



# Alternative National Guidelines for Treating Attention and Depression Problems in Children: Comparison of Treatment Approaches and Prescribing Rates in the United Kingdom and United States

J. Michael Murphy, EdD, Alyssa E. McCarthy, BA, Lee Baer, PhD, Bonnie T. Zima, MD, MPH, and Michael S. Jellinek, MD

**Abstract:** The use of psychotropic medications for children and adolescents with attention and depression problems continues to generate both attention in the news media and controversy within the field. Given that the United Kingdom has recently issued guidelines for its national health service that differ substantially from those in the United States, the time is ripe to reexamine the evidence. The purpose of this article is to describe the UK's new "stepped care" guidelines for treating attention and depression problems in children and to compare them to the US guidelines issued by the American Academy of Pediatrics and the American Academy of Child and Adolescent Psychiatry. Our findings are that, despite many similarities, the UK guidelines are generally more conservative in their recommendations for medication use, especially for children experiencing only moderate impairment. Our article also compares prescription and diagnosis rates in the UK and the US, and reports evidence for lower rates of prescribing in the UK, despite some evidence that the rates of problems may not differ substantially. We conclude by noting that the existence of an alternative standard provides validation for clinicians or families who prefer to take a more conservative approach to medication use. The two different approaches to care also provide a valuable opportunity for research to determine whether the approaches result in different treatment outcomes.

**Keywords:** attention-deficit disorder with hyperactivity, child, depression, practice guidelines

The United Kingdom (UK) has recently revised its national treatment guidelines, calling for a "stepped care" approach to psychotropic medication use for children with the diagnoses of depression or attention-deficit/hyperactivity disorder.<sup>1,2</sup> This stepped care approach could be characterized as "Begin with *no*, then (only if necessary) *start low* and *go slow*" when using psychotropic medication. In the United States (US), by contrast, although there is a range of accepted practices,<sup>3-6</sup> the official guidelines are generally more active in their tone than those from the UK. Given the

increasing concerns in the US about possibly inappropriate use of psychotropic medications,<sup>7,8</sup> this difference in guidelines between the UK and US provides a useful way to address a number of important questions in the field. For example, are the "no/low/slow" guidelines in the UK associated with lower rates of medication use than the "go/go/go" US guidelines? Why do the UK and US guidelines, which are both supposed to be data driven, differ, when they are essentially based on reviews of the same basic studies? Does any evidence indicate that one set of guidelines is associated with better outcomes than the other? Is one approach associated with lower costs? Should US clinicians adopt the UK guidelines for some or all US patients?

In this article we compare and contrast the current treatment guidelines, prescribing practices, and diagnosis rates for child and adolescent attention and depression problems in the UK and the US. We believe that this review will be useful to clinicians and parents as well as to researchers who wish to consider further the evidence for each approach. Since state<sup>9</sup> and national<sup>10</sup> Medicaid programs now require routine use of standardized psychosocial measures for children and young people, large data sets are now available and could

**From** the Departments of Psychiatry (Drs. Murphy, Baer, and Jellinek) and Pediatrics (Dr. Jellinek), Harvard Medical School; Department of Psychiatry, Massachusetts General Hospital, Boston, MA (Drs. Murphy, Baer, and Jellinek, and Ms. McCarthy); Department of Psychiatry and Biobehavioral Sciences, University of California at Los Angeles (Dr. Zima).

**Original manuscript received** 19 July 2013, accepted for publication subject to revision 28 October 2013; revised manuscript received 20 November 2013.

**Supported**, in part, by a grant from the Foundation for Excellence in Mental Health Care (Drs. Murphy and Baer, and Ms. McCarthy).

**Correspondence:** Michael Murphy, EdD, Massachusetts General Hospital, Child Psychiatry Service, Yawkey 6a, Boston, MA 02114. Email: mmurphy6@partners.org

© 2014 President and Fellows of Harvard College

DOI: 10.1097/HRP.0000000000000026

be used to explore differential outcomes in the real world based on these different approaches. With the passage of the Affordable Care Act in the US in 2011, questions of cost and value have taken on greater importance in considering treatment alternatives.<sup>11</sup>

Determining clinically appropriate use of psychotropic medications is hardly a simple task, as it involves risk/benefit analysis, substantial costs, and strong feelings since so much is at stake in terms of a child's development. Further, decisions about psychotropic medication use take place (1) in the broader context of the health care delivery system (in this case, a single-payer government insurer in the UK versus a fee-for-service model in the US, often with mental health "carve-outs") and (2) amid potentially differing cultural expectations concerning children's behavior and the pace/extent of treatment. A companion paper by our team (Murphy JM, McCarthy AE, Baer L, Zima BT, Jellinek MS. Alternative national guidelines for treating depression problems in children: a preliminary review of the evidence of benefits and risks. Unpublished manuscript, Massachusetts General Hospital, Boston, MA) explores the research evidence behind the two sets of guidelines, whereas the current article compares the two health systems in terms of (1) guidelines, (2) rates of medication use, and (3) prevalence of disorders, and then provides (4) preliminary recommendations for current practice and future research. In doing so, we have attempted to sidestep the ultimate question of whether the use of psychotropic medications is ever or always justified, arguing instead that acknowledging the existence of two approaches to medication administration, coupled with the current lack of evidence showing differential outcomes, will lead to real differences in the choices made by parents and providers. We believe that these differences in choices, in turn, will permit real-world research that may shed light on the effectiveness of the differing approaches.

## CLINICAL PRACTICE GUIDELINES IN THE UK AND THE US

### In the UK: The National Institute for Health and Care Excellence

Three organizations, one in the UK and two in the US, issue the guidelines that govern the care of children with attention and depression problems in these two health care systems. In the UK, the National Institute for Health and Care Excellence (NICE), established in 1999, is a body of the UK's Department of Health, serving the English and Welsh National Health Services. NICE has a specific mandate to publish, among other things, guidelines for "appropriate treatment and care of people with specific diseases and conditions."<sup>12,13</sup> The goal of NICE is to ensure that patients in the UK have access to empirically proven treatments that are also cost-effective, regardless of where the patients happen to live.<sup>14</sup> It is, of course, easier to have a unified set of national health guidelines in the UK than it is in the US, which has no national health service.

### In the US: The American Academy of Pediatrics and the American Academy of Child and Adolescent Psychiatry

In the US, guidelines for medical treatment are issued by discipline-specific professional groups like the American Academy of Pediatrics (AAP) and the American Academy of Child and Adolescent Psychiatry (AACAP). Since children with depression and attention problems may be treated by pediatricians or child psychiatrists, both professional organizations have written their own guidelines, which differ in some respects.<sup>3-6</sup>

It is important to note that, in addition to official guidelines, pressing real-world constraints shape real-world practices. Both pediatricians and child psychiatrists may be limited in their capacity to provide their patients with access to certain mental health services. Relevant factors include the national shortage of clinicians, insurance limits on total costs or number of visits covered for mental health care, geographical constraints, and carve-outs, where employers and insurers issue subcontracts to mental health-specific insurance vendors offering a lower cost (and less resource-rich) array of services. Restrictions like these also create incentives that can affect the rate of prescribing. For example, not having a mental health provider in the area or having a carve-out firm that encourages prescribing medication over talk therapy may give the pediatrician limited options other than medication. As should be clear from the above, guidelines are only one factor in shaping patterns of care; other factors may have an even stronger impact. It is for this reason that we review data on actual medication use and on the prevalence of attention and depression disorders in the two systems—and not just on their guidelines.

## DEPRESSION TREATMENT GUIDELINES

Since first-line approaches for treating depression differ between mild and moderate-to-severe cases, the guidelines are specified separately. Each of these approaches is reviewed in text below and in Table 1, first for the UK and then for the US (AAP and then AACAP).

