



The Importance of Teacher Involvement in Medication Therapy

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Abstract

Over the past several decades, there has been a steady increase in the use of medication therapy to help control student behavior within schools. While psychotropic medications do not “cure” mental illnesses, they have demonstrated efficacy in helping children function better at school and within their home environment. However, it is important educators understand these medications may also pose significant risks for children, with potential side effects ranging from mild discomfort to life threatening complications. In this article, the authors review the major types of psychotropic medications, discuss the therapeutic benefits and potential side effects of medications, and provide recommendations regarding how teachers can assist to ensure the safe use of these medications.

Keywords

Psychotropic medications, medication therapy

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There has been an ever increasing need for schools to address the mental health needs of children and adolescents nationwide, as half of all serious adult psychiatric illnesses including major depression, anxiety disorders, and substance abuse start by 14 years of age (Friedman, 2006). Over the past several decades, a popular intervention to help manage mental health and behavior problems among our nation's youth has been medication therapy (Ryan, Reid, & Ellis, 2008; see also The Center for Health and Health Care in Schools, 2007). For example, according to Olfson, Marcus, Weissman, & Jensen (2002), children and adolescents were three times more likely to use psychotropic medication in 1996 than in 1987 (use of medication increased from 1.4 to 3.9 per 100 children and adolescents from 1987 to 1996). These rates, however increase dramatically (26%) when considering students in special education (Runnheim, Frankenberger & Hazekorn, 1996), and can reach as high as three quarters among students with ADHD (52% to 71%) (Safer & Zito, 2000), and emotional disturbance (76%) (Ryan, Reid, Gallagher & Ellis, 2008).

The recent proliferation of medication therapy has been the result of significant advances within the field of pharmacology, ac-

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panied by an increased willingness of many parents to treat their child's mental health disorders with drug therapy. Medication therapy has become so popular, that it

currently accounts for almost half (42.9%) of all costs of outpatient psychiatric treatment for adolescents (Martin & Leslie, 2003). This increased medication use has been observed among all age groups, even at the youngest grade levels. For example, stimulant medications prescribed to preschoolers increased approximately 3 fold during the early 1990s (Zito, Safer, dosReis, Gardner, Boles, & Lynch, 2000).

While knowledge and concern over drug therapy was once primarily limited to school nurses, the increased prevalence rates, coupled with the effect of medication on a child's academic and behavioral performance within the classroom has made medication therapy a school-wide concern. This is especially true given the potential dangers of medication side effects which can range from mild (e.g., stomach pain) to potentially life threatening. Consequently, the increased reliance on medication therapy for many students with disabilities and the potential dangers associated with their use necessitates that special educators and parents alike to develop an increased awareness of both the therapeutic benefits and potential risks associated with these drugs. The purpose of this manuscript is to review the primary types of psychotropic medications, including their potential therapeutic and adverse side effects, and provide recommendations to help ensure they are used in a safe and efficacious manner within our schools.

What are Psychotropic Medications?
Psychotropic medications are a loosely defined grouping of drugs capable of modifying mental activity, and may help children by controlling their symptoms (e.g., hyperactivity, mood swings).

