

## TRAINING SCHOOL PSYCHOLOGISTS IN PSYCHOPHARMACOLOGY CONSULTATION

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The number of children taking psychotropic medications has dramatically increased in recent years. These children typically take medication during school hours, thereby making the school setting an optimal venue in which to evaluate the effectiveness of medications. Given their training in data-based decision making, intervention, and assessment, school psychologists should be involved in the evaluation of medication effectiveness in children at school. However, many school psychology programs do not offer formal training in psychopharmacology. This article describes the American Psychological Association and National Association of School Psychologists standards for psychopharmacology training. Additionally, the article details how school psychologists can use the behavioral consultation model, described by Kratochwill & Bergan (1990) to evaluate the effectiveness of medications. Legal and ethical considerations are also discussed. © 2009 Wiley Periodicals, Inc.

The prevalence of chronic medication use in children and adolescents has increased markedly in the past decade. Cox, Halloran, Homan, Welliver, and Mager (2008) reported increases in the prevalence of children taking antihypertensives, antihyperlipidemics, type 2 antidiabetics, antidepressants, Attention-Deficit/Hyperactivity Disorder (ADHD) medications, and asthma-control therapy between 2002 and 2005. Additionally, they found that increases were larger for girls than boys for type 2 antidiabetics, ADHD medications, and antidepressants. In fact, estimates indicate that 90% of children diagnosed with ADHD will receive some form of medication for the disorder (Greenhill, Halperin, & Abikoff, 1999). Table 1 describes common medications prescribed to school-age children for mental and behavioral disorders, seizures, asthma, colds and allergies, and pain.

Kratochwill (1994) reported that a major reason for an increase in psychotropic medication treatment among youth may be due to cost effectiveness as compared to hospitalization or residential treatment. Additionally, children who are receiving a combination of medication and psychosocial treatments for some disorders (e.g., ADHD, depression, anxiety) may achieve maximal results using both treatment approaches. Regardless of the reasons, many children in the schools are on treatments that include medication. Clearly, there is a need for school psychologists to be involved in psychopharmacology training given the lack of education provided by training programs (Kratochwill, 1994) and the increase in the prevalence of children on medication for a variety of reasons (e.g., ADHD, asthma, diabetes).

### PSYCHOTROPIC MEDICATION

The use of psychotropic medication to treat children with emotional and behavioral disorders has increased in frequency over the past several decades (DuPaul & Carlson, 2005; Wilens & Biederman, 1992). As the use of psychotropic medications increases, so does school involvement in the pharmacological treatment of school-age children. In fact, more than 50% of parents report that schools are the first to suggest the need to treat symptoms of inattention, hyperactivity, and

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Table 1  
*Examples of Common Medications in School-Age Children*