### Mild Depression

**UK GUIDELINES** As shown in the first column of Table 1, NICE's stepped care model for managing pediatric depression advises that cases of mild depression should be monitored and that a follow-up assessment should be arranged. After this period of "watchful waiting" (p. 19), patients who have not recovered may be offered "non-directive supportive therapy, group [cognitive-behavioral therapy], or guided self-help" (p. 25). Patients who do not respond after 2–3 months should be referred to mental health services. The guideline states explicitly that "antidepressant medication should not be used in the initial treatment of mild depression" (p. 25).

**US AAP GUIDELINE** As shown in the second column of Table 1, clinicians should first offer patients with mild depression

**Table 1**  
**Treatment Guidelines for Children and Adolescents with Mild, Moderate, and Severe Depression in the United Kingdom and United States**

	United Kingdom	United States	
Severity of depression	National Institute for Health and Care Excellence <sup>1</sup>	American Academy of Pediatrics <sup>5</sup>	American Academy of Child & Adolescent Psychiatry <sup>4</sup>
Mild	“Watchful waiting” then “non-directive supportive therapy, group [cognitive-behavioral] therapy or guided self-help” (p. 25)	“Active support and monitoring” (p. e1317)	“Education, support, and case management” (p. 1511)
Moderate to severe	<b>1. First-line treatment</b>		
	Psychotherapy alone	Psychotherapy, antidepressant medication, or both <sup>a</sup>	Psychotherapy, antidepressant medication, or both <sup>b</sup>
	<b>2. If there is no response to first-line treatment</b>		
	Alternative/additional psychotherapy or combine fluoxetine and psychotherapy <sup>c</sup>	If the patient is receiving monotherapy, switch or combine modalities; switch medication if the patient is not responding to the maximum dose <sup>d</sup>	Combine psychotherapy with antidepressant medication
	<b>3. If there is still no response</b>		
	Offer an alternative therapy; <sup>e</sup> in certain cases, <sup>f</sup> offer sertraline or citalopram	“Mental health consultation should be considered” (p. e1321)	No specific recommendation: consider altering medication with concurrent cognitive-behavioral therapy. Some adult studies have shown that augmentation or combination of medications may be helpful.

<sup>a</sup> AAP guidelines state: “Consider consultation with mental health professionals” for severe cases (p. e1319). Also, “when indicated by clinical presentation (clear diagnosis of MDD with no comorbid conditions) and patient/family preference, a [selective serotonin reuptake inhibitor] should be used” (p. e1319).<sup>5</sup>

<sup>b</sup> AACAP guidelines state: “Moderate depression may respond to [cognitive-behavioral therapy] or [interpersonal therapy] alone. More severe depressive episodes will generally require treatment with antidepressants. Treatment with antidepressants may be administered alone until the child is amenable to psychotherapy or if appropriate, they can be combined with psychotherapy from the beginning of treatment” (p. 1511).<sup>4</sup>

<sup>c</sup> NICE guidelines advise first conducting a “multidisciplinary review” assessing for “comorbid conditions, persisting psychosocial risk factors such as family discord, or the presence of parental mental ill-health. . . . Following multidisciplinary review, if moderate to severe depression in a young person (12–18 years) is unresponsive to a specific psychological therapy after four to six sessions, fluoxetine should be offered. . . . [For a child (5–11 years)], the addition of fluoxetine should be cautiously considered, although the evidence for its effectiveness in this age group is not established” (p. 27).<sup>1</sup>

<sup>d</sup> AAP guidelines state: “Mental health consultation should be considered. . . . The clinician should also reassess the initial diagnosis, choice and adequacy of initial treatment, adherence to treatment plan, presence of comorbid conditions (eg, substance abuse) or bipolar symptoms that may influence treatment effectiveness, and new external stressors” (p. e1321).

<sup>e</sup> NICE guidelines state: “The multidisciplinary team should make a full needs and risk assessment. This should include a review of the diagnosis, examination of the possible comorbid diagnoses, reassessment of the possible individual, family and social causes of depression, consideration of whether there has been a fair trial of treatment, and assessment for further psychological therapy for the patient and/or additional help for the family” (p. 28).<sup>1</sup>

<sup>f</sup> NICE guidelines state that the patient must meet all of the following criteria: “The child or young person and their parent(s) or carer(s) have been fully involved in discussions about the likely benefits and risks of the new treatment and have been provided with appropriate written information”; “The child or young person’s depression is sufficiently severe and/or causing sufficiently serious symptoms (such as weight loss or suicidal behaviour) to justify a trial of another antidepressant”; “There is clear evidence that there has been a fair trial of the combination of fluoxetine and a psychological therapy (in other words that all efforts have been made to ensure adherence to the recommended treatment regimen)”; “There has been a reassessment of the likely causes of the depression and of treatment resistance (for example other diagnoses such as bipolar disorder or substance abuse)”; “There has been advice from a senior child and adolescent psychiatrist—usually a consultant”; “The child or young person and/or someone with parental responsibility for the child or young person (or the young person alone, if over 16 or deemed competent) has signed an appropriate and valid consent form” (p. 30–31).<sup>1</sup>

a period of “active support and monitoring” (p. e1317). If symptoms persist, treatment with antidepressants, psychotherapy, or both should be offered.<sup>5</sup>

**US AACAP guideline**

The third column of Table 1 summarizes the AACAP guideline, which states that, for cases of “uncomplicated or brief depression or with mild psychosocial impairment,” treatment

should begin with “education, support, and case management related to environmental stressors in the family and school” (p. 1511) for 4–6 weeks.<sup>4</sup>

**Moderate-to-Severe Depression**

UK GUIDELINES As shown in the second set of rows in Table 2, in the UK moderate-to-severe cases of depression should be offered “a specific psychological therapy” (p. 26) as first-line

**Table 2**  
**Treatment Guidelines for Preschool- and School-Aged Children and Adolescents with ADHD in the United Kingdom and United States**

	United Kingdom	United States	
Age group	National Institute for Health and Care Excellence <sup>2</sup>	American Academy of Pediatrics <sup>6</sup>	American Academy of Child & Adolescent Psychiatry
Preschool-aged children	<b>1. First-line treatment</b>		
	“Group parent-training/ education [program]” (p. 205)	Behavior therapy; where that is unavailable, clinician may prescribe methylphenidate after weighing risks vs. benefits	Stimulant medication or behavior therapy; <sup>a</sup> “a cautious titration is recommended in this subgroup” (p. 907)
	<b>2. If there is no response to first-line treatment</b>		
	Refer to tertiary services; “drug treatment is not recommended” (p. 303)	“Methylphenidate if [behavioral] interventions do not provide significant improvement” (p. 1015) and functional disturbance is moderate to severe <sup>b</sup>	Behavior therapy or medications not FDA approved for ADHD treatment <sup>c</sup>
School-aged children and adolescents	<b>1. First-line treatment</b>		
	<i>Moderate:</i> Group-based parent training with possible psychological treatment for the patient <sup>d</sup>	FDA-approved ADHD medication or behavior therapy, “preferably both” (p. 1015) <sup>e</sup>	Stimulant medication, behavior therapy, or both
	<i>Severe:</i> <sup>f</sup> Stimulants; parent training if medication is refused		
	<b>2. If there is no response to first-line treatment</b>		
	<i>Moderate:</i> “Drug treatment” (p. 303)	For medications: “[titrate] to maximum doses that control symptoms without adverse effects” (p. 1019)	Behavior therapy or medications not FDA approved for ADHD treatment <sup>c</sup>
	<i>Severe:</i> <sup>g</sup> if parent training is ineffective, “discuss the possibility of drug treatment again or other psychological treatment” (p. 304)		

<sup>a</sup> AACAP guidelines state: “Behavior therapy may be recommended as an initial treatment if the patient’s ADHD symptoms are mild with minimal impairment, the diagnosis of ADHD is uncertain, parents reject medication treatment, or there is marked disagreement about the diagnosis between parents or between parents and teachers. Preference of the family should also be taken into account. . . . The [AAP] (2001), an international consensus statement, and the Texas Children’s Medication Project have recommended stimulants as the first line of treatment for ADHD, particularly when no comorbidity is present.” (pp. 903–07; citations omitted).<sup>3</sup>

