ASCP Psychopharmacology Curriculum

PREFACE

Why do we need a curriculum in psychopharmacology? What practical use will it have? Historically, psychiatry residencies in the U.S. have been reputed to be *either* analytically *or* biologically oriented. Thus, there is great diversity among faculty with regard to skills, interests, and methods of practicing and teaching psychopharmacology. This has a significant impact on the residents in a particular program — and on the institutions these residents later join as faculty.

The psychopharmacology curriculum varies not only from one institution to another, but also within an institution from one graduating class to another. The constant infusion of new faculties results in a hit-or-miss experience, with some residents having a more positive experience than others. There is no consensus on criteria for a lecturer or supervisor to use in determining core psychopharmacology knowledge requirements for PGY 1, 2, 3, or 4 years.

Changing economic situations have led to drastic changes in service lines and budgets at most institutions. Although all institutions employ experienced psychopharmacologists, the faculty must devote extensive time to conducting research and preparing lectures for other sponsors in order to support their salaries. Thus, they are hard pressed to find time to prepare lectures for residents in their own institutions. Additionally, less money is available to support the preparation of color slides and teaching aids for residency programs. Paradoxically, faculty members may convey more of their knowledge on lecture circuits to primary-care physicians or neurologists than to the residents in their own programs. Teaching is often left to junior staff members, who must juggle heavy clinical loads and salary pressures with finding time to prepare lectures on drugs — about which they themselves have learned only very recently as residents.

The introduction of safe and easy-to-use psychotropics have placed a greater demand on graduating psychiatry residents to demonstrate psychopharmacology skills that are significantly superior to those possessed by primary-care doctors, especially with regard to complicated or refractory patients, co-morbid disorders, and the decision *not* to use a psychotropic agent. In addition, managed care has in many cases limited the psychiatrist;s treatment rol to pharmacotherapy, making expertise in this area essential for any practitioner. Likewise, Primary-care physicians will view future psychiatrists as sub-specialists in psychopharmacology (consistent with a medical model of thinking) when, in fact, most psychiatry residences do not adequately prepare residents for this role.

For these reasons, this curriculum has been designed to:

1. Ensure a comprehensive, uniform syllabus, emphasizing a core knowledge that will build on each previous year of training.

2. Decrease preparation time for lectures by providing detailed lecture outlines or

3. Cut expenses by providing subsidized teaching aids, including hard copies of

4. Allow both large and small residency programs to fine-tune the curriculum to

5. Ensure that residents have confidence, knowledge, and superior skills to make routine and complex psychopharmacology consultative decisions so that, by graduation, they exceed the skills required by the PRITE and ABPN, as well as those of primary care physicians.

6. Prepare residents for the possible emergence of clinical psychopharmacology

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RATIONALE

This curriculum is designed to provide a basis for planning and teaching psychopharmacology in a psychiatric residency program. It originates from the assumption that psychopharmacology is an extremely important skill that should be taught comprehensively in every residency program in the United States. The time allotted and/or the effectiveness of teaching varies from one program to another, and resources for designing such educational programs are not uniformly distributed among residency programs. Clearly, we need to ensure that psychiatric residents obtain adequate, science-based knowledge and skills. This model curriculum is our response to requests from the American Psychiatric Association (APA) and the American Association of Directors of Residency Training (AADRT), and from teachers of psychopharmacology, who have asked for a structured curriculum and teaching aids.

ORGANIZATION OF A PSYCHOPHARMACOLOGY PROGRAM

For each program, one individual should be identified as "Coordinator" or "Director of Psychopharmacology Training." This individual should have a broad orientation" and a strong commitment to clinical psychopharmacology; he or she should be an integral part of the particular department's residency education committee.

A major goal of the development of a clinical psychopharmacology program should be to train residents to use an integrated approach to drug and psychosocial treatment of the patient. Supervisors for psychotherapy, especially non-physicians, can directly or subtly confer anti-medication biases to those whom they supervise. The result is that the resident cannot comfortably discuss his or her patients with a single supervisor in a comprehensive manner. Obviously, problems resulting from such divergent foci and biases are difficult to overcome. Resident training directors should be aware of who these supervisors are; directly address this issue with them, and make special efforts to assure that residents can get adequate supervision for all patients receiving medication, even if they are predominantly psychotherapy cases.

One approach is to provide psychopharmacology supervision in regular group meetings for residents; another is to provide this in individual sessions that focus on psychopharmacology. Either method will provide residents with exposure to the psychopharmacology supervisor's experience and perspective regarding the integration of different therapies. In a case where the psychopharmacologist and the non-physician supervisor disagree about the need for medication, these two individuals should discuss the issue (and, if necessary, request mediation from the training director).

For programs without a faculty member with special expertise in psychopharmacology, an expert in the geographic area near the program should be identified and asked to consult with the person in charge of organizing the psychopharmacology curriculum. Each program should have access to relevant readings concerning the interface of psychopharmacology and psychotherapy. Programs of moderate to large size should have a "Chief Resident" in psychopharmacology.

Relationship of Research to Training

The relationship of clinical psychopharmacology teaching and psychobiological-psychopharmacological research is important to define. Obviously, research underlies the major clinical psychopharmacological practices utilized. However, it is important to note that psychopharmacological research and teaching clinical psychopharmacology are not synonymous. A program may have excellent basic or clinical psychopharmacological researchers who are poor teachers, or who are not interested in teaching clinical psychopharmacology. Furthermore, one does not necessarily need to be a front-line researcher in psychopharmacology to teach the art of psychopharmacology effectively. We feel that psychiatrists who are interested in understanding clinical psychopharmacology, and in teaching both its practical and theoretical components, are key to developing a viable psychopharmacology program.

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OVERVIEW AND EDUCATIONAL OBJECTIVES

This teaching package is based on the notion that there are psychopharmacological theories and practices to be taught and underlying principles to be learned. On the assumption that psychiatric residents learn in different ways, at different speeds and in very different settings, we have presented a variety of formats. Furthermore, repetition of appropriate concepts and data at various steps in the residency education staircase is necessary for the integration and consolidation of this information base. Case-based learning is essential. The involvement of senior supervisors, who can be models for the integration of psychopharmacology into the total treatment plan, underlies the entire model.

By way providing a road map, let us delineate educational objectives for both knowledge and skill:

Knowledge

The minimum objectives of a clinical psychopharmacology program should be to make explicit the required knowledge base of psychopharmacology for educating psychiatric residents in an optimal and standardized fashion. The curriculum should help the trainers in teaching participants to:

· Use psychotropic drugs safely and recognize pseudopsychiatric symptoms associated with anticholinergic delirium, etc.).

· Know when *not* to use psychotropic drugs.

· Know when, and which, psychopharmacological agents are the treatments of choice.

· Understand the limitations of pharmacotherapy and its potential dangers and pitfalls.

· Understand basic theoretical models relating current knowledge of the biology of the disorde

Skills

A clinical psychopharmacology program should teach specific skills so that participants will be able to:

· Integrate psychotherapeutic, psycho-educational, psychobiologic and psychop

· Develop a systematic approach to gathering diagnostic and treatment outcome data and in r

· Develop the ability to perform psychopharmacological consultations efficiently and

· Develop the ability to examine critically the relevant psychiatric literature via an

Additionally, we must specifically mention ECT, the survivor of the pre-psychopharmacologic biological therapies for mental illness. In many educational programs, ECT is considered part of psychopharmacology since it is a type of somatic treatment and it remains the back-up therapy for the severely mentally ill when psychotropic drugs fail. No specific syllabus is provided by other agencies, so lessons on ECT are interspersed throughout this syllabus to provide a guide for the education of psychiatric residents.

While we have not included material on the legal, regulatory and ethical aspects of psychopharmacological prescribing practices, programs should include material on informed consent, the rights of physicians in emergency clinical situations (suicide, assaultive behavior, etc.), the right of the patients to refuse treatment as well as their right to participate in experimental protocols if they choose.

The American Council of Graduate Medical Education requirements indicate that psychiatric residents need adequate education in biological aspects of psychiatry, including neurobiology and psychopharmacology, relative to both in-patient and out-patient settings. The changing locus of care clearly moves us more toward the out-patient setting. No specific numbers of hours are indicated, although some programs have outlined the different agents and diagnostic categories to be included in the case load for each trainee to insure adequate experience. It is understood that the pharmacotherapy will not be the only treatment given to many patients; nonetheless, the experience of long-term medication management is critical for the psychiatric resident.

Accordingly, in the absence of specific requirements, we suggest the following “minimum requirements":

Inpatients (5 hospitalized patients in each category):

· Schizophrenia

· Major depression bipolar type

· Major depression, unipolar subtype

· Mania.

Outpatients (15-25 patients for at least one year, 5-10 patients for at least two years):

A selected group of patients should be evaluated and/or followed for at least two years by residents. Ideally, the initial contact with some of these patients should have occurred while they were hospitalized, but this will vary among programs. At least 5 patients in each category should be followed for one year and at least one per category for two years:

· Anxiety disorders (panic disorder mandatory), social phobia, OCD, GAD, PTSD

· Mood disorders, including unipolar, bipolar, dysthymic, mood disorder NOS

· Psychotic disorders, including schizophrenia, schizoaffective, other.

At least one patient per category for one year is suggested (two years is preferred):

· Co-morbid anxiety and depression

· Co-morbid substance abuse and psychiatric disorder

· Eating disorder (includes bulimia nervosa, anorexia)

· Geriatric depression

· Dementia

· Developmentally disabled or organic disorder with aggression/impulse control

· Medically ill patients with psychiatric disorders.

For the PG 3 and PG 4 years (or whatever outpatient time blocks makes sense on a local level), a minimum of 4-6 hours per week should be devoted predominantly to psychopharmacology.

WHAT AND HOW TO TEACH

Each program will need to develop its own style and its own priorities for teaching a psychopharmacology curriculum based on its resources, expertise, and available clinical arenas. The following are suggested formats for developing an optimal teaching curriculum and program. We have *not* delineated ”priorities *vs.* the ideal“ in the main curriculum, and we emphasize here that, traditionally, Didactic Lectures and the Literature Review/Journal Club activities represent the "irreducible minimum" rather than the ideally complete program.

The question of which learning groups should be interdisciplinary must be answered, since many beginning residents are reluctant to reveal their limited knowledge of psychopharmacology in front of nurses and other non-M.D. personnel. Clearly, psychopharmacology training for psychiatrists must be geared toward a more comprehensive knowledge base than for other, non-psychiatrist disciplines over the course of the residency and should have first priority. Therefore, a decision as to the level at which to form interdisciplinary training groups is best done at the local level and should be considered by most programs.

The Didactic Program

The Didactic Program, or Psychopharmacology Lecture Series, includes:

1. Basic, advanced, and novel use of psychotropics
2. Integration with other treatment modalities.

3. Drug mechanisms and pathophysiology
4. Rationale fpr treatment choices

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Organization of Courses

Ideally, we view the didactic lectures as being taught at three different levels:

· A **crash course** taught in the PG 1 year or in the summer of the PG 2 year (particularly for residencies which begin on inpatient psychiatry wards). Careful attention must be safety and drug interactions in particular.

· A **basic course** with a full review of the agents in use and relevant topics to be presented in the PG 2 and/or PG 3 year.

· An **advanced course** for interested residents in the PG 3 and/or PG 4 year which

Other Considerations Related to Lectures

Various components taught sequentially during the four years of training should be provided, as should supervision throughout each of the four years.

A didactic lecture series is obviously a useful way of conveying up-to-date scientific knowledge. However, it is important to emphasize that, for resident training, didactics alone are not sufficient. Issues of lack of ”absorption and retention“ of lecture material suggest that, whenever possible, lectures be accompanied by seminars, relevant, clinically-oriented (or otherwise appropriate) journal articles, case examples, and textbook reading. Small-group or individual supervision and case-conference methods of teaching are necessary for adequate development of the requisite clinical skills for the psychiatrist in training.

Nevertheless, formal didactic teaching often stimulates interest in psychopharmacology and broadens intellectual and clinical perspectives in the treatment of psychiatric patients. When seminars accompany lectures, it is strongly recommended that seminar leaders provide an opportunity for questions and answers, during and/or after a specific didactic lecture (at least 15 minutes for a one-hour lecture). The purpose is to consolidate learning, and encourage residents to ask the most basic questions in the protective setting of the seminar.

In addition, ideally formal didactic teaching of psychopharmacology will be provided in parallel with the teaching of diagnosis, neurobiology and biological psychiatry, psychotherapy, and other relevant treatment modalities. (These latter subjects will not necessarily be within the same course series.)

Because of ever-increasing demands on both trainee and faculty time, it can be helpful to develop an "updatable" videotape library of lectures in clinical (and if available, basic) psychopharmacology. These tapes should be available for residents who, because of clinical duties, must occasionally miss the scheduled lecture or classroom times. Other uses for videotapes are possible as well. Remember that the passive experience of listening to and/or watching audio and video tapes is not optimal for learning. Interaction with experts and the opportunity to ask questions about any aspect of the material being presented is essential.

One option to supplement the lectures is to create a loose-leaf binder that contains the outlines of lectures, reading lists and, possibly, a few core papers in each of the major areas of psychopharmacology (antidepressants, benzodiazepines, antipsychotics, mood stabilizers, etc.). In this way information is easily and reliably retrieved and acquired by the trainee. A final and recent addition to the old-fashioned lecture is to demonstrate and encourage the use of interent resources.

Finally, lectures should include treatment algorithms, particularly in the early stages of training . They are useful as both a learning tool and a treatment guide for residents. Ongoing projects to develop working treatment algorithms are available currently.

Issues, Concepts and a Template

In this section, we present a list of issues, concepts and topics that will be helpful in developing a didactic lecture series. Suggested introductory themes are delineated. Both the *issues* and the *topics* are also appropriate for consideration in the more mentorial and supervisory forms of teaching psychopharmacology, such as in psychopharmacology case conferences or rounds.

In addition to using the outlines as guides in determining the content of didactic lectures, the outlines may be helpful in assisting the responsible faculty in preparing a series of slides to use with the didactic lectures.

Most important, we have included a few of model lecture outlines (see Appendix A) which may be useful in organizing a lecture series for residents. The lecture outlines included are representative, rather than ”model“ outlines in the sense of being considered flawless. It is hoped that they will offer useful guidelines for the preparation of similar outlines in local psychopharmacology programs and on other topics.

The level of the course, i.e., *crash, basic* or *advanced,* should determine which of the following to include. In general, crash course goals are limited to the following:

- Differential diagnosis (if not taught elsewhere)
- Determination of need or non-need for psychopharmacological treatment
- Rapid assimilation of basic uses of psychopharmacological agents
- Rational and safe drug treatment
- Drug-drug interactions
- Practical and efficient assessment of the effects of treatment including ECT.

Table 1 suggests the general issues and concepts to be covered in a lecture about a class of drugs and Table 2 presents a template for each lecture, outlining the issues to be covered (which should be modified depending on the particular topic). Topics most appropriate for the first-year resident (who must quickly master the use of psychotropic agents) are shown in *italics*; the other topics should be presented later in the curriculum. Such lectures may occur within the context of a crash course offered in a resident's first year of psychiatry training. A crash course might cover psychopharmacologic treatment issues by DSM diagnosis (i.e., stabilization and treatment of patients with known diagnoses with antipsychotics, antidepressants, mood stabilizers,

benzodiazepines, etc.) — emphasizing indications, contraindications, dose regimens, including route of administration and side effects.

Given the rapidity with which patients are making the transition to partial care after a short hospital stay, often before a clear diagnostic picture has been achieved, the crash course should also include evaluation and treatment strategies for patients with serious symptoms that require acute treatment before a full diagnosis can be developed (e.g., unspecified psychosis in acutely hospitalized, involuntary patients).

Other than for the above, we have not included specifics on what material should be learned in each year, because the order of presentation is dependent on local residency program conditions such as whether residents start psychiatry on inpatient, outpatient, or emergency room settings, sequencing of other curricula, etc. Lectures given in the second half of PG 2 or in the PG 3 year will repeat most or all of this material in greater depth, after the resident has had a greater amount of integrated clinical experience.

