North Central London
Joint Formulary Committee

Shared Care Guidelines: Attention Deficit Hyperactivity Disorder (Children and Adolescents)

Dear GP

The information in this shared care guideline has been developed in consultation with Primary Care and it has been agreed that it is suitable for shared care.

Sharing of care assumes communication between the specialist or Consultant, GP and patient. The intention to share care should be explained to the patient by the Consultant when treatment is initiated. It is important that patients are consulted about treatment and are in agreement with it.

Document control

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June 2020	V1	New document (Based on previous BEHMHT November 2015)
December 2022	V2.0	Addition of guanfacine as a treatment option Transfer of responsibility of requesting and interpreting cardiac ECGs from GP to consultant / specialist team Addition of ICB Medicines Management team responsibilities

Groups / Individuals who have overseen the development of this guidance:	Dr Raj Sekaran (Consultant, BEH) Joy Ihenyen (CAMHS Specialist Pharmacist BEH) Katherine Delargy (Chief Pharmacist, BEH) Gurpal Grewal (Formulary and Medicines Optimisation Pharmacist, NCL-JFC) Jay Pang (Lead Pharmacist, NCL IPMO Programme Team)
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Contents

1. Introduction

Attention Deficit Hyperactivity Disorder (ADHD) is a neuro-developmental condition affecting 1-5% of school age children. Its core symptoms include developmentally inappropriate levels of attention, concentration, hyperactivity, distractibility and impulsivity. It causes problems at home, in school and with peer relationships and may have long term adverse effects on self-confidence, academic performance, vocational success and social development.

It is often co morbid with learning difficulties. Untreated, a proportion goes on to develop conduct disorder. Substance misuse is another frequently co morbid problem.

It can be divided into three presentations (based on symptoms): combined presentation, predominantly inattentive presentation: and predominantly hyperactive/impulsive and MUST:

- Have been present for at least 6 months and be developmentally inappropriate.
- Have clear evidence of impairment in social and / or academic functioning in at least two settings.
- Be present (i.e. signs) before the age of 12. The signs must not be accountable for by any other type of mental disorder although they may occur in conjunction with some development disorders.

Diagnosis in children and young people should be made by a child and adolescent psychiatrist or paediatrician. It should be based on a multidisciplinary assessment and include information obtained from the child's schoolteachers (with parental consent).

Methylphenidate (immediate release and long acting), **Atomoxetine**, **Dexamfetamine, Lisdexamfetamine** and **Guanfacine** are used for the treatment of ADHD in children (and will be referred to as **"Children and Adolescent ADHD" drug treatments** hereafter within this document)**.**

The time taken to stabilise patients on an optimal dose of medication usually takes approximately 8 – 12 weeks, though this can sometimes take longer. Once achieved, a shared care arrangement will be requested with the GP. This document will clarify responsibilities between the specialist and general practitioner (GP) for managing the prescribing of Children and Adolescent ADHD drug treatment such as:

- Who will prescribe.
- Who will monitor.
- Any tests required (e.g. blood tests), the exact names/nature of the tests, why they are needed, the frequency of testing, the location in which these will be carried out and action to be taken for any abnormal results.
- Which clinician will be responsible for receipt and review of the results.
- Who will communicate any necessary changes in dose to the patient and the GP.

This document should provide sufficient information to enable the GP to make an informed decision regarding the clinical and legal responsibility for prescribing these drugs.

2. Shared Care criteria

- If medication is indicated as part of the treatment package, then the medication will be initiated in the specialist clinic. Children and Adolescent ADHD drug treatments may form part of a comprehensive treatment programme that focuses on psychological, behavioural and educational advice and interventions.
- Patients will be stabilised on the "Children and Adolescent ADHD" drug treatments and will have been monitored appropriately at baseline and after initiation of treatment, with no problems identified during this period, prior to referral to the GP for shared care.
- Prescribing responsibility will only be transferred when it is agreed by the Consultant and the GP that the patient's condition is reasonably predictable and the treatment regimen has been specified.
- The specialist clinic will continue to provide prescriptions until there has been a successful transfer of the responsibilities as outlined below.
- The patient will be supplied sufficient quantity for a minimum of 4 weeks (or until the patient has been stabilised) which is to be continued by the GP.
- On discharge from specialist services, advice will be given in a letter to continue with treatment in primary care.

