SHARED CARE GUIDELINE FOR ATTENTION DEFICIT HYPERACTIVITY DISORDER IN ADULTS

INDICATION

NICE Guideline NG 87, Attention Deficit Hyperactivity Disorder makes recommendations for the diagnosis and management of attention deficit hyperactivity disorder (ADHD) in children, young people and adults. They describe ADHD as a heterogeneous behavioural syndrome characterised by the core symptoms of hyperactivity, impulsivity and inattention. In general, ADHD is a persisting disorder. Of the young people with a sustained diagnosis, most will go on to have significant difficulties in adulthood, which may include continuing ADHD, personality disorders, emotional and social difficulties, substance misuse, unemployment and involvement in crime.

For adults, methylphenidate is the first-line drug. Consider switching to lisdexamfetamine for adults who have had a 6-week trial of methylphenidate at an adequate dose but have not derived enough benefit in terms of reduced ADHD symptoms and associated impairment. Consider dexamfetamine (and potential for drug misuse and diversion) 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 their symptoms have not responded to separate 6-week trials of lisdexamfetamine and methylphenidate, having considered alternative preparations and adequate doses.

The drug treatment for adults with ADHD should always form part of a comprehensive, holistic shared treatment plan that addresses psychological, behavioural and occupational or educational needs

Drug treatment for adults with ADHD who also misuse substances should only be prescribed by an appropriately qualified healthcare professional with expertise in managing both ADHD and substance misuse. For adults with ADHD and drug or alcohol addiction disorders there should be close liaison between the professional treating the person's ADHD and an addiction specialist. These patients will not be considered for shared care.

Young people with ADHD receiving treatment and care from CAMHS or paediatric services should normally be transferred to adult services if they continue to have significant symptoms of ADHD or other coexisting conditions that require treatment. Transition should be planned in advance by both referring and receiving services. If needs are severe and/or complex, use of the care programme approach should be considered. After transition to adult services, adult healthcare professionals should carry out a comprehensive assessment of the person with ADHD that includes personal, educational, occupational and social functioning, and assessment of any coexisting conditions, especially drug misuse, personality disorders, emotional problems and learning difficulties.

Drug treatment for adults with ADHD should be started only under the guidance of a psychiatrist, nurse prescriber specialising in ADHD, or other clinical prescriber with training in the diagnosis and management of ADHD. As a general principle the NICE guideline states that following titration and dose stabilisation, prescribing and monitoring should be carried out under locally agreed shared care arrangements with primary care

AREAS OF RESPONSIBILITY FOR SHARED CARE

This shared care agreement outlines suggested ways in which the responsibilities for managing the prescribing of medication for ADHD can be shared between the specialist setting and the patient's GP (if different). GPs are invited to participate. If the GP is not confident to undertake these roles, then he or she is under no obligation to do so. In such an event, the total clinical responsibility for the patient for the diagnosed condition remains with the specialist. If a specialist asks the GP to prescribe this drug, the GP should reply to this request as soon as practicable.

Sharing of care assumes communication. The intention to share care is usually explained to the patient by the doctor initiating treatment. It is important that patients are consulted about treatment and are in agreement with it.

The doctor who prescribes the medication legally assumes clinical responsibility for the drug and the consequences of its use.

REFERRAL AND INITIATION

All medication for ADHD should only be initiated by a healthcare professional with training and expertise in diagnosing and managing ADHD. NICE NG87 recommends that after titration and dose stabilisation, prescribing and monitoring of ADHD medication should be carried out under Shared Care Protocol arrangements with primary care.

