Shared care agreement for the treatment of ADHD in Children & Young People (6-18 years)

Role of the Specialist

(Consultant Psychiatrist, Specialist Non-Medical Prescriber (NMP), Specialist CAMHS Registrar or Paediatrician)

1. Initiate treatment & prescribe 28 days of medication
2. Request shared care with GP via written correspondence after 28-day initiation period.
3. To allow up to 3-months for completion of the shared care agreement. Medication to be provided by the specialist during this period.
4. All physical health monitoring to be completed by the specialist team for the first 12 months from medication initiation.
5. Routine clinic follow up with patient, written correspondence of review to be shared with GP on each occasion
6. To inform GP in writing of any of the following:
   a. Any changes to the medication/prescription
   b. If a prescription was supplied (including quantity supplied)
   c. Patients progress every 6 months until stable.
   d. Patients who do not attend clinic appointments
7. To review stable patients annually (as a minimum)
8. To discharge the young person back to the GP/ GP-liaison NMP 12 months after starting the ADHD medication, if they are stabilised.
9. GP/NMP to continue all future physical health

Seer full shared care for details

Role of the General Practitioner (GP) / GP-Liaison Non-Medical Prescriber (NMP)

1. All young people with characteristic symptoms of ADHD should be referred to a specialist for assessment.
2. To complete the shared care agreement arrangements within a maximum of 3 months.
3. Upon acceptance of a shared care request from the specialist, to continue to supply monthly repeat prescriptions in line with specialist recommendations.
4. To check the young person is attending specialist appointments before re-issuing further prescriptions
5. Methylphenidate, dexamfetamine and lisdexamfetamine are Schedule 2 Controlled Drugs which must be issued on a monthly basis. Where a supply for greater than one month is requested (e.g. to cover a holiday), discussion should be had with the specialist team, and can be issued at the prescribers discretion.
6. To discuss and possibly refer the young person back to the specialist if any of the following occur:
   a. Requests for an alteration in the regular dosage
   b. Deteriorating behaviour
   c. Suspected diversion/misuse
   d. Any adverse effects
   e. Any possible drug interactions
   f. Or other relevant medical information including any test results.
7. To agree yearly review with an ADHD specialist that revisits the areas discussed when starting treatment but also the effect of current treatment.
8. To supply medication and complete physical health monitoring during initiation and upto transfer of shared care to GP.

See full shared care for details

Role of the CCG

1. To provide feedback to trusts via Trust Medicines Committee.
2. To support GPs to make the decision whether or not to accept clinical responsibility for prescribing.
3. To support trusts in resolving issues that may arise as a result of shared care.

Role of the Patient/Carer

1. Ensure they have a clear understanding of their treatment.
2. Report any adverse effects to their GP or specialist.
3. Report any changes in symptoms to the GP or specialist.

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INTRODUCTION

Attention Deficit Hyperactivity Disorder (ADHD) is a behavioural syndrome characterised by the core symptoms of hyperactivity, impulsivity and inattention.

Two main diagnostic criteria are in current use – the International Classification of Mental and Behavioural Disorders 10th revision (ICD-10) and the Diagnostic and Statistical Manual of Mental Disorders 5th edition (DSM-5). ICD-10 uses a narrower diagnostic category, which includes those with more severe symptoms and impairment. DSM-5 has a broader, more inclusive definition, which includes a number of different ADHD subtypes. Severe ADHD corresponds approximately to the ICD-10 diagnosis of hyperkinetic disorder.

Based on the narrower criteria of ICD-10, hyperkinetic disorder is estimated to occur in about 1–2% of children and young people in the UK. Using the broader criteria of DSM-5, ADHD is thought to affect about 3–9% of school-age children and young people in the UK, and about 2% of adults worldwide.

Drug treatment of ADHD should only be initiated by an appropriately qualified healthcare professional with expertise in ADHD and should be based on a comprehensive assessment and diagnosis. Drug treatment is not indicated in all patients with this syndrome and the decision to use the drug must be based on a thorough assessment of the severity of the symptoms.

Initiation of drug treatment for ADHD is in accordance with the current NICE guidance for treatment of children and adolescents with ADHD NG87 (NICE, 2018).

The remit of this guideline is to provide guidance on the shared care of children and adolescents aged 6-18 years who are prescribed methylphenidate, atomoxetine, dexamfetamine, lisdexamfetamine or guanfacine for the treatment of ADHD / hyperkinetic disorder.

Target audience

ELFT, Child and Adolescent Mental Health Services (CAMHS), Paediatricians, General Practitioners (GP's), Non-Medical Prescribers (NMP's) specialist child and adolescent ADHD services e.g. those based within Child Development Centres, pharmacists and nurses in City and Hackney (CH), Newham (NH), Tower Hamlets (TH).

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Assessment

- All young people meeting the referral criteria will be given a full and comprehensive assessment by the multi-disciplinary team, including a child and adolescent psychiatrist or paediatrician. An assessment report will be sent to the GP, and a 'patient friendly' copy provided to parent/carer and where appropriate to the young person.

- Once diagnosed with ADHD, there will be a discussion with the patient and their family or carers about treatment options, including medication. Treatment aims, available options, medication and alternative/additional interventions, side effects and the monitoring protocol will be discussed. Written medication information should be provided for the parent/carer and where appropriate to the young person.

- The possibility of stopping medication and reasons should also be discussed.