3. Shared care responsibilities

3.1. Consultant / CAMHS Specialists

- Diagnosis of ADHD and decision to initiate treatment.
- Ensure baseline monitoring of height, weight, blood pressure and pulse have been performed, plus any additional relevant investigations (these must be shared with the GP).
- The Specialist must also refer for a cardiology opinion in specific circumstances (or a paediatric hypertension specialist if blood pressure is consistently above the 95th centile for age/height) prior to medication initiation. A full list of cardiac related scenarios where this is necessary can be found in NICE Guidance.
- Discuss the benefits and adverse effects of treatment with the patient (if appropriate) and/ or parents or carers.

- Provide the patient (as appropriate), parent/ carer, and class teachers with written information about ADHD, its management including, medical management, explaining the effects and side effects of medication. Document this discussion in the patient's clinical notes.
- Assess the effects of the medication; continued liaison is required with the parents or carer and class teachers.
- Initiate and stabilise medication treatment, or according to local agreements regarding minimum supply durations.
- Prescribe the medication until the dose is stabilised in terms of maximum effect and minimum/ tolerable adverse effects. Doses should be gradually increased until there is no further clinical improvement in ADHD; that is, symptom reduction, behaviour change, improvements in education and/or relationships and side effects are tolerable.
- Advise when and how to stop the medication, including when drug holidays are recommended.
- Advise on the duration of continuation of the medication and if appropriate transition to adult services.
- Send a letter to the GP along with shared care criteria requesting shared care for this patient. If applicable, communicate to the GP which brand of long-acting methylphenidate is to be prescribed, as the different brands are not interchangeable.
- Provide results of baseline tests and recommend frequency of monitoring to GP. The Consultant must also explain what the recommended tests are, why they are needed and the location in which these tests will be carried out.
- Evaluate adverse drug reactions reported by the GP, child, young person or the carer. Report events to the CSM/MHRA via yellow card system, www.yellowcard.gov.uk.
- Set the review interval and criteria. Regular follow up should take place with a child and adolescent psychiatrist or paediatrician until the child's condition is stabilised. Following that, 6- to 12-monthly medication review appointments are offered by the CAMHS service. Specialist ADHD nurse, junior doctors and other staff are closely involved with the monitoring of the patients. In addition to medication review appointments, more frequent appointments for behavioural and family interventions may be offered.
- Undertake any necessary monitoring at clinic appointments: blood pressure, pulse rate, weight and height (on a growth chart and record centiles), including ECG / requesting an ECG where required.
- Maintain good communication with the GP by:
    - Sending a letter after each clinic visit notifying the GP of changes in medication regime, adverse effects, and results of the patient's routine monitoring.
    - Annual review of the patient's condition and the need for on-going treatment and communicating promptly with the GP when treatment is changed.
    - Where blood tests are taken, results should be communicated to the GP, as well as actions to be taken in case of abnormal results, and advising the GP on when to adjust the dose, stop treatment, or when to consult the specialist.
- Counsel the patient and parent or carer on any dose changes that are made during clinic appointments.
- Inform GP of patients who do not attend clinic appointments with any suitable actions needed.
- Ensure that clear arrangements exist for GPs to obtain advice and support.
- Respond to GP queries, usually within two working days.

3.2. General Practitioner

- Initial referral letter to Tier 3 CAMHS for assessment of ADHD highlighting relevant history and impairments at home and school.
- Prescribe the Children and Adolescent ADHD drugs at the dose recommended by the specialist. The term "as directed" SHOULD NOT be used when prescribing these medicines.
- Adjust the dose as advised by the Consultant or specialist.
- Ensure that the patient, parent or carer understands the dosing regimen.
- Ensure the patient, parent or carer understands that they must report any adverse effects to the GP and report non-compliance to the specialist or Consultant, where appropriate.
- Ensure compatibility with concomitant medication and provide advice on drug interactions e.g. grapefruit with guanfacine.
- Monitor results at recommended frequencies as described under "Clinical Monitoring" in section 8 and inform the Consultant if abnormal.
- Help with the monitoring of disease progression and inform the hospital team of any changes to medication.
- Report to and seek advice from the Consultant or specialist on any aspect of patient care that is of concern and may affect treatment.
- Refer to the Consultant if the patient's condition deteriorates.
- Seek advice from the specialist when discontinuing medicines, including short-term discontinuations (i.e. drug holidays).
- Stop treatment on the advice of the Consultant or immediately if an urgent need arises.
- Report adverse events to the Consultant or specialist and the MHRA/ CSM via Yellow-card located in BNF or online www.yellowcard.gov.uk.
- Communicate any test results to the Consultant.
- All requests from the patient for repeat prescriptions should be reviewed individually prior to issuing. Be aware of the potential for diversion of the Children and Adolescent ADHD drugs.