Specialist Responsibilities	
1	To make a diagnosis based on timely, comprehensive assessment using appropriate validated questionnaires where symptoms are unclear and including an assessment of the person's cultural/social circumstances and risk of substance misuse/diversion.
2.	To determine a comprehensive pharmacological management strategy and discuss with the patient/carer the risks, benefits and alternatives of/for treatment.
3.	To initiate treatment and titrate the dose against symptoms and side effects, supplying at least the first 8 weeks treatment until dose optimisation is achieved.
4.	To ask the GP whether he or she is willing to participate in shared care. Requests to GPs should be made in writing and must include appropriate information to allow an informed decision to be made.
5.	On agreement from the GP, to provide the GP with appropriate information, including relevant clinical and physical assessment information to support the transfer of clinical responsibility including • the **brand** of methylphenidate prescribed • details of BP/pulse/weight at handover, and recommendations for future monitoring, • information on when the patient will next be reviewed and by whom (NB minimum of annual specialist review initially).
6.	To communicate promptly with the GP when treatment is changed, stopped or adjusted and to communicate changes in response to treatment or the condition itself.
7.	Have a mechanism in place to receive rapid referral of a patient from the GP in the event of deteriorating clinical condition.
8.	Ensure that clear backup arrangements exist for GPs to obtain advice and support.
9.	In accordance with the recommendations from NICE a review of physical health, including: ○ a medical history, taking into account conditions that may be contraindications for specific medicines ○ current medication ○ height and weight ○ baseline pulse and blood pressure ○ a cardiovascular assessment ○ an electrocardiogram (ECG) if the treatment may affect the QT interval. Consider whether further physical testing/monitoring (such as blood tests, ECG, etc) or a cardiologist opinion is required prior to commencing on medication. See NICE guidance for further details.
10.	Ensure that patients know what to do and who to contact if they experience adverse events or an exacerbation of their condition.
11.	To ensure the patient has sufficient supply of medication until such time as is appropriate for the GP to assume prescribing responsibility. This may include times to cover initial transfer of responsibility and/or after reviews
12.	To ensure the patient/ carer has given informed consent to their treatment.
13.	To provide the patient/ carer with comprehensive advice and information

Specialist Responsibilities	
14.	To review the patient at least annually, liaise with the GP on any suggested changes in prescribed therapy and to stop treatment where appropriate.
15.	Report adverse events to the CSM. http://www.yellowcard.gov.uk

General Practitioner Responsibilities	
1.	Initially, to refer the patient for specialist advice.
2.	Reply to the request for shared care as soon as practicable.
3.	Where appropriate, to prescribe medication at doses agreed with the specialist
4.	Monitor heart rate and blood pressure when requested by the specialist if it is required between outpatient appointments and communicate the results back to the specialist.
5.	To deal with general health issues of the patient.
6.	Refer patient to the specialist if the patient's condition deteriorates.
7.	Stop treatment on the advice of the specialist or immediately if an urgent need to stop treatment arises.
8.	Report adverse events to the specialist and MHRA

Patient's role (or that of carer)	
1	Report to the specialist or GP if he or she does not have a clear understanding of the treatment.
2	Attend appropriate consultant and GP appointments
3	Share any concerns in relation to treatment with methylphenidate
4	Use written and other information on the medication.
5	Seek help urgently if it is suspected that methylphenidate is causing side effects, or if the patient is otherwise unwell.

SUPPORTING INFORMATION

Summary of Preparations

Drug Name	Licensed Indication in adults	Preparations (BNF)
Methylphenidate hydrochloride MUST BE PRESCRIBED BY BRAND NAME	Prescribed 'off label' in adults, continuation licence for Medikinet XL®, Concerta XL®, Xaggitin XL®, Delmosart MR®	Immediate release – Methylphenidate hydrochloride (Non-proprietary)/ Medikinet® 5mg/10mg/20mg tablets & Ritalin® 10mg tablets Modified release – Concerta XL® 18mg/27mg/36mg/54mg tablets Matoride XL® 18mg/36mg/54mg tablets Delmosart MR®18mg/27mg/36mg/54mg tablets Equasym XL® 10mg/20mg/30mg caps Medikinet XL 5mg/10mg/20mg/30mg/40mg caps Xaggitin XL® 18mg/27mg36mg/54mg tablets Xenidate Xl® 18mg/27mg/36mg/54mg tablets
Atomoxetine hydrochloride	Licensed for adults	10mg/18mg/25mg/40mg/60mg/80mg/100mg capsules 4mg/ml oral solution
Dexamfetamine sulfate	Prescribed 'off label' in adults	5mg tablets 1mg/ml oral solution