In general, the issue of diagnosis is presumed to be detailed in another forum, although teachers may be performing more than one role in training — the *other* role will overlap biological treatment, the specific agenda here.

Table 1: General Issues and Concepts for Each Class of Drugs

· *Treatment based on differential diagnostic considerations (differential diagnosis may be taught elsewhere)*	· *Evaluation of effects: target symptoms; clinical ratings scales*
· *Differentiating response to a drug from diagnosis*	· Mechanism of action
· *Familiarity and competence in using the most frequently prescribed psychoactive medications*	· *Pharmacokinetics*
· *Diagnostic utility of drug-free observation period*	· *Dosing practices: starting low, increasing to a reasonable level*
· *Compliance*	· *Management of acute side effects*
· *Therapeutic trial concept: dose, duration, documentation*	· Dose-response relationships
	· Blood levels: practical uses, misuses
	· Placebo effects
	· Management of side effects during long-term treatment

*NOTE: Topics in *italics* are most appropriate for first-year residents.

Table 2: Template for Lecture Topics	
· Proposed mechanisms of action of neuroactive agents · *Basic pharmacologic issues (pharmaco- kinetics issues, physiologic and pharmaco–dynamic effects, modes of administration, timing of dosages for analytic purposes, simplifying therapeutic regimens to maximize compliance* · Predictors of response · Diagnostic issues: nonequivalence of drug response and diagnosis due to the broad efficacy of many agents in current use · Relative efficacy of drugs used within a diagnostic category and/or in related or complementary classes versus placebo (for example, SSRIs vs. TCAs vs. MAOIs in depression) · *Age-related issues (child, geriatric, etc.). Both pharmacokinetic and pharmacodynamic parameters should be included.* · *Drug-drug interactions (psychotropic-psychotropic; medical-psychotropic; OTC, etc.)* · Drug combination therapies	· *Side effects (CNS, metabolic, cardiovascular, dermatologic, peripheral autonomic, cardiovascular, ECG effects)* · *Medical and laboratory workup needed to use a given drug (e.g. baseline thyroid and renal data prior to lithium, etc.)* · Drug discontinuation effects (cholinergic rebound, SSRI discontinuation syndromes, etc.) · Understanding and differentiating acute, continuation and maintenance phase treatment strategies · Strategies for evaluating and approaching the treatment-resistant and partially responsive patient within each diagnostic category · Training in the rational use of combined medication and specific behavioral, cognitive-behavioral treatments, and other psychosocial treatments · *Overdose signs, effects, and treatments* · *Abuse-dependency potential of prescribed psychopharmacological agents* · *Abstinence syndromes (sedative-hypnotic, opioid, others)*

*NOTE: Topics in *italics* are most appropriate for first-year residents.

Specific Lecture Topics

Tables 3 through 8 present a series of topics that should be included in a psychopharmacology lecture series. The tables are organized by diagnosis. Because educational needs vary from program to program, we recommend that program coordinators tailor the topics to their own programs. A good first step would be to give specific information about a few agents in each class of drug (including tips for use in specific situations). First-year residents do not need to learn about every single agent in each class.

Table 3: Antipsychotics	
· *Traditional antipsychotics* · *Atypical neuroleptics-indications, workup (and medical monitoring for clozapine): clozapine, risperidone* · *Antiparkinsonian agents (include simple but useful models like DA/Ach interplay to facilitate early use)*	· Non-neuroleptic antipsychotics (anticonvulsants, others) · *Neuroleptic malignant syndrome* · *Tardive dyskinesia* · Treatment-resistant schizophrenia management strategies · Maintenance strategies

*NOTE: Topics in *italics* are most appropriate for first-year residents.

Table 4: Antidepressants and Mood Stabilizers	
Antidepressants	**Mood Stabilizers**
· *SSRIs (one or two)*	· *Lithium*
· *Tricyclic antidepressants (one or two)*	· *Carbamazepine*
· Monoamine oxidase inhibitors	· *Sodium Valproate*
· Other antidepressants (bupropion, venlafaxine, trazodone, nefazodone)	· *Combinations of mood stabilizers*
· Psychostimulants	· Antipsychotic drugs
· Augmentation strategies for resistant depression (lithium, T3, buspirone)	· Others, including ETC, calcium channel blockers
· *ECT — Indications, efficacy, safety, maintenance strategies, interactions with drugs*	· Resistant mania strategies
· Light therapy for SAD	
· Maintenance strategies	

*NOTE: Topics in *italics* are most appropriate for first-year residents

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Table 5: Anti-Anxiety Agents and Hypnotics	
Anxiety Disorders*	**Hypnotics**
· *Tricyclic antidepressants*	· *Benzodiazepines*
· *SSRIs*	· *Other sedative hypnotics*
· *MAOIs*	· Non-benzodiazepine sedative hypnotics: zolpidem, others
· *Benzodiazepines*	· Other (trazodone, doxepin)
· *Azapirones*	
· Beta blockers	

· Other agents (e.g., trazodone for GAD, etc.) · Resistant anxiety disorders: treatment strategies	

*NOTE: Topics in *italics* are most appropriate for first-year residents.

*Specific disorders should be presented: i.e., panic disorder, generalized anxiety disorder, social phobia, obsessive-compulsive disorder, PTSD, acute stress disorder, etc. Agents should be presented as they apply to specific disorders or several disorders.

Table 6: Psychopharmacology for the Medically Ill and for Geriatric Patients	
Medically Ill	**Geriatric Patients**
· *Use of psychotropic drugs in the medically ill* · *Iatrogenic: drug-induced syndromes* · *Drug-drug interactions; ICU treatment considerations, etc.* · *Drug side effects*	· Agents used for dementia · Differential pharmacodynamics and pharmacokinetics in the elderly · Iatrogenic (focus on drug-induced syndromes) · Drug-drug interactions · Drug side effects · ECT in the elderly

*NOTE: Topics in *italics* are most appropriate for first-year residents.

Table 7: Substance Abuse	
Substance Abuse · Dual diagnosis: importance of recognition, pitfalls · Discrimination of co-morbid psychiatric disorders from abstinence syndromes **Alcohol** · *Alcohol dependence and withdrawal management: protocols with and without drug treatment* · Post-alcohol withdrawal management (naltrexone, disulfiram, long-term management and treatment of co-morbid disorders) **Benzodiazepines and other sedative-hypnotics** · *Benzodiazepine and other sedative-hypnotic dependence, and withdrawal management : protocols with and without drug treatment*	**Cocaine and Derivatives** · *Cocaine abuse and dependence detoxification (bromocriptine, pergolide, amantadine)* · *Discrimination of co-morbid psychiatric disorders from abstinence syndrome* · Post detoxification management/craving (desipramine, buprenorphine, anticonvulsants) · Long term management and treatment of co-morbid disorders · Other CNS stimulant abuse **Opioids** · *Opioid withdrawal management (clonidine, naltrexone)* · *Discrimination of co-morbid psychiatric disorders from abstinence syndrome* · Methadone maintenance **· Inhalants** **· Cannabis** **Common Co-morbid Psychiatric and Substance-Abuse Disorders**

*NOTE: Topics in *italics* are most appropriate for first-year residents.

Table 8: Psychopharmacology of Aggression, AADD, Eating Disorders, and Personality Disorders	
Aggression · *Anticonvulsants*	**Eating Disorders** · SSRIs

· *Lithium* · *Beta Blockers* · *Antipsychotics* **Adult Attention Deficit Disorder (AADD)** · Methylphenidate · Amphetamine · Clonidine · Others (tricyclic antidepressants, bupropion)	· Tricyclic antidepressants · Monoamine oxidase inhibitors · Cyproheptadine **Drug Treatment of Personality Disorders** · Avoidant personality disorders · Antisocial disorder · Borderline personality disorder · Schizotypical personality disorder

*NOTE: Topics in *italics* are most appropriate for first-year residents.

In addition to the lecture topics in Tables 3-8, we also suggest an overview lecture on rating scales as well as the physical and laboratory examination. First let's assess rating scales. We believe in incorporating the assessment of target symptoms and outcome into routine clinical practice, because this is becoming increasingly important in the current climate demanding outcome justification; thus, rating scales should be introduced early and residents should learn to use the relevant assessments. They are nearly cost-free and are as sensitive and relevant as an EKG, CBC, or V/Q scans.

Charts are the only record of what happened, and they are useful as historical references. Moreover, today it is more critical than ever to keep good records, and rating scales are useful for the person who is a poor record-keeper. Appendix B includes some selected rating scales and a guide to writing progress notes.

Residents should be comfortable in routinely conducting the following physical examinations and laboratory evaluations: a complete physical examination, brief neurological and thyroid exams, orthostatic BP, and auscultation of heart and lungs.

All patients who have not been examined recently by a physician, or who cannot provide documentation of a recent exam, should receive one. Note, however, that a recent physical examination does not relieve the psychiatrist of responsibility for evaluating possible medical problems complicating or presenting as psychiatric illness.

We also suggest that neurobiological correlates of psychiatric disorders as they pertain to genetic, biochemical, circadian, and stress-related/environmental treatments should be included in lectures on the following topics:

- Mood disorders-bipolar, non-bipolar
- Schizophrenia, schizoaffective disorders and other psychoses
- Substance abuse disorders/dual diagnosis
- Panic disorder/agoraphobia
- Social phobia
- Obsessive-compulsive disorder and OCD spectrum
- Post-traumatic stress disorders
- Eating disorders
- Attention deficit disorder
- Personality disorder
- Dementias
- Other (somatoform disorders, impulse control, aggression).

Lectures on Psychosocial Topics

The psychosocial aspects of psychopharmacology — combining and integrating psychopharmacotherapy with other treatment modalities such as ECT and individual, family and group psychotherapies — are crucial to practicing psychopharmacology today, and a lecture on this topic is mandatory.

Table 9 presents areas to be covered in a lecture about patient and family education as well as the psychosocial aspects of psychopharmacology. These topics should be covered early in the course, at least briefly, and revisited each year. Ignorance and frustration with the clinician on the part of the patient and family can be addressed, stressing an alliance as well as educational programs that will help reduce poor outcome due to poor compliance or noncompliance. Additionally, strategies aimed at alliance with the *family* in optimizing treatment through psychoeducational efforts is necessary. One way to do this is to provide appropriate information as well as referrals to local and national patient support groups, such as NAMI, NAFDI, NDMDA, and others. Such information could be presented initially under “compliance" in the earliest part of the PG-1 series.

Table 9: Psychosocial Aspects of Psychopharmacology	
The Psychosociology of Prescription	**Family Education**
· Influence of social status	· Educational efforts aimed at family support
· Age	· Education about the illness
· Gender	· The role of the family in maximizing compliance
Patient Education	· Patient advocacy groups locally and nationally
· Why to use drugs	· How the PT illness affects the family
· Why to change doses	· How the family affects the illness of the patient
· Why to continue to medications	
· Drug effects and side effects	
· Drug compliance	
· Patient support groups and advocacy groups	

Literature Review Seminar

Conducting of the Literature Review Seminar, or Journal Club, throughout all four years of residency training is recommended. Ideally, the literature review process and the lecture series should be integrated, so that the literature read is directly related to the lecture to be presented. In the literature seminars, emphasis should be placed on specific teaching directed toward the critical reading of psychopharmacologic literature. This is a crucial aspect of training, since this will be a significant source of continuing medical education about psychopharmacology.

An important aspect of any journal club is the development of the ability to critique scientific articles. In one program, good and bad articles on psychopharmacology subjects are presented. Some training, albeit limited, on research design is provided within the Didactic Lecture Series. As part of this endeavor, residents should be encouraged to understand the basics of statistics — both in theory and by examples. While this may be difficult to ”sell“ to some residents, the need to evaluate the material in the literature is critical.

At least a few hours of the PG 2 and PG 3 year should be dedicated to teaching statistical and research design. As more residents become computer literate, the concept of using a laptop for statistical teaching (as well as record-keeping and completing rating scales for patients) will become routine. Many individuals who teach psychopharmacology have some computer skills, and could demonstrate simple statistical analysis in the process of teaching research design as a way of demystifying the process to residents who lack computer skills.

Unfortunately, most statistical texts are overwhelmingly dry and not geared to the assessment of clinical trials or other relevant aspects of medical or psychiatric literature. There are, however, small programmed texts on statistics covering the most basic aspects of statistical design; these may be useful as teaching guides.

Each resident should get hands-on experience performing critical evaluation of articles, with feed back from peers and a senior psychopharmacologist. The rationale for this exercise is that *this is how most of these individuals will acquire their CME credits for the rest of their professional lives*. Under even the most modest circumstances, residents can use the simple checklist presented in Table 10 to ensure that they include the most essential criteria. This will help increase confidence and reduce potential embarrassment to the novice, and it could serve a resource for later use by the resident.

Table 10: Checklist of Criteria for Critique of Studies	
· **STUDY DESIGNS** Cross sectional *vs*. longitudinal Prospective *vs*. retrospective controlled *vs*. uncontrolled · **STUDY POPULATION** Sample size Entry criteria Exclusion criteria · **COMPLIANCE BIAS** Participant compliance Investigator compliance · **CONTROLS** Comparison groups	· **COMPETING INTERVENTIONS** · **ALLOCATION: SUBJECT ASSIGNMENT** · **ATTRITION** Drop outs · **BLINDED STUDIES** Researcher Subject/Patient · **STATISTICAL TESTS** P-values sensitivity, specificity, power · **JUSTIFICATION OF CONCLUSIONS** Justified based on data generated?

In another program, the journal club and a guest lecturer series are linked. Residents are asked to read selected papers of an invited lecturer; after the lecture they are encouraged to critique the papers, as well as offer questions and comments on the lecturer hirself. In fact, residents are encouraged to ask *controversial* questions and to question assumptions underlying the presentation. Obviously, such a format should involve an orientation of the lecturer to look upon the exercise as a training attempt rather than as a possibly hostile attack. Finally, a program should not forget to look within its own ranks for visiting-lecture psychopharmacologists and psychobiologists.

While psychiatric educators may not agree unanimously that evaluating guest-lecturers scientific papers are part of the *core* of a psychopharmacology curriculum, such exercises provide a valuable learning tool for residents. Whether they are incorporated into a free-standing journal club or introduced as separate seminars, we recommend that such exercises be included in the curriculum.

Case Conferences

The case conference experience should be offered in all years of psychiatric residency training. Case conferences combine clinical practice and scientific information in a practical manner that is at the heart of clinical psychopharmacology teaching. Patients are typically selected because of problems with their treatment, unusual aspects in their clinical presentations, or because they illustrate a particular aspect of psychopharmacology. The patient is presented formally to the psychopharmacologist with an emphasis on past psychopharmacological or biological treatment and other relevant clinical variables. The patient is interviewed and the case is discussed from five points of view:

· Diagnosis and differential diagnosis

· Review of prior psychopharmacological treatment

· Current reasoning for use of medications

· Selection of drug and dose and/or ECT

· Integration of the case from psychotherapeutical, psychosocial, and psychopharmacological perspectives.

It is important to allocate enough time to discuss a case so that the psychopharmacology questions will be raised. Our experience indicates that a discussant will often spend time talking about other salient patient information, occasionally at the expense of the training goals. Succinct references to relevant psychosocial or medical factors should be made in the context of *goal-oriented* teaching of psychopharmacology. Within this case conference, basic psychopharmacology principles can be discussed relative to actual patient care and specific psychopharmacology principles can be developed. Side effects of long-term treatment can also be discussed.