3.3. Patient and parent or carer responsibility

- Attend review appointments at the GP surgery for clinical monitoring as outlined in the original transfer of prescribing letter by the specialist (e.g. blood pressure, pulse, height and weight).
- Attend review appointments with child and adolescent psychiatrist or paediatrician every 6-12 months or as advised, as continuing prescription will not be possible without regular review.
- Take medicines as prescribed and agreed.
- Report to the specialist or Consultant or GP if there is not a clear understanding of the treatment or problems taking the medication.
- Inform specialist or Consultant or GP of any other medication being taken concomitantly, including over-the-counter products.
- Report any adverse effects or warning symptoms to GP or specialist/ Consultant.
- Inform hospital and GP of any changes in address or telephone numbers.

3.4. ICB Medicines Management Team

- To provide feedback to Trusts via the Shared Care and Fact Sheet group.

- To support GPs to make the decision whether or not to accept clinical responsibility for prescribing.
- To support Trusts in resolving issues that may arise as a result of shared care.

4. Indications

Methylphenidate (immediate release and long acting), **Atomoxetine**, and **Dexamfetamine** and **Lisdexamfetamine and Guanfacine** are indicated for the treatment of ADHD in children of 5 years and older, in adolescents and in adults as part of a comprehensive treatment programme.

These medications are licensed for use in children from the age of 6 years, and do not have a UK marketing authorisation for ADHD in children aged 5 years or under. However, NICE Guidance (NG87) does support the use of these medicines in this population as off-label use. The prescriber should follow relevant professional guidance, taking full responsibility for the decision. Informed consent should be obtained and documented. See the General Medical Council's Prescribing guidance: prescribing unlicensed medicines for further information.

Note 1:

- **Lisdexamfetamine** is indicated as part of a comprehensive treatment programme for ADHD in children aged 5 years and over when response to previous methylphenidate treatment is considered clinically inadequate.

Note 2:

- **Methylphenidate**, **Dexamfetamine** and **Lisdexamfetamine** are schedule 2 controlled drugs (CD) thus are subject to prescription requirements. Prescriptions must include:
    - Name and address of patient.
    - Form and strength of preparation (e.g. 20mg capsules).
    - The dose (e.g. 20mg three times daily) and total quantity or number of dose units in words AND figures (e.g. 420mg = Four Hundred and Twenty milligrams or Twenty One (21) capsules).
    - Signed by the prescribing clinician (either in indelible ink or advanced electronic signature).

- Prescriptions for schedule 2 CDs are valid for 28 days from the date stated on the prescription and prescriptions are limited to a supply of 30 days treatment; in exceptional circumstances, a prescription can be issued for a longer period, but the reasons for the decision should be recorded on the patient's notes.

Note 3:

- NICE guidance recommends Methylphenidate (either short or long acting) as the first line pharmacological treatment for children aged 5 years and over and young people with ADHD.

Note 4:

- NICE guidance recommends to offer **atomoxetine** or **guanfacine** to children aged 5 years and over and young people if:
    - they cannot tolerate methylphenidate or lisdexamfetamine or
    - their symptoms have not responded to separate 6-week trials of lisdexamfetamine and methylphenidate, having considered alternative preparations and adequate doses.

5. Dose and Administration

Refer to most current BNF for children https://bnfc.nice.org.uk/ .

For a full list, see manufacturer's Summary of Product Characteristics (SPC) (on www.medicines.org.uk or https://products.mhra.gov.uk/).

Please note that the BNF for children supports higher than normal doses of some formulations (e.g. Equasym XL, Medikinet XL, Concerta XL etc.). In these instances, the Specialist must take responsibility of titrating the dose upward and stabilising the patient before considering transfer back to the GP.

Drugs covered by the agreement	**Brand**	**Dosage**
Methylphenidate Immediate Release – Generic *Schedule 2 CD*	Ritalin®, Equasym®, Medikinet®.	Initially 5mg once or twice daily, increased if necessary at weekly intervals by 5-10mg daily to a maximum of 60mg daily in divided doses.
Methylphenidate Modified Release *Schedule 2 CD*	a) Equasym® XL b) Medikinet® XL c) Concerta® XL (branded generics also include Xenidate XL, Matoride XL, Delmosart and Xaggitin). (**Prescribe by Brand** due to differing immediate release and modified release components)	a) & b) 10mg once daily (in the morning) increased if needed up to max of 60mg once daily. c) 18mg once daily (in the morning), increased if needed in weekly steps of 18mg according to response, up to a maximum of 54mg once daily.
Dexamfetamine Sulphate *Schedule 2 CD*	Generic (non-branded)	5mg once or twice a day (e.g. at breakfast and lunch), increasing if needed by weekly increments of 5 mg, up to a max of 20mg/daily in divided doses - although doses of 40 mg may in rare cases be needed.
Lisdexamfetamine *Schedule 2 CD*	Elvanse®. Note: Do not confuse with the "Elvanse Adult" brand	30mg once daily (in the morning). The dose may be increased by 20mg increments, at approx. weekly intervals up to a max of 70mg once daily – but the lowest effective dose should be used.
Atomoxetine	Strattera®	For children/adolescents of up to 70kg body weight treatment should be initiated at 500 micrograms per kilogram daily and increased if necessary to a maximum of 1.8 mg/kg daily either in a single dose or divided doses. For adolescents of over 70 kg body weight treatment should be initiated at a daily dose of 40 mg and increase according to response to a usual maintenance daily dose of 1.8 mg/kg.
Guanfacine	Intuniv®	For Child 6–12 years (body weight 25 kg and above) For Child 13–17 years (body weight 34–41.4 kg)