<sup>b</sup> AAP guidelines state: Criteria for moderate-to-severe disturbance are “(1) symptoms that have persisted for at least 9 months, (2) dysfunction that is manifested in both the home and other settings such as preschool or child care, and (3) dysfunction that has not responded adequately to behavior therapy” (p. 1017).<sup>6</sup>

<sup>c</sup> AACAP guidelines state: “The clinician should [first] undertake a careful review of the diagnosis” (p. 907). Depending on response to previous medications (partial vs. no response), the clinician should offer behavior therapy or medications not FDA approved for ADHD treatment; nonresponders should first be offered behavior therapy alone, whereas partial responders should receive combination treatment “before moving to these second-line agents” (p. 908).<sup>3</sup>

<sup>d</sup> NICE guidelines advise that younger children receive group treatment but that older children may be amenable to individual treatment if group treatment is ineffective or refused.<sup>2</sup>

<sup>e</sup> AAP guidelines state: “For elementary school-aged children (6–11 years of age), the primary care clinician should prescribe FDA-approved medications for ADHD . . . and/or evidence-based parent- and/or teacher-administered behavior therapy as treatment for ADHD, preferably both . . . . For adolescents (12–18 years of age), the primary care clinician should prescribe FDA-approved medications for ADHD with the assent of the adolescent . . . and may prescribe behavior therapy as treatment for ADHD . . . , preferably both” (p. 1015).<sup>6</sup>

<sup>f</sup> NICE guidelines state: “Severe ADHD corresponds approximately to the ICD-10 diagnosis of hyperkinetic disorder and the [Guideline Development Group] took this to be present when hyperactivity, impulsivity and inattention are all present in multiple settings and when impairment is severe (that is, it affects multiple domains in multiple settings)” (p. 126).

treatment.<sup>1</sup> If the patient does not respond within 4–6 treatment sessions, the clinician should “review and consider alternative or additional psychological therapies for coexisting problems” and only then “consider combining psychological therapy with fluoxetine” (pp. 26–27). Fluoxetine is recommended only with extreme caution for

younger children (5–11 years) since “evidence for its effectiveness in this age group is not established” (p. 27). If the patient declines fluoxetine or does not respond to combined treatment, “[a] multidisciplinary team should make a full needs and risk assessment” (p. 28); the patient may then be offered an alternative psychological therapy that

has not already been tried. In certain cases, when the patient meets a number of criteria,\* he or she may be prescribed sertraline or citalopram.

**US AAP GUIDELINES** Moderate-to-severe cases should immediately be offered psychotherapy, antidepressants, or both.<sup>5</sup> The guideline recommends that, “when indicated by clinical presentation (clear diagnosis of MDD with no comorbid conditions) and patient/family preference, [a selective serotonin reuptake inhibitor (SSRI)] should be used” (p. e1319). If improvement is not seen within 6–8 weeks, diagnosis and initial treatment should be reassessed, and mental health consultation should be considered; if applicable, medication should be altered. Cases initially treated with psychotherapy or medication alone may be offered combination treatment. If the patient still fails to respond, the clinician should consider consulting with mental health professionals.

**US AACAP GUIDELINE** Patients “with moderate to severe depression, chronic or recurrent depression, considerable psychosocial impairment, suicidality, agitation, and psychosis” (p. 1511) should be offered a trial with a specific form of psychotherapy (such as cognitive-behavioral therapy or interpersonal therapy), antidepressants, or both.<sup>4</sup> The guideline notes that “moderate depression may respond to CBT or IPT alone,” but that a more severe case “generally requires treatment with antidepressants” (p. 1511). Patients who do not respond to psychotherapy or medication alone may be offered a combination of the two. For patients who do not improve with these strategies, the final treatment guideline notes that if the patient is still treatment resistant, adult studies have shown the possible benefits of “switching to another agent in the same or a different class of medications, *augmentation*, or a *combination*” (pp. 1520–21; emphasis added) of medications, somatic therapies, intravenous clomipramine, or electroconvulsive therapy.

### Comparison of UK Versus US Depression Treatment Guidelines

Although the UK guidelines appear to recommend a more conservative approach than US guidelines to the use of medication in treating child/adolescent depression, the

general vagueness regarding specific decision points makes it difficult to reach that conclusion definitively. The guidelines in *both* countries are “stepped” and are similar at the first (mild depression) and third (moderate-to-severe depression, no response to first-line treatment) steps, favoring nonmedication approaches for mild depressive disorders and combined medication/psychotherapy for moderate-to-severe disorders that have not responded to first-line treatment. However, in their recommendations for the first-line treatment of moderate-to-severe depression (step 2), the guidelines from the two countries diverge. The NICE guidelines explicitly recommend psychotherapy without medication as the first-line treatment, whereas the AAP and AACAP guidelines leave the decision to clinician judgment and permit medication at this step. It is also important to note that the UK guidelines are more restrictive in the medications allowed (fluoxetine only in most situations) than the US guidelines (specific medications not named) and that the language in the US AACAP guideline about “[augmenting]” (p. 1520) and “[combining]” (p. 1521) medications in cases of treatment-resistant depression<sup>4</sup> leaves the door open wider for polypharmacy.

### ADHD TREATMENT GUIDELINES

Since ADHD treatment approaches differ for younger and older children, our review of the ADHD guidelines is specified by age group (see Table 2) rather than severity level. Perhaps even more fundamentally, the UK makes a distinction between the most severe form of attention problems, labeled “hyperkinetic disorder,” and ADHD. In the UK, although “ADHD” is used as an umbrella term when discussing the disorder more broadly” (p. 21), “hyperkinetic disorder (ICD-10) is a narrower and more severe subtype of DSM-IV-TR combined type ADHD. It defines a more pervasive and generally more impairing form of the disorder” (p. 118).<sup>2</sup> Hyperkinetic disorder is listed in the *International Statistical Classification of Diseases and Related Health Problems*, 10th revision (ICD-10),<sup>15</sup> which is the diagnostic system used in the UK, but not in the fourth or fifth editions of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV; DSM-5),<sup>16,17</sup> the diagnostic system used polypharmacy.

### UK Guidelines

**PRESCHOOL-AGED CHILDREN** As shown in Table 2, group-based parent training and education programs are the recommended first-line treatment approach for preschool-aged children with ADHD, but individual-based programs may be offered under special circumstances.<sup>2</sup> If treatment is ineffective, the guidelines state that the child should be referred to tertiary services (e.g., a specialty ADHD clinic) for more intensive care.<sup>18</sup> The guideline’s authors interpret the research-to-date as showing that, for preschool-aged children, “there is no evidence that drug treatment is effective in the treatment of ADHD” (p. 302), and they conclude

\*The criteria are as follows (pp. 30–31):

- “The child or young person and their parent(s) or carer(s) have been fully involved in discussions about the likely benefits and risks of the new treatment and have been provided with appropriate written information”
- “The child or young person’s depression is sufficiently severe and/or causing sufficiently serious symptoms (such as weight loss or suicidal behaviour) to justify a trial of another antidepressant”
- “There is clear evidence that there has been a fair trial of the combination of fluoxetine and a psychological therapy (in other words that all efforts have been made to ensure adherence to the recommended treatment regimen)”
- “There has been a reassessment of the likely causes of the depression and of treatment resistance (for example other diagnoses such as bipolar disorder or substance abuse)”
- “There has been advice from a senior child and adolescent psychiatrist—usually a consultant”
- “The child or young person and/or someone with parental responsibility for the child or young person (or the young person alone, if over 16 or deemed competent) has signed an appropriate and valid consent form”

that “drug treatment is not recommended for pre-school children with ADHD” (p. 303).