Follow-up discussions of patients who are presented is invaluable. Such follow-up conferences are most useful after a hiatus of an appropriate length to review effects of the recommendations made, providing invaluable feedback to both the teacher and the residents. Another didactic technique is the implementation of a clinical psychopharmacology case conference to examine the integration of pharmacotherapy, psycho-education, and specific psychotherapies. In this setting, a case that illustrates the need for psychopharmacological interventions and for psychotherapy would be presented and then followed longitudinally. Videotapes or live interviews can be utilized to focus on the psychotherapy-psychopharmacology interface. For example, such a seminar might focus on psychotherapeutic methods for enhancing drug compliance, techniques for getting informed consent, techniques for exploring the impact on a patient of receiving both medication and of psychosocial therapy. Issues of how much of a therapeutic session should be focused on drug taking versus intrapsychic, interpersonal and family issues or other topics could include: how to elicit material that will assist in the selection of particular medications in atypical cases; how to explain the reasons for pharmacotherapy to the patient; how to maximize the placebo response;

psychotherapeutic techniques during the initial period of pharmacotherapy; and psychotherapeutic approaches during maintenance treatment.

Computers

Clearly, computer literacy is critical for a trainee. Inexpensive laptop computers are available, and word-processing, spreadsheet and statistical programs are available, as are communications packages for on-line communication. This will be a tool of the psychiatrist of the future, and we believe that learning the basics early will enhance the training experience and improve the postgraduate effectiveness of psychiatric residents. We strongly recommend that this be a mandatory requirement for all programs.

Supervision

Use of Clinical Mentorial Teaching Using Selected Case Material

This form of teaching is modeled after individual or small-group psychotherapy supervision. Since the practice of psychopharmacology is learned by treating patients, dedicated and inspired supervision may be more educational than all other forms of teaching.

The focus of discussion should be on the clear-cut effect and role of setting on the trainee. Not infrequently, a resident whose first exposure to psychiatry is on a busy inpatient unit may naturally develop a ”give-drugs-first“ attitude. Similarly, an antidrug attitude may be more evident in the outpatient setting as trainees try their new skills. Undercutting the tendency to treat patients entirely by diagnosis, socioeconomic status, and location of treatment should be a focus of supervision.

With beginning psychiatric trainees, the focus most commonly is on inpatient treatment with psychopharmacology supervision. Residents should meet regularly with psychopharmacologists (i.e., a senior psychopharmacologist or a clinical psychiatrist with some special expertise in psychopharmacology) and review individual patient treatment problems that illustrate the use of drug classes from the point of view of pharmacological treatment. For maximum informality, supervision should be given individually (one-on-one) or in a very small group (maximum 3-4 trainees) once a week. This is the time for the beginner to ask very simple questions without fear of embarrassment. It is also a time when the trainee(s) and supervisor can see patients together, review treatment records, discuss philosophical decisions to use or not to use drugs, and read psychopharmacology literature together if so desired.

In one model, three first-year residents on an acute impatient unit meet with a clinical psychopharmacologist to review cases on a weekly basis. Cases are presented when the residents are having specific problems, and are reviewed relative to the specific patient as well as to the broader issues involved in the class of drugs in question. An attempt is made to integrate psychopharmacological issues into the ongoing treatment of the patient, taking into account the patient’s environmental circumstances (e.g., ability to pay for medication, transportation, family problems, etc.).

Advanced supervision, emphasizing psychopharmacology in outpatient settings — such as psychopharmacology clinics, general hospitals, community programs, schools, nursing homes, etc. — should be provided. Advanced supervision includes discussion of mechanisms of drug actions, pharmacokinetics, and research data as well as basic treatment. One little-used technique is the actual observation of a senior psychopharmacologist, which provides valuable clinical pearls for trainees. Likewise, observation of a trainee by a senior psychopharmacologist (in an non intimidating manner) could be useful to trainees on an individual basis.

For programs without a full ECT treatment team to provide such training for residents, the principles and practice of ECT can be taught as part of the psychopharmacology curriculum. The most effective learning takes place during the actual administration of ECT. This bedside teaching and supervision, like medical and surgical clerkship and house-officer teaching, emphasizes learning through both observation and practice. Given the clear effectiveness of ECT treatment, programs in hospitals that do not provide this service should provide some mechanism for training in this indispensable modality — either by sending residents to programs that do provide this training, or by inviting experts to provide education about ECT. However, nothing can fully substitute for actual experience in the technique.

Supervision in Drug Clinics, Inpatient Units and Emergency Rooms

A considerable amount of psychopharmacology teaching can occur informally in the context of direct clinical care, with junior residents learning from more senior residents or front-line faculty, as in medical and surgical rotations. We suggest that, when possible, a senior resident be named Chief Resident in Psychopharmacology; this person's role will be to enhance the teaching of psychopharmacology within the context of patient care. He or she would provide consultation to various inpatient services for first or second-year residents, and would be supervised by the senior psychopharmacology faculty. As in the medical/surgical residency model, rounds are made and completion of the formal consultation is generated; an attending physician psychopharmacologist is present and the focus should be on problem patients.

In summary, residents should be provided with faculty supervision by individuals with expertise and an interest in psychopharmacology as well as the skills to teach it to residents. Direct observation of patient care by the supervisor is ideal. Availability of the supervisor during clinical work time is essential. Thoughtful feedback on each resident's performance is mandatory. Encouragement for residents to provide feedback regarding the teaching methods used is likewise critical.

Reading Materials

Texts

Textbooks are the core references for most residents. In addition to standard psychiatric texts such as the APA Textbook on Psychiatry, DSM-IV, the APA Textbook of Neuropsychiatry, psychopharmacology residents should become familiar with the basic psychopharmacology texts shown in Table 11. (Appendix C lists other useful books.)

Table 11: Basic Psychopharmacology Textbooks	
· Schatzberg AF, and Nemeroff CB. *Textbook of Psychopharmacology*. Washington DC, APA Press, 1995. In-depth treatment of biological psychiatry and psycho-pharmacological treatment. Excellent reference and teaching text. · Schatzberg A, and Cole JO. *APA Manual of Psychopharmacology*, Second Edition. Washington DC, APA Press, 1991. A manual-type book which is an easy reference text for trainees. · Janicek PG, Davis JM, Preskorn SH, Ayd F. *Principles and Practice of Psycho- pharmacotherapy.* Baltimore MD, Williams and Wilkins, 1993. Data-based review of psychopharmacology and biological psychiatry across the disorders. Excellent reference and teaching text.	*Diagnosis and Drug Treatment of Psychiatric Disorders: Adults and Children,* Second Edition. Baltimore MD, William & Wilkins, 1980. Comprehensive review of data-based information on efficacy of drugs used clinically up to 1980 and clinically relevant information on drug treatment in several chapters. Demonstrates critical thinking and evaluation of data bases. Excellent for reference and teaching. · Hyman S, Arana GW, and Rosenbaum JF. · Bezhlibnyk-Butler KA, Jeffries JJ, Martin BA (eds). 1996 Clinical Handbook for Psychotropic Drugs. 6th edition. Toronto, Hogrefe & Huber Pub. Includes many charts regarding indications, side effects, easily accessible information for quick reference and is fairly current.

Journals and Newsletters

Introduction to the relevant psychopharmacological literature is important in the training of residents in psychopharmacology. A source for the literature review portion of the psychopharmacology curriculum is included in Tables 12 and 13, which provide a brief list of journals and newsletters. (A more extensive list appears in Appendix D.) These resources will be helpful in organizing a didactic series; many may also serve as reference material for psychiatric residents. In view of time considerations, these articles (and the derivatives obtained from their bibliographies) should be given to residents; however, a program of comprehensive reading of such reference sources is an alternative option.

Table 12: Journals*

Journal of Clinical Psychopharmacology (C) This journal has a strong clinical focus, publishing articles, reviews, letters, and case reports dealing almost exclusively with the clinical use of psychotropic drugs. **American Journal of Psychiatry (C)** This journal publishes a number of psychopharmacological articles. Especially timely and relevant are the brief reports and the clinical and research reports.	**Archives of General Psychiatry (C & B)** This journal often has psychopharma-cologically oriented reports. Generally, it is relatively research oriented and less practically oriented. **Journal of Clinical Psychiatry (C)** A general psychiatry clinical journal which publishes a variety of reviews and articles on the use of drugs, as well ason general issues in psychiatry. **British Journal of Psychiatry (C)** This journal usually has good drug-oriented articles.

*"C" = mostly clinical emphasis, "B" = mostly basic.

Table 13: Newsletters*

ASCP Progress Notes (C)

Published quarterly, this newsletter provides various reviews of topics relevant to psychopharmacology. It reads like Balzac and should be taken by mouth in its entirety.

Currents (C)

This monthly newsletter reviews reports on the literature from numerous standard journals already mentioned as well as from some more esoteric journals. A regular feature is in-depth interviews with senior clinical psychopharmacologists, inquiring about both science and opinion. It also includes regular reminders of trends in the literature from case reports, back-referencing previously discussed articles. The newsletter also synthesizes current clinical issues regularly and is intended as an update for the busy clinician. Particular emphasis on mood and anxiety disorders.

The International Drug Therapy Newsletter(C)

This is the original monthly psychopharmacology newsletter, which highlights recent articles and topics relevant to psychopharmacology.

Biological Therapies in Psychiatry (C)

This is a monthly newsletter which comments on both content and implications of recent articles and reviews, often highlighting current controversies or advances in clinical psychopharmacology. The emphasis is synthesis of the accumulated knowledge, often referring back to previous issues in which the same topic has been addressed. It represents a good Integration of data and opinion of the experienced editor or other authors. It is available in bound versions which include useful referencing by topic to previous issues, allowing for a quick review of and area.

Lithium Information Center and Obsessive-Compulsive Information Center

James Jefferson M.D. and John Greist M.D., Senior Scientists at the Dean Foundation, have many patient pamphlets on a variety of medications and conditions available at a low cost. This center also provides free information to clinicians from the voluminous literature on lithium, OCD, and much more. 8000 Excelsior Drive, Suite 302, Madison WI 53717-1914(608(836-8070; FAX 608.836.8033.

*"C" = mostly clinical emphasis, "B" = mostly basic.

Generally, a reading list may be derived from the recommended journals, as well as from Index Medicus and similar reference resources. A list of both classic articles and seminal new references should be compiled by the coordinator of each local program on an ongoing basis.

A last tip: the Electronic Library CD ROM now available from the APA contains a series of useful journals: Archives of General Psychiatry, American Journal of Psychiatry, Psychosomatics, American Journal on Addictions, Psychiatric Services (previously Hospital and Community Psychiatry), Journal of The American Academy of Child and Adolescent Psychiatry, Journal of Neuropsychiatry and Clinical Neurosciences, Journal of Psychotherapy Practice and Research, and the American Journal of Geriatric Psychiatry.

Neuroscience Lecture Series

In some training programs — especially those with a major emphasis on recruitment and development of future psychiatric researchers — it is important to provide access to current information and research strategies that shape theories regarding the biological basis of neuropsychopharmacology. Such courses can be part of a clinical psychobiology lecture series or be part of this series. An integrating approach might be, for example, to precede (or follow) a lecture on antipsychotic drugs by a lecture on the neurobiology of schizophrenia.

If a specific and separate intensive course in the neurobiology of psychiatric disorders is taught, one model would be to offer a primer course to acquaint the beginning resident with the relationship between neurobiology and drug therapy, followed by a neurobiology didactic series. Such a model gives the youngest resident an opportunity to develop a theoretical basis for psychopharmacological treatment of mental disorders. Such a strategy may backfire, however, because any well-taught course in neurobiology/neuroscience, will delineate the limitations of our current knowledge relative to psychiatric disorders and the limitations of our understanding of *why* drugs are efficacious.

An alternate possibility involves offering the PG 3 or PG 4 resident a neurobiology/neuroscience course in the later phases of training. Representative topics of such a series could include:

· Basic neurobiological principles (i.e., synaptic mechanisms, neurotransmitters, Neuromodulators, neuroanatomy and neurophysiology of neurobiological function, etc.)

· Neurotransmitters and neuromodulators

· Overview of receptor functions

· Neurobiological models for specific psychiatric disorders

· Challenge studies: neuroendocrine, provocation, amine depletion, others

· Imaging studies.

It is suggested that the above series consider supporting evidence from at least the following perspectives:

- Animal neurochemical data and models
- Animal pharmacological data
- Human neurochemical data
- Human clinical pharmacological data
- Imaging (animal and human).

Several lecture outlines relevant to neuroscience are included in Appendix A.

Psychopharmacology Units

Specific psychopharmacology treatment units can be created as subcomponents of outpatient psychiatry divisions and/or liaison-consultation units. Such units allow a focusing of expertise and of thinking about psychopharmacological treatments. However, a drawback to the drug clinic concept is that it may fragment residents' thinking into a non-integrative view of the patient, and may be seen by others as a pill-pushing operation. Nevertheless, such units are useful in effectively focusing psychopharmacological teaching using the supervisory methods described earlier.

Ideally, a Psychopharmacology Unit would operate in parallel with a general outpatient clinic. This facilitates transition back and forth between the more psychotherapy-oriented outpatient training there and the psychopharmacology unit, which mirrors clinical practice, i.e., different models are used at different stages of treatment for a given patient. This model provides a system for teaching residents that patients usually need some aspects of both psychotherapy and pharmacotherapy and that the ratio varies over time and with the treatment setting.

We also recommend that patients be followed over a period of at least two years so that problems with treatment-emergent side effects, decisions regarding discontinuing medications, restarting them, and other relevant management issues are addressed to the greatest extent possible. Ideally, four-year follow up could be achieved if the structure of the program allows this degree of continuity. It should be stressed that sufficient time must be given to residents for visits (i.e., 60-90 minutes for evaluations — sometimes more than a single visit is necessary; 30 minutes for follow-up evaluations).

Some experts suggest that a medication clinic within a strong specialty unit (e.g., mood disorders, schizophrenia, anxiety disorders) could provide a better in-depth experience. This is likely to be more useful for senior residents who wish to gain specific expertise within a particular patient population. However, if the institution has multiple clinics which allow residents to spend time in each of several over a sufficient period (1-2 years), a broad range of psychopharmacology training could be achieved.

Regardless of the actual setting, it is important to have supervisors physically present to see all new and returning patients (medicolegal and reimbursement problems are often also conveniently resolved in this way).

HOW TO EVALUATE

To understand whether a given clinical psychopharmacology program is achieving its teaching objectives and to point out areas of weakness in individual trainees, several standardized techniques are available to evaluate trainee competence before and after curriculum exposure. An optimal evaluation of a clinical psychopharmacology program should include:

- Pre- and post-training formal examinations
- Pre- and post-training reviews of the participants' charting pattern
- Regular written evaluations by psychopharmacology supervisors
- Resident knowledge and skills evaluated during a *mock boards* type clinical examination at least three times during the residency.
- Evaluation of the program by the trainee.

Appendix F provides a sample evaluation form for supervisors to evaluate residents and two sample forms for use by residents in evaluating their supervisors.

Formal Examination

We strongly believe a pre and post-test exam is needed. We suggest:

- Questions taken from the psychopharmacology component of the PRITE exam, which provides comparison with national norms.
- The American Psychiatric Association PKSAP Exam (psychopharmacology component and selected questions from other sections).

Of course, no group of experts would agree with all the answers nor should this be construed as the only evaluation since clinical acumen may not be tested. Rather, the questions are used as an evaluation instrument and as a springboard for learning.

Charting Patterns

A trainee should be taught how to keep systematic, concise psychopharmacology records during training, so that this skill can be taken into practice. A global rating form to evaluate the charting patterns of each resident can be developed for assessing skills before and after training. (For an example of a chart note form, see the progress note contained in Appendix B, which incorporates the visit note with a CGI Severity and Improvement scale.)

The educational basis for this evaluating exercise is that psychiatrists often seem reluctant to maintain detailed written records. Presumably the feeling is that the confidential relationship with the patient will be jeopardized (example: concern that if the records were requested by a third-party payer and reveal that the patient had suicidal thoughts even if there was no evidence of real risk or intent, that could be used as a basis to deny coverage from a new carrier; some states do not hold these notes as confidential for psychiatrists, and they could be subpoenaed during a divorce/custody hearing to be used as evidence against the patient). While the thoughts, behavior, fantasies and other psychological phenomena of patients might pertain to confidences that might be embarrassing to patients if generally revealed, information about the drugs they are taking, when they are being taken, how much has been ordered over what periods of time, and, some would argue, when there has been departure from the usual conservative practices of the PDR, should be well documented. Such information does not violate confidences and provides a continuing rationale for the medical aspects of care. In our present litigious era, the psychiatrist who does not maintain such records puts himself at great risk for legal action and at a great disadvantage in defending against any that may develop.

