

# Autism interventions: a critical update

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**As yet, there is no aetiology-based intervention for autistic spectrum disorders (ASD); despite this, parents and professionals still need to make informed decisions regarding treatment options for children with ASD. This paper seeks to evaluate widely used interventions according to specific research criteria. Interventions presented are grouped into psychoeducational/behavioural approaches, psychopharmacological interventions, and the less traditional or complementary approaches. The conclusions are less than favourable: while some interventions do have empirical support, others have been proven to have no positive effects, and furthermore, there are no robust data favouring one approach over the others. Nevertheless, several criteria for choosing between treatment options are briefly discussed.**

Autism and autistic spectrum disorders (ASD) are lifelong neurodevelopmental disorders affecting sociability and communication for which no aetiology-based treatment has yet been developed. During the last few decades, however, our knowledge concerning the associated deficits of the disorder has rapidly expanded and many psychological, educational, and physical interventions have been proposed, claiming to be effective or even to offer a 'cure'.

Nevertheless, as there is no cure at present, the word 'treatment' should be used only in a very limited sense, reflecting interventions aimed at helping people with ASD to adjust more effectively to their environment. Furthermore, a review of the literature reveals the lack of solid scientific data on the efficacy of these various methods.<sup>1,2</sup> Indeed, studies fail to fulfil basic research criteria,<sup>3</sup> such as random assignment to different treatment conditions; the use of standard intervention protocols that capture a wide range of skills and symptoms; the use of outside evaluators; assurance of high compliance with the defined treatment protocol; and the use of longitudinal designs that evaluate treatment effects, both during the treatment itself, and at set points after the intervention has been accomplished.<sup>4,5</sup> Sample sizes, matching, and assessment issues represent further qualitative problems for many autism intervention studies.<sup>5,6</sup> Despite the substantial difficulties prevailing in autism intervention research,<sup>5</sup> the need for rigorous studies following evidence-based recommendations is imperative in order to help parents and professionals to decide which approach will be more effective at meeting their child's needs.<sup>1,2</sup>

This paper does not attempt to provide an exhaustive list of the interventions currently available for persons with ASD (For such a list see *Approaches to Autism* published by the National Autistic Society [NAS], UK or the 1998 Research Report from the School of Education, University of Birmingham.<sup>1</sup>) Instead, it presents a critical evaluation of the most widely used approaches, or those approaches that are better supported by the literature or that seem more plausible given the prevailing theories in the field. First, psychoeducational/behavioural approaches, which are clearly the most important and widely used, will be presented. Following this, psychopharmacological interventions and less traditional or complementary approaches will be discussed.

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See end of paper for list of abbreviations.

### Psychoeducational/behavioural approaches

The Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH) is a comprehensive model of intervention from early childhood through to adulthood, founded in 1966 by Dr Eric Schopler of the Department of Psychiatry, University of North Carolina School of Medicine, USA.

TEACCH focuses on understanding the 'culture of autism', i.e. the differences in the ways in which the people with ASD think, learn, and experience the world, arguing that these cognitive differences underpin autistic symptoms and explain the behavioural problems exhibited. The main goal of the approach is to obtain maximum autonomy for the person at all levels of functioning, depending on their abilities. TEACCH intervention activities include diagnosis, parent training, education, social and leisure skill development, communication, vocational training, and supported employment placements.

After a detailed assessment using, among other instruments, the PsychoEducational Profile – Revised (PEP-R),<sup>7</sup> the emerging skills of the individual are identified, providing the basis for their personal educational programme. Teaching skills are carried out in multiple, functional, clearly organized, and structured contexts with an emphasis on visual learning modalities and the use of natural reinforcements. Structure and predictability (through visual cues and symbol timetables) are used to promote spontaneous functional communication and generalization. The communication curriculum uses conditions and consequences of behaviour through shaping, and incorporating alternative forms of communication, such as sign language or picture systems.<sup>8</sup>

TEACCH programmes are currently running throughout the world; they are reported to be effective in improving self-help, social skills, and communication, reducing inappropriate

behaviours, enhancing the quality of life, and obtaining a high percentage of persons with autism functioning in community-based programmes, along with lower parental stress rates.<sup>9</sup> Similar results are reported by several uncontrolled studies of comprehensive centre-based programmes.

