

CURRICULUM FOR LEVEL 2 TRAINING IN PSYCHOPHARMACOLOGY

MARCH 1997

Curriculum for
Psychopharmacological
Training for Particular
Populations Using
a Collaborative
Practice Model



AMERICAN
PSYCHOLOGICAL
ASSOCIATION

**FINAL REPORT OF THE APA BOARD OF EDUCATIONAL AFFAIRS WORKING GROUP
ON PSYCHOPHARMACOLOGY EDUCATION AND TRAINING¹**

Members

M. Marlyne Kilbey, PhD (Chair)

Edward F. Bourg, PhD

Ronald T. Brown, PhD

Robert D. Coursey, PhD

Charles France, PhD

Dale L. Johnson, PhD

Neil M. Kirschner, PhD

Joan Martin, PhD

Carolyn Mazure, PhD

Jerry Morris, PsyD

Morgan T. Sammons, PhD

Tony L. Strickland, PhD

Travis I. Thompson, PhD

Rudy E. Vuchinich, PhD

Liaisons/Observers

Lynn P. Rehm, PhD (Ex-Officio, BEA Chair)

Kathleen McNamara, PhD (Ex-Officio, BEA Chair)

Edward P. Sheridan, PhD (Ex-Officio, BEA Chair)

Paul F. Wohlford, PhD (CMHS/SAMHSA Project Officer)

Staff Liaison

Martha Braswell

¹Supported in part by contract from CMHS/SAMHSA/DHSS (contract #95MF24150301D). This report (and associated material) are in the public domain and may be reproduced without permission.

FINAL REPORT OF THE APA BOARD OF EDUCATIONAL AFFAIRS
WORKING GROUP ON PSYCHOPHARMACOLOGY
EDUCATION AND TRAINING

Table of Contents

Preface i

Curriculum for Level 2 Training in Psychopharmacology

Level 2 Curriculum Modules

1.	Child/Adolescent	1
2.	Older Adult	20
3.	Adults with Serious Mental Illness: Schizophrenia as an Example	46
4.	Mental Retardation and Developmental Disabilities	77

Preface

The APA Board of Educational Affairs (BEA) Working Group to Develop Levels 1 and 2 Curricula for Psychopharmacology Education and Training has worked within the framework for Level 2: Collaborative Practice (consultation-liaison model) as set forth in the 1992 Report of the APA Ad Hoc Task Force on Psychopharmacology:

Level 2 (Collaborative Practice-consultation/liaison model) builds on Level 1: Basic Psychopharmacology Education and reflects the knowledge base necessary for actively working with practitioners to prescribe medications for mental disorders and integrating medication into psychosocial treatment. ... Level 2 training includes in-depth, advanced knowledge of the pharmacology of psychoactive medication and the medications used to treat their untoward effects, and the pharmacology of drugs of abuse. It also includes advanced knowledge of psychodiagnosis, physical assessment, physical function tests, and drug interactions important for particular populations or chronic disorders. Training for Level 2 competence includes both didactic and supervised, practical training. (Smyer, Balster, Egli, et al., 1993)¹.

In presenting model Level 2 Curriculum modules, the BEA Working Group would like to emphasize the following related points. First, each module assumes knowledge of the Basic Curriculum developed by the Working Group that encompasses nine modules as well as licensure and experience as a psychologist engaged in the delivery of mental health services. Secondly, each Level 2 module stands alone and does not presume knowledge from one area of advanced training to another. For this reason, there is redundancy. For example, the skills outlined in the research section of each module are very similar, and there is overlap with the information contained in the ethics and professional issues of each module. Third, these curricula are not exhaustive; rather they are illustrative. The model curriculum we provide, for example, for the seriously mentally ill covers schizophrenia. Obviously, curricula for other serious mental illnesses for which pharmacological treatments exist remain to be developed. Fourth, in developing independent, modular, model curricula, the Working Group is seeking to provide information in a format that is adaptable readily to a variety of settings in which this training may be offered including pre-doctoral internships, postdoctoral residencies, and integrated advanced training programs designed specifically to offer such training. The latter may use traditional health education venues or distance learning venues to provide the didactic learning portions of the curriculum although each module requires supervised practical training. As psychologists seek advanced knowledge of pharmacotherapy with special populations and specific, chronic disorders or instances of specific comorbidities, it is obvious that such knowledge can be gained either in concentrated study and practice over a shorter time or in more

¹Smyer, M. A., Balster, R. L., Egli, D., Johnson, D. L., Kilbey, M. M., Leith, N. J. & Puente, A. E. (1993). Summary of the Report of the Ad Hoc Task Force on Psychopharmacology of the American Psychological Association. Professional Psychology: Research and Practice, 24, (pp. 394-403).

distributed study and practice over a longer time. Likewise the content can be "divided" in various ways. The Working Group chose to illustrate, through two modules, content organized by life-span categories and, in another two modules, content organized by specific disorders categories. The four modules are as follows:

1. Older Adult
2. Child/Adolescent
3. Adults with Serious Mental Illness: Schizophrenia
4. Mental Retardation and Developmental Disabilities

Each module follows a similar outline containing sections on Professional and Legal Issues, Assessment, Pharmacological Issues, Unique Issues, Treatment Issues, and Research. Within each section a statement of the purpose and learning objectives is provided, along with content areas. Finally, vignettes illustrative of issues in each section and learning resources are included for each section. It should be noted that although these outlines organize the material to be mastered to gain a degree of "expertise" in the area addressed by the module, the teaching resources will require constant updating due to the rapid rate of emerging scientific knowledge in psychopharmacology. This fact serves to highlight the need for acquisition of the skills outlined in the research section of each module, as they will enable the practitioner to follow, evaluate, and utilize the advances in psychopharmacotherapy as they develop. In preparing the outlines, the Working Group desired to include as much information as possible about interactions between pharmacotherapy and psychological therapy. The Working Group is acutely conscious, however, of how little research is available in this area, and expresses the hope that as psychologists gain more training and experience with pharmacotherapy, this interaction will be addressed in a comprehensive fashion.

As knowledge about pharmacotherapeutic agents has exploded over the past forty years, in part due to the work of basic and clinical research psychologists, psychologists have incorporated pharmacotherapeutics into their view of health-service delivery. Over this period, there has been an ongoing debate on the proper stance of psychologists vis-a-vis pharmacotherapy and the education and training needed to evaluate and deliver such service. The Working Group sees at least three current views held by psychologists today that differ along dimensions of the formal training, the role of consultative-liaison work, and the need for specialized training in psychopharmacology.

The earliest view is that summarized in the Report of the Ad Hoc Task Force on Psychopharmacology of the American Psychological Association (Smyer, Balster, Egli, et al., 1993) which envisioned three levels of training: basic, consultative-liaison, and prescription privileges. It was envisioned that all persons trained to deliver psychological health services would receive didactic, basic psychopharmacology training - either as part of their doctoral program for current students or in continuing education format for those trained previously. A subset of these people were thought to be interested in obtaining a second level of training. These psychologists might wish to work actively with licensed prescribers to manage medications for mental disorders and integrate them into psychosocial treatment. This would require

advanced didactic training as well as practical, hands-on training. Finally, it was envisioned that an even smaller subset of psychologists might wish to pursue the type of intensive training necessary for a third level of competence in which the psychologist would independently prescribe psychopharmacotherapeutics as well as the medications that are often prescribed to control adverse side-effects of such medications. Members of the Working Group, as stated above, emphasized this view in the development of advanced training modules for consultative-liaison practice with special populations.

As the Working Group endeavored to develop a curriculum for psychologists who might wish to consult on the management of their patients' pharmacotherapy, i.e., Level 2, a somewhat different view developed among the members of the Working Group on the role of the curriculum. It became more and more apparent to the Working Group that the defining characteristic of the Level 2 curriculum is that it is an advanced curriculum for psychopharmacology for specific disorders in particular populations. In contrast, both the basic psychopharmacology modules (Level 1) and the model curriculum for prescription privileges are designed to cover general principles of psychopharmacology. Thus, a person completing a training program designed along the lines of the proposed model curriculum for prescription privileges, as passed by the Council of Representatives in August, 1996, would need advanced training to prescribe for particular populations outlined in the Working Group's model curricula as would the person who had completed the Level 1 curriculum and wanted to consult with a prescribing professional in the management of his/her patient(s). The Working Group has received comments that indicate that some practitioners view the model Level 2 Curricula as imposing a formal pedagogical structure on acquisition of knowledge that they obtained in a laissez faire method over the course of their practice. In providing models of what the domain of such knowledge should look like, the Working Group aspires to make the acquisition of such knowledge easier for the practitioner and to provide standards of the content of such knowledge that the practitioner may use to evaluate the status of his/her current knowledge as well as to pursue additional knowledge.

A third view of psychopharmacology training focuses on prescription privileges and views training for collaborative practice as impeding and/or somehow weakening the field's resolve to seek legislative authority to prescribe medications. The Working Group has pointed out that training for prescription privileges is envisioned as post-doctoral training. By necessity, the level of knowledge and experience the licensed psychologist undertaking such a program has upon entry will have to be taken into account in planning his/her training. Thus, training acquired in Level 2 format, may provide advanced standing for persons subsequently seeking prescription privileges.

The BEA Working Group has not established rigid parameters for an exact number of contact hours or an exact number of patients that a trainee would need to fulfill in order to complete each of the training modules. Requirements will differ from person to person, dependent on his/her background skills and experience. Likewise, while the four modules presented by the Working Group encompass more-or-less similar levels of content, it is not clear whether or not exposure to the same number of patients in each module will cover the range of presentations one is likely

to need to treat in each group/condition. Similarly, while the Working Group chose not to provide an example, psychologists may wish to acquire training to work collaboratively with physicians providing replacement therapy for psychoactive substance dependent clients, for example, methadone for clients dependent on heroin. Such training might be much more circumscribed and require both less didactic and less practical training than any of the modules developed by the BEA Working Group.

Under the leadership of M. Marlyne Kilbey, the members of the BEA Working Group follow:

Edward F. Bourg, PhD; Ronald Brown, PhD; Joseph Comaty, PhD; Robert Coursey, PhD; Carl Eisdorfer, MD, PhD; Dale Johnson, PhD; Charles France, PhD; Neil M. Kirschner, PhD; Joan Martin, PhD; Carolyn Mazure, PhD; Kathleen McNamara, PhD (Ex-Officio); Jerry Morris, PsyD; Morgan T. Sammons, PhD; Tony L. Strickland, PhD; Travis Thompson, PhD; and Rudy E. Vuchinich, PhD.

Special recognition is due these members for leadership in developing specific modules:

- Ronald Brown, Child/Adolescent Module
- Joseph Comaty, Older Adult Module
- Dale Johnson, Adults with Serious Mental Illness: Schizophrenia Module
- Travis Thompson, Mental Retardation and Developmental Disabilities Module

LEVEL 2 CURRICULUM

Child/Adolescent

I. Professional and Legal Issues

Purpose and Learning Objectives

The participants will acquire advanced knowledge and understanding of:

- A. The nature of the collaborative relationship between psychologist and pediatrician/psychiatrist/family practitioner. A focus on the benefits obtained and difficulties involved in collaborative practice for the purpose of facilitating an integrative relationship in the care of children and adolescents
- B. The legal and ethical issues to consider as part of a collaborative practice with the introduction of or changes in pharmacological interventions with children and adolescents

Content Areas

- A. Interdisciplinary collaboration between psychologist and pediatrician/child psychiatrist/family practitioner
 - 1. Benefits
 - 2. Training, philosophical, assessment and treatment differences between psychologists and physicians
 - 3. Responsibility issues
 - 4. Child/parent/family variables and their effect on the collaborative process
 - 5. Development of or difficulty in an integrated collaborative relationship
 - 6. Teacher and appropriate school personnel
- B. Legal and ethical issues
 - 1. Scope of practice limitations
 - a. Consultation and referral
 - b. Providing mental health services to those referred by others

- c. Boundaries of competence and need to maintain current knowledge
- d. Avoiding harm
- e. Vicarious liability
- 2. Confidentiality
- 3. Informed consent
 - a. Providing information
 - b. Volunteering for consent
 - c. Individuals' competencies to provide consent
 - d. Special ethical considerations where consent may not be obtained
 - e. Specific consent issues with pediatrics populations
 - i. Parental or caretaker authority
 - ii. Authority of children
 - iii. Developmental issues in assessing competency
 - iv. Assent
 - f. Procedures for obtaining consent
 - g. Documenting consent
 - h. Issues of consent and custody
 - i. Refusing treatment
 - i. Child
 - ii. Parent or caretaker
 - iii. Privilege
 - iv. Malpractice as a function of psychologists' having increased knowledge of psychopharmacology

4. Governmental restrictions related to prescribing practices

COBRA 1987 restrictions (Medicare/Medicaid patients)

5. Practice guidelines for treatment of mental disorders

American Psychiatric Association guidelines

II. Assessment

Purpose and Learning Objectives

The participants will acquire advanced knowledge and understanding of:

Assessment and monitoring of physical effects, behavioral, emotional, and cognitive effects of various pharmacotherapies for children and adolescents and individuals with specific developmental/medical disabilities

Content Areas

A. Physical

1. Baseline physical assessment
2. Medical review of organ systems
3. Physical and neurological examination
4. Speech and language assessment
5. Monitoring untoward side effects
 - a. Side-effects rating scales
 - b. Physical and neurological examinations
6. Laboratory measures
 - a. Biochemical assessment of blood and urine
 - b. Electrophysiological measurement (e.g., EKG)

