

[REDACTED]

**Deadline 1 Submission**

**East Pye Solar – EN0110014**

**Interested Party number:** [REDACTED]

**Identified by Applicant in [PDA-012] as** [REDACTED]

**Response to the Applicant's thematic responses [PDA-012] and concerns about my autistic children**

I maintain my objection to the proposed development. This statement identifies concerns in [REDACTED] which I do not consider adequately answered in PDA-012 and explains the particular implications for my autistic children. It supplements my original representation without replacing or withdrawing any part of it.

[REDACTED]

[REDACTED]

The combination of nearby construction, traffic and operational equipment requires an assessment of the effects on my home and family, rather than general assurances about the Scheme.

**Effects on my autistic children**

My children [REDACTED]. The outside space at home is important for their self-regulation. It provides somewhere familiar where they can move, recover from sensory demands and spend time away from the pressures they experience elsewhere. When choosing a property when we moved back to Norfolk in 2021, the availability of this calm outside space was a key factor in our decision making. If noise and disturbance make that space difficult to use, the effect would extend beyond loss of ordinary enjoyment of the garden.

I am concerned that construction would introduce additional sensory stress while also taking away access to the space they use to manage it. With Site [REDACTED] construction expected to last at least two years and work taking place six days a week, this could affect a substantial period of their childhood, including weekends and school holidays. The longer summer holidays are of particular concern, when they will have approximately two months at home, and will be subjected to these impacts almost every day. This is a time of year when they would typically spend a considerable amount of time outdoors each day.

My concerns include distress from machinery and sudden noises, anxiety about when noise will restart, difficulty recovering from sensory overload, disruption to routines and sleep, and avoidance of the garden. Dust and vibration could add to these difficulties. I

am not suggesting that every possible effect will occur, but these are matters that need proper consideration before the Applicant concludes that the effects will be acceptable.

Research establishes that reduced sound tolerance is common in autistic people. A 2021 meta-analysis estimated current hyperacusis in approximately 41% of autistic participants using interview and questionnaire measures.[1] NICE guidance also recognises the importance of individual sensory sensitivities, noise, changes to routines and predictability when supporting autistic children.[2]

I recognise that this evidence does not establish a single noise limit or separation distance suitable for every autistic child. That makes an assessment of [REDACTED] particular circumstances more important. Compliance with a general residential threshold does not, by itself, demonstrate that they will be able to tolerate the noise or continue using their garden.

The Applicant acknowledges neurodivergence in its Equality Impact Assessment [APP-214], including paragraph 7.3.22. However, Table 8.2, printed pages 52–53, concludes that construction noise and vibration effects will be neutral after mitigation. HUM-003 in PDA-012, printed pages 908–909, similarly relies on management plans and community liaison.

I ask the Applicant to explain how that conclusion has been demonstrated for children with sensory sensitivities living immediately beside Site [REDACTED]. Advance notice may help with predictability, but it does not reduce the noise itself. Nor would keeping the children indoors preserve the function of their outdoor space.

I request an assessment covering both the house and the areas of the garden used by my children, with suitable confidential arrangements for discussing their needs. It should consider the pattern, character and duration of noise, simultaneous noise and vibration, and the availability of reliable quiet periods.

### **Operational noise and tracker motors**

My concerns will not end when construction finishes. They also concern tracker motors, inverters, transformer hum and other substation equipment during the proposed 60 year operational period.

Chapter 12 [APP-048], paragraphs 12.8.65–12.8.66, uses a tracker example at Site 8A with approximately 90 metres between panels and the assessed receptor. I ask the Applicant to explain why this example adequately represents my home and garden, where the proposed panels are substantially closer.

The assessment should identify actual motor distances and examine the sound during movement and startup, how often movement occurs, and the combined effect of

nearby motors. A low average figure alone does not explain whether individual events would be audible or intrusive in the space my children use.

I acknowledge that the Applicant has undertaken a low frequency noise assessment. I nevertheless ask it to identify the results applicable to my property and explain how they address my [REDACTED], quiet night and early morning conditions, and use of the garden. Sustained transformer sound and intermittent switching events should be considered according to their different characteristics.

### **Other concerns requiring a specific response**

The following matters from [REDACTED] also remain unresolved or inadequately explained:

- **Category 3 status:** CON-037 describes a general assessment process but does not explain the individual decision concerning my property. I request a clear answer and the reasons for it.
- **Safe access to my home:** [REDACTED]. I need an explanation of how we will safely enter and leave during deliveries, abnormal loads and traffic management.
- **Construction traffic:** referring back to the Transport Assessment does not answer my concern that the forecasts appear low or explain the combined movements associated with Site 5 and other parts of the Scheme.
- **Historic culvert:** WAT-020 addresses runoff but does not resolve the structural risk from heavy vehicles crossing the old brick culvert beneath the B1527. An answer concerning use of Boylandhall Lane does not establish that the structure beneath the main road is protected.
- **Private water supply:** [REDACTED]  
[REDACTED] I request confirmation that the actual supply has now been identified and assessed, with appropriate protection and monitoring.
- **Noise baseline:** I ask why monitoring near [REDACTED] is considered representative of the quieter environment at my home and garden.
- **Construction noise and vibration:** NOI-002 does not provide a clear, separate response to my concerns. If the Applicant intends another entry to answer them, it should identify that response and explain its application to my property.
- **Agricultural land:** the general response does not explain the consideration of lower quality alternatives or resolve my concern about reliance on possible grazing when mechanical management and herbicides are also contemplated.

- **Tourism:** my concern is that loss of rural character could discourage visitors and affect existing local businesses. Discussion of accommodation for construction workers does not answer that point.

