Shared Care Guideline

The drug treatment of ADHD in Children and Young People using Methylphenidate, Dexamfetamine, Lisdexamfetamine and Atomoxetine

Executive Summary

This guideline covers the use of methylphenidate, dexamfetamine, lisdexamfetamine and atomoxetine for children and young people with Attention Deficit Hyperactivity Disorder (ADHD), in line with NICE clinical guidelines.

The GP is expected to:

- Prescribe the recommended medication after initiation and stabilisation by the specialist (also, in exceptional clinical circumstances prescribing may be requested during a titration; the GP should do so on these occasions providing clear guidance has been given by the specialist)
- Monitor height, weight, blood pressure and pulse at six months in between the annual specialist reviews. Fax or email these findings to the clinic for action by the specialist service.
- Check for drug interactions and contraindications when prescribing other medicines
- Act in accordance with the advice in this guideline if side effects are identified

The specialist is expected to:

- Undertake an assessment and identify people suitable for medication
- Initiate prescribing and ask for transfer to shared care when stable
- Assess for efficacy and adverse effects at the start of treatment and then at least yearly, monitoring height, weight, pulse and blood pressure at annual reviews
- Respond to blood pressure, pulse, height and weights sent in by GPs with advice about continuing (or not) the ADHD medication.
- Arrange transfer of care over the age of 17

The parent / guardian is expected to:

- Follow the specialist's advice by booking an appointment for their child's blood pressure, pulse, weight and height to be measured, attending these and specialist appointments.
- Let the prescribers know if there are any concerns
- Store the tablets safely out of the reach of children and young people

Sharing of care depends on communication between the specialist, GP and the patient or their parent/carer. The intention to share care should be explained to the patient and accepted by them. Patients are under regular follow-up and this provides an opportunity to discuss drug therapy. The doctor/healthcare professional who prescribes the medication has the clinical responsibility for the drug and the consequences of its use. Further information about the general responsibilities of the hospital specialist and GP can be found here, this includes responsibilities if a GP is not willing to undertake shared care.

1. Scope
Children and adolescents (from 6 years old to their 17th birthday) with a diagnosis of ADHD

2. Aim
To clarify the responsibilities and roles of specialists and GPs in the drug treatment of children and adolescent with ADHD

3. Introduction
NICE Clinical Guideline ADHD: Diagnosis and management of ADHD in children, young people and adults (published September 2008, reviewed November 2011) indicates that the ongoing prescribing of medication may take place in primary care.

The NICE guidance states:

- For a diagnosis of ADHD, symptoms of hyperactivity/impulsivity and/or inattention should:
  - meet the diagnostic criteria in DSM-IV or ICD-10 (hyperkinetic disorder)[3] **and**
  - be associated with at least moderate psychological, social and/or educational or occupational impairment based on interview and/or direct observation in multiple settings, **and**
  - be pervasive, occurring in two or more important settings including social, familial, educational and/or occupational settings.

- As part of the diagnostic process, include an assessment of the person's needs, coexisting conditions, social, familial and educational or occupational circumstances and physical health. For children and young people, there should also be an assessment of their parents' or carers' mental health.

- Healthcare professionals should offer parents or carers of pre-school children with ADHD a referral to a parent-training/education programme as the first-line treatment if the parents or carers have not already attended such a programme or if the programme they attended has had a limited effect.

- Teachers who have received training about ADHD and its management should provide advice on behavioural support in the classroom.

- If the child or young person with ADHD has moderate levels of impairment, the parents or carers should be offered referral to a group parent-training/education programme, either on its own or together with a group treatment programme (cognitive behavioural therapy [CBT] and/or social skills training) for the child or young person.
  - In school-age children and young people with severe ADHD, drug treatment should be offered as the first-line treatment. In that instance, parents should also be offered a group-based parent-training/education programme.
  - Drug treatment for children and young people with ADHD should always form part of a comprehensive treatment plan that includes psychological, behavioural and educational advice and interventions.

Medication
- Where drug treatment is considered appropriate, methylphenidate, atomoxetine and dexamfetamine are recommended, within their licensed indications, as options for the management of ADHD in children and adolescents. (Lisdexamfetamine is included in this

guideline as an alternative medication to dexamfetamine which has been made available since the publication of the NICE guidance).

