

**Attention Deficit Hyperactivity Disorder [ADHD] Formulary Guidance [v2.0]**

1. **Introduction**

These Guidelines are intended for routine use. However, there will be instances where they are not suitable for the patient you are managing, where more bespoke treatment will be necessary. In such instances the rationale for prescribing away from formulary must be recorded.

Attention Deficit Hyperactivity Disorder (ADHD) is predominantly seen in childhood but may continue into adulthood and cause clinically significant impairments. Current treatments for ADHD include a range of behavioural, social, psychological and pharmacological interventions and dietary advice. The management should be shared between primary and secondary care.

The principle diagnostic features are:

Inattention, hyperactivity and impulsive behaviours that are often disruptive and may become defiant and aggressive. In adults the hyperactivity and impulsiveness tend to decrease, but symptoms of inattention persist.

(Based on [NICE Guidance NG87](https://www.nice.org.uk/guidance/ng87) – updated september 2019

1. **Diagnosis**

The World Health Organisation system (ICD- 10) is widely used in Europe. A diagnosis of hyperkinetic disorder (severe ADHD) requires three difficulties to be present- hyperactivity, impulsivity, and inattention.

The DSM - IV diagnostic criteria of the American Psychiatric Association has broader criteria: a diagnosis of ADHD can be made with either impulsivity- hyperactivity (the two problems are combined together) or inattention, as well as with both.

The health care professionals will look for alarm signals:

* The child who significantly under performs at school, despite having a normal intellect and no major specific learning difficulties.
* The child who has ADHD behaviour problems, which are considerably worse than, would be expected for the standard of parenting and home environment.

**Differential diagnosis**

* The normal active preschool child
* Intellectual disability
* Specific learning difficulties
* Autism Spectrum Disorder
* Epilepsy
* Depression
* Brain injury
* Family dysfunction

They may also use some objective pointers towards diagnosis such as:

* Rating scales by parents and teachers e.g., Conners Teacher and Parent Rating Scales
* Tests which measure length and type of mental process (Psychometric tests and profiles).

In adults and in patients with learning disabilities diagnosis may sometimes be based on impression and subsequent response to treatment

1. **Pharmacological Treatment – Key Points**

* ADHD medication is indicated in severe ADHD. If a child or adolescent needs treatment with medication for ADHD, methylphenidate, atomoxetine and dexamfetamine, Lisdexamfetamine and Guanfacine are all recommended as possible choices. When deciding which drug to use, doctors should consider the following:
  + Whether the child or adolescent has other conditions such as epilepsy
  + The side effects of each drug
  + Factors that might make it difficult for the person to take the medicine at the right time (for example, if it is difficult to take a dose during school hours, stigma)
  + The possibility that the medicine might be misused or passed on to another person for misuse.
  + The individual preference of the child or adolescent and/or their family or carer.
  + Whether the child is able to swallow tablets/capsules.
  + Pharmacokinetic profile
* Where more than one of the medicines is considered to be appropriate for a child or adolescent, their doctor should choose the cheapest one.
* Treatment with methylphenidate, atomoxetine or dexamfetamine, Lisdexamfetamine or guanfacine should only be started after a specialist who is an expert in ADHD has thoroughly assessed the child or adolescent and confirmed the diagnosis. Once treatment has been started it can be continued and monitored by a GP. GP’s do not monitor the treatment especially in children and young people with a learning disability who may require a higher level of support in having their observations taken in the school environment with a person from the RDASH team with whom they are familiar. This avoids/reduces emotional distress and potential white coat syndrome. Monitoring maybe carried out by third parties with agreement of RDASH, who must assure themselves of the appropriateness **Review of medication and discontinuation.**

A healthcare professional with training and expertise in managing ADHD should review ADHD medication at least once a year and discuss with the person with ADHD (and their families and carers as appropriate) whether medication should be continued. The review should include a comprehensive assessment of the:

* Preference of the child, young person, or adult with ADHD (and their family or carers as appropriate)
* Benefits, including how well the current treatment is working throughout the day.
* Adverse effects
* Clinical need and whether medication has been optimised
* Impact on education and employment
* Effects of missed doses planned dose reductions and periods of no treatment.
* Effect of medication on existing or new mental health, physical health, or neurodevelopmental conditions
* Need for support and type of support (for example, psychological, educational, social) if medication has been optimised but ADHD symptoms continue to cause a significant impairment.

Encourage people with ADHD to discuss any preferences to stop or change medication and to be involved in any decisions about stopping treatments.

Consider trial periods of stopping medication or reducing the dose when assessment of the overall balance of benefits and harms suggests this may be appropriate. If the decision is made to continue medication, the reasons for this should be documented.