### **Accuracy of the thematic summaries**

Some entries associate [REDACTED] with arguments I did not make. In particular, C&D-020 attributes concern that maintenance is unlikely to occur. My representation did not make that allegation.

Other grouped entries include matters absent from my representation, including the Environment Act argument in ECO-003, particular biodiversity net gain arguments in ECO-025, pollution through Wacton tributaries in WAT-017, property values in SOC-001 and school buses using The Street in TRA-027.

These matters may have been raised by other respondents. I ask the Applicant to distinguish their statements from mine and ensure that my actual concerns receive an identifiable response.

### **What I ask the Examining Authority to secure**

I ask for a clear response to the outstanding matters above and a specific assessment of the combined effects on my family. This should inform enforceable measures protecting our home and outdoor space, including appropriate equipment locations, noise controls, reliable respite, monitoring and prompt corrective action.

The assessment should demonstrate how my children's needs will be protected throughout construction and operation. It should not assume that general compliance, advance warning or a complaints procedure will be sufficient.

### **References – full attached separately**

[1] Williams, Z.J., Suzman, E. and Woynaroski, T.G. (2021). *Prevalence of Decreased Sound Tolerance (Hyperacusis) in Individuals With Autism Spectrum Disorder: A Meta-Analysis*. Ear and Hearing, 42(5), 1137–1150.

[REDACTED]

[2] NICE. *Autism spectrum disorder in under 19s: support and management*, CG170, recommendations 1.1.9 and 1.4.1.

[REDACTED]

**AI declaration:** ChatGPT was used to assist with reviewing the Applicant's documents, locating research and drafting this statement. I have checked the final text and references and take responsibility for its accuracy. The views and personal circumstances described are my own.



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META-ANALYSIS



# Prevalence of Decreased Sound Tolerance (Hyperacusis) in Individuals With Autism Spectrum Disorder: A Meta-Analysis

Zachary J. Williams<sup>1-4</sup>, Evan Suzman<sup>5</sup>, Tiffany G. Woynaroski<sup>6</sup>[Authors and Affiliations](#) >*Ear & Hearing* 42(5):p 1137-1150, September/October 2021. | DOI: 10.1097/AUD.0000000000001005

SDC

[Abstract](#)[In Brief](#)

## Objectives:

Hyperacusis, defined as decreased tolerance to sound at levels that would not trouble most individuals, is frequently observed in individuals with autism spectrum disorder (ASD). Despite the functional impairment attributable to hyperacusis, little is known about its prevalence or natural history in the ASD population. The objective of this study was to conduct a systematic review and meta analysis estimating the current and lifetime prevalence of hyperacusis in children, adolescents, and adults with ASD. By precisely estimating the burden of hyperacusis in the ASD population, the present study aims to enhance recognition of this particular symptom of ASD and highlight the need for additional research into the causes, prevention, and treatment of hyperacusis in persons on the spectrum.

## Design:

We searched PubMed and ProQuest to identify peer reviewed articles published in English after January 1993. We additionally performed targeted searches of Google Scholar and the gray literature, including studies published through May 2020. Eligible studies included at least 20 individuals with diagnosed ASD of any age and reported data from which the proportion of ASD individuals with current and/or lifetime hyperacusis could be derived. To account for multiple prevalence estimates derived from the same samples, we utilized three level

Bayesian random effects meta analyses to estimate the current and lifetime prevalence of hyperacusis. Bayesian meta regression was used to assess potential moderators of current hyperacusis prevalence. To reduce heterogeneity due to varying definitions of hyperacusis, we performed a sensitivity analysis on the subset of studies that ascertained hyperacusis status using the Autism Diagnostic Interview Revised (ADI R), a structured parent interview.

### Results:

A total of 7783 nonduplicate articles were screened, of which 67 were included in the review and synthesis. Hyperacusis status was ascertained in multiple ways across studies, with 60 articles employing interviews or questionnaires and seven using behavioral observations or objective measures. The mean (range) age of samples in the included studies was 7.88 years (1.00 to 34.89 years). The meta analysis of interview/questionnaire measures ( $k_{(3)} = 103$ ,  $n_{\text{ASD}} = 13,093$ ) estimated the current and lifetime prevalence of hyperacusis in ASD to be 41.42% (95% CrI, 37.23 to 45.84%) and 60.58% (50.37 to 69.76%), respectively. A sensitivity analysis restricted to prevalence estimates derived from the ADI R ( $k_{(3)} = 25$ ,  $n_{\text{ASD}} = 5028$ ) produced similar values. The estimate of current hyperacusis prevalence using objective/observational measures ( $k_{(3)} = 8$ ,  $n_{\text{ASD}} = 488$ ) was 27.30% (14.92 to 46.31%). Heterogeneity in the full sample of interview/questionnaire measures was substantial but not significantly explained by any tested moderator. However, prevalence increased sharply with increasing age in studies using the ADI-R ( $BF_{10} = 93.10$ ,  $R^2_{\text{Het}} = 0.692$ ).

### Conclusions:

In this meta-analysis, we found a high prevalence of current and lifetime hyperacusis in individuals with ASD, with a majority of individuals on the autism spectrum experiencing hyperacusis at some point in their lives. The high prevalence of hyperacusis in individuals with ASD across the lifespan highlights the need for further research on sound tolerance in this population and the development of services and/or interventions to reduce the burden of this common symptom.