- The decision regarding which product to use should be based on the following:
  - the presence of comorbid conditions (for example, tic disorders, Tourette's syndrome, epilepsy)
  - the different adverse effects of the drugs
  - specific issues regarding compliance identified for the individual child or adolescent, for example problems created by the need to administer a mid-day treatment dose at school
  - the potential for drug diversion (where the medication is forwarded on to others for non-prescription uses) and/or misuse
  - the preferences of the child/adolescent and/or his or her parent or guardian.

- When prescribing methylphenidate for the treatment of children or young people, modified-release preparations should be considered for the following reasons:

  - convenience
  - improving adherence
  - reducing stigma (because the child or young person does not need to take medication at school)
  - reducing problems schools have in storing and administering controlled drugs
  - their pharmacokinetic profiles.

  Alternatively, immediate-release preparations may be considered if more flexible dosing regimens are required, or during initial titration to determine correct dosing levels.

- If there is a choice of more than one appropriate drug, the product with the lowest cost (taking into account the cost per dose and number of daily doses) should be prescribed.

- Following titration and dose stabilisation, prescribing and monitoring should be carried out under locally agreed shared care arrangements with primary care.

4. Abbreviations

- SCG: Shared Care Guideline
- CPFT: Cambridgeshire and Peterborough NHS Foundation Trust

5. Specific Medicines Information – Dose, Adverse Effects and Interactions

The following tables provide a summary of the most common adverse effects and their management, as well as clinical relevant drug interactions, of ADHD medications. Further details on the management of adverse effects of ADHD drugs are available from the European ADHD Guidelines Group (Cortese et al., J Child Psychology and Psychiatry, 2013).

For contraindications or further information please see the current BNF or summary of product characteristics for the individual drug
http://www.medicines.org.uk/

Drug and dose information	Adverse effects	Clinically relevant drug interactions
1. STIMULANT DRUG TREATMENT		
1.1 Methylphenidate *Controlled Drug (Schedule 2)*		
Short acting • < 6 years - unlicensed • > 6 years – up to 60 mg daily in divided doses **Long acting** Concerta XL /Matoride XL / • < 6 years -unlicensed • > 6 years up to 54 mg once daily (some guidelines, e.g., the Canadian ones (http://www.caddra.ca/practice-guidelines/download) recommend up to 72 mg/day in children < 40 kg and up to 90 mg/day in adolescents Equasym XL • < 6 years -unlicensed	• Sleep difficulties • GI upset • Headache • Hypertension • Reduced appetite • Reduced rate of weight gain or weight loss • Reduced rate of growth • Tics • Rarely blood disorder including leucopenia and thrombocytopenia	• MAOIs - risk of hypertensive crisis • Moclobemide - risk of hypertensive crisis • Clonidine - serious adverse events reported (causality not established)

• >6 years up to 60 mg once daily Medikinet XL • < 6 years - unlicensed > 6 years up to 60 mg once daily		
1.2 Lisdexamfetamine *Controlled Drug (Schedule 2)*		
• > 6 years - 30mg once daily in the morning, increasing by 20mg daily increments at weekly intervals to a maximum of 70mg • Take with or without food. • Swallow whole or opened and dispersed in a glass of water (take immediately)	• Sleep difficulties • Headache • Reduced appetite • Upper abdominal pain • Reduced weight gain or weight loss • Reduced appetite • Tics	• MAOIs - risk of hypertensive crisis • Chlorpromazine, haloperidol - effects of lisdexamfetamine possibly reduced
1.3 Dexamfetamine *Controlled Drug (Schedule 2)*		
• 4-6 years - 2.5 mg daily (increase by 2.5 mg daily at intervals of 1 week) • > 6 years - 5-10mg daily increasing by 5mg daily at weekly intervals to a maximum of 40mg	• Sleep difficulties • Restlessness • Reduced appetite • GI symptoms • Tachycardia • Palpitations	• MAOI's - risk of hypertensive crisis • Moclobemide - risk of hypertensive crisis