**SCHOOL-AGED CHILDREN AND ADOLESCENTS WITH MODERATE IMPAIRMENT** The NICE guidelines recommend group-based parent training and education programs as “the first-line treatment for parents and carers of children and young people of school age with ADHD and moderate impairment” (p. 26).<sup>18</sup> Children may also take part in group-based psychological treatment. Individual psychological treatment may be offered to older children who refuse group treatment or for whom group therapy has been ineffective. According to the NICE guidelines:

Drug treatment is not indicated as the first-line treatment for all school-age children and young people with ADHD. It should be reserved for those with severe symptoms and impairment or for those with moderate levels of impairment who have refused non-drug interventions, or whose symptoms have not responded sufficiently to parent-training/education [programs] or group psychological treatment. (p. 303)<sup>2</sup>

**SCHOOL-AGED CHILDREN AND ADOLESCENTS WITH SEVERE IMPAIRMENT** Only for treating severe ADHD (and only in children older than preschool age)—which (as noted above) is flagged in the UK as a separate and distinct diagnosis called hyperkinetic disorder—is pharmacological management recommended as a first-line treatment.

### US AAP Guideline

**PRESCHOOL-AGED CHILDREN** According to AAP guidelines, behavior therapy should be offered as a first-line treatment for children diagnosed with ADHD.<sup>6</sup> If the child shows no significant improvement from behavior therapy, and if the disturbance is moderate to severe,<sup>†</sup> methylphenidate may be prescribed. If behavior therapies are unavailable, and if the risk-benefit ratio of “starting medication at an early age against the harm of delaying diagnosis and treatment” (p. 1015) is favorable, the clinician may offer medication as a first-line treatment.

**SCHOOL-AGED CHILDREN AND ADOLESCENTS** For children aged 6–11 years, clinicians should offer “FDA-approved medications for ADHD . . . and/or evidence-based parent- and/or teacher-administered behavior therapy . . . , preferably both” (p. 1015).<sup>6</sup> For adolescents aged 12–18 years, ADHD medications are recommended as the first-line treatment “with the assent of the adolescent” (p. 1015). The clinician

<sup>†</sup>Criteria for moderate-to-severe disturbance are (1) symptoms that have persisted for at least nine months, (2) dysfunction that is manifested in both the home and other settings such as preschool or child care, and (3) dysfunction that has not responded adequately to behavior therapy.

“may [also] prescribe behavior therapy” (p. 1015), however, and again, combination treatment is preferable. For patients who do not respond to their initial treatment, medications should be “[titrated] to maximum doses that control symptoms without adverse effects” (p. 1019).

### US AACAP Guideline

Unlike the NICE and AAP guidelines, the AACAP guidelines for ADHD treatment do not offer separate recommendations for younger and older age groups; one special recommendation is offered for preschool-aged children (discussed below). Thus, their guidelines generally apply to preschool-aged children as well as to older children and adolescents.

AACAP recommends stimulant medication, behavior therapy, or both for first-line treatment. Stimulants may be used for first-line treatment in preschoolers, but doses should be “titrated more conservatively” (p. 903). The guidelines for all children advise:

Behavior therapy [alone] may be recommended as an initial treatment if the patient’s ADHD symptoms are mild with minimal impairment, the diagnosis of ADHD is uncertain, parents reject medication treatment, or there is marked disagreement about the diagnosis between parents or between parents and teachers. Preference of the family should also be taken into account. (p. 903)<sup>3</sup>

If the patient does not respond, the clinician should offer behavior therapy, medications that are not FDA approved for ADHD treatment, or both; nonresponders should first be offered behavior therapy alone, whereas partial responders should receive combination treatment “before moving to these second-line agents” (p. 908). Although the guidelines are unclear as to whether these other medications (bupropion, tricyclic antidepressants, clonidine, and guanfacine) are recommended only as stand-alone agents or in combination with stimulants, this vagueness leaves open the door to polypharmacy, an option not mentioned in the UK guidelines.

### Comparison of UK Versus US ADHD Treatment Guidelines

As with the treatment of depression, it appears that pharmacological interventions for ADHD are recommended earlier and more often in guidelines from the US than in those from the UK. These differences are actually even more pronounced in the ADHD guidelines than in those for depression. In the UK, medication is never recommended for preschoolers and—unless the patient has hyperkinetic disorder—is approved only as a second-line intervention for older children and adolescents, once behavior therapies have been tried and failed. In the US, medication is a first-line treatment for children, adolescents, and even some preschoolers.

It is worth noting that the latest NICE guidelines' emphasis on behavior therapies for first-line treatment and the endorsement of medication management for only the most severe cases<sup>2</sup> mark a significant change—toward a more conservative approach to medication use—from the previous UK guidelines on ADHD care for young people.<sup>19</sup> In the past, behavior therapy was an “[alternative]” (p. 34) first-line approach to treating child and adolescent ADHD, but pharmacological management was recommended when other methods were not readily available.<sup>20</sup> The current guidelines do not provide a rationale for the change.

### RATES OF MEDICATION PRESCRIPTION IN THE UK AND US

Because real-world practices do not always follow guidelines, the next section reviews research on prescribing practices in the UK and US to see whether the UK really does follow a more conservative approach to psychotropic medication use than the US. Before reviewing the data on prescribing practices, one caveat may be in order: even though we have cited the most recent studies available, many of the published studies on prevalence contain data from years prior to the watershed period of 2003–04, the years in which the UK's Committee on Safety of Medicines advised against using any SSRIs other than fluoxetine for treating depression in young people,<sup>21</sup> which was followed in 2004 by a US Food and Drug Administration order that SSRIs bear “black box warnings” due to potentially elevated risks for suicidality among children and adolescents taking them.<sup>22</sup>

It is widely accepted that rates of prescribing SSRIs and other antidepressants to children initially decreased after the warnings in the US<sup>23</sup> and UK.<sup>24</sup> It also appears that after several years the rates began to increase again, approaching their former levels by the end of the decade.<sup>24–26</sup> In the face of trends like these, we must also account for various pre- and post-warning differences—a task that makes comparing prescription rates even more challenging. Yet even taking these points into consideration, the evidence suggests that prescription rates for antidepressants are higher in the US than the UK.

#### Antidepressant Prescribing Rates in the UK and US

As shown in Table 3, large-scale studies of annual prescribing rates in the UK indicate that in the years 2000–04, between 0.5% and 0.7% of people aged 18 years and under were prescribed antidepressants in the UK.<sup>24</sup> A recent study tracking prescribing rates from 1995 to 2009<sup>25</sup> showed that prescribing rates in the UK increased until 2002 (4.5 person-years at risk [PYAR]), then dropped following the 2003 Committee on Safety of Medicines' advisory against SSRIs and reached their lowest point in 2005 (2.8 PYAR). Rates began to rise again after 2005 and had almost returned to their 2002 level by 2009 (3.7 PYAR).

In order to compare studies in the UK to those in the US, some adjustments must be made to correct for age; the US

studies we reviewed used children aged 6 or 12 to 17 years as their study populations. Since at least one study<sup>27</sup> showed that prescribing rates were higher in those older age groups than they were for preschool-aged children, the rates reported for the US samples would presumably be lower if younger children had been included.

Data from US samples show that antidepressant use increased among American youth aged 6 to 17 years from 1996 to 2005, rising from 1.4% to 2.6%.<sup>26</sup> A report on national data from 2005 to 2008 estimated a higher rate among American adolescents, indicating that 3.7% of young people aged 12–17 years were taking antidepressants.<sup>28</sup>

Although it is impossible to construct exact parallels between the UK and the US from these published studies, it may be possible to increase the comparability by averaging the last two age groups (0.6% of 13–15 year olds and 2.4% of 16–18 year olds) from the study by Hsia and MacLennan;<sup>27</sup> the resulting estimate would be that in 2001, about 1.5% of the 13–18 year olds in the UK were taking antidepressants. This figure (prior to the advisory by the Committee on Safety of Medicines, and thus probably a high point) is far lower than the rate of 3.7% for 12–17 year olds in the US in 2005 to 2008 (the period immediately following the black box warnings and thus probably a low point).<sup>28</sup> Further adjustments for point versus 12-month prevalence still leave the clear impression that prescription rates for children and teens in the UK have been far lower than in the US.