Medical Condition	Commonly Used Medications		
	Types	Generic (Brand) Names	Possible Side Effects
Mental and behavioral disorders	Stimulants	Methylphenidate (Ritalin, Concerta, Metadate); dexamethylphenidate (Focalin); dextroamphetamine (Dexedrine); mixed amphetamine salts (Adderall); lisdexamfetamine (Vyvanse)	Appetite suppression, headache, nausea, insomnia, anxiety, agitation, dizziness
	Antidepressants (SSRIs)	Fluoxetine (Prozac); sertraline (Zoloft); fluvoxamine (Luvox); paroxetine (Paxil); citalopram (Celexa); escitalopram (Lexapro)	Nausea, anxiety, insomnia, change in appetite, restlessness, headache, fatigue, sexual dysfunction
	Antipsychotics	Aripiprazole (Abilify); olanzapine (Zyprexa), quetiapine (Seroquel); risperidone (Risperdal); ziprasidone (Geodon)	Sedation, increased appetite, endocrine changes, muscle stiffness or spasm, feeling of restlessness, tremor, dry mouth and eyes, blurred vision, constipation, difficulty urinating, dizziness, tardive dyskinesia, neuroleptic malignant syndrome
Seizures	Anticonvulsants	Carbamazepine (Carbatrol, Tegretol); valproate (Depakene, Depakote); phenytoin (Dilantin); ethosuximide (Zarontin); levetiracetam (Keppra); clonazepam (Klonopin); lamotrigine (Lamictal); topiramate (Topamax); oxcarbazepine (Trileptal)	Dizziness, nausea and vomiting, diarrhea, headache, irritability, drowsiness and fatigue, clumsiness, difficulty concentrating, sleep disturbances, behavioral changes
Asthma	Benzodiazepines	Diazepam (Valium, Diastat); lorazepam (Ativan)	Drowsiness, dizziness, tiredness, blurred vision, headache
	Bronchodilators	Albuterol (Proventil); metaproterenol (Alupent); terbutaline (Brethaire); theophylline (Theo-Dur, Slo-Bid, Theobid)	Upset stomach, restlessness, insomnia, irritability, headache, decreased appetite, dizziness, shakiness
	Anti-inflammatory agents	Cromolyn (Intal)	Throat irritation, bad taste in mouth, nausea, cough, runny nose
Colds and allergies	Antihistamines	Cetirizine (Zyrtec); loratadine (Claritin); desloratadine (Clarinex); hydroxyzine (Atarax); diphenhydramine (Benadryl)	Nausea, drowsiness, irritability, confusion, constipation, dry nose or mouth, difficult urination
	Decongestants	Pseudoephedrine and phenylephrine (Sudafed); oxymetazoline (Afrin); naphazoline (Allerest, Clear Eyes, Naphcon)	Restlessness, insomnia, dizziness, drowsiness, dry or irritated nose, headache, loss of appetite, palpitations

(Continued)

Table 1  
Continued

Medical Condition	Commonly Used Medications		
	Types	Generic (Brand) Names	Possible Side Effects
Pain	Combinations	Pseudoephedrine/Tripolidine (Actifed); chlorpheniramine/pseudoephedrine (Chlor-Trimeton)	Same as above
	Inhaled corticosteroids	Fluticasone propionate (Flonase); budesonide (Rhinocort Aqua); triamcinolone acetonide (Nasacort AQ); mometasone (Nasonex)	Nasal irritation, bad taste in mouth
	Non-narcotic analgesics	acetaminophen (Tylenol, Excedrin, FeverAll)	Few if taken as directed
	Nonsteroidal anti-inflammatory drugs (NSAIDs)	Ibuprofen (Advil, Motrin, Excedrin, Midol); naproxen (Aleve, Anaprox, Naprosyn); aspirin	Indigestion, nausea, diarrhea/constipation, headache, Reye syndrome (aspirin)
	Narcotic analgesics	Codeine, hydrocodone (Lortab, Vicodin); oxycodone (Percocet)	Nausea or vomiting, constipation, dry mouth, blurred vision, nervousness, agitation, confusion

impulsivity (dosReis et al., 2003). Furthermore, it is estimated that a quarter of children referred for special education are receiving psychotropic medication treatment (Carlson, 2001) and 50% of children who meet special education criteria for “serious emotional disturbance” have been prescribed at least one medication within a 3-year period (Mattison, 1999). Because of their optimal location within the school setting and training in data-based decision making, school psychologists are in an ideal position to help make decisions to initiate, terminate, and integrate pharmacological, psychotherapeutic, and educational interventions (Kubiszyn, 1994). Although school psychologists are in an ideal role to evaluate psychotherapeutic interventions, there are no specific training recommendations from either the American Psychological Association (APA) or the National Association of School Psychologists (NASP) regarding school psychologists’ training in psychopharmacology.