2.0 NON-STIMULANT DRUG TREATMENT		
2.1 Atomoxetine		
• <6 years - unlicensed • >6 yrs >70 kg, 40 mg daily for 7 days increase according to response. Usual maintenance dose 80 mg daily; max. 100 mg daily <70 kg, 500 micrograms/kg daily for 7 days then increased according to response to usual maintenance dose 1.2 mg/kg daily	• GI Symptoms • Reduced appetite • Dry mouth • Palpitation, tachycardia • Increased blood pressure, postural hypotension • Restlessness, dizziness, headache • Urinary retention, enuresis • Sexual dysfunction, menstrual disturbance • Mydriasis, conjunctivitis • Dermatitis, sweating, weight changes • Less commonly suicidal ideation • Very rarely hepatic disorders.	• MAOIs - risk of hypertensive crisis Increased risk of ventricular arrhythmias with • Amiodarone • Antidepressants, Tricyclics • Antipsychotics • Disopyramide • Diuretics (hypokalaemia) • Mefloquine • Methadone • Moxifloxacin • Procainamide • Sotalol

Further information about cautions and contraindications can be found in the Summary of Product Characteristics http://www.medicines.org.uk/emc

Leaflet for families about diet whilst on ADHD medication:

Eating for Health for children with ADHD (A

6. Monitoring Standards & Actions to take in the event of abnormal test results/symptoms

Monitoring

Methylphenidate, Dexamfetamine and Lisdexamfetamine

Parameter	Frequency of monitoring	Action	By Whom
Weight	6 monthly	Failure to gain weight appropriately – reduce the dose or withdraw the medicine	Specialist at annual review GP at six months in between specialist reviews – use proforma in appendix 2/3 to communicate
Full Blood Count		Have a low threshold for carrying out a FBC e.g. if recurrent infections or purpuric rash occur. There is no need for routine testing.	GP
Blood Pressure and Pulse	6 monthly	Monitor whilst taking medication to ensure within published range e.g. for age of child – see Appendix 1. If raised, repeat the measurement. The dose may need to be reduced, or arrangements may need to be made for 24 hour blood pressure readings. The ADHD clinic will be able to advise in liaison with the paediatricians.	Specialist at annual review GP at six months in between specialist reviews – use proforma in appendix 2/3 to communicate
Growth (Weight and height)	6 monthly	Many children lose a small amount of weight (about a kg) at the beginning of treatment. Weight and height should be plotted on published Growth Charts - see Appendix 1. If weight loss continues or if child's weight trajectory crosses more than one centile line or if this translates into the height trajectory being similarly affected: • Give information leaflet to help parents promote good diet - see Appendix 5 • reduce dose or encourage breaks from treatment at weekends/in school holidays • Withdraw treatment	Specialist at annual review GP at six months in between specialist reviews – use proforma in appendix 2/3 to communicate

Atomoxetine

Parameter	Frequency of monitoring	Action	By Whom
Appearance of suicidal behaviour, self-harm or hostility.	Ongoing basis at appointments	Patients/parents should be advised of this risk and made aware of possible signs/symptoms to report back to the specialist immediately if noticed.	Specialist and GP Telephone the on-call practitioner/on-call CAMHS psychiatrist to communicate in emergency

Blood Pressure and Pulse	6 monthly	Monitor whilst taking medication to ensure within published range e.g. for age of child – see Appendix 1.	Specialist at annual review GP at six months in between specialist reviews – use proforma in appendix 2/3 to communicate
Growth (Weight and height)	6 monthly	Many children lose a small amount of weight (about a kg) at the beginning of treatment. Weight and height should be plotted on published Growth Charts - see Appendix 1. If weight loss continues or if child's weight trajectory crosses more than one centile line or if this translates into the height trajectory being similarly affected: • Give information leaflet to help parents promote good diet - see Appendix 5 • reduce dose (Note: weekend/holiday breaks are not recommended as the benefits of Atomoxetine develop when Atomoxetine has been taken at a therapeutic level for some weeks) • Withdraw treatment	Specialist at annual review GP at six months in between specialist reviews – use proforma in appendix 2/3 to communicate