There are several recommended possibilities for charting suggestions:

· Flow-charts for medications, including initial dose and regimen, changes in dosage, and plasma levels (if available).

· Clinical rating scales (clinician and patient-rated) can be given to residents for help in assessing outcome and charting purposes. This is good clinical practice, and is especially useful for clinicians to use when evaluating progress (or lack of it) in infrequently seen or newly transferred patients. (See Appendix B for examples of rating scales we recommend).

· Side-effects checklists before starting and during treatment can be a useful guide for the clinician in determining whether a medication is causing new problems, is making previous symptoms worse, is not related to these particular symptoms, and whether a change in treatment is indicated.

In addition to the rating scales contained in Appendix B, the following publications contain useful tools:

Beck P. *Rating Scales for Psychopathology, Health Status, and Quality of Life*. Berlin, Springer-Verlag, 1994

Wetzler S. *Measuring Mental Illness.* Washington DC, APA Press, 1989.
(This presents a nice overview of assessments and structured interviews.)

Supervisor Evaluation

We feel the best method to use to evaluate a trainee's ability to apply to clinical practice what is learned in didactic and other formal sessions is an evaluation by a psychopharmacology supervisor. Evaluation should be done at least yearly or every six months.

Trainee Evaluation of Supervision and of the Program

Needless to say, trainee evaluation and feedback is essential for a viable program. Sample versions can be found in Appendix F.

Accreditation Issues

Documentation of training in psychopharmacology should include the number of teachers, curriculum hours and evaluation instruments, as well as evidence that at least one psychopharmacology teacher is on the Curriculum Committee of the Residency.

LECTURE AND OUTLINE FOR TEACHING CHILD & ADOLESCENT PSYCHOPHARMACOLOGY

1. Lecture Series

2. Explanation of Lecture Series

3. Child & Adolescent Ratings Scales

4. Study: “The Case of the Ticing Tike"

5. Model Curriculum Outline for Teaching Child & Adolescent Psychopharmacology

6. Suggested Reading

LECTURE SERIES FOR TEACHING CHILD & ADOLESCENT PSYCHOPHARMACOLOGY

This lecture (which can be one or more) is designed in "chunks". Sections can be omitted without influencing the rest of the lecture. Specific medications are sometimes discussed under two headings and can be combined . If you wish, the sections on BAD, MDD or Schizophrenia can be added on to an "adult" lecture. There are slides for every section to help you customize your own talk.

THE PSYCHOPHARMACOLOGIC TREATMENT OF CHILDREN AND ADOLESCENTS

Jessica R Oesterheld, M. D. Division of Child Psychiatry, University of South Dakota School of Medicine
Issac K. Wood, M.D. Division of Child Psychiatry, Medical College of Virginia

I. General considerations: child and adolescent psychopharmacology

A. Special problems: diagnosis in childhood and adolescence (slide #1)

1. Children are not static (e.g., a child with poor infant/parent temperamental fit can develop oppositional defiant disorder at latency and bipolar affective disorder at adolescence)
2. The same symptoms may be present in a variety of childhood psychiatric disorders (e.g., are temper tantrums symptoms of Attention-Deficit/Hyperactivity Disorder,(AD/HD) ,Posttraumatic Stress Disorder (PTSD), Bipolar Affective Disorder (BAD), or Major Depressive Disorder (MDD)
3. Children present with short "past histories": more accurate diagnoses are made with longer past histories. Symptoms that appear to fit one diagnostic category may evolve into another type of illness.
4. There is significant co-morbidity of diagnoses in childhood. This may reflect the classification system for DSM-IV diagnoses or the nature of mental illness in children.
5. The child must be assessed across different domains: the parent, teacher, child domains may vary widely: parents better on identifying externalizing, disruptive behaviors than internalizing behaviors such as anxiety and depression.
6. Children are usually not objective observers and collectors of data but they can be experts on internal symptoms such as anxiety, suicidality or hallucinations.
7. Children's subjective reports may vary across time.
8. Parents' reports may be influenced by how well they know the child, particularly when the child has symptoms of an internalizing disorder.

B. Special Problems: pharmacotherapy of children and adolescents (slide #2)

1. Very limited research literature--it is only recently that the FDA has required testing of psychopharmacologic treatments in children and adolescents.
2. Only a few well established treatments for Axis I disorder such as the use of Psychostimulants in AD/HD (more than 60 years of data).
3. In clinical practice, commonplace to use off-label indications, (e.g., clonidine for hyperactivity and impulsivity of AD/HD, tricyclic antidepressants or selective serotonin reuptake inhibitors for MDD (with only one preliminary positive placebo-controlled double-blind study).
4. Commonly treat target symptoms (e.g., aggression), rather than a specific Axis I diagnosis.
5. Children usually are not self-referred: may be reluctant consumers.
6. Must have working alliance with parents. Legal guardians give consent, while children and adolescents must give assent
7. Compliance with medications requires cooperation from the child and parents, and at times, additional agencies such as schools.
8. Schools usually have specific procedures for the storage and dispensing of medication to children and adolescents, and youth may be reluctant to take medication at school as this labels them as being “sick” or “different”.

C. Special Problems: pharmacodynamics/pharmacokinetics (slide #3)

1. School-age children may have a greater density or supersensitivity of D-1 and D-2 receptors than adolescents or adults. They need lower dosing of dopamine antagonists to achieve the same efficacy as in adults.
2. Increased hepatic metabolic capacity in school-age children relative to adolescents and adults causes the need for larger weight-adjusted dosing of medications metabolized by the liver (e.g., most psychotropics).
3. The volume of total body water and glomerular filtration rates are high in school-age children (e.g., lithium dosing may need to be higher in school-age children than adolescents).
4. School-age children have less body fat in proportion to weight, therefore may have rapid withdrawal from highly lipophilic drugs such as tricyclic antidepressants (TCAs).

II. The Disruptive Behavior Disorders--Attention-Deficit/Hyperactivity Disorder, Oppositional Defiant Disorder and Conduct Disorder and Tic Disorders

A. Attention Deficit-Hyperactivity Disorder (slide #4)

1. The essential features of the disorder are the triad of inattention, impulsivity, and hyperactivity--three subtypes:
predominantly hyperactive-impulsive type
predominantly inattentive type (often have a co-morbid mood or anxiety disorder)
combined type
2. Diagnosed from individual and family history, teacher, parent and patient assessments
3. Rating scales, e.g., Conners- Parent and Teacher versions, Child Behavior Checklist (CBCL) and teacher version, Teacher Report Form (TRF) objectify symptom variance from the norm and monitor therapeutic progress
4. Computerized Performance Test (CPT) / Tests of Variables of Attention (TOVA) only 70-80 % accuracy
5. Must exclude other conditions which may mimic AD/HD (e.g., lead toxicity, parent-child problem, deafness, Fragile X, Generalized Resistance to Thyroid Hormone (GRTH) , petit mal seizures, post-concussion syndrome)
6. 3-5% incidence with 3-6/1: boys: girls, hard to diagnose with significant mental retardation (MR) or in toddlers: girls underdiagnosed because less behavioral problems
7. Medications should be used in concert with educational, parental guidance and behavioral interventions
8. Frequently associated with co-morbid conditions: (slide #5)
   - 25% have pure AD/HD
   - 20-25% have AD/HD + an anxiety disorder
   - 20 % have AD/HD + MDD or Dysthymia
   - 20% have AD/HD + BAD
   - 5% have AD/HD + tics or Tourette's Syndrome (TS)
   - 10-20% have AD/HD + a learning disorder (LD)

- 20-50% have AD/HD + Oppositional Defiant Disorder or Conduct Disorder

9. Medications with demonstrated efficacy in AD/HD (slide #6)
   - Psychostimulants
     MPH=methylphenidate
     DAS = dextroamphetamine sulfate
     magnesium pemoline
   - Clonidine/Guanfacine
   - Tricyclic antidepressants (imipramine, desipramine, nortriptyline)
   - Buproprion
   - Monoamine oxidase inhibitors
   - Carbamazepine
   - Venlafaxine

10. Psychostimulants (slide #7)

DRUG	AVAILABLE FORMS	DOSING	MAXIMUM (day)
MPH	5, 10, 20 mg tabs SR 20 mg	begin 5 mg tid	60 mg
DAS	5, 10, 15 mg spansules 5 mg tab	begin 5 mg bid	40 mg
Pemoline	18.75, 37.5, mg	begin mg	112.75 mg +

SR MPH 20 =10-12.5 mg MPH = 52 mg pemoline

Psychostimulants (slide #8)

• 70% will respond, if side effects intolerable or no efficacy, try another

• Children with co-morbid anxiety may have less efficacy and more side effects including increased diastolic blood pressure

• May be slightly reduced efficacy in adolescents and adults

• DAS, pemoline indirect and MAD direct agonist of NA/DA

11. Side effects of Psychostimulants--most common (slide #9)

• insomnia--change timing, probably dose related, tolerance may develop, Rx clonidine

• decrease appetite--with meals, calorie supplements, dose related

• irritability--check timing; reduce dosage: change medication

• abdominal pain--with meals

• headaches--not dose related

• use of pre-treatment side effect charts e.g., Barkeley Side Effect Questionnaire (BSEQ) can be given pre-treatment and post-treatment to help distinguish true side effects

12. Side effects of psychostimulants--most serious (slide #10)

• more than 30 cases of psychosis--discontinue the medication: can be haptic (formic) hallucinations

• growth: effects made up in late teens or by drug holidays; ? related to AD/HD itself

• tics : may be minor or substantial: discontinue only if serious

13. Pemoline (slide #11)

• Least abuse potential, can cause insomnia, choreiform movements and tics: start low go slow

• recent labeling change because of 13 cases of acute hepatic failure since 1975 (4-17 times the expected rate) : pre-check LFTs, educate parents on signs and symptoms of hepatitis

14. Significant drug interactions of psychostimulants (slide #12)

-Drugs which affect stimulants

- Sympathomimetic medications:
- Theophylline intensifies side effects

-Stimulants affect the following drugs

- MAOIs : potentially lethal hypertensive crises
- Case reports of elevation of anticonvulsants, coumadin and other anticoagulants, phenylbutazone, TCAs:, SSRIs ?mutual inhibition of CYP2D6
- DAS inhibits beta blockers
- DAS and MPH decreases effects of guanethidine
- DAS with neuroleptics may exacerbate psychosis

15. Buproprion (slides #13,14, 15)

• Related to phenylethylamine, a stimulant, withdrawn voluntarily in 1986 because of incidence of seizures in bulimic patients: reentered in 1989
• Average half-life in children is 14 hours with range of 8-24 hours, need multiple daily dosing, new SR form can be used bid
• Metabolized by liver (3A 4/5) : watch out for drug interactions with strong inhibitors of CYP3A4/5 e.g., erthyromycin, ketoconazole
• 3 principle mbs with long half lives
• High interindividual variability of plasma levels of parent and metabolites
• NA and DA reuptake blocker
• Dosing range 3 mg-6 mg/kg spread over tid schedule and kept below 100-150 mg per dose (higher dosing has been associated with an increased risk for seizures)
• 13% of children have nuisance side effects: increased appetite, nausea, stomach discomfort, minimal weight loss, blood pressure fluctuations, agitation, confusion, tics, skin reactions
• Serious: seizures : incidence in adults =4/1000, rare psychosis, perceptual changes and delirium:
• Can mix with stimulants/ clonidine/TCAs

16. Clonidine and stimulants: (slide #16)
• Clonidine's control of behavioral arousal compliments the cognitive effects of psychostimulants
• The addition of clonidine can reduce psychostimulant dosing by as much as one third
• Side effects are complimentary: weight gain of clonidine balances the weight loss of psychostimulants: sedation of clonidine counterbalances the jitteriness of psychostimulants: clonidine is anti-tic and stimulants, pro-tic
• treats the "rebound insomnia" of psychostimulants. Give as a small evening dose, e.g., 0.025-0.050mg hs

17. Clonidine (slides #17,18)
• Oral and transdermal patches: Catapres-TTS 1,2 and 3 which deliver daily doses of 0.1mg ,0.2mg and 0.3mg; start with po dosing and switch: overlap strategy of keeping both patches on for 1-2 days
• Contraindications: evidence of cardiac insufficiency, abnormal heart rhythms especially prolonged QTc, Raynauds Disease, Diabetes Mellitus
• Side effects: danger of rebound hypertension if discontinued suddenly,
depression--in about 5%., hyperglycemia, sedation, dry mouth, initial insomnia and awakenings, nightmares, night terrors, dizziness, and aggravation of cardiac arrhythmias
• Pre-medicine evaluation should always include baseline orthostatic blood pressures, blood glucose, creatinine, liver function tests and

ECG.

- Behavioral half life in children is only 3-6 hours: use at least thrice daily
- Daily range of dosing is from 0.1 to 0.3 mg or 5-7 micrograms/kg/day
- Long latency and maximum effects occur over 2-3 months

Pre-treatment Work up for Clonidine (slide #19)

- blood glucose
- creatinine,
- liver function tests
- ECG
- orthostatic BPs
- pulse

18. Guanfacine (slide #20)

- is a cleaner alpha 2 presynaptic agonist: with less sedation and little hypertension rebound after sudden discontinuation: range from 1.5-4mg per day in split dosing: useful for tics and AD/HD

-if shifting from clonidine to guanfacine, must do "hydraulic shift"

-no patch

B. Tics and Tourette's Syndrome

1. DSM-IV criteria for TS (slide #21)

multiple motor and one or more vocal tics

- tics many times a day for more than 1 year
- variable locations & frequency of ticing over time
- onset before 18 years (range 2- 15 years)
- exclude substance abuse and CNS diseases like Huntingtons Chorea, or postviral encephalitis, SSBE

2. TS is more than tics (slides #22,23)

- 20-60% AD/HD
- 20-40% OCD usually develops in late latency or early teens
- 30% learning disabilities
- 30 % anxiety disorders
- 30% may have self injurious behaviors
- may have aggression or oppositional behavior, enuresis, sleep disturbances, mood lability, collecting behaviors and migraine
- Core: motor and phonic tics, obsessions and compulsions

3. Genetics: a single autosomal dominant with high penetrance and variable expressivity (with high penetrance for males and less penetrance for girls) in which Chronic Motor Tics and OCD are expressions of TS gene with boys having a greater tendency to get tics and girls OCD

4. Course: onset with AD/HD early, motor tics then phonic tics and may have OCD as late latency child or teen

5. Pathophysiology: hypersensitivity of D2 receptors in sensori-motor putamen pathway

6. Pediatric autoimmune neuropsychiatric disorders associated with Streptococcus (PANDAS): some cases of TS and OCD may be from antibodies to strep infections attacking the basal ganglia. Check ASO titers on children

who develop tics or OCD suddenly. Consider antibiotic treatment.