		Initially 1 mg once daily; adjusted in steps of 1 mg every week if necessary and if tolerated; maintenance 0.05–0.12 mg/kg once daily (max. per dose 4 mg), for optimal weight-adjusted dose titrations, consult product literature. For Child 13–17 years (body weight 41.5–49.4 kg) Follow the above principle but the max. per dose can be up to 5mg. And For Child 13–17 years (body weight 49.5–58.4 kg) up to 6mg And For Child 13–17 years (body weight 58.5 kg and above) up to 7mg. Missed Dose:1 In the event of missed dose, Intuniv® dosing can resume the next day. If two or more consecutive doses are missed, re-titration is recommended based on the patient's tolerability to guanfacine. Downward titration and discontinuation:1 Blood pressure and pulse may increase following discontinuation of guanfacine, and should be monitored in all patients during dose downward titration. (Dose reduction of no more than 1mg every 3 to 7 days). Taper Intuniv® dosing during withdrawal is recommended to minimise these potential withdrawal effects. **Patients/caregivers should be instructed not to discontinue guanfacine without consulting their physician**.

6. Adverse effects

Possible adverse effects and what to do if they occur:

Adverse Effects include:	**Frequency of adverse effect**	**GP Management**
METHYLPHENIDATE		
Nervousness and insomnia	>10%	Review dose and/or omit afternoon/evening dose if using a three times daily dosing regimen - refer to specialist for advice.
Decreased appetite	1-10%	Usually transient. Try taking medicine with food if it persists. Refer to specialist for advice if continues
Headache, drowsiness, dizziness	1-10%	Refer to specialist 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 specialist for advice if continues

Tachycardia, arrhythmia, palpitations, hypertension	1-10%	Monitor. Consider reducing or discontinuing the medication in light of clinical findings. Further investigations should be considered (including ECG, 24 hour BP and 24 hour ECG. Consider referral to cardiology/ specialist physician.
Tic, aggression, anxiety, irritability	1-10%	Consider discontinuing if tics develop. Refer to specialist.
Drug induced psychosis, depression, mood swings	< 1%	Consider discontinuing. Refer to specialist.
DEXAMFETAMINE		
Aggressive behaviour, anxiety, confusion, delirium, depression, euphoria, insomnia, irritability, tics, night tremors	Not stated	Reduce dose & ensure not given too near bedtime. Consider discontinuing if tics develop. Refer to specialist.
Paranoia, psychosis	Not stated	Consider discontinuing. Refer to specialist.
Palpitations, tachycardia, change in blood pressure, cardiomyopathy, chest pain.	Not stated	Monitor. Check pulse after every dose change. ECG if necessary. Consider reducing or discontinuing the medication in light of clinical findings. Further investigations should be considered (including ECG, 24 hour BP and 24 hour ECG). Consider referral to cardiology/ specialist physician
LISDEXAMFETAMINE		
Insomnia	>10%	Review dose - ensure taken in morning – refer to specialist for advice
Decreased appetite (Weight decreased)	>10% (1-10%)	Try taking medicine with food if it persists. Refer to specialist for advice if continues
Headache, dry mouth	>10%	Refer to specialist for advice if continues
Anorexia, diarrhoea, upper abdominal pain, nausea	1-10%	May be alleviated by concomitant food intake. Refer to specialist for advice if continues
Anxiety, agitation, dizziness, restlessness, tremor, irritability, fatigue, feeling jittery, hyperhidrosis	1-10%	Refer to specialist.
Tachycardia, palpitations, blood pressure increased. Cardiomyopathy, chest pain	1-10% Not stated	Monitor. Consider reducing or discontinuing the medication in light of clinical findings. Further investigations should be considered (including ECG, 24 hour BP and 24 hour ECG). Consider referral to cardiology/ specialist physician. **See section 8 "Clinical Monitoring – Cardiovascular" for further information.**
Depression, tic, affect lability, dysphoria, euphoria, mania, dermatillomania, somnolence, dyskinesia	0.1-1%	Consider discontinuing if tics develop. Refer to specialist.
Blurred vision, vomiting, urticaria, rash, pyrexia	0.1-1%	Consider discontinuing. Refer to specialist.
Psychotic episodes, hallucination, aggression, new or worsening seizures	Not known	Consider discontinuing. Refer to specialist
ATOMOXETINE		
Appetite decreased, dry mouth, nausea	>10%	Usually settles after 1st month of treatment. Refer to specialist for advice if continues