B. Psychological

1. Rating scales

- a. Self-ratings
- b. Parent
- c. Teacher
- d. Families

2. Direct observations of behavior

3. Laboratory measures

- a. Mental abilities
- b. Measures of executive functioning
- c. Vigilance measures
- d. Measures of learning and tests of achievement
- e. Effects of medication on mental abilities
- f. Use of psychological tests and measures to determine appropriateness of medication
 - i. Mental abilities
 - ii. Neurocognitive functioning
 - iii. Social/emotional competencies
 - iv. Adaptive competencies
 - v. Use of psychological tests to assess compliance

4. Psychological and substance abuse disorder evaluation

C. Pharmacological

1. Efficacy and untoward effects
2. Evaluating response to medication

D. Environmental

1. Misattributing behavior change to medication
 - a. Teacher
 - b. Parents
 - c. Child
 - d. Peers
2. Placebo effects
3. Informed consent
4. Interaction of environment with psychopharmacotherapy

III. Pharmacological Issues and Pediatric Variations

Purpose and Learning Objectives

The participants will acquire advanced knowledge and understanding of:

Basic tenets of pharmacology including pharmacokinetics and mechanisms of drug actions (pharmacodynamics) as they specifically relate to: (1) normally developing pediatric populations; (2) pediatric populations with mental disorders; (3) pediatric populations with developmental and/or physical disabilities requiring medication; and (4) pediatric populations with developmental disabilities with comorbid mental disorders

Content Areas

A. Common psychological disorders and drugs used to treat them

1. Attention Deficit Disorders: stimulants
2. Oppositional Defiant and Conduct Disorder: clonidine
3. Mood disorders: tricyclic antidepressants, heterocyclic antidepressants, specific serotonin reuptake inhibitors
4. Anxiety Related Disorders: anxiolytics
5. Psychotic Disorders: neuroleptics
6. Regulation Disorders: tricyclic antidepressants, antihistamines

B. In each of these conditions and for each of these drugs, the following factors need to be considered

1. Routes of drug administration
2. Distribution
3. Elimination
 - a. Biotransformation
 - i. Hepatic
 - ii. Intestinal
 - iii. Gastric
 - iv. Renal
 - b. Variability in biotransformation in pediatric populations
 - c. Excretion
 - i. Urine
 - ii. Feces
 - iii. Lungs
 - iv. Sweat
4. Pharmacokinetics
 - a. Volume of distribution
 - b. Metabolism
 - i. Gender differences
 - ii. Ethnobiologic considerations
 - iii. Physically disabled considerations
 - c. Elimination and clearance

5. Pharmacodynamics
 - a. Receptor density
 - b. Function
 - c. Gender differences
 - d. Ethnobiologic differences
 - e. Physically disabled differences
6. Drug concentrations
7. Time course of action
8. Dose dependent drug effects
 - a. Gender differences
 - b. Ethnobiologic differences
 - c. Physically disabled differences
9. Mechanisms of drug action
10. Tolerance and dependence
11. Pediatric pharmacokinetics

IV. Unique Issues for Youth With Developmental and Medical Conditions

Purpose and Learning Objectives

The participants will acquire advanced knowledge and understanding of:

The interaction between psychopharmacological treatment and developmental/medical conditions that might affect side effects and treatment outcome

Content Areas

- A. Physical sequelae
- B. Pharmacological factors

- C. Unique untoward side effects
- D. Response factors

V. Treatment Issues

Purpose and Learning Objectives

The participants will acquire advanced knowledge and understanding of:

- A. Social and environmental factors that influence medication administration, efficacy, and untoward effects. Emphasis will be placed upon the role of institutions including schools, general hospitals, and residential, rehabilitation and psychiatric facilities, as they influence pharmacotherapy with children and adolescents with and without medical disabilities
- B. Various phases in psychopharmacotherapy including the decision of whether or not to initiate pharmacotherapy, assessing long-term benefits as well as untoward effects, and considering whether discontinuation of pharmacotherapy is warranted
- C. Psychopharmacotherapy, particularly as it interacts with various nonsomatic psychotherapies. This will include an essential understanding of the efficacy of various psychopharmacologies either in combination with psychotherapy or alone
- D. Assessment of and management of nonadherence with prescribed psychopharmacotherapy

Content Areas

- A. Overall planning of treatment strategies
 - 1. Clinical judgment
 - 2. Use of behavioral evidence
 - 3. Use of clinical pathways
 - 4. Use of algorithms/decision trees
- B. Initiation of treatment of psychopharmacotherapy
 - 1. Physical assessment, baseline physical assessment, and laboratory tests
 - a. Pre-drug physical
 - b. Laboratory assessment

- c. Substance use assessment
- 2. Patient and family education
- 3. Obtaining consent for treatment
- 4. Gender and ethnic considerations
- C. Stabilization of psychopharmacotherapy
 - 1. Monitoring efficacy of psychopharmacotherapy
 - a. Cross-situational evidence of efficacy
 - i. Parents
 - ii. Teachers/school personnel
 - iii. Child
 - b. Rating scales
 - c. Direct observations of behavior
 - d. Laboratory measures of cognition
 - 2. Assessment of untoward side effects
 - a. Formal behavioral assessments
 - i. Rating scales
 - ii. Direct observations
 - iii. Physiological assessments
 - iv. Blood and urine measurements
 - b. Parent assessments
 - i. Parent education and anticipatory guidance
 - ii. Rating scales

c. Teacher assessments

Rating scales

3. Dose-response relationships

D. Maintenance of pharmacotherapy

1. Tolerance

a. Behavioral and psychological tolerance

b. Physical tolerance

2. Dependence

Assessment of addiction potential

3. Ongoing monitoring and assessment of efficacy

4. Ongoing monitoring and assessment of untoward side effects

5. Short-term versus long-term gains

6. Normalization of behavior, cognition, and learning

7. Domain specificity and individual differences

E. Discontinuation/followup

1. Patient education

2. Systematic evaluation of behavior across informants

a. Rating scales

b. Direct observations of behavior

3. Titration of dose

4. Ongoing psychoeducation and psychotherapy

F. Multimodal therapies

1. Attributional effects of medication used alone

2. Benefits of both biologically mediated therapies and psychological therapies (Biopsychosocial model)
3. Systematic evaluation of comparative efficacy of psychopharmacotherapy and traditional psychotherapy and the combination of therapies

G. Compliance

1. Enhancing compliance
2. Counseling and education
3. Relationship between client or patient and prescribing physician
4. Assessment of compliance
 - a. Length of psychopharmacotherapy
 - b. Number of doses
5. Direct measures of compliance
 - Laboratory measures
 - Blood levels
6. Indirect measures of compliance
 - a. Interviews
 - b. Pill counts
7. Factors associated with treatment adherence
 - a. Patient-related variables
 - i. Cultural
 - ii. Biological
 - iii. Gender
 - iv. Religious issues (i.e. Jehovah's Witness)
 - v. Untoward side effects

- b. Clinician-related variables
- c. Family-related variables
- d. Peer-related variables

H. Psychoeducation

- 1. Patient and parent education
- 2. Teacher and school education

VI. Research

Purpose and Learning Objectives

The participants will acquire advanced knowledge and understanding of:

- A. The importance of new developments in the field of pediatric psychopharmacology through systematic reading and critical analysis of recent research with regard to safety, efficacy, and cost/benefits analysis
- B. Systematic controlled clinical research including clinical trials and single subject designs
- C. Available sources for new research in the area of pediatric psychopharmacology including accessing of databases, informational services, and other resources
- D. Theoretical models of central nervous system mechanisms

Content Areas

A. Research preparation

- 1. Literature retrieval strategies
- 2. Pharmacological retrieval strategies and databases
- 3. Research strategies for single case and group studies

B. Preclinical/clinical research

- 1. Theoretical models of mechanism of disorder
- 2. Models of drug development

3. Measurement and design strategies

4. Safety/abuse liability

C. Conducting clinical research

1. Acute trials

2. Long-term followup trials

3. Developmental issues

4. Multimodal trials

5. Consumer satisfaction

6. Cost-effectiveness

7. Meta-analytic strategies

Learning Resources

I. Journals

Journal of Child and Adolescent Psychopharmacology
Journal of the American Academy of Child and Adolescent Psychiatry
Journal of Autism and Developmental Disabilities
Journal of Child Psychology and Psychiatry
Archives of General Psychiatry
Pediatrics
Journal of Pediatrics
Archives of Diseases of Children

II. Other References

A. Professional and Legal/Ethical Issues

- American Psychological Association. (1992). Ethical principles of psychologists and code of conduct. Washington, DC: American Psychological Association.
- American Psychological Association. (1994). The legal and legislative considerations of prescription privileges for psychologists. Washington, DC: Practice Directorate, American Psychological Association.
- Appelbaum, P. S., & Gutheil, T. G. (1991). Handbook of clinical psychiatry and the law (2nd ed). Baltimore, MD: Williams and Wilkins.
- Beitman, B., & Klerman, G. (1991). Integrating pharmacotherapy and psychotherapy. Washington, DC: American Psychiatric Press.
- Burgess, J. W. (1993). The psychotherapy of giving medications: Therapeutic techniques for interpersonal interventions. American Journal of Psychotherapy, 47, (pp. 393-403).
- Ellison, J. M. (1989). The psychotherapist's guide to psychopharmacology, (section I). Chicago: Year Book Medical Publishers.
- Hinshaw, A. S., & DeLeon, P. H. (1995). Towards achieving multidiscipline professional collaboration. Professional Psychology: Research and Practice, 26, (pp. 115-116).
- Jacobsen, F. M. (1994). Women of color: Integrating ethnic and gender identities in psychotherapy. New York: Guilford.
- Jensvold, M. F., Halbreich, U., & Hamilton, J. A. (1996). Psychopharmacology and women: Sex, gender, and hormones. Washington, DC: American Psychiatric Press.

- Kenkel, M. B. (Ed.). (1995). Psychology and primary care/family practice medicine. [Special section] Professional psychology: Research and practice, 26, (pp. 117-146).
- Kingsbury, S. J. (1987). Cognitive differences between clinical psychologists and psychiatrists. American Psychologist, 42, (pp. 152-156).
- Kisch, J. (1994). The need for psychopharmacological collaboration in managed mental health care. In C. S. Austad & W. H. Berman (Eds.), Psychotherapy in managed care. Washington, DC: American Psychological Association.
- Littrell, J., & Ashford, J. (1995). Is it proper for psychologists to discuss medication with clients? Professional Psychology: Research and Practice, 26, (pp. 238-244).
- Institute for Research on Women's Health (1986). An overview of the clinical rationale for advancing gender-related psychopharmacology and drug abuse research. National Institute on Drug Abuse: Research Monograph Series, Monograph No. 65, (pp. 14-20).
- Pilette, W. L. (1988). The rise of three-party treatment relationships. Psychotherapy, 25, (pp. 420-423).
- Reisner, R., & Slobogin, C. (1994). Law and the mental health system. St. Paul, MN: West Publishing.
- Rodin, J., & Ickovics, J. R. (1990). Women's health: Review and research agenda as we approach the 21st century. American Psychologist, 45, (pp. 1,018-1,034).
- Schindler, F., Berren, M., & Beigel, A. (1981). A study of the causes of conflicts between psychiatrists and psychologists. Hospital and Community Psychiatry, 32, (pp. 263-266).
- Simon, R. (1987). Clinical psychiatry and the law. Washington, DC: American Psychiatric Press.
- Strickland, T. L., Ranganath, V., Lin, K, Poland, R. E. et al. (1991). Psychopharmacologic considerations in the treatment of Black American Populations. Psychopharmacology Bulletin, 27, (pp. 441-448).
- Stromberg, C. D., Haggarty, D. J., Leibenluft, R. F., McMillian, M. H., Mishkin, B., Rubin, B. L., & Trilling, H. R. (1988). The psychologist's legal handbook. Washington, DC: The Council for the National Register of Health Service Providers in Psychology (including update of December 1993 titled Malpractice and other professional liability by Stromberg, C. & Dellinger, A.).
- Swenson, L. C. (1993). Psychology and law for helping professions. Pacific Grove, CA: Brooks/Cole.

Specific State Psychologists' Certification/Licensure Acts and Medical Practice Acts.

B. Assessment, Psychopharmacotherapy, and Treatment

American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders, (4th ed.). Washington, DC: American Psychiatric Association.

Baldessarini, R. J. (1996). Chemotherapy in psychiatry: Principles and practice (3rd ed.). Cambridge, MA: Harvard University Press.

Coffey, R. J. et al (1992). An introduction to critical paths. Quality Management in Health Care, 1, (pp. 45-54).

Dulcan, M. K. (1995). Treatment of children and adolescents. In R. E. Hales, C. Yudofsky, & J. A. Talbott (Eds.), American Psychiatric Press textbook of psychiatry (2nd ed.). Washington, DC: American Psychiatric Association.

Garbin, B. A. (1995). Introduction to clinical pathways. Journal of Healthcare Quality, 17, (pp. 6-9).

Hugo-Green, W. (1995). Child and adolescent clinical psychopharmacology (2nd ed.). Baltimore: Williams & Wilkins.

Janicak, P. G., Davis, J. M., Preskorn, S. H., & Ayd, F. O., Jr. (1995). Principles and practice of psychopharmacotherapy. Baltimore, MD: Williams and Wilkins.

Jefferson, J. W., Altemus, M., Jenike, M. A., Pigott, T. A., Stein, D. J., & Greist, J. H. (1995). Algorithm for the treatment of obsessive-compulsive disorder. Psychopharmacology Bulletin, 31, (pp. 487-490).

Jobson, K. O., Davidson, J. R., Lydiard, R. B., McCann, U. D., Pollack, M. H., & Rosenbaum, J. F. (1995). Algorithm for the treatment of panic disorder with agoraphobia. Psychopharmacology Bulletin, 31, (pp. 483-485).