7. General Principles of Pharmacotherapy of TS (slide #24)

• Treat symptoms that interfere with the individual's optimal development: e.g., OCD, AD/HD, impulsivity, irritability, enuresis, insomnia, anxiety
• Don't have to treat the tics
• Start with low doses and work up of gradually
• Part of the definition of TS is variable ticing over time therefore it is very hard to gauge efficacy against fluctuating symptoms
• Since most individuals will have a better adulthood than childhood, counsel HOPE and FORBEARANCE

8. Medications for Tourette's Syndrome (slide #25,26)

OCD	AD/HD	Tics	ANXIETY	INSOMNIA
Paroxetine	Retalian	Clonazepam	BDZS	BDZs
Fluoxetine	Dexedrine	Clonidine	TCAs	TCAs
Sertraline	Pemoline	Guanfacine	Buspirone	Trazo
Clomipramine	Clonidine	Risperidone		Zolpid
Clonazepam	Guanfacine	Haloperidol		
	DMI/NT	Pimozide		
	?Nicotine	?Nicotine		

C. Conduct Disorder and Oppositional Defiant Disorder (slide #27)

1. The cardinal feature of ODD is a recurrent pattern of behavior toward authority figures that is negative, defiant, disobedient, and hostile and persists for 6 months.
2. The cardinal feature of CD is a repetitive and persistent pattern that violates either the basic rights of others or major age-appropriate societal norms and rules.
3. Two types of CD have been recognized:
   - Childhood Onset: symptoms appear before the age of 10
     - Usually have met the criteria for ODD before CD
     - Usually have concomitant AD/HD
     - CD behavior tends to be more violent
     - Occurs predominantly in boys
     - Strong family history of antisocial personality disorder and substance abuse
     - Usually have a comorbid substance abuse diagnosis which begins in adolescence
     - Poor prognosis
     - Although Childhood Onset CD makes up only 4% of children with CD, these children are responsible for 50% of crimes committed by youth
   - Adolescent Onset: symptoms appear after the age of 10 years
     - Usually have a history of normal functioning before the onset of the disorder
     - Occurs about as frequently in girls as in boys

- Concomitant Mood Disorder, in particular, depression, is common
- May engage in substance abuse as a form of "self-medication" for underlying mood disorder
- Good prognosis

4. For both ODD and CD the predominant underlying mood state may be irritability. Children with MDD and Dysthymia may present with a chronically irritable rather than sad mood. The clinician must be alert to the possibility of depression when making decisions regarding treatment.

5. Pharmacological Treatment of ODD and CD: (slide #28)
Need to be prescribed in the context of other non-medication treatment modalities, e.g., family, behavioral. There is no specific pharmacological treatment for ODD and CD. The basis for pharmacotherapy is the treatment of co-morbid disorders that may be related to the cause of the disruptive behavior:

- MDD
- AD/HD

6. The exception is the pharmacological treatment of aggressive behavior. If in a CD child a major problem is violent behavior, and the violent behavior does not respond to behavioral therapies or the use of medication to treat an underlying co-morbid disorder, the use of medication for violent outbursts may be indicated:

7. Dopamine Antagonists (for details, see section on "Childhood Onset Schizophrenia")
   - Any of the dopamine antagonists may be used. However, the benefit from use versus the side effects may make them problematic (e.g., cognitive blunting, Parkinsonian and extrapyramidal side effects, long term risk for tardive dyskinesia, akathisia that may cause a worsening of symptoms, withdrawal dyskinesias, weight gain, etc.)
   - In Childhood Onset CD, the youth may have paranoid thinking that is not well defined or significant enough to warrant a diagnosis of a thought disorder. These youth may improve with dopamine antagonists
   - The rule of thumb is to use the least amount of medication that will result in a clinical effect. Studies of haloperidol in aggression suggest dosages of 1-6 mg/day.
   - Risperidone is a particularly good choice. It may be given in small dosages (i.e., 0.25-2 mg twice a day) and is associated with fewer Parkinsonian/extrapyramidal side effects.

8. Lithium (for details, see section on "Bipolar Affective Disorder")
   - May be particularly useful if there is mood lability
   - Used in the same dosages as for BAD
   - Need to monitor blood levels and renal functioning

9. Anticonvulsants (for special considerations in childhood, see section on "Bipolar Affective Disorder")
    - These may be particularly useful if there is any history of head injury (i.e., trauma to the head causing loss of consciousness for any period of time), abnormalities on the EEG or emotional lability associated with the disorder.
    - Carbamazepine (CBZ) and sodium valproate are the most widely used.
    - For CBZ, use the least amount that will result in a clinical effect, however, blood levels in the range of 8-12 _g/ml are usually required. Above that range, the risk of toxicity increases.
        - The downside to the use of carbamazepine is:
            - Need to monitor blood levels
            - Need to monitor liver transaminases
            - Need to monitor blood count as blood dyscrasias (e.g., thrombocytopenia, agranulocytosis, aplastic anemia) may occur; is often reversible with discontinuation of the drug, but may be irreversible.
    - For sodium valproate, use the least amount that will result in a clinical effect. Blood levels are useful in monitoring compliance, regulating the blood level associated with clinical effect and preventing toxicity.
    - Need to monitor liver transaminases (asymptomatic elevation, rarely hepatitis). Fetal hepatitis usually occurs in children less than 2 years of age who are on multiple anti-convulsants.

10. Beta Blockers
    - Have not been notably studied for the treatment of aggression in children, but there are case reports of effectiveness. Primarily used in children with known organicity causing aggression.
    - Dosages needed to affect aggressiveness are generally higher than those normally used to treat hypertension (40-960 mg/day in 2-4 doses)
    - ECG, blood pressure and heart rate monitoring must occur before and after the initiation of medication; first degree heart block and intraventricular conduction delays may be contraindications and warrant a cardiology consultation; hypotension may occur transiently until dosages are reached which will affect behavior. Contraindicated in patients with asthma and diabetes mellitus and possibly hyperthyroidism.
    - Drug interactions
        - When used with chlorpromazine, plasma levels of both drugs increase
    - Alcohol slows the rate of absorption of propranolol
    - Phenytoin, phenobarbital and rifampin accelerate propranolol clearance
        - Untoward effects--few in children. Most significant are

cardiovascular.

11. Calcium Channel Blockers
    - Have not been notably studied for the treatment of aggression in children, but there are case reports of effectiveness.
    - ECG, heart rate and blood pressure monitoring must occur before and after initiating the use of medication
    - Verapamil is the most widely studied; dosage recommendation for adults are 40 mg PO TID with increases until a therapeutic affect has been achieved, up to 120 mg TID. For use in children, cardiology consultation should be obtained.

III. The Mood Disorders--Depressive Disorders, Bipolar Disorder and Anxiety Disorders

A. Depression/ Dysthymia in children/adolescents (slide #29)

1. DSM-IV criteria same with developmental "crumb" of irritability for MDD and 1 year criterion for dysthymia
2. Pre-pubertal depression has more frequent depressed appearance, somatic complaints, separation anxiety disorder, phobias, other anxiety disorders, mood-congruent hallucinations and psychomotor agitation
3. Adolescent depression has more frequent hopelessness, weight changes, anhedonia, hypersomnia, substance abuse, frequency and lethality of suicide attempts and delusions
4. Dysthymic disorder increasingly recognized and treated as "gateway " to MDD
5. Childhood Depression Inventory (CDI) and other scales lack specificity
6. Cognitive Behavioral Therapy (CBT) or Interpersonal Therapy (IPT) may be useful in teen MDD; parental treatment helpful with latency children since common co-existent parental depression
7. possibly 25% of both pre-pubertal and teen MDD goes on to BAD
8. Pharmacologic Interventions for MDD/dysthymia/AD/HD: TCAs (slides #30, 31)

- No evidence TCAs more effective than placebo in treatment for children or teens: ? of large number of placebo responders, small "n", pharmacodynamic developmental changes, hormonal changes of puberty
- Éfficacy in AD/HD occurs without delay cf MDD: no evidence of relationship to blood levels: ? of inferior to psychostimulants for treatment of inattention of AD/HD
- 5 deaths with DMI in children treated for AD/HD: probably only small increased risk of sudden death
- Mania induction
- Dosing in latency children 3-5mg/kg/day with recheck of ECG

- School-age children need multiple daily dosing e.g., bid with NT, tid with IMI because shorter medication half lives and if once a day dosing, anticholinergic withdrawal symptoms (nausea, vomiting, and myalgias) may develop
- Side effects: some children can develop dysphoria or irritability or aggression, weight loss, increased heart rate, increased BP especially diastolic, and although they are less sensitive to anti-cholinergic side

effects, they may be more sensitive to central anti-cholinergic symptoms

- Toddler siblings may accidentally overdose
- Lithium augmentation may have very limited usefulness
- Drug interactions very complicated, in adults (and likely children) TCAs are metabolized by demethylation (CYP1A1/2, CYP2C19, CYP3A4/5 for IMI, CMI) (CYP 2C9, CYP2C19, CYP 3A4/5 for AMI) and the rate limiting step, hydroxylation, for all via CYP2D6. Although there is little information on kids, it is known that 5-9% of Caucasians are slow metabolizers of drugs which are substrates of CYP2D6 via genetic polymorphism. These children may have higher blood levels of CYP2D6 substrates. A clinical question to ask prior to starting any CYP2D6 substrate is whether the child has had an adverse reaction to cough medicine since dextromorphan is a CYP2D6 substrate

9. Pre-treatment work-up for TCAs (slide #32)
   - Careful inquiry as to patient and family cardiac history including family history of early or sudden death in first degree relatives
   - CBC with differential
   - LFTs
   - BUN, creatinine
   - ECG
   - Orthostatic BPs, pulse

10. Cardiovascular parameters: TCAs (slide #33)
Consult pediatric cardiologist: reduce or discontinue TCA if:

	Resting heart beats/min	Resting BP (= or less)	PR (= or <)	QTc (= OR<)	
Under 10 years	110	140/90 or 35/85 for >1/2 time 3 wks		0.18	0.48
Over 10 years	100	150/95 or 140/85 for >1/2 time 3 wks	.....	0.20	0.48

(adapted from Rye and Ryan Child and Adolescent Clinics of NA vol 4 #2, p278)

11. Pharmacologic interventions for MDD: SSRIs (slide #34)

- Single study in a preliminary report showed statistical improvement in children and teens with MDD with fluoxetine in one outcome measure, with many patients only partial responders: not yet fully reported
- Start with reduced dosing, e.g., 5 mg fluoxetine for latency children, 10 mg fluoxetine for teens since they have more side effects of agitation , behavioral disinhibition, induction of mania, tremor, dry mouth, decreased appetite, weight loss, insomnia, sweating, nausea, drowsiness
- Complicated drug interactions since individual SSRIs have different capacities to inhibit different CYPs, for children some drug interactions would include: fluvoxamine raises levels of theophylline via CYP1A1/2. fluoxetine raises the level of phenytoin via CYP2C9, fluoxetine and paroxetine raise the levels of DMI and NT via CYP 2D6

B. Bipolar Affective Disorder (BAD) (slide #35)

1. Rarely easy diagnosis: biases against diagnosis include: belief that first episode of BAD is later, belief that hallucinations and delusions=schizophrenia, short longitudinal history, teen onset of depression with development of mania 5 years later, or may present with what appears to be a non-affective disorder (e.g., conduct disorder or eating disorder)
2. 25% children with MDD-> BAD. Be wary if depression is psychotic or serious or precipitated by TCAs, or especially it there is a family history of multi-generational affective illness
3. 20% children with AD/HD have later emerging co-morbid BAD: Young Mania Scale, CBCL may clarify

4. Medications for BAD: special child considerations: Lithium (slide #36)

- Paucity of data: lithium study now in progress
- Need higher lithium dosing to achieve "therapeutic range" with school-age children
- Increased side effects in youngest patients without affective diagnoses
- Children tolerate lithium well but have common side effects of enuresis, polydipsia, diplopia, dysarthria, ataxia, alteration of EEG patterns, development of acne
- Lithium citrate is liquid form; anti-dhiarheal
- Usual pre-treatment work up

5. Medications for BAD: special child considerations:VPA (slide #37)

- Efficacy in few VPA studies including oral loading dosing
- Importance of nonlinear kinetics and very complicated metabolism
- 1/2 life shorter with latency children
- In long term use with childhood seizures, VPA may be associated with decreases in bone density and menstrual abnormalities and Stein-Levin syndrome
- Fatal hepatic toxicity in children less than 2 years with multiple anti-seizure medications may be related to youngest children producing higher levels of toxic metabolite 4-en VPA and shift from monotherapy endomitochondrial B-oxidation pathway to endoplasmic reticulum CYP pathways with CBZ
- Recommended dosing schedule is 15 mg/kg/day initially with weekly increases of 5-10 mg/kg/day. Maximum recommended dose is 60 mg/kg/day. Dosages over 250 mg/day should be divided.
- Nausea, vomiting and indigestion may occur early in treatment and are usually transient.

6. Medications for BAD: special child considerations: CBZ (slides #38, 39)

- Case reports with CBZ, but widely used in Europe for AD/HD
- More rapid disposition: 1-4 years> 4-10 years>10-16 years, plateaus at 19, may be increased in latency boys
- Dosing needs to be at least tid because of short 1/2 life and erratic absorption
- Most common side effects: drowsiness, loss of coordination, vertigo
- Peak concentration can exceed trough concentration with toxicity at high end and undertreatment at the other end
- Contraindications include hypersensitivity to carbamazepine or tricyclic antidepressants, a history of previous bone marrow depression, and the use of an MAOI within 14 days of starting the carbamazepine.
- 40% metabolized to epoxide (CBZ-E) which is active but not measured in usual assays, therefore toxicity can develop with "normal plasma CBZ levels" especially if VPA co-administered (which blocks CBZ-E-> inactive form)
- CBZ inducer at many CYPs 1A1/2, 2C 9, 3A4/5 so it not only induces self but others (e.g., theophylline and steroids). CBZ epoxidation primarily at CYP 3A4/5 (less at 2C8) and many inhibitors of 3A34/5 raise CBZ levels (e.g., propoxyphene, erythromycin, ketoconazole, imipramine)
- Behavioral problems and skin reactions may be more common in children: 1 death in teen reported secondary to neutropenia, and reports of CBZ hypersensitivity

C. Anxiety Disorders in Children and Adolescents (slide #40)

1. Include:
    - Generalized Anxiety Disorder (GAD)
    - Obsessive-Compulsive Disorder
    - Panic Disorder
    - Posttraumatic Stress Disorder
    - Separation Anxiety Disorder (SAD)
    - Social Phobia
    - Specific Phobia
2. Diagnostic criteria for GAD, OCD, PD, PTSD, Social and Specific Phobias the same as that in adults.
3. The cardinal feature of SAD is excessive anxiety engendered by separation from major attachment figures or the home environment for 4 weeks.
4. Primary Treatment of Anxiety Disorders--Depending upon the type of anxiety disorder, a combination of medication and therapy may be indicated. The primary form of non pharmacologic therapy found to be effective is CBT.

5. Medications used in the treatment of anxiety disorders include:
    - Selective Serotonin Reuptake Inhibitors and TCA--used in the same dose range as for treatment of MDD.
    - Buspirone
        - Nonaddicting, but generally inferior to the BZDs
        - Does not interact with GABA; may influence forebrain dopamine receptors; has high affinity for 5 HT_{1A} serotonin receptors
        - Takes several weeks before anxiolytic effect is experienced
        - Contraindications: hypersensitivity and use of an MAOI
        - School-age children: 2.5-5 mg initially with increases of 2.5 mg every 3-4 days to a maximum of 20 mg/day in TID dosing
        - Adolescents: 5 mg-10 mg initially with increases of 5-10 mg every 3-4 days to a maximum of 60 mg/day in TID dosing
    - Benzodiazepines
        - Known hypersensitivity and acute angle glaucoma are absolute contraindications.
        - Should be used with caution in persons at risk for substance abuse and alcoholism
        - BZDs have an additive sedative effect with other sedative or hypnotic drugs (alcohol, barbiturates, TCAs, MAOIs, etc.)
        - Most common side effects are due to CNS depression: oversedation, fatigue, drowsiness.
        - "Paradoxical reactions" with dyscontrol and disinhibition have been reported in children and adolescents.
        - At the present, there are no clinical guidelines for dosing BZDS in children and adolescents.
        - The high-potency and/or short-acting drugs are suspected of presenting more problems of dependence, rebound and withdrawal.