Lisdexamfetamine dimesylate	Licensed for adults	30mg/50mg/70mg Capsules

CLINICAL INFORMATION

NOTE: The information here is not exhaustive. Please also consult the current Summary of Product Characteristics (SPC) for the individual medicines prior to prescribing for up to date prescribing information, including detailed information on adverse effects, drug interactions, cautions and contraindications (available via www.medicines.org.uk)

For place in therapy of the different ADHD medicines, please see overleaf

Monitoring Requirements including frequency

Weight (methylphenidate, atomoxetine, dexamfetamine, lisdexamfetamine):
Record BMI 3 and 6 months after treatment and review at least every 6 months. If problematic weight loss is associated with drug treatment please contact the service to consider changing or stopping treatment.

Cardiac function and blood pressure (methylphenidate, atomoxetine, dexamfetamine, lisdexamfetamine)
Monitor heart rate and blood pressure before and after each dose change, and at least every 3 months.
Clinically significant sustained or increased resting tachycardia, arrhythmia or systolic blood pressure measured on two occasions should prompt dose reduction and referral to a specialist physician (cardiology).

Atomoxetine
Monitor for dysmenorrhoea, erectile dysfunction and ejaculatory dysfunction.
Monitor for agitation, irritability, suicidal thinking and self-harming behaviour, and unusual changes in behaviour, particularly during the initial months of treatment, or after a dose change.
Patients should be warned about the potential for: increased agitation, anxiety, suicidal thinking and self-harming behaviour especially during the first few weeks of treatment and liver damage in rare cases (usually presenting as abdominal pain, unexplained nausea, malaise, darkening of the urine or jaundice).

Seizures (methylphenidate, atomoxetine, dexamfetamine, lisdexamfetamine)

If exacerbated in a young person with epilepsy or de novo seizures emerge, discontinue the drug immediately.

Psychotic symptoms, mania (methylphenidate, atomoxetine, dexamfetamine, lisdexamfetamine)
If psychotic or severe affective symptoms emerge discontinue the drug immediately and refer to a psychiatrist for an assessment.

Follow up arrangements

Consultant/specialist team:

- To arrange follow-up reviews during the titration period, and at least annually following handing over to GP prescribing.

GP:

- To act upon recommendations communicated by the consultant/specialist team
- To monitor prescribing rate of medications for individual patients, usually monthly prescribing for controlled medications.
- Check that the patient is attending specialist appointments at least annually
- To review the appropriateness of prescribing for patients who have not been seen by a specialist for over one year.

Duration of treatment

Long term treatment may continue as long as required. Patients should have their treatment reviewed at least once a year by a specialist to determine whether continuation is needed.

Criteria for stopping treatment
• If improvement of symptoms is not observed. GP should contact specialist services for advice in such circumstances. • If there are adverse effects that necessitate stopping the medication • If ADHD symptoms are judged to have resolved following specialist review • The drug may be discontinued periodically (e.g. by stopping the drug for up to two weeks) to assess the patient's underlying ADHD symptoms as advised by the consultant/specialist team, but there is no stipulation in NICE guidance to do this on a regular basis, and it should be decided on a case by case basis.

Indication for use, place in therapy, dose and further information

NOTE: *The Information here is* ***not*** *exhaustive.* ***Please consult the current Summary of Product Characteristics (SPC) for up to date prescribing information including detailed information on adverse effects, drug interactions, cautions and contraindications (available via www.medicines.org.uk)***