#### ADHD Medication Prescribing Rates in the UK and US

As shown in Table 4, according to data from General Practice Research Database in 2001<sup>27</sup> and 2006,<sup>29</sup> between 0.02% and 1.3% of young people aged 3–18 years in the UK had ADHD medication prescriptions during those years. Hsia and MacLennan<sup>27</sup> concluded that, even though stimulant prescribing had increased in the UK during recent years, “the overall prevalence of stimulant prescribing was lower in our study population” (p. 214) than that seen in other countries. In the US, all estimates of ADHD medication prescriptions from the years 1996–2008 exceeded those from the UK; according to point and 12-month prevalence estimates from that period, between 2.6% and 6.3% of American 4–18 year olds had ADHD medication prescriptions.<sup>30–32</sup>

Although it is again impossible to construct exact parallels between the UK and the US from the published studies, comparisons do suggest lower prescribing rates in the UK. When we averaged the UK prescription rates reported by McCarthy and colleagues<sup>29</sup> for 15–18 year olds in 2006, we found a mean rate of 0.8%. Comparing this figure to the 5% prescription rate among American 13–18 year olds in 2008<sup>30</sup> suggests much more frequent prescribing in the US than in the UK. For younger children, an earlier study based on 2001 data showed a prescription rate of 0.3% for 6–9 year olds in the UK,<sup>27</sup> compared to a rate of 2.6% for American 4–8 year olds in 2003,<sup>31</sup> again leaving the clear

**Table 3****Point Prevalence to 12-Month Prevalence Estimates of Antidepressant Use for Children and Adolescents in the United Kingdom and United States<sup>a</sup>**

United Kingdom			
Source	Year	Age range	Prescription rate
UK Primary Care Database <sup>25</sup>	1995	0–17 years	2.8 per 1000 PYAR
	2002	0–17 years	4.5 per 1000 PYAR
	2005	0–17 years	2.8 per 1000 PYAR
	2009	0–17 years	3.7 per 1000 PYAR
IMS Disease Analyzer–Mediplus Database <sup>24</sup>	2000	0–18 years	0.5%
	2001	0–18 years	0.6%
	2002	0–18 years	0.7%
	2003	0–18 years	0.7%
	2004	0–18 years	0.6%
General Practice Research Database <sup>27</sup>	2001	3–5 years	0.04%
		6–9 years	0.2%
		10–12 years	0.2%
		13–15 years	0.6%
		16–18 years	2.4%
<b>Range of UK data</b>	<b>2000–09</b>	<b>0–18 years</b>	<b>0.04% to 2.4%</b>
United States			
Source	Year	Age range	Prescription rate
Agency for Healthcare Research and Quality: Medical Expenditure Panel Surveys <sup>26</sup>	1996	6–17 years	1.4%
	2005	6–17 years	2.6%
National Center for Health Statistics <sup>28</sup>	2005–08	12–17 years	3.7%
<b>Range of US data</b>	<b>1996–2008</b>	<b>6–17 years</b>	<b>1.4% to 3.7%</b>

PYAR, person-years at risk.  
<sup>a</sup> The UK Medicines and Healthcare Products Regulatory Agency advised against using any selective serotonin reuptake inhibitors (other than fluoxetine) for treating depression in young people in 2003. “Black box warnings” appeared on SSRIs in the US in 2004.  
<sup>b</sup> 12-month prevalence.  
<sup>c</sup> Point prevalence.

impression that children and adolescents in the UK receive prescriptions for ADHD medications far less often than their counterparts in the US.

### COMPARISON OF DIAGNOSIS PREVALENCE IN THE UK AND US

Having established that the UK guidelines for prescribing psychotropic medications to children with attention and depression problems are more conservative than those from the US and that this pattern is associated with lower prescribing rates, it would be helpful to review data on the prevalence of attention and depression problems/diagnoses in these two health care systems. It is possible that differences

in prescription rates and perhaps even the treatment guidelines themselves are related to different prevalences.

### Prevalence of Depression

As shown in Table 5, estimates of the prevalence of depression diagnoses appear to be somewhat lower for the UK than for the US. Since the ranges from the two countries overlap, however, we cannot say with confidence that they are actually different. Comparisons are also difficult due to different time frames for the assessments. Some studies report prevalences at a single point, whereas others use three-month periods. UK reports on the years 1999–2004 estimate that depression affected 0.1% to 2.5% of the country’s 5–16 year olds

<b>Table 4</b>			
<b>Point Prevalence to 12-Month Prevalence Estimates of ADHD Medication Use for Children and Adolescents in the United Kingdom and United States<sup>a</sup></b>			
<b>United Kingdom</b>			
Source	Year	Age range	Prescription rate
General Practice Research Database <sup>27</sup>	2001	3–5 years	0.02% <sup>a</sup>
		6–9 years	0.3% <sup>a</sup>
		10–12 years	0.6% <sup>a</sup>
		13–15 years	0.5% <sup>a</sup>
		16–18 years	0.2% <sup>a</sup>
General Practice Research Database <sup>29</sup>	2006	15 years	1.3% <sup>a</sup>
		16 years	0.9% <sup>a</sup>
		17 years	0.6% <sup>a</sup>
		18 years	0.3% <sup>a</sup>
<b>Range of UK data</b>	<b>2001–06</b>	<b>3–18 years</b>	<b>0.02% to 1.3%</b>
<b>United States</b>			
Source	Year	Age range	Prescription rate
US Medical Expenditure Panel Survey <sup>30</sup>	1996	6–12 years	4.2% <sup>a</sup>
		13–18 years	2.3% <sup>a</sup>
	2008	6–12 years	5.1% <sup>a</sup>
		13–18 years	5% <sup>a</sup>
Centers for Disease Control and Prevention: Morbidity and Mortality Weekly Report <sup>31</sup>	2003	4–8 years	2.6% <sup>b</sup>
		9–12 years	6.2% <sup>b</sup>
		13–17 years	4.6% <sup>b</sup>
Centers for Disease Control and Prevention: Morbidity and Mortality Weekly Report <sup>32</sup>	2007	4–10 years	3.7% <sup>b</sup>
		11–14 years	6.3% <sup>b</sup>
		15–17 years	5.2% <sup>b</sup>
<b>Range of US data</b>	<b>1996–2008</b>	<b>4–18 years<sup>c</sup></b>	<b>2.6% to 6.3%</b>

<sup>a</sup> 12-month prevalence.  
<sup>b</sup> Point prevalence.  
<sup>c</sup> According to the US Medical Expenditure Panel Surveys, among 0–5 year olds 0.1% used ADHD medications in 2008, and 0.3% used them in 1996.

at any given time.<sup>33–35</sup> US data ranging from 1992 to 2006 are comparatively higher, with point to three-month prevalences estimating that 2.2% to 4.3% of American youth aged 9–17 years had depression.<sup>36–39</sup>

Two of the most directly comparable sets of findings lead to different conclusions. The first involve point prevalence estimates of adolescent depression from the UK and US: reports from the UK indicate that 1.4% to 1.8% of their 11–16 (in 2004) or 11–15 (in 1999) year olds had depression,<sup>33–35</sup> whereas a report on 2005–06 data from the US National Center for Health Statistics estimated a 4.3% point prevalence of depression among American 12–17 year olds.<sup>38</sup>

Although the US rate should probably be scaled down somewhat due to the higher oldest age, the US rates still appear to be higher.