Headache, somnolence, insomnia	>10%	Usually settles after 1st month of treatment. Refer to specialist for advice if continues
Increased BP and heart rate	>10%	Monitor. Consider discontinuing if clinically indicated. Refer to ADHD specialist and cardiologist if indicated.
Abdominal pain, constipation, dyspepsia, flatulence, vomiting	1-10%	Usually settles after 1st month of treatment. Refer to specialist for advice if continues
Weight decrease	1-10%	Usually settles after initial weight loss
Palpitations, tachycardia	1-10%	Monitor. Consider discontinuing if clinically indicated. Refer to ADHD specialist and cardiologist if indicated.
Sleep disorder,	1-10%	Refer to specialist
Libido decreased, sleep disorder, dizziness, sinus headache, tremor, fatigue, lethargy, agitation	1-10%	Refer to specialist
Dysuria, urinary hesitation, urinary retention	1-10%	Refer to specialist
Dysmenorrhoea, irregular menstruation, ejaculation disorder, erectile dysfunction, male genital pain	1-10%	Refer to specialist
QT interval prolongation,	0.1-1%	Monitor. Consider reducing or discontinuing the medication in light of clinical findings. Further investigations should be considered (including ECG, 24 hour BP and 24 hour ECG). Consider referral to cardiology/ specialist physician
Hepatic disorders	Rare	The CSM has advised that patients and carers should be informed of the risk and be told how to recognise symptoms; prompt medical attention should be sought in case of abdominal pain, unexplained nausea and malaise, darkening of the urine or jaundice. Consider discontinuing. Refer back to specialist.
Suicide-related events, aggression, hostility, and emotional lability.	0.1-1%	Following reports of suicidal thoughts and behaviour, the CSM has advised that patients and their carers should be informed about the risk and told to report clinical worsening, suicidal thoughts or behaviour, irritability, agitation, or depression. Consider discontinuing. Refer back to specialist.
GUANFACINE		
Decreased appetite	1-10%	Refer to specialist for advice if continues
Depression, anxiety, affect lability, Insomnia, nightmare.	1-10%	Refer back to specialist.
Agitation, hallucination	0.1 -1%	Refer back to specialist.
Bradycardia	1-10%	Monitor. Consider reducing or discontinuing the medication in light of clinical findings. Further investigations

		should be considered (including ECG, 24 hour BP and 24 hour ECG. Consider referral to cardiology/ specialist physician.
Tachycardia		Monitor. Consider reducing or discontinuing the medication in light of clinical findings. Further investigations should be considered (including ECG, 24 hour BP and 24 hour ECG. Consider referral to cardiology/ specialist physician
Somnolence, headache	≥10%	Refer to specialist for advice if continues
Sedation, dizziness, lethargy,	1-10%	Refer to specialist for advice if continues
Convulsion, syncope/loss of consciousness, dizziness postural	0.1 -1%	Refer back to specialist
Tachycardia, sinus arrhythmia	0.1 -1%	Monitor. Consider reducing or discontinuing the medication in light of clinical findings. Further investigations should be considered (including ECG, 24 hour BP and 24 hour ECG. Consider referral to cardiology/ specialist physician.
Hypotension, orthostatic hypotension	0.1 -1%	Monitor. Consider reducing or discontinuing the medication in light of clinical findings. Further investigations should be considered (including ECG, 24 hour BP and 24 hour ECG. Consider referral to cardiology/ specialist physician.
Hypertension	≥0.01 – 0.1%	Monitor. Consider reducing or discontinuing the medication in light of clinical findings. Further investigations should be considered (including ECG, 24 hour BP and 24 hour ECG. Consider referral to cardiology/ specialist physician.
Vomiting, diarrhoea, nausea, constipation, abdominal/stomach discomfort	1-10%	Refer to specialist for advice if continues
Rash (pruritis rarely)	1-10%	Consider discontinuing. Refer back to specialist.

