NICE National Institute for Health and Care Excellence

NICE guideline

Attention deficit hyperactivity disorder: diagnosis and management

NICE guideline

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Your responsibility

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals and practitioners are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to apply the recommendations, and the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual, in consultation with them and their families and carers or guardian.

Local commissioners and providers of healthcare have a responsibility to enable the guideline to be applied when individual professionals and people using services wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with complying with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

Contents

This guideline replaces CG72 and TA98.

This guideline is the basis of QS39.

Overview

This guideline covers recognising, diagnosing and managing attention deficit hyperactivity disorder (ADHD) in children, young people and adults. It aims to improve recognition and diagnosis, as well as the quality of care and support for people with ADHD.

In September 2019 we amended the recommendation on assessment for people starting medication for ADHD to indicate that an ECG is not needed before starting stimulants, atomoxetine or guanfacine if cardiovascular history and examination are normal and the person is not on medicine that poses an increased cardiovascular risk. For details, see update information.

Who is it for?

- Healthcare professionals
- Commissioners and providers
- People with ADHD, and their families and carers

Recommendations

People have the right to be involved in discussions and make informed decisions about their care, as described in making decisions about your care

Making decisions using NICE guidelines explains how we use words to show the strength (or certainty) of our recommendations, and has information about prescribing medicines (including off-label use), professionals guidelines, standards and laws (including on consent and mental capacity), and safeguarding.

1.1 Service organisation and training

Service organisation

1.1.1 People with attention deficit hyperactivity disorder (ADHD) would benefit from improved organisation of care and better integration of child health services, child and adolescent mental health services (CAMHS) and adult mental health services. [2008]

1.1.2 Mental health services for children, young people and adults, and child health services, should form multidisciplinary specialist ADHD teams and/or clinics for children and young people, and separate teams and/or clinics for adults. These teams and clinics should have expertise in the diagnosis and management of ADHD, and should:

- provide diagnostic, treatment and consultation services for people with ADHD who have complex needs, or where general psychiatric services are in doubt about the diagnosis and/or management of ADHD
- put in place systems of communication and protocols for information sharing among paediatric, child and adolescent, forensic, and adult mental health services for people with ADHD, including arrangements for transition between child and adult services
- produce local protocols for shared care arrangements with primary care providers, and ensure that clear lines of communication between primary and secondary care are maintained

- ensure age-appropriate psychological services are available for children, young people and adults with ADHD, and for parents or carers.

  The size and time commitment of these teams should depend on local circumstances (for example, the size of the trust, the population covered and the estimated referral rate for people with ADHD). **[2008, amended 2018]**

1.1.3 Every locality should develop a multi-agency group, with representatives from multidisciplinary specialist ADHD teams, paediatrics, mental health and learning disability trusts, forensic services, child and adolescent mental health services (CAMHS), the Directorate for Children and Young People (DCYP) (including services for education and social services), parent support groups and others with a significant local involvement in ADHD services. The group should:

- oversee the implementation of this guideline
- start and coordinate local training initiatives, including the provision of training and information for teachers about the characteristics of ADHD and its basic behavioural management
- oversee the development and coordination of parent-training/education programmes
- consider compiling a comprehensive directory of information and services for ADHD including advice on how to contact relevant services and assist in the development of specialist teams. **[2008, amended 2018]**

1.1.4 A young person with ADHD receiving treatment and care from CAMHS or paediatric services should be reassessed at school-leaving age to establish the need for continuing treatment into adulthood. If treatment is necessary, arrangements should be made for a smooth transition to adult services with details of the anticipated treatment and services that the young person will require. Precise timing of arrangements may vary locally but should usually be completed by the time the young person is 18 years. See NICE's guideline on transition from children's to adults' services for young people using health or social care services. **[2008, amended 2018]**

1.1.5 During the transition to adult services, a formal meeting involving CAMHS and/or paediatrics and adult psychiatric services should be considered, and full information provided to the young person about adult services. For young people aged 16 years and older, the care programme approach (CPA) should be

used as an aid to transfer between services. The young person, and when appropriate the parent or carer, should be involved in the planning. [2008]

1.1.6 After transition to adult services, adult healthcare professionals should carry out a comprehensive assessment of the person with ADHD that includes personal, educational, occupational and social functioning, and assessment of any coexisting conditions, especially drug misuse, personality disorders, emotional problems and learning difficulties. [2008]

Training

1.1.7 Trusts should ensure that specialist ADHD teams for children, young people and adults jointly develop age-appropriate training programmes for the diagnosis and management of ADHD for mental health, paediatric, social care, education, forensic and primary care providers and other professionals who have contact with people with ADHD. [2008]

1.1.8 Child and adult psychiatrists, paediatricians, and other child and adult mental health professionals (including those working in forensic services) should undertake training so that they are able to diagnose ADHD and provide treatment and management in accordance with this guideline. [2008]

1.2 Recognition, identification and referral

Recognition

1.2.1 Be aware that people in the following groups may have increased prevalence of ADHD compared with the general population:

- people born preterm (see NICE's guideline on developmental follow-up of children and young people born preterm)
- looked-after children and young people
- children and young people diagnosed with oppositional defiant disorder or conduct disorder
- children and young people with mood disorders (for example, anxiety and depression)
- people with a close family member diagnosed with ADHD

- people with epilepsy
- people with neurodevelopmental disorders (for example, autism spectrum disorder, tic disorders, learning disability [intellectual disability] and specific learning difficulties)
- adults with a mental health condition
- people with a history of substance misuse
- people known to the Youth Justice System or Adult Criminal Justice System
- people with acquired brain injury. **[2018]**

1.2.2 Be aware that ADHD is thought to be under-recognised in girls and women and that:

- they are less likely to be referred for assessment for ADHD
- they may be more likely to have undiagnosed ADHD
- they may be more likely to receive an incorrect diagnosis of another mental health or neurodevelopmental condition. **[2018]**

To find out why the committee made the 2018 recommendations on recognition and how they might affect practice, see the rationale and impact section on recognition

The committee's full discussion is in evidence review A: risk factors

Identification and referral

1.2.3 Universal screening for ADHD should not be undertaken in nursery, primary and secondary schools. **[2008]**

1.2.4 When a child or young person with disordered conduct and suspected ADHD is referred to a school's special educational needs coordinator (SENCO), the SENCO, in addition to helping the child with their behaviour, should inform the parents about local parent-training/education programmes. See NICE's guideline on antisocial behaviour and conduct disorders in children and young people. **[2008, amended 2018]**

1.2.5 Referral from the community to secondary care may involve health, education and social care professionals (for example, GPs, paediatricians, educational psychologists, SENCOs, social workers) and care pathways can vary locally. The person making the referral to secondary care should inform the child or young person's GP. **[2008]**

1.2.6 When a child or young person presents in primary care with behavioural and/or attention problems suggestive of ADHD, primary care practitioners should determine the severity of the problems, how these affect the child or young person and the parents or carers, and the extent to which they pervade different domains and settings. **[2008]**

1.2.7 If the child or young person's behavioural and/or attention problems suggestive of ADHD are having an adverse impact on their development or family life, consider:

- a period of watchful waiting of up to 10 weeks
- offering parents or carers a referral to group-based ADHD-focused support (this should not wait for a formal diagnosis of ADHD).