In the second comparison, however, the prevalences for the UK and US appear much more similar. Average prevalence estimates reported by Ford and colleagues<sup>34</sup> for 8–10, 11–12, and 13–15 year olds suggest a point prevalence of about 1.2% among 8–15 year olds in the UK, whereas Costello and colleagues<sup>36</sup> reported a three-month prevalence of 2.2% among 9–16 year olds in the US. Adjusting the US figure downward due a slightly older age range and three-month, rather than point, prevalence, the difference in rates appears

**Table 5****Point Prevalence to Three-Month Prevalence Estimates of Child and Adolescent Depression in the United Kingdom and United States**

United Kingdom			
Source	Year	Age range	Prevalence
Office for National Statistics <sup>33</sup>	1999	5–10 years	0.2%
		11–15 years	1.8%
British Department of Health <sup>34</sup>	1999	5–7 years	0.1%
		8–10 years	0.3%
		11–12 years	0.7%
		13–15 years	2.5%
Office for National Statistics <sup>35</sup>	2004	5–10 years	0.2%
		11–16 years	1.4%
<b>Range of UK data</b>	<b>1999–2004</b>	<b>5–16 years</b>	<b>0.1% to 2.5%</b>
United States			
Source	Year	Age range	Prevalence
Great Smoky Mountains Study <sup>36</sup>	1992–2000	9–16 years	2.2%
Caring for Children in the Community Study <sup>37</sup>	2001	9–17 years	2.9%
National Center for Health Statistics <sup>38</sup>	2005–06	12–17 years	4.3%
<b>Range of US data</b>	<b>1992–2006</b>	<b>9–17 years</b>	<b>2.2% to 4.3%</b>

<sup>a</sup> Point prevalence.  
<sup>b</sup> Three-month prevalence.

to be small, with rates that are relatively comparable. Probably the safest conclusion about the prevalence of depression in the UK versus the US at this point is that the findings have been mixed, with some suggesting higher rates in the US and others suggesting rates that are similar.

### ADHD Prevalence

Table 6 presents the reported prevalences for ADHD in the UK and US. According to UK estimates from 1993–2006, between 1.9% and ~5% of their young people aged 5–15 years had ADHD at any point.<sup>19,34,40</sup> The 2006 NICE guidelines stated, however, that “not all of these children and adolescents would require treatment” (pp. 5–6) and explained that only about 1% of young people meet the more stringent diagnostic criteria for hyperkinetic disorder.<sup>19</sup> Two reports from the UK’s Office for National Statistics reflected this sentiment and did not include ADHD as a diagnostic category; it was estimated, instead, that 1.4% to 1.5% of British 5–16 year olds had hyperkinetic disorder (not included in Table 6).<sup>33,35</sup> The UK Office for National Statistics’ report on 2004 data explained that hyperkinetic disorders are sometimes referred to as ADHD, “which is the name for a broader (and therefore commoner but milder) disorder defined by the American Psychiatric Association” (p. 156).<sup>35</sup>

Hyperkinetic disorder is not used as a diagnostic category in the US. It is not listed in DSM-5<sup>17</sup> or DSM-IV,<sup>16</sup> are the current and most recent past diagnostic standards most commonly used in the US. Whereas a small minority of UK children diagnosed with the “commoner but milder” (p. 156)<sup>35</sup> disorder receive treatment, between 50% and 75% of US children with an ADHD diagnosis are prescribed stimulants at some point in their treatment.<sup>41</sup> US reports from 1992–2007 vary widely in their estimates of ADHD prevalence among American children and adolescents: Costello and colleagues’ analysis of the Great Smoky Mountains Study, for example, reported a 0.9% three-month prevalence of ADHD among 9–16 year olds, but a more recent, 2010 report from the Centers for Disease Control and Prevention estimated that 9.3% of 15–17 year olds had a current ADHD diagnosis in 2007.<sup>32</sup>

Results from a study conducted by Wolraich and colleagues highlighted a possible reason for these large discrepancies in reported ADHD prevalences: whereas 16.1% of their elementary school-aged sample met DSM-IV diagnostic criteria for the symptoms of ADHD, prevalence was only 6.8% “when impairment was taken into consideration” (p. 162). The very low ADHD prevalences published by Costello and colleagues<sup>36</sup> were probably related to the study’s strict

**Table 6**  
**Point Prevalence to Three-Month Prevalence Estimates of Child and Adolescent ADHD<sup>a</sup> in the United Kingdom and United States**

United Kingdom			
Source	Year	Age range	Prevalence
McArdle et al (2004) <sup>40</sup>	1993–94	7–8 years	4.2% <sup>b,c</sup>
British Department of Health <sup>34</sup>	1999	5–7 years	1.9% <sup>b</sup>
		8–10 years	2.5% <sup>b</sup>
		11–12 years	2.6% <sup>b</sup>
		13–15 years	2.1% <sup>b</sup>
National Institute for Health and Clinical Excellence <sup>19</sup>	2006	5–18 years	~5% <sup>b</sup>
<b>Range of UK data</b>	<b>1993–2006</b>	<b>5–18 years</b>	<b>1.9% to 5%</b>
United States			
Source	Year	Age range	Prevalence
Great Smoky Mountains Study <sup>36</sup>	1992–2000	9–16 years	0.9% <sup>d</sup>
Wolraich et al (1998) <sup>42</sup>	1994–95	Elementary school (K–5)	6.8% <sup>b,e</sup>
Caring for Children in the Community Study <sup>37</sup>	2001	9–17 years	2.6% <sup>d</sup>
Centers for Disease Control and Prevention: Morbidity and Mortality Weekly Report <sup>32</sup>	2007	4–10 years	5.5% <sup>b</sup>
		11–14 years	8.6% <sup>b</sup>
		15–17 years	9.3% <sup>b</sup>
<b>Range of US data</b>	<b>1992–2007</b>	<b>4–17 years</b>	<b>0.9% to 9.3%</b>

<sup>a</sup> UK clinicians and researchers commonly use hyperkinetic disorder instead of ADHD. Hyperkinetic disorder “[represents] a severe sub-group of DSM-IV-TR combined type ADHD” (p. 26) according to the NICE ADHD guidelines. Two surveys conducted by the Office for National Statistics reported its prevalences among children and young people in Great Britain: an estimated 1.5% of 5–16 year olds were affected in 2004, a rate that was similar to the estimated 1.4% of 5–15 year olds affected in 1999.

<sup>b</sup> Point prevalence.

<sup>c</sup> The prevalence of ADHD was 11.1%, but when impairment was taken into account and only students with “moderate impairment” (p. 349) (Children's Global Assessment Scale score < 61) were included, prevalence decreased to 4.2%.

<sup>d</sup> Three-month prevalence.

<sup>e</sup> The prevalence of ADHD—all types was 16.1%, but “when impairment was taken into consideration” (p. 162) and criteria were more stringent, prevalence decreased to 6.8%.

diagnostic criteria, which included demonstrating functional impairment in addition to the requisite symptoms. A UK study that used the DSM-III-R to estimate ADHD prevalence in a sample of 7–8 year olds found that, while 11.1% of participants met diagnostic criteria for ADHD, only 4.2% also experienced “moderate psychosocial impairment” (p. 349), and only 1.4% had “pervasive ADHD, i.e. with ADHD syndrome, psychosocial impairment and displaying classroom hyperactivity” (p. 349).<sup>40</sup> Thus, the authors of the NICE ADHD guidelines concluded that the widely ranging prevalence estimates in this study were “unlikely to reflect true differences in the numbers of individuals with ADHD in various populations” (p. 26), but rather to derive from inconsistent diagnostic processes.<sup>2</sup> Based on a review of all of the available studies, the current article comes to the same conclusion regarding the prevalence of attention problems in the UK versus the US.