7. Shared Care Responsibilities

a. Specialist responsibilities

Undertake assessment and diagnose, identify patients who will benefit from treatment with medication.
Undertake pre-treatment monitoring including baseline cardiovascular risk assessment and advise the GP of the outcome of this.
Assess atomoxetine patients on an ongoing basis for appearance of suicidal behaviour, self-harm or hostility. Have a low threshold for booking patients in for review if concerns are expressed.
Check drug-drug and drug-disease interactions e.g. establish any history of cardiac or epileptic conditions and any concurrent medicines
Initially prescribe and stabilise the patient on the chosen medication (usually about 3 months). Monitor height, weight, blood pressure and pulse every 6 months, then at annual reviews.
When appropriate, invite GP to share care.
Advise GP about the treatment and about what has been explained to the parent/patient
Continue to prescribe for the patient after initiation of treatment until the GP agrees to accept prescribing responsibility and provide prescriptions for the patient
Communicate promptly with the GP about any changes in treatment and respond promptly to any concerns raised by the GP.
Monitor the efficacy and adverse effects of the treatment at least annually, considering whether continuation is necessary.
Advise the GP about any individual variations from this protocol for an individual patient.
Ensure the patient/parent/carer are fully informed of the potential benefits and side effects of treatment and ensure the person with parental responsibility (and where appropriate, the young person) consents to the treatment. Share with the GP any information about consent that s/he needs to know.

Ensure clear arrangements are in place for back up, advice and support e.g. out of hours and/or when the consultant initiating therapy is not available.
Educate the family about the drug therapy to maximise compliance and when to seek medical advice.
With consent, liaise with the school, providing education about ADHD, drug therapy and storage.
Evaluate any adverse effects reported by the GP (Any adverse effects which are suspected to relate to the drug should be reported via the Yellow Card System).
Refer for additional behavioural therapy (social skills, anger management or parents' group/parenting skills) if and when appropriate.
Arrange transfer to adult services if medication is to continue over the age of 17.

b. General Practitioner

Ensure that shared care arrangements are in place before taking over prescribing/monitoring and: • That the patient/carer is clear what is being monitored and by whom. • That the patient/carer knows what significant adverse effects/events to report urgently and to whom they should report (specialist or GP).
Confirm that proposed therapy is not contra-indicated because of concurrent therapy for other conditions the patient may be suffering from e.g. check drug-drug and drug-disease interactions.
Prescribe methylphenidate/dexamfetamine/lisdexamfetamine/atomoxetine at the dose recommended by the specialist once the patient is stabilised on treatment and side effects have been excluded as far as possible by the specialist team (usually after 3 months).
Be aware of the potential of Atomoxetine to (rarely) precipitate suicidal behaviour, self-harm or hostility particularly where there is a history of depression or suicidal behaviour. Ask specialist for an early review if needed as a matter of urgency.
Discuss potential benefits and side effects of treatment with the patient/carer to address any outstanding queries.
Monitor height, weight, blood pressure and pulse annually six months after the annual specialist review or more frequently if there are specific concerns and at the request of the specialist. Check these against standard charts (see Appendix 1) or fax/email the observations to the specialist clinic who will be happy to provide guidance. If in doubt about effectiveness or side-effects, share this information with the specialist clinic. Seek advice from the specialist team if the patient does not attend for monitoring appointments.
Arrange appropriate investigations (FBC) if patients present with unexplained bruising; consider withdrawal of medication; seek paediatric/haematology advice and contact the specialist team.
Arrange appropriate investigation if the patient shows signs of liver problems and discontinue the medication if the person has jaundice or has laboratory evidence of hepatic injury. Seek paediatric/gastro-enterology advice and contact the specialist team.
Check for possible drug interactions when newly prescribing or stopping concurrent medication.
Report any suspected adverse drug reactions to the specialist who initiated therapy under the shared care agreement. Report adverse events via the yellow card scheme.
Monitor compliance through rates of prescription

c. Parent/carer

Discuss potential benefits and side effects of treatment with the specialist and GP, raise any outstanding queries
Report any adverse effects to their specialist or GP whilst child/young person is taking drug(s)
Report to the specialist or GP if they do not have a clear understanding of their treatment

Report to the specialist or GP if their child is not taking the medication willingly so that consent issues can be assessed
Attend all appointments suggested in the time frame advised so that the therapy can be properly monitored. This includes booking appointments in primary care as suggested by the specialist. Be aware that if monitoring is not possible because appointments are not made and attended, it may not be possible for the medication to continue.
For children who need to take medication during the school day, ensure that school have a supply of tablets
Store the tablets safely out of the reach of children and young people keeping in mind that all medication is dangerous if taken in over-dose

8. Monitoring compliance with and the effectiveness of this document

Compliance with this document will be undertaken using a risk based approach if necessary.

9. Equality and Diversity Statement

This document complies with the CPFT Equality and Diversity statement.

10. Disclaimer

It is your responsibility to check that this printed out copy is the most recent issue of this document.