Drug	Indication	Place in Therapy	Dose and route of administration		Notes
			Preparation	Dose (BNF)	
Methylphenidate hydrochloride	Treatment of ADHD, prescribed 'off label' in adults, continuation license for Medikinet XL ® and Concerta XL ® Xaggitin XL® Delmisart XL®	Usually first line treatment option in line with NICE guideline.	Ritalin ® tablets Medikinet ® tablets	Initially 5mg 2-3 times daily, increasing every 1-2 weeks in 5mg dosage increments as necessary depending on treatment response and side-effects. Maximum total dosage - 100mg per day	Patients started on immediate release (IR) medication may switch to extended release preparations if once daily dosing is preferable. In some cases rebound hyperactivity disorder may occur if the effect of the drug wears off in the evening. An additional dose later in the day may eliminate this difficulty, but may disturb sleep.
			Concerta XL ® tablets Delmosart XL® tablets Matoride XL® tablets Xaggitin XL® tablets Xenidate XL® tablets (dosage released as 22% immediate release, 78% sustained release)	Initially 18mg once daily in the morning increasing every 1-2 weeks in 18mg dosage increments as necessary depending on treatment response and side-effects, up to a maximum total dosage of 108mg once per day in the morning.	Total daily dose of 15mg IR medication equivalent to Concerta XL® 18mg once daily. May need additional IR methylphenidate medication in the late afternoon if duration of action is too short – combined Concerta XL® dosage in IR equivalent and IR dosage not to exceed 100mg. Tablet to be swallowed whole – may pass through GI tract unchanged. Not suitable in dysphagia or if GI lumen is restricted.
			Equasym XL ® capsules (dosage released as 30% immediate release, 70% sustained release)	Initially 10mg once daily in the morning increasing every 1-2 weeks in 10mg dosage increments as necessary depending on treatment response and side-effects, up to a maximum total dosage of 100mg per day	In some instances twice daily dosing or the addition of IR methylphenidate may be required if duration of action is too short. Contents of capsule can be sprinkled on a tablespoon of apple sauce then swallowed immediately without chewing.
			Medikinet XL ® capsules (dosage released as 50% immediate release, 50% sustained release)	Initially 5 or 10mg once daily in the morning increasing every 1-2 weeks in 5 or 10mg dosage increments as necessary depending on treatment response and side-effects, up to a maximum total dosage of 100mg per day	In some instances twice daily dosing or the addition of IR methylphenidate may be required if duration of action is too short. Note there is a 5mg capsule where lower starting dose is required. Contents of capsule can be sprinkled on a tablespoon of apple sauce or yoghurt then swallowed immediately without chewing.

Indication for use, place in therapy, dose and further information continued

NOTE: The Information here is **not** exhaustive. **Please consult the current Summary of Product Characteristics (SPC) for up to date prescribing information including detailed information on adverse effects, drug interactions, cautions and contraindications (available via www.medicines.org.uk)**