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# Autism spectrum disorder in under 19s: support and management

Clinical guideline

Published: 28 August 2013

Last updated: 14 June 2021

[www.nice.org.uk/guidance/cg170](https://www.nice.org.uk/guidance/cg170)

## 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.

All problems (adverse events) related to a medicine or medical device used for treatment or in a procedure should be reported to the Medicines and Healthcare products Regulatory Agency using the [Yellow Card Scheme](#).

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.

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This guideline is the basis of QS51.

# Introduction

This guidance has been developed by the National Institute for Health and Care Excellence (NICE) in collaboration with the Social Care Institute for Excellence (SCIE).



The term autism describes qualitative differences and impairments in reciprocal social interaction and social communication, combined with restricted interests and rigid and repetitive behaviours, often with a lifelong impact. In addition to these features, autistic children and young people frequently experience a range of cognitive, learning, language, medical, emotional and behavioural problems, including: a need for routine; difficulty in understanding other people, including their intentions, feelings and perspectives; sleeping and eating disturbances; and mental health problems such as anxiety, depression, problems with attention, self-injurious behaviour and other challenging, sometimes aggressive behaviour. These features may substantially impact on the quality of life of the individual, and their family or carer, and lead to social vulnerability.

The clinical picture of autism is variable because of differences in the severity of autism itself, the presence of coexisting conditions and levels of cognitive ability, from profound intellectual disability in some people to average or above average intelligence quotient (IQ) in others.

Autism spectrum disorders are diagnosed in children, young people and adults if these behaviours meet the criteria defined in the International Statistical Classification of Diseases and Related Health Problems (ICD-10) and the Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (DSM-IV) and have a significant impact on function. For a diagnosis of autism to be made, there must be impairments present and an impact on the person's adaptive function. Both classification systems are undergoing revision and have announced that the term 'autism spectrum disorder' will be used in future editions. For this guideline we will use the term 'autism' to include all autism spectrum disorders.

Although autism was once thought to be an uncommon developmental disorder, recent studies have reported prevalence rates of at least 1% in children and young people. Autism is diagnosed more frequently in boys.

The core autism behaviours are typically present in early childhood, although some features may not manifest until a change of situation, for example, the start of nursery or school or, less commonly, the transition to secondary school. Regression or stasis of language and social behaviour is reported for at least a third of autistic children. This usually, but not exclusively, occurs between the ages of 1 and 2 years, and the reasons for regression and stasis are unknown.

The way in which autism is expressed will differ across different ages and therefore for any individual may change over time as they mature, in response to environmental demands, in response to interventions, and in the context of coexisting conditions.

Around 70% of autistic people also meet diagnostic criteria for at least one other (often unrecognised) psychiatric disorder that further impairs psychosocial functioning, for example, attention deficit hyperactivity disorder (ADHD) or anxiety disorders. Intellectual disability (IQ below 70) coexists in approximately 50% of autistic children and young people.

There are many claims of a 'cure' for autism, all of which are without foundation. However, there are interventions that can help some of the core features of autism, some of the behaviours and problems commonly associated with autism, and support families and carers. There is also evidence for treatment strategies to reduce behaviour that challenges. This guideline will summarise the different ways that health and social care professionals can provide support, treatment and help for autistic children and young people, and their families and carers, from the early years through to their transition into young adult life.

This guideline covers autistic children and young people (across the full range of intellectual ability) from birth until their 19th birthday, and their parents and carers. It should be used alongside the NICE guidelines on autism: recognition, referral and diagnosis of children and young people on the autism spectrum and autism: recognition, referral, diagnosis and management of adults on the autism spectrum.

Good communication between healthcare professionals and autistic children and young people and their families and carers is essential. It should be supported by evidence-

based written information tailored to the person's needs. Support and care, and the information people are given about it, should be culturally appropriate. It should also be accessible to people with additional needs such as physical, sensory or learning disabilities, and to people who do not speak or read English.

No antipsychotic medication has a UK marketing authorisation specifically for autistic children. The prescriber should follow relevant professional guidance, taking full responsibility for the decision. The patient (or those with authority to give consent on their behalf) should provide informed consent, which should be documented. See the [General Medical Council's Good advice on practice in prescribing and managing medicines and devices](#) for further information. Where recommendations have been made for the use of drugs outside their licensed indications ('off-label use'), this is noted in the recommendations.

# Key priorities for implementation

The following recommendations have been identified as priorities for implementation.

## Access to health and social care services

- Ensure that all autistic children and young people have full access to health and social care services, including mental health services, regardless of their intellectual ability or any coexisting diagnosis.

## Knowledge and competence of health and social care professionals

- Health and social care professionals working with autistic children and young people in any setting should receive training in autism awareness and skills in managing autism, which should include:
  - the nature and course of autism
  - the nature and course of behaviour that challenges in autistic children and young people
  - recognition of common coexisting conditions, including:
    - ◇ mental health problems such as anxiety and depression
    - ◇ physical health problems such as epilepsy
    - ◇ sleep problems
    - ◇ other neurodevelopmental conditions such as attention deficit hyperactivity disorder (ADHD)
  - the importance of key transition points, such as changing schools or health or social care services
  - the child or young person's experience of autism and its impact on them

- the impact of autism on the family (including siblings) or carers
- the impact of the social and physical environment on the child or young person
- how to assess risk (including self-harm, harm to others, self-neglect, breakdown of family or residential support, exploitation or abuse by others) and develop a risk management plan
- the changing needs that arise with puberty (including the child or young person's understanding of intimate relationships and related problems that may occur, for example, misunderstanding the behaviour of others)
- how to provide individualised care and support and ensure a consistent approach is used across all settings
- skills for communicating with an autistic child or young person.