Medical Economics Company. Physicians desk reference (49th ed.). Montvale, NJ: Medical Economics Data, Inc.

Meichenbaum, D., & Turk, D. C. (1987). Facilitating treatment adherence. New York: Plenum.

Nelson, J. C., Docherty, J. P., Henschen, G. M., Kasper, S., Nierenberg, A. A., & Ward, N. G. (1995). Algorithms for the treatment of subtypes of unipolar major depression. Psychopharmacology Bulletin, 31, (pp. 475-482).

Poling, A. (1986). A primer of human behavior pharmacology. New York: Plenum.

- Popper, C. W., & Zimnitzky, B. (1996). Sudden death related to desipramine treatment in youth: A fifth case and a review of speculative mechanisms. Journal of Child and Adolescent Psychopharmacology, 5, (pp. 283-300).
- Rosenberg, D. R., Holttum, J., & Gershon, S. (1994). Textbook of pharmacotherapy for child and adolescent psychiatric disorders. New York: Brunner/Mazel.
- Suppes, T., Calabrese, J. R., Mitchell, P. B., Pazzaglia, P. J., Potter, W. Z., & Zarin, D. A. (1995). Algorithms for the treatment of bipolar, manic-depressive illness. Psychopharmacology Bulletin, 31, (pp. 469-474).
- Van Houten, R., & Axelrod, S. (Eds.). (1993). Behavior analysis and treatment. New York: Plenum.
- Weiner, J. M. (1985). Diagnosis and psychopharmacology of childhood and adolescent disorders. New York: Wiley.
- Zarate, C. A., Daniel, D. G., Kinon, B. J., Litman, R. E., Naber, D., Pickar, D., & Sato, M. (1995). Algorithms for the treatment of schizophrenia. Psychopharmacology Bulletin, 31, (pp. 461-467.)

C. Research

- Hayes, S. (1986). Conceptual foundations of behavioral assessment. New York: Guilford.
- Barlow, D. H. (1984). The scientist practitioner: Research and accountability in clinical and educational settings. New York: Pergamon.
- Fleiss, J. L. (1986). The design and analysis of clinical experiments. New York: Wiley.
- Hayes, S., & Barlow, D. H. (1984). Single case experimental designs: Strategies for studying behavioral change. New York: Pergamon.
- Johnston, J. M., & Pennypacker, H. S. (1993). Strategies and tactics of behavioral research (2nd ed.). Hillsdale, NJ: Erlbaum.
- Rapaka, R. S., & Hawks, R. L. (1993). Medication development: Drug discovery, databases, and computer-aided drug design (Monograph 134). Washington: NIDA.
- Sorer, H., & Rapaka, R. S. (1994). Imaging techniques in medication development: Preclinical and clinical aspects (Monograph 138). Washington: NIDA.

LEVEL 2 CURRICULUM

Older Adult

I. Professional and Legal Issues

Purpose and Learning Objectives

The participants will acquire advanced knowledge and understanding of:

- A. The nature of the collaborative relationship between psychologist and psychiatrist/family practitioner and other medical specialists. A focus on the benefits obtained and difficulties involved in collaborative practice for the purpose of facilitating an integrated relationship in the care of the older adult patient
- B. The legal and ethical issues to consider as part of a collaborative practice with the introduction of or changes in pharmacological interventions with older adult patients

Content Areas

- A. Interdisciplinary collaboration between psychologist and psychiatrist/family practitioner and other medical specialists
 - 1. Benefits
 - 2. Training, philosophical, assessment, and treatment differences between psychologists and physicians
 - 3. Responsibility issues
 - 4. Family (spouse/children/grandchildren) variables and their effect on the collaborative process
 - 5. Development of or difficulty in development of an integrated collaborative relationship
- B. Legal and ethical issues
 - 1. Scope of practice limitations
 - a. Consultation and referral
 - b. Providing mental health services to those referred by others
 - c. Boundaries of competence and need to maintain current knowledge

- d. Avoiding harm
- e. Vicarious liability
- 2. Confidentiality
- 3. Informed consent
 - a. Providing information
 - b. Individuals' competencies to provide consent/assent
 - c. Specific consent issues with older adult populations
 - i. Caretaker authority
 - ii. Power of attorney
 - iii. Legal guardianship
 - iv. Family's right to know
 - d. Procedures for obtaining consent
 - e. Documenting consent
 - f. Refusing treatment
 - i. Older adult patient
 - ii. Family
 - iii. Advanced directives/living will
 - iv. Privilege
 - v. Malpractice as a function of psychologists' having increased knowledge of psychopharmacology
- 4. Governmental restrictions related to prescribing practices
COBRA 1987 restrictions (Medicare/Medicaid patients)
- 5. Practice guidelines for treatment of mental disorders

II. Assessment

Purpose and Learning Objectives

The participants will acquire advanced knowledge and understanding of:

Assessment and monitoring of physical effects, behavioral, emotional and cognitive effects of various pharmacotherapies for older adult patients

Content Areas

A. Physical

1. Baseline physical assessment
2. Medical review of organ systems
3. Physical and neurological assessment
4. Neurodiagnostic imaging
5. Review of past medical records/medical history
6. Monitoring untoward side effects
 - a. Side effects rating scales
 - b. Physical and neurological examinations
7. Laboratory measures

Biochemical assessment of blood and urine

B. Psychological

1. Psychological and substance abuse evaluations
2. Rating scales
3. Direct observations of behavior
4. Observation of behavior by family, caregivers, hospital personnel (e.g., nurses,

therapists, etc.)

5. Laboratory measures

- a. Intellectual functioning
- b. Measures of executive functioning
- c. Vigilance measures
- d. Attention/concentration
- e. Memory
- f. Neurological assessment
- g. Sensory-perceptual function
- h. Visual-spatial skills
- i. Language function (aphasia)
- j. Motor functioning
- k. Gnostic functions
- l. Practic functions
- m. Limitations of laboratory tests in the older adult patient

6. Effect of medications on test performance and interpretation of test results

C. Pharmacological

- 1. Efficacy and untoward effects
- 2. Evaluating response to medication
- 3. Review of current medications and possible interactions

D. Environmental

- 1. Attributing behavior change to medication

- a. Family
- b. Caregivers
- c. Setting
2. Placebo effects
3. Informed consent
4. Interaction of environment with psychopharmacotherapy
5. Change in medical condition and effect on pharmacotherapy

III. Pharmacological Issues and Older Adult Variations

Purpose and Learning Objectives

The participants will acquire advanced knowledge and understanding of:

Basic tenets of pharmacology including pharmacokinetics and mechanisms of drug actions (pharmacodynamics) as they specifically relate to older adult patients including those with single or coexisting mental disturbances in the presence or absence of other medical conditions

Content Areas

A. Common older adult conditions and drugs used to treat them

1. Depression: Tricyclic antidepressants, heterocyclic antidepressants, monoamine oxidase inhibitors, reversible inhibitors of monoamine oxidase A, selective serotonin reuptake inhibitors, psychostimulants, electroconvulsive therapy
2. Bipolar disorders: Lithium, anticonvulsants, electroconvulsive therapy
3. Psychosis: Antipsychotics
4. Anxiety disorders: Benzodiazepines, antidepressants, β -blockers, GABA-A agonists, serotonin 5-HT_{1A} partial agonists
5. Sleep Disorders: Antihistamines, antidepressants, benzodiazepines
6. Dementia: Acetylcholinesterase inhibitors

- a. Aggression/wandering: Antipsychotics, anticonvulsants, benzodiazepines, serotonin 5-HT_{1A} partial agonists, lithium
 - b. Confusion and memory dysfunction: Antipsychotics, metabolic enhancers, nootropic agents
 7. Other neurological conditions (for example: stroke, delirium, Parkinson's disease, Pick's disease, vascular dementia): acetylcholinesterase inhibitors, antipsychotics, dopaminergic agents, monoamineoxidase inhibitors, metabolic enhancers, stimulants
 8. Pain disorders: Nonsteroidal anti-inflammatory agents, narcotic agents, salicylates, antidepressants, muscle relaxants
- B. In each of these conditions and for each of these drugs, the following factors need to be considered
1. Routes of administration
 2. Pharmacokinetics
 - a. Absorption
 - i. Age-related physiological changes affecting absorption
 - ii. Time course of action
 - b. Volume of distribution

Age and gender differences in proportion of body fat to lean muscle mass
 - c. Metabolism
 - i. First-pass effect
 - ii. Changes in organ function
 - iii. Ethnobiologic considerations
 - iv. Gender considerations
 - d. Clearance and elimination

Changes in kidney and liver functions

3. Pharmacodynamics

a. Drug concentration

b. Receptor changes

4. Dose dependent drug effects

5. Mechanisms of drug action

6. Tolerance and dependence with certain drugs

7. Placebo effects

C. Nonpharmacological interventions

1. Psychotherapy

a. Individual

b. Group

c. Family

2. Education

a. Patient

b. Family

c. Caregiver

3. Respite

a. Family

b. Caretaker

IV. Psychological Disorders and Medical Conditions

Purpose and Learning Objectives

The participants will acquire advanced knowledge and understanding of:

The interaction between psychopharmacological treatment and medical conditions that might affect both treatment outcome and side effects

Content Areas

- A. Physical sequelae of medical conditions
- B. Pharmacological factors
- C. Unique untoward side effects
- D. Response factors

V. Treatment Issues

Purpose and Learning Objectives

The participants will acquire advanced knowledge and understanding of:

- A. Social and environmental factors that influence medication administration, efficacy, and untoward effects. Specifically, the role of institutions, including residential facilities; caregivers; nursing homes; psychiatric facilities; general hospitals; rehabilitation facilities as they influence pharmacotherapy with older adult patients with and without medical disabilities
- B. Various phases in psychopharmacotherapy including the decision of whether or not to initiate pharmacotherapy, assessing long-term benefits as well as untoward effects, and considering whether discontinuation of pharmacotherapy is warranted
- C. Psychopharmacotherapy, particularly as it interacts with various nonsomatic psychotherapies. This will include an essential understanding of the efficacy of various psychopharmacologies in either combination with psychotherapy or alone
- D. Assessment of and management of nonadherence with prescribed psychopharmacotherapy

Content Areas

- A. Overall planning of treatment strategies
 - 1. Clinical judgment
 - 2. Use of behavioral evidence
 - 3. Use of clinical pathways

4. Use of algorithms/decision trees
- B. Initiation of treatment of psychopharmacotherapy
1. Baseline physical assessment and laboratory tests
 - a. Pre-drug physical
 - b. Laboratory assessment
 - c. Medication review
 - i. Drug-drug interactions
 - ii. Side effects influencing clinical presentation
 2. Patient and family education
 3. Obtaining consent for treatment
 - a. Patient consent
 - b. Family consent when indicated
 - c. Curators, guardians, other forms of legal custody
 - d. Competency issues
 - e. Use of court declarations to enforce treatment
 4. Gender and ethnic considerations
- C. Stabilization of psychopharmacotherapy
1. Monitoring efficacy of psychopharmacotherapy
 - a. Cross-situational evidence of efficacy
 - i. Family
 - ii. Hospital or other clinical personnel
 - b. Rating scales

- c. Direct observations of behavior
 - d. Laboratory measures
 - i. Memory
 - ii. Attention/concentration
 - iii. Vigilance
 - iv. Neurological assessment
 - v. Measures of executive function
 - e. Placebo effects
2. Assessment of untoward side effects
- a. Formal behavioral assessments
 - i. Rating scales
 - ii. Direct observations
 - iii. Observations by hospital and other clinical personnel
 - b. Family and/or caregiver assessments
 - Rating scales
 - c. Biological
 - i. Physiological assessments
 - ii. Blood and urine measures
3. Dose-response relationships
- D. Maintenance of pharmacotherapy
- 1. Tolerance
 - a. Behavioral and psychological tolerance

- b. Physical tolerance
- 2. Dependence
 - a. Assessment of addiction potential
 - b. Evaluation of over-the-counter preparations
- 3. Ongoing monitoring and assessment of efficacy
- 4. Ongoing monitoring and assessment of untoward side effects
- 5. Short-term versus long-term gains
- 6. Normalization of behavior, cognition, and learning
- 7. Domain specificity and individual differences
- E. Discontinuation/followup
 - 1. Patient education
 - 2. Systematic evaluation of behavior across informants
 - a. Rating scales
 - b. Direct observations of behavior
 - c. Observations by hospital and other clinical personnel
 - 3. Titration of dose
 - 4. Ongoing psychoeducation and psychotherapy
- F. Multimodal therapies
 - 1. Attributional effects of medication used alone
 - 2. Benefits of both biologically mediated therapies and psychological therapies (Biopsychosocial model)
 - 3. Systematic evaluation of comparative efficacy of psychopharmacotherapy and traditional psychotherapy and the combination of therapies

G. Compliance

1. Enhancing Compliance
2. Counseling and education
3. Relationship between client or patient and prescribing physician
4. Assessment of compliance
 - a. Length of psychopharmacotherapy
 - b. Number of doses
5. Direct measures of compliance
 - a. Laboratory measures
 - Blood levels
6. Indirect measures of compliance
 - a. Interviews
 - b. Pill counts
7. Factors associated with treatment adherence
 - a. Patient-related variables
 - i. Cultural
 - ii. Religious
 - iii. Biological
 - (a) Dose schedules
 - (b) Untoward (uncomfortable) side effects
 - b. Environmental variables
 - c. Clinician-related variables

d. Family/caregiver-related variables

H. Psychoeducation

Patient and family education

VI. Research

Purpose and Learning Objectives

The participants will acquire advanced knowledge and understanding of:

- A. The importance of new developments in the field of older adult psychopharmacology through systematic reading and critical analysis of safety, efficacy, and cost/benefit based on recent research
- B. Conducting systematic controlled clinical research including clinical trials, single subject designs
- C. Available sources for new research in the area of older adult psychopharmacology including accessing of databases, informational services, and other resources
- D. Theoretical models of central nervous system mechanisms of aging

Content Areas

A. Research preparation

- 1. Literature retrieval strategies
 - a. Electronic databases
 - b. Internet
- 2. Pharmacological retrieval strategies and databases
 - Pharmaceutical companies
- 3. Research strategies for single case and group studies

B. Preclinical/clinical research

- 1. Theoretical models of mechanisms of individual disorders

2. Interaction of disease models with models of normal aging
3. Models of drug development
4. Measurement and design strategies
5. Safety/abuse liability
6. Sample size issues
7. Strategies for control of multiple influencing variables
8. Outcome measures
9. Acute trials
10. Long-term followup trials
11. Issues related to normal aging
12. Multimodal trials
13. Consumer satisfaction
14. Control groups
15. Data interpretation
16. Generalization of results
17. Cost-effectiveness
18. Meta-analytic strategies

Learning Resources

I. Journals

American Journal of Psychiatry
Archives of General Psychiatry
Journal of Clinical Psychopharmacology
Psychopharmacology Bulletin
Clinical Gerontologist
Psychological Medicine
Abstracts in Social Gerontology
Age and Aging
Aging and Mental Health
Aging, Neuropsychology, and Cognition
American Journal of Geriatric Psychiatry
Archives of Gerontology and Geriatrics
Experimental Aging Research
International Journal of Geriatric Psychiatry
Journal of Clinical Geropsychology
Psychology and Aging
Psychiatric Annals
Drugs and Aging

II. Websites

<http://whs.uchicago.edu/%7Ebhsiung/tips/03.html> (for psychopharmacology information)

<http://www.cc.emory.edu/WHSC/medweb.ejs.html> (for MedWeb)

<http://www.gasou.edu/psychweb/resource/selfhelp.html> (for self-help resources)

III. Other References

A. Professional and Legal issues

American Psychological Association. (1992). Ethical principles of psychologists and code of conduct. Washington, DC: American Psychological Association.

American Psychological Association. (1994). The legal and legislative considerations of prescription privileges for psychologists. Washington, DC: Practice Directorate, American Psychological Association.

Applebaum, P. S., & Gutheil, T. G. (1991). Handbook of clinical psychiatry and the law (2nd ed.). Baltimore, MD: Williams and Wilkins.

- Canter, M. B., et al. (1994). Ethics for psychologists. A commentary on the APA ethics code. Washington, DC: American Psychological Association.
- Ganzini, L., et al. (1994). The effect of depression treatment on elderly patients' preferences for life-sustaining medical therapy. American Journal of Psychiatry, 151, (pp. 1,631-1,636).
- Gatz, M., & Smyer, M. A. (1992). The mental health system and older adults in the 1990s. American Psychologist, 47, (pp. 741-751).
- Grisso, T., & Appelbaum, P. S. (1995). Comparison of standards for assessing patients' capacities to make treatment decisions. American Journal of Psychiatry, 152, (pp. 1,033-1,037).
- Hinshaw, A. S. & DeLeon, P. H. (1995). Towards achieving multidiscipline professional collaboration. Professional psychology: Research and Practice, 26, (pp. 115-116).
- Hoge, S. K. (1994). The patient self-determination act and psychiatric care. Bulletin of the American Academy of Psychiatry and the Law, 22, (577-586).
- Kisch, J. (1994). The need for psychopharmacological collaboration in managed mental health care. In C. S. Austad & W. H. Berman (Eds.), Psychotherapy in managed care. Washington, DC: American Psychological Association.
- Littrell, J., & Ashford, J. (1995). Is it proper for psychologists to discuss medication with clients? Professional Psychology: Research and Practice, 26, (238-244).
- Reisner, R. & Slobogin, C. (1994). Law and the Mental Health System. St. Paul, MN: West Publishing.
- Stromberg, C. et al. (1988). The psychologist's legal handbook. Washington, DC: The Council for the National Register of Health Service Providers in Psychology (including update of December 1993 titled Malpractice and other professional liability by Stromberg, C., & Dellinger, A.).

Specific State Psychologists' Certification/Licensure Acts and Medical Practice Acts.

- Sullivan, M. D., & Youngner, S. J. (1994). Depression, competence, and the right to refuse lifesaving medical treatment. American Journal of Psychiatry, 151, (pp. 971-978).

B. Assessment, Psychopharmacotherapy, and Treatment

- American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: American Psychiatric Association.

- Asaad, G. (1995). Understanding mental disorders due to medical conditions or substance abuse. New York: Brunner/Mazel.
- Baldessarini, R. J. (1996). Chemotherapy in psychiatry: Principles and practice (3rd ed.). Cambridge, MA: Harvard University Press.
- Bassuk, E. L., Schoonover, S. C., & Gelenberg, A. J. (Eds.). (1983). The practitioner's guide to psychoactive drugs (2nd ed.). New York: Plenum Medical Book Company.
- Bernstein, J. G. (1995). Handbook of drug therapy in psychiatry (3rd ed.). St. Louis, MO: Mosby.
- Bechlibnyk-Butler, K. Z., Jeffries, J. J., & Martin, B. A. (Eds.). (1994). Clinical handbook of psychotropic drugs (4th ed.). Seattle, WA: Hogrefe & Huber Publishers.
- Cadieux, R. J. (1993). Geriatric psychopharmacology. A primary care challenge. Postgraduate Medicine, 93, (pp. 281-301).
- Carstensen, L. L., & Edelstein, B. A. (Eds.). (1987). Handbook of clinical gerontology. New York: Pergamon.
- Coffey, R. J., et al. (1992). An introduction to critical paths. Quality Management in Health Care, 1, (pp. 45-54).
- Crook, T., & Cohen, G. (Eds.). (1981). Physicians' handbook on psychotherapeutic drug use in the aged. New Canaan, CT: Mark Powley Associates, Inc.
- Crook, T., Ferris, S., & Bartus, R. (Eds.). (1983). Assessment in geriatric psychopharmacology. New Canaan, CT: Mark Powley Associates, Inc.
- Cushman, L. A., & Scherer, M. J. (1995). Psychological assessment in medical rehabilitation. Washington, DC: American Psychological Association.
- Fischer, J., & Corcoran, K. (1994). Measures for clinical practice: A sourcebook Vol. 2: Adults (2nd ed.). New York: The Free Press.
- Flaherty, J. A., Davis, J. M., & Janicak, P. G. (Eds.). (1993). Psychiatry: Diagnosis and therapy (2nd ed.). Norwalk, CT: Appleton and Lange.
- Garbin, B. A. (1995). Introduction to clinical pathways. Journal of Healthcare Quality, 17, (pp. 6-9).
- Gitlin, M. J. (1990). The psychotherapist's guide to psychopharmacology. New York: The Free Press.

- Hamdy, R. C., et al. (1994). Alzheimer's disease: A handbook for caregivers (2nd ed.). St. Louis, MO: Mosby.
- Horton, A. M., Jr. (Ed.). (1990). Neuropsychology across the life-span: Assessment and treatment. New York: Springer Publishing Company.
- Janicak, P. G., Davis, J. M., Preskorn, S. H. & Ayd, F. J., Jr. (1993). Principles and practice of psychopharmacotherapy. Baltimore, MD: Williams and Wilkins.
- Jefferson, J. W. et al. (1995). Algorithm for the treatment of obsessive-compulsive disorder. Psychopharmacology Bulletin, 31, (pp. 487-490).
- Jobson, K. O., et al. (1995). Algorithm for the treatment of panic disorder with agoraphobia. Psychopharmacology Bulletin, 31, (pp. 483-485).
- Kaszniak, A. W. (1987). Neuropsychological consultation to geriatricians: Issues in the assessment of memory complaints. The Clinical Neuropsychologist, 1, (pp. 35-46).
- Lebowitz, B. D., et al. (1995). Instrumental measures in geriatric psychopharmacology. Psychopharmacology Bulletin, 31, (pp. 641-649).
- Martin, R. L. (1990). Geriatric psychopharmacology: Present and future. Psychiatric Annals, 20, (pp. 682-694).
- Mace, N. L., & Rabins, P.V. (1991). The 36-Hour Day (rev. ed.). Baltimore, MD: The Johns Hopkins University Press.
- Maxmen, J. S. (1991). Psychotropic drugs fast facts. New York: W.W. Norton & Company.
- Medical Economics Company. Physicians desk reference (49th ed.). Montvale, NJ: Medical Economics Data, Inc.
- Meichenbaum, D., & Turk, D. C. (1987). Facilitating treatment adherence. New York: Plenum.
- Naranjo, C. A., et al. (1995). Recent advances in geriatric psychopharmacology. Drugs and aging, 7, (pp. 184-202).
- Nelson, J. C., et al. (1995). Algorithms for the treatment of subtypes of unipolar major depression. Psychopharmacology Bulletin, 31, (pp. 475-482).
- Preston, J., O'Neal, J. H. & Talaga, M. C. (1994). Handbook of clinical psychopharmacology for therapists. Oakland, CA: New Harbinger Publications, Inc.

- Raskind, M. A. (1993). Geriatric psychopharmacology. Management of late-life depression and the noncognitive behavioral disturbances of Alzheimer's disease. Psychiatric Clinics of North America, 16, (pp. 815-827).
- Schatzberg, A. F., & Cole, J. O. (1991). Manual of clinical psychopharmacology (2nd ed.). Washington, DC: American Psychiatric Press, Inc.
- Schneider, L. S., & Sobin, P. B. (1992). Non-neuroleptic treatment of behavioral symptoms and agitation in Alzheimer's disease and other dementia. Psychopharmacology Bulletin, 28, (pp. 71-79).
- Suppes, T., et al. (1995). Algorithms for the treatment of bipolar, manic-depressive illness. Psychopharmacology Bulletin, 31, (pp. 469-474).
- Van Houten, R., & Axelrod, S. (Eds.). (1993). Behavior analysis and treatment. New York: Plenum Press.
- Wallace, A. E., Kafoed, L. L., & West, A. N. (1995). Double-blind, placebo-controlled trial of methylphenidate in older, depressed, medically ill patients. American Journal of Psychiatry, 152, (pp. 929-931).
- Woerner, M. G., et al. (1995). Neuroleptic treatment of elderly patients. Psychopharmacology Bulletin, 31, (pp. 333-337).
- Zarate, C. A., et al. (1995). Algorithms for the treatment of schizophrenia. Psychopharmacology Bulletin, 31, (pp. 461-467).

C. Research

- Allen, J. P., & Columbus, M. (1995). Assessing alcohol problems: A guide for clinicians and researchers (NIAAA Treatment Handbook Series No. 4). Rockville, MD: National Institute on Alcohol Abuse and Alcoholism.
- Allen, J. P., & Litten, R. Z. (1992). Techniques to enhance compliance with disulfiram. Alcoholism: Clinical and Experimental Research, 16, (pp. 1,035-1,041).
- American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: American Psychiatric Association.
- American Psychological Association. (1982). Ethical principles in the conduct of research with human participants. Washington, DC: American Psychological Association.
- American Psychological Association (1993). Vitality for Life: Psychological Research for Productive Aging. Washington, DC: American Psychological Association.

- Barlow, D. H. (1984). The scientist practitioner: Research and accountability in clinical and educational settings. New York: Pergamon Press.
- Bates, B. Brickley, L., & Hoekelman, R. (1995). Guide to physical exam and history taking. Philadelphia: Lippincott.
- Beitman, B., & Klerman, G. (1991). Integrating pharmacotherapy and psychotherapy. Washington, DC: American Psychiatric Press.
- Bodor N. (1994). Targeting drugs to the brain by sequential metabolism. In R. S. Rapaka, & H. Sorer, (Eds.). Discovery of novel opioid medications (NIDA Research Monograph 147). Washington, DC: Department of Health and Human Services, (pp. 1-32).
- Campbell, D. T., & Stanley, J. C. (1963). Experimental and quasi-experimental designs for research. Chicago: Rand McNally College Publishing Company.
- Carroll, K. M. (1993). Psychotherapeutic treatment of cocaine dependence: Models for its evaluation alone and in combination with pharmacotherapy. In F. M. Tims & C. G. Leukefeld (Eds.), Cocaine treatment: Research and clinical perspectives (Monograph 135). Washington, DC: National Institute on Drug Abuse.
- Corcoran, K., & Fischer, J. (1987). Measures for clinical practice: A sourcebook. New York: The Free Press.
- Donovan, D., & Marlatt, G. A. (Eds.). (1988). Assessment of addictive behaviors: Behavioral, cognitive, and physiological procedures. New York: Plenum Press.
- Fine, M. A., & Kurdek, L. A. (1993). Reflections on determining authorship credit and authorship order on faculty-student collaborations. American Psychologist, 48, (pp. 1,141-1,147).
- Fleiss, J. L. (1986). The design and analysis of clinical experiments. New York: John Wiley and Sons.
- Fulco, C. E., Liverman, C. T., & Earley, L. E. (Eds.). (1995). Chapter 7: Federal laws and regulations and Chapter 8 State laws and regulations. In Development of Medications for the treatment of opiate and cocaine addictions: Issues for the government and private sector. (pp. 154-186). Washington, DC: National Academy Press.
- George, F. R., & Ritz, M. C. (1993). A psychopharmacology of motivation and reward related to substance abuse treatment. Experimental and Clinical Psychopharmacology, 1, (pp. 7-26).
- Gorelick, D. A. (1993). Overview of pharmacologic treatment approaches for alcohol and

other drug addiction: Intoxication, withdrawal, relapse, prevention. Psychiatric Clinics of North America, 16, (pp. 141-156).