Benzodiazepine	Minimum Age Approved	Daily Dosage

Alprazolam	18 years	0.25-6 mg/day in divided doses
Chlordiazepoxide	6 years	5 mg 2-4 times/day maximum 30 mg/day
Clonazepam	Not specified	0.25-6 mg/day in divided doses
Clorazepate	9 years	For children 9-12 years old, maximum initial dose of 7.5 mg twice daily. Maximum weekly increase, 7.5 mg. Maximum total dose, 60 mg.
Diazepam	6 months	0.1-0.3 mg/kg per day for infants and younger children. 1-2.5 mg 3-4 times per day for older children and adolescents; titrate as needed and tolerated.
Flurazepam	15 years	15-30 mg at bedtime
Lorazepam	12 years	1-6 mg/day
Oxazepam	6 years	Not established for 6-12 year olds; adolescents' usual dose is 10 mg TID to a maximum of 30 mg QID
Temazepam	18 years	15-30 mg at bedtime
Triazolam	18 years	0.125-0.25 at bedtime

- Propranolol--In conjunction with other medication, may alleviate some of the hyperarousal phenomena associated with PTSD (e.g., nightmares, autonomic sensitivity, flashbacks, etc.).

- Clomipramine (CMI)
  - A heterocyclic antidepressant that is particularly useful in OCD
  - It is primarily a serotonergic agent, although one metabolite, desmethylclomipramine, effectively inhibits NA reuptake
  - Follow guidelines as for other TCAs
  - Children and adolescents usually have significantly lower plasma concentrations for a given dose than adults.
  - Most significant side effect is the development of seizures. Risk for seizures is cumulative.
  - Somnolence, tremor, dizziness and headache are more common side effect.
  - Dosages are usually up to 3 mg/kg/day with an initial dose of 25 mg/day. Not FDA approved for children under the age of 10.
  - Abrupt withdrawal may cause withdrawal symptoms--dizziness, nausea, vomiting, headache, etc.
    - In treatment resistant cases of OCD, CMI may be combined with a SSRI, but dosage must be substantially lowered since fluoxetine, paroxetine and fluvoxamine can quadruple CMI blood levels via cytochromes and if tics are present a neuroleptic can be added.

(Slides #41. 42)

		Pharmacological Treatment	
Diagnosis	Primary Treatment	Primary	Secondary
GAD	CBT Medication	SSRI Buspirone	Benzodiazepine TCA
OCD	Medication Exposure-response prevention	SSRI Clomipramine SSRI (?high dose)	
Panic	Medication CBT Family Therapy	SSRI Benzodiazepine	TCA
PTSD	CBT Psychotherapy Medication Carbamazepine	TCA SSRI Benzodiazepine	Lithium Propranolol Clonidine
SAD	Behavior Management Benzodiazepine CBT	SSRI	Buspirone

	Medication Family Therapy		
Social Ph.	CBT Medication	SSRI	Buspirone Benzodiazepine
Specific Phobia	CBT	Not indicated	
Performance Anxiety	Graded desensitization	Beta-blockers	

Medication

IV. Autism, Pervasive Developmental Disorder and Childhood-Onset Schizophrenia

A. Autism/Pervasive Developmental Disorders (PDDs) (Slide #43, 44)

1. Medication interventions in context of multimodal treatment
2. Early interventions directed at acquiring language and social skills
3. Behavior therapies and special education are primary modalities (e.g., TEACCH, shaping, contingency management, parent training)
4. Treat behavioral symptoms such as aggression, stereotypies and self-injurious behaviors (SIB) with behavioral interventions and medication
5. Medication for behavioral symptoms with Autism/PDDs; haloperidol

- Drug of choice: well studied, reduces aggressively, stereotypies, withdrawal
- Dosing 0.25mg-4 mg per day
- Long term usage, about 1/3 develop emergent or withdrawal dyskinesias more in girls-hard to differentiate from stereotypies
- Better in latency children than younger, hypoactivity in autistic child probably contraindication
- Low potency neuroleptics ineffective and cause sedation
- ? place of newer agents, risperidone, olanzapine

6. Other medications for symptoms of Autism/PDDs

- SSRIs/Clomipramine in preliminary studies may reduce symptoms of rituals, OCD, aggression; start low, go slow: other TCAs may worsen symptoms
- Naltrexone: dosing 0.5 -2.0 mg/kg/day may reduce hyperactivity and ? reduces self-injurious behaviors
- Clonidine:dosing 0.15-2.0 mg/day in individuals may improve hyperactivity, but tolerance may develop in weeks to months
- Beta blockers may be useful for aggression and impulsivity (e.g., propranolol 20-320 mg/d tid or qid)
- Psychostimulants may be useful for symptoms of AD/HD but may worsen stereotypies or rituals
- Treat other co-morbid conditions e.g., seizures, tics or depression
- Valproate and carbamazepine may also improve irritability or hyperactivity

7. Medication for symptoms of Autism/PDDs: Fenfluramine

- 30-40% have elevated whole blood serotonin: basis for vogue of fenfluramine: indirect 5-HT agonist and reuptake blocker of 5HT

- Dosing 0.75mg bid
- Improves fidgetiness and withdrawal, may decrease cognitive learning
- Does not improve core symptoms, certainly does not raise IQs
- 2 year review showed development of tolerance, appetite and sleep problems and high use of other medications
- Has caused animal neurotoxicity

B. Childhood Onset Schizophrenia (Slide #45)

1. The diagnostic criteria for Childhood Onset Schizophrenia is the same for schizophrenia with onset in adolescent or adulthood.
2. Two forms: Very Early Onset Schizophrenia (VEOS) (onset less than 12 years) (very rare) and Early Onset schizophrenia (EOS) (onset less than 18). In NIMH study of VEOS, children were mostly boys, who had both positive and negative symptoms with many hospitalizations. They had a more insidious onset and "prominent hallucination and delusions, avolitia and alogia".
3. The pharmacologic treatment of VEOS and EOS is difficult as most of the dopamine antagonists are effective in treating the positive symptoms of schizophrenia, but may have little impact on the negative symptoms. The exceptions are clozapine and possibly respiridone. Although neither are approved for use in children, there is a growing case literature of effective usage. Concern about their usage centers on the side effects of dysphoria, EPS reported with teens on respiridone and EPS, neutropenia, seizures and weight gain in children on clozapine
4. When using antipsychotic medication, the therapeutic effect must be weighed against the potential side effects. Latency children have both therapeutic effects and side effects at lower plasma levels than do teens or adults. In Spencer's study of haloperidol in schizophrenic children (Richardson and Haugland G, 1996), most common side effects were drowsiness and drooling. Others included "dizziness, masklike facies and tongue discomfort." Children may be at special risk for EPS, Parkinsonian bradykinesia, acute dystonias, cognitive/behavioral symptoms, withdrawal and treatment emergent dyskinesias.
   - Acute Dystonic Reactions: Teen aged males at special risk. At highest risk upon initiation of medication or with dosage increase. High potency are more likely to precipitate a dystonic reaction.
   - Parkinsonian: may occur in about 30% of children; atypical features in pre-pubertal males and in association with affective illness in older children
   - Akathisia: may be less common in childhood
   - Withdrawal Dyskinesia: TD like symptoms associated with lowering the dose or stopping a neuroleptic. May be as high as 20-50% in children. Usually transient.
   - Treatment Emergent Dyskinesia- may be as high as 12-15 % in children
   - Tardive Dyskinesia: has been reported in 18% of teens treated with anti-psychotics.
   - Cognitive/behavioral syndromes: behavioral problems, avolitional difficulties, dysphoria, separation anxiety and school refusal
   - Neuroleptic Malignant Syndrome: may not be associated with a higher incidence in affective disorders, may have a higher incidence of fatal outcomes.

(Slide #46)

Pretreatment screening for neuroleptics

- CBC with differential
- liver and kidney function tests
- ECG with thioridazine, pimozide, respiridone
- height and weight
- AIMs or comparable scale
- Special protocol for clozapine

(Slide # 50)

Drug	Therapeutic Equivalent Dose (mg)	Sedation	Autonomic	Extra-pyramidal	Approved ages for use	Dose
Chlorpromazine	100	+++	+++	++	6 mos	2-6 mg/kg/day
Thioridazine	100	+++	+++	+	2 years	2-6 mg/kg/day
Loxapine	15	++	+/++	++/+++	16 years	No specific child dosages
Molindone	10	++	+	+	12 years	No specific child dosages

Perphenazine	10	++	+	++/+++	12 years	No specific child dosages
Trifluoperazin	5	++	+	+++	6 years	0.1-0.5 mg/kg/day
Thiothixene	5	+	+	+++	12 years	No specific child dosages
Fluphenazine	2	+	+	+++	----------	
Haloperidol	2	+	+	+++	3 years	0.1-0.5 mg/kg/day
Pimozide	10	+	+	+++	Over 12 yrs.	0.2 mg/kg/day or max. 10 mg/day

V. Eating Disorders

A. Eating disorder of infancy or early childhood include:

1. Feeding Disorder of Infancy or Early Childhood--persistent failure to eat adequately w significant failure to gain weight or weight loss over one month; medical condit cannot explain it; also called "Failure to Thrive"; usually associated with p attachment in the infant-mother relationship.
2. Rumination Disorder--repeated regurgitation and rechewing of food not associated with medical condition; usually associated with poor attachment in the infant-mot relationship.
3. Pica--persistent eating of nonnutritive substances; may occur if there is a specific nutritio deficiency (e.g., iron deficiency anemia), but usually occur when the normal proces child care has gone awry.
4. Pharmacologic treatment is generally not indicated in the eating disorders with onset in infa or early childhood.

B. Eating disorders with onset in adolescence include Anorexia Nervosa and Buli Nervosa.

1. In anorexia nervosa, there is intense fear of gaining weight, refusal to maintain body weight a minimally normal weight and a disturbed perception of body image (i.e., these patie may report that they "feel fat" when in fact they are emaciated.

(Slide #47)

- There is no specific pharmacologic treatment for anorexia.
- Treat co-morbid conditions
- Appetite is normal, therefore, appetite stimulants such as cyproheptadine

at 32 mg /day have shown positive results in non-bulimic sub-type in a single study.

2. In bulimia nervosa, there are recurrent episodes of binge eating with compensatory behavior prevent weight gain; episodes of bingeing usually occur in reaction to dysphoric mo states; there is also often associated impulsive behavior including substance abu self-injury in response to dysphoric mood states, etc.

3. Pharmacologic Treatment of Bulimia Nervosa (Slide #48)

- CBT equal or superior to medication interventions and should be considered first
- Treat comorbid conditions, e.g., depression or anxiety
- Studies of many different antidepressant, e.g., TCAs, MAOIs, SSRIs have shown efficacy in short term (less than 8 weeks) for purging sub-type at usual anti-depressant dosing , exception, may need higher dosing of fluoxetine, e.g., 60 mg daily
- Non-depressed patients appear to respond equally well.
- Longer term usage may have symptom reduction but not remission
- "POOP-OUT" may occur with longer term usage
    - May need add-ons or sequential treatment for treatment resistant patients

CHILD & ADOLESCENT RATINGS SCALES

1. Side Effects Scale for Ritalan, Dexedrine, or Pemoline
2. Child Depression Inventory
3. Young's Mood Scale
4. Assessing Mania in Prepubertal Child

ASCP Psychopharmacology Curriculum

Case Study Case "`of The Ticing Tike"

A 7 year old boy (Brownie N. Motion) is brought in by his mother because of he was kicked out of Wee Care day care and is having difficulty in school. This child was the product of a mother who had sprees of alcohol during the pregnancy, and she received no pre-natal care. He was delivered at 35 weeks at 4 pound 8 ounces and was kept in the NICU for about one week because of feeding difficulties. He is described as a colicky baby who never slept. His developmental markers were unusual insofar as he had delayed language and he had early intervention for an articulation disorder and receptive and expressive language L.Ds. He had intermittent otitis media and had the institution of PE tubes at 4 years of age. Mother states that as soon as he could walk, he ran and has been in trouble ever since. He wandered away from home at 2 years and was found by the police. He put everything in his mouth from his earliest years. He could never play with toys for long but he could play other kid's Nintendos without stopping for hours. He did fine in early intervention programs because the teachers were so structured. His kindergarten teacher said that he was very immature and wanted him retained in school, but mother decided that he shouldn't be held back. The school did IQ testing : WISC-3 that showed a performance IQ of 98 and a verbal IQ of 78 with a Full Scale of 88. A teacher Conners shows a T=87 in Hyperactivity Index Scale, a Teachers Report Form shows a T=78 in the Inattention-Passivity Scale: Father is not living at home since the parents divorced and had a diagnosis "being hyper" as a child himself. Mother is overwhelmed with this child and feels as if he rules the roost.

Question 1: What should you focus on MSE: what laboratory and other tests would should you consider?

Emphasis on physical descriptions for Fetal Alcohol Syndrome and importance of recognizing forms of tics.

It can also be used to review other syndromes where AD/HD may be found in higher incidence: FRA X, PKU and GRTH.

Discussion of the value of lead levels in children with Pica or neglect in your area of the country (highest in urban centers with old paint)

Question 2: His exam shows a normal physiognomy, no hyperactivity but some symptoms of nocturnal fears of robbers, and no other anxiety symptoms. He thinks that he saw a ghost once-maybe or maybe it was in his head.

Discuss these findings.

Answers should include the fact that the lack of hyperactivity in a 1-1 setting does not rule out the diagnosis of AD/HD, that nocturnal fears in this age group is normative and a discussion about what makes a "real hallucination" versus age-appropriate beliefs.

Question 3: Discuss possible DSM diagnoses on all 5 axes.

What would your treatment plan include? ?school ?parent Discuss the informed consent process you would go through with Ms Motion and how would you talk with Brownie about possible medication usage of methylphenidate.

Emphasis on the importance subtyping the AD/HD, of including Oppositional Defiant Disorder and possible Learning Disorder of Receptive and Expressive Language on Axis 1 (split in performance and verbal IQ and the history of late language development). Emphasis on the importance of developing Axis 4 in children which provides a lead-in to a comprehensive treatment plan to include: educational interventions, psychosocial and psychoeducation and behavioral plans and medication intervention.

Emphasis on process of informed consent to include common side effects, major side effects and those likely in this child, and other possible interventions. Importance of getting assent from the child.

Question 3: You start him on methylphenidate at 5 mg tid and mother calls the next day to say that he has developed urticaria? What would you do?

Emphasis on close early contact with parents. Discontinue the drug.

Question 4: You then start him on dextroamphetamine sulfate at 5mg bid 7 am and 11:30 am at school. Mother calls to say that he is doing much better but he has difficulty sleeping. She has shifted the bid dosing to 6 am and 12 pm in school.

Emphasis on value of pre-treatment review of side effects or use of instruments such as the Barkley Side Effect Questionnaire (included). It turns out that Brownie's sleep has always been disturbed and he now gets to bed 15 minutes later that usual. Make no change.

Question 5: You get a Teacher Conners. Mrs. Sargeant, his teacher writes a note to accompany the form which says: "He is sometimes a little hellion" but repeat teacher Conners shows a T=58 on H-I scale. What do you do?

Emphasis on understanding what the teacher means. Her Conners shows an improvement by 2 SDs, but she writes there is a problem. PHONE THE TEACHER. She reports that his behavior is excellent until 11 am and then he is back to pre- treatment behaviors. This focuses on the importance of "bunching the dosing closer' if there is efficacy but that the child "runs out of stimulant". This is the single most common error in the use of psychstimulants.

Also could use to discuss importance of multiple domain information gathering and possible biases of teachers or parents?

Question 6: On your advice Ms. Motion attends CHADD meetings and learns to be more structured at home. Brownie is put on a behavior chart, he is in SPED for his language LD. He turns out to be a speedy wing on a soccer team (when he takes his Dexedrine). You see him every 3 months for 1 year. He moves away for 1 year and then returns. Before this visit, Ms Motion phones to say that he has been on the same medication during the last year and she has begun to see some eye blinking and nose wrinkling which come and go.

What questions do you ask at the next interview?

What do you look for?

Emphasis on differentiating stereotypes versus tics. Importance of distinguishing various tic syndromes of transient tics versus chronic tics and the importance of motor and phonic tics and duration requirements for a diagnosis of Tourettes (TS). Brownie only has motor tics!