Despite the world-wide influence of TEACH and its rationale, which is solidly in accordance with the current concepts of autism, we cannot overlook the lack of robust, large, well-controlled studies evaluating its effectiveness.<sup>1,10</sup> In the unique prospective controlled trial, Ozonoff and Cathcart demonstrated short-term gains for preschoolers with autism who received daily TEACCH home-teaching sessions, compared with a matched comparison group, especially in children with higher initial abilities, mild autism, and good language skills.<sup>11</sup> The study, however, did not involve random assignment to different treatment conditions, nor did it use a standard intervention protocol or outside evaluators; therefore, the findings must be treated with caution.

TEACCH philosophy is currently providing the general framework for a substantial proportion of the eclectic approaches used in educating people with ASD around the world.<sup>1</sup> Nevertheless, based on the up-to-date evidence we have, and using the criteria listed above, TEACCH still awaits scientific validation.<sup>1,10</sup>

### Behavioural techniques

Behavioural components are incorporated in many other educational approaches in autism, such as TEACCH. Thus, with the term 'behavioural treatments' we refer to those interventions where the Skinnerian-based techniques form the predominant feature of the approach. Although behavioural methodology has been evolving and new techniques have been introduced, applied behaviour analysis and discrete trial learning still remain the core feature of behavioural intervention in autism,

**Table I: Interventions for persons with autism**

<i>Psychoeducational/behavioural approaches</i>	
TEACCH	Provides the general framework for educating people with autism; awaits confirmation
Applied Behaviour Analysis/Lovaas	Clearly some benefits in children with autism; its original effectiveness claim is overstated
Alternative communication	Visual support; capitalize on an area of strength; enhance communication
Picture Exchange Communication System	Teaches communication intent and initiation; awaits confirmation
Facilitated communication	Not in accordance with prevailing perceptions; no effect in control studies
Social skills teaching	Probably beneficial for high functioning people
Social Stories	In accordance with current theories; awaits confirmation
Parental involvement	Obviously indispensable; awaits confirmation
<i>Psychopharmacological interventions</i>	
Conventional antipsychotics	High incidence of serious side-effects
Atypical antipsychotics	Fewer side-effects; efficacious in controlling behaviour problems
Selective serotonin re-uptake inhibitors	For anxiety, aggression, and depressive, and obsessive-compulsive symptoms
Beta blockers	For aggression
Naltrexone	For hyperactivity, inattention, and self-injurious behaviour
Stimulants	For hyperactivity, impulsiveness, and inattention, mainly in higher-functioning autism
Mood stabilizers	For aggression and mood lability
Secretin	No better than placebo
<i>Less traditional or complementary approaches</i>	
Mega-vitamin therapy	For hyperactivity and overall behaviour; no adequate support
Gluten- and casein-free diet	Reduce aggression and self-injurious behaviour, improves sociability and attention
Sensory integration	Plausible but with little controlled research
Auditory integration therapy	Not enough support for its use

TEACCH, Treatment and Education of Autistic and Related Communication Handicapped Children.

following the work carried out over the last 30 years by Dr O Ivar Lovaas, at the University of California, Los Angeles, USA.

Skills in receptive/expressive language, attending to social stimuli, imitation, pre-academics (e.g. rote counting, knowledge of spatial relationships, etc.), and self-help that are deficient, are broken into discrete components. They are then taught on a one-to-one basis, in school and/or at home, using rewards for the successful completion of each step. Behavioural techniques of reinforcement (mainly positive), backward chaining (i.e. the process of teaching each component of a behaviour starting with the last step needed to complete the sequence), shaping, and prompt and prompt fading are used. Physical aversives are no longer employed. Initially, food and favourite objects are used as reinforcers, and are later replaced by more social ones, such as praise. Learned responses are repeated until firmly embedded.