Hayes, S., (Ed.). (1986). Conceptual foundations of behavioral assessment. New York: Guilford Press.

Hayes, S., & Barlow, D. H. (1984). Single case experimental design: Strategies for studying behavioral change. New York: Pergamon Press.

Henningfield, J. E., & Singleton, E. G. (1994). Managing drug dependence: Psychotherapy or pharmacotherapy. CNS Drugs, 1, (pp. 317-322).

Hester, R. K., & Miller, W. R. (Eds.). (1989). Handbook of alcoholism treatment approaches: Effective alternatives. Totowa, NJ: Humana Press.

Isaac, S., & Michael, W. B. (1987). Handbook in research and evaluation (2nd ed.). San Diego, CA: Edits Publishers.

Johanson, C. E., & Fischman, M. W. (1989). The pharmacology of cocaine related to its abuse. Pharmacological Review, 41, (pp. 3-52).

Johnston, J. M., & Pennypacker, H. S. (1993). Strategies and tactics of behavioral research (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.

Johnston, J. M., & Pennypacker, H. S. (1993). Readings for strategies and tactics of behavioral research (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.

Kazdin, A. E. (Ed.). (1992). Methodological issues and strategies in clinical research. Washington, DC: American Psychological Association.

Kofoed, L. L. (1987). Chemical monitoring of disulfiram compliance: A study of outpatient alcoholics. Alcoholism: Clinical and Experimental Research, 11, (pp. 481-485).

Kosten, T. A. & Kosten, T. R. (1990). Criteria for Diagnosis. In N. S. Miller (Ed.), Comprehensive handbook of drug and alcohol addiction (pp. 263-283). New York, NY: Marcel Dekker Incorporated.

Lidz, C. W. et al. (1984). Informed consent. New York: The Guilford Press.

Lidman, M. (1960). Tactics of scientific research. New York: Basic Books, Inc.

Litten, R. Z., & Allen, J. P. (1991). Pharmacotherapies for alcoholism: Promising agents and clinical issues. Alcoholism: Clinical and Experimental Research, 15, (pp. 620-633).

- Litten, R. Z., & Allen, J. P. (1993). Reducing the desire to drink: Pharmacology and neurobiology. In M. Galanter (Ed.), Recent developments in alcoholism (Vol. 11): Ten years of progress (pp. 325-344). New York: Plenum Press.
- Marlatt, G. A., & Gordon, J. R. (Eds.). (1985). Relapse prevention: Maintenance strategies in the treatment of addictive behaviors. New York: Guilford.
- McClain, H., Jr., & Sapienza, F. (1989). Role of abuse liability testing in drug control procedures. In M. W. Fischman & N. K. Mello (Eds.), Testing for abuse liability of drugs in humans (NIDA Research Monograph, 92, DHHS (ADM) 89-1613) (pp. 21-42).
- McLellan, A. T., Luborsky, L., O'Brien, C. P., & Woody, G. E. (1980). Improved diagnostic assessment for substance abuse patients. Journal of Nervous and Mental Disease, 168, (pp. 26-33).
- Miller, W. R., & Rollnick, S. (1992). Motivational interviewing: Preparing people to change addictive behavior. New York: Guilford.
- National Institute of Health. (1994). A viewer's guide to dual diagnosis, (NIH Publication No. 94-3596). Washington, DC: Department of Health and Human Services.
- Neilsen, J. R. (1986). Handbook of federal drug law, Philadelphia: Lea & Fibiger.
- Onken, L. S., Blaine, J. D., & Boren, J. J. (Eds.). (1995). Integrating Behavioral Therapies With Medications in the Treatment of Drug Dependence. (Monograph 150). Washington, DC: National Institute on Drug Abuse .
- Piercey, M. F. (1994). Imaging brain functions in animals to understand drugs of abuse and potential pharmacotherapies. In H. Sorer & R. S. Rapaka (Eds.). Imaging Techniques in Medications Development: Preclinical and Clinical Aspects (NIDA Research Monograph, 138) (pp. 25-40) Washington, DC: Department of Health and Human Services.
- Poling, A. (1986). A primer of human behavioral pharmacology. Plenum Press.
- Rettig, R. A., & Yarmolinsky, A. (1995). Chapter 5: Federal regulation of methadone treatment. In Federal regulation of methadone treatment (pp. 120-150). Washington, DC: Institute of Medicine, National Academy Press.
- Schaal, D. W., & Hackenberg, T. (1994). Toward a functional analysis of drug treatment for behavior problems of people with developmental disabilities. American Journal on Mental Retardation, 99, (pp. 123-140).
- Wagner, H. N., Jr. (1994). PET, SPECT, and probes in drug design and development. In H. Sorer & R.S. Rapaka (Eds.). Imaging Techniques in Medications Development: Preclinical

and Clinical Aspects, (NIDA Research Monograph, 138) (pp. 1-13) Washington, DC: Department of Health and Human Services.

Williams, M. (1993). Strategies for drug discovery. In R. S. Rapaka & R. L. Hawks (Eds.). Medications Development: Drug Discovery, Databases, and Computer-Aided Drug Design (NIDA Research Monograph 134) (pp. 1-36), Washington, DC: Department of Health and Human Services.

Wise, R. A. (1988). The neurobiology of craving: Implications for the understanding and treatment of addiction. Journal of Abnormal Psychology, 97, (pp. 118-132).

Vignettes

I. Professional and Legal Issues

- A. R. S. is an 85-year old woman who has been living alone and managing her affairs, which include a sizeable financial portfolio. Recently, she suffered a fall in which she fractured her right hip. She underwent surgery for a complete hip replacement. Following acute recovery from surgery, she was transferred to a rehabilitation unit for strengthening and mobilization training. You are called to see her because the therapists report that she "lacks motivation" and "is hostile and resists treatment." The nurses report that R. S. does not sleep well at night, seems confused, and tries to get out of bed without assistance. She appears to be unable to understand and maintain hip precautions such that she is at risk for dislocating her hip. The family clearly reports that R. S. is "not the way she used to be" and would like you to evaluate her to declare her incompetent so that they may take charge of her finances "in order to make the best decision for her." They allude to the fact that they are considering placing her in a nursing home, even though she has adequate financial resources to allow her to remain at home with attendants. What is your responsibility in this matter? How would you approach making this assessment? What ethical issues may be involved and what steps should be taken to avoid these ethical pitfalls?
- B. B. S. is a 65-year old Hispanic woman who has been living with her family. You are called to see B. S. after she is admitted to the hospital following a fall in the home. During your exam, you find evidence of definite cognitive impairment, confusion, and memory deficits. The family reports that B. S. is fine at home and that they have not noticed any of the difficulties that you find on your examination. The social worker reports to you that the family survives on B. S.'s social security check, supplemented by food stamps. The social worker also finds that the family is out most of the day and leaves B. S. alone in their apartment, which was the case on the day of the fall. The social worker further finds that B. S.'s friends and members of her church have reported that they have noticed a steady decline in the health of B. S. over the last several months. You are concerned that B. S. cannot take care of herself and that the home environment is not safe. You recommend to the family that a nursing home may be a safer place for B. S. They refuse to consider this and insist that B. S. return home with them. What further assessments should you conduct? Who should make the decision for the placement of B. S.? Do you have a responsibility to make a report of abuse of the elderly? What recommendations would you make given these circumstances?

II. Assessment, Psychopharmacotherapy and Treatment

- A. Mr. D is a 75-year old black male retired attorney admitted to your service for "decreased mental status." Five years ago he was totally independent and was active in his church and alumni association. His family first noticed some forgetfulness about 4

years ago, and since then, he has given up driving, managing the family finances, and participating in his groups. He is no longer able to prepare his famous chili and has left the stove on after boiling water. He is still able to dress himself if clothes are put out, bathe without assistance, and use the phone to call his grandchildren. He spends most of his time watching TV or looking at his garden. His family brought him to the hospital because for the last 3 days he has been sleeping most of the day and is agitated at night, has had several episodes of incontinence, and did not recognize his son and daughter-in-law.

On physical exam, he is lethargic but easily arousable. His temp is 37.7, RR 20, P 108, and BP 160/90. HEENT is normal and there is no adenopathy. There are rales at the left base; cardiac exam is normal. Abdominal and rectal exams are normal. Cranial nerves and reflexes are normal; he does not cooperate with motor/sensory exam but moves all extremities and responds to pain.

How would you assess his mental status? Which syndrome(s) could he have? What would be recommendations for management? (From Topics in Primary Care, University Health Services, <http://uhs.bsd.uchicago.edu/uhs/topics/delerium.dementia.case.html>).

- B. D. G., a 69-year old, retired trumpet player, has enjoyed good health except for occasional headaches and spells of dizziness while standing and playing the trumpet. He now presents to his primary care physician with complaints about unhappiness with his life and feeling bored and without energy or motivation. "I don't even enjoy blowing my horn or listening to music anymore." He also says he has persistent trouble falling asleep, and he awakens frequently during the night. He denies any connection between his headaches or bouts of faintness and his not infrequent overconsumption of chianti. Depression is diagnosed, and a regimen of fluoxetine (20 mg daily in the morning) and amitriptyline (50 mg at bedtime to help with sleep) is initiated, the latter being the drug that has previously been given to him to help with problems falling asleep when traveling with his band. One week later, he complains of several episodes of dizziness when getting out of bed in the morning, one of which leads to a fall in the bathroom. Fortunately, he is not injured. What are your considerations in the evaluation of this change in his condition? (From: Shader, R. I., & Oesterheld, J. R. (1994). Journal of Clinical Psychopharmacology).
- C. A. S. is an alert (until recently) 92-year old widow who had been treated by her family physician. He has prescribed amitriptyline (50 mg nightly) for her mild depression and insomnia for 15 years. Six weeks ago, she developed increasing urinary incontinence. She was begun on oxybutynin (5 mg twice daily) after she and the physician discussed the pros and cons of "adult diapers," surgery, or a medication trial for the treatment of her cystocele. One week ago, the physician increased the oxybutynin dose to 5 mg 4 times daily because of lack of efficacy. Her bladder instability was relieved, but she began to complain to her daughter about dry mouth as well as an overall feeling of dryness. Three days later, this daughter called the family physician and complained that her mother seemed confused, especially at night, and

also expressed her concern that her mother might be depressed. You are asked to evaluate her in the emergency department. How would you treat this patient? (From: Shader, R. I. & Oesterheld, J. R. (1995). Journal of Clinical Psychopharmacology, 15, 378).

III. Research

- A. Q. T. is a 67-year old Asian man who has volunteered to participate in a research study. You are one of the investigators and are examining the effects of a new medication on cognitive abilities. The drug is expected to enhance CNS metabolism and improve cognitive abilities in elderly patients with dementia. Q. T. is in the age-matched control group and has a 50% chance of receiving the test drug (positive control to determine if the drug has enhancing effects in nondemented individuals) versus a placebo. Based on the biochemical data from the manufacturer, who is paying for the study, you know that this drug is metabolized by certain liver enzymes. The drug is safe as long as it is metabolized and eliminated normally. You have been reading some recent research articles which seem to indicate that individuals of some Asian cultures have lower levels of the same liver enzymes which are involved in the metabolism of the test drug which you are studying. What do you do regarding the participation of Q. T. in the study? Do you allow him to participate, informing him of the risk? Do you exclude him from the study, even though there is less than a 100% chance that he has the enzymatic deficit and only a 50% chance that he would receive the drug? Would his exclusion bias your results?
- B. You are studying the effects of a new antipsychotic drug for the treatment of psychotic symptoms in patients with dementia. The study is double-blind with random assignment so that you do not know who is receiving the active drug and who is receiving the placebo. P. B. is a 69-year old widowed female who has dementia and was referred for your study by her family who have legal curatorship of P. B. They saw the ad in the newspaper requesting volunteers. They would like P. B. to have anything which may help her. They have great hopes that P. B. will be in the group that receives active medication and that she will benefit from the drug. Half way through the study, the family notices a clear improvement in the behavior and cognitive ability of P. B. They are very pleased. However, at about the same time, P. B. tells you that she no longer wishes to continue in the study. She repeats this request on several occasions. You inform the family of this request, but they feel to stop now would cause a regression and they would not like to see this. They tell you to keep P. B. in the study. In fact, they were planning to ask you if there was any way that P. B. could continue receiving the drug even after she completed the study. Does P. B. have the right to request withdrawal from the study? Do you consider the requests of the family who has legal curatorship and volunteered P.B. for the study? Since P. B. seems to be responding to treatment, would it be ethical to stop treatment at this point? Would you try to convince P. B. to stay in the study?