Importance of getting family history of tics and OCD to support diagnosis of TS

Also could be used to do a differential diagnosis of tic syndromes especially to rule out other causes of tics such as psychostimulant abuse with Crank; or CO or Manganeese toxicity; Huntingtons Chorea, SSPE, basal ganglia tumors, Sydenhams Chorea.

Question 7: On examination, Brownie has obvious sniffing, throat clearing and echolalia and has been doing this for more than 1 year.

What is his diagnosis? TS

Question 8: You discuss the use of clonidine with his mother

Describe what you would say in the informed consent discussion.

What pre-treatment questions and studies are in order?

How would calculate the usual dosing and how would you initiate and maintain treatment?

What are the absolute and relative contraindications for usage?

Question 9: You start him on clonidine 0.025mg hs and gradually increase him to 7 ug/kg. in tid dosing He has a good response but he becomes dysphoric and weeping. Mother reveals that she has had a prior episode of depression. What do you do?

-discontinue the clonidine

Question 10: Mother asks you to discuss all of the medications that would be useful for tics. What do you include? You mention TCAs. Describe what you would say in the informed consent discussion

What pre-treatment questions and studies are in order?

Mother states that she is too scared about the heart problems and asks you to consider another medication.

Question 10: You suggest Guanfacine since Brownie had a good response to Clonidine. How would you use it?

Mother asks about neuroleptics. When would you consider the use of neuroleptics?

Which neuroleptics would you consider? Describe what you would say in the informed consent discussion

What pre-treatment questions, scales and studies would be in order?

Question 11: Brownie has a good response to 3mg of Guanfacine split in tid dosing. 2 years later, he reveals that he is washing his hands 35 times a day.

Discuss questions you would ask and construct an allgorhytmn for the treatment of OCD.

CHILD AND ADOLESCENT PSYCHOPHARMACOLOGY CURRICULUM OUTLINE

It is important that general psychiatry residencies provide training via didactic lectures and individual supervision for residents rotating through child psychiatry. The emphasis of such lectures should be on the drug treatment of childhood disorders as well as on liaison psychopharmacology. A specific series of psychopharmacology lectures when a resident is rotating through a child program, as well as psychopharmacology supervision may be indicated using the above described techniques. Similar programs may be useful for child psychiatric fellows. This section presents a very rough outline of one such program.

Child and Adolescent Psychiatry Curriculum Outline for General Psychiatry Residents(Karen Wagner, M.D.)

I. Pharmacokinetics in Children & Adolescents

A. Absorption

B. Distribution

C. Metabolism

D. Excretion

II. Baseline Assessments Prior to Medication Trial

A. Physical Examination

B. Laboratory Test

C. EKG

D. EEG

E. Rating Scales

III. Attention Deficit/Hyperactivity Disorder

A. Stimulants

B. Tricyclic Antidepressants

C. Clonidine

D. Guanfacine

E. Bupropion

F. Serotonin Reuptake Inhibitors

G. Status of Controlled Medication Trials

IV. Major Depression

A. Serotonin Reuptake Inhibitors

B. Tricyclic Antidepressants

C. Monoamine Oxidase Inhibitors

D. Lithium Augmentation

E. Status of Controlled Medication Trials

V. Bipolar Disorder

A. Lithium

B. Carbamazepine

C. Valproic Acid

D. Clonidine

E. Status of Controlled Medication Trials

VI. Anxiety Disorders

A. Serotonin Reuptake Inhibitors

B. Tricyclic Antidepressants

C. Clomipramine

D. Buspirone

E. Benzodiazepines

F. Status of Controlled Medication Trials

VII. Tourette's Disorder/Tic Disorders

A. Neuroleptics

B. Clonidine

C. Status of Controlled Medication Trials

VIII. Autistic Disorder/Pervasive Developments Disorders

A. Naltrexone

B. Fenfluramine

C. Neuroleptics

D. Status of Controlled Medication Trials

IX. Psychotic Disorders

A. Neuroleptics

B. Atypical Neuroleptics

C. Status of Controlled Medication Trials

X. Eating Disorders

A. Anorexia Nervosa

1. Cyproheptadine

2. Antidepressants

3. Status of Controlled Medication Trials

B. Bulimia Nervosa

1. Serotonin Reuptake Inhibitors

2. Tricyclic Antidepressants

3. Monoamine Oxidase Inhibitors

4. Status of Controlled Medication Trials

XI. Common Psychotropics Used in Pediatric Psychiatry

A. Child and Adolescent Psychiatric Clinic of North America, 1995 Pediatric Pharmacology I Table 1, pages 100-106

XII. Drug Information Sheets for Patients(See enclosure)

XIII. Informed Consent

A. Informed Consent from parent

B. Assent from child

C. Informed Consent Process

1. Purpose (benefits of treatment)

2. Treatment Process

3. Risks of Treatment, include unforeseen (unknown) risks for children

4. Treatment Alternatives, including non-treatment

READINGS:

Alessi N, Naylor MW, Ghaziuddin M, Zubieta JK (1994), Update on lithium carbonate therapy in children and adolescents. J Am Acad Child Adolesc Psychiatry 33: 291-304

Allen AJ, Leonard HL, Swedo SE (1995), A new infection-triggered, auto immune subtype of pediatric OCD and Tourette's syndrome. J Am Acad Child Adolesc Psychiatry 34: 307-11

Birmaher B, Ryan ND, Williamson DE, Brent D, Kakufman J (1996), Childhood and adolescent depression: a review of the past 10 years. Part II. J Am Acad Child Adolesc Psychiatry

Campbell M, Schopler E, Cueva JE, Hallin A (1996), Treatment of autistic disorders. J Am Acad Child Adolesc Psychiatry 35: 134-41

Clein PD, Riddle MA (1995), Pharmacokinetics in children and adolescents. Child Adolesc Psychiatric Clinics North American 4(1): 59-75

Cook EH, Leventhal BL (1995), Autistic disorder and other pervasive developmental disorders. Child Adolesc Psychiatric Clinics North American 4(2):381-99

Dorevitch A, Meretyk I, Umansky Y, Galili-Weisstub E (1995), Antipsychotic drugs and tardive dyskinesia: preliminary results in an adolescent psychiatric ward. J Clin Phar & Ther 20: 63-5

Green WH (1995), Child and Adolescent Clinical Psychopharmacology, Williams & Wilkins, Baltimore.

Jimerson DC, Wolfe BE, Brotman AW, Metzger ED (1996), Medications in the treatment of eating disorders. Psychiatric Clin North America 19:739-754

Leppik AE (1992), Metabolism of antiepileptic medication: newborn to elderly. Epilepsia 33 (S4): 532-40

Mc Dougle CJ, Price LH, Volkmar FR (1995), Recent advances in the Pharmacotherapy of autism and related conditions. Child Adoles Psychiatric Clinics of North America, 3 (1): 71-89

Oesterheld JR, Tervo, R (1996), Clonidine: A practical guide for usage in children: South Dakota J of Med 49:234-237

Parmelee DX (1996), Child and Adolescent Psychiatry, Mosby Press, St. Louis.

Richardson MA and Haugland G, 1996, Use of Neuroleptics in Children. Clinical Practice Series #37. American Psychiatrid Press, Washington DC

Vitiello B, Jensen PS (1995), Developmental perspectives in pediatric psychopharmacology. Psychopharm Bull 31:75-81

APPENDIX A

LECTURE SERIES

In the body of this curriculum, we have presented our ideas about which lectures should be taught, what they should cover, and how they integrate with other teaching formats. In addition, many teachers have asked us to supply them with hard copies of slides and when possible, detailed lecture outlines necessary to deliver the lecture. To meet this need, we contacted experts on particular topic(s). The response was extraordinary with 31 lectures totaling over 1,500 hard copies of slides submitted. At present, this is the largest, most up to date, complete collection of slides on the topic of psychopharmacology ever assembled. The following lectures are somewhat arbitrarily divided into "basic" and "advanced" courses as follows:

Basic Courses For Beginning Residents(PG 2's)

1. Pharmacodynamics DeBattista
2. Pharmacokinetics Ketter
3. Mood Stabilizers - Bipolar Disorder Ketter, Ward
4. Antipsychotics - Typical Halper, Goff, Marder
5 Atypical Antipsychotics Halper, Goff, Marder
6. Basics on Antidepressants Ward
7. Substance Abuse Schuckit
   a. Overview of Drug Abuse
   b. Diagnostic Considerations for the Substance Related Disorder
   c. Treatment of Substance Abuse Disorders
   d. Alcohol and Drug Dependence

e. Dual Diagnosis of Comorbidity

f. Causes of Substance Abuse with the emphasis on Genetics

8. ECT Fink

9. Sleep Disorders Kripke, Ward

10. Pharmacotherapy of Violence Candilis

11. Treatment of Aggression in the Elderly Hales, Yudovsky

12. Traumatic Brain Injury Hales, Yudovsky

Advanced Courses (PG 3's, PG 4's)

Anxiety Disorders

1. Panic Disorder Lydiard, Ward
2. Obsessive Compulsive Disorder Ward
3. Phobias - Social Performance Lydiard
4. Generalized Anxiety Disorder Ward, Lydiard
5. PTSD Ward, Lydiard
6. Atypical Depression Klein, Preven
7. Treatment Resistant Depression Ward
8. Managing Side Effects of Antidepressants Pollack, Ward
   And Mood Stabilizers
9. Bulimia Agras
10. Diagnosis and Treatment of Dementia Harris
11. Psychoses in the Elderly Jeste
12. Late Life Depression Zisook
13. Combining Pharmacology and Psychotherapy Glick
14. Personality Disorders Siever
15. Adult ADHD Roy-Byrne
16. Body Dysmorphic Disorder Phillips
17. Diagnosis and Treatment of Premenstrual Disorder Grady
18. Sexual Problems and Psychopharmacology Segraves

Most importantly, we have found and field tested the notion of using lecturer "A's" lecture outline/hard copies delivered by lecturer "B". It can be done. The key issue is for the actual lecturer to modify our teaching methods to hir own style, cadence, focus and integration with other lectures. That is, make it hir own.

Although these are mostly composite lectures of different experts in the field, they have been edited for consistency and clarity. If there are specific questions about a particular lecture outline, please contact either Ira Glick, M.D., Stanford University School of Medicine(415)723-3519, or Nick Ward, M.D., University of Washington (206)731-5294. We will be happy to fill in gaps, answer questions etc.

Dr. Ira Glick was the overall organizer for this project, Dr. Nicholas Ward, the editor for the lectures and Dr. David Janowsky, the associate editor for the lectures. In addition to thanking the contributors named in the slide series, we would also like to thank several people who particularly helped make this project possible by pulling together experts, facilitating the process, and giving valuable advice. These generous contributors include Donald Klein, M.D., Jerrold Rosenbaum, M.D., Sidney Zisook, M.D., David Preven, M.D., Jessica Osterheld, M.D., James Halper, M.D., and Murali Doraiswamy, M.D.

We would also like to thank Andrew Blair Ph.D. who skillfully and artfully made all of these hard copies of slides. We wish too, to thank Marcee Kurr and Katherine Evans, and Melissa D'Agostino and the ASCP office for pulling it together and editing it into the form in which you're presently seeing it Copies of slides from this series are available through the American Society of Clinical Psychopharmacology at (212)268-4260.

The ASCP wishes to acknowledge with thanks, a generous grant from Eli Lilly and Company in partial support of this project.

APPENDIX B

RATINGS SCALES

Clinical Global Impression (CGI)

Patient's Global Improvement Scale

Hamilton Psychiatric Rating Scale for Depression (HAMD)

Beck Inventory

Hamilton Anxiety Scale

Panic Attack Diary

MUSC Panic Severity Rating Scale

Duke Brief Social Phobia Scale (BSPS)

Y-BOCS Symptom Checklist

PANSS QuikScore Form

Positive and Negative Symptom Scale (PANSS) Worksheet & Rating Scale Criteria

MUSC Progress Notes

APPENDIX C
LIST OF OTHER USEFUL BOOKS

American Psychiatric Association: Benzodiazepine Dependence, Toxicity, and Abuse: A Task Force Report of the American Psychiatric Association. Washington DC, APA Press, 1990.

Baldessarini RJ: Biomedical Aspects of Depression and Its Treatment. Washington DC, APA Press, 1983.

Baldessarini RJ: Chemotherapy in Psychiatry: Principles and Practice. Cambridge MA, Harvard University Press, 1985.

Coryell W, Winokur G: The Clinical Management of Anxiety Disorders. New York, Oxford Press, 1991.

Derogatis LR, Wise T: Anxiety and Depressive disorders in the Medical Patient. Washington DC, APA Press, 1989.

Gilman AG, Goodman LS, Giman A (eds): Goodman and Gilman's The Pharmacological Basis of Therapeutics, Ninth Edition. New York, McGraw-Hill Co., 1996.

Goodwin, FK , Jamison, KR. Manic-Depressive Ilness. New York, Oxford University Press, 1990.

Jefferson JW, Greist JH, Ackerman DL, et al: Lithium Encyclopedia for Clinical Practice, Second Edition. Washington DC, AOA Press, 1987. Thorough information source for lithium.

Mason AS, Granacher RPL: Clinical Handbook of Antipsychotic Drug Therapy. New York, Brunnel/Mazel, 1980. Older but useful text reviewing pharmacology and treatment for antipsychotic drugs.

Integration of Pharmacotherapy and Psychotherapy

Beitman BD and Klerman G: Integrating Pharmacotherapy and Psychotherapy. Washington DC, APA Press, 1991.

Dowling C: You Mean I Don't Have to Feel This Way?: New Help for Depression, Anxiety, and Addiction. New York, Charles Scribner's Sons, 1991.

Klein, DF, Wender, PH. Understanding Depression: A Complete Guide to its Diagnosis and Treatment. New York, Oxford University Press, 1993.

Kline NS: From Sad to Glad. New York, Ballantine, 1981.

Mendelson JH, Mello NK: Alcohol Use and Abuse in America. Boston, MA, Little Brown, 1985.

Mondimore, FM. Depression: the Mood Disease. Baltimore, The Johns Hopkins University Press, 1993.

Pope HG, Hudson JI: New Hope for Binge Eaters. New York, Harper & Row, 1984.

Ross J. Triumph Over Fear. New York, Bantam Books, 1994

Schou M: Lithium Treatment of Manic-Depressive Illness, 2nd Edition. Basel, Karger, 1983.

Sheehan DV: The Anxiety Disease and How to Overcome It. New York, Scribner, 1984.

Styron W: Darkness Visible: A Memoir of Madness. New York, Random House, 1990.

Tsuang MT: Schizophrenia: The Facts. New York, Oxford University Press, 1982.

Whymore, PC. A mood Apart. U.S., Basic Books 1997.

Winokur G: Depression: The Facts. New York, Oxford University Press, 1981.

APPENDIX D
LIST OF ADDITIONAL JOURNALS

ACTA Psychiatrica Scandinavia (C) Frequently publishes clinically oriented psychopharmacologic reports.

American Journal of Geriatric Psychiatry (AJGP),Official journal of the American Association for Geriatric Psychiatry.

Anxiety (C & B) Includes reports involving all aspects of anxiety, including psychopharmacology treatments.

Biological Psychiatry (B) A basic science psychiatry journal with occasional articles on the use of drugs; articles are often about drug mechanisms and modes of action.

Convulsive Therapy (C & B) Dedicated to ECT treatment, but often has case reports and other articles relevant to the interface of psychopharmacology and ECT.

Depression (C & B) Dedicated to topics relating to mood disorders; includes psychopharmacologic treatment studies regularly.

Journal of Affective Disorders (C) Focuses on mood and anxiety disorders, and generally involves clinically relevant articles, many of which involve psychopharmacological treatments.

Journal of Anxiety Disorders (C) Heavily weighted to psychological treatment of anxiety disorders, but has occasional psychopharmacological treatment studies or reviews.

Journal of the American Academy of Child and Adolescent Psychiatry (C) Relevant article, some of which relate to psychopharmacology

Neuropsychopharmacology (C & B) Official journal of the American College of Neuropsychopharmacology. Includes basic and clinical articles as well as reviews of relevant areas and developments in psychopharmacology.