After the initial assessment, the children follow a comprehensive curriculum, tailored to their individual needs for approximately 40 hours per week with their trainers. Parents are also encouraged to contribute to the programme in order to achieve generalization of the skills learned.

In the Applied Behaviour Analysis (ABA) approach the focus is on the use of rewards or reinforcement to encourage desired behaviours and the elimination or reduction of unwanted behaviours by removing their positive consequences by means of 'time out', 'extinction', or punishment. A detailed initial assessment is required to determine the level of functioning, and specific behavioural difficulties. Careful observation is needed to identify the triggers of problem behaviour and events that appear to maintain or encourage either positive or negative behaviours. New skills are taught in a graduated, step-by-step manner, as in the original Lovaas approach. In general, behavioural techniques seem to be a better approach for lower-functioning children.

Criticism of the Lovaas/ABA approach lies in the loose relation between their rationale and prevailing cognitive theories of the underlying basis of autism (i.e. difficulties in executive functioning, theory of mind, and information processing). As Lovaas himself has pointed out, his approach 'focuses on specific behaviours rather than on the diagnostic entity of autism'.<sup>12</sup> Other difficulties include: the narrow and outdated approach to language acquisition; the possible lack of spontaneity in the trainee's behaviour and the creation of absolute dependency from prompting in reactions; the possible overstressing of the child and their family; and the high cost of the programme.

In the light of such criticism, issues about efficacy are clearly of high importance. In the original controlled study and its follow-up, the 19 children with autism who were treated intensively with behaviour therapy for 2 years were reported to gain an average of 30 IQ points, while nearly half of them were able to participate in mainstream education and were 'indistinguishable from their peers'.<sup>13,14</sup> Both studies, though, suffer from several major methodological limitations:<sup>15</sup> there was an absence of a randomized group assignment (in fact children within the experimental group were skewed toward those at the high-functioning end of the spectrum, and there were more girls in the control group). The assessment was only partially carried out by outside evaluators; and evaluation of the treatment effect itself was controversial, with IQ and educational placement being liable to many biases.<sup>1,10</sup> Despite its detailed published manual, there was not enough information

on the reliability of treatment implementation. Furthermore, both controlled and uncontrolled published studies have failed to corroborate the original claim of achieving normal functioning, however defined.<sup>16</sup>

In conclusion, the literature shows that intensive behavioural therapy clearly benefits children with autism<sup>1,2</sup> and yields a high degree of parental satisfaction; however, the original effectiveness claim was overstated<sup>16</sup> and its cost-effectiveness, in terms of time, effort, and money, has not been adequately assessed.<sup>17</sup>

#### **Alternative/augmentative communication**

As interest turned away from enhancing speech to enhancing communication, alternative and augmentative communication approaches emerged. These methods are used in conjunction with other interventions (ABA, TEACCH, etc.), acting as a complement to the communication domain.

Children with ASD have difficulty in understanding the ways in which social communication functions, and in getting pleasure from it. That means that they not only fail to communicate but are also not motivated to do so. Thus, they could be non-verbal or exhibit deficiencies in a wide range of communication skills, such as comprehension, non-verbal communication, language form, semantics (content), and pragmatics (use). Furthermore, communication disruption puts them at risk for developing problem behaviours: challenging behaviours are more likely to emerge in the absence of suitable means of communication.

As the vast majority of persons with autism are visual thinkers and learners, visual support can help them to make sense of the process of communication, regardless of their level of speech. Visual techniques capitalize on an area of relative strength for these children and can be used to assist learning, augment spoken language, enhance understanding, and be an alternative way of expressing needs, desires, and feelings.