## **Making adjustments to the social and physical environment and processes of care**

- Take into account the physical environment in which autistic children and young people are supported and cared for. Minimise any negative impact by:
  - providing visual supports, for example, words, pictures or symbols that are meaningful for the child or young person
  - making reasonable adjustments or adaptations to the amount of personal space given
  - considering individual sensory sensitivities to lighting, noise levels and the colour of walls and furnishings.
- Make adjustments or adaptations to the processes of health or social care, for example, arranging appointments at the beginning or end of the day to minimise waiting time, or providing single rooms for children and young people who may need a general anaesthetic in hospital (for example, for dental treatment).

## **Psychosocial interventions**

- Consider a specific social-communication intervention for the core features of autism

in children and young people that includes play-based strategies with parents, carers and teachers to increase joint attention, engagement and reciprocal communication in the child or young person. Strategies should:

- be adjusted to the child or young person's developmental level
- aim to increase the parents', carers', teachers' or peers' understanding of, and sensitivity and responsiveness to, the child or young person's patterns of communication and interaction
- include techniques of therapist modelling and video-interaction feedback
- include techniques to expand the child or young person's communication, interactive play and social routines.

The intervention should be delivered by a trained professional. For pre-school children consider parent, carer or teacher mediation. For school-aged children consider peer mediation.

## Anticipating and preventing behaviour that challenges

- Assess factors that may increase the risk of behaviour that challenges in routine assessment and care planning in autistic children and young people, including:
  - impairments in communication that may result in difficulty understanding situations or in expressing needs and wishes
  - coexisting physical disorders, such as pain or gastrointestinal disorders
  - coexisting mental health problems such as anxiety or depression and other neurodevelopmental conditions such as ADHD
  - the physical environment, such as lighting and noise levels
  - the social environment, including home, school and leisure activities
  - changes to routines or personal circumstances
  - developmental change, including puberty

- exploitation or abuse by others
- inadvertent reinforcement of behaviour that challenges
- the absence of predictability and structure.

## Psychosocial interventions for behaviour that challenges

- If no coexisting mental health or behavioural problem, physical disorder or environmental problem has been identified as triggering or maintaining the behaviour that challenges, offer the child or young person a psychosocial intervention (informed by a functional assessment of behaviour) as a first-line treatment.

## Pharmacological interventions for behaviour that challenges

- Consider antipsychotic medication for managing behaviour that challenges in autistic children and young people when psychosocial or other interventions are insufficient or could not be delivered because of the severity of the behaviour. Antipsychotic medication should be initially prescribed and monitored by a paediatrician or psychiatrist who should:
  - identify the target behaviour
  - decide on an appropriate measure to monitor effectiveness, including frequency and severity of the behaviour and a measure of global impact
  - review the effectiveness and any side effects of the medication after 3–4 weeks
  - stop treatment if there is no indication of a clinically important response at 6 weeks.

In August 2013, this was an off-label use of antipsychotic medication. See [NICE's information on prescribing medicines](#).

## Families and carers

- Offer families (including siblings) and carers an assessment of their own needs, including whether they have:
  - personal, social and emotional support
  - practical support in their caring role, including short breaks and emergency plans
  - a plan for future care for the child or young person, including transition to adult services.

## Transition to adult services

- For young people aged 16 or older whose needs are complex or severe, use the care programme approach (CPA) in England, or care and treatment plans in Wales, as an aid to transfer between services.
- Involve the young person in the planning and, where appropriate, their parents or carers.
- Provide information about adult services to the young person, and their parents or carers, including their right to a social care assessment at age 18.

# Using this guideline

People have the right to be involved in discussions and make informed decisions about their care, as described in [NICE's information on making decisions about your care](#).

Health and social care professionals should follow our general guidelines for people delivering care:

- [Babies, children and young people's experience of healthcare](#)
- [Decision-making and mental capacity](#)
- [Medicines adherence](#)
- [Medicines optimisation](#)
- [Multimorbidity](#)
- [Patient experience in adult NHS services](#)
- [People's experience in adult social care services](#)
- [Shared decision making](#)
- [Transition from children's to adults' services](#)

[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), professional guidelines, standards and laws (including on consent and mental capacity), and safeguarding.

# Recommendations

The following guidance is based on the best available evidence. The [full guideline](#) gives details of the methods and the evidence used to develop the guidance.

This guidance is part of a series of NICE guidelines on autism. It should be read alongside the [NICE guidelines on recognition, referral and diagnosis of children and young people on the autism spectrum](#) and [recognition, referral, diagnosis and management of adults on the autism spectrum](#).

## 1.1 General principles of care

### Access to health and social care services

- 1.1.1 Ensure that all autistic children and young people have full access to health and social care services, including mental health services, regardless of their intellectual ability or any coexisting diagnosis.

### Organisation and delivery of services

- 1.1.2 The overall configuration and development of local services (including health, mental health, learning disability, education and social care services) for autistic children and young people, should be coordinated by a local autism multi-agency strategy group (for autistic people of all ages) in line with the [NICE guidelines on autism in children and young people](#) (covering identification and diagnosis) and [autism in adults](#).
- 1.1.3 The assessment, management and coordination of care for autistic children and young people should be provided through local specialist community-based multidisciplinary teams ('local autism teams') which should include professionals from health, mental health, learning disability, education and social care services in line with the [NICE guidelines on autism in children and young people](#) (covering identification and diagnosis) and [autism in adults](#).