Suspected adverse drug reactions should be reported to the MHRA using the Yellow Card Scheme at www.yellowcard.mhra.gov.uk. Refer to BNF for further details.

For a full list of adverse effects, refer to the Summary of Product Characteristics (www.medicines.org.uk) .

7. Cautions

Methylphenidate: Co-existing cardiac disease or psychiatric disorder, anxiety/agitation/tension, tics or family history of Tourette or other movement disorders, risk of dependence/diversion/misuse of medication (both prior to initiation and ongoing during treatment), epilepsy, pregnancy, breast feeding; avoid abrupt withdrawal.

Dexamfetamine / Lisdexamfetamine: Anorexia, mild hypertension, psychosis or bipolar disorder, renal impairment, history of epilepsy, tics or Tourette syndrome, risk of dependence/diversion/misuse of medication (both prior to initiation and ongoing during treatment), avoid abrupt withdrawal.

Atomoxetine: Cardiovascular disease, structural cardiac abnormalities, QT interval prolongation, psychosis/mania, history of seizures, aggressive behaviour/hostility/emotional lability, hepatic impairment.

Guanfacine: Hypotension, bradycardia and syncope, blood pressure and heart rate increase upon discontinuation, QTc interval (avoid in patients with known history of QTc prolongation), sedation and somnolence, suicidal ideation (ask patients and caregivers to report distressing thoughts or feelings), effects on height, weight, and body mass index (BMI).

For a full list of cautions, refer to the Summary of Product Characteristics (www.medicines.org.uk).

8. Clinical Monitoring

Once prescribing is undertaken by the GP, some or all of the necessary clinical monitoring will take place in Primary Care. This is dependent on the facilities of the specialist clinic and the patient's geographical location. The Specialist will advise the GP on the clinical monitoring requirements (including test and frequency) that is required. The ADHD service will offer specialist advice and review any patient whose medication was started in the clinic at the request of the GP.

Patients will need to be re-referred to the service if they have already been discharged from the Specialist team (e.g. CAMHS).

If there is a need for specialist advice / interventions for patients who have an ADHD diagnosis / treatment, which was established elsewhere, a new referral to the service will be needed.

The following tests may be suggested by the ADHD service to monitor in Primary care. If suitable, a practice nurse may be able to complete these tests and escalate to the GP if there is cause for concern.

Height and weight:

- Measure height every 6 months in children and young people
- Measure weight every 3 months in children **10 years and under.** Measure at 3 and 6 months after starting treatment in children **over 10 years and young people**, and every 6 months thereafter, or more often if concerns arise.
- Record height and weight of children and young people and plot on a growth chart (in lieu of a growth chart, in the patient notes record the difference in growth centiles from the previous measurements/readings).
- Consultants in NCL may decide that physical observations may only be necessary once every six months (if the patient has been stable on therapy for a significant amount of time and physical observations have also been stable). The Consultant should communicate this to the GP on every occasion.

- If a trend of weight loss or growth restriction is observed in results over time, seek advice from a psychiatrist or paediatrician from the initiating clinic to consider stopping the medicine as an interim measure; in all instances the patient should be referred back to clinic.

Cardiovascular:

- Monitor heart rate and blood pressure and compare with the normal range for age, before and after each dose change and every 6 months.
- Routine blood tests (including liver function tests) or ECGs should not be done unless there is a clinical indication. Those patients who require routine blood tests or ECGs will be highlighted by the Consultant when prescribing responsibility is transferred to the GP.

Management of adverse effects:

- If patient has a sustained resting tachycardia (more than 120 beats per minute), arrhythmia or systolic blood pressure greater than the 95th percentile (or a clinically significant increase) measured on two occasions, reduce their dose and refer them to a paediatric hypertension specialist or adult physician, as appropriate.
- For other severe adverse effects (e.g. new or worsening seizures, new emerging psychotic symptoms), it is recommended to stop the patient's treatment and refer the patient back into the initiating clinic.
- For other mild/moderate adverse effects (e.g. dyspepsia), consider reducing the dose or stopping the medication and refer the patient back into the initiating clinic.

Risk of diversion

- 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.