## Adults

* Young people continuing treatment into adulthood should be assessed to establish the need for continuing pharmacological treatment into adulthood.
* For adults with ADHD, drug treatment should be the first-line treatment unless psychological approaches are preferred.
* Pharmacological treatments for ADHD in adults should be initiated only under the guidance of a specialist with expertise in ADHD, ideally as part of a multidisciplinary team, following a thorough assessment as part of a comprehensive treatment programme that addresses psychological, behavioural and occupational needs. Those with co-morbide substance misuse should be managed by a specialist with knowledge of both areas.
* Before initiating drug treatment, confirm the diagnosis and carry out a full assessement of ADHD and associated co-morbidities, according to current national guidelines.

Cognitive behavioural therapy may be considered when the service user has made an informed choice not to have drug treatment, or drug treatment is partially effective or not tolerated or ineffective.

1. **Prescribing Advice**

* Informed consent prior to treatment should be obtained and documented.
* Stimulants are controlled drugs and have the potential for misuse and diversion,

either for subjective effects or effects on performance. The requirements of controlled drug legislation with respect to prescribing and supply must be followed.

* Before treatment, adults with ADHD should be offered written information about their condition and its assessment, risks and benefits of treatment, available services, psychological support and self help.
* During the titration phase, doses should be gradually increased until there is no

further clinical improvement in ADHD symptoms, and side effects are tolerable.

* Following an adequate response, pharmacological treatment for ADHD should be continued for as long as it is clinically effective. If continued it should be reviewed as a minimum annually for adults and 6 (3) monthly for children. measure weight every 3 months in children 10 years and under, in [NG87](https://www.nice.org.uk/guidance/ng87) it is 6 months for the cardiovascular review, (this is in table 1 saying weight 3 monthly checks should alternate between secondary and primary care.) During the review consider the benefits on core symptoms, compliance, adverse effects, missed doses and co-morbid conditions. Additional monitoring may be carried out at the discretion of the treating team
* Suspected side effects should be documented and reported via the yellow card scheme
* Following titration and dose stabilsation (usually over 4-6 weeks), continued prescribing and monitoring should continue under local shared care guidelines.
* Antipsychotics should not be used for treatment of ADHD in adults.

**Choice of medication**

**Children 5 years and over and young people (up to 17 years and 364 days)**

* Methylphenidate (short or long acting as appropriate) is first line treatment
* Lisdexamfetamine and dexamfetamine being considered second and third line as per NICE guidance
* Non-stimulants atomoxetine or guanfacine will be considered where:
  + The patient cannot tolerate methylphenidate OR lisdexamfetamine OR
    - Where a lack of tolerability of the stimulant medication is a class effect, rather than drug specific (see current SPC) then moving to a non stimulant can be considered, such as Guanfacine or Atomoxetine
  + Their symptoms have not responded to separate adequate trials of lisdexamfetamine and methylphenidate, having considered alternative preparations and adequate doses as per NICE guidance
  + Risks of diversion are considered important
  + The medication they are currently on for other physical reasons is contraindicative especially in children and young people with complex needs and Learning disabilities

**Adults**

Pharmacological treatment is the first line treatment option for adults with moderate to severe ADHD.

* Methylphenidate (short or long acting as appropriate) and lisdexamfetamine will be considered first line as per NICE guidance.
  + The alternative first line treatment should be considered where the initial choice has proven ineffective.
  + Dexamfetamine will be considered where the prolonged release profile of lisdexamfetamine is problematic, however be aware dexamfetamine is unlicensed in adults.
* Atomoxetine will be considered where.
  + The patient cannot tolerate methylphenidate or lisdexamfetamine
  + Their symptoms have not responded to separate adequate trials of lisdexamfetamine and methylphenidate, having considered alternative preparations and adequate doses.
* Guanfacine may be considered:
  + In patients who are transitioning into adult services and currently on Guanfacine. These patients should be assessed by the specialist. Guanfacine is not licensed in adults. Where after due consideration the benefits of continuing it outweigh the risks of changing treatment, this must be documented and discussed with the patient/carer that is an unlicensed indication, and that arrangements will need to be organised for ongoing supply, as this will not be picked up under shared care.

Where shared care is in place initial dose stabilisation needs to be undertaken by the Consultant before prescribing can be passed to Primary Care. However, it is acknowledged that following a period of dose stabilisation that there may be an occasional requirement for the dosage of medication to be adjusted for some patients.

**Melatonin for Sleep disorders in children**

Inpatients with ADHD and Austism Spectrum disorder with significant sleep disorder Melatonin may be considered as a treatment option.

The medication of choice is Circadin 2mg MR tablets, this is an off label use of this medication, and this must be documented and dscussed with the patient/carer. Written information should be given to the patient/carer. It can be crushed when immediate release melatonin is required.