- 1.1.4 Local autism teams should ensure that every child or young person diagnosed with autism has a case manager or key worker to manage and coordinate treatment, care, support and transition to adult care in line with the [NICE guideline on autism in children and young people](#) (covering identification and diagnosis).
- 1.1.5 Local autism teams should provide (or organise) the interventions and care recommended in this guideline for autistic children and young people who have particular needs, including:
- looked-after children and young people
  - those from immigrant groups
  - those with regression in skills
  - those with coexisting conditions such as:
    - severe visual and hearing impairments
    - other medical problems including epilepsy or sleep and elimination problems
    - motor disorders including cerebral palsy
    - intellectual disability
    - severe communication impairment, including lack of spoken language, or complex language disorders
    - mental health problems.
- 1.1.6 Local autism teams should have a key role in the delivery and coordination of:
- specialist care and interventions for autistic children and young people, including those living in specialist residential accommodation
  - advice, training and support for other health and social care professionals and staff (including in residential and community settings) who may be involved in the care of autistic children and young people
  - advice and interventions to promote functional adaptive skills including

communication and daily living skills

- assessing and managing behaviour that challenges
- assessing and managing coexisting conditions
- reassessing needs throughout childhood and adolescence, taking particular account of transition to adult services
- supporting access to leisure and enjoyable activities
- supporting access to and maintaining contact with educational, housing and employment services
- providing support for families (including siblings) and carers, including offering short breaks and other respite care
- producing local protocols for:
  - information sharing, communication and collaborative working among healthcare, education and social care services, including arrangements for transition to adult services
  - shared care arrangements with primary care providers and ensuring that clear lines of communication between primary and secondary care are maintained.

1.1.7 Refer autistic children and young people to a regional or national autism service if there is a lack of:

- local skills and competencies needed to provide interventions and care for a child or young person with a complex coexisting condition, such as a severe sensory or motor impairment or mental health problem, **or**
- response to the therapeutic interventions provided by the local autism team.

## Knowledge and competence of health and social care professionals

1.1.8 Health and social care professionals working with autistic children and young

people in any setting should receive training in autism awareness and skills in managing autism, which should include:

- the nature and course of autism
- the nature and course of behaviour that challenges in autistic children and young people
- recognition of common coexisting conditions, including:
  - mental health problems such as anxiety and depression
  - physical health problems such as epilepsy
  - sleep problems
  - other neurodevelopmental conditions such as attention deficit hyperactivity disorder (ADHD)
- the importance of key transition points, such as changing schools or health or social care services
- the child or young person's experience of autism and its impact on them
- the impact of autism on the family (including siblings) or carers
- the impact of the social and physical environment on the child or young person
- how to assess risk (including self-harm, harm to others, self-neglect, breakdown of family or residential support, exploitation or abuse by others) and develop a risk management plan
- the changing needs that arise with puberty (including the child or young person's understanding of intimate relationships and related problems that may occur, for example, misunderstanding the behaviour of others)
- how to provide individualised care and support and ensure a consistent approach is used across all settings
- skills for communicating with an autistic child or young person.

## **Making adjustments to the social and physical environment and processes of care**

- 1.1.9 Take into account the physical environment in which autistic children and young people are supported and cared for. Minimise any negative impact by:
- providing visual supports, for example, words, pictures or symbols that are meaningful for the child or young person
  - making reasonable adjustments or adaptations to the amount of personal space given
  - considering individual sensory sensitivities to lighting, noise levels and the colour of walls and furnishings.
- 1.1.10 Make adjustments or adaptations to the processes of health or social care, for example, arranging appointments at the beginning or end of the day to minimise waiting time, or providing single rooms for children and young people who may need a general anaesthetic in hospital (for example, for dental treatment).

## **Information and involvement in decision-making**

- 1.1.11 Provide autistic children and young people, and their families and carers, with information about autism and its management and the support available on an ongoing basis, suitable for the child or young person's needs and developmental level. This may include:
- contact details for local and national organisations that can provide:
    - support and an opportunity to meet other people, including families or carers, with experience of autism
    - information on courses about autism
    - advice on welfare benefits, rights and entitlements
    - information about educational and social support and leisure activities
  - information about services and treatments available

- information to help prepare for the future, for example, transition to adult services.
- 1.1.12 Make arrangements to support autistic children and young people and their family and carers during times of increased need, including major life changes such as puberty, starting or changing schools, or the birth of a sibling.
- 1.1.13 Explore with autistic children and young people, and their families and carers, whether they want to be involved in shared decision-making and continue to explore these issues at regular intervals. If children and young people express interest, offer a collaborative approach to treatment and care that takes their preferences into account.

## 1.2 Families and carers

- 1.2.1 Offer all families (including siblings) and carers verbal and written information about their right to:
- short breaks and other respite care
  - a formal carer's assessment of their own physical and mental health needs, and how to access these.
- 1.2.2 Offer families (including siblings) and carers an assessment of their own needs, including whether they have:
- personal, social and emotional support
  - practical support in their caring role, including short breaks and emergency plans
  - a plan for future care for the child or young person, including transition to adult services.
- 1.2.3 When the needs of families and carers have been identified, discuss help available locally and, taking into account their preferences, offer information, advice, training and support, especially if they:

- need help with the personal, social or emotional care of the child or young person, including age-related needs such as self-care, relationships or sexuality
- are involved in the delivery of an intervention for the child or young person in collaboration with health and social care professionals.

## 1.3 Specific interventions for the core features of autism

### Psychosocial interventions

1.3.1 Consider a specific social-communication intervention for the core features of autism in children and young people that includes play-based strategies with parents, carers and teachers to increase joint attention, engagement and reciprocal communication in the child or young person. Strategies should:

- be adjusted to the child or young person's developmental level
- aim to increase the parents', carers', teachers' or peers' understanding of, and sensitivity and responsiveness to, the child or young person's patterns of communication and interaction
- include techniques of therapist modelling and video-interaction feedback
- include techniques to expand the child or young person's communication, interactive play and social routines.

