North of Tyne, Gateshead and North Cumbria Area Prescribing Committee

Methylphenidate, Dexamfetamine, Lisdexamfetamine and Atomoxetine for treatment of Attention Deficit Hyperactivity Disorder (ADHD) in Adults

Shared Care Guidance

Introduction
Indication **Treatment of Attention Deficit Hyperactivity Disorder (ADHD) patients aged 18 years and over.** This shared care guideline is in accordance with NICE clinical guideline NICE Clinical Guideline 87 and NICE Quality Standard 39 **This shared care guideline excludes:** • Treatment of patients aged 6 to 17 years (see separate guideline) • Treatment of patients aged 5 years and under It is expected that excluded patients will be retained within specialist services unless otherwise specified **Background** • ADHD is a heterogeneous behavioural syndrome characterised by the core symptoms of 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 significant 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 • Diagnosis and initiation of treatment must be made by a specialist in the treatment of ADHD • Stimulants used to treat ADHD work by increasing dopamine levels in the brain to improve focus and functioning

Medication **For full details see NICE CG 87, individual SPCs and BNF**	
STIMULANTS *Methylphenidate, dexamfetamine + lisdexamfetamine - Schedule 2 Controlled Drugs - Controlled drug prescription requirements should be followed* *Formulary status – Amber* *Lisdexamfetamine - Licensed for ADHD in adults that pre-existed in childhood* *Not all methylphenidate preparations licensed for use in adults - Medikinet® and Xaggitin® can be used in adolescents whose symptoms persist into adulthood and who have shown clear benefit from treatment, it this instance it may be appropriate to continue treatment into adulthood* *Dexamfetamine – not licensed for use in adults*	
METHYPHENIDATE	**Standard release** - 5mg & 10mg tablets **Modified release** - prescribe by brand name • Medikinet® XL 5mg, 10mg, 20mg, 30mg, 40mg, 50mg and 60mg m/r capsules • Equasym® XL 10mg, 20mg & 30mg m/r capsules • Xaggitin® XL 18mg, 27mg, 36mg and 54mg m/r tablets Concerta® XL - Existing patients who are prescribed Concerta® XL should be reviewed and switched to Xaggitin® XL as appropriate Xaggitin® XL is bioequivalent to Concerta® XL

Dose and administration (for full details see NICE CG 87, individual SPCs and BNF)	**Adults** • Standard release formulation: Initially 5 mg 2-3 times daily, increased if necessary at weekly intervals according to response up to maximum 100mg daily in divided doses. • Discontinue if no response after 1 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) *Note* - Treatment may be started using a modified-release preparation. **Refer to SPCs or BNF for dosing schedules for the individual preparations.** Administration • **Contents of Equasym XL® capsules,** and **Medikinet XL®** capsules, can be sprinkled on a tablespoon of apple sauce, and then swallowed immediately without chewing. Then patients should take a drink. • **Concerta XL® -** tablet membrane can pass through GI tract unchanged. Dose form not appropriate for dysphagia or if GI lumen is restricted. • **Concerta XL and Xaggitin XL** must be swallowed whole with the aid of liquids, and must not be chewed, divided, or crushed.
DEXAMFETAMINE	**Tablets -** 5mg (generic tablets may be halved); Amfexa® 5mg, 10mg and 20mg (tablets can be quartered)
Dose and administration (for full details see NICE CG 87, individual SPCs and BNF)	• **Adult** – Initially 5mg twice daily, increasing if necessary by weekly increments according to response, maximum 60mg/day • Maintenance dose given in 2–4 divided doses • Amfexa® is licensed for ADHD in children (not adults)
LISDEXAMFETAMINE	**Capsules (hard)** 30mg, 50mg and 70mg (Elvanse Adult®)
Dose and administration (for full details see NICE CG 87, individual SPCs and BNF)	• **All ages** - 30mg taken once daily in the morning. The dose may be increased by 20 mg increments, at approximately weekly intervals. Administered at the lowest effective dosage. • Maximum dose - 70 mg per day; 50mg per day in renal impairment • Discontinue if response insufficient after 1 month Administration: • May be taken with or without food • May be swallowed whole, or the capsule opened and the entire contents emptied and mixed with a 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 patient should consume the entire mixture of soft food or liquid immediately; it 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. Afternoon doses should be avoided because of the potential for insomnia. However, if effect wears off in evening (with rebound hyperactivity), a dose of dexamfetamine at bedtime may be appropriate (establish need with trial bedtime dose)
NON-STIMULANT *Formulary status – Amber* *Licensed Indication when ADHD pre-existed in childhood, dose of 120mg daily not licensed*	
ATOMOXETINE	**Capsules** 10mg, 18mg, 25mg, 40mg, 60mg, 80mg, 100mg (Strattera®) **Liquid 4mg/ml** (Strattera®) Nb. Liquid approved for patients with more complex needs e.g. those with swallowing difficulties