Physical Screen

- The CAMHS team and/ or Paediatricians will undertake a baseline physical examination of any young person before commencing medication. This will include measurement of height, weight, pulse, blood pressure and heart sounds. A more thorough physical examination may be required in some young people, particularly if there is a medical or family history of serious cardiac disease, a history of sudden death in young family members, or abnormal findings on cardiac examination.
- For those young people up to 16 years old (under care of CAMHS) requiring a more thorough cardiac assessment (which may require ECG measurement and interpretation), a referral will be made to the Paediatric Cardiology department at the local acute Trust. For those young people up to 18 years old (under care of Paediatricians), a further specialist cardiac evaluation should be performed where clinically indicated.
- Blood tests and ECG will only be recommended if clinically indicated.
- If there are concerns regarding the young person's physical health, a referral to the GP or paediatrician for further assessment may be considered.

DOSE AND ADMINISTRATION

For new patients commencing drug treatment, medication should be initiated by the CAMHS doctor, paediatrician or non-medical prescriber (NMP).

First choice

Unless contraindicated, either short or long acting methylphenidate should be the first line choice of drug treatment.

Second choice

If an ineffective response is observed after a 6-week trial of methylphenidate at an adequate dose, switching to lisdexamfetamine should be considered. Dexamfetamine can be used as an alternative if the longer acting profile of lisdexamfetamine cannot be tolerated.

Alternative choices (poor response/ unable to tolerate)

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Atomoxetine or guanfacine should be reserved as last line alternatives if the young person is unable to tolerate methylphenidate or lisdexamfetamine, or if their symptoms have not responded to separate 6-week trials of both of these drugs, irrespective of trialling alternative preparations or doses.

Initial, titration and maximum doses for children aged 6 years and older

	Age	Dosing
Methylphenidate (BNFC, 2018d) BNF		
	Child 6–17 years	Initially 5 mg 1–2 times daily, increased if necessary at weekly intervals by 5–10 mg daily; licensed max. 60 mg daily in 2–3 divided doses. Increased if necessary upto 2.1 mg/kg daily in 2–3 divided doses, the licensed max dose is 60mg daily, higher doses (max. 90 mg daily) under the direction of a specialist
Atomoxetine (BNFC, 2018a) BNF	Child 6–17 years, *(body-weight over 70 kg)*	Initially 40 mg daily for 7 days, increased according to response; usual maintenance 80 mg daily, but may be increased to max. 120 mg daily [unlicensed] under the direction of a specialist
	Child 6-17 years, *(body-weight under 70 kg)*	Initially 500 micrograms/kg daily for 7 days, increased according to response; usual maintenance 1.2 mg/kg daily, but may be increased to 1.8 mg/kg daily (max. 120 mg daily) [unlicensed] under the direction of a specialist
Lisdexamfetamine (BNFC, 2018c) BNF	Child 6-17 years	Initially 30mg once daily, alternatively initially 20mg once daily increased in steps of 10-20mg every week. Discontinue if response insufficient after 1 month; maximum 70mg per day.
Dexamfetamine (BNFC, 2018b) BNF	Child 6–17 years	Initially 2.5 mg 2–3 times daily, increased if necessary at weekly intervals by 5 mg daily, usual max. 1 mg/kg (up to 20 mg) daily (40 mg daily has been required in some children). Maintenance dose can be given in 2-4 divided doses.
Guanfacine (BNFC, 2018e) BNF	Child 6- 12 years *(body-weight above 25kg)* **AND** Child 13-17 years *(body-weight 34-41.4kg)*	Initially 1mg daily, adjusted in steps of 1mg every week if necessary and if tolerated; maintenance 0.05 – 0.12 mg/kg once daily (max. per dose 4mg)
	Child 13-17 years *(body weight 41.5-49.4kg)*	Initially 1mg daily, adjusted in steps of 1mg every week if necessary and if tolerated; maintenance 0.05 – 0.12 mg/kg once daily (max. per dose 5mg)
	Child 13-17 years *(body weight 49.5-58.4 kg)*	Initially 1mg daily, adjusted in steps of 1mg every week if necessary and if tolerated; maintenance 0.05 – 0.12 mg/kg once daily (max. per dose 6mg)

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	Child 13-17 years *(body weight 58.5kg and above)*	Initially 1mg daily, adjusted in steps of 1mg every week if necessary and if tolerated; maintenance 0.05 – 0.12 mg/kg once daily (max. per dose 7mg)

Methylphenidate: immediate- and modified-release dose equivalents (mg) (SPC, 2018a-b)

*IR-MPH	**Concerta XL	Equasym XL	Medikinet XL
10	-	10	10
15	18	-	-
20	-	20	20
30	36	30	30
-	-	-	40
45	54	-	-
60	72	60	-

*IR MPH = Methylphenidate immediate release

**Matoride XL® tablets, Xenidate XL® tablets, Delmosart XL® tablets and Xaggitin XL® tablets are all bioequivalent to Concerta XL®. Please refer to the latest copy of the BNF, or the Summary of Product Characteristics for further details of the different brands, including their available strengths.