Table 1. Common Types of Psychotropic Medication

Category	Commonly Prescribed Examples Trade Name / (<i>Generic Name</i>)	Desired Therapeutic Outcome	Common Behavioral Side Effects
Anticonvulsants	Depakene or Depakote (<i>valproate or valproic acid</i>) Klonopin (<i>clonazepam</i>) Tegretol (<i>carbamazepine</i>)	Primarily used to treat epileptic disorders, however sometimes prescribed to manage behavior problems with aggression, anger and severe mood swings.	Agitation or mania Hallucinations Impulsive behavior Increased aggression Irritability Motor/vocal tics Sleepiness
Antidepressants	<u>Atypical Antidepressants</u> Desyrel (<i>trazodone</i>) Effexor (<i>venlafaxine</i>) Serzone (<i>nefazodone</i>) Wellbutrin (<i>bupropion</i>) <u>Tricyclic Antidepressants</u> Anafranil (<i>clomipramine</i>) Pamelor or Aventyl (<i>nortriptyline</i>) Tofranil (<i>imipramine</i>)	Used to treat depression, anxiety, panic, obsessions, compulsions, bed-wetting, night terrors, sleep walking, and symptoms of ADHD.	Confusion Hallucinations Increased activity (e.g., rapid speech) Irritability Motor tics Severe change in behavior
Adrenergic (Antihypertensives)	Catapres (<i>clonidine hydrochloride</i>) Inderal (<i>propranolol hydrochloride</i>) Tenex (<i>guafacine hydrochloride</i>)	Primarily used to treat symptoms of Tourette's, chronic tics, and ADHD. Occasionally prescribed for aggression, post traumatic stress disorder (PTSD), anxiety and bipolar disorders.	Confusion Depression Sleepiness Worsening of tics
Antipsychotics	Clorzaril (<i>clozapine</i>) Haldol (<i>haloperidol</i>) Moban (<i>molindone</i>) Navane (<i>thiothixene</i>) Risperdal (<i>risperidone</i>) Thorazine (<i>chlorpromazine</i>) Zyprexa (<i>olanzapine</i>)	Typically used to treat psychotic disorders such as schizophrenia, and psychotic symptoms present with some mood disorders (e.g., delusional thinking or hallucinations). Atypical antipsychotics are frequently used to treat aggression in youth and reduce aggression in complex comorbid disorders. Typical antipsychotics are used as a second line of treatment for aggression in children.	Nervousness Restlessness or inability to sit still Sadness Sleepiness
Anxiolytics	Ativan (<i>lorazepam</i>) Buspar (<i>buspirone</i>) Klonopin (<i>clonazepam</i>) Restoril (<i>temazepam</i>) Valium (<i>iazepam</i>) Xanax (<i>alprazolam</i>)	Sometimes referred to as anti-anxiety medications, and are typically prescribed for short-term treatment of anxiety and sleep problems.	Aggression Excitement Irritability Memory loss Sleepiness Uncontrolled behavior

Mood Stabilizers	Eskalith CR / Lithonate (<i>lithium</i>)	Prescribed for bipolar (manic depressive) disorder, certain types of depression, severe mood swings and explosive aggression	Confusion Sleepiness
Selective Norepinephrine Reuptake Inhibitors (SNRIs) **	Strattera (<i>atomoxetine</i>) Edronax (<i>reboxetine</i>)	SNRIs are an older form of antidepressant that are more commonly prescribed today for dealing with motivation and concentration issues associated with ADHD.	Anxiety Agitation Anxiety Apathy Dizziness/nausea
Selective Serotonin Reuptake Inhibitors (SSRIs) **	Celexa (<i>citalopram</i>) Luvox (<i>fluvoxamine</i>) Prozac (<i>fluoxetine</i>) Zoloft (<i>sertraline</i>)	Used to treat depression, obsessive-compulsive and panic disorders, eating disorders, phobias, attention deficit disorders, and chronic anxiety disorders such as obsessive compulsive disorder (OCD), and post traumatic stress disorder (PTSD)	Restlessness Sleepiness
Stimulants	Adderall (<i>Mixture of amphetamines</i>) Daytrana or Ritalin (<i>Methylphenidate</i>) Desoxyn Gradumet tablets (<i>Methamphetamine</i>) Dexedrine (<i>Detroamphetamine</i>)	Prescribed primarily for ADHD to improve attention span, ability to complete tasks, and follow directions, while decreasing distractibility, hyperactivity, and impulsivity.	Auditory/visual/tactile hallucinations Irritability Motor/vocal tics Nervous habits Rebound Sadness

Note 1. Table adopted from Ryan et al., 2008.

Essentially they are chemical substances that have the effect of altering brain function, resulting in temporary changes in perception, mood, consciousness, and/or behavior. Table 1 above lists (a) the more common psychotropic medications, (b) reasons these medications are typically prescribed, and (c) common side effects associated with each.

Benefits of Psychotropic Medications. Psychotropic medications do not cure mental illness, however they (a) assist with biologically-based disorders, (b) decrease negative symptoms, (c) increase functioning within school, home and other environments, and (d) help increase the effectiveness of behavioral and academic interventions. In addition, they are frequently fast-acting and cost-effective. Table 1 reviews the therapeutic

benefits of each class of psychotropic medication.

Drawbacks of Psychotropic Medications. Unfortunately, the positive effects of medications with various childhood disorders has resulted in a tendency to overlook the potential risks associated with medication therapy. Psychotropic medications can have adverse side effects, ranging from physical symptoms (e.g., skin rash, difficulty breathing) to behavioral changes (e.g., irritability, drowsiness) to severe reactions, including death (Dulcan, 2007). It has been known for years that individuals differ dramatically in the way they respond to any given psychotropic medication based on their individual genetic variation, which affects our body's ability to metabolize a drug. Early research has shown that individuals whose bodies have

difficulty metabolizing a drug, may be more likely to experience adverse side effects when taking a medication (Bray, Clarke, Brennen & Muncie, 2008). Consequently, it is important for parents, students, and educators alike to be aware that every psychotropic medication carries the potential risk of adverse side effects, and it is incumbent upon them to provide immediate feedback to the prescribing physician when they occur.