LEVEL 2 CURRICULUM

Adults With Serious Mental Illness: Schizophrenia as an Example

I. Professional and Legal Issues

Purpose and Learning Objectives

The participants will acquire advanced knowledge and understanding of:

- A. The nature of the collaborative relationship between psychologist and psychiatrist/family practitioner and other medical specialists. A focus on the benefits obtained and difficulties involved in collaborative practice for the purpose of facilitation of an integrated relationship in the care of the patient with schizophrenia
- B. The legal and ethical issues to consider as part of a collaborative practice with the introduction of or changes in pharmacological interventions with patients who have schizophrenia

Content Areas

- A. Interdisciplinary collaboration between psychologist and psychiatrist/family practitioner and other medical specialists
 - 1. Benefits
 - 2. Training, philosophical, assessment, and treatment differences between psychologist and physician(s) and among physicians
 - 3. Responsibility issues
 - 4. Family (spouse/children/grandchildren) variables and their effect on the collaborative process
 - 5. Development of or difficulty in development of an integrated collaborative relationship
- B. Legal and ethical issues
 - 1. Scope of practice limitations
 - a. Consultation and referral
 - b. Providing mental health services to those referred by others

- c. Boundaries of competence and need to maintain current knowledge
- d. Avoiding harm
- 2. Confidentiality
- 3. Informed consent
 - a. Providing information
 - b. Individuals' competencies to provide consent
 - c. Specific consent issues with schizophrenia populations
 - i. Caretaker authority
 - ii. Power of attorney
 - iii. Legal guardian
 - iv. Family's right to know
 - d. Procedures for obtaining consent
 - e. Documenting consent
 - f. Refusing treatment
 - i. Adult patient with schizophrenia
 - ii. Family
 - iii. Advanced directives/living will
 - iv. Privilege
 - v. Malpractice as a function of psychologists' having greater knowledge of psychopharmacology
- 4. Governmental restrictions related to prescribing practices
 - COBRA 1987 restrictions (Medicare/Medicaid patients)
- 5. Practice guidelines for treatment of psychiatric disorders

II. Assessment

Purpose and Learning Objectives

The participants will acquire advanced knowledge and understanding of:

Assessment and monitoring of physical effects, behavioral, emotional and cognitive effects of various pharmacotherapies for patients with schizophrenia

Content Areas

A. Physiological

1. Baseline physical assessment
2. Medical review of organ systems
3. Physical and neurological assessment
4. Review of past medical records/medical history
5. Monitoring untoward side effects
 - a. Side effects rating scales
 - b. Physical and neurological examination
6. Laboratory measures
 - a. Biochemical assessment of blood and urine
 - b. Neurodiagnostic imaging

B. Psychological

1. Rating scales
2. Direct observations of behavior
3. Observation of behavior by family, hospital personnel (e.g., nurses, therapists, etc.)
4. Test measures

- a. Intellectual functioning
 - b. Measures of executive functioning
 - c. Vigilance measures
 - d. Attention/concentration
 - e. Memory
5. Psychological and substance abuse disorder evaluation
- C. Pharmacological
- 1. Efficacy and untoward effects
 - 2. Evaluating response to medication
 - 3. Review of current medications
- D. Environmental

- 1. Attributing behavior change to medication
 - a. Family
 - b. Caretakers
 - c. Living setting
- 2. Placebo effects
- 3. Informed consent
- 4. Interaction of environment with psychopharmacotherapy
- 5. Change in medical condition and effect on pharmacotherapy

III. Pharmacological Issues and Serious Mental Illness (Schizophrenia) Variations

Purpose and Learning Objectives

The participants will acquire advanced knowledge and understanding of:

Basic tenets of pharmacology including pharmacokinetics and pharmacodynamics as they specifically relate to patients with schizophrenia including those with single or coexisting mental disorders in the presence or absence of other medical conditions

Content Areas

A. Review of biological hypotheses of schizophrenia/psychosis

1. Dopamine, serotonin and other monoamines: Neurochemistry and neuroanatomy (tracts and function)
2. Dopaminergic, serotonergic, and muscarinic receptor subtypes: Identification, pharmacology, and function
3. Excitatory and inhibitory amino acids (glutamate, GABA): Neurochemistry and neuroanatomy (localization and function)
4. Structural brain abnormalities and schizophrenia
5. Movement disorders, extrapyramidal syndromes, and tardive dyskinesia

B. Treatment strategies

1. Acute psychoses
 - a. Medication strategies and side-effect management
 - b. Clinical decisionmaking in selecting antipsychotic agents
 - c. Use of adjunctive agents
 - d. Management of comorbid conditions
 - e. Management of affective, organic, and substance abuse disorders
 - f. Comorbid conditions with psychosis
 - g. Concurrent treatment with antidepressants and mood stabilizers
 - h. Clinically significant interactions
 - i. Treatment of negative and positive symptoms
2. Maintenance treatment

- a. Dosing strategies and side-effect management
 - b. Relapse rates and medication discontinuation
- 3. Continuation treatment
 - a. Dosing strategies
 - b. Compliance issues and decanoate preparations
 - c. Exposure to tardive dyskinesia: Risk factors
 - d. Tardive dyskinesia: Detection (Abnormal Involuntary Movement Scale (AIMS) test), management, and long-term outcome
- 4. Medication free strategies
 - a. Cognitive retraining
 - b. Social skills retraining
 - c. Family and environmental interventions
 - d. Individual therapeutic approaches
- C. Psychopharmacological agents to treat schizophrenia/psychosis
 - 1. Chemistry and pharmacokinetics
 - 2. Mechanisms of action
 - 3. Side effects
 - 4. Clinically significant drug interactions (licit and illicit substances)
 - 5. Dosing parameters
 - 6. Efficacy data in schizophrenia and other psychoses
 - 7. Typical and atypical agents
 - 8. Developmental (life-span), gender (including treatment of psychosis in pregnancy), and ethnic issues in pharmacological and nonpharmacological interventions in seriously mentally ill individuals

D. Discussion of all factors in C for each of the following classes

1. Antipsychotic agents
 - a. Phenothiazines
 - i. Aliphatics
 - ii. Piperidines
 - iii. Piperazines
 - b. Thioxanthenes
 - c. Butyrophenones
 - d. Dibenzoxazepine
 - e. Dihydroindolones
 - f. Dibenzodiazepine
2. Atypical antipsychotic agents
 - a. Clozapine
 - b. Risperidone
 - c. Olanzapine
3. Additions to the new generation of atypical antipsychotic agents: Seroquel, zotepine, and others
4. Adjunctive medication agents to treat side effects, including *their* side effects, both physical and psychological
 - a. Anticholinergics
 - b. Antihistaminergics
 - c. Dopaminergic agents
 - d. Beta blockers

- e. Vitamin E
 - f. Benzodiazepines
5. Medications used to treat schizophrenia and other co-existing conditions
- a. Depression: Tricyclic antidepressants, heterocyclic antidepressants, monoamine oxidase inhibitors, reversible inhibitors of monoamine oxidase A, selective serotonin reuptake inhibitors, psychostimulants, electroconvulsive therapy
 - b. Bipolar disorders: Lithium, anticonvulsants
 - c. Anxiety disorders: Benzodiazepines, antidepressants, β -blockers, GABA-A agonists, serotonin 5-HT_{1A} partial agonists
 - d. Sleep disorders: Antihistamines, antidepressants, benzodiazepines
- E. Combined psychological/pharmacological treatment
- 1. Individual, family, and environmental interventions
 - 2. Comparative outcome studies
 - 3. Efficacy of combined intervention
- F. Specific legal/malpractice concerns with the use of antipsychotic agents
- 1. Informed consent in seriously mentally ill individuals
 - 2. Tardive dyskinesia
 - 3. Neuroleptic malignant syndrome
 - 4. Agranulocytosis
- G. In each of these conditions and for each of these drugs listed above, the following factors need to be considered:
- 1. Routes of administration
 - 2. Pharmacokinetics
 - a. Absorption

- i. Age-related physiological changes affecting absorption
 - ii. Time course of action
 - b. Volume of distribution
 - Age and gender-related increase in proportion of body fat
 - c. Metabolism
 - i. First-pass effect
 - ii. Changes in organ function
 - iii. Ethnobiologic variation
 - d. Clearance/elimination
 - Changes in kidney and liver functions
- 3. Pharmacodynamics
 - a. Drug concentration
 - b. Receptor changes
 - 4. Dose-dependent drug effects
 - 5. Mechanisms of drug action
 - 6. Tolerance and dependence with certain drugs
 - 7. Placebo effects

IV. Unique Issues for People With Schizophrenia

Purpose and Learning Objectives

The participants will acquire advanced knowledge and understanding of:

- A. The necessity for psychosocial programs in the treatment and rehabilitation of severe and persistent biobehavioral disorders such as schizophrenia
- B. The interaction between psychopharmacological treatment and psychosocial treatments that

might affect treatment outcome

Content Areas

- A. Integration of psychotherapy and psychopharmacy
- B. Integration of family psychoeducation and psychopharmacy
- C. Integration of rehabilitation and psychopharmacy
- D. Dealing with negative symptoms with psychopharmacy and cognitive retraining and other psychosocial methods

V. Treatment Issues

Purpose and Learning Objectives

The participants will acquire advanced knowledge and understanding of:

- A. Social and environmental factors that influence medication administration, efficacy, and untoward effects; specifically, the role of institutions including community mental health centers, residential facilities, psychiatric hospitals, general hospitals, rehabilitation facilities as they influence pharmacotherapy with patients who have schizophrenia
- B. Various phases in psychopharmacotherapy including the decision of whether or not to initiate pharmacotherapy, assessing long-term benefits as well as untoward effects, and considering whether discontinuation of pharmacotherapy is warranted
- C. Psychopharmacotherapy, particularly as it interacts with various nonsomatic psychotherapies. This will include an essential understanding of the efficacy of various psychopharmacologies either in combination with psychosocial treatments or alone
- D. Assessment of and management of nonadherence with prescribed psychopharmacotherapy
- E. Treatment planning and documentation

Content Areas

- A. Overall planning
 - 1. Clinical judgment
 - 2. Critical path

3. Decision tree

B. Initiation of treatment of psychopharmacotherapy

1. Baseline physical assessment and laboratory tests

- a. Pre-drug physical
- b. Laboratory assessment
- c. Medication review
 - i. Drug-drug interactions
 - ii. Side effects influencing clinical presentation

2. Patient and family education

3. Obtaining consent for treatment

- a. Patient consent
- b. Family consent when indicated
- c. Curators, guardians, other forms of legal custody
- d. Competency issues
- e. Use of court declarations to enforce treatment

4. Gender and ethnic considerations

C. Stabilization of psychopharmacotherapy

1. Monitoring efficacy of psychopharmacotherapy

- a. Cross-situational evidence of efficacy
 - i. Family
 - ii. Hospital or other clinical personnel
- b. Rating scales

- c. Direct observations of behavior
 - d. Laboratory measures
 - i. Memory
 - ii. Attention/concentration
 - iii. Vigilance
 - iv. Neurological assessment
 - v. Measures of executive function
 - e. Placebo effects
 - 2. Assessment of untoward side effects
 - a. Formal behavioral assessments
 - i. Rating scales
 - ii. Direct observations
 - iii. Observations of hospital and other clinical personnel
 - b. Family/caretaker assessments
 - Rating scales
 - 3. Biochemical assays
 - a. Physiological assessments
 - b. Blood and urine measures
 - 4. Dose-response relationships
- D. Maintenance of pharmacotherapy
- 1. Tolerance
 - a. Behavioral and psychological tolerance

- b. Physical tolerance
 - 2. Dependence
 - a. Assessment of addiction potential
 - b. Evaluation of over-the-counter preparations
 - 3. Ongoing monitoring and assessment of efficacy
 - 4. Ongoing monitoring and assessment of untoward side effects
 - 5. Short-term versus long-term gains
 - 6. Normalization of behavior, cognition, and learning
 - 7. Domain specificity and individual differences
- E. Discontinuation/followup
- 1. Patient education
 - 2. Systematic evaluation of behavior across informants
 - a. Rating scales
 - b. Direct observations of behavior
 - c. Observations of hospital and other clinical personnel
 - 3. Titration of dose
 - 4. Ongoing psychoeducation and psychotherapy
- F. Multimodal therapies
- 1. Attributional effects of medication used alone
 - 2. Benefits of both biologically mediated therapies and psychological therapies (Biopsychosocial model)
 - 3. Systematic evaluation of comparative efficacy of psychopharmacotherapy and traditional psychotherapy and the combination of therapies

G. Compliance

1. Enhancing compliance
2. Counseling and education
3. Relationship between client or patient and prescribing physician
4. Assessment of compliance
 - a. Length of psychopharmacotherapy
 - b. Number of doses
5. Direct measures of compliance
 - Laboratory measures
 - Blood levels
6. Indirect measures of compliance
 - a. Interviews
 - b. Pill counts
7. Risk factors for noncompliance
 - a. Cultural issues
 - b. Patient-related factors
 - c. Environmental factors
 - d. Clinician-related factors
 - e. Medication-related factors
 - i. Dose schedule
 - ii. Untoward (uncomfortable) side effects

H. Psychoeducation

Patient and family education

VI. Research

Purpose and Learning Objectives

The participants will acquire advanced knowledge and understanding of:

- A. The importance of new developments in the field of schizophrenia psychopharmacology through systematic reading of recent research
- B. Conducting systematic controlled clinical research including clinical trials, single subject designs
- C. Available sources for new research in the area of schizophrenia psychopharmacology including accessing of databases, informational services, and other resources
- D. Theoretical models of central nervous system mechanisms of schizophrenia

Content Areas

A. Research preparation

- 1. Literature retrieval strategies
 - a. Electronic databases
 - b. Internet
- 2. Pharmacotherapeutics retrieval strategies and databases
 - Pharmaceutical companies
- 3. Research strategies for single case and group studies

B. Preclinical/clinical research

- 1. Theoretical models of mechanisms of individual disorders
- 2. Interaction of disease models with models of normal aging
- 3. Models of drug development

4. Measurement and design strategies
5. Safety/abuse liability
6. Sample size issues
7. Strategies for control of multiple influencing variables
8. Outcome measures
9. Cost/benefit analysis
10. Acute trials
11. Long-term followup trials
12. Multimodal trials
13. Consumer satisfaction and quality of life
14. Control groups
15. Data interpretation
16. Generalization of results
17. Measurement strategies
18. Meta-analytic strategies

Learning Resources

I. Journals

Acta Psychiatrica Scandinavica
Annual Review of Pharmacology and Toxicology
American Journal of Psychiatry
Archives of General Psychiatry
British Journal of Psychiatry
Experimental and Clinical Psychopharmacology
Journal of Clinical and Consulting Psychology
Journal of Clinical Psychopharmacology
Psychiatric Services
Psychiatric Rehabilitation Journal
Psychopharmacology Bulletin
Psychotherapy and Rehabilitation Research Bulletin
Psychological Medicine
Schizophrenia Bulletin

On-Line

DrugDex (Martindale's Pharmacopoeia)
Physician's Desk Reference

II. Other References

A. Professional and Legal Issues

- American Psychological Association. (1992). Ethical principles of psychologists and code of conduct. Washington, DC: American Psychological Association.
- American Psychological Association. (1994). The legal and legislative considerations of prescription privileges for psychologists. Washington, DC: American Psychological Association.
- Applebaum, P. S. & Gutheil, T. G. (1991). Handbook of clinical psychiatry and the law (2nd ed.). Baltimore, MD: Williams and Wilkins.
- Budman, S. H. (1995). New clinical challenges: Managed behavioral healthcare and the chronic psychiatric patient. Behavioral Healthcare Tomorrow, 4, (pp. 49-51).
- Canter, M. B., et al. (1994). Ethics for psychologists. A commentary on the APA ethics code. Washington, DC: American Psychological Association.