Comparison of pharmacokinetic profiles of Concerta XL, Medikinet XL and Equasym XL (SPS, 2018)

	Concerta XL	Equasym XL	Medikinet XL
Composition *(percentage immediate:extended release)*	22:78	30:70	50:50
Release profile	Maximum plasma concentration at 1-2 hours, second peak at 6-8 hours	Maximum plasma concentration at 1.5 hours, followed by a second peak at 6 hours, followed by a gradual decline	Maximum plasma concentration reached rapidly, second peak at 3-4 hours
Duration of action	Up to 12 hours	Up to 8 hours	Up to 8 hours
Administration	Swallow whole with liquid. Must not be chewed, crushed or divided.	Can be swallowed whole with liquid, or opened and the contents sprinkled onto a small amount (tablespoon) of applesauce or yoghurt and given immediately. Capsules and contents not to be crushed or chewed	Can be swallowed whole with liquid, or opened and the contents sprinkled onto a small amount (tablespoon) of applesauce or yoghurt and given immediately. Capsules and contents not to be crushed or chewed
Food requirements	Can be given with or without food	To be taken with or after breakfast	To be taken with or after breakfast
Frequency	Once daily in the morning	Once daily in the morning	Once daily in the morning
Immediate-release methylphenidate equivalent	Three times daily	Twice daily	Twice daily

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Doses used should be in accordance with the current edition of the BNF and relevant NICE guidance, and any interactions, cautions and contraindications should be taken into account.

During the titration phase, doses are 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.

Where the young person has been stabilised on a particular dose for one month, the CAMHS clinician and/ or paediatrician will contact the patient's GP and request that the prescription of the treatment is continued under a formal shared care arrangement. The CAMHS and/ or paediatrician team will prescribe ADHD treatment until the GP starts providing repeat prescriptions. A maximum period of three months should be sufficient to allow transfer of care so long as the patient is stable. During the period of transfer, based on an agreement with the GP and the Paediatrician/ CAMHS team, there will be an agreement as to where it is easier for the patient for continuing receiving monthly prescriptions,

Symptoms and side effects should be recorded at each dose change on standard scales (for example, Conners' 10-item scale) by parents and teachers, and progress reviewed regularly.

Available Formulations

The table below lists the formulations available. Please refer to the current addition of the BNF (hardcopy or online) for brand choices for the formulation type and specific release profile.

Drug	Available formulation
Methylphenidate Controlled Drug	**Immediate release**
	5mg, 10mg and 20mg tablets
	Modified release capsules
	Preparations consider of either: Immediate release component 50% dose + modified release component 50% ***Or*** Immediate release component 30% of dose + modified release component 70%
	Modified release tablets
	Preparations consist of Immediate release component 22% dose + modified release component 78%
Atomoxetine	10mg, 18mg, 25mg, 40mg, 60mg, 80mg and 100mg capsules
Dexamfetamine* Controlled Drug ***Black triangle status***	5mg, 10mg, 20mg tablets 1mg/1mg oral solution sugar free 5mg/5ml oral solution sugar free 5mg, 10mg, 15mg modified-release capsule
Lisdexamfetamine* Controlled Drug ***Black triangle status***	20mg, 30mg, 40mg, 50mg, 60mg and 70mg capsules
Guanfacine* ***Black triangle status***	1mg, 2mg, 3mg, 4mg modified release tablets
Black triangle drugs: All ADRs (adverse drugs reactions) should be reported to the MHRA via the yellow card scheme. ADRs can also be reported online at; https://www.gov.uk/report-problem-medicine-medical-device	

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PRESCRIPTION REQUIREMENTS

Methylphenidate, Dexamfetamine and Lisdexamfetamine are Schedule 2 Controlled Drugs. Please complete prescription as per legal requirements for controlled drugs.

***Prescribing of modified release (MR) Methylphenidate**

Generic prescribing of MR Methylphenidate is not recommended due to cost implications and impact of monitoring of patient response to treatment as a result of increased variability in different brands being supplied to the young person. There is also the added factor that modified release preparations have varying release profiles and generic prescribing can lead to the supply of an inappropriate MR formulation product which does not treat meet the clinical needs of the young person.

However, where the clinician (CAMHS/ Paediatricians) has assessed a young person would benefit from a modified release profile, the following is recommended:

- To prescribe by brands and **not** generically as different versions of modified-release preparations may not have the same clinical effect
- To prescribe a cheaper bio-equivalent brand as agreed between ELFT, CAMHS, Paediatricians and the CCGs
- Any switch in bioequivalent MR Methylphenidate brand must be agreed with the clinician (CAMHS/ Paediatricians), GP, parent/ carer and where appropriate, the young person.
- Written medication information must be provided on the brand where a bioequivalent switch has been agreed

ADVERSE EFFECTS

Where the young person is under the care of the Paediatrician and/ or CAMHS team, the GP can seek advice from the relevant specialist with regards to making any changes and/ or discontinuation of medication

Adverse effect[1]	Symptoms/ signs	Occurs with MPH, ATMX, DEX, LDE or GUA?	Frequency*	Suggested actions
Gastro-intestinal symptoms	Stomach ache	MPH, LDEX, GUA	Very common	Usually transient may occur on starting treatment but these go after a few days. Possibly helped by taking the medication after food.
	Decreased appetite/ anorexia	MPH, DEX, ATMX	Common	Usually transient. Take medication with food rather than before meals. For MPH, DEX: additional meals or snacks taking early in the morning or in

[1] For a full list of adverse effects, please consult the most recent version of the BNFC, or the manufacturers Summary of Product Characteristics (SPC).