### Discussion of Differences in Prevalence Rates

Comparing the prevalence of attention and depression problems in the UK versus the US did not lead to any clear conclusions. Although rates of both types of disorders appeared to be higher in the US than in the UK, the rates appeared to fall within the same confidence interval when we used the closest direct comparisons possible. Thus, we could not definitively conclude that US rates were higher. And, as noted by authors of studies on both depression and ADHD, there were enough variations in methodology to suggest that the apparent differences could have been due to differing methods. A reasonably conservative conclusion would be that, if there are differences in the prevalence of attention and depression problems in the UK and the US, they do not appear large enough to account for the observed differences in the prescription of psychotropic medications for these problems.

## SUMMARY AND RECOMMENDATIONS

In comparing treatment guidelines from the UK and the US, strong evidence indicates that the UK has elected to recommend a more conservative approach to the use of psychotropic medications to treat attention and depression problems in children. It was also clear that studies on the actual use of these medications showed much lower rates in the UK. As noted in our review of the data on the prevalence of attention and depression problems, it cannot be determined, based on the available data, to what extent this difference in prescription rates might be due to the higher prevalence of these disorders in the US or to differences in the methodologies for assessing them. Likewise, we cannot determine whether the differences in prescription rates might also reflect cultural differences in the expectations of parents or providers, or the impact of a national health service in the UK versus the heterogeneous health care delivery system in the United States.

It is intriguing to speculate on how authorities in two similar health care systems could review the same empirical literature and come up with different conclusions about the evidence for the effectiveness of psychotropic medications. Although we are not aware of any systematic reviews, a recent op-ed piece in the *New York Times* pointed to studies linking differences in high-stakes testing policies of different states, categorical eligibility for special education services, and reimbursement policies to a two- to threefold difference in the reported prevalences of ADHD between states in the US and perhaps also to differences between the US and the UK.<sup>43</sup>

It is also intriguing to stand back from the findings presented here to consider whether the treatment guidelines and prescribing rates in the UK may reflect a more restrained view of psychopathology than those in the US. It seems clear (from the earliest studies cited here) that these differences may reflect cultural differences that preceded and continue to outweigh any empirical studies. With regard to ADHD, the op-ed piece cited above<sup>43</sup> mentions the debate over the broader and complex trend toward “medicalizing” traits that might have been considered normal in the past.<sup>44</sup> Another op-ed piece in the *New York Times* has labeled this phenomenon the “Americanization of mental illness.”<sup>45</sup> However, even if any differences that do exist are culturally determined and thus not readily amenable to change, the existence of an alternative standard in the UK—which has a population much like our own in many respects—suggests that clinicians and parents now have a choice in how to approach care, at least for some children with these problems.

At the very least, all involved need to be fully informed both that an alternative exists and that, as we have argued in the companion paper to this article (Murphy JM, McCarthy AE, Baer L, Zima BT, Jellinek MS. Alternative national guidelines for treating depression problems in children: a preliminary review of the evidence of benefits and risks. Unpublished manuscript, Massachusetts General Hospital, Boston, MA), the currently available evidence is insufficient to determine whether the more active (US) approach or the less active

(UK) approach leads to better, or even different, long-term outcomes. We believe that increased disclosure and personal choice for parents and providers in the US might lead to better adherence to treatment and greater satisfaction with care. Allowing for greater personal/parental/cultural freedom of choice is entirely congruent with the both the AACAP and AAP<sup>5,6</sup> guidelines. This kind of flexibility in the hands of the clinicians who apply them is one of the defining characteristics of guidelines and what makes them different from rules.<sup>3,4</sup>

Also, based on at least one study, there appears to be virtually no difference in outcomes for US children with ADHD whose primary treatments were psychopharmacological versus behavioral.<sup>46</sup> This was one of the main findings of a recent large, well-controlled naturalistic study of ADHD treatment in a real-world, Medicaid-insured sample. In contrasting outcomes for children with similar clinical severity levels who were treated primarily with medication (in pediatric practices) or behavioral interventions (in mental health agencies), Zima and her colleagues<sup>46</sup> found that outcomes did not differ between the two groups and that parental satisfaction with treatment was equally high in both approaches.

The current review noted a major problem with the guidelines in both the UK and US in the lack of specificity as to what constitutes a mild, moderate, or severe disorder. In particular, there are currently no clear guidelines, grounded in symptoms and functioning, for how clinicians should assess the initial severity of the child’s disorder (which determines at which step treatment should begin) and their degree of improvement during each step of treatment (which determines whether or not to progress to the next step). Clinicians consequently have no empirically based way of knowing if or when to begin or change medications. By the same token, researchers have no common standard for comparing interventions. And in the absence of uniform specifications for how to define mild, moderate, and severe attention or depression problems, efforts to compare prevalences and prescribing patterns in different health care systems are compromised and unreliable.

The growing use of standardized measures in pediatrics and psychiatry, coupled with their required use in state and national quality-assurance programs,<sup>47,48</sup> brings with it the opportunity to use such measures to assign steps and determine when to move between them. Research on the impact of interventions with and without medication will likewise be much facilitated. With greater clarity of diagnosis, better guidance on severity assessment and movement between steps, and consistent and careful documentation, large databases could be created from records of routine care. It would, in turn, become possible to study much more precisely the effectiveness of the different guidelines for treating attention and depression problems in children. Comparing the effectiveness of different approaches to care is, indeed, one of the core principles of the Affordable Care Act in the US,<sup>11</sup> UK’s stepped care guidelines provide an alternative approach

that is worthy of exploration in both research and clinical practice.

Let us note, finally, that we have purposefully avoided any attempt to reconcile the divergent UK and US perspectives or to determine whether one is better than the other. We found nothing in the empirical literature that provides answers to these questions, and it seems to us that only new research aimed directly at those questions can resolve them. The same absence of specificity and the need for targeted research probably also apply to the use of antipsychotic and mood-stabilizing medications, in general, and to their off-label use for child-onset bipolar and disruptive behavior disorders, in particular. In our view, the need for such research is urgent, given that millions of children on both sides of the Atlantic are using these medications, without our even knowing their full range of potential harms or benefits.

---

**Declaration of interest:** The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the article.

---

Dr. Murphy, Dr. Baer, and Ms. McCarthy gratefully acknowledge the support of the Foundation for Excellence in Mental Health Care.