- Grisso, T., & Appelbaum, P. S. (1995). Comparison of standards for assessing patients' capacities to make treatment decisions. American Journal of Psychiatry, 152, (pp. 1,033-1,037).
- Hinshaw, A. S. & DeLeon, P. H. (1995). Towards achieving multidiscipline professional collaboration. Professional Psychology: Research and Practice, 26, (pp. 115-116).
- Hoge, S. K. (1994). The patient self-determination act and psychiatric care. Bulletin of the American Academy of Psychiatry and the Law, 22, (pp. 577-586).
- Kisch, J. (1994). The need for psychopharmacological collaboration in managed mental health care. In C. S. Austad & W. H. Berman (Eds.), Psychotherapy in managed care. Washington, DC: American Psychological Association.
- Littrell, J., & Ashford, J. (1995). Is it proper for psychologists to discuss medication with clients? Professional Psychology: Research and Practice, 26, (pp. 238-244).
- Patterson, D. Y., & Sharfstein, S. S. (1992). The future of mental health care. In J. Feldman & R. J. Fitzpatrick (Eds.), Managed mental health care: Administrative and clinical issues (pp. 3,335-3,346). Washington, DC: American Psychiatric Press.
- Reisner, R., & Slobogin, C., (1994). Law and the mental health system. St. Paul, MN: West Publishing.
- Stromberg, C., et al. (1988). The psychologist's legal handbook. Washington, DC: The Council for the National Register of Health Service Providers in Psychology (including update of December 1993 titled Malpractice and other professional liability by Stromberg, C., & Dellinger, A.).

Specific State Psychologists' Certification/Licensure Acts and Medical Practice Acts.

- Sullivan, M. D., & Youngner, S. J. (1994). Depression, competence, and the right to refuse lifesaving medical treatment. American Journal of Psychiatry, 151, (pp. 971-978).
- Sullivan, M. J. (1995). Medicaid's quiet revolution: Merging the public and private sectors of care. Professional Psychology: Research & Practice, 26, (pp. 229-234).

B. Assessment

- American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: American Psychiatric Association.
- Bellack, A. S. (1989). Treatment outcome evaluation methodology with schizophrenics. Advances in Behavioral Research and Therapy, 11, (pp. 191-200).

- Blackwell, B. (Ed.) (in press). Compliance and the treatment alliance in serious mental illness. Newark, NJ: Gordon & Breach.
- Folstein, M. F., Folstein, S. E., & McHugh, P. R. (1975). Mini-mental state: A practical method for grading the cognitive state of patients for the clinician. Journal of Psychiatric Research, 12, (pp. 189-198).
- Goldstein, G. (1988). The neuropsychology of schizophrenia. In I. Grant & K. G. Adams, Neuropsychological assessment of neuropsychiatric disorders (pp. 147-172). New York: Oxford University Press.
- Hoff, A. L., Riordan, H., O'Donnell, D. W., Morris, L., & DeLisi, L. E. (1992). Neuropsychological functioning of first-episode schizophreniform patients. American Journal of Psychiatry, 149, (pp. 898-903).
- Hyman, S. E., Arana, G. W., & Rosenbaum, J. F. (1995). Handbook of psychiatric drugs (3rd ed.). Boston: Little, Brown.
- Koran, L. M., Sox, H. C., Marton, K. I., Moltzen, S., Kraemer, H. C., Imai, K., Kelsey, T. G., Rose, T. G., Levin, L. C., & Chandra, S. (1989). Medical evaluation of psychiatric patients. Archives of General Psychiatry, 46, (pp. 733-740).
- Lezak, M. (1983). Neuropsychological assessment. New York: Oxford University Press.
- Lukoff, D., Liberman, R. P., & Nuechterlein, K. H. (1987). Symptom monitoring in the rehabilitation of schizophrenic patients. Schizophrenia Bulletin, 12, (pp. 578-603).
- Platt, S., Weyman, A., Hirsch, S., & Hewett, S. (1980). The social behavior assessment schedule (SBAS): Rationale, contents, scoring and reliability of a new interview schedule. Social Psychiatry, 15, (pp. 43-55).
- Paul, G. L. (Ed.) (1986). Assessment in residential settings: Principles and methods to support cost-effective quality operations. Champaign, IL: Research Press.
- Paul, G. L. (Ed.) (1987). The time-sample behavioral checklist: Observational assessment instrumentation for service and research. Champaign, IL: Research Press.
- Rosse, R. B., & Morihisa, J. M. (1988). Laboratory and other diagnostic tests in psychiatry. In J. A. Talbott, R. E. Hales, & S. C. Yudofsky (Eds.), Textbook of psychiatry (pp. 247-276). Washington, DC: American Psychiatric Press.
- Seidman, L. J., Cassens, B. P., Kremen, W. S., & Pepple, J. R. (1992). Neuropsychology of schizophrenia. In R. F. White (Ed.), Clinical syndromes in adult neuropsychology: The practitioner's handbook (pp. 381-438). Amsterdam: Elsevier.

Spaulding, W. D., Sullivan, M., Weiler, M., Reed, D., Richardson, C., & Storzbach, D. (1994). Changing cognitive functioning in schizophrenia. Acta Psychiatrica Scandinavica, 90 (Suppl. 384), (pp. 116-124).

Wallace, C. J. (1987). Functional assessment in rehabilitation. Schizophrenia Bulletin, 12, (pp. 604-630).

C. Psychopharmacotherapy

Arbuthnott, G. W., & Ingham, C. A. (1993). The thorny problem of what dopamine does in psychiatric disease. In G. W. Arbuthnott & P. C. Emson (Eds.), (pp. 341-349). Progress in brain research (Vol. 99). Amsterdam: Elsevier Science.

Asaad, G. (1995). Understanding mental disorders due to medical conditions or substance abuse. New York: Brunner/Mazel.

Baldessarini, R. J. (1996). Chemotherapy in psychiatry: Principles and practice (3rd ed.). Cambridge, MA: Harvard University Press.

Bassuk, E. L., Schoonover, S. C. & Gelenberg, A. J. (Eds.). (1983). The practitioner's guide to psychoactive drugs (2nd ed.). New York: Plenum Medical Book Company.

Bernstein, J. G. (1995). Handbook of drug therapy in psychiatry (3rd ed.). St. Louis, MO: Mosby.

Bechlibnyk-Butler, K. Z., Jeffries, J. J., & Martin, B. A. (Eds.). (1994). Clinical handbook of psychotropic drugs (4th ed.). Seattle, WA: Hogrefe & Huber Publishers.

Bloom, F. E., Kupfer, D. J. (Eds.). (1995). Psychopharmacology: The fourth generation of progress. NY: Raven Press.

Civelli, O., Bunzow, J. R., & Grandy, D. K. (1993). Molecular diversity of the dopamine receptors. In A. K. Cho, et al. Annual review of pharmacology and toxicology, 33, (pp. 281-307).

Cooper, J. R., Bloom, F. E., & Roth, R. H. (1991). The biochemical basis of neuropharmacology (6th ed.). New York: Oxford University Press.

Cushman, L. A., & Scherer, M. J. (1995). Psychological assessment in medical rehabilitation. Washington, DC: American Psychological Association.

Flaherty, J. A., Davis, J. M., & Janicak, P. G. (Eds.). (1993). Psychiatry: Diagnosis and therapy (2nd ed.). Norwalk, CT: Appleton and Lange.

- Gelenberg, A. J., Bassuk, E. L., & Schoonover, S. C. (1993). The practitioner's guide to psychiatric drugs (3rd ed.). New York: Plenum.
- Gitlin, M. J. (1990). The psychotherapist's guide to psychopharmacology. New York: The Free Press.
- Gur, R. E. (1995). Functional brain-imaging studies in schizophrenia. In Blook, F. E., & Kupfer, D. J., Psychopharmacology: The fourth generation of progress New York: Raven. (pp. 1,185-1,192).
- Janicak, P. G., Davis, J. M., Preskorn, S. H. & Ayd, F. J., Jr. (1993). Principles and practice of psychopharmacotherapy. Baltimore, MD: Williams and Wilkins.
- Kaplan, H. I., & Sadock, B. J. (1993). Pocket handbook of psychiatric drug treatment. Baltimore: Williams and Wilkins.
- Katzung, B. G. (1992). Basic and clinical pharmacology (5th ed.). Norwalk (CT): Appleton and Lange.
- Knable, M. B., Kleinman, J. E., & Weinberger, D. R. (1995). Neurobiology of schizophrenia. In A. F. Schatzberg & C. B. Nemeroff (Eds.), The American Psychiatric Press textbook of psychopharmacology (pp. 479-499). Washington DC: American Psychiatric Press.
- Maxmen, J. S. (1991). Psychotropic drugs fast facts. New York: W.W. Norton.
- Medical Economics Company. Physicians desk reference (49th ed.). Montvale, NJ: Medical Economics Data, Inc.
- Meichenbaum, D., & Turk, D. C. (1987). Facilitating treatment adherence. New York: Plenum.
- Preston, J., O'Neal, J. H., & Talaga, M. C. (1994). Handbook of clinical psychopharmacology for therapists. Oakland, CA: New Harbinger Publications.
- Schatzberg, A. F., & Cole, J. O. (1991). Manual of clinical psychopharmacology (2nd ed.). Washington, DC: American Psychiatric Press.
- Schatzberg, A. F., & Nemeroff, C. B. (1995). The American Psychiatric Press textbook of psychopharmacology. Washington, DC: American Psychiatric Press.
- Strange, P. G. (1993). Dopamine receptors: structure and function. In G. W. Arbuthnott & P. C. Emson (Eds.) (pp.167-177), Progress in brain research (Vol. 99). Amsterdam: Elsevier Science.

Weinberger, D. R., & Kleinman, J. E. (1986). Observations on the brain in schizophrenia. In A. J. Frances & R. E. Hales (Eds.), American Psychiatric Association annual review (Vol. 5). Washington, DC: American Psychiatric Press.

D. Psychosocial Treatment and Rehabilitation

Anthony, W., Cohen, M., & Farkas, M. (1990). Psychiatric rehabilitation. Boston: Center for Psychiatric Rehabilitation.

Beitman, B. D., & Klerman, G. L. (1991). Integrating pharmacotherapy and psychotherapy. Washington, DC: American Psychiatric Press.

Collins, E. J., & Munroe-Blum, H. (1995). Integrating pharmacological and psychosocial treatments in schizophrenia. In C. L. Shriqui & H. A. Nasrallah (Eds.), Contemporary issues in the treatment of schizophrenia (pp. 765-784). Washington, DC: American Psychiatric Press.

Dixon, L., & Rebori, T. A. (1995). Psychosocial treatment of substance abuse in schizophrenic patients. In C. L. Shriqui & H. A. Nasrallah (Eds.), Contemporary Issues in the treatment of schizophrenia (pp. 749-784). Washington, DC: American Psychiatric Press.

Beck, A. T., Rush, A. J., Shaw, B. F., & Emery, G. (1979). Cognitive therapy of depression. NY: Guilford Press.

Bedell, J. R. (Ed.). (1994). Psychological assessment and treatment of persons with severe mental disorders. Washington, DC: Taylor & Francis.

Carling, P. J. (1992). Community integration of people with psychiatric disabilities: Emerging trends. In J. W. Jacobson, S. N. Burchard, & P. J. Carling (Eds.), Community living for people with developmental and psychiatric disabilities. Baltimore, MD: Johns Hopkins University Press.

Coursey, R. D. (1989). Psychotherapy with persons suffering from schizophrenia: The need for a new agenda. Schizophrenia Bulletin, 15, (pp. 349-353).

Goldstein, M. J. (1994). Psychoeducational and family therapy in relapse prevention. Acta Psychiatrica Scandinavica, 89 (Suppl. 382), (pp. 54-57).

Goldstein, M. J., & Miklowitz, D. J. (1995). The effectiveness of psychoeducational family therapy in the treatment of schizophrenic disorders. Journal of Marital and Family Therapy, 21, (pp. 361-376).

Green, M. F. (1996). What are the functional consequences of neurocognitive deficits in schizophrenia? American Journal of Psychiatry, 153, (pp. 321-330).