Such visual support can be offered through signs (e.g. MAKATON)<sup>18</sup> and/or real objects, photographs, picture symbols, and written words, according to the developmental stage of the child.<sup>1</sup> After having acknowledged what the visual cue represents (through labelling), the child can use it away from the actual object or situation either to express themselves or to understand other peoples' expectations of them. Literature shows that the incorporation of signs and symbols in communication training results in quicker and more complete learning of vocabulary and enhances both non-verbal and verbal communication skills,<sup>1</sup> with the latter depending mainly on verbal imitation abilities and IQ.<sup>19</sup>

Special attention should be paid to the Picture Exchange Communication System (PECS).<sup>18</sup> This was developed by Andrew Bondy and Lori Frost, as an augmentative alternative training package, based on Skinnerian rationale, for teaching functional communication to children and adults with autism and other communication deficits. PECS begins by teaching the person to give a picture of a desired item to a trainer, who immediately honours the request. In the initial phase, a second trainer behind the child uses physical prompts, which gradually fade out. No verbal prompts are used, in order to avoid prompt dependency. In the subsequent phases of PECS the person is taught to discriminate between several symbols, to actively find the desired symbol from a portable communication book, and then to put them together in simple 'sentences'. Children are also taught to comment and to answer direct questions.

Although PECS has been shown to facilitate the development of spoken words,<sup>20</sup> its principal advantage is the teaching of communication intent and initiation, a constant setback of the majority of the other alternative/augmentative communication approaches. Furthermore, its implementation does not depend either on eye contact or the training of multiple communication partners (as in sign approaches). It appears to be a low-cost system, and it is highly compatible both with TEACCH and Lovaas/ABA. PECS is well suited for pre-verbal and non-verbal children. However, empirical support for this technique is currently limited,<sup>20,21</sup> and based on studies with methodological inadequacies,<sup>1</sup> thus, no official recommendation can be given.

Facilitated Communication (FC) claims to offer an alternative means of communication to people with speech problems through a facilitator who supports their hand, wrist, or arm to help them use a communicator board or to type words, phrases, or sentences, even if they do not have communicative speech. FC demotes the communication difficulties that people with autism face to just, or mainly, being problems of speech expression and/or movement disorder. Furthermore, studies using control procedures failed to show any beneficial effect from FC,<sup>22</sup> and demonstrated that the facilitator is the source of the communication while the person with the ASD eventually abdicates from spontaneous communication.<sup>23</sup> On these grounds, FC should be avoided.<sup>1,2</sup>

### Social skills teaching

Another interesting area of intervention, especially for higher functioning people with autism (and those with Asperger syndrome), is that of teaching social skills.<sup>24</sup> There are various packages and more are evolving as the diagnosis of ASD has been expanded to comprise more able individuals.

Carol Gray's Social Stories is a noteworthy complementary intervention aimed at improving the social understanding of people with ASD. The stories are produced in response to a troubling situation, to explain the how and why of its social context, and for praising the positive achievements of the child. After gathering relevant information about the topic and discussing it with the person, so that it can be tailored to their perspective, a short script is customized to their needs, interests, and abilities, and the specific guidelines of the technique. 'Social Stories include factual information regarding the social situation, possible reactions of others in that social situation, and directive statements of appropriate or desired social responses'.<sup>25</sup> It is then taught to the person with a relevant title comprising the core information of the Social Story and using descriptive, perspective, directive, and control sentences in a specific ratio.<sup>25</sup> The incorporation of visual cues in Social Stories adds to their effectiveness.

Social skills teaching techniques are widely accepted<sup>24</sup> on the premise of their feasibility with the current perception of the deficits characterizing ASD ('theory of mind' and 'weak central coherence'). Nevertheless, the lack of peer-reviewed empirical work evaluating their efficacy represents a challenge to the professionals who support the above interventions.

### Parental involvement

As far as the educational approaches are concerned, there has been a huge debate about having parents involved in the training of their children with autism, both on the grounds of the added stress this would cause to them and of the perceived

added value to the intervention. Despite the lack of methodologically adequate studies supporting parent-mediated interventions, both the existing literature and clinical experience suggest that the use of parents as co-therapists provides an economical method of increasing the number of hours a child receives treatment in a constant and consistent way.<sup>2,10</sup> It also offers children the possibility of generalizing (an inherent impairment in people with autism) what they have learned at school or from the specialists and, above all, empowers the parents and makes them feel in control of their child. This results in a better parenting style and the avoidance of distress and disappointment.<sup>26</sup> Apart from the training in the various techniques of an intervention, there are also comprehensive packages for educating parents about the disorder, like the NAS EarlyBird programme for parents of preschool children<sup>27</sup>, the NAS HELP programme for parents of older children and the 'More than Words' programme from the Hanen Centre.<sup>28</sup>