## REFERENCES

1. National Collaborating Centre for Mental Health; National Institute for Health and Clinical Excellence. Depression in children and young people: identification and management in primary, community and secondary care. London: NICE, 2005.
2. National Collaborating Centre for Mental Health; National Institute for Health and Clinical Excellence. Attention deficit hyperactivity disorder: diagnosis and management of ADHD in children, young people and adults [full guideline]. London: British Psychological Society and the Royal College of Psychiatrists, 2009.
3. American Academy of Child and Adolescent Psychiatry Work Group on Quality Issues. Practice parameter for the assessment and treatment of children and adolescents with attention-deficit/hyperactivity disorder. *J Am Acad Child Adolesc Psychiatry* 2007;46:894–921.
4. Birmaher B, Brent DA; American Academy of Child and Adolescent Psychiatry Work Group on Quality Issues. Practice parameter for the assessment and treatment of children and adolescents with depressive disorders. *J Am Acad Child Adolesc Psychiatry* 2007;46:1503–26.
5. Cheung AH, Zuckerbrot RA, Jensen PS, Ghalib K, Laraque D, Stein RE; GLAD-PC Steering Group. Guidelines for adolescent depression in primary care (GLAD-PC): II. Treatment and ongoing management. *Pediatrics* 2007;120:e1313–26.
6. Subcommittee on Attention-Deficit/Hyperactivity Disorder; Steering Committee on Quality Improvement and Management; Wolraich M, Brown L, Brown RT, et al. ADHD: clinical practice guideline for the diagnosis, evaluation, and treatment of attention-deficit/hyperactivity disorder in children and adolescents. *Pediatrics* 2011;128:1007–22.
7. Frances A. The new crisis in confidence in psychiatric diagnosis. *Ann Intern Med* 2013;159:221–2.
8. Sroufe LA. Ritalin gone wrong. *N Y Times* 2012;28 Jan.
9. Kuhlthau K, Jellinek MS, White G, Vancleave J, Simons J, Murphy M. Increases in behavioral health screening in pediatric care for Massachusetts Medicaid patients. *Arch Pediatr Adolesc Med* 2011;165:660–4.
10. Semansky RM, Koyanagi C, Vandivort-Warren R. Behavioral health screening policies in Medicaid programs nationwide. *Psychiatr Serv* 2003;54:736–9.
11. Bray J. The future of psychology practice and science. *Am Psychol* 2010;65:355–69.
12. National Institute for Health and Care Excellence. About NICE: who we are. 2014. [http://www.nice.org.uk/aboutnice/whoware/who\\_we\\_are.jsp](http://www.nice.org.uk/aboutnice/whoware/who_we_are.jsp)
13. Wikimedia. National Institute for Health and Care Excellence. 2014. [http://en.wikipedia.org/wiki/National\\_Institute\\_for\\_Health\\_and\\_Care\\_Excellence](http://en.wikipedia.org/wiki/National_Institute_for_Health_and_Care_Excellence)
14. National Institute for Health and Care Excellence. About NICE: what we do. 2013. [http://www.nice.org.uk/aboutnice/whatwedo/what\\_we\\_do.jsp](http://www.nice.org.uk/aboutnice/whatwedo/what_we_do.jsp)
15. Janca A, Ustun TB, van Drimmelen J, Dittmann V, Isaac M. ICD-10 symptom checklist for mental disorders: version 1.1. Geneva, Switzerland: World Health Organization, Division of Mental Health, 1994.
16. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4th ed., text rev. Arlington, VA: American Psychiatric Publishing, 2000.
17. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 5th ed. Arlington, VA: American Psychiatric Publishing, 2013.
18. National Collaborating Centre for Mental Health; National Institute for Health and Clinical Excellence. Attention deficit hyperactivity disorder: diagnosis and management of ADHD in children, young people and adults. London: NICE, 2008.
19. National Institute for Health and Clinical Excellence. Methylphenidate, atomoxetine and dexamfetamine for attention deficit hyperactivity disorder (ADHD) in children and adolescents. London: NICE, 2006.
20. Brimble MJ. Diagnosis and management of ADHD: a new way forward? *Community Pract* 2009;82:34–7.
21. Whittington CJ, Kendall T, Fonagy P, Cottrell D, Cotgrove A, Boddington E. Selective serotonin reuptake inhibitors in childhood depression: systematic review of published versus unpublished data. *Lancet* 2004;363:1341–5.
22. Vanoverbeke N, Annemans L, Ingham M, Adriaenssen I. A cost analysis of the management of attention-deficit/hyperactivity disorder (ADHD) in children in the UK. *J Med Econ* 2003;6:79–94.
23. Kurian BT, Ray WA, Arbogast PG, Fuchs C, Dudley JA, Cooper WO. Effect of regulatory warnings on antidepressant prescribing for children and adolescents. *Arch Pediatr Adolesc Med* 2007;161:690–6.
24. Murray ML, Thompson M, Santosh PJ, Wong IC. Effects of the Committee on Safety of Medicines advice on antidepressant prescribing in children and adolescents in the UK. *Drug Saf* 2005;28:1151–7.
25. Wijlaars L, Nazareth I, Petersen I. Trends in depression and antidepressant prescribing in children and adolescents: a cohort study in The Health Improvement Network (THIN). *PLoS One* 2012;7:e33181.
26. Olfson M, Marcus SC. National patterns in antidepressant medication treatment. *Arch Gen Psychiatry* 2009;66:848–56.
27. Hsia Y, Maclennan K. Rise in psychotropic drug prescribing in children and adolescents during 1992–2001: a population-based study in the UK. *Eur J Epidemiol* 2009;24:211–6.
28. Pratt LA, Brody DJ, Gu Q. Antidepressant use in persons aged 12 and over: United States, 2005–2008. *NCHS Data Brief* 2011;76.

29. McCarthy S, Asherson P, Coghil D, et al. Attention-deficit hyperactivity disorder: treatment discontinuation in adolescents and young adults. *Br J Psychiatry* 2009;194:273–7.
30. Zuvekas SH, Vitiello B. Stimulant medication use in children: a 12-year perspective. *Am J Psychiatry* 2012;169:160–6.
31. Visser SN, Lesesne CA. Mental health in the United States: prevalence of diagnosis and medication treatment for attention-deficit/hyperactivity disorder—United States, 2003. *MMWR Morb Mortal Wkly Rep* 2005;54:842–7.
32. Visser SN, Bitsko RH, Danielson ML, Perou R, Blumberg SJ. Increasing prevalence of parent-reported attention-deficit/hyperactivity disorder among children—United States, 2003 and 2007. *MMWR Morb Mortal Wkly Rep* 2010;59:1439–43.
33. Meltzer H, Gatward R. The mental health of children and adolescents in Great Britain, 1999. London: National Office for Statistics, 2000.
34. Ford T, Goodman R, Meltzer H. The British Child and Adolescent Mental Health Survey 1999: the prevalence of DSM-IV disorders. *J Am Acad Child Adolesc Psychiatry* 2003;42:1203–11.
35. Green H, McGinnity A, Meltzer H, Ford T, Goodman R. Mental health of children and young people in Great Britain, 2004. Basingstoke, UK: Office for National Statistics, 2005.
36. Costello E, Mustill S, Erkanli A, Keeler G, Angold A. Prevalence and development of psychiatric disorders in childhood and adolescence. *Arch Gen Psychiatry* 2003;60:837–44.
37. Angold A, Erkanli A, Farmer EMZ, et al. Psychiatric disorder, impairment, and service use in rural African-American and white youth. *Arch Gen Psychiatry* 2002;59:893–901.
38. Pratt LA, Brody DJ. Depression in the United States household population, 2005–2006. *NCHS Data Brief* 2008;7:1–8.
39. Centers for Disease Control and Prevention. Mental health: depression. [http://www.cdc.gov/mentalhealth/data\\_stats/depression.htm](http://www.cdc.gov/mentalhealth/data_stats/depression.htm)
40. McArdle P, Prosser J, Kolvin I. Prevalence of psychiatric disorder: with and without psychosocial impairment. *Eur Child Adolesc Psychiatry* 2004;13:347–53.
41. Safer DJ. Commentary: stimulant treatment in the community. *J Am Acad Child Adolesc Psychiatry* 2000;39:989–92.
42. Wolraich ML, Hannah JN, Baumgaertel A, Feurer ID. Examination of DSM-IV criteria for attention deficit-hyperactivity disorder in a county-wide sample. *J Dev Behav Pediatr* 1998;19:162–8.
43. Koerth-Baker M. The not-so-hidden cause behind the ADHD epidemic. *N Y Times* 2013;15 Oct.
44. Singh I, Filipe AM, Bard I, Bergey M, Baker L. Globalization and cognitive enhancement: emerging social and ethical challenges for ADHD clinicians. *Curr Psychiatry Rep* 2013;15:385.
45. Watters E. The Americanization of mental illness. *N Y Times* 2010;8 Jan.
46. Zima BT, Bussing R, Tang T, et al. Quality of care for childhood attention-deficit/hyperactivity disorder in a managed care Medicaid program. *J Am Acad Child Adolesc Psychiatry* 2010;49:1225–37.
47. MassHealth [Massachusetts]. EPSDT services: medical and dental protocols and periodicity schedules: early and periodic screening, diagnosis and treatment (EPSDT) medical protocol and periodicity schedule (the medical schedule) and EPSDT dental protocol and periodicity schedule (the dental schedule). 2011. <http://www.mass.gov/eohhs/docs/masshealth/providermanual/appx-w-all.pdf>
48. U.S. Department of Health and Human Services. Early and periodic screening, diagnostic, and treatment. <http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Benefits/Early-and-Periodic-Screening-Diagnostic-and-Treatment.html>