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				the late evening when the stimulant effects of the drugs have worn off may help.
	Dry mouth	MPH, DEX, LDEX, GUA	Common	Usually transient. Encourage fluid intake, chewing of sugar-free gum or sucking sugar-free boiled sweets.
	Abdominal pain, nausea and vomiting	MPH, DEX, ATMX, GUA	Common	Usually at beginning of treatment & may be helped by taking with food.
	Constipation	ATMX, GUA	Common	Maintain a good fluid intake, a fibrous diet and exercise regularly
Psychiatric disorders	Insomnia	MPH, DEX, LDEX GUA	Very common (at initiation of treatment) Common	Can usually be controlled by reducing the dosage and/or omitting the afternoon or evening dose.
	Abnormal behaviour, aggression, agitation, anxiety, depression, irritability	MPH, DEX, GUA	Common	Development or worsening of psychiatric disorders should be monitored at every adjustment of dose then at least every 6 months, and at every visit; discontinuation of treatment may be appropriate
	Nightmares	GUA	Common	
Nervous system disorders	Dizziness, drowsiness, headache	MPH, DEX, ATMX, GUA	Common Headache very common with GUA	Usually transient, manage symptomatically. Dizziness: avoid standing up quickly. Headache may occur on starting treatment but should go after a few days, possibly helped by taking the medication after food. Mild analgesia (e.g. paracetamol) may provide relief.
	Dyskinesia	MPH, DEX	Common	Assess severity. May warrant change to an alternative.
	Somnolence	GUA	Very common	The occurrence of somnolence is usually most prominent in the first few weeks of treatment and diminishes gradually thereafter (2-3 weeks after

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				initiation).
Cardiac disorders	Palpitations, tachycardia	MPH, DEX	Common	Often transient, though if sustained resting tachycardia, arrhythmia or systolic BP > 95th percentile (or a clinically significant increase) measured on two occasions, dose reduction and referred for further investigation should be considered.
	Bradycardia	GUA	Common	Baseline HR and assessment of the patients' cardiac risk of hypotension should be taken prior to commencing treatment. HR monitoring should occur on a weekly basis throughout the dose titration and stabilisation period. Clinical judgement should be used. HR may increase after discontinuation of GUA. The young person and their carers should be informed not to suddenly stop taking GUA without consulting their physician first. Increase in HR can be minimised by tapering the total daily dose in decrements of no more than 1mg every 3-7days.
Vascular disorders	Hypotension, orthostatic hypotension	GUA	Common	The occurrence of hypotension is usually most prominent in the first few weeks of treatment and diminishes gradually thereafter. BP may increase following discontinuation of GUA, the young person and their carers should be informed not to suddenly stop taking GUA without consulting their physician first. A rise in BP can be minimised by tapering the total daily dose in

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				decrements of no more than 1mg every 3-7days.
Musculoskeletal and connective tissue disorders	Arthralgia	MPH	Common	Manage symptomatically.
Skin and subcutaneous tissue	Rash, puritus, urticarial, alopecia	MPH, DEX, ATMX, LDEX, GUA	Common	Manage symptomatically; severe cases may require cessation of medication.
Renal and urinary disorders	Enuresis	GUA	Common	
General disorders	Fatigue	GUA ATMX	Very common Common	Sedation is predominantly seen at the start of treatment and can last for 2-3 weeks or longer in some isolated cases. Weekly monitoring of the young person should occur throughout the dose titration and stabilisation process and clinical judgement should be used where applicable.
Investigations	Blood pressure decrease	GUA	Common	Baseline HR & BP should be taken prior to commencing treatment. Monitoring of HR and BP should occur on a weekly basis during dose titration and stabilisation, taking into consideration clinical judgement. Patients should be advised to drink plenty of fluids.
	Blood pressure increase	ATMX, MPH	Very common	Cardiovascular status should be regularly monitored with BP and HR recorded after each dose adjustment and at least every 6 months. Use of a centile chart is recommended. Changes in blood pressure (usually an increase) can be seen with MPH.
	Heart rate increase	ATMX, MPH	Very common	
	Weight increase	GUA	Common	There is a risk of weight increase/ obesity. Clinical judgement should be exercised during the first year of treatment with

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				GUA. The young person should be assessed every three months for signs of weight increase.
	Weight decrease	MPH	Common	Monitor weight and use clinical judgement where necessary.

***Very common ≥ 10%, Common ≥1% to 10%.**

MPH = Methylphenidate. ATMX = Atomoxetine. DEX = Dexamfetamine. LDEX = Lisdexamfetamine. GUA = Guanfacine

CAUTIONS

Drug	Cautions[2]
Methylphenidate	Monitor for: • Psychiatric disorders, anxiety or agitation. • Tics or a family history of Tourette syndrome • Drug or alcohol dependence • Epilepsy (discontinue if increased seizure frequency) • Avoid abrupt withdrawal
Atomoxetine	• Cardiovascular disease including hypertension and tachycardia (avoid in severe cardiovascular disease). • Structural cardiac abnormalities • QT-interval prolongation (avoid concomitant use of drugs that prolong QT interval) • Cerebrovascular disease (avoid in severe cerebrovascular disease) • Psychosis or mania • Monitor for appearance or worsening of anxiety, depression or tics, history of seizures, aggressive behaviour, hostility or emotional liability.
Dexamfetamine	• Anorexia • Mild hypertension (contra-indicated if moderate or severe); • Psychosis or bipolar disorder • Monitor for aggressive behaviour or hostility during initial treatment • History of epilepsy (discontinue if seizures occur) • Tics and Tourette syndrome (use with caution) – discontinue if tics occur • Monitor growth in children • Avoid abrupt withdrawal
Lisdexamfetamine	• Bipolar disorder • History of cardiovascular disease (caution in patients with underlying conditions that might be compromised by increases in blood pressure or heart rate) • History of substance abuse

[2] For a full list of cautions, please refer to the current version of the British National Formulary (BNF) and the Summary of Product Characteristics (SPC)

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	• May lower the seizure threshold (discontinue if seizures occur) • Psychotic disorders • Susceptibility to angle-closure glaucoma • Tics and Tourettes syndrome
Guanfacine	• Bradycardia (risk of torsade de pointes) • Heart block (risk of torsade de pointes) • History of cardiovascular disease • History of QT-interval prolongation • Hypokalaemia (risk of torsade de pointes) • Effective contraception in females of childbearing potential.