Psychiatry Research (C & B)A basic science psychopharmacology journal with infrequent, clinically oriented articles.

Psychopharmacology Bulletin (C & B) Frequently publishes brief abstracts from various meetings, invited and occasional solicited articles. A good way to get a rapid overview of the important developments in psychopharmacology.

Schizophrenia Bulletin (C & B) Clearly focused on topics relevant to its title; regularly publishes studies and reviews of psychopharmacology of schizophrenia.

APPENDIX E
BOOKS & ASSOCIATIONS
FOR PATIENTS AND THEIR FAMILIES

BOOKS:

Andreasen NC. The Broken Brain: The Biological Revolution in Psychiatry. New York, Harper & Row, 1984

Burns D: The Feeling Good Handbook. New York, William Morrow, 1989.

Fieve RR. Moodswing: The Third Revolution in Psychiatry. New York, Bantam, 1976.

Klein DF, Wender P: Understanding Depression. New York, Oxford University Press, 1993.

Klein DF, Wender PH: Do You Have a Depressive Illness? How to Tell, What To Do. New York, New American Library, 1988.

Kline NS: From Sad to Glad, New York, Ballantine, 1987.

Mendelson JH, Mello, NK: Alchohol Abuse in America. Boston, MA Little Brown, 1985.

Pope HG, Hudson JI: New Hope for Binge Eaters. New York, Harper & Row, 1984.

Ross J: Triumph Over Fear. New York, Bantam Books, 1994.

Schou M: Lithium Treatment of Manic-Depressive Illness, 2nd Edition. Basel, Karger, 1983.

Sheehan DV: The Anxiety Disease and How to Overcome it. New York, Scribner, 1984.

Styron, W: Darkness Visable: A Memoir of Madness. New York, Random House, 1990.

Tsuang MT: Schizophrenia: The Facts. New York, Oxford University Press, 1982.

Winokur G: Depression: The facts. New York, Oxford University Press, 1981.

ORGANIZATIONS:

THE NATIONAL FOUNDATION FOR DEPRESSIVE ILLNESS, offers recorded information on depression and manic-depression, and provides doctor and support group referrals. NAFDI, P.O. Box 2257, New York, NY 10116; 1-800-248-4397 (provides callers with a recorded message including the symptoms of both illnesses and tells how the information packet may be obtained.)

THE AMERICAN SOCIETY OF CLINICAL PSYCHOPHARMACOLOGY, INC., Professional organization of doctors and other practitioners of psychopharmacology.
'ASCP, 212-268-4260 P.O. Box 2257 New York, NY 10116

THE NATIONAL ALLIANCE FOR THE MENTALLY ILL, a membership organization with over 858 affiliates in 50 states, offers newsletters, a mail-order bookstore and many programs, conferences, symposia and group meetings for family members and patients.
NAMI, 703-524-7600 200 North Glebe Rd, Suite 1015, Arlington, Virginia 22203-3754

THE LITHIUM INFORMATION CENTER offers information and publications, technical and non-technical, for clinicians, researchers, patients, family and friends.
Lithium Information Center 608-836-8070 c/o Dean Foundation, 8000 Excelsior Drive, Suite 203, Madison, Wisconsin 53717-1914

THE NATIONAL INSTITUTE OF MENTAL HEALTH on May 3rd, 1988 launched a long-range, national program designed to educate the public, primary care physicians and mental health specialists about depressive disorders, their symptoms and treatment.

NIMH 800-421-4211 Depression - D/ART Program, Rockville, Maryland 20857

THE NATIONAL DEPRESSIVE AND MANIC DEPRESSIVE ASSOCIATION has 250 patient groups providing support and direct services to persons with clinical depression.
NDMDA 312 642-0049, 730 North Franklin Street, Suite 501, Chicago, Illinois 60610

THE NATIONAL MENTAL HEALTH ASSOCIATION serves over 700 affiliates nationally providing information, publications and other services.

NMHA 703-684-7722 1021 Prince Street, Alexandria, Virginia 22314-2971

APPENDIX F

EVALUATION FORMS OF TRAINEE, SUPERVISOR AND PROGRAM

UNIVERSAL RESIDENT EVALUATION FORM

Resident: _____ Attending: _____

Training Experience: _____ Dates: _____

Overall Assessment *(circle one)* poor performance superior performance

1 2 3 4 5 6 7

Yes No

_ _ 1.Performed satisfactorily for level and met basic requirements for experience.

_ _ 2.Improvement needed in areas noted below.

_ _ 3.Recommended review by REC for academic probation.

Areas in Need of Improvement (*please circle specific areas in parenthesis or expand below)*

_____ Knowledge Base (knowledge of diagnostic procedures, descriptive psychiatry, therapeutic modalities, psychodynamics, relevant literature)

_____ Clinical Skills (interviewing, integration of biological, psychological, and social variables in treatment planning, application of therapeutic modalities, empathy and awareness of counter-transference)

_____ Professional Attitude (responsibility, availability, ability to organize and present information, chart work, teaching skills, capacity to work with others, recognition of relative weaknesses, use of supervision).

Comments (Please elaborate on areas for improvement and/or comment on strengths for letters of reference)

_____

_____

_____

EVALUATION OF SUPERVISOR

Supervisor _____ **Resident**

_____

Type of Therapy (Inpatient, long-term, group, etc.) _____

Frequency _____ **Supervisory sessions** for _____ patient sessions.

Duration of Supervisory Sessions _____ minutes for _____ months.

Are location and time satisfactory? _ Yes _ No

I. ***Expectations:*** (What did you hope supervision would provide?

_____

_____

_____

_____

II. ***Personal Qualities of Supervisor:*** (Is he/she enthusiastic, sensitive, too rigid or too unstructured, able to give feedback, able to create open atmosphere, enjoyable to work with?)

_____

_____

_____

_____

III. ***Teaching Skills and Knowledge of Supervisor:*** (Knows and teaches evaluation, treatment, management, flexibility, and can stimulate interest in patients.)

_____

_____

_____

_____

IV. ***Overall Rating:***

Outstanding _ Very Good _ Good _ Unacceptable _

V. ***Additional Comments:*** (May include specific strengths, weaknesses, suggestions for improvement.)

_____

_____

_____

_____

PSYCHOPHARMACOLOGY SUPERVISOR EVALUATION

I would appreciate your feedback about the supervisory experience in the clinic this year. Your response may affect supervision for future residents. Please answer questions by circling the number on the scale that best corresponds:

1 = excellent 2 = very good 3 = fair 4 = poor 5 = does not apply

Name of Resident (optional) _____ PGY-_____

Name of Supervisor _____

1. a. Was your supervisor available? 1 2 3 4 5

   b. How frequently did you generally meet? _____

   c. Was your supervisor available for emergencies with psychopharmacology clinic patients? 1 2 3 4 5

d. If not, was other supervision available? 1 2 3 4 5

(Who helped you?)

_____

e. How many psychopharmacology emergencies did you have this year? _____

2. Did you review your entire psychopharmacology roster in the course of the year?

Yes _ No _ (If No, how did you proceed?) _____

_____

_____

3. Did you feel your supervisor was supportive? 1 2 3 4 5

4. Did the supervisor provide:

a. Psychopharmacological supervision or instruction *adequate* for patient management? 1 2 3 4 5

b. *Sophisticated* psychopharmacological supervision or instruction? 1 2 3 4 5

(*continued on next page*)

PSYCHOPHARMACOLOGY SUPERVISOR EVALUATION (cont)

c. Helpful information about medications in the following categories?

Neuroleptics 1 2 3 4 5

Atypical neuroleptics (e.g., clozapine) 1 2 3 4 5

Tricyclics 1 2 3 4 5

MAO inhibitors 1 2 3 4 5

Fluoxetine/atypical antidepressants 1 2 3 4 5

Benzodiazepines 1 2 3 4 5

Buspirone 1 2 3 4 5

Anticonvulsants 1 2 3 4 5

Other (please specify):

_____

5. Was your supervisor helpful:

   a. In integrating psychosocial and pharmacological issues? 1 2 3 4 5

   b. In integrating psychopharmacology and psychotherapy? 1 2 3 4 5

6. Overall rating of your supervisor: 1 2 3 4 5

7. Other comments (feel free to use additional pages):

_____

_____

_____

Thank you for taking the time to complete this form. Please leave your responses in my box (#52)

APPENDIX G
INVESTIGATIVE PSYCHIATRY CURRICULUM - ADVANCED

PSYCHOPHARMACOLOGY WITHIN THE TRAINING

Although not formally a part of a psychopharmacology curriculum, this outline for a model investigative psychiatry or psychopharmacology investigative curriculum has been included because it can enhance a model psychopharmacology curriculum and can be given in parallel with it. This material was developed by Drs. Daniel Stern and Ira Glick at the Cornell University Medical College in the 1970s. Keep in mind that the teaching of research on a ”how-to“ basis does not replace the hands-on experience carried out under the supervision of a good psychopharmacology research mentor.

The Investigative Psychiatry Curriculum can be divided into three main types of learning experiences:

A) General academic exercises relevant to the Investigative Psychiatry Curriculum

These include Grand Rounds, Journal Club, and special “Research in Progress" rounds (see Below).

B) Core courses

Core Course I: Research methods and principles:

This course can be a weekly, hour-long, 16-week seminar taught in the spring of the PGY 2 year. It can be open to fellows and psychology interns, as well as PGY 2 residents. The format consists of eight seminars covering the process of arriving at the question to be asked; the need for, value of, and types of hypotheses; research design(i.e., common basic designs and their variants); the nature and types of variables; methods of observation and data collection; analysis of data, basic statistical procedures used in clinical behavioral sciences; and appropriate use of the computer as a tool. These eight seminars can alternate with eight presentations by invited members of the faculty. Presenting to the trainees one of their own papers already published in a referred journal.

Prior to the presentation, the trainees should have a week to study the paper. The trainees and instructors will then utilize the time by asking the author questions about the many decisions made about any and all aspects of that research (the central question, methods, reliability, etc). We expect that this kind of dialogue about an actual piece of investigation with the person who conceived and conducted it will serve several purposes. Used in alternation with the seminars, it will enliven and bring greater meaning to the lectures and vice

versa. It will acquaint the residents at an early stage with the ongoing research interest of their own faculty. Finally, it will combine a teaching exercise in learning the basics of principles and methods of research with a good introduction to research evaluation.

A list of topics for the eight seminars and for the eight paper presentations follows:

Topics of the Seminars

Week 1: Arriving at a question to be investigated.

Week 3: Hypotheses: the need for them and the various types.

Week 5: Research design: types of general design and their variants; advantages and disadvantages of different designs.

Week 7: The nature of independent and dependent variables, with particular reference to demographic issues in subject selection.

Week 9: Methods of observation and data collection in psychiatric investigation

Weeks 11-13: Analysis of data; basic statistic procedures used in psychiatric research, their rationale and appropriate use.

Week 15: The computer as an analytical tool: appropriate and inappropriate.

Core Course II: Conceptualizing, operationalizing, and conducting an actual Investigative Project:

This 12-week seminar at the beginning of the PGY 3 year can focus on the translation of an idea or question into an operational research design. This seminar can be conducted in a format in which the residents do, in fact, have to complete a scholarly paper by the time of graduation at the end of the PGY 4 year. For the purposes of this program, this training requirement is used as a springboard to create a learning experience in the translation of clinical questions into workable research designs. Each student should struggle with the process of going from idea to finished research design and method which must remain as true as possible to the original question. At each meeting a different resident can present his proposal. The instructors, along with a statistician and the group, should attempt to achieve three goals at each presentation: to help the resident get hir proposal into shape as a realistic and viable proposal, given the fact that they have only limited time over the following year and a half to complete the project; to continue the education of principles and methods in investigative psychiatry begun in the PGY 3 year course; and to further the trainees' acquaintance with statistical and computer knowledge in a situation where these tools are of immediate importance to them.

Developing research strategies for addressing clinical questions:

In the early to middle part of the PGY 4 year (i.e., second trimester), by which time the residents will have had significant inpatient, outpatient, emergency room, and liaison psychiatry experience, they can participate in a 12-week course designed as a practice exercise in identifying real clinical problems, questions or issues on the clinical services to which they are or have been assigned, and developing investigative strategies for addressing these problems. The identification of the problems and the development of strategies will be a group process. While these research strategies are teaching exercises, some may spawn actual projects. We suggest targeting identified priority populations in formulating the clinical problems to be addressed.

Evaluation of resident research projects

A 10-week seminar at the end of the PGY 4 year can be devoted to another approach to research evaluation. In this case, the seminar will be a follow-up to the seminar mentioned above (core course II), i.e., each resident will present the completed results of hir research endeavor (now a year and a half later) to the same group with the same instructors. The critical evaluation of each will constitute the learning material.

Note, that the above four courses have continuity in that they have the same group, meet with the same instructors and consider related subject matter from different vantage points over a three year span.

Other academic courses as they relate to Investigative Psychiatry

As described above, in each of the major academic courses a small number (approximately 10%) of seminars will be separated from the ongoing course and refocused on the central issues of the evaluation and the utilization of investigative psychiatry as it relates to the specific course material.

APPENDIX H
VIDEOTAPE LECTURES AVAILABLE TO SUPPLEMENT CURRICULUM

DISTINGUISHED PROFESSORS OF PSYCHIATRY SERIES

1. Donald Klein, M.D.

Panic Disorder

2. Judith Rapoport, M.D.

Proposed Cause of OCD

3. Daniel Weinberger, M.D.

A Functional Neuroanatomical System Implicated in Schizophrenia

4. William Potter, M.D.

Neuropharmacology of Antidepressants

5. Marku Linnoila, M.D.

Pharmacotherapies of Alcoholism

6. David Pickar, M.D.

Developing Trends in the Pharmacotherapy of Schizophrenia

7. Nancy Andreasen, M.D.

Brain Imaging in Psychiatry

8. Robert Post, M.D.

Recurrent Affective Disorder

12. Steven Hyman, M.D.

Psychotropics – Mechanism of Action

13. Eric Kandel, M.D.

Long Term Memory

14. Solomon Snyder, M.D.

Gases as Neural Transmitters

15. Robert Robinson, M.D.

Psychiatric Disorders in Patients with Stroke

16. George Dooneief, M.D.

Dementia & Behavioral Disorders in HIV

17. Larry Siever, M.D.

Psychobiology of Borderline Personality Disorder

18. Steven Dubovsky, M.D.

Treatment of Refractory Disorders

	19. Dennis Charney, M.D.
9. Susan Folstein, M.D.	*Psychobiology of PTSD*
Huntington's Disease	
	20. Stuart Yudofsky, M.D.
10. Trey Sunderland, M.D.	*Psychopharmacologic Treatment of*
Alzheimer's – Present and Future Tx	*Aggression*
11. Joel Kleinman, M.D.	21. Ira D. Glick, , M.D.
Neuropharmacology of Neuroleptics	*Combining Pharmacotherapy with Psycho-therapy and Psychosocial Rehabilitation*

APPENDIX H (cont)
VIDEOTAPE LECTURES AVAILABLE TO SUPPLEMENT CURRICULUM

ASCP TAPE SERIES (1994)	
1. Max Fink, M.D. *Electroconvulsive Therapy*	7. Donald F. Klein, M.D.*Panic, Agoraphobia, Generalized Anxiety Disorders*
2. Frederick K. Goodwin, M.D. *Bipolar I and II*	8. Michael R. Liebowitz, M.D.*Social Phobia, Atypical Depression*
3. Eric Hollander, M.D. *Obsessive Compulsive Disorders*	9. Patrick J. McGrath, M.D.*Unipolar I and II*
4. John M. Kane, M.D. *Schizophrenia and Psychotic Disorders*	10. Carl Salzman, M.D.*Geropsychiatry* 11. Paul H. Wender, M.D..*Attention Deficit Hyperactive Disorder*
5. Herbert Kleber, M.D. *Alcoholism and Substance Abuse*	
6. Donald F. Klein, M.D. *The Clinical Art of Psychopharmacology*	