### Psychopharmacological interventions

A substantial proportion of people with autism exhibit behaviours such as hyperactivity, inattention, obsessive-compulsive symptoms, sleep disturbances, aggression, and self-injury. These problems are viewed as challenging behaviours if they represent a serious risk for the individual or others or when they further burden their effective education and interfere with their social adaptation.<sup>29</sup> Furthermore, comorbid conditions, such as anxiety, tics, depression, and epilepsy can complicate the effective management of the main disorder. Such difficulties should be promptly identified through constant monitoring, and appropriate behavioural and/or educational manipulations should be introduced. When these problems fail to respond to such modifications, drug treatments represent a feasible alternative or even a necessity. Drugs should be used only to facilitate behaviour management and to target-specific symptoms, in order to enhance the child's benefits from a comprehensive behavioural/educational intervention and not to replace it. The decision of when and which drug should be used is not always clear cut. Current literature, however, offers data concerning both the efficacy and safety of pharmacotherapeutic agents in the treatment of persons with autism and rational protocols for their use.<sup>30-32</sup> In this paper we intend to comment briefly on the most commonly used drugs, while for a more detailed report the reader is urged to read a more specific review.<sup>30-32</sup>

#### TYPICAL ANTIPSYCHOTICS

Typical antipsychotics were the most commonly prescribed agents in autism until the last decade. The typical antipsychotic, haloperidol, a dopaminergic-blocking agent, has been widely used and researched. It was found to be effective in reducing stereotypies, hyperactivity, temper tantrums, and other disruptive symptoms. Its use, however, is limited by its side-effects such as sedation, acute dystonic reactions, a Parkinson-like syndrome, akathisia, weight gain, and tardive dyskinesia.<sup>33</sup> The same profile of side effects is reported with other typical antipsychotics, such as pimozide.

#### ATYPICAL ANTIPSYCHOTICS

Atypical antipsychotics were introduced with the expectation of producing fewer side-effects than the typical ones. The Research Units for Pediatric Psychopharmacology study

showed that risperidone was effective in controlling behaviour problems such as irritability, hyperactivity, tantrums, aggression, and self-injurious behaviours. The side effects were weight gain (2.7kg over 8 weeks), increased appetite, fatigue, drowsiness, dizziness, and drooling.<sup>34</sup> The data for the other atypical antipsychotics are still somewhat inconclusive, although olanzapine and clozapine may also be effective.<sup>35</sup>

#### SELECTIVE SEROTONIN RE-UPTAKE INHIBITORS (SSRIs)

Hyperserotonemia is found in about one-third of individuals with autism, though no correlation has yet been found between blood serotonin level and any autistic symptoms. Based on this, and also the similarities shared by autism and obsessive-compulsive disorder, the SSRIs (clomipramine, fluoxetine, fluvoxamine, sertraline, citalopram) were introduced in the treatment of ASD. They have been reported to improve anxiety, social interaction, mood and ritualistic behaviour, depressive and obsessive-compulsive symptoms, and aggression. Their common side-effects comprise agitation, restlessness, and other forms of behavioural activation, insomnia, decreased appetite, nausea, and weight gain.<sup>36,37</sup>

#### BETA BLOCKERS

Propranolol is reported to reduce aggression directed both against others and oneself,<sup>29</sup> but no controlled trial corroborates this claim.