CONTRAINDICATIONS

Drug	Contraindications[3]
Methylphenidate	Severe depression, suicidal ideation; anorexia nervosa; psychosis; uncontrolled bipolar disorder; hyperthyroidism; cardiovascular disease (including heart failure, cardiomyopathy, severe hypertension, and arrhythmias), structural cardiac abnormalities; phaeochromocytoma; vasculitis; cerebrovascular disorders.
Atomoxetine	Phaeochromocytoma
Dexamfetamine	Cardiovascular disease including moderate to severe hypertension, structural cardiac abnormalities, advanced arteriosclerosis, hyperexcitability or agitated states, hyperthyroidism, history of drug or alcohol abuse.
Lisdexamfetamine	Symptomatic cardiovascular disease including moderate to severe hypertension and advanced arteriosclerosis, hyperexcitability or agitated states, hyperthyroidism.
Guanfacine	Hypersensitivity to the active substance or any of the excipients detailed in the Summary of Product Characteristics.

[3] For a full list of contra-indications and interactions please refer to the current Childrens British National Formulary (BNFC) and Summary of Product Characteristics (SPC).

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INTERACTIONS

Interacting drug	ADHD drug	Interaction[2]
Coumarin anticoagulants,	MPH	Metabolism of interacting drug may be inhibited, leading to adverse effects
Anticonvulsants (e.g. phenobarbital, phenytoin, primodone)	MPH	Metabolism of interacting drug may be inhibited, leading to adverse effects Carbamazepine may reduce MPH levels, and MPH may increase the risk of seizures. Monitor MPH response carefully in these patients.
Some antidepressants (e.g. tricyclic and selective serotonin reuptake inhibitors)	MPH, GUA	Metabolism of interacting drug may be inhibited, leading to adverse effects. The antihypertensive effects of GUA can be reduced by concurrent use of tricyclic antidepressants. Sedative effects may be potentiated by concomitant tricyclic use. Monitor BP and adjust the GUA dose accordingly.
Anti-hypertensive drugs	MPH, ATMX, LDEX GUA	Possible increase in blood pressure. Decreased effectiveness of antihypertensives Potential for additive pharmacodynamics effects such as hypotension and syncope.
Alcohol	MPH, GUA	Alcohol may exacerbate the adverse CNS effects of psychoactive drugs. It is therefore advisable for patients to abstain from alcohol during treatment. Both GUA and alcohol can increase the risk of hypotension. GUA can have CNS depressant effects, which might affect the ability to performed skilled tasks
Halogenated anaesthetics	MPH	**Contraindication - avoid concurrent use** MPH may be associated with pharmacodynamics interactions when co-administered with direct and indirect dopamine agonists (including DOPA and tricyclic antidepressants) or with dopamine antagonists including antipsychotics.
Dopaminergic drugs	MPH	MPH may be associated with pharmacodynamic interactions when co-administered with direct and indirect dopamine agonists (including DOPA and tricyclic antidepressants) or with dopamine antagonists including antipsychotics.
Monoamine oxidase inhibitors	ATMX, DEX, LDEX	**Contraindication - avoid concurrent use** Risk of hypertensive crisis
CYP2D6 inhibitors (e.g. fluoxetine, paroxetine, quinidine, terbinafine)	ATMX	ATMX exposure may be 6-to-8 fold increased
Salbutamol (or other beta-2	ATMX	Cardiovascular effects can be potentiated

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agonists)		
Haloperidol	LDEX	Haloperidol blocks dopamine receptors thus inhibiting the central stimulant effects of LDEX
Lithium carbonate	LDEX	The anorectic and stimulatory effects of LDEX may be inhibited by lithium carbonate
Grapefruit juice	GUA	**Contraindication - avoid concurrent use**. The plasma concentration of GUA is predicted to be increased by grapefruit juice.
Strong CYP3A4/5 inhibitors (e.g. chloramphenicol, clarithromycin, ketoconazole, ritonavir, telithromycin)	GUA	Plasma concentrations of GUA expected to increase. Monitor for GUA ADRs (syncope, hypotension, bradycardia, somnolence and sedation) and **half the GUA dose on concurrent use.**
Moderate CYP3A4/5 inhibitors (e.g. ciprofloxacin, erythromycin, fluconazole, diltiazem and verapamil)	GUA	Plasma concentrations of GUA expected to increase. Monitor for GUA ADRs (syncope, hypotension, bradycardia, somnolence and sedation) and **half the GUA dose on concurrent use.**
CYP3A4 inducers (e.g. carbamazepine, modafinil, oxcarbazepine, primodone, St John's Wort, rifabutin)	GUA	Plasma concentration of GUA is predicted to decrease. Monitor for decrease in GUA efficacy and increase the dose of GUA if necessary. Increase by 1mg per week up to the maximum licensed daily dose.
Food	GUA	**GUA should not be given with high fat meals** due to increased exposure. High fat meals have a significant effect on GUA absorption.
CNS depressants (e.g. benzodiazepine, sedatives, hypnotics, barbiturates and antipsychotics)	GUA	Caution with concomitant use of GUA due to the potential for additive pharmacodynamics effects such as sedation and somnolence.
Valproate	GUA	Increased plasma concentrations of valoprate can arise from concomitant use. Monitor for increased valproate ADRs (including CNS effects such as tremor and drowsiness). Consider monitoring valproate concentrations, and adjust the valproate/GUA dose as necessary.
MPH = Methylphenidate. ATMX = Atomoxetine. DEX = Dexamfetamine. LDEX = Lisdexamfetamine. GUA = Guanfacine		