#### PSYCHOPHARMACOLOGY TRAINING

The APA and NASP do not provide specific training recommendations for school psychologists regarding psychopharmacology; however, the APA does endorse three levels of psychopharmacology training and practice in general (Brown, Dingle, & Landau, 1994; Kubiszyn, 1994). Level I provides training for psychotropic researchers, includes basic psychopharmacology education, and requires a graduate course in psychopharmacology (a single course with a biological basis prerequisite) and continuing education. Level II provides training for psychotropic monitors/evaluators and includes Level I requirements and supervised practicum and intern experience. Level III provides training for prescription privileges and requires participation in a specialized postdoctoral training program (DeMers, 1994; Kubiszyn & Carlson, 1995). Despite recommendations by the APA, the majority of school psychology programs are at the master’s or specialist level and do not subscribe to APA-training standards (Carlson, Thaler, & Hirsch, 2006). Therefore, these programs may not be equipped to provide consultation and collaborative training in psychotropic intervention.

The NASP provides recommendations for data-based decision making and accountability, home/school/community collaboration, research and program evaluation, legal and ethical practice, and professional development (Ysseldyke et al., 1997). Although programs are always stretched to find room for additional training (Kratochwill, 1994), expanding school psychology preparation to integrate Level I and Level II psychopharmacology training is critical, especially considering the significant increase in psychotropic intervention with children in the school setting. Current school psychology training that emphasizes developing, implementing, and evaluating interventions is a model that can easily be applied to evaluating psychotropic intervention. In addition, school psychologists are ideal candidates for the assessment and monitoring of psychotropic intervention because they can easily access the educational environment (DuPaul & Carlson, 2005) and because school psychologists are a logical link between medical personnel, parents, and teachers (Abrams, Flood, & Phelps, 2006).

#### TRAINING IN PSYCHOPHARMACOLOGY CONSULTATION

School psychopharmacology is the study of how medication impacts learning, social interactions, and behavioral functioning within the school setting (Carlson, 2001). School personnel who assist in psychotropic medication evaluation and collaboration include school administrators, school- and community-based psychologists, parents, children, and physicians (Carlson, 2001). Similarly to how school psychologists guide educational intervention within the schools, specific training in psychotropic medication evaluation would allow school psychologists to provide medication intervention-related feedback and collaboration with physicians.

##### *Knowledge of Psychotropic Medications*

Given the frequency with which school psychologists provide services to children receiving psychotropic intervention during the school day, it is critical that school psychologists have a working knowledge of psychotropic medications (Carlson, 2001). To meet APA's psychopharmacology training Level I recommendations, school psychology coursework should include a graduate level introductory course for nonmedical professionals. The course should discuss basic biological principles of drugs and drug treatments, specific drug classifications and their biological actions, drug treatments for various psychiatric disorders, and issues pertaining to pharmacotherapy (Carlson, 2001).

Once coursework is completed, school psychologists should be able to provide teachers and families with educational information on medications and substances commonly abused by school-age children and medication intervention. School psychologists should also be able to collaborate with parents, teachers, and community professionals to examine the impact of medication intervention on social, academic, and emotional functioning resulting from treatments, and to monitor progress and potential side effects (Carlson, 2001).

##### *Psychotropic Intervention*

Prior to considering psychotropic intervention, or a comprehensive psychoeducational evaluation, school psychologists need to be trained to implement least-restrictive intervention options when faced with a child with an emotional, social, or behavioral concern (DuPaul & Carlson, 2005). Least-restrictive intervention options include changes to the curriculum, instructional practices, setting characteristics, and educating children regarding specific skill sets (DuPaul & Carlson, 2005).

It is our view that psychotropic intervention and evaluation should be implemented when a family (along with the child's physician or psychiatrist) has determined that a psychotropic intervention or a change in psychotropic intervention is appropriate. We encourage school staff and other professionals involved with the student to provide data to the family or physician to help make a

decision regarding more intensive intervention (e.g., medication); however, we do not endorse school personnel suggesting or initiating psychotropic interventions. Allowing the family and the child's physician to determine the need for psychotropic intervention or changes to current treatment will help avoid legal and ethical concerns surrounding the use of psychotropic intervention in the schools.