Dose and administration (for full details see NICE CG 87, individual SPCs and BNF)	• Adult body-weight *up to 70 kg*: Initially 500 micrograms/kg daily for 7 days, increased according to response. Usual maintenance dose: 1.2 mg/kg daily but may be increased to 1.8 mg/kg daily (max. 120 mg daily) under the direction of a specialist • Adult body-weight *over 70 kg*: Initially 40 mg daily for 7 days, increased according to response Usual maintenance dose: 80 mg to 100mg daily but may be increased to a maximum recommended total daily dose of 120mg, under the direction of a specialist • **Doses above 100mg daily are not licensed but are stated in the BNF** • 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 • Halve dose in moderate hepatic impairment, quarter dose in severe hepatic impairment **Atomoxetine oral solution should only be prescribed when patients are unable to take tablets**
Guanfacine	• Treatment with guanfacine **should not** be initiated in adults under this shared care guidance. • It can be prescribed in primary care by GPs in adults who started treatment in childhood and who wish to continue under specialist supervision. • Please refer to Treatment of ADHD in children and adolescents aged 6 to 17 years for further information.
COMMON ADVERSE EFFECTS - See SPC and BNF/CBNF for full details	
Methylphenidate **Dexamfetamine** **Lisdexamfetamine**	Decreased appetite, weight loss, growth retardation, insomnia, mood changes, headache, dizziness, drowsiness, tachycardia, increased blood pressure, cough, gastrointestinal side effects, rashes, delusions, hallucinations, anxiety, panic, stimulant related tics, sexual dysfunction.
Atomoxetine	Emergence of suicidal behaviour, self-harm or hostility; serious liver damage;, weight loss, drowsiness, increased heart rate and blood pressure, dysmenorrhoea, sexual dysfunction
POTENTIALLY SERIOUS DRUG INTERACTIONS	
Stimulants	▪ Enhance anticoagulant effect of warfarin ▪ Can increase the plasma levels of some anticonvulsants (phenytoin, primidone, phenobarbitone) and tricyclic antidepressants ▪ Can exacerbate CNS adverse 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 ▪ Monoamine oxidase inhibitors (MAOIs) - amfetamines should not be administered during or within 14 days following the administration of MAOIs as they may precipitate hypertensive crisis ▪ Antihypertensives – stimulants may reduce effectiveness ▪ Amfetamines potentiate the analgesic effect of narcotic analgesics. ▪ Concurrent use of tricyclic antidepressants may increase risk of cardiovascular side effects

Atomoxetine	▪ Atomoxetine should not be used with MAOIs ▪ SSRIs (e.g., fluoxetine, paroxetine) can increase atomoxetine levels ▪ High dose nebulised or systemically administered salbutamol (or other 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, moxifloxacin, erythromycin, methadone, mefloquine, tricyclic antidepressants, lithium) ▪ Increased risk of seizures with drugs known to lower the seizure threshold (e.g. tricyclic antidepressants or SSRIs, neuroleptics, phenothiazines or butyrophenone, mefloquine, chloroquine, bupropion or tramadol) or when stopping concomitant treatment with benzodiazepines ▪ Atomoxetine may decrease the effectiveness of anti-hypertensive drugs ▪ Possible additive effects when used with drugs that affect noradrenaline e.g. antidepressants (imipramine, venlafaxine, and mirtazapine) or decongestants (pseudoephedrine or phenylephrine)
CONTRAINDICATIONS/CAUTIONS	