If the behavioural and/or attention problems persist with at least moderate impairment, the child or young person should be referred to secondary care (that is, a child psychiatrist, paediatrician, or specialist ADHD CAMHS) for assessment. **[2008, amended 2018]**

1.2.8 If the child or young person's behavioural and/or attention problems are associated with severe impairment, referral should be made directly to secondary care (that is, a child psychiatrist, paediatrician, or specialist ADHD CAMHS) for assessment. **[2008]**

1.2.9 Primary care practitioners should not make the initial diagnosis or start medication in children or young people with suspected ADHD. **[2008]**

1.2.10 Adults presenting with symptoms of ADHD in primary care or general adult psychiatric services, who do not have a childhood diagnosis of ADHD, should be referred for assessment by a mental health specialist trained in the diagnosis and treatment of ADHD, where there is evidence of typical manifestations of ADHD (hyperactivity/impulsivity and/or inattention) that:

- began during childhood and have persisted throughout life
- are not explained by other psychiatric diagnoses (although there may be other coexisting psychiatric conditions)
- have resulted in or are associated with moderate or severe psychological, social and/or educational or occupational impairment. [2008]

1.2.11 Adults who have previously been treated for ADHD as children or young people and present with symptoms suggestive of continuing ADHD should be referred to general adult psychiatric services for assessment. The symptoms should be associated with at least moderate or severe psychological and/or social or educational or occupational impairment. [2008]

1.3 Diagnosis

1.3.1 A diagnosis of ADHD should only be made by a specialist psychiatrist, paediatrician or other appropriately qualified healthcare professional with training and expertise in the diagnosis of ADHD, on the basis of:

- a full clinical and psychosocial assessment of the person; this should include discussion about behaviour and symptoms in the different domains and settings of the person's everyday life **and**
- a full developmental and psychiatric history **and**
- observer reports and assessment of the person's mental state. [2008]

1.3.2 A diagnosis of ADHD should not be made solely on the basis of rating scale or observational data. However, rating scales such as the Conners' rating scales and the Strengths and Difficulties Questionnaire are valuable adjuncts, and observations (for example, at school) are useful when there is doubt about symptoms. [2008]

1.3.3 For a diagnosis of ADHD, symptoms of hyperactivity/impulsivity and/or inattention should:

- meet the diagnostic criteria in DSM-5 or ICD-10 (hyperkinetic disorder; but exclusion based on a pervasive developmental disorder or an uncertain time of onset is not recommended) **and**

- cause 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 2 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. **[2008, amended 2018]**

1.3.4 ADHD should be considered in all age groups, with symptom criteria adjusted for age-appropriate changes in behaviour. **[2008]**

1.3.5 In determining the clinical significance of impairment resulting from the symptoms of ADHD in children and young people, their views should be taken into account wherever possible. **[2008]**

1.4 Information and support

1.4.1 Use this guideline with NICE's guidelines on service user experience in adult mental health and patient experience in adult NHS services to improve the experience of care for adults with ADHD. The principles also apply to children and young people, and their parents or carers. **[2018]**

1.4.2 Healthcare professionals working with children and young people with ADHD should follow the recommendations on general principles of care in NICE's guideline on antisocial behaviour and conduct disorder in children and young people. This does **not** mean that all children and young people with ADHD have coexisting antisocial behaviour and conduct disorder but that the same general principles of care apply when working with children and young people with ADHD. **[2018]**

Supporting people with ADHD

1.4.3 Following a diagnosis of ADHD, have a structured discussion with people (and their families or carers as appropriate) about how ADHD could affect their life. This could include:

- the positive impacts of receiving a diagnosis, such as:
  - improving their understanding of symptoms
  - identifying and building on individual strengths
  - improving access to services
- the negative impacts of receiving a diagnosis, such as stigma and labelling
- a greater tendency for impulsive behaviour
- the importance of environmental modifications to reduce the impact of ADHD symptoms
- education issues (for example, reasonable adjustments at school and college)
- employment issues (for example, impact on career choices and rights to reasonable adjustments in the workplace)
- social relationship issues
- the challenges of managing ADHD when a person has coexisting neurodevelopmental or mental health conditions
- the increased risk of substance misuse and self-medication
- the possible effect on driving (for example, ADHD symptoms may impair a person's driving and ADHD medication may improve this; people with ADHD must declare their diagnosis to the DVLA if their ADHD symptoms or medication affect their ability to drive safely).

This structured discussion should inform the shared treatment plan. **[2018]**

1.4.4 Inform people receiving a diagnosis of ADHD (and their families or carers as appropriate) about sources of information, including:

- local and national support groups and voluntary organisations
- websites

- support for education and employment.

  People who have had an assessment but whose symptoms and impairment fall short of a diagnosis of ADHD may benefit from similar information. [2018]

1.4.5 Provide information to people with ADHD (and their families and carers as appropriate) in a form that:

- takes into account their developmental level, cognitive style, emotional maturity and cognitive capacity, including any learning disabilities, sight or hearing problems, delays in language development or social communication difficulties
- takes into account any coexisting neurodevelopmental and mental health conditions
- is tailored to their individual needs and circumstances, including age, gender, educational level and life stage. [2018]

Supporting families and carers

1.4.6 Ask families or carers of people with ADHD how the ADHD affects themselves and other family members, and discuss any concerns they have. [2018]

1.4.7 Encourage family members or carers of people with ADHD to seek an assessment of their personal, social and mental health needs, and to join self-help and support groups if appropriate. [2018]

1.4.8 Think about the needs of a parent with ADHD who also has a child with ADHD, including whether they need extra support with organisational strategies (for example, with adherence to treatment, daily school routines). [2018]

1.4.9 Offer advice to parents and carers of children and young people with ADHD about the importance of:

- positive parent– and carer–child contact
- clear and appropriate rules about behaviour and consistent management
- structure in the child or young person's day. [2018]

1.4.10 Offer advice to families and carers of adults with ADHD about:

- how ADHD may affect relationships
- how ADHD may affect the person's functioning
- the importance of structure in daily activities. [2018]

1.4.11 Explain to parents and carers that any recommendation of parent-training/education does not imply bad parenting, and that the aim is to optimise parenting skills to meet the above-average parenting needs of children and young people with ADHD. [2018]

Involving schools, colleges and universities

1.4.12 When ADHD is diagnosed, when symptoms change, and when there is transition between schools or from school to college or college to university, obtain consent and then contact the school, college or university to explain:

- the validity of a diagnosis of ADHD and how symptoms are likely to affect school, college or university life
- other coexisting conditions (for example, learning disabilities) are distinct from ADHD and may need different adjustments
- the treatment plan and identified special educational needs, including advice for reasonable adjustments and environmental modifications within the educational placement
- the value of feedback from schools, colleges and universities to people with ADHD and their healthcare professionals. [2018]

Involving other healthcare professionals

1.4.13 When a person with ADHD has a coexisting condition, contact the relevant healthcare professional, with consent, to explain:

- the validity, scope and implications of a diagnosis of ADHD
- how ADHD symptoms are likely to affect the person's behaviour (for example, organisation, time management, motivation) and adherence to specific treatments
- the treatment plan and the value of feedback from healthcare professionals. [2018]

To find out why the committee made the 2018 recommendations on information and support, and how they might affect practice, see the rationale and impact section on information and support

The committee's full discussion is in evidence review B: information and support

1.5 Managing ADHD

Planning treatment

1.5.1 Healthcare providers should ensure continuity of care for people with ADHD. [2018]

1.5.2 Ensure that people with ADHD have a comprehensive, holistic shared treatment plan that addresses psychological, behavioural and occupational or educational needs. Take into account:

- the severity of ADHD symptoms and impairment, and how these affect or may affect everyday life (including sleep)
- their goals
- their resilience and protective factors
- the relative impact of other neurodevelopmental or mental health conditions. [2018]

1.5.3 Regularly discuss with people with ADHD, and their family members or carers, how they want to be involved in treatment planning and decisions; such discussions should take place at intervals to take account of changes in circumstances (for example, the transition from children's to adult services) and developmental level, and should not happen only once. [2018]

1.5.4 Before starting any treatment for ADHD, discuss the following with the person, and their family or carers as appropriate, encouraging children and young people to give their own account of how they feel:

- the benefits and harms of non-pharmacological and pharmacological treatments (for example, the efficacy of medication compared with no treatment or non-pharmacological treatments, potential adverse effects and non-response rates)

- the benefits of a healthy lifestyle, including exercise
- their preferences and concerns (it is important to understand that a person's decision to start, change or stop treatment may be influenced by media coverage, teachers, family members, friends and differing opinion on the validity of a diagnosis of ADHD)
- how other mental health or neurodevelopmental conditions might affect treatment choices
- the importance of adherence to treatment and any factors that may affect this (for example, it may be difficult to take medication at school or work, or to remember appointments).

Record the person's preferences and concerns in their treatment plan. **[2018]**

1.5.5 Ask young people and adults with ADHD if they wish a parent, partner, close friend or carer to join discussions on treatment and adherence. **[2018]**

1.5.6 Reassure people with ADHD, and their families or carers as appropriate, that they can revisit decisions about treatments. **[2018]**

To find out why the committee made the 2018 recommendations on managing ADHD – planning treatment, and how they might affect practice, see the rationale and impact section on managing ADHD – planning treatment

The committee's full discussion is in evidence review H: managing treatment

Children under 5 years

These recommendations are for healthcare professionals with training and expertise in diagnosing and managing ADHD. See recommendation 1.4.3 for details of ADHD-focused information.