Once the use of psychotropic intervention is determined, school psychologists can offer an essential role in systematically and effectively assessing the impact of the psychotropic intervention on a targeted behavior in need of change (e.g., on-task behavior, reducing aggression). The behavioral consultation model, described by Kratochwill & Bergan (1990), can easily be applied to evaluating psychotropic interventions within the schools. We propose that school psychology training programs train school psychologists in psychopharmacology consultation, which is the evaluation of psychotropic interventions within a problem-solving approach, such as the behavioral consultation model described by Kratochwill & Bergan (1990). Integrating the Kratochwill & Bergan (1990) model into the evaluation of psychotropic intervention will allow school psychologists to provide empirical support to physicians who can make data-driven medication management decisions.

According to Kratochwill & Bergan (1990), the main objective of behavioral consultation is to produce change in the client's or student's behavior. Characteristics of the consultation process include indirect service delivery (i.e., consultant works with a consultee who provides direct services to a client), a problem-solving approach to the treatment of academic and social problems, and the collegial relationship between the consultant and the consultee. There are four stages in behavioral consultation: problem identification, problem analysis, treatment implementation, and treatment evaluation (Kratochwill & Bergan, 1990).

*Problem Identification.* During the problem identification stage, the problem or problems to be solved are determined (Kratochwill & Bergan, 1990). During this stage, a specific problem should be defined so that the target behavior can be measured and agreed upon reliably by any person familiar with the student. When evaluating the effects of a stimulant medication, the target behavior might be "frequency of raising hand before talking." Once a target behavior is identified and defined, it is measured prior to medication trial to confirm that there is a discrepancy between the current targeted behavior and the desired behavior.

*Problem Analysis.* Once the presence of a problem is validated, variables that may facilitate a solution and a plan to analyze the effects of the intervention are determined (Kratochwill & Bergan, 1990). When making a plan to determine the use and effects of psychotropic intervention, collaboration is important (American Academy of Pediatrics [AAP], 2001). Persons involved in the psychopharmacology consultation process should include a student's parents, physician, psychologists, educators, and other professionals.

When planning how the effects of the psychotropic intervention will be analyzed, the psychopharmacology consultation team needs to determine the length of the medication trial (Power, DuPaul, Shapiro, & Kazak, 2003). The length of the trial is important because some medications are short-acting (e.g., methylphenidate), whereas others need to be gradually titrated (e.g., haloperidol) (DuPaul & Carlson, 2005; Power et al., 2003).

There are various ways to evaluate the effectiveness of pharmacotherapy. The evaluation measurement tool used should align with the assessment tools used prior to the onset of treatment. For example, using the same assessment tool that was used to validate the target problem is recommended. Specific evaluation measures include behavior rating scales (e.g., The Behavior Assessment System for Children, Second Edition [BASC-II], Parent Rating Scales [PRS]; Reynolds & Kamphaus, 2004), direct observations of the target behavior (e.g., Barkley's ADHD Behavior Coding System; Barkley, 1990), review of permanent products (e.g., completed assignments), direct measures of

academic performance (e.g., curriculum-based assessment), and, when necessary, cognitive tests (Phelps, Brown, & Power, 2002; Power et al., 2003). Specific school-based medication evaluation procedures might also be considered, including the School-Based Medication Evaluation Program (SBME; Gadow, 1993) and the Methylphenidate Placebo Protocol (Hyman et al., 1998).

*Treatment Evaluation.* During the treatment evaluation stage, the desired target behavior described during the problem identification stage is examined to determine whether intervention goals have been met (Kratochwill & Bergan, 1990). More specifically, in psychopharmacology consultation, treatment evaluation assesses three areas. First, an assessment is made to determine whether the medication conditions lead to reliable changes in the target behavior. Second, a determination of the minimally effective dose (Gadow, 1986) or the lowest dose that leads to the greatest change with the least side effects should be evaluated. Finally, the consistency of the results across assessments should be evaluated (Power et al., 2003). Problem identification data are compared to data collected during psychotropic intervention to determine if the psychotropic intervention was effective. If the desired intervention goals were met, consultation is concluded. If the established goals were not met, the original psychopharmacology consultation plan is revised or a new plan is developed.