9. Contraindications

- **Atomoxetine**: Concomitant use or use within 2 weeks of MAOI, narrow-angle glaucoma, severe cardiovascular or cerebrovascular disorders, pheochromocytoma.
- **Dexamfetamine/Lisdexamfetamine:** Symptomatic cardiovascular disease, structural cardiac abnormalities, moderate or severe hypertension, advanced arteriosclerosis, concomitant use or use within 2 weeks of MAOI, history of drug/alcohol abuse, hyperthyroidism, glaucoma, agitated states, severe depression, anorexia nervosa/anorexic disorders, suicidal ideation, hyper-excitability, psychotic symptoms, severe and episodic (Type I) Bipolar (affective) Disorder (that is not well-controlled.
- **Methylphenidate:** Severe depression, suicidal ideation, psychosis, anorexia nervosa, cardiovascular disease, severe hypertension, hyperthyroidism, glaucoma, concomitant use or use within 2 weeks of MAOI
- **Guanfacine:** Hypersensitivity to the active substance or to any of the excipients listed.
- For a full list of contraindications, refer to the Summary of Product Characteristics www.medicines.org.uk.

10. Drug Interactions

Atomoxetine:

- **Antidepressants**- Risk of hypertensive crisis when given with MAOI/moclobemide. Metabolism of atomoxetine possibly inhibited by fluoxetine and paroxetine. Increased risk of convulsions with atomoxetine and antidepressants (including bupropion).
- **Analgesics**- Increased risk of ventricular arrhythmias with concomitant use of atomoxetine and methadone. Possible increased risk of convulsions with concomitant use with tramadol.
- **Coumarin anticoagulants e.g. warfarin** - Increased anticoagulant effects CYP2D6 inhibitor drugs e.g. fluoxetine (SSRIs), increased serum levels and drowsiness tricyclic antidepressants. Increased serum levels and side effects.
- Increased risk of cardiovascular side effects when given with **beta2 agonists** (high dose) e.g. high dose salbutamol. Increased agonist effects.

Dexamfetamine/ Lisdexamfetamine:

- **Antidepressants**- Risk of hypertensive crisis when given with MAOI/moclobemide.
- **Antipsychotics**- Lis/Dexamfetamine possibly antagonises antipsychotic effects of chlorpromazine, methylphenidate possibly increases side effects of risperidone. Increased risk of ventricular arrhythmias when atomoxetine given with antipsychotics that prolong QT interval.
- Avoid concomitant use of **MAO Inhibitors**. Risk of Hypertensive crisis. Avoid lisdexamfetamine at least for 2 weeks after stopping MAOI.
- **Antihypertensive**: lisdexamfetamine may reduce the antihypertensive effect of guanethidine and others.
- Increased analgesic effects of **morphine and other opioids**.

Methylphenidate:

- **Antidepressants**- Risk of hypertensive crisis when given with MAOI/moclobemide. methylphenidate possibly inhibits metabolism of SSRI's and TCA's.
- May inhibit the metabolism of **coumarin anticoagulants**, some **anticonvulsants** (phenobarbitones, phenytoin and primidone), phenylbutazone and tricyclic antidepressants. The dosage of these drugs may have to be reduced.
- Use in caution with **MAOI.**
- **Alcohol** may exacerbate the adverse CNS effect of methylphenidate. Patients should be advised to abstain from alcohol during treatment.
- **Pseudoephedrine, phenylpropanolamine** (both found in OTC cough remedies). Patients should be warned when buying cough medicines.
- Methylphenidate can worsen the side effects of **risperidone**.

Guanfacine:

- **QT prolonging medicinal products,** the concomitant use of guanfacine with QT prolonging medicinal products is generally not recommended.
- **CYP3A4 and CYP3A5 inhibitors** Caution should be used when guanfacine is administered to patients taking ketoconazole and other moderate and strong CYP3A4/5 inhibitors, a decrease in the dose of guanfacine within the recommended dose range is proposed.
- **CYP3A4 inducers** When patients are taking guanfacine concomitantly with a CYP3A4 inducer, an increase in the dose of guanfacine within the recommended dose range is proposed.
- **Valproic acid** Co-administration of guanfacine and valproic acid can result in increased concentrations of valproic acid.

- **Antihypertensive medicinal products** Caution should be used when guanfacine is administered concomitantly with antihypertensive medicinal products, due to the potential for additive pharmacodynamic effects such as hypotension and syncope.
- **CNS depressant medicinal products** Caution should be used when guanfacine is administered concomitantly with CNS depressant medicinal products.
- **Your child should not eat grapefruit or drink grapefruit juice as this may increase the amount of Guanfacine in the body, which could be harmful.**

SUPPORTING INFORMATION

For further details refer to the manufacturer's Summary of Product Characteristics (SPC) (on www.medicines.org.uk or https://products.mhra.gov.uk/) and current children's BNF (https://bnfc.nice.org.uk/).