1.5.7 Offer an ADHD-focused group parent-training programme to parents or carers of children under 5 years with ADHD as first-line treatment. See recommendations 1.5.1 to 1.5.10 in NICE's guideline on antisocial behaviour and conduct disorders in children and young people.

This does not imply that all children under 5 years with ADHD have antisocial behaviour or conduct disorder, but that the same general principles of care

apply. [2018]

1.5.8 If after an ADHD-focused group parent-training programme, ADHD symptoms across settings are still causing a significant impairment in a child under 5 years after environmental modifications have been implemented and reviewed, obtain advice from a specialist ADHD service with expertise in managing ADHD in young children (ideally a tertiary service). [2018]

1.5.9 Do not offer medication for ADHD for any child under 5 years without a second specialist opinion from an ADHD service with expertise in managing ADHD in young children (ideally a tertiary service). [2018]

To find out why the committee made the 2018 recommendations on managing ADHD – children under 5 years, and how they might affect practice, see the rationale and impact section on managing ADHD – children under 5 years

The committee's full discussion is in evidence review E: non-pharmacological efficacy and adverse events and evidence review F: combination treatment.

Children aged 5 years and over and young people

These recommendations, covering children aged 5 years and over and young people, are for healthcare professionals with training and expertise in diagnosing and managing ADHD. March 2018 – medicines used for treating ADHD did not have a UK marketing authorisation for children aged 5 years or under (off-label use). See NICE's information on prescribing medicines.

1.5.10 Give information about ADHD (see recommendation 1.4.3) and offer additional support to parents and carers of all children aged 5 years and over and young people with ADHD. The support should be ADHD focused, can be group based and as few as 1 or 2 sessions. It should include:

- education and information on the causes and impact of ADHD
- advice on parenting strategies
- with consent, liaison with school, college or university (see recommendation 1.4.12)
- both parents and carers if feasible. [2018]

1.5.11 If a child aged 5 years or over or young person has ADHD and symptoms of oppositional defiant disorder or conduct disorder, offer parents and carers a parent-training programme in line with recommendations 1.5.1 to 1.5.10 in NICE's guideline on antisocial behaviour and conduct disorders in children and young people, as well as group-based ADHD-focused support. [2018]

1.5.12 Consider individual parent-training programmes for parents and carers of children and young people with ADHD and symptoms of oppositional defiant disorder or conduct disorder when:

- there are particular difficulties for families in attending group sessions (for example, because of disability, needs related to diversity such as language differences, learning disability [intellectual disability], parental ill-health, problems with transport, or where other factors suggest poor prospects for therapeutic engagement)
- a family's needs are too complex to be met by group-based parent-training programmes. [2018]

1.5.13 Offer medication for children aged 5 years and over and young people only if:

- their ADHD symptoms are still causing a persistent significant impairment in at least one domain after environmental modifications have been implemented and reviewed
- they and their parents and carers have discussed information about ADHD (see recommendation 1.5.4)
- a baseline assessment has been carried out (see recommendation 1.7.4).

See the recommendations on medication. [2018]

1.5.14 Consider a course of cognitive behavioural therapy (CBT) for young people with ADHD who have benefited from medication but whose symptoms are still causing a significant impairment in at least one domain, addressing the following areas:

- social skills with peers
- problem-solving
- self-control

- active listening skills
- dealing with and expressing feelings. [2018]

To find out why the committee made the 2018 recommendations on managing ADHD – children aged 5 years and over and young people, and how they might affect practice, see the rationale and impact section on managing ADHD – children aged 5 years and over and young people

The committee's full discussion is in evidence review E: non-pharmacological efficacy and adverse events and evidence review F: combination treatment.

Adults

These recommendations are for healthcare professionals with training and expertise in diagnosing and managing ADHD. See recommendation 1.4.3 for details of ADHD-focused information.

1.5.15 Offer medication to adults with ADHD if their ADHD symptoms are still causing a significant impairment in at least one domain after environmental modifications have been implemented and reviewed. See the recommendations on medication choice. [2018]

1.5.16 Consider non-pharmacological treatment for adults with ADHD who have:

- made an informed choice not to have medication
- difficulty adhering to medication
- found medication to be ineffective or cannot tolerate it. [2018]

1.5.17 Consider non-pharmacological treatment in combination with medication for adults with ADHD who have benefited from medication but whose symptoms are still causing a significant impairment in at least one domain. [2018]

1.5.18 When non-pharmacological treatment is indicated for adults with ADHD, offer the following as a minimum:

- a structured supportive psychological intervention focused on ADHD

- regular follow-up either in person or by phone.

Treatment may involve elements of or a full course of CBT. **[2018]**

To find out why the committee made the 2018 recommendations on managing ADHD – adults, and how they might affect practice, see the rationale and impact section on managing ADHD – adults

The committee's full discussion is in evidence review E: non-pharmacological efficacy and adverse events and evidence review F: combination treatment.

1.6 Dietary advice

1.6.1 Healthcare professionals should stress the value of a balanced diet, good nutrition and regular exercise for children, young people and adults with ADHD. **[2008]**

1.6.2 Do not advise elimination of artificial colouring and additives from the diet as a generally applicable treatment for children and young people with ADHD. **[2016]**

1.6.3 Ask about foods or drinks that appear to influence hyperactive behaviour as part of the clinical assessment of ADHD in children and young people, and:

- if there is a clear link, advise parents or carers to keep a diary of food and drinks taken and ADHD behaviour
- if the diary supports a relationship between specific foods and drinks and behaviour, offer referral to a dietitian
- ensure that further management (for example, specific dietary elimination) is jointly undertaken by the dietitian, mental health specialist or paediatrician, and the parent or carer and child or young person. **[2016]**

1.6.4 Do not advise or offer dietary fatty acid supplementation for treating ADHD in children and young people. **[2016]**

1.6.5 Advise the family members or carers of children with ADHD that there is no

evidence about the long-term effectiveness or potential harms of a 'few food' diet for children with ADHD, and only limited evidence of short-term benefits. [2016]

1.7 Medication

These recommendations, with the exception of 1.7.29, are for healthcare professionals with training and expertise in diagnosing and managing ADHD.

1.7.1 Use this guideline with NICE's guideline on medicines optimisation: the safe and effective use of medicines to enable the best possible outcomes. [2018]

1.7.2 All medication for ADHD should only be initiated by a healthcare professional with training and expertise in diagnosing and managing ADHD. [2018]

1.7.3 Healthcare professionals initiating medication for ADHD should:

- be familiar with the pharmacokinetic profiles of all the short- and long-acting preparations available for ADHD
- ensure that treatment is tailored effectively to the individual needs of the child, young person or adult
- take account of variations in bioavailability or pharmacokinetic profiles of different preparations to avoid reduced effect or excessive adverse effects. [2018]

Baseline assessment

1.7.4 Before starting medication for ADHD, people with ADHD should have a full assessment, which should include:

- a review to confirm they continue to meet the criteria for ADHD and need treatment

- a review of mental health and social circumstances, including:
  - presence of coexisting mental health and neurodevelopmental conditions
  - current educational or employment circumstances
  - risk assessment for substance misuse and drug diversion
  - care needs
- a review of physical health, including:
  - a medical history, taking into account conditions that may be contraindications for specific medicines
  - current medication
  - height and weight (measured and recorded against the normal range for age, height and sex)
  - baseline pulse and blood pressure (measured with an appropriately sized cuff and compared with the normal range for age)
  - a cardiovascular assessment.

    An electrocardiogram (ECG) is not needed before starting stimulants, atomoxetine or guanfacine, unless the person has any of the features in recommendation 1.7.5, or a co-existing condition that is being treated with a medicine that may pose an increased cardiac risk. **[2018, amended 2019]**

1.7.5 Refer for a cardiology opinion before starting medication for ADHD if any of the following apply:

- history of congenital heart disease or previous cardiac surgery
- history of sudden death in a first-degree relative under 40 years suggesting a cardiac disease
- shortness of breath on exertion compared with peers
- fainting on exertion or in response to fright or noise

- palpitations that are rapid, regular and start and stop suddenly (fleeting occasional bumps are usually ectopic and do not need investigation)
- chest pain suggesting cardiac origin
- signs of heart failure
- a murmur heard on cardiac examination
- blood pressure that is classified as hypertensive for adults (see NICE's guideline on hypertension in adults). **[2018]**

1.7.6 Refer to a paediatric hypertension specialist before starting medication for ADHD if blood pressure is consistently above the 95th centile for age and height for children and young people. **[2018]**

To find out why the committee made the 2018 recommendations on medication – baseline assessment, and how they might affect practice, see the rationale and impact section on medication – baseline assessment

The committee's full discussion is in evidence review D: pharmacological safety.