The intervention should be delivered by a trained professional. For pre-school children consider parent, carer or teacher mediation. For school-aged children consider peer mediation.

### Pharmacological and dietary interventions

1.3.2 Do not use the following interventions for the management of core features of

autism in children and young people:

- antipsychotics
- antidepressants
- anticonvulsants
- exclusion diets (such as gluten- or casein-free diets).

## 1.4 Interventions for behaviour that challenges

### Anticipating and preventing behaviour that challenges

1.4.1 Assess factors that may increase the risk of behaviour that challenges in routine assessment and care planning in autistic children and young people, including:

- impairments in communication that may result in difficulty understanding situations or in expressing needs and wishes
- coexisting physical disorders, such as pain or gastrointestinal disorders
- coexisting mental health problems such as anxiety or depression and other neurodevelopmental conditions such as ADHD
- the physical environment, such as lighting and noise levels
- the social environment, including home, school and leisure activities
- changes to routines or personal circumstances
- developmental change, including puberty
- exploitation or abuse by others
- inadvertent reinforcement of behaviour that challenges
- the absence of predictability and structure.

1.4.2 Develop a care plan with the child or young person and their families or carers

that outlines the steps needed to address the factors that may provoke behaviour that challenges, including:

- treatment, for example, for coexisting physical, mental health and behavioural problems
- support, for example, for families or carers
- necessary adjustments, for example, by increasing structure and minimising unpredictability.

## **Assessment and initial intervention for behaviour that challenges**

- 1.4.3 If a child or young person's behaviour becomes challenging, reassess factors identified in the care plan and assess for any new factors that could provoke the behaviour.
- 1.4.4 Offer the following to address factors that may trigger or maintain behaviour that challenges:
- treatment for physical disorders, or coexisting mental health and behavioural problems
  - interventions aimed at changing the environment, such as:
    - providing advice to families and carers
    - making adjustments or adaptations to the physical surroundings (see [recommendation 1.1.9](#)).
- 1.4.5 If behaviour remains challenging despite attempts to address the underlying possible causes, consult senior colleagues and undertake a multidisciplinary review.
- 1.4.6 At the multidisciplinary review, take into account the following when choosing an intervention for behaviour that challenges:
- the nature, severity and impact of the behaviour

- the child or young person's physical and communication needs and capabilities
- the environment
- the support and training that families, carers or staff may need to implement the intervention effectively
- the preferences of the child or young person and the family or carers
- the child or young person's experience of, and response to, previous interventions.

## **Psychosocial interventions for behaviour that challenges**

- 1.4.7 If no coexisting mental health or behavioural problem, physical disorder or environmental problem has been identified as triggering or maintaining the behaviour that challenges, offer the child or young person a psychosocial intervention (informed by a functional assessment of behaviour) as a first-line treatment.
- 1.4.8 The functional assessment should identify:
- factors that appear to trigger the behaviour
  - patterns of behaviour
  - the needs that the child or young person is attempting to meet by performing the behaviour
  - the consequences of the behaviour (that is, the reinforcement received as a result of the behaviour).
- 1.4.9 Psychosocial interventions for behaviour that challenges should include:
- clearly identified target behaviour
  - a focus on outcomes that are linked to quality of life
  - assessment and modification of environmental factors that may contribute to

initiating or maintaining the behaviour

- a clearly defined intervention strategy that takes into account the developmental level and coexisting problems of the child or young person
- a specified timescale to meet intervention goals (to promote modification of intervention strategies that do not lead to change within a specified time)
- a systematic measure of the target behaviour taken before and after the intervention to ascertain whether the agreed outcomes are being met
- consistent application in all areas of the child or young person's environment (for example, at home and at school)
- agreement among parents, carers and professionals in all settings about how to implement the intervention.

## Pharmacological interventions for behaviour that challenges

1.4.10 Consider antipsychotic medication for managing behaviour that challenges in autistic children and young people when psychosocial or other interventions are insufficient or could not be delivered because of the severity of the behaviour. Antipsychotic medication should be initially prescribed and monitored by a paediatrician or psychiatrist who should:

- identify the target behaviour
- decide on an appropriate measure to monitor effectiveness, including frequency and severity of the behaviour and a measure of global impact
- review the effectiveness and any side effects of the medication after 3–4 weeks
- stop treatment if there is no indication of a clinically important response at 6 weeks.

In August 2013, this was an off-label use of antipsychotic medication. See [NICE's information on prescribing medicines](#).

1.4.11 If antipsychotic medication is prescribed:

- start with a low dose
- use the minimum effective dose needed
- regularly review the benefits of the antipsychotic medication and any adverse events.

1.4.12 When choosing antipsychotic medication, take into account side effects, acquisition costs, the child or young person's preference (or that of their parent or carer where appropriate) and response to previous treatment with an antipsychotic.

1.4.13 When prescribing is transferred to primary or community care, the specialist should give clear guidance to the practitioner who will be responsible for continued prescribing about:

- the selection of target behaviours
- monitoring of beneficial and side effects
- the potential for minimally effective dosing
- the proposed duration of treatment
- plans for stopping treatment.

## 1.5 Interventions for life skills

1.5.1 Offer autistic children and young people support in developing coping strategies and accessing community services, including developing skills to access public transport, employment and leisure facilities.