Stimulants	• Known intolerance of sympathomimetic amines
	• Marked anxiety, agitation, tension or psychosis, poorly controlled Bipolar Affective Disorder or psychopathic/borderline personality disorder
	• Severe depression, anorexia/anorexic disorders,
	• Suicidal ideation,
	• History of drug or alcohol abuse
	• Glaucoma
	• Hyperthyroidism or thyrotoxicosis
	• Structural cardiac abnormalities
	• Current or recent (within 14 days) treatment with MAOI's
	• Although listed as contraindications, in some circumstances, methylphenidate can be used with caution if there is careful monitoring by the specialist e.g. Cardiovascular disease – including hypertension
	• Motor tics, or family history of Tourette's syndrome
	• Phaeocromocytoma
	• Use with caution in:-
	  • Epilepsy, stimulants may lower the seizure threshold in patients with a prior history of seizures. If seizure frequency increases, the specialist should discontinue methylphenidate
	  • Or where there is a diagnosis or history of severe and episodic Bipolar Affective disorder that is not well controlled
	  • Patients with rare hereditary problems of galactose intolerance, the Lapp lactase deficiency or glucose-galactose malabsorption should not take this medicine

Atomoxetine	• Patients on MAOIs (or within 2 weeks after discontinuing therapy with a MAOI) • Severe cardiovascular disease, severe cerebrovascular disease • QT-interval prolongation, aggressive behaviour, cardiovascular disease, cerebrovascular disease, emotional lability, history of seizures, hostility, hypertension, mania, psychosis, structural cardiac abnormalities, susceptibility to angle-closure glaucoma, tachycardia.

MEDICATION CHOICE

- First-line treatment - offer lisdexamfetamine or methylphenidate
- Consider switching to lisdexamfetamine after a 6-week trial of methylphenidate at an adequate dose with insufficient benefit in terms of reduced ADHD symptoms
- Consider switching to methylphenidate after a 6-week trial of lisdexamfetamine at an adequate dose with insufficient benefit in terms of reduced ADHD symptoms
- Consider dexamfetamine for adults whose ADHD symptoms are responding to lisdexamfetamine but who cannot tolerate the longer effect profile
- Offer atomoxetine to adults if:
    - they cannot tolerate lisdexamfetamine or methylphenidate **or**
    - symptoms have not responded to separate 6-week trials of lisdexamfetamine and methylphenidate, having considered alternative preparations and adequate doses

CONSIDERATIONS WHEN PRESCRIBING ADHD MEDICATION

Medication choice – people with coexisting conditions

- Offer the same medication choices to people with ADHD and anxiety disorder, tic disorder or autism spectrum disorder as other people with ADHD
- If 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.
- When prescribing medication for ADHD, think about modified-release once-daily preparations for convenience, improving adherence, reducing stigma (because there is no need to take medication in the workplace), reducing problems of storing and administering controlled drugs outside the home, and the risk of stimulant misuse and diversion with immediate-release preparations
- Be aware that the size of effect, duration of effect and adverse effects vary from person to person; IR and MR preparations can be used as part of the same treatment plan to optimise effect
- Immediate-release preparations may be suitable if more flexible dosing regimens are needed or during initial titration to determine correct dosing levels
- Dexamfetamine does not have a UK marketing authorisation for this indication in adults
- Atomoxetine was licensed for use in adults with symptoms of ADHD that pre-existed in childhood. The prescriber should follow relevant professional guidance, taking full responsibility for the decision. Informed consent should be obtained and documented in all occasions where prescribing of a medicine is out with its current product licence
- See the General Medical Council's Prescribing guidance: prescribing unlicensed medicines for further information.
- Sudden deaths, stroke, myocardial infarction have been reported in adults taking stimulant drugs at usual doses for ADHD. Although the role of stimulants in these adult cases is also unknown, adults have a greater likelihood than children of having serious structural cardiac abnormalities, cardiomyopathy, serious heart rhythm abnormalities, coronary artery disease, or other serious cardiac problems. Adults with such abnormalities should also generally not be treated with stimulant drugs.