11. Document Management

Document ratification and history	
Approved by:	CPFT Medicines Management Group
Date approved:	15/09/14
Submitted for ratification by:	Cambridgeshire and Peterborough Joint Prescribing Group
Date ratified:	21st January 2015
Date placed on CPJPG website:	25th June 2015
Review date:	2 years unless clinical evidence changes
Obsolete date:	21st January 2017
Supersedes which document?	Version 3 Jan 2006
Authors:	Dr Hani Ayyash, Consultant Neurodevelopmental Paediatrician, Peterborough Clinical Lead for ADHD Services, CPFT Dr Samuele Cortese, Locum Consultant Child Psychiatrist, CPFT Dr Emma Weisblatt, Consultant Child Neuropsychiatrist Peterborough Clinical Lead for ADHD Services, CPFT Clare Mundell, Chief Pharmacist, CPFT Reviewed by: Dr Naomi Elton, Clinical Director and Consultant Child and Adolescent Psychiatrist, CPFT Dr Venkat Reddy, Consultant Community Paediatrician, CPFT
Owning Provider Trust:	Cambridgeshire and Peterborough NHS Foundation Trust
File name:	Shared Care Guidelines: The drug treatment of ADHD in children and young people using methylphenidate,

	dexamfetamine, lisdexamfetamine and atomoxetine.
Version number:	5.0.3 February 2015

The information contained in this guideline is issued on the understanding that it is accurate based on the resources at the time of issue. For further information please refer to the most recent Summary of Product Characteristics http://www.medicines.org.uk/emc

Appendix 1 - Resources

- Standard **growth charts** are available from http://www.rcpch.ac.uk/child-health/research-projects/uk-who-growth-charts/uk-growth-chart-resources-2-18-years/uk-2-18-years

- **Blood pressure** can be checked against population norms such as the NIH charts which allow readings to be checked against gender, age and height centile http://www.nhlbi.nih.gov/files/docs/guidelines/child_tbl.pdf

  Blood pressure, pulse, weight and height measurements may be faxed or emailed to the specialist clinic using the proforma in Appendix 2 or 3. SystmOne is used by the ADHD care pathway in City Care Centre. If your health centre/surgery also uses SystmOne, the measurements you have entered will appear in the patient profile. However, there is still a need for you to communicate to us that you have done so by fax or email.

  Please indicate if you require a response from the specialist clinic. The contact details for sending these values to the clinics are:

Contact numbers for advice and support

	Telephone	Fax	Nhs.net email (secure for emails sent from an NHS.net email account)
Brookside Family Consultation Clinic, Cambridge	01223 746001	01223 746002	ADHDCambridge6month@nhs.net
Newtown Centre, Huntingdon and **Doddington Hospital**	01480 415300 (Huntingdon) 01354 644257 / 644258 (Doddington)	01480 415393 01354 644262	ADHDCentral6month@nhs.net
City Care Centre / Winchester Place, Peterborough	01733 777939	01733 777938	Cpm-tr.neurodevelopmentteam@nhs.net

Appendix 2

Brief health check for CAMHS ADHD patients in primary care

Patient Name:

Date of birth or NHS number:

The above patient was seen in primary care on:

Blood pressure	
Pulse rate	
Weight	
Height	
Any other comments	
Please tick if you would like the ADHD clinic to advise about continued treatment	

Name/designation:

Name of health centre/surgery:

Thank you. Please fax or email this record to the ADHD clinic (if you have urgent concerns you should phone and speak to the duty practitioner or doctor)

Appendix 3

Notification of CAMHS ADHD health check in primary care (for patients being seen in City Care Centre only)

Name/designation:

Name of health centre/surgery:

Patient Name:

Date of birth or NHS number:

The above patient was seen on date and his/her SystmOne profile was updated with Blood Pressure, Pulse rate, Weight and Height.

Any other Comments

Indicate if you would like the ADHD clinic to advise about continued treatment ☐

Thank you. Please fax or email this record to the ADHD clinic (if you have urgent concerns you should phone and speak to the duty practitioner or doctor)

Appendix 4

Advice to Primary Care from the ADHD Clinic

Patient Name:

Date of birth or NHS number:

Thank you for sending in the above patient's physical measurements.

Having seen this information and checked the patient's record, I can advise the following:

Advice

Signature: Name of HPC:

Designation of HPC:

Name of ADHD clinic:

This advice to be sent to the GP and copied to parents/carers

Appendix 5

Eating for Health for children with ADHD (A