It should be noted that the efficacy of the psychotropic intervention should be evaluated independently of a child's diagnosis. In other words, whether or not a psychotropic medication reduced the target behavior should not be grounds for supporting or discouraging a specific diagnosis. For instance, research suggests that children without ADHD show similar behavioral and cognitive improvements with stimulant medication as do children with a diagnosis of ADHD (Peloquin & Klorman, 1986; Rapoport et al., 1978).

#### ETHICAL AND LEGAL CONSIDERATIONS IN PSYCHOPHARMACOLOGY CONSULTATION

There are legal and ethical considerations when working with children who are receiving medication. DeMers (1994) addressed the legal and ethical dilemmas involved with each level of training promoted by the APA Division 16 task force. The majority of legal and ethical considerations are associated with those psychologists who are involved in APA's Level III participation regarding prescription privileges although this article focuses on Levels I and II participation and will not include a discussion of the potential ethical and legal dilemmas of Level III (prescription privileges).

There are few (if any) ethical or legal considerations for Level I participation given that it involves education in basic pharmacology (DeMers, 1994). Level II participation (collaboration) has some legal and ethical implications; however, the discussion to be presented here is not exhaustive in terms of legal and ethical considerations. The reader is referred to DeMers (1994) for a further discussion of all legal and ethical considerations as well as legal and ethical concerns related to Level III practice.

#### *Competence*

Competence is an ethical concern with school psychopharmacology practice because of the inconsistency in exposure and experience in psychopathology and psychopharmacology among training programs. Although there certainly is a push toward greater involvement in psychopharmacological intervention in the schools, there is uncertainty as to the amount of training that would be sufficient to deem psychologists competent in this area. The APA Division 16 Task Force did not describe the type of curriculum in psychopharmacology that would be necessary to educate school psychologists in Level I practice (Kratochwill, 1994). The level of a psychologist's competence is typically determined by an examination of graduate training, supervised practica, as well as postdoctoral training (DeMers, 1994). Psychologists have an ethical responsibility to practice within their limits of competence, and most current school psychology doctoral programs are not equipped to provide

the necessary level of training (DeMers, 1994; Kratochwill, 1994). However, pre- or postdoctoral training programs may hold some promise for specialized training in psychopharmacology (Barkley, 1990; Kratochwill, 1994). Some scholars have even suggested a format for teaching psychopharmacology to predoctoral psychology students (Balster, 1990; Fox, Schwelitz, & Barclay, 1991).

Currently, the Munroe-Meyer Institute, Department of Psychology offers pre- and postdoctoral training opportunities for school psychology doctoral students to become more educated in psychopharmacology as well as practice in tandem with prescribing physicians in primary care clinics. Specifically, pre- and postdoctoral students attend regularly scheduled didactic training sessions on a variety of topics, including medication treatment and management, presented by board-certified developmental-behavioral pediatricians. Additionally, many predoctoral and most postdoctoral students are assigned to rotations that include practice within primary care settings where they are an integral part of treatment planning with the physician(s). Students learn about various aspects of psychopharmacology as well as practice in a collaborative setting with physicians who prescribe psychotropic and other medications. Psychologists and pre- and postdoctoral students are involved in direct physician consultation and assume various responsibilities regarding a patient who is medicated, including gathering rating scale data (e.g., side effects checklists, behavior rating forms) from caregivers and teachers during regular intervals. Additionally, pre- and postdoctoral students consult with teachers and school personnel on medication management as well as conduct pre- and postmedication child observations.