Drug	Indication	Place in Therapy	Dose and route of administration		Notes
			Preparation	Dose (BNF)	
Atomoxetine hydrochloride	Treatment of ADHD, licensed for adult initiation	To be considered if methylphenidate or dexamfetamine have not been successful or not tolerated, or where substance abuse/ dependence is a concern (in line with NICE guideline).	Strattera ® capsules Strattera ® liquid	Body weight over 70kg – 40mg daily for 7 days, increasing to 80mg daily thereafter if tolerated. Can be increased to 120mg daily (unlicensed) under the direction of a specialist. Body weight under 70kg – 500micrograms per kg daily for 7 days, increased according to response. Usual maintenance dose 1.2mg per kg, but may be increased to 1.8mg/kg (max 120mg daily) under the direction of a specialist.	Total daily dose may be given either as a single dose in the morning or as 2 divided doses with last dose no later than early evening. Patients to be informed of the specific cautions with regard emergent hepatic disorder and suicidal ideation – see SPC/BNF for full details. For patients with a known poor metaboliser genotype, or who don't tolerate the usual 40mg starting dose, a lower starting dose and slower up titration of the dose may be considered.
Dexamfetamine sulfate	Treatment of ADHD, prescribed 'off label' in adults	To be considered if methylphenidate has not been successful/not tolerated, or where patient has previously been maintained on a dexamfetamine based medication (in line with NICE guideline).	Dexamfetamine tablets & liquid	Initially 5mg twice daily, increasing after 1-2 weeks to three times daily if extended duration of action is required, then in 5mg dosage increments as necessary depending on treatment response and side-effects. Maximum total dosage - 60mg per day in 2-3 divided doses.	• Dexamfetamine may be considered **after** methylphenidate where: i. symptoms do not respond to methylphenidate or ii. the person is intolerant to it after an adequate trial (usually about 6 weeks). • It may also be considered for continuation in patients already stabilised on existing amphetamine based therapy, for example patients transitioning from child to adult ADHD services. • It may also be considered where use of a shorter acting agent would be beneficial (for example over a set period of time) but the patient has not responded to or not tolerated immediate release methylphenidate. **Note:** Dexamfetamine is **not supported** for use as a first line agent in the management of adult ADHD. Dexamfetamine is not licensed in the UK for the treatment of adult ADHD but use is supported by NICE
Lisdexamfetamine dimesylate	Treatment of ADHD, licensed for adult initiation	To be considered if methylphenidate has not been successful/not tolerated, or where patient has previously been maintained on a dexamfetamine based medication	Elvanse Adult ® capsules	Initially 30mg once daily in the morning increasing every 1-2 weeks in 20mg dosage increments as necessary depending on treatment response and side-effects, up to a maximum total dosage of 70mg per day in the morning.	Swallow capsule whole or mix contents of capsule in yoghurt or a glass of water or orange juice; contents should be dispersed completely and consumed immediately. • Lisdexamfetamine may be considered **after** methylphenidate where: i. symptoms do not respond to methylphenidate or ii. the person is intolerant to it after an adequate trial (usually about 6 weeks). • It may also be considered for continuation in patients already stabilised on existing amphetamine based therapy, for example patients transitioning from child to adult ADHD services. • Lisdexamfetamine may be preferable to dexamfetamine as it is licensed for use in adult ADHD and is taken once daily. **Note:** Lisdexamfetamine is **not supported** for use as a first line agent of adult ADHD.

Side effects/interactions (from SPCs):

Note: Management advice is based on expert clinical opinion

ADHD agent and adverse effect	Frequency	SPC link & Possible Management
METHYLPHENIDATE		Concerta XL https://www.medicines.org.uk/emc/medicine/30451 Equasym https://www.medicines.org.uk/emc/medicine/15804 Medikinet https://www.medicines.org.uk/emc/medicine/19664 Medikinet XL https://www.medicines.org.uk/emc/medicine/19510 Ritalin https://www.medicines.org.uk/emc/medicine/1316
Nervousness and insomnia	>10%	Review dose and/or omit afternoon/evening dose if using TDS regime - refer to consultant for advice.
Decreased appetite	1-10%	Usually transient. Try taking medicine with food if it persists. Refer to consultant for advice if becomes problematic
Headache, drowsiness, dizziness	1-10%	Refer to consultant for advice if continues
Abdominal pain, diarrhoea, nausea & vomiting, dry mouth, dyspepsia	1-10%	Occurs at initiation. May be alleviated by concomitant food intake. Refer to consultant for advice if continues
Tachycardia, arrhythmia, palpitations, hypertension	1-10%	Monitor. Discontinue if significant & refer back to ADHD consultant & specialist cardiologist if indicated.
Tics, aggression, anxiety, irritability	1-10%	Discontinue if tics develop. Refer back to consultant.
Drug induced psychosis (e.g. hallucinations, restlessness) depression, mood swings	< 1%	Discontinue. Refer back to consultant.
DEXAMFETAMINE		Tablets: https://www.medicines.org.uk/emc/medicine/31211 Liquid: https://www.medicines.org.uk/emc/medicine/29014
Aggressive behaviour, anxiety, confusion, delirium, depression, euphoria, insomnia, irritability, tics, night tremors	Not stated	Reduce dose & ensure not given too near bedtime. Discontinue if tics develop. Refer back to consultant.
Paranoia, psychosis	Not stated	Discontinue. Refer back to consultant.
Palpitations, tachycardia, change in blood pressure, cardiomyopathy, chest pain.	Not stated	Monitor. Check pulse after every dose change. ECG if necessary. Discontinue if significant & refer back to ADHD consultant & specialist cardiologist if indicated.
LISDEXAMFETAMINE ▼(adults)		Lisdexamfetamine capsules https://www.medicines.org.uk/emc/medicine/31543
Insomnia	>10%	Review dose - ensure taken in morning – refer to consultant for advise
Decreased appetite (weight decreased)	>10% (1-10%)	Try taking medicine with food if it persists. Refer to consultant for advice if becomes problematic
Headache, dry mouth	>10%	Refer to consultant for advice if continues
Anorexia, diarrhoea, upper abdominal pain, nausea	1-10%	May be alleviated by concomitant food intake. Refer to consultant for advice if continues
Anxiety, agitation, libido decreased, erectile dysfunction, dizziness, restlessness, tremor, irritability, fatigue, feeling jittery, hyperhidrosis	1-10%	Refer back to consultant.