Medication choice – children aged 5 years and over and young people

Recommendations 1.7.7 to 1.7.10 update NICE's technology appraisal guidance on methylphenidate, atomoxetine and dexamfetamine for ADHD in children and adolescents (TA98).

1.7.7 Offer methylphenidate (either short or long acting) as the first line pharmacological treatment for children aged 5 years and over and young people with ADHD.

March 2018 – this is an off-label use for children aged 5 years. See NICE's information on prescribing medicines. **[2018]**

1.7.8 Consider switching to lisdexamfetamine for children aged 5 years and over and young people who have had a 6-week trial of methylphenidate at an adequate dose and not derived enough benefit in terms of reduced ADHD symptoms and associated impairment.

March 2018 – this is an off-label use for children aged 5 years. See NICE's information on prescribing medicines. [2018]

1.7.9 Consider dexamfetamine for children aged 5 years and over and young people whose ADHD symptoms are responding to lisdexamfetamine but who cannot tolerate the longer effect profile.

March 2018 – dexamfetamine is only licensed to treat ADHD in children and young people aged 6 to 17 years when response to methylphenidate is clinically inadequate. It is not licensed for children and young people aged 5 to 17 years who have responded to but are intolerant of lisdexamfetamine.See NICE's information on prescribing medicines. [2018]

1.7.10 Offer atomoxetine or guanfacine to children aged 5 years and over and young people if:

- they cannot tolerate methylphenidate or lisdexamfetamine **or**
- their symptoms have not responded to separate 6-week trials of lisdexamfetamine and methylphenidate, having considered alternative preparations and adequate doses.

  March 2018 – this is an off-label use of atomoxetine and guanfacine for children aged 5 years. See NICE's information on prescribing medicines[2018]

Medication choice – adults

1.7.11 Offer lisdexamfetamine or methylphenidate as first-line pharmacological treatment for adults with ADHD.
March 2018 – this is an off-label use of lisdexamfetamine for adults with no ADHD symptoms in childhood. See NICE's information on prescribing medicines. Not all preparations of methylphenidate are licensed for treating symptoms of ADHD in adults.
[2018]

1.7.12 Consider switching to lisdexamfetamine for adults who have had a 6-week trial of methylphenidate at an adequate dose but have not derived enough benefit in terms of reduced ADHD symptoms and associated impairment. [2018]

1.7.13 Consider switching to methylphenidate for adults who have had a 6-week trial of lisdexamfetamine at an adequate dose but have not derived enough benefit in terms of reduced ADHD symptoms and associated impairment. [2018]

1.7.14 Consider dexamfetamine for adults whose ADHD symptoms are responding to lisdexamfetamine but who cannot tolerate the longer effect profile.
March 2018 – this is an off-label use of dexamfetamine. See NICE's information on prescribing medicines.
[2018]

1.7.15 Offer atomoxetine to adults if:

- they cannot tolerate lisdexamfetamine or methylphenidate **or**
- their symptoms have not responded to separate 6-week trials of lisdexamfetamine and methylphenidate, having considered alternative preparations and adequate doses.

  March 2018 – this is an off-label use of atomoxetine for adults with no ADHD symptoms in childhood. See NICE's information on prescribing medicines. [2018]

Further medication choices

1.7.16 Obtain a second opinion or refer to a tertiary service if ADHD symptoms in a child aged 5 years or over, a young person or adult are unresponsive to one or more stimulants and one non-stimulant. [2018]

1.7.17 Do not offer any of the following medication for ADHD without advice from a tertiary ADHD service:

- guanfacine for adults (off-label use)
- clonidine for children with ADHD and sleep disturbance, rages or tics (off-label use)
- atypical antipsychotics in addition to stimulants for people with ADHD and coexisting pervasive aggression, rages or irritability
- medication not included in recommendations 1.7.7 to 1.7.15.

  See NICE's information on prescribing medicines. [2018]

Medication choice – people with coexisting conditions

1.7.18 Offer the same medication choices to people with ADHD and anxiety disorder, tic disorder or autism spectrum disorder as other people with ADHD. [2018]

1.7.19 For children aged 5 years and over, young people and adults with ADHD experiencing an acute psychotic or manic episode:

- stop any medication for ADHD
- consider restarting or starting new ADHD medication after the episode has resolved, taking into account the individual circumstances, risks and benefits of the ADHD medication. [2018]

To find out why the committee made the 2018 recommendations on medication choice, and how they might affect practice, see the rationale and impact section on medication – choice

The committee's full discussion is in evidence review C: pharmacological efficacy and sequencing.

Considerations when prescribing ADHD medication

1.7.20 When prescribing stimulants for ADHD, think about modified-release once-daily preparations for the following reasons:

- convenience
- improving adherence
- reducing stigma (because there is no need to take medication at school or in the workplace)
- reducing problems of storing and administering controlled drugs at school
- the risk of stimulant misuse and diversion with immediate-release preparations
- their pharmacokinetic profiles.

  Immediate-release preparations may be suitable if more flexible dosing regimens are needed, or during initial titration to determine correct dosing levels. [2018]

1.7.21 When prescribing stimulants for ADHD, be aware that effect size, duration of effect and adverse effects vary from person to person. [2018]

1.7.22 Think about using immediate- and modified-release preparations of stimulants to optimise effect (for example, a modified-release preparation of methylphenidate in the morning and an immediate-release preparation of methylphenidate at another time of the day to extend the duration of effect). [2018]

1.7.23 Be cautious about prescribing stimulants for ADHD if there is a risk of diversion for cognitive enhancement or appetite suppression. [2018]

1.7.24 Do not offer immediate-release stimulants or modified-release stimulants that can be easily injected or insufflated if there is a risk of stimulant misuse or diversion. [2018]

1.7.25 Prescribers should be familiar with the requirements of controlled drug legislation governing the prescription and supply of stimulants. See NICE's guideline on controlled drugs. [2018]

Dose titration

1.7.26 During the titration phase, ADHD symptoms, impairment and adverse effects should be recorded at baseline and at each dose change on standard scales by parents and teachers, and progress reviewed regularly (for example, by weekly telephone contact) with a specialist. [2018]

1.7.27 Titrate the dose against symptoms and adverse effects in line with the BNF or BNF for Children until dose optimisation is achieved, that is, reduced symptoms, positive behaviour change, improvements in education, employment and relationships, with tolerable adverse effects. [2018]

1.7.28 Ensure that dose titration is slower and monitoring more frequent if any of the following are present in people with ADHD:

- neurodevelopmental disorders (for example, autism spectrum disorder, tic disorders, learning disability [intellectual disability])

- mental health conditions (for example, anxiety disorders [including obsessive–compulsive disorder], schizophrenia or bipolar disorder, depression, personality disorder, eating disorder, post-traumatic stress disorder, substance misuse)
- physical health conditions (for example, cardiac disease, epilepsy or acquired brain injury). [2018]

To find out why the committee made the 2018 recommendations on medication – considerations when prescribing and dose titration, and how they might affect practice, see the rationale and impact section on medication – considerations when prescribing and dose titration

The committee's full discussion is in evidence review D: pharmacological safety.

Shared care for medication

1.7.29 After titration and dose stabilisation, prescribing and monitoring of ADHD medication should be carried out under Shared Care Protocol arrangements with primary care. [2018]

To find out why the committee made the 2018 recommendations on medication – care arrangements, and how they might affect practice, see the rationale and impact section on medication – care arrangements

The committee's full discussion is in evidence review D: pharmacological safety.

