/

For information relating to prescribing of unlicensed medicines or off-label use of licensed medicines:

- **GMC professional guidance on prescribing unlicensed medicines** https://www.gmc-uk.org/ethical-guidance/ethical-guidance-for-doctors/good-practice-in-prescribing-and-managing-medicines-and-devices/prescribing-unlicensed-medicines
- **Publication by the Medicines and Healthcare products Regulatory Agency (MHRA) on off-label or unlicensed use of medicines: prescribers' responsibilities** https://www.gov.uk/drug-safety-update/off-label-or-unlicensed-use-of-medicines-prescribers-responsibilities

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Appendix 1 – Possible reasons for a Primary Care prescriber to decline to accept shared care

1	I do not feel clinically confident in managing this individual patient's condition, and there is a sound clinical basis for refusing to accept shared care. I have consulted with other Primary Care prescribers in my practice who support my decision. I have discussed my decision with the patient and request that prescribing for this individual remains with you due to the sound clinical basis given above.
2	The medicine or condition does not fall within the criteria defining suitability for inclusion in a shared care arrangement (medicine not included on the national list of shared care drugs as identified by RMOC or is not a locally agreed shared care medicine).
3	The patient has not had the minimum duration of supply of medication to be provided by the initiating Specialist. Therefore, please contact the patient as soon as possible in order to provide them with the appropriate length of supply of the medication before transferring the prescribing responsibility to the Primary Care prescriber.
4	The patient has not been optimised/stabilised on this medication. Therefore, please contact the patient as soon as possible in order to provide them with the medication until the patient is optimised on this medication before transferring the prescribing responsibility to the Primary Care prescriber.
5	Shared Care Guideline and/or relevant clinical information as stipulated in the guideline not received. Therefore, please contact the patient as soon as possible in order to provide them with the medication until I receive the appropriate Shared Care Guideline and/or relevant clinical information before transferring the prescribing responsibility.
6	Other (Primary Care prescriber to complete if there are other reasons why shared care cannot be accepted or why shared care is to be discontinued if already started, e.g. adverse effects): ……

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Appendix 2 – Advice to Patients and Carers

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The Specialist will counsel the patient with regard to the benefits and risks of treatment and will provide the patient with any relevant information and advice, including patient information leaflets on individual medicines.

The patient/carer should be advised to report any of the following signs or symptoms to their Primary Care prescriber without delay:

- Abnormally sustained or frequent and painful erections: seek immediate medical attention. If an erection persists for more than 2 hours, go to A&E as this is an emergency.
- Palpitations, chest pain, unexplained syncope, or dyspnoea.
- For guanfacine, signs and symptoms of bradycardia or hypotension, e.g. fatigue, dizziness, palpitations, feeling faint or fainting.
- New or worsening neurological and cerebrovascular symptoms, such as severe headache, numbness, weakness, paralysis, seizures, or impairment of coordination, vision, speech, language, or memory.
- Signs or symptoms of serotonin syndrome (e.g. agitation, hallucinations, coma, tachycardia, labile blood pressure, hyperthermia, hyperreflexia, incoordination, rigidity, nausea, vomiting, diarrhoea).
- New or worsening psychiatric symptoms, e.g. psychosis, mania, aggressive or hostile behaviour, emotional lability, suicidal ideation or behaviour, motor or verbal tics (including Tourette's syndrome), paranoia, depression, development or worsening of irritability, anxiety, agitation or tension.
- Skin rashes or bruising easily.
- Any visual changes such as sudden acute, painful eye(s), impaired vision, red eye(s), and/or semi-dilated and fixed pupil; risk of angle closure glaucoma. Seek immediate medical attention, ideally from an eye casualty unit or A&E.
- Particularly with atomoxetine, report unexplained nausea, malaise, jaundice or darkening of urine, and new onset severe or persistent abdominal pain; risk of hepatic injury.
- Symptoms of allergic or anaphylactic reactions, e.g. rash, angioedema or urticaria.
- If they suspect they may be pregnant or are planning a pregnancy. Patients of childbearing potential should use appropriate contraception and take a pregnancy test if they think they could be pregnant.

The patient/carer should be advised:

- To attend all review and monitoring appointments with the primary care prescriber and specialist. If unable to attend any appointments, inform the relevant practitioner as soon as possible and arrange an alternative appointment.
- It may not be safe to continue prescribing without regular review, and patients should be aware that their medicines could be stopped if they do not attend appointments.
- Keep contact details up to date with both prescribers.
- Not to drive or operate machines if the medicine affects their ability to do so safely, e.g. by causing dizziness, drowsiness, or visual disturbances.
- People who drive must inform the DVLA (and their vehicle insurance provider if relevant) if their ADHD condition or medication affects their ability to drive safely. See https://www.gov.uk/adhd-and-driving.
- For information on legislation regarding driving whilst taking certain controlled drugs, including amfetamines, see drugs and driving: the law.
- Avoid alcohol while taking any of the ADHD medications, as it may make some side effects worse. Avoid recreational drugs.
- Avoid grapefruit juice while taking guanfacine, and drink plenty of other fluids as dehydration can increase the risk of falls or fainting.
- Not to stop taking their medication or reduce their dose without speaking to the primary care prescriber or specialist. Medical supervision of withdrawal may be required.
- Stopping guanfacine suddenly increases the risk of withdrawal effects, so it is important to gradually reduce the dose under medical supervision.
- Methylphenidate, lisdexamfetamine and dexamfetamine are schedule 2 controlled drugs. Patients may be required to prove their identity when collecting prescriptions. Also, there are restrictions on travelling with controlled drugs: see https://www.gov.uk/guidance/controlled-drugs-personal-licences.
- Store their medication safely and securely and according to the medication instructions.
- Must not share their medication with anyone else.

Further patient information:

- Royal College of Psychiatrists – ADHD in adults https://www.rcpsych.ac.uk/mental-health/problems-disorders/adhd-in-adults
- NHS – Attention deficit hyperactivity disorder. https://www.nhs.uk/conditions/attention-deficit-hyperactivity-disorder-adhd/