Side effects/interactions (from SPCs):
Note: Management advice is based on expert clinical opinion

ADHD agent ADHD agent and adverse effect	Frequency	SPC link & Possible Management
LISDEXAMFETAMINE continued		Lisdexamfetamine capsules https://www.medicines.org.uk/emc/medicine/31543
Tachycardia, palpitations, blood pressure increased	1-10%	Monitor. Discontinue if significant & refer back to ADHD consultant & specialist cardiologist if indicated.
Depression, tics, affect lability, dysphoria, euphoria, mania	0.1-1%	Discontinue if tics develop. Refer back to consultant.
Blurred vision, vomiting, urticaria, rash, pyrexia	0.1-1%	Discontinue. Refer back to consultant.
Psychotic episodes, hallucinations, aggression, seizure	Not known	Discontinue. Refer back to consultant
ATOMOXETINE		Capsules: https://www.medicines.org.uk/emc/medicine/14482 Liquid: https://www.medicines.org.uk/emc/medicine/30371
Appetite decreased, dry mouth, nausea	>10%	Usually settles after 1st month of treatment. Refer to consultant for advice if continues
Headache, somnolence, insomnia	>10%	Usually settles after 1st month of treatment. Refer to consultant for advice if continues
Increased BP and heart rate	>10%	Monitor. Discontinue if clinically indicated. Refer back to ADHD consultant and cardiologist if indicated.
Abdominal pain, constipation, dyspepsia, flatulence, vomiting	1-10%	Usually settles after 1st month of treatment. Refer to consultant for advice if continues
Weight decrease	1-10%	Usually settles after initial weight loss. Refer to consultant for advice if becomes problematic
Palpitations, tachycardia	1-10%	Monitor. Discontinue if clinically indicated. Refer back to ADHD consultant and cardiologist if indicated.
Libido decreased, sleep disorder, dizziness, sinus headache, tremor, fatigue, lethargy, agitation	1-10%	Refer back to consultant
Dysuria, urinary hesitation, urinary retention	1-10%	Refer back to consultant
Dysmenorrhoea, irregular menstruation, ejaculation disorder, erectile dysfunction, male genital pain	1-10%	Refer back to consultant
Suicide-related events, aggression, hostility and emotional lability,	0.1-1%	Discontinue drug. Refer back to consultant
QT interval prolongation	0.1-1%	Discontinue if significant & refer back to ADHD consultant & specialist cardiologist.
Liver toxicity, abnormal liver function tests, jaundice, hepatitis,	0.001-0.1%	Discontinue drug. Refer back to consultant
Seizure, psychosis (including hallucinations)	0.001-0.1%	Discontinue drug. Refer back to consultant

References

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5. Equasym XL® - (Last accessed January 2016)
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7. Medikinet XL® - (Last accessed January 2016)
8. Concerta XL® - (Last accessed January 2016)
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10. Elvanse Adult ® - (Last accessed June 2018)
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