1.8 Maintenance and monitoring

1.8.1 Monitor effectiveness of medication for ADHD and adverse effects, and document in the person's notes. [2018]

1.8.2 Encourage people taking medication for ADHD to monitor and record their adverse effects, for example, by using an adverse effect checklist. [2018]

1.8.3 Consider using standard symptom and adverse effect rating scales for clinical assessment and throughout the course of treatment for people with ADHD. [2018]

1.8.4 Ensure that children, young people and adults receiving treatment for ADHD have review and follow-up according to the severity of their condition, regardless of whether or not they are taking medication. [2018]

Height and weight

1.8.5 For people taking medication for ADHD:

- measure height every 6 months in children and young people
- measure weight every 3 months in children 10 years and under
- measure weight at 3 and 6 months after starting treatment in children over 10 years and young people, and every 6 months thereafter, or more often if concerns arise
- measure weight every 6 months in adults
- plot height and weight of children and young people on a growth chart and ensure review by the healthcare professional responsible for treatment. [2018]

1.8.6 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. [2018]

1.8.7 If a child or young person's height over time is significantly affected by medication (that is, they have not met the height expected for their age), consider a planned break in treatment over school holidays to allow 'catch-up' growth. [2018]

1.8.8 Consider monitoring BMI of adults with ADHD if there has been weight change as a result of their treatment, and changing the medication if weight change

persists. [2018]

Cardiovascular

1.8.9 Monitor heart rate and blood pressure and compare with the normal range for age before and after each dose change and every 6 months. [2018]

1.8.10 Do not offer routine blood tests (including liver function tests) or ECGs to people taking medication for ADHD unless there is a clinical indication. [2018]

1.8.11 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. [2018]

1.8.12 If a person taking guanfacine has sustained orthostatic hypotension or fainting episodes, reduce their dose or switch to another ADHD medication. [2018]

Tics

1.8.13 If a person 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 of ADHD treatment. [2018]

1.8.14 If tics are stimulant related, reduce the stimulant dose, or consider changing to guanfacine (in children aged 5 years and over and young people only), atomoxetine (off-label use for adults with no ADHD symptoms in childhood), clonidine (off-label use for children), or stopping medication.

Clonidine should only be considered for people under 18 years after advice from a tertiary ADHD service. [2018]

Sexual dysfunction

1.8.15 Monitor young people and adults with ADHD for sexual dysfunction (that is,

erectile and ejaculatory dysfunction) as potential adverse effects of atomoxetine. [2018]

Seizures

1.8.16 If a person 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 the seizures. [2018]

Sleep

1.8.17 Monitor changes in sleep pattern (for example, with a sleep diary) and adjust medication accordingly. [2018]

Worsening behaviour

1.8.18 Monitor the behavioural response to medication, and if behaviour worsens adjust medication and review the diagnosis. [2018]

Stimulant diversion

1.8.19 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. [2018]

To find out why the committee made the 2018 recommendations on medication – monitoring adverse effects, and how they might affect practice, see the rationale and impact section on medication – monitoring effectiveness and adverse effects

The committee's full discussion is in evidence review D: pharmacological safety.

1.9 Adherence to treatment

1.9.1 Use this guideline with NICE's guideline on medicines adherence to improve the care for adults with ADHD. The principles also apply to children and young people. [2018]

1.9.2 Be aware that the symptoms of ADHD may lead to people having difficulty adhering to treatment plans (for example, remembering to order and collect medication). **[2018]**

1.9.3 Ensure that people are fully informed of the balance of risks and benefits of any treatment for ADHD and check that problems with adherence are not due to misconceptions (for example, tell people that medication does not change personality). **[2018]**

1.9.4 Encourage the person with ADHD to use the following strategies to support adherence to treatment:

- being responsible for their own health, including taking their medication as needed
- following clear instructions about how to take the medication in picture or written format, which may include information on dose, duration, adverse effects, dosage schedule (the instructions should stay with the medication, for example, a sticker on the side of the packet)
- using visual reminders to take medication regularly (for example, apps, alarms, clocks, pill dispensers, or notes on calendars or fridges)
- taking medication as part of their daily routine (for example, before meals or after brushing teeth)
- attending peer support groups (for both the person with ADHD and for the families and carers). **[2018]**

1.9.5 Encourage parents and carers to oversee ADHD medication for children and young people. **[2018]**

Supporting adherence to non-pharmacological treatments

1.9.6 Support adherence to non-pharmacological treatments (for example, CBT) by discussing the following:

- the balance of risks and benefits (for example, how the treatment can have a positive effect on ADHD symptoms)

- the potential barriers to continuing treatment, including:
  - not being sure if it is making any difference
  - the time and organisational skills needed to commit to the treatment
  - the time that might be needed outside of the sessions (for example, to complete homework)
- strategies to deal with any identified barriers (for example, scheduling sessions to minimise inconvenience or seeking courses with child care provision)
- a possible effect of treatment being increased self-awareness, and the challenging impact this may have on the person and the people around them
- the importance of long-term adherence beyond the duration of any initial programme (for example, by attending follow-up/refresher support to sustain learned strategies). [2018]

To find out why the committee made the 2018 recommendations on adherence to treatment and how they might affect practice, see the rationale and impact section on adherence to treatment

The committee's full discussion is in evidence review G: adherence.

1.10 Review of medication and discontinuation

1.10.1 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. [2018]

1.10.2 Encourage people with ADHD to discuss any preferences to stop or change medication and to be involved in any decisions about stopping treatments. [2018]

1.10.3 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. [2018]

To find out why the committee made the 2018 recommendations on review of medication and discontinuation, and how they might affect practice, see the rationale and impact section on review of medication and discontinuation

The committee's full discussion is in evidence review I: withdrawal and drug holidays

Terms used in this guideline

Domains

Domains refer to areas of function, for example, interpersonal relationships, education and occupational attainment, and risk awareness.

Environmental modifications

Environmental modifications are changes that are made to the physical environment in order to minimise the impact of a person's ADHD on their day-to-day life. Appropriate environmental modifications will be specific to the circumstances of each person with ADHD and should be determined from an assessment of their needs. Examples may include changes to seating

arrangements, changes to lighting and noise, reducing distractions (for example, using headphones), optimising work or education to have shorter periods of focus with movement breaks (including the use of 'I need a break' cards), reinforcing verbal requests with written instructions and, for children, the appropriate use of teaching assistants at school.

Reasonable adjustments

Reasonable adjustments is a term that refers to the legal obligations of employers and higher education providers to make sure that workers or students with disabilities, or physical or mental health conditions are not substantially disadvantaged when doing their jobs or during their education.

Settings

Settings refer to the physical location, for example, home, nursery, friends or family homes.

Shared treatment plan

A written treatment plan shared between healthcare professional and the person with ADHD; for children, this may be shared more widely (for example, with families, schools or social care, if relevant and agreed).

Recommendations for research

The guideline committee has made the following recommendations for research.

1 Children and young people aged 5 to 18 years – brief, group-based, ADHD-focused, parent-training intervention

What is the clinical and cost effectiveness, and optimum length, of a brief parent-training intervention for parents and carers of children and young people with attention deficit hyperactivity disorder (ADHD) aged 5 to 18 years?

Why this is important

There was no clear evidence identified about the benefit of formal parent-training programmes for ADHD symptoms in children and young people aged 5 to 18 years. The cost effectiveness of these programmes was unclear, partly because of uncertainty over the number of sessions and the length of programme needed to achieve clinical benefit. This research recommendation would help address these uncertainties.

2 Medication choice in people with coexisting conditions

What is the clinical and cost effectiveness of ADHD medications in people with ADHD and tic disorders, a history of psychosis or mania, or personality disorder?

Why is this important

No evidence was identified to justify different medication choices in people with ADHD and tic disorders, a history of psychosis or mania, or emotional dysregulation. These groups are often excluded from trials. There are reasons (for example, mechanism of action of medication options, previous reports of adverse effects) to suspect that these groups may respond differently to different drugs, but a lack of trials to confirm this. Primarily there are some concerns that stimulant medication may worsen the symptoms of any of these coexisting conditions and therefore non-stimulant medication should be preferred.

3 Medication choice in people with no previous

medication for ADHD

What is the clinical and cost effectiveness of ADHD medications in people with ADHD with no previous medication for the condition?

Why is this important

Most of the evidence to support the recommendations for medication choices for people with ADHD comes from studies in people who have previously received medication. Therefore, these studies often include a population not representative of the people with newly diagnosed ADHD. There may be differing levels of efficacy of the various treatment options in people who have received no previous medication for ADHD.

4 Prescribing beyond monotherapy

What is the clinical and cost effectiveness of various ADHD prescribing strategies when monotherapy has failed?