#### NALTREXONE

The potential role of opioid-excess in autism, and relevant clinical observations, led to the use of naltrexone, an opiate antagonist. Although there are several controlled studies reporting its efficacy in reducing hyperactivity, inattention, and self-injury behaviours, at least in a subgroup of children with ASD, a critical appraisal of the current literature provides mixed results.<sup>38</sup>

#### STIMULANTS

Amphetamines and methylphenidates were proven to be efficacious in children and adolescents with attention-deficit-hyperactivity disorder (ADHD). They were also introduced to children with ASD to target symptoms of hyperactivity, impulsiveness, and inattention. Stimulants seem to help only a subgroup of children with autism, particularly those with higher-functioning autism and comorbid ADHD.<sup>30,39</sup>

#### MOOD STABILISERS

Anticonvulsants and lithium are also used for aggression and mood lability, with some effect.<sup>36</sup>

#### SECRETIN

This hormone, produced by the small intestine, is part of a family of hormones which also have some receptors in the brain (e.g. hypothalamus, hippocampus). The publication of a case series by Horvath et al. in 1998, which reported improved language skills and better eye contact after intravenous administration of secretin,<sup>40</sup> was followed by tremendous interest in it both by investigators and the media. Unfortunately, several controlled studies failed to replicate these results, and demonstrated that the results of either porcine or synthetic secretin are no better than those of a placebo, and that this was true independently of the presence or not of gastrointestinal symptoms in the participants with autism.<sup>41</sup>

#### Less traditional or complementary approaches

Vitamins and diets were introduced as interventions in autism in the 1960s.

#### MEGA-VITAMIN THERAPY

This consists of large doses of vitamin B<sub>6</sub> (pyridoxine) and magnesium (16 and 8mg/kg/day respectively), along with other vitamins and minerals to assist their metabolism. The treatment is said to be effective in up to 45 to 50% of individuals with autism. Vitamin B<sub>6</sub> helps to control hyperactivity, and improve overall behaviour. Parent reports also include improvements in attention, learning, speech/language, sleeping patterns, and eye contact. In some cases behavioural improvements can be seen within a few days. However, the vitamins can take up to 60 to 90 days to show any effects. Magnesium should always be prescribed when taking such high doses of vitamin B<sub>6</sub> in order to prevent side effects, such as irritability, sound sensitivity, and enuresis. Extremely high doses of B<sub>6</sub> rarely result in peripheral neuropathy with tingling or numbness in the fingers and/or toes. Symptoms are usually eliminated shortly after reducing the amount of B<sub>6</sub>.

Due to the lack of adequate studies fulfilling basic research criteria, it is difficult to assess whether the effects of this treatment approach are greater than placebo.<sup>1,2,42</sup>

#### GLUTEN- AND CASEIN-FREE DIET

The opioid-excess theory of autism and the findings of an abnormal peptide complement in the urine of children with autism, which is believed to have resulted from the incomplete breakdown of the proteins gluten (from wheat and cereals) and casein (from cow milk), formed the basis for the implementation of a relevant diet in children with autism.

Reported results comprise reduction in aggression and self-injurious behaviours and improvement in sociability and attention. These benefits can be seen, after an initial deterioration in behaviour, in less than 10 days, but usually several weeks or months are needed before a positive effect is noted. The diet seems to be more successful in younger children and those with a positive medical and/or family history of allergies. However, the diet can be difficult to maintain, and a dramatic deterioration may be observed (disturbed sleep patterns, hyperactivity, night terrors, increased aggression) if the child ingests gluten or casein by mistake.

No evidence-based recommendation can be made for gluten- or casein-free diets until the anecdotal evidence of the positive feedback from parents is corroborated by adequately powered, randomized controlled trials.<sup>43</sup> Furthermore, the argument that, at least, this approach is risk free is misleading: such radical dietary restrictions, which can possibly lead to further feeding problems, need constant monitoring for physical consequences.<sup>1,2</sup>

#### SENSORY INTEGRATION

Although aberrant sensory processing is neither universal nor specific to autism, the prevalence of such abnormalities in autism is relatively high. Thus, the use of sensory integration (SI) techniques, at least as a complementary intervention, is perfectly justified, particularly with those children with autism who are over- or underresponsive to various environmental stimuli. SI focuses primarily on three interconnected, basic senses: tactile, vestibular, and proprioceptive. It aims to: (1) provide the child with sensory information which helps

organize the central nervous system; (2) assist the child to inhibit and/or modulate sensory information; and (3) assist the child in providing a more organized response to sensory stimuli. It comprises activities such as swinging, spinning, pressure-touch, and other forms of sensory stimulation. Despite its plausibility, there is little controlled research on its effectiveness, and, therefore, no firm conclusion can be drawn.<sup>44,45</sup>