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MONITORING STANDARDS (In line with current NICE guidance)

Parameter	Frequency of monitoring/ medication	Action
Efficacy/ Medication review	Annually and when doses are changed	Medication information provided to parent/carer and young person. Rating scales may be used
Non-specific side effects	At each appointment	Review and monitor for adverse effects, possible drug interactions, changes to medication regime, deteriorating behaviour. Communicate any relevant medical information to consultant/ GP. Concerns about requests for unnecessarily frequent prescriptions should be communicated to specialist clinic.
Weight and height	Height: baseline then 6-monthly. <u>Weight – Children 10 years and under</u>: measure every 3 months. <u>Children & Young people 10 years and older:</u> measure weight at 3 and 6 months after starting treatment, and 6 months thereafter or more if concerns arise.	Plot height and weight on a growth chart. If weight loss is a clinical concern, consider the following strategies: • Taking medication either with or after food, rather than before meals • Taking additional meals or snacks early in the morning or late in the evening when stimulant effects have worn off • Obtaining dietary advice • Consuming high-calorie foods of good nutritional value • Taking a planned break from treatment • Changing medication If a young person has not met the height expected for their age, consider a planned break in treatment over the school holidays to allow 'catch up' growth.
Cardiovascular	<u>Pulse & Blood pressure</u> Baseline and before and after each dose change and every 6 months.	• Do not offer routine blood tests (including liver function tests) or ECGs to people taking medication for ADHD unless there is a clinical indication. (NICE 2018) • If a person taking ADHD medication has 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 2 occasions, reduce their dose and refer them to a paediatric hypertension specialist or adult physician. (NICE 2018) • If a person taking guanfacine has sustained orthostatic hypotension or fainting episodes, reduce their dose or switch to another ADHD medication. (NICE 2018)
	<u>ECG</u> Baseline, repeated only when necessary	Baseline ECG should be taken if the ADHD treatment may affect the QT interval (atomoxetine).

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		Do not offer routine ECGs to patients taking medication for ADHD unless there is a clinical indication.
	Routine Full Blood Count (including LFTs) Only when clinically indicated	**Do not offer** routine blood tests to patients taking medication ADHD unless there is a clinical indication (methylphenidate). Specialist CAMHS team to undertake this should a routine blood test be clinically indicated.
Tics	At each appointment	If the patient taking stimulants develops tics, think about whether: • The tics are related to the stimulant (tics naturally wax and wane) and; • The impairment associated with the tics outweighs the benefits if ADHD treatment
Sexual dysfunction (Atomoxetine)	At each appointment	Monitor for erectile and ejaculatory dysfunction (adverse effects of atomoxetine)
Seizures	Duration of treatment/ monitored at each appointment	If a patient with ADHD develops new seizures or a worsening of existing seizures, review their ADHD medication and stop any medication that might be contributing to the seizures. After investigation, cautiously reintroduce ADHD medication if it is unlikely to be the cause of seizures.
Sleep	At each appointment	Monitor for changes in sleep pattern (e.g. with a sleep diary) and adjust medication accordingly
Worsening behaviour	At each appointment	Monitor the behavioural response to medication, and if behaviour worsens adjust medication and review the diagnosis.
Stimulant diversion	At each appointment	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.
Liver impairment (Atomoxetine)	Duration of treatment with atomoxetine	Be vigilant for abdominal pain, unexplained nauseas, malaise, darkening of the urine or jaundice. Routine testing of LFTs is not recommended.
Suicidal thinking and self-harming behaviour (Atomoxetine)	During the initial months or after a change of dose	Patients and/or carers should be warned about the potential for suicidal thinking and self-harming behaviour.

For a full list of monitoring requirements please see the BNF or SPC for each medication.

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ACTION AND ADVICE

Treatment should generally be continued for as long as it is effective, and should be reviewed at least annually. The symptoms of hyperactivity may diminish during the course of adolescence, though patients may continue to complain of impulsivity and inattention. It is common to tail off treatment as the young person completes their schooling. This should be done gradually to avoid rebound effects.

TREATMENT INTO ADULTHOOD (18 YEARS AND OVER)

Young persons who are 17 years old and still under the care of, and stabilised on ADHD medication from the Paediatrician/ CAMHS team, should be reviewed to determine if medication needs to be continued beyond the 18th birthday.

If medication is no longer required, the Paediatrician/ CAMHS team will be responsible for tapering off and discontinuing the medication. The young person can then be discharged from the service by their 18th birthday.

Where it is deemed appropriate for the young person to continue medication beyond their 18th birthday, it is the responsibility of the CAMHS/ Paediatrician team to advise the GP and arrange for transfer of care to the adult provision.

Where there is no locally agreed appropriate adult ADHD service and/ or adult service, the CAMHS clinician/ Paediatrician should refer/ discharge the young person back to the GP, with any additional advice/ support.

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SHARED CARE

This is a document which provides information allowing patients to be managed safely by primary/secondary care and across the interface. It assumes a partnership and an agreement between a hospital specialist, GP and the patient/carer and also sets out responsibilities for each party. The intention of shared care should be explained to the patient/carer and be accepted by them prior to commencement of shared care. Patients are under regular follow-up and this provides an opportunity to discuss drug therapy. Intrinsic in the shared care agreement is that the prescribing doctor should be appropriately supported by a system of communication and cooperation in the management of patients. The doctor who prescribes the medicine has the clinical responsibility for the drug and the consequence of its use.