11. References and Resources

- NICE Guideline 87; Attention deficit hyperactivity disorder: diagnosis and management (September 2019) https://www.nice.org.uk/guidance/ng87
- Summary of Product Characteristics http://www.medicines.org.uk
- BNF online https://bnf.nice.org.uk/
- NCL Shared Care Guideline Methylphenidate (immediate release and long acting), Lisdexamfetamine, Atomoxetine and Dexamfetamine for treatment of Adult Attention Deficit Hyperactivity Disorder (ADHD), March 2019.
- Barnet, Enfield and Haringey Mental Health Trust shared care guidelines for methylphenidate, dexamfetamine and atomoxetine for ADHD in Children 2015.
- Attention deficit hyperactivity disorder in children and young people: lisdexamfetamine dimesylate Evidence summary: new medicine Published: May 2013.nice.org.uk/guidance/esnm19. https://www.nice.org.uk/advice/esnm19/resources/attention-deficit-hyperactivity-disorder-in-children-and-young-people-lisdexamfetamine-dimesylate-pdf-1502680811289541
- Jadad AR, Boyle M, Cunningham C et al. Treatment of attention deficit hyperactivity disorder, Evid Rep Technol Assess (Summ) 1999 Nov:1-341. http:/www.ahcpr.gov (In Evidence Based Medicine, Issue No 7. June 2002)
- NIH Consensus Statement: Diagnosis and Treatment of Attention Deficit Hyperactivity Disorder (ADHD): National Institutes of Health 15:2; Nov 1998

Resource for Primary care providers:

- NCL ICB- North Central London prescribing guidance Prescribing dilemmas: A guide for primary care prescribers (available from GP portal or via the NCL ICB Medicines Management team).

12. Contact Details

HOSPITAL SWITCHBOARD:	**020 8702 3000**
BARNET SERVICE Holly -Oak (Dennis Scott Unit) Edgware Community Hospital Burnt Oak Broadway Edgware HA8 0AD	**Tel: 020 8702 4500/ 3444/ 3300** **beh-tr.camhsadmin@nhs.net**
ENFIELD SERVICE: Bay Tree House Church Close Enfield, Middlesex EN2 6NZ	**Tel: 020 8702 4070 (S.A.F.E) or 020 8702 5100 (Generic CAMHS Team)** **beh-tr.enfieldcamhs@nhs.net**
HARINGEY SERVICE: St Ann's Hospital – H Block St Ann's Road Tottenham London N15 3TH	**Tel: 020 8702 5154 or 020 8702 3400** **beh-tr.camhsreferral@nhs.net**
ISLINGTON SERVICE: **Islington Child and Adolescent Mental Health Service (CAMHS)** Whittington Health NHS Trust Magdala Avenue London N19 5NF	**Tel: 020 7272 3070** **whh-tr.icamhsadmin@nhs.net**
South Camden Community Team Openminded 219 Eversholt Street, London NW1 1DR	**Tel: 020 8938 2700** **Each team has their own admin address; if the initiating Specialist cannot be contacted, please contact the central referral email who can re-direct your enquiry: tpn-tr.CYAF-Intake@nhs.net**
Children and young people's psychological services University College London Hospital Elizabeth Garrett Anderson Wing Lower Ground Floor 235 Euston Road London, NW1 2BU	**Tel: 020 3447 9086** **The email address for patient enquiries can be found at https://www.uclh.nhs.uk/OurServices/ServiceA-Z/CYPS/CAPS/Pages/Home.aspx**
Camden MOSAIC Kentish Town Health Centre Bartholomew Road London NW5 2AJ	**Tel: 020 3317 2200 or 020 8938 2241** **Each team has their own admin address; if the initiating Specialist cannot be contacted, please contact the central referral email who can re-direct your enquiry: tpn-tr.CYAF-Intake@nhs.net**

Appendix 1: Transfer form to GP practice

Section A: to be completed by secondary care (*Send to practice)*

This document is to request the shared care pathway of your patient and comprises an agreement betweer the GP and named Consultant. The patient will continue to be seen by the named Consultant as regular fol up.

Fix address label here (ensure NHS no. is on label)	Clinic stamp *or give details below*

Department

Consultant

Email (Must be given)

Indication for prescription

Drug prescribed

Date

Drug started

Current dose

Relevant conditions

Monitoring variations

Date next blood test

Next disease review due in months' time.

Section B: [Accept Shared Care] to be completed by practice *Send back **FAO referring Consultant** above*

The above patient has been accepted into our monitoring service.

Practice date for next blood test	
Signed / Designation	
Date	

Practice stamp or add details below

Section B: [Reject Shared Care] to be completed by practice *Send back **FAO referring Consultant** above*

The above patient has not been accepted into our monitoring service.

Reason	
Signed / Designation	
Date	

Practice stamp or add details below