Perhaps one of the most unnerving aspects of using psychotropic medications with children and adolescents, is that these younger populations are often placed at increased risk, because many of these medications are prescribed off label (without Food and Drug Administration (FDA) approval) (see Zito et al., 2000). This is especially true when children are prescribed medications despite not being close to the age, size and weight of the adult population the medication was tested and approved for by the FDA. Specifically, the central nervous system of a child is still developing, and the range of responses to medications may vary considerably. Further, variances in dosage, age of onset of a disorder, severity and duration of a problem, as well as interactive factors from social and psychological variables all make predicting effects of medication an arduous task. This was recently highlighted by the FDA's "Black Box Warning" regarding the use of antidepressants with adolescents because of the possibility of an increased risk for suicidal behavior. Making medication therapy even more complicated is the increasing popularity of prescribing more than one medication (polypharmacy), which can increase the risk of adverse side effects and drug interactions, obscuring treatment effects, and making adherence to treatment more difficult (Pappadopulos, MacIntyre, Crimson, Findling, Malone, et al., 2003).

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The Nature of Educators Involvement.

While physicians are ultimately responsible for monitoring medication effectiveness, they can not monitor the effects on a child's behavior and learning within the classroom and, as a result, must rely on feedback from educators. Indeed, many researchers have called upon schools and educators to take a more active role in participating in a child's medical treatment (Forness, Kavale & Davanzo, 2002). Progress toward this goal can only be achieved through shared responsibility involving teachers, school administrators, parents, counselors, psychiatrists, nurse practitioners and pediatricians. If teachers elect not to become active participants in the medication monitoring process, physicians will likely make decisions regarding a child's behavior that might not accurately reflect their classroom needs (Oswald, 2002). For example, some medications side effects include drowsiness which may result in significantly decreased level of student performance during academic instruction. Consequently, not including school staff in the pharmacological process may limit the potential benefits a medication might afford a child, and negatively impact their educational performance.

Knowledge levels of Psychotropic Medications Among Educators. To effectively communicate with medical personnel and explain how medication impacts the learning environment, educators need to become better informed about drug therapy (Snider, Busch & Arrowood, 2003). Unfortunately, recent studies investigating medication familiarity

and/or knowledge among general education teachers (Snider et al., 2003) and special educators (Ryan et al., 2008) found both groups were surprisingly uninformed about even the most commonly prescribed psychotropic medications their students were taking. Findings from both studies suggest educators are not receiving adequate training on medications, despite practically all of the educators who were surveyed (92.8%) having expressed a desire to increase their knowledge of drug therapy (Ryan et al., 2008). Another important finding from this study was that nearly half of all educators were typically relying on “in-house” staff development training to increase their knowledge base of medications. This stresses the importance for administrators to incorporate pharmacological training into staff professional development sessions to better meet the professional needs of their staff.

While there is only limited teacher training materials available related to psychotropic medications, there are two manuals developed by Dulcan (2007) and Konopasek (2005) specifically created for educators. These books provide quick fact sheets providing (a) descriptions of the various types of medications, (b) reasons the medications are typically prescribed, and (c) potential therapeutic and adverse side effects. In addition, there are numerous web resources available to parents and educators to find out more information on psychotropic medications (see Table 2 below). For instance, the Mayo Clinic maintains a web based resource that provides a listing of therapeutic and side effects for both prescription and over the counter medications.

Parental Perceptions of Teacher Involvement in Medication Therapy. The desire for teachers to be active participants in the medication process has also been expressed

by many parents. A survey of 217 parents showed that parents strongly believe their child’s teachers need to be informed about the medications they are taking. While these parents reported that they should be the primary source of information for educators regarding their child’s medications, they believed physicians should still take an active role in communicating with the schools (Andrews, 1991). When the decision to medicate a student is made, it is necessary that all caretakers (e.g., parents, teachers) observe children and question them regarding side effects. It is also extremely important that student observations/monitoring occurs prior to the administration of any medication. This approach provides a comparison baseline for student behavior and performance, and ensures pre-existing behaviors (e.g., insomnia, tics) are not mistaken for side effects. Students should also be monitored to ensure they are actually taking the medication at the proper times and dosage levels as these patterns can significantly impact the success of medication therapy (MHS, 1996).