SHARED CARE FOR MEDICATION

After titration and dose stabilisation, prescribing and monitoring of ADHD medication may be carried out under Shared Care Protocol arrangements with primary care (NICE 2018)

SPECIALIST RESPONSIBILITIES

Baseline assessment	Before initiating patients on medication for ADHD, the specialist should undertake a full assessment in line with NICE guidance.
Prescribing	• Initiate, titrate and stabilise dose of ADHD medication • Transfer prescribing to GP after at least 3 months treatment has been supplied by specialist (this should allow enough time for treatment to be stabilised)
Maintenance and monitoring	• Monitor effectiveness of medication for ADHD and adverse effects and document in the person's notes

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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

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<tr><td>Physical health monitoring – stimulants + atomoxetine</td><td>
<table>
<tr><th></th><th>Weight</th><th>Heart rate</th><th>Blood pressure</th></tr>
<tr><td>Adults</td><td>Every 6 months</td><td colspan="2">Compare with the normal range for age before and after each dose change and every 6 months.</td></tr>
<tr><td colspan="4">Note: Specialist will undertake physical health monitoring before and after dose changes; ongoing monitoring will be shared between both primary and secondary care; each monitoring annually, to ensure parameters are recorded 6 monthly</td></tr>
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Monitor physical health as described above annually
Consider monitoring BMI of adults with ADHD if there has been weight change as a result of their treatment and changing the medication if weight change persists
Do not offer routine blood tests (including liver function tests) or ECGs to people taking medication for ADHD if the cardiovascular history and examination is normal AND the person is not prescribed a medicine that poses an increased cardiovascular risk
If a person taking ADHD medication has sustained resting tachycardia (more than 120 beats per minute), arrhythmia or a clinically significant increase in systolic blood pressure measured on 2 occasions, reduce the dose or review medication and communicate actions to the GP; if it is deemed that a more urgent intervention is required, seek advice from, and/or refer them to acute services as clinically indicated
Healthcare professionals and parents or carers should monitor changes in the potential for stimulant misuse and diversion, which may come with changes in circumstances and age

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<tr><td>Review of medication and discontinuation</td><td>A healthcare professional with training and expertise in managing ADHD should 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.</td></tr>
<tr><td colspan="2">PRIMARY CARE RESPONSIBILITIES</td></tr>
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Prescribe medication following recommendations of the specialist
Provide the specialist with relevant medical history and background information
To contact the specialist if concerned about any aspects of the patient’s treatment, including physical health parameters (e.g. tachycardia).
Report significant deviations from the prescribing pattern to the specialist
Monitor and record the therapy in accordance with written directions of specialist
Monitor physical health as described above annually; monitoring will be shared with secondary care and will ensure 6 monthly monitoring is adhered to
Report any adverse events to the specialist and the usual bodies. (e.g. MHRA)

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<tr><td colspan="2">CONTACT DETAILS</td></tr>
<tr><td colspan="2">Adult ADHD Specialists all localities Mon – Fri 09:00 – 17:00

North of Tyne and Gateshead - Keegan Court Gateshead 0191 287 6250
North Cumbria - Psychiatry-UK LLP 0330 124 1984
See Shared Care Agreement for Specialist details

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Private and Confidential

ADHD for Adults - Shared Care Request/Confirmation

- Specialist Prescriber to complete first two sections of the form and send to patient's GP
- GP to complete last section of form and return to specialist prescriber **within 28 days**
- A copy of the full shared care guideline can be viewed at www.northoftyneapc.nhs.uk

Specialist Prescriber				
Team				
Hospital				
Telephone/E-mail				
Patient details (use hospital label if preferred)				
Name				
Address				
Postcode				
NHS or Hosp reg no		**Male / Female** Male	**DoB**	

Treatment Requested for Prescribing in Accordance with an Approved Shared Care Arrangement					
Drug Information					
Name/Formulation		**Dose**		**Frequency**	
Name/Formulation		**Dose**		**Frequency**	
Name/Formulation		**Dose**		**Frequency**	
Indication –Adult ADHD					
Other information (if appropriate)					
Signed (Specialist Prescriber)		**Name (Print)**		**Date**	

To be completed by GP	**Please tick one box**
I ACCEPT the proposed shared care arrangement for this patient	
I ACCEPT the proposed shared care arrangement with the caveats below	
I DO NOT ACCEPT the proposed shared care arrangement for this patient	
My caveats/reason(s) for not accepting include:	

Signed		**Name (print)**		**Date**	