Why is this important

This guideline makes recommendations for the medication choices for people with ADHD up to the point at which common monotherapies are exhausted. There is very little evidence to guide healthcare professionals beyond this point, particularly with regard to whether there is a benefit of prescribing stimulant and non-stimulant medication together.

Rationale and impact

Recognition

Recommendations 1.2.1 and 1.2.2

Why the committee made the recommendations

Evidence showed that the prevalence of attention deficit hyperactivity disorder (ADHD) is higher in some groups than in the general population. The committee agreed that a recommendation was needed to raise awareness of these groups among non-specialists to help them avoid missing a diagnosis of ADHD. Although no evidence was identified for a higher prevalence in people known to the Youth Justice System or Adult Criminal Justice System and people with acquired brain injury, the committee agreed that in their experience, these groups often receive a late diagnosis of ADHD or a misdiagnosis. No evidence was found on the increased risk of missing a diagnosis of ADHD in girls. But the committee discussed the different symptoms often found in this group, and agreed to make a recommendation to raise awareness.

How the recommendations might affect practice

The recommendations are to raise awareness among non-specialists of a possible diagnosis of ADHD in groups of people that they are already seeing. The recommendations may increase the rates of diagnosis and referral for ADHD, but these should be accurate and therefore appropriate.

The committee's full discussion is in evidence review A: risk factors

Return to the recommendations.

Information and support

Recommendations 1.4.1 to 1.4.13

Why the committee made the recommendations

Good information and support tailored to needs and circumstances are important for all people using NHS services, but some aspects are particularly important for people with ADHD. Evidence identified the need for information tailored to family circumstances, particularly when a child has

ADHD, and to highlight the importance of daily structure for adults with ADHD.

Evidence showed the importance of discussing key areas following a diagnosis of ADHD, particularly the positive impacts of receiving a diagnosis, such as improving understanding of symptoms. The committee used the evidence and their experience to agree other areas for discussion, including driving and possible issues with education and employment. They noted that schools, colleges and universities may sometimes question a diagnosis of ADHD and not understand how symptoms can affect daily functioning. In addition, healthcare professionals treating a coexisting condition may not be aware of how ADHD symptoms may affect behaviour (organisation and time management) and adherence to treatment.

There was evidence that parents of children with ADHD often feel a sense of isolation when attending parent-training programmes. The committee agreed that healthcare professionals should explain to parents that an invitation to attend a parent-training programme does not imply bad parenting. The committee discussed the difficulties in families where parents may also have ADHD and made a recommendation to remind healthcare professionals that these families may need extra support.

In the committee's experience, people who are assessed for ADHD but not given a formal diagnosis are a neglected group who would benefit from advice on where to get support for troublesome symptoms.

How the recommendations might affect practice

The recommendations should reflect good current practice. Healthcare professionals may spend more time discussing the potential impacts of a diagnosis, but this is likely to mean improved quality of life for the person with ADHD and better management of their symptoms.

The committee's full discussion is in evidence review B: information and support

Return to the recommendations.

Managing ADHD – planning treatment

Recommendations 1.5.1 to 1.5.6

Why the committee made the recommendations

Evidence showed the importance of joint decision-making when planning treatment; particularly

important was the discussion before starting treatment. This was also the committee's experience and they recommended that these discussions should be repeated throughout care.

The committee recommended key areas highlighted in the evidence that should be discussed with the person and their family before starting treatment. This included the benefits and harms of medications and consideration of these alongside other treatment choices.

In the committee's experience, other mental health and neurodevelopmental conditions may affect treatment choices and how successful these are. The committee emphasised the importance of a holistic approach to managing ADHD.

Evidence indicated that parents and carers of children with ADHD found it hard to make decisions about treatment and wanted time to think about the effect of any environmental modifications. The committee recognised that systematic use of environmental modifications is important for limiting the impact of ADHD symptoms. The committee agreed that the effect of environmental modifications should be reviewed and taken into account when considering other treatment options. The committee also recognised the importance of having the opportunity to regularly revisit and discuss earlier decisions and so recommended that healthcare professionals remind people that they can do this if they wish.

The committee acknowledged that it is important to include children and young people in any treatment discussions and recommended they should be encouraged to say how they feel. This should include their views on the aims and effect of any treatments. Healthcare professionals should be aware that these will change as the child matures and will need revisiting. The committee also recognised that it was important that young people and adults should have as much support as they need and should be asked if they would like someone to join discussions about treatment. Decisions around treatment can have many influences, including teachers, peers and the media.

How the recommendations might affect practice

The recommendations should reflect good current practice. Where practice might change, it is predominantly the approach to care that will be affected.

The committee's full discussion is in evidence review H: managing treatment

Return to the recommendations.

Managing ADHD – children under 5 years

Recommendations 1.5.7 to 1.5.9

Why the committee made the recommendations

In a very young child, the impact of ADHD symptoms on behaviour is assessed across different settings. Evidence showed a clinically important benefit on some measures of symptoms of an ADHD-focused group parent-training programme for children under 5 years. There was limited evidence on the efficacy of medication, and because of concerns and lack of evidence about the long-term effects of medication in very young children, particularly in terms of growth and development, the committee agreed to recommend a group-based parent-training programme as first-line treatment. However, the committee agreed that untreated ADHD can have far-reaching, long-lasting negative impacts on a child's life and some children may still have a significant impairment after the programme and environmental modifications. For these exceptional circumstances, the committee drew on their experience to recommend that healthcare professionals should seek further specialist advice, ideally from a tertiary service.

How the recommendations might affect practice

The recommendations reflect good current practice and do not indicate a change in practice from the 2008 recommendations.

The committee's full discussion is in evidence review E: non-pharmacological efficacy and adverse events and evidence review F: combination treatment.

Return to the recommendations.

Managing ADHD – children aged 5 years and over and young people

Recommendations 1.5.10 to 1.5.14

Why the committee made the recommendations

The committee discussed evidence on non-pharmacological interventions and evidence on medication for managing ADHD in children and young people.

Evidence indicated that some parents and carers of children aged 5 years and over and young people can benefit from group support. After discussion of current good practice and consideration of the balance of benefits and costs, the committee decided to recommend offering additional support that could be group-based ADHD-focused support and as few as 1 or 2 sessions for parents and carers of all children and young people with ADHD.

Evidence showed the benefit of medication in this age group in improving ADHD symptoms and this was in line with the committee's experience. The committee acknowledged there are concerns about recommending medication for ADHD and particularly the uncertainty over the long-term adverse effects of medication in growing children. However, the committee agreed that untreated ADHD can have far-reaching, long-lasting negative impacts on a child or young person's life (for example, affecting academic performance, interpersonal relationships, work, personal issues, substance use and driving). Medication offers a better balance of benefits and costs than non-pharmacological interventions, so the committee agreed to recommend it when ADHD symptoms are persistent and still causing a significant impairment in at least one domain of everyday life despite the implementation and review of environmental modifications. The committee was aware of the implications of medication in this young population and made several recommendations to ensure its responsible use. These include recommendations on:

- checking that environmental modifications have been done before starting medication
- carrying out a thorough baseline assessment
- ensuring that medication is initiated only by healthcare professionals with training and expertise in diagnosing and managing ADHD
- early review of medication to optimise its use (including checking for adverse effects)
- regular review to ensure that medication is continued only for as long as it is needed
- offering ADHD-focused support for all children and young people with ADHD.

These recommendations are in the sections on planning treatment, baseline assessment, care arrangements and review.

Combining a full parent-training programme with medication did not offer a good balance of benefits and costs for all children and young people in this age group, so the committee decided not to make a recommendation on this.

Some evidence showed a benefit of cognitive behavioural therapy (CBT) in young people with

ADHD. The committee agreed that this should be considered when a young person has benefited from medication but still has symptoms that are causing a significant impairment. They used their experience to recommend areas that a programme should address.

How the recommendations might affect practice

The 2018 recommendations ensure that parents and carers of all children and young people with ADHD receive ADHD-focused information and support. Children and young people aged 5 years and over are offered medication by a healthcare professional with training and expertise in diagnosing and managing ADHD only if ADHD symptoms are still causing a significant impairment in at least one domain of their everyday life despite implementation of environmental modifications. This choice follows discussion with the child or young person and their parents or carers and a full baseline assessment. The recommendations make it clear that where a child has symptoms of oppositional defiant disorder or conduct disorder, parents and carers should be offered a parent-training programme in line with the recommendations in NICE's guideline on antisocial behaviour and conduct disorders.