**Potential indications and advice:**

* Severe sleep disorders in neurodevelopmental or psychiatric disorders.
* Behavioural strategies have had limited or no success.
* Significant adverse effects on the child / family prior to work by an appropriate agency (see below).
* Short term use (6 months)
* To aid work on sleep hygiene by health visitor, nursery nurse, school nurse,
* A small number of children may need Circadin® long term, reviewed every 12 months

**Guidance:**

**Dose:** Start at 2mg given before going to bed. Crushed tablets are given 30 minutes before bed and whole tablets are given an hour before bedtime. Increase if necessary after 1 - 2 weeks by 2mg to a maximum of 10mg.

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| Sleep Initiation | Use Circadin® tablets crushed (to render it standard release) and mixed with clear fluids, juice, milk or eg yoghurt.-. |
| Early Morning wakening and sleep maintenace | Use Circadin® tablets swallowed whole. |
| Mixed | Some children need a combination of standard release and modified release properties. Use Circadin® in a mixture of whole and crushed forms with maximum combined dose of 10mg. |

**Interactions and Side effects**

See [current SPC](https://www.medicines.org.uk/emc/product/2809) for full information on interactions and side effects

**Monitoring:**

Response to treatment.

Monitoring of growth and sexual development with long term use is primarily the responsibility of the child’s consultant but the GP should report any concerns.

Long term effects have not been fully evaluated in humans but observations from animal models regarding the effect on pituitary hormones necessitate precautionary monitoring.

Ensure a drug holiday of 7 days every 6 months has been undertaken and that the sleep diary has been completed to reflect this.

Where shared care exists, this should be followed, this can be found on the CCG website

[Rotherham Shared Care](https://yourhealthrotherham.co.uk/for-clinicians/)

[Doncaster Shared Care](http://medicinesmanagement.doncasterccg.nhs.uk/documents/melatonin/)

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|  | 1. **5. Baseline Assessments** 2. **and Monitoring** | | **MONITORING PARAMETER**  **This is based on current Doncaster shared care arrangement, local shared care should be followed** | | | | | | | |
|  |  | | **Doncaster** | **Adult and Child** | **Rotherham** | **Children only** | | **North Lincolnshire** | | **No formal shared care** |
|  | **Drug** | **Site** | **Progression** | | **Height** | | **Weight** | | **Pulse/ blood pressure** | |
| **CHILDREN (<18yrs)** | **Methylphenidate1**  **Lisdexamfetamine Dexamfetamine Atomoxetine**  **Guanfacine** | **Secondary care** | Baseline cardiovascular examination (including ECG if appropriate2) and assess for risk of substance misuse or diversion.  Review adverse effects and effectiveness. ADHD reviewed at least annually against a standardised rating scale. | | Baseline, 6 months and then **annually** alternating with Primary care so that the patient has height checked every 6 months.  Recorded on a growth chart | | Recorded on centile chart.  **5 to 10 years**  Baseline, 3 months and then every 6 monthsalternating with primary care so that patient has weight checked every 3 months.  **over 10 years**  Baseline, 3 months, 6 months then annually alternating with Primary care so that patient has weight checked every 6 months. | | Baseline, after each dose change and annually alternating with Primary care so that patient has blood pressure checked every 6 months. Recorded on a centile chart. | |
| **Primary care** | Symptom control and side-effect enquiry | |  | | **5 to 10 years**  6 monthly – alternating with secondary care so that patient has weight check every 3 months.  **Over 10 years**  Annually – alternating with secondary care so that patient has weight check every 6 months | | Annually alternating with Secondary care so that patient has pulse and Blood Pressure checked every 6 months | |
| **ADULTS** | **Methylphenidate1**  **Lisdexamfetamine Dexamfetamine Atomoxetine** | **Secondary care** | Baseline cardiovascular examination (including ECG if appropriate2) and assess for risk of substance misuse or diversion.  Review adverse effects and effectiveness. ADHD reviewed at least annually against a standardised rating scale. | | Baseline | | Baseline, then every 6 months | | Baseline, after each dose change and then every 6 months4. | |
| **Primary care** | Symptom control and side-effect enquiry | |  | |  | | Following agreement with the secondary care physician (e.g., demonstrable hypertension or tachycardia) | |

1. Methylphenidate MR and XL products should be prescribed by brand due to varying release profiles.
2. ECG’s should be conducted by secondary care with GP’s advised of incidental findings for consideration of cardiac referral
3. Patients under 10 years of age need weight check every 3 months – these should be recorded in the patient’s RED book. If there is a drastic change in appetite or any other side-effects of the medication, parents should be advised to stop the medication and speak to the specialist service.
4. Elevated blood pressure monitoring should result in a clinician to clinician conversation regarding stopping the medication and managing the elevated blood pressure

**Medication Monographs**

For up to date dose ranges and contraindications or further information for individual drugs please see