Specialist (Consultant Psychiatrist/ Consultant Paediatrician/ Specialist Non-Medical Prescriber/ CAMHS Registrar)

1. Contact the GP/ NMP if the patient has been referred for assessment by an alternate route other than GP/NMP referral.
2. Initiate treatment, prescribe and supply 28 days of ADHD medication for new initiations and 28 days where there are dose/ medication changes.
3. Ensure that patient/carers understand their treatment regimen and any monitoring or follow up that is required (using advocacy if appropriate).
4. Provide the parent/carer and where appropriate, the patient with verbal and written medication information.
5. Once the patient has been prescribed the initial 28 days, Paediatrician/CAMHS to request shared care with the GP.
6. Specialist to provide the GP/NMP with written correspondence providing details of the medication and requesting on-going monthly supply of the medication, as part of the shared care agreement.
7. Specialist to allow a period of up to 3 months for completion of shared care agreement. During the transition period specialist to continue to supply monthly prescriptions.
8. All physical health monitoring to be completed by the specialist team for the first 12 months from initiation of an ADHD medication.
9. Clinical supervision of the patient by routine clinic follow-up on a regular basis.
10. Send a letter to the GP after each clinic attendance ensuring current dose is stated.
11. Inform GP of any changes to the prescription in writing and inform GP of the young person's progress on a 6 monthly basis, until stable.
12. Where the patient is stable the patient should be reviewed minimum annually and the GP informed of the young person's progress and changes in treatment in writing.
13. Inform the GP in writing if an initial 28 day prescription is provided for dose/ medication changes.
14. Evaluate any reported adverse effects by GP, patient, parent/carer.
15. Inform GP of patients who do not attend clinic appointments, and advise the GP on course of action in regards to supplying further prescriptions.

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16. Inform GP, by letter, of clinic visits and action taken for management of patient.

17. Ensure that backup advice is available for patient and GP at all times.

18. After 12 months (one year) from starting the ADHD medication and where the Young Person is stable, the specialist can discharge the YP back to the GP.

19. Advise the GP of which specialist will provide future monitoring of the patient, should they need to continue treatment once they reach adulthood.

20. If there is no adult service, refer the patient back to the GP and where appropriate provide advice and/ or appropriate course of action for individuals requiring on-going treatment.

21. Inform and decide with GP any action if patient has not been reviewed within 6 months of the last appointment. This may include the decision to continue treatment as before, or withdraw/ stop treatment.

22. Where a YP has been discharged from the CAMHS team, and then is re-referred back the GP, the consultant will assess suitability for accepting back into the CAMHS team. Where clinically appropriate the consultant will provide advice/ support to the GP and/ or accept YP back onto the CAMHS caseload.

<u>General Practitioner (GP)/ GP- Liaison Non-Medical Prescriber (NMP)</u>

1. All young people who present with characteristic symptoms of ADHD should be referred for an assessment.

2. Treatment for ADHD would need to be initiated by the specialist *(Consultant Psychiatrist/ Consultant Paediatrician/ Specialist Non-Medical Prescriber/ CAMHS speciality doctor.*

3. Young people diagnosed outside of the borough and already taking medication should be referred for reassessment and ongoing monitoring. The GP/ GP-NMP should continue to prescribe in the intervening period unless this is contraindicated. If any adverse effects or contraindications are identified, this should be communicated to the specialist team.

4. GP/ GP-NMP to complete the shared care agreement arrangements and on-going provision of monthly prescriptions within a (maximum) three month period.

5. Upon acceptance of shared care request from the specialist, GP/ GP-NMP to continue to supply monthly repeat of ADHD medication after the initial supply by the specialist team for new initiations and/ or where there has been a dose/ medication change, in line with the specialist's recommendation.

6. If the GP/ GP-NMP has a specific concern about prescribing for a particular patient under this Shared Care Protocol, they should discuss this with the specialist team.

7. Check the patient is attending specialist appointments before re-issuing further prescriptions.

8. Methylphenidate, dexamfetamine and lisdexamfetamine are Schedule 2 Controlled Drugs and prescriptions must be issued on a monthly basis. Medications requests for longer than a month (e.g. covering patients' holidays) should be discussed with the specialist team and can be issued at the prescribers' discretion.

9. Requests for an alteration in the regular dosage should be referred back to the specialist team.

10. Report and discuss with the specialists any adverse effects of medication, possible

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drug interactions, changes to the patient's medication regimen, deteriorating behaviour, suspected diversion/ misuse and/ or relevant medical information including any test results.

11. After a 12 month period from starting the ADHD medication, where the YP is stable, the GP/ GP-NMP to agree discharge of care from the specialist team.
12. Where the YP is discharged back to the GP/ GP-liaison NMP, the GP/ GP-NMP will continue all future physical health monitoring and supply of medication.
13. Where the YP is discharged back to the GP/ GP-NMP, the GP can re-refer back to the specialist team, where by in their judgement the YP is not responding to treatment/ is having side effects and/ or requires a specialist ADHD service input.

Clinical Commissioning Group (CCG)

1. To provide feedback to trusts via Trust Medicines Committee.
2. To support GPs to make the decision whether or not to accept clinical responsibility for prescribing.
3. To support trusts in resolving issues that may arise as a result of shared care.