The current categorisation of ADHD focuses on the presence of significant impairment in the different domains of everyday life and across settings, rather than using the previously used terms of mild, moderate and severe ADHD. There is considerable overlap with the guideline population described in the 2008 recommendation. The 2018 recommendations reflect current practice and are unlikely to result in a substantial increase in prescribing and resource use.

The committee's full discussion is in evidence review E: non-pharmacological efficacy and adverse events and evidence review F: combination treatment.

Return to the recommendations.

Managing ADHD – adults

Recommendations 1.5.15 to 1.5.18

Why the committee made the recommendations

Evidence directly comparing medication with non-pharmacological treatment supported the use of medication for first-line treatment of ADHD in adults. The committee acknowledged there are concerns about recommending medication for ADHD and in particular the uncertainty over the long-term benefits and the adverse effects of medication. However, the committee agreed that untreated ADHD can have a negative impact on a person's life, with lower educational attainment,

and higher criminality. So they agreed to recommend medication when ADHD symptoms are still causing a significant impairment in at least one domain of everyday life despite environmental modifications.

Evidence indicated a benefit of non-pharmacological treatment, although this was less than for medication. There was also evidence of the importance of offering a choice of treatments, so the committee agreed that non-pharmacological treatment should be considered for adults who have made an informed choice not to have medication, have difficulty adhering to medication or have found they cannot tolerate medication or it is ineffective. Based on their experience, the committee recommended that the treatment may include elements of or a full programme of CBT and should include a structured supportive psychological intervention focused on ADHD, with regular follow-up and information.

Combining medication with non-pharmacological treatment did not offer the best balance of benefits and costs, so the committee decided that combination treatment should only be considered when medication has offered some benefit but symptoms continue to cause a significant impairment.

How the recommendations might affect practice

The recommendations reflect good current practice.

The committee's full discussion is in evidence review E: non-pharmacological efficacy and adverse events and evidence review F: combination treatment.

Return to the recommendations.

Medication – care arrangements

Recommendations 1.7.2 and 1.7.29

Why the committee made the recommendations

The committee discussed the roles of different healthcare professionals in initiating, monitoring and reviewing medication. They agreed, based on their experience, that medication should only be initiated and titrated by a healthcare professional with training and expertise in diagnosing and managing ADHD. But after dose stabilisation, prescribing and monitoring should be carried out under Shared Care Protocol arrangements with primary care. The exact balance between primary and secondary care will vary depending on the circumstances of the person with ADHD and the

available primary and secondary care services.

How the recommendations might affect practice

The recommendations reflect good current practice.

The committee's full discussion is in evidence review D: pharmacological safety.

Return to recommendations 1.7.2 and 1.7.29.

Medication – baseline assessment

Recommendations 1.7.4 to 1.7.6

Why the committee made the recommendations

The committee noted that it is important to carry out a baseline assessment before starting ADHD medication. Evidence was limited on what should be assessed clinically, but the committee used their experience and expert advice to recommend a general review of health and social circumstances, and a review of physical health. The committee used their experience to outline criteria for referral for a cardiologist opinion.

How the recommendations might affect practice

The recommendations reflect good current practice.

The committee's full discussion is in evidence review D: pharmacological safety.

Return to the recommendations.

Medication – choice

Recommendations 1.7.7 to 1.7.19

Why the committee made the recommendations

Evidence showed a clinically important benefit for monotherapy with the stimulants methylphenidate and lisdexamfetamine compared with placebo or other drugs. This was supported by the committee's experience that stimulants work more quickly than non-stimulant drugs (for

example, atomoxetine and guanfacine), which can take longer to have an effect. The committee used the evidence, their experience and the drug licensing to recommend methylphenidate as a treatment for children aged 5 years and over and young people, and lisdexamfetamine or methylphenidate as a treatment for adults.

The committee acknowledged the rising cost of dexamfetamine since 2008 and agreed that it should only be considered when lisdexamfetamine is effective but the longer effect profile is not well tolerated.

The committee agreed that if methylphenidate has not been effective for children aged over 5 years and young people, then lisdexamfetamine could be considered.

Atomoxetine and guanfacine were the non-stimulant drugs with the most convincing evidence. The committee noted that atomoxetine is more widely used and that there was stronger evidence for a benefit of atomoxetine compared with placebo than guanfacine compared with placebo. One trial directly comparing atomoxetine with guanfacine generally showed a clinically important benefit of guanfacine. Taking into account the licensing status of these drugs and the familiarity of most healthcare professionals with them, the committee recommended that in children aged 5 years and over and young people, either drug could be offered after intolerance or a lack of response to stimulants (methylphenidate and lisdexamfetamine). Because guanfacine is not licensed for use in adults and there was no evidence specifically supporting its use in this population, the committee recommended atomoxetine for adults with intolerance or a lack of response to stimulants.

Further medication choices

There was not enough evidence to justify specific recommendations for other drugs so the committee recommended that after at least one stimulant and non-stimulant had been tried, healthcare professionals should obtain a second opinion or refer to a tertiary service.

Medication choice for people with coexisting conditions

There was very little evidence on medication choice for people with ADHD and coexisting conditions and so the committee made research recommendations to address this gap. The committee agreed that neither the available evidence nor their experience justified a different choice of ADHD medication for people with ADHD and coexisting conditions, but there should be careful consideration of drug interactions and baseline assessments, slower titration, more careful monitoring and recording of adverse effects, and regular weekly telephone contact. However, the committee recommended that ADHD medication should be stopped in people experiencing a psychotic episode because they agreed that ADHD medication could worsen psychotic symptoms.

How the recommendations might affect practice

The recommendations reflect good current practice.

The committee's full discussion is in evidence review C: pharmacological efficacy and sequencing.

Return to the recommendations.

Medication – considerations when prescribing and dose titration

Recommendations 1.7.20 to 1.7.28

Why the committee made the recommendations

The committee discussed that the careful initiation of ADHD medication is key to a successful treatment plan. This includes starting and titrating medication according to the BNF or the BNF for Children and the person's tolerance until the dose is optimised (reduced symptoms, positive behaviour change, improvements in education, employment and relationships, and tolerable adverse effects). The committee agreed that healthcare professionals should be aware of the pharmacokinetic profiles of ADHD medication because preparations can vary in their profiles. This is important when considering which medication or formulation to prescribe.

How the recommendations might affect practice

The recommendations reflect good current practice.

The committee's full discussion is in evidence review D: pharmacological safety.

Return to the recommendations.

Medication – monitoring effectiveness and adverse effects

Recommendations 1.8.1 to 1.8.19

Why the committee made the recommendations

Evidence showed clinically important differences in sleep disturbance, decreased appetite and weight changes in people taking ADHD medication. In the committee's experience, these are some of the most troublesome adverse effects. Because of concerns about decreased appetite and weight change, the committee advised that weight should be checked every 3 months in children aged 10 years and under, and at least every 6 months in older children and young people; BMI should be monitored in adults. The committee recommended that changes in sleep pattern should be recorded and medication adjusted accordingly.

There was some evidence that people on atomoxetine may experience sexual dysfunction, in particular erectile dysfunction, and the committee agreed that this should be monitored.

How the recommendations might affect practice

The committee noted that the recommendations will reinforce current best practice.

The committee's full discussion is in evidence review D: pharmacological safety.

Return to the recommendations.

Adherence to treatment

Recommendations 1.9.1 to 1.9.6

Why the committee made the recommendations

The evidence identified several factors that affect adherence to treatment and these were supported by the committee's own experience.

The evidence highlighted time management and forgetfulness as particular issues, so the committee made a recommendation that healthcare professionals should be aware that people with ADHD may have problems remembering to order and collect medication. The committee provided examples of how healthcare professionals might encourage people to follow strategies that support adherence (for example, following clear instructions and using visual reminders).

A common worry about treatment is that it might change personality and the committee agreed that this could affect adherence to both medication and non-pharmacological treatments. Misconceptions about the effects of treatment and worries about adverse effects were common

themes identified, and the committee agreed that it was important that healthcare professionals address these.

Evidence identified that the attitudes of people close to a person with ADHD can influence adherence. The committee agreed that it was important that although children and young people should take responsibility for their own health (including taking medication), parents and carers should oversee them.