* The current [BNF](https://bnf.nice.org.uk/)
* [Summary of product characteristics for the individual drug](http://www.medicines.org.uk/)

**Table 1: STIMULANT DRUG TREATMENT FOR ADHD**

**Methylphenidate and dexamphetamine are schedule 2 controlled drugs – prescription writing requirements apply.**

**Be aware whilst NICE recommend the use of medication from 5 years, they are only licensed for 6 years and over.**

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| **Drug, dose** | **Adverse effects** | **Clinical relevant drug interactions** |
| **Methylphenidate**  ***Short acting***   * < 5years - unlicensed * >5 years – 17 years – up to 60mg daily in divided doses up to 90mg if under specialist care * >17years up to 100mg   ***Long acting***  Concerta XL   * < 5years unlicensed * >5 years up to 108mg (only licensed up to 54mg   Equasym XL   * < 5years unlicensed * >5 years up to 60mg once daily   Medikinet XL   * < 5years unlicensed * >5 years up to 60mg once daily   Delmosart prolonged release/Xaggitin   * >5yrs up to 54mg | * Insomnia * Lost appetite * GI upset * Headache * Hypertension * Reduced weight gain or weight loss * Tics * Rarely blood disorder including leucopenia and thrombocytopenia | * MAOI’s risk of hypertensive crisis * Moclobemide risk of hypertensive crisis * Clonidine, serious adverse events reported (causality not established) |
| **Dexamfetamine**   * 5-17 years * Initially 2.5mg 2-3 times a day, increased by steps of 5mg once weekly if needed, usual maxiumum 1mg/kg, up to 20mg (up to 40mg in exceptional cases, maintenance dose given in 2-4 divided doses * **Unlicensed in adults** | * Insomnia * Restlessness * Anorexia * GI symptoms * Tachycardia * Palpitations | * MAOI’s risk of hypertensive crisis * Moclobemide risk of hypertensive crisis |
| **Lisdexamfetamine**   * >5yrs years up to 70mg | * Insomnia * Restlessness * Anorexia * GI symptoms * Tachycardia * Palpitations | * MAOI’s risk of hypertensive crisis * Moclobemide risk of hypertensive crisis |

**Table 2: NON-STIMULANT DRUG TREATMENT FOR ADHD**

| **Drug, dose** | **Adverse effects** | **Clinical relevant drug interactions** |
| --- | --- | --- |
| **Atomoxetine**   * <5 years unlicensed * Over 5 yrs - * >70 kg, 40 mg daily for 7 days increase according to response. Usual maintenance dose 80 mg daily; max. 100 mg daily * High daily doses to be given under direction of a specialist; maximum 120mg per day. cbnf * <70 kg, 500 micrograms/kg daily for 7 days then increased according to response to usual maintenance dose 1.2 mg/kg daily. * High daily doses to be given under the direction of a specialist’ maximum 1.8mg/kg per day; maximum 120mg per day. cbnf | * GI Symptoms * Anorexia * 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. | * MAOI’s risk of hypertensive crisis * Increased risk of ventricular arrhythmias with   + Amiodarone   + Antidepressants, Tricyclics   + Antipsychotics   + Disopyramide   + Diuretics (hypokalaemia)   + Mefloquine   + Methadone   + Moxifloxacin   + Procainamide   + Sotalol |
| **Guanfacine**   * 6-12 years (body weight 25kg and above)   + 1mg daily, increased by 1mg weekly, if necessary, maintenance 0.05- 0.12mg/kg, maximum 4mg daily * 13-17 years (bodyweight 34- 41.4kg)   + 1mg daily, increased by 1mg weekly, if necessary, maintenance 0.05- 0.12mg/kg, maximum 4mg daily * 13-17 years (bodyweight 41.5 – 49.4kg)   + 1mg daily, increased by 1mg weekly, if necessary, maintenance 0.05- 0.12mg/kg, maximum 5mg daily * 13-17 years (bodyweight 49.5 – 58.4kg)   + 1mg daily, increased by 1mg weekly, if necessary, maintenance 0.05- 0.12mg/kg, maximum 6mg daily * 13-17 years (bodyweight 58.5 and above) * 1mg daily, increased by 1mg weekly, if necessary, maintenance 0.05- 0.12mg/kg, maximum 7mg daily | **Commonly**   * Sedation * Tiredness * Difficulty sleeping * Low blood pressure * Nausea * Stomach pain * Dizziness * Dry mouth * Irritability * Vomiting * Slow heart rate | * Medicines that lower blood pressure (antihypertensives) * Medicines for epilepsy such as valproic acid * Sedatives * Medicines for mental health problems (benzodiazepines, barbiturates, and antipsychotics) * Medicines that cause enzyme inhibition or induction |