## 1.6 Interventions for autism that should not be used

1.6.1 Do not use neurofeedback to manage speech and language problems in autistic

children and young people.

- 1.6.2 Do not use auditory integration training to manage speech and language problems in autistic children and young people.
- 1.6.3 Do not use omega-3 fatty acids to manage sleep problems in autistic children and young people.
- 1.6.4 Do not use the following interventions to manage autism in any context in children and young people:
- secretin
  - chelation
  - hyperbaric oxygen therapy.

## 1.7 Interventions for coexisting problems

- 1.7.1 Offer psychosocial and pharmacological interventions for the management of coexisting mental health or medical problems in autistic children and young people in line with the:
- [NICE guideline on attention deficit hyperactivity disorder](#)
  - [NICE guideline on antisocial behaviour and conduct disorders in children and young people](#)
  - [NICE guideline on challenging behaviour and learning disabilities](#)
  - [NICE guideline on constipation in children and young people](#)
  - [NICE guideline on depression in children and young people](#)
  - [NICE guideline on epilepsies](#)
  - [NICE guideline on obsessive-compulsive disorder and body dysmorphic disorder](#)

- [NICE guideline on post-traumatic stress disorder.](#)

1.7.2 Consider the following for autistic children and young people with anxiety who have the verbal and cognitive ability to engage in a cognitive behavioural therapy (CBT) intervention:

- group CBT adjusted to the needs of autistic children and young people
- individual CBT for children and young people who find group-based activities difficult.

1.7.3 Consider adapting the method of delivery of CBT for autistic children and young people with anxiety to include:

- emotion recognition training
- greater use of written and visual information and structured worksheets
- a more cognitively concrete and structured approach
- simplified cognitive activities, for example, multiple-choice worksheets
- involving a parent or carer to support the implementation of the intervention, for example, involving them in therapy sessions
- maintaining attention by offering regular breaks
- incorporating the child or young person's special interests into therapy if possible.

## Interventions for sleep problems

1.7.4 If an autistic child or young person develops a sleep problem offer an assessment that identifies:

- what the sleep problem is (for example, delay in falling asleep, frequent waking, unusual behaviours, breathing problems or sleepiness during the day)
- day and night sleep patterns, and any change to those patterns

- whether bedtime is regular
- what the sleep environment is like, for example:
  - the level of background noise
  - use of a blackout blind
  - a television or computer in the bedroom
  - whether the child shares the room with someone
- presence of comorbidities especially those that feature hyperactivity or other behavioural problems
- levels of activity and exercise during the day
- possible physical illness or discomfort (for example, reflux, ear or toothache, constipation or eczema)
- effects of any medication
- any other individual factors thought to enhance or disturb sleep, such as emotional relationships or problems at school
- the impact of sleep and behavioural problems on parents or carers and other family members.

1.7.5 If the autistic child or young person snores loudly, chokes or appears to stop breathing while sleeping, refer to a specialist to check for obstructive sleep apnoea.

1.7.6 Develop a sleep plan (this will often be a specific sleep behavioural intervention) with the parents or carers to help address the identified sleep problems and to establish a regular night-time sleep pattern. Ask the parents or carers to record the child or young person's sleep and wakefulness throughout the day and night over a 2-week period. Use this information to modify the sleep plan if necessary and review the plan regularly until a regular sleep pattern is established.

1.7.7 Do not use a pharmacological intervention to aid sleep unless:

- sleep problems persist despite following the sleep plan

- sleep problems are having a negative impact on the child or young person and their family or carers.

If a pharmacological intervention is needed to aid sleep, consider melatonin and:

- only use it following consultation with a specialist paediatrician or psychiatrist with expertise in the management of autism or paediatric sleep medicine
- use it in conjunction with non-pharmacological interventions
- regularly review to evaluate the ongoing need for a pharmacological intervention and to ensure that the benefits continue to outweigh the side effects and risks. **[amended 2021]**

1.7.8 If the sleep problems continue to impact on the child or young person or their parents or carers, consider:

- referral to a paediatric sleep specialist **and**
- short breaks and other respite care for one night or more. Short breaks may need to be repeated regularly to ensure that parents or carers are adequately supported. Agree the frequency of breaks with them and record this in the care plan.

## Interventions for feeding problems, including restricted diets

- 1.7.9 Be aware that feeding problems, including restricted diets can result in nutritional deficiencies that may have serious consequences. **[2021]**
- 1.7.10 Assess for any feeding, growth or nutritional problems, including restricted diets. Monitor and refer if needed. **[2021]**
- 1.7.11 As part of a full nutritional assessment and monitoring, blood tests to check for nutritional deficiencies may be required. **[2021]**

## 1.8 Transition to adult services

- 1.8.1 Local autism teams should ensure that autistic young people who are receiving treatment and care from child and adolescent mental health services (CAMHS) or child health services are reassessed at around 14 years to establish the need for continuing treatment into adulthood.
- 1.8.2 If continuing treatment is necessary, make arrangements for a smooth transition to adult services and give information to the young person about the treatment and services they may need.
- 1.8.3 The timing of transition may vary locally and individually but should usually be completed by the time the young person is 18 years. Variations should be agreed by both child and adult services.
- 1.8.4 As part of the preparation for the transition to adult services, health and social care professionals should carry out a comprehensive assessment of the autistic young person.
- 1.8.5 The assessment should make best use of existing documentation about personal, educational, occupational, social and communication functioning, and should include assessment of any coexisting conditions, especially depression, anxiety, ADHD, obsessive-compulsive disorder (OCD) and global delay or intellectual disability in line with the [NICE guideline on autism in adults](#).
- 1.8.6 For young people aged 16 or older whose needs are complex or severe, use the care programme approach (CPA) in England, or care and treatment plans in Wales, as an aid to transfer between services.
- 1.8.7 Involve the young person in the planning and, where appropriate, their parents or carers.
- 1.8.8 Provide information about adult services to the young person, and their parents or carers, including their right to a social care assessment at age 18.
- 1.8.9 During transition to adult services, consider a formal meeting involving health and social care and other relevant professionals from child and adult services.