#### AUDITORY INTEGRATION THERAPY

Auditory Integration Therapy (AIT) was introduced as a technique for improving abnormal sound sensitivity. It represents a form of physical exercise of the entire hearing apparatus through an electronic machine. Although there are reports arguing for some benefits were gained from AIT by many children with autism, a recent review of six randomized controlled trials of adults or children with ASD concluded that, currently, there is not enough support for the use of AIT in autism.<sup>46</sup>

#### Conclusion

Until an aetiology-based treatment is developed or a single treatment is declared efficacious based on methodologically rigorous studies, both parents and professionals are still faced with the difficult decision of choosing which intervention to use with their child. Nevertheless, when considering a treatment option, one should not only discuss the expected results, but also fastidiously investigate: (1) whether or not its rationale is in accordance with current understandings of ASD deficits; (2) its possible negative effects; (3) the training and experience of autism among professionals involved; (4) the impact of the proposed programme upon the family (concerning time, functioning, relations, and finances); and (5) the supporting evidence for its effectiveness. Based on the current findings, the most effective elements for an intervention are behavioural techniques and structured teaching based on visual cues.<sup>10</sup> Finally, it is recommended that a comprehensive approach is favoured with individualized treatment goals and programmes, which involve the parents and other individuals working with the person with ASD (e.g. teachers) in a reciprocal and coordinated manner.

DOI: 10.1017/S0012162205000952

Accepted for publication 15th March 2005.

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#### List of abbreviations

ABA	Applied Behaviour Analysis
ASD	Autistic spectrum disorders
FC	Facilitated Communication
NAS	National Autistic Society
PECS	Picture Exchange Communication System
TEACCH	Treatment and Education of Autistic and Related Communication Handicapped Children

## Book Review

### Seminars in the Psychiatry of Learning Disabilities (2nd edn)

Edited by William Fraser and Michael Kerr  
 London: Gaskell, 2003, pp 320, £20.00  
 ISBN 1 901242 93 5 (Paperback)

This second edition in the Royal College of Psychiatrists Seminars series is meant to be 'all the College requires the trainee to know about a sub-speciality, and a little bit more'. As such, the book is primarily aimed at UK trainees and consultant psychiatrists within the mental health field of those with learning disabilities, more than other service and academic professionals within the field of learning disabilities in other countries. This book certainly reflects the considerable scientific, clinical, and service developments in the decade since the first edition.

As with most other edited multi-professional and multi-authored books, the 17 chapters do vary considerably in their organization, breadth, and depth. For example, the lengthy chapter on genetics by Muir is highly detailed and technical with a glossary of molecular genetic terms, whilst the chapter on psychiatric problems in adults with learning disabilities by Vanstraelen et al. seems too brief.

Other chapters cover: applied epidemiology (Fryers and Russell), behavioural phenotypes (Berney), autism (Melville and Cameron), epilepsy (Kerr), communication (Scotland and Fraser), capacity and consent (Holland), service issues (Lindsey; Baxter et al.), mental health and other needs of children (Tonge), older adults (Cooper), adults with Down syndrome (Prasher), offenders (Johnston), psychotropic medication (Ahmed), counselling and psychotherapy (Hollins), and psychological approaches for behavioural problems (Jahoda and Espie).

As intended, the book provides more than adequate comprehensive coverage of essential scientific, clinical, and service topics mostly by highly authoritative psychiatric and multi-professional specialists. As a trainer and trainees in the psychiatry of learning disabilities, we found the chapters on applied epidemiology, behavioural phenotypes, autism, Down syndrome, and psychological approaches particularly useful for our clinical work. We recommend this book to all professionals working in specialist health and social care services for people with learning disabilities, especially those focused on meeting mental health needs.

DOI: 10.1017/S0012162205000964

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