### *Informed Consent*

Pivotal to the provision of psychological services is informed consent, which encompasses another potential ethical complication with the expanding role of psychopharmacology consultation. The APA Ethical Code (2002) states that informed consent should take place as early as possible in the therapeutic relationship. In addition, one of the important aspects of informed consent is that psychologists provide alternative treatments when available. Therefore, when alternative or adjunctive treatments include pharmacotherapy, then psychologists may be ethically obligated to provide that information to patients (Norfleet, 2002; Rivas-Vasquez & Blais, 1997). To provide information on pharmacological treatments, psychologists must have available information and education on these treatments. Therefore, it seems necessary for psychologists to have Level I training prior to engaging in Level II (active collaboration) activities.

### *Recommending Drug Treatment*

Regardless of level of training, one legal issue at the forefront of psychopharmacology in the schools is the recommendation by any school professional for a child to be evaluated for medication (DeMers, 1994; Jacob & Hartshorne, 1998). In fact, in several states, it is unlawful for school personnel to coerce or recommend drug treatment (Carlson et al., 2005). As of 2005, Connecticut, Illinois, Michigan, Utah, Virginia, Texas, and Oregon passed laws prohibiting school personnel from recommending psychotropic drugs, and more than fifteen other states introduced legislation that would preclude school personnel from making drug treatment recommendations (American Academy of Child and Adolescent Psychiatry [AACAP], 2005). The AACAP (2005) noted concern that such legislation will result in even more stigma placed on mental health diagnoses and medication management and may result in the decrease in the early identification of children who require mental health intervention.

Being precluded from recommending drug treatment by psychologists may conflict with our responsibility to discuss empirically supported treatments for various diagnostic conditions and compromise our commitment to ethics specified in informed consent (Carlson et al., 2005; Kratochwill

& Stoiber, 2002). Because school psychologists are likely to be regarded as “school personnel,” there may be an ethical dilemma as to whether to provide parents with all empirically supported interventions for various diagnostic conditions when a drug treatment may be among available empirically supported treatments. For instance, psychostimulant treatment and/or behavior medication are empirically supported treatments for ADHD. Legislation would prevent psychologists from providing information regarding first-line stimulant treatment for ADHD. If a conflict occurs between professional ethics and law, then the APA ethical code recommends that a psychologist should comply with the law and attempt to resolve the conflict (APA, 2002).

School district policy may be another caveat in school psychologists recommending an evaluation for drug treatment. Specifically, many school districts have discouraged school psychologists and other school personnel (e.g., teachers) from referring a child for a medication evaluation because they do not want to pay for these services (Carlson et al., 2005). Again, given the empirical support for psychotropic drug treatment for certain conditions, school psychologists are left in a quandary about policy versus the ethical obligation to provide empirically supported treatments. Carlson et al. (2005) recommend that one may be able to resolve this issue by providing a family with fact sheets or sources (e.g., Web based, books) that detail evidence-based practices for a particular condition.

Each of these ethical issues involving competence, informed consent, and recommending drug treatments raises significant concerns and implications for how and with what knowledge school psychology training programs train their graduate students. We believe that, as the use of medication for both general medical conditions as well as mental health increases, school psychologists need to be prepared to take on the role of psychopharmacology consultant so that students in our schools are able to reach their academic, social, and emotional potential.

#### SUMMARY

There continues to be an increase in the number of school-age children taking medication for a variety of conditions and especially for behavioral and mental disorders. Many school psychology graduate programs have the potential to include Levels I and II psychopharmacology training promoted by the APA Division 16 Task Force. Questions remain as to how to adequately train school psychologists in basic psychopharmacology and psychopharmacology consultation. Psychotropic interventions should be initiated by the student’s family and pediatrician. Once the decision to medicate a child is made, school psychologists are ideal persons to facilitate a medication trial in the schools. School psychologists, whether at the specialist or doctoral level, have training in data-based decision making and intervention with children, which makes training school psychologists in evaluating psychotropic intervention a good fit. Given the frequency of medication use among school-age children, school psychopharmacology consultation will likely continue to be a pertinent issue in the field of school psychology.

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