# Recommendations for research

## 1 A key worker approach for autistic children and young people and their families

What is the value of a key worker approach (defined by protocol and delivered in addition to usual care) for autistic children and young people in terms of parental satisfaction, functioning and stress and child psychopathology?

Why the committee made the recommendation for research

Autism is well characterised as a chronic disorder with lifelong disability in some individuals, yet the current health management structure is usually organised around single episodes of care. The theory and practice of management of chronic illness, as well as widely expressed service-user opinion, indicate that a chronic care model for the organisation of autism services could be appropriate and cost effective.

A key worker approach for autistic children and young people and their families should be formally evaluated in a randomised controlled trial (RCT) reporting short- and medium-term outcomes (including cost-effectiveness) with a follow-up of at least 6 months and again at 12 months. The outcomes (parental satisfaction, functioning and stress and child psychopathology) should be assessed by structured clinical interviews, parent- and self-reports using validated questionnaires and objective measures of behaviour. The study needs to be large enough to determine the presence of clinically important effects, and mediators and moderators (in particular the child or young person's age) should be investigated.

## 2 Managing behaviour that challenges in autistic children and young people

Is a group-based parent training intervention for parents or carers of autistic children and young people clinically and cost effective in reducing early and emerging behaviour that challenges in the short- and medium-term compared with treatment as usual?

#### Why the committee made the recommendation for research

Behaviour that challenges is common in autistic children and young people but many are referred only when the behaviour has become severely impairing, they pose a threat to themselves or others, or everyday life has broken down. By this time, behavioural interventions may be difficult or impossible and antipsychotic medication is used despite it being symptomatic in its benefits, having long-term adverse effects and behavioural problems typically recurring after use.

A group-based parent training intervention (such as educating parents to identify triggers and patterns of reinforcement) should be evaluated using an RCT. Primary outcomes should be short- and medium-term reduction in behaviour that challenges. Secondary outcomes should include parental and sibling stress, quality of life and the child or young person's adaptive function. The medium-term use of medication should also be assessed. Cost effectiveness should encompass a wide range of services, such as additional educational support and social services, and health service use by families.

## 3 Treating comorbid anxiety in autistic children and young people

What is the comparative clinical and cost effectiveness of pharmacological and psychosocial interventions for anxiety disorders in autistic children and young people?

### Why the committee made the recommendation for research

Early trials of CBT for anxiety in autistic children and young people have been promising but have methodological shortcomings. Furthermore, the common pharmacological approaches have not been evaluated in this population.

A parallel-arm RCT should compare pharmacological and psychosocial interventions with placebo in autistic children and young people and an anxiety disorder.

Pharmacological treatment should be with a selective serotonin reuptake inhibitor (SSRI) and dosing should follow research in typically developing children but with the option of evaluating outcomes at lower doses. The SSRI should be blinded with an identical placebo and an 'attention' or other psychosocial control group. The psychosocial intervention should be manualised and based on cognitive behavioural approaches shown to be effective in previous trials. The sample should cover the full age and intellectual range of children and young people and the size powered to deliver precise effect size estimates for both active arms.

Primary outcome measures should be reduction in anxiety symptoms by parent report. Secondary outcomes may include self- and teacher-report, blinded measures such as heart rate and skin conductance, patient satisfaction, changes in adaptive function, quality of life and disruptive behaviour. Adverse effects should be evaluated and an economic evaluation included.

## 4 Teacher-, parent- and peer-mediated psychosocial interventions in pre-school autistic children

Are comprehensive early interventions that combine multiple elements and are delivered by parents and teachers (for example, the Learning Experiences – an Alternative Program for Preschoolers and their Parents [LEAP] model) effective in managing the core features of autism and coexisting difficulties (such as adaptive behaviour and developmental skills) in pre-school children?

### Why the committee made the recommendation for research

Many autistic children are diagnosed in the pre-school period when service provision is advice and support to parents and professionals in nursery or early years educational settings. There is evidence from one moderate-sized trial that adequately supervised comprehensive programmes can help with the core features of autism and coexisting difficulties. However, the quality of the trial was low.

The research programme should be in 4 stages:

1. Develop a manualised programme suitable to UK public service settings (health services, early years education, and so on).
2. Test its feasibility and acceptability in pilot trials with blinded assessment of outcome.
3. Formally evaluate the outcomes on core features of autism and coexisting difficulties in a large-scale trial, including health economic analysis.
4. Conduct a series of smaller trials to determine the elements, length and intensity required to ensure effectiveness of the programme, as well as longer-term outcomes.

## Finding more information and committee details

To find NICE guidance on related topics, including guidance in development, see the [NICE topic page on autism](#).

For full details of the evidence and the guideline committee's discussions, see the [full guideline](#). 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 our guidelines into practice, see [resources to help you put NICE guidance into practice](#).

## Update information

**June 2021:** We added new recommendations in section 1.7 to highlight the need for assessment and referral for children and young people with feeding problems and restricted diets. We also changed 'children and young people with autism' to 'autistic children and young people', and 'symptoms of autism' to 'features of autism' to align with current terminology.

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