Legal Aspects of the School’s Role Regarding Medication Therapy. Currently IDEA 2004 does not prevent school personnel from dispensing medications, or consulting with parents regarding the efficacy of medications on the academic, functional, or behavioral performance in school. IDEA 2004 only states that neither a State Education Agency (SEA) nor any Local Educational Agency (LEA) personnel can require a child with a disability or suspected of having a disability to obtain a prescription for a medication covered by the Controlled Substances Act [Section 812 (c)] as a condition for (a) attending school, (b) receiving an evaluation, or (c) receiving any type of special education or related services [Section 612 (a) (25) (A)].

Table 2. World Wide Web Resources for Parents & Educators on Psychotropic Medications

Organization	World Wide Web Site
Counseling Resource	www.counsellingresource.com/medications/
Mayo Clinic	www.mayoclinic.com/health/drug-information/DrugHerbIndex
Medicine Net	www.medicinenet.com/medications/article.htm
Medline Plus	www.nlm.nih.gov/medlineplus/druginformation.html
National Alliance on Mental Illness (NAMI)	www.nami.org/Content/NavigationMenu/Inform_Yourself/About_Medications/About_Medications.htm
National Institute of Mental Health (NIMH)	www.nimh.nih.gov/health/publications/medications/summary.shtml
Parents Med Guide	www.parentsmedguide.org/pmg_adhd.html
Web MD	www.webmd.com/drugs/

According to the National Association of State Boards of Education (2007) 36 states have mandatory or recommended policies concerning administration of prescription medications at school with ten states specifically addressing the administration of psychotropic medication.

The Office for Civil Rights (OCR) in the U.S. Department of Education serves as the primary administrative enforcement mechanism for Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act (ADA) in relation to schools. To date, OCR has ruled that a school's responsibility regarding medications should include (a) determining a child's needs for the

administration of medication, (b) administering medications, and (c) supervising the administration of medications, including safeguards, training personnel to administer it, and communicating with the prescribing physician (Copeland, 1995).

Schools that serve students with high medication rates need to incorporate effective monitoring procedures to ensure medication therapy is provided in an optimal and safe manner. Medication monitoring programs such as the *Copeland Medication Follow-Up Questionnaire* provide teachers a standardized method of providing weekly inputs to a physician regarding the affect a medication has upon a student's academic and behavioral

performance in school. Due to federal legislation designed to protect the privacy of student educational records (i.e., Family Educational Rights and Privacy Act (FERPA) of 1974) and medication records (i.e., Health Insurance and Portability and Accountability Act (HIPAA) of 1996), communication between schools and physicians requires parental permission. Parental written consents need to be provided to both the prescribing physician, as well as for the participating school to conduct interdisciplinary monitoring and communication. However, only through such collaboration can schools ensure that medication therapy is conducted in a safe and beneficial manner.

Conclusion and Recommendations

Given the proliferation of medication therapy among school age children and the associated benefits and risks, it is important that educators participate actively in the medication therapy to ensure optimal results. While the nature of this involvement may vary, it typically demands an expanded knowledge base of psychotropic medications and the careful monitoring and reporting to physicians (and parents) the effects of these medications on learning and behavior. According to Katsiyannis, Landrum, and Vinton (1997), teachers should:

1. Never recommend the use of psychotropic medications for any student. However, school personnel (school health staff, classroom teachers and other school professionals) may recommend that a student be evaluated by an appropriate medical practitioner.
2. Understand Medications. This task may be accomplished by carefully planned staff development activities, including medication admini-

stration training program approved by the state.

3. Help Collect Data to Monitor Medication Efficacy. Educators must be trained in observational recording systems, along with techniques to ensure reliability and interobserver agreement. Such data collection and eventual sharing with parents and physicians will likely result in dosage adjustments and potential medication reduction plans.
4. Ensure Appropriate IEPs Accommodations are Provided. Children taking psychotropic medications may require specific accommodations and supports outlined in the IEP to address potential side effects (e.g., increased amounts of fluids, avoidance of sun).
5. Establish School/district wide Procedures. Having comprehensive policies for administering medications and having involved teachers become fully familiar with those procedures will also enhance the safety of medication therapy and reduce liability. For instance, physician's orders regarding prescribed medication must be on file (school nurse office), storage protocol must be in place (e.g., medications must be securely locked and properly labeled), a detailed description of any known side effects and the symptoms of such an effect must be available, and emergency numbers must be available for drug reactions or medication errors (e.g., attending physician, regional poison control center). Medication

should be brought to school by parents in its original package, with the name of the student, name of medication, dosage and dispersion time on it. Finally, a log must be maintained of all medicines dispersed. (Commonwealth of Virginia, 2007; The Center for Health and Health Care in Schools, 2007).

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