Patient/Carer

1. Ensure they have a clear understanding of their treatment.
2. Report any adverse effects to their GP or specialist.
3. Report any changes in symptoms to the GP or specialist.

MEDICATION INFORMATION

Below are suggested where professionals can access information, both for themselves and either direct and/ or print off for parents/ carers

Professionals

BNF (hardcopy) and/ or online BNF which can be accessed at the following link if your organisation has a subscription:
https://www.medicinescomplete.com/mc/bnf/current/
Summary of Product Characteristics:
http://www.medicines.org.uk/emc/

Parent/carer and young person

Summary of Product Characteristics (patient information leaflet)
http://www.medicines.org.uk/emc/
Medicines for Children
http://www.medicinesforchildren.org.uk/

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CONTACT NUMBERS FOR ADVICE AND SUPPORT

East London Foundation Trust	
CAMHS Pharmacist, Newham	0207 540 6789
Lead Pharmacist – Tower Hamlets	0208 223 8014
Lead Pharmacist - Newham	0207 540 4380
Lead Pharmacist – City and Hackney	020 8510 8401
Lead Pharmacist - Luton and Bedfordshire	01582 657 564
Clinical Commissioning Groups (CCG)	
CCG Tower Hamlets, Newham and City & Hackney	
City and Hackney CCG	0203 816 3224
Tower Hamlet CCG	020 3688 2500
Newham CCG	020 3688 2300

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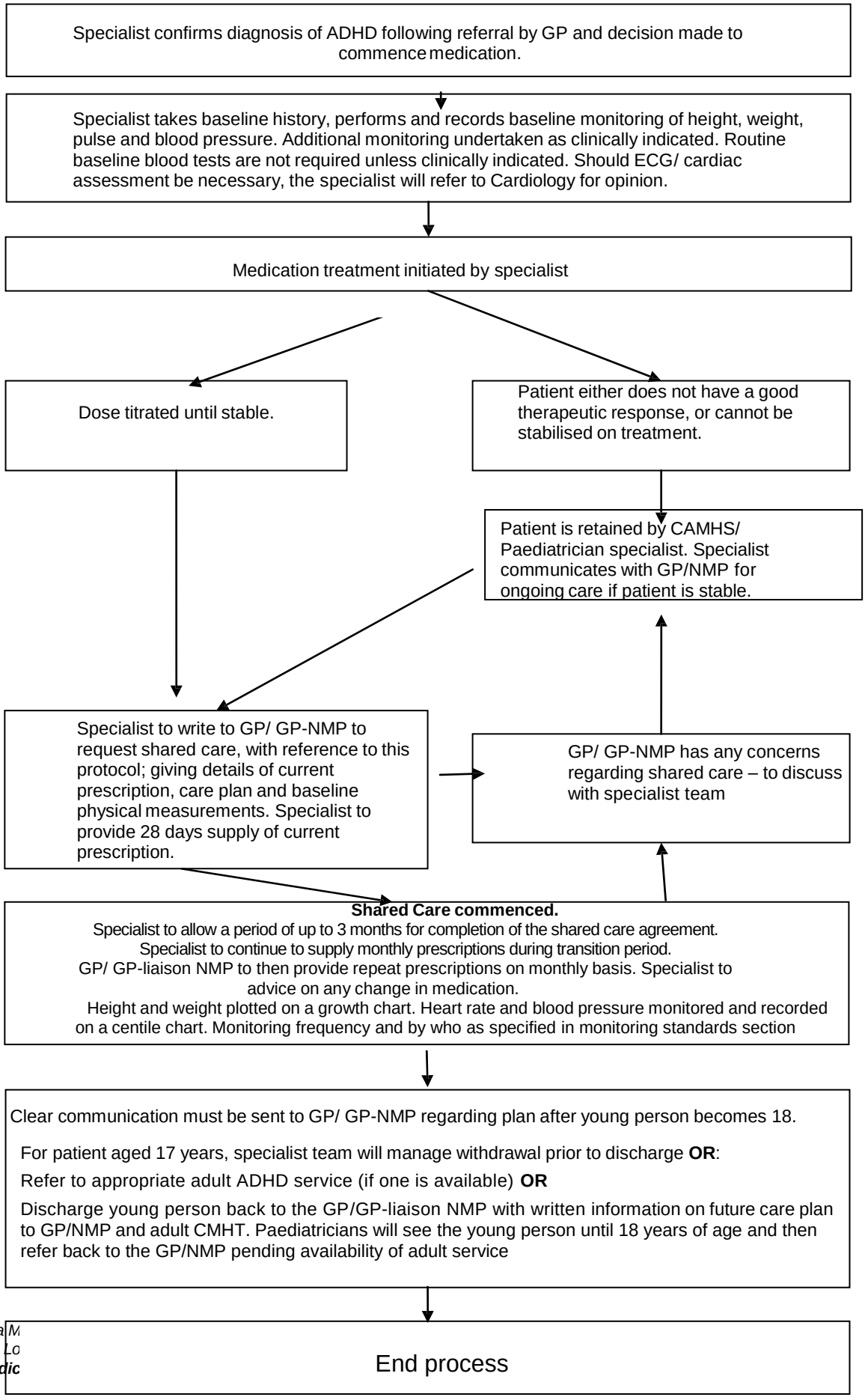

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Approved by: *East Lo*
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SPC *Equasym XL 10mg Capsules.* Available at: https://www.medicines.org.uk/emc/product/3887/smpc (accessed October 2021)

SPC *Intuniv 1mg prolonged-release tablets.* Available at: https://www.medicines.org.uk/emc/product/2979/smpc (accessed October 2021)