The committee discussed that adherence to non-pharmacological treatment was an important issue that was rarely addressed. They used their own experience to recommend that healthcare professionals discuss the commitment, time and organisational skills needed for successful adherence to non-pharmacological treatment.

How the recommendations might affect practice

The committee noted that the recommendations will reinforce current best practice.

The committee's full discussion is in evidence review G: adherence.

Return to the recommendations.

Review of medication and discontinuation

Recommendations 1.10.1 to 1.10.3

Why the committee made the recommendations

Evidence identified concerns around lack of follow-up and the opportunity to review medication choices and this was supported by the committee's experience. They agreed that a yearly review with an ADHD specialist should be a comprehensive assessment that revisits the areas discussed when starting treatment but also the effect of current treatment. This would ensure that decisions around continuing or stopping treatment are fully informed.

Limited evidence showed possible worsening of ADHD symptoms on stopping medication but supported a reduction in adverse effects after withdrawal. The committee used their experience to make a recommendation on emphasising the importance of assessing the overall benefits and harms of medication as part of a review. The committee agreed that it was important to highlight the elements of a medication review that are important for someone with ADHD; they based the elements on evidence on adverse effects of medication, management of treatment, adherence and

information and support.

How the recommendations might affect practice

The committee noted that the recommendations will reinforce current best practice.

The committee's full discussion is in evidence review I: withdrawal and drug holidays

Return to the recommendations.

Putting this guideline into practice

NICE has produced tools and resources to help you put this guideline into practice.

Putting recommendations into practice can take time. How long may vary from guideline to guideline, and depends on how much change in practice or services is needed. Implementing change is most effective when aligned with local priorities.

Changes recommended for clinical practice that can be done quickly – like changes in prescribing practice – should be shared quickly. This is because healthcare professionals should use guidelines to guide their work – as is required by professional regulating bodies such as the General Medical and Nursing and Midwifery Councils.

Changes should be implemented as soon as possible, unless there is a good reason for not doing so (for example, if it would be better value for money if a package of recommendations were all implemented at once).

Different organisations may need different approaches to implementation, depending on their size and function. Sometimes individual practitioners may be able to respond to recommendations to improve their practice more quickly than large organisations.

Here are some pointers to help organisations put NICE guidelines into practice:

1. **Raise awareness** through routine communication channels, such as email or newsletters, regular meetings, internal staff briefings and other communications with all relevant partner organisations. Identify things staff can include in their own practice straight away.

2. **Identify a lead** with an interest in the topic to champion the guideline and motivate others to support its use and make service changes, and to find out any significant issues locally.

3. **Carry out a baseline assessment** against the recommendations to find out whether there are gaps in current service provision.

4. **Think about what data you need to measure improvement** and plan how you will collect it. You may want to work with other health and social care organisations and specialist groups to compare current practice with the recommendations. This may also help identify local issues that will slow or prevent implementation.

5. **Develop an action plan**, with the steps needed to put the guideline into practice, and make sure it is ready as soon as possible. Big, complex changes may take longer to implement, but some may be quick and easy to do. An action plan will help in both cases.

6. **For very big changes** include milestones and a business case, which will set out additional costs, savings and possible areas for disinvestment. A small project group could develop the action plan. The group might include the guideline champion, a senior organisational sponsor, staff involved in the associated services, finance and information professionals.

7. **Implement the action plan** with oversight from the lead and the project group. Big projects may also need project management support.

8. **Review and monitor** how well the guideline is being implemented through the project group. Share progress with those involved in making improvements, as well as relevant boards and local partners.

NICE provides a comprehensive programme of support and resources to maximise uptake and use of evidence and guidance. See our into practice pages for more information.

Also see Leng G, Moore V, Abraham S, editors (2014) Achieving high quality care – practical experience from NICE. Chichester: Wiley.

Context

Attention deficit hyperactivity disorder (ADHD) is a heterogeneous disorder characterised by the core symptoms of hyperactivity, impulsivity and inattention, which are judged excessive for the person's age or level of overall development. The diagnosis is made on the basis of observed and reported behavioural symptoms. Two main diagnostic systems 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). Both systems require that symptoms are present in several settings such as school/work, home life and leisure activities. Symptoms should be evident in early life, if only in retrospect; for ICD-10, by age 7 years and for DSM-5, by age 12 years. ADHD may persist into adult life.

Prevalence rates for ICD-10 (identifying hyperkinetic disorder) are 1 to 2% in childhood. Under the previous, less stringent DSM-IV criteria, childhood prevalence rates were 3 to 9% and these may increase under the new DSM-5 criteria.

The causes of ADHD are not fully understood but a number of risk factors are associated with the condition. Genetic factors can have an influence, with family members frequently affected. The diagnosis of ADHD in older family members such as parents may have previously been missed and should be considered.

Both the ICD-10 and DSM-5 require the presence of functional impairment due to symptoms of ADHD, with the symptoms adversely affecting psychological, social and/or educational/occupational functioning. The impact of ADHD may vary considerably in its severity, which is best judged by considering the level of impairment, pervasiveness, and familial and social context. For some people, symptoms may be limited to certain settings and cause minimal impairment in a limited number of domains (for example, ability to complete schoolwork, work tasks, avoiding common hazards and forming positive interpersonal relationships). In other people, multiple symptom areas (hyperactivity, inattention and impulsivity) are present in multiple settings, and this causes significant impairment across multiple domains. Symptoms and impact can also change over time. For some people, symptoms and impairment may be reduced through environmental modifications, such as a modified school curriculum or choice of employment.

Symptoms of ADHD can overlap with those of other related disorders. Therefore, care in differential diagnosis is needed. ADHD may also coexist with other disorders. Common coexisting conditions in children include disorders of mood, conduct, learning, motor control, language and communication, and anxiety disorders; in adults, they include personality disorders, bipolar

disorder, obsessive-compulsive disorder and substance misuse. Where there are coexisting conditions, it is important to try to differentiate the level of impairment due to ADHD, because this will guide the treatment plan. In addition, ADHD is under-recognised in some populations, which can mean that a lack of appropriate diagnosis and treatment adversely affects people's quality of life.

The aim of this guideline is to raise awareness of populations at risk and to provide clear advice on managing ADHD.

The guideline covers children under 5 years, children and young people aged 5 to 17 years, and adults aged 18 years or over who are at risk of ADHD or have a diagnosis of ADHD. The guideline covers all primary, secondary and community care settings in which NHS-funded care is provided for people with ADHD.

Finding more information and committee details

You can see everything NICE says on this topic in the NICE Pathway on attention deficit hyperactivity disorder.

To find NICE guidance on related topics, including guidance in development, see our topic page for mental health and behavioural conditions.

For full details of the evidence and the guideline committee's discussions, see the evidence reviews. You can also find information about how the guideline was developed, including details of the committee.

NICE has produced tools and resources to help you put this guideline into practice. For general help and advice on putting NICE guidelines into practice, see resources to help you put guidance into practice

Update information

September 2019: Recommendation 1.7.4 was amended to indicate that an electrocardiogram is not needed before starting stimulants, atomoxetine or guanfacine if cardiovascular history and examination are normal and the person is not on medicine that poses an increased cardiovascular risk. The corresponding rationale section was also updated to reflect this change. This recommendation is marked **[2018, amended 2019]**.

April 2018: Following publication, some amendments were made to recommendations 1.5.10, 1.5.12, 1.5.13, 1.7.4, 1.7.7 and 1.8.14 and the related rationale and impact sections to clarify their meaning. Information about the marketing authorisation for methylphenidate was also added to recommendation 1.7.11.

March 2018: This guideline updates and replaces NICE guideline CG72 (published September 2008).

New recommendations have been added on recognition, information and support, managing attention deficit hyperactivity disorder (ADHD; including non-pharmacological treatment), medication, follow-up and monitoring, adherence, and review of medication and discontinuation.

These are marked as **[2018]**.

We also made some changes without an evidence review:

- We have clarified the names of services.
- We have added cross-references to NICE guidelines on transition from children's to adults' services and antisocial behaviour and conduct disorders in children and young people.
- We have clarified that any support for parents and carers before a formal diagnosis should be group-based and ADHD focused.
- We have made changes to reflect the most recent version of DSM.

These are marked **[2008, amended 2018]**.

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