- Gunderson, J. G., Frank, A., Katz, H. M., Vannicelli, M. L., Frosch, J. P., & Knapp, P. H. (1984). Effects of psychotherapy in schizophrenia: II. Comparative outcome of two forms of treatment. Schizophrenia Bulletin, 10, (pp. 564-598).
- Hogarty, G. E. (1993). Prevention of relapse in chronic schizophrenic patients. Journal of Clinical Psychiatry, 54 (Suppl. 3), (pp. 18-23).
- Hogarty, G. E., Kornblith, S. J., Greenwald, D., DiBarry, A. L., Cooley, S., Flesher, S., Reiss, D., Carter, M., & Ulrich, R. (1995). Personal therapy: A disorder-relevant psychotherapy for schizophrenia. Schizophrenia Bulletin, 21, (pp. 379-393).
- Kanas, N. (1986). Group therapy with schizophrenics: A review of controlled studies. International Journal of Group Psychotherapy, 36, (pp. 339-351).
- Kanas, N. (1993). Group psychotherapy with schizophrenia. In H. I. Kaplan & B. J. Sadock (Eds.), Comprehensive group psychotherapy (3rd ed.) (pp. 407-417). Baltimore, MD: Williams & Wilkins.
- Kingdon, D. G., & Turkington, D. (1994). Cognitive-behavioral therapy of schizophrenia. NY: Guilford Press.
- Lam, D. (1991). Psychosocial family intervention in schizophrenia: A review of empirical studies. Psychological Medicine, 21, (pp. 423-441).
- Lehman, A. F. (1995). Vocational rehabilitation in schizophrenia. Schizophrenia Bulletin, 21, (pp. 645-656).
- Novalis, P. N., & Rojcewicz, S. J., & Peele, R. (1993). Clinical manual of supportive psychotherapy. Washington, DC: American Psychiatric Press.
- Rockland, L. H. (1993). A review of supportive psychotherapy, 1986-1992. Hospital and Community Psychiatry, 44, (pp. 1,053-1,060).
- Scott, J. E., & Dixon, L. B. (1995). Psychological interventions for schizophrenia. Schizophrenia Bulletin, 21, (pp. 621-630).
- Scott, J. E., & Dixon, L. B. (1995). Assertive community treatment and case management for schizophrenia. Schizophrenia Bulletin, 21, (pp. 657-668.)
- Seeman, M. V., & Greben, S. E. (1990). Office treatment of schizophrenia. Washington, DC: American Psychiatric Press.
- Stroul, B. A. (Ed.). (1989). The community support system concept [Special issue]. Psychosocial Rehabilitation Journal, 12 (3).

Warner, R. (1995). Alternatives to the hospital for acute psychiatric treatment. Washington, DC: American Psychiatric Press.

Wright, J. H., Thase, M. E., Beck, A. T., & Ludgate, J. W. (Eds.). (1993). Cognitive therapy with inpatients: Developing a cognitive milieu. New York.: Guilford.

E. Treatment Issues

1. General Treatment with Typical Antipsychotics

Atre-Vaidya, N., and Taylor, M. A. (1989). Effectiveness of lithium in schizophrenia: Do we really have an answer? Journal of Clinical Psychiatry, 50, (pp. 170-172).

Awad, A. G. (1995). Quality-of-life issues in medicated schizophrenic patients. In C. L. Shriqui & H. A. Nasrallah (Eds.), Contemporary issues in the treatment of schizophrenia (pp. 735-747). Washington, DC: American Psychiatric Press.

Bollini, P., Pampallona, S., Orza, M. J., Adams, M. E., and Chalmers, T. C. (1994). Antipsychotic drugs: Is more worse? A meta-analysis of the published randomized control trials. Psychological Medicine, 24, (pp. 307-316).

Breslin, N. A. (1992). Treatment of schizophrenia: Current practice and future promise. Hospital and Community Psychiatry, 43, (pp. 877-884).

Christison, G. W., Kirch, D. G., and Wyatt, R. J. (1991). When symptoms persist: Choosing among alternative somatic treatments for schizophrenia. Schizophrenia Bulletin, 17, (pp. 217-245).

Csernanski, J. G., & Newcomer, J. G. (1995). Maintenance treatment of schizophrenia. In F. E. Bloom & D. J. Kupfer, Psychopharmacology: The fourth generation of progress (pp. 1,267-1,276). New York: Raven.

Davis, J. M., & Andriukaitis, S. (1986). The natural course of schizophrenia and effective maintenance drug treatment. Journal of Clinical Psychopharmacology, 6, (Suppl. 6), (pp. 2-10).

Dixon, L. B., Lehman, A. F., & Levine, J. (1995). Conventional antipsychotic medications for schizophrenia. Schizophrenia Bulletin, 21, (pp. 567-577).

Doddi, S., Rifkin, A., Karajgi, B., Cooper, T., & Borenstein, M. (1994). Blood levels of haloperidol and clinical outcome in schizophrenia. Journal of Clinical Psychopharmacology, 14, (pp. 187-195).

- Glick, I. D., Braff, D. L., & Janowsky, D. S. (1995). Short and long-term psychopharmacological treatment strategies. In F. E. Bloom & D. J. Kupfer, Psychopharmacology: The fourth generation of progress (pp. 839-848). New York: Raven.
- Janicak, P. G., Davis, J. M., Preskorn, S. H., & Ayd, F. J. (1993). Treatment with antipsychotics. In P. G. Janicak, J. M. Davis, S. H. Preskorn, & F. J. Ayd, Principles and practice of psychopharmacotherapy (pp. 93-184) Baltimore: Williams and Wilkins.
- Janicak, P. G., Davis, J. M., Preskorn, S. H., & Ayd, F. J. (1993). Assessment and treatment of special populations. In P. G. Janicak, J. M. Davis, S. H. Preskorn, & F. J. Ayd, Principles and practice of psychopharmacotherapy (pp. 481-563). Baltimore: Williams and Wilkins.
- Kane, J. M. (Ed.) (1984). Drug maintenance strategies in schizophrenia. Washington, DC: American Psychiatric Press.
- Kissling, W. (1992). Ideal and reality of neuroleptic relapse prevention. British Journal of Psychiatry, 161 (Suppl. 18), (pp. 133-139).
- Klein, D. F. (Section Ed.). (1995). Psychopharmacological treatment. In A. F. Schatzberg, & C. B. Nemeroff, (Eds.). The American Psychiatric Press textbook of psychopharmacology (pp. 575-838). Washington DC: American Psychiatric Press.
- Schooler, N. R. (1991). Maintenance medication for schizophrenia: Strategies for dose reduction. Schizophrenia Bulletin, 17, (pp. 311-324).
- Weiden, P. J., Mott, T., & Curcio, N. (1995). Recognition and management of neuroleptic noncompliance. In C. L. Shriqui & H. A. Nasrallah (Eds.), Contemporary issues in the treatment of schizophrenia (pp. 411-434). Washington, DC: American Psychiatric Press.
- Wirshing, W. E., Marder, S. R., Van Putten, T., Ames, D. (1995). Acute treatment of schizophrenia. In F. E. Bloom, & D. J. Kupfer, Psychopharmacology: The fourth generation of progress (pp. 1,259-1,266). New York: Raven.
- Yonkers, K. A., & Hamilton, J. A. (1995). Psychotropic medications. In J. M. Oldham, & M. B. Riba (Eds.), American Psychiatric Press review of psychiatry (Vol. 14), (pp. 307-332). Washington, DC: American Psychiatric Press.

2. Atypical Antipsychotics

- Baldessarini, R. J., & Frankenburg, F. R. (1991). Clozapine: A novel antipsychotic agent. New England Journal of Medicine, 324, (pp. 746-752).

- Blin, O., Azorin, J. M., Bouhours, P. (1996). Antipsychotic and anxiolytic properties of risperidone, haloperidol, and methotrimeprazine in schizophrenic patients. Journal of Clinical Psychopharmacology, 16, (pp. 38-44).
- Buchanan, R. W. (1995). Clozapine: Efficacy and safety. Schizophrenia Bulletin, 21, (pp. 579-591).
- Chouinard, G., & Arnott, W. (1993). Clinical review of risperidone. Canadian Journal of Psychiatry, 38, (Suppl. 3), (pp. S89-S95).
- Ereshefsky, L., & LaCombe, S. (1993). Pharmacological profile of risperidone. Canadian Journal of Psychiatry, 38, (Suppl. 3), (pp. S80-S88).
- Marder, S. R., & Meibach, R. C. (1994). Risperidone in the treatment of schizophrenia. American Journal of Psychiatry, 151, (pp. 825-835).
- Marder, S. R., & Van Putten, T. (1995b). Antipsychotic medications. In A. F. Schatzberg, & C. B. Nemeroff, (Eds.), The American Psychiatric Press textbook of psychopharmacology (pp. 247-262). Washington, DC: American Psychiatric Press.
- Meltzer, H. Y. (1995). Atypical antipsychotic drug therapy for treatment-resistant schizophrenia. In S. R. Hirsch, & D. R. Weinberger, (Eds.), Schizophrenia (pp. 485-503). Cambridge, MA: Blackwell Science.
- Meltzer, H. Y. (1995b). Atypical antipsychotic drugs. In F. E. Bloom, & D. J. Kupfer, (Eds.), Psychopharmacology: The fourth generation of progress (pp. 1,277-1,286). New York: Raven Press.
- Meltzer, H. Y. (1992). Treatment of the neuroleptic-nonresponsive schizophrenic patient. Schizophrenia Bulletin, 18 (3), (pp. 515-542).
- Owens, M. J., & Risch, S. C. (1995). Atypical antipsychotics. In A. F. Schatzberg, & C. B. Nemeroff, (Eds.), The American Psychiatric Press textbook of psychopharmacology (pp. 263-280). Washington, DC: American Psychiatric Press.
- Perry, P. J. (1995). Clinical use of the newer antipsychotic drugs. American Journal of Health System Pharmacists, 52, (Suppl. 1), (pp. S9-S14).

3. Side Effects

- Addonizio, G., & Susman, V. L. (1995). Neuroleptic malignant syndrome. In C. L. Shriqui & H. A. Nasrallah (Eds.), Contemporary issues in the treatment of schizophrenia (pp. 551-574). Washington, DC: American Psychiatric Press.

- Casey, D. E. (1995). Tardive dyskinesia: Pathophysiology. In F. E. Bloom & D. J. Kupfer (Eds.), Psychopharmacology: The fourth generation of progress (pp. 1,497-1,502). New York: Raven Press.
- Casey, D. E. (1995). Neuroleptic-induced acute extrapyramidal syndromes and tardive dyskinesia. In S. R. Hirsch & D. R. Weinberger (Eds.), Schizophrenia (pp. 546-566). Cambridge, MA: Blackwell Science.
- Cavallaro, R., Regazzetti, M. G., Mundo, E., Brancato, V., & Smeraldi, E. (1993). Tardive dyskinesia outcomes: Clinical and pharmacological correlates of remission and persistence. Neuropharmacology, 8, (pp. 233-239).
- Feltner, D. E., & Hertzman, M. (1993). Progress in the treatment of tardive dyskinesia: Theory and practice. Hospital and Community Psychiatry, 44 (1), (pp. 25-34).
- Kane, J. M. (1992). Tardive dyskinesia: A task force report of the American Psychiatric Association. Washington, DC: American Psychiatric Press.
- Stanilla, J. K., & Simpson, G. M. (1995). Drugs to treat extrapyramidal side effects. In A. F. Schatzberg & C. B. Nemeroff (Eds.), The American Psychiatric Press textbook of psychopharmacology (pp. 281-299). Washington, DC: American Psychiatric Press.
- Task Force Report of the American Psychiatric Association. (1992). Tardive dyskinesia. Washington, DC: American Psychiatric Press.

4. Compliance

- Cochran, S. D. (1984). Preventing medical noncompliance in the outpatient treatment of bipolar affective disorders. Journal of Consulting and Clinical Psychology, 52, (pp. 873-878).
- Eckman, T. A., Liberman, R. P., Phipps, C. C., & Blair, K. E. (1990). Teaching medication management skills to schizophrenic patients. Journal of Clinical Psychopharmacology, 10, (pp. 33-38).
- Hammersley, D. (1995). Counseling people on prescribed drugs. London: Sage Publications. Johnson, D. L. (in press). The role of families in compliance with treatment. In B. Blackwell (Ed.), Compliance and the treatment alliance in serious mental illness. Newark, NJ: Gordon and Breach.
- Lecompte, D., & Pelc, C. (1996). A cognitive-behavioral program to improve compliance with medication in patients with schizophrenia. International Journal of Mental Health, 25, (pp. 51-56).

5. Gender, Cultural and Ethnobiological Issues

- Aponte, J. F., Rivers, R. Y., & Wohl, J. (1995). Psychological interventions and cultural diversity. Boston: Allyn & Bacon.
- Bachrach, L. L., & Nadelson, C. C. (Eds.), (1988). Treating chronically mentally ill women. Washington, DC: American Psychiatric Association Press.
- Lin, K. M., & Poland, R. E. (1995). Ethnicity, culture, and psychopharmacology. In Bloom, F. E., & Kupfer, D. J. (Eds.), Psychopharmacology: The fourth generation of progress. New York: Raven Press, (pp. 1,097-1,918).
- Lin, K. M., Poland, R.E., & Nuccio, I., et al. (1989). Longitudinal assessment of haloperidol doses and serum concentrations in Asian and Caucasian schizophrenic patients. American Journal of Psychiatry, 146, (pp. 1,307-1,311).
- Lu, F. G., Lim, R. F., & Mezzich, J. E. (1995). Issues in the assessment and diagnosis of culturally diverse individuals. In J. M. Oldham & M. B. Riba (Eds.), American Psychiatric Press review of psychiatry (Vol. 14), (pp. 477-510). Washington, DC: American Psychiatric Press.
- Nicole, L., & Shriqui, C. L. (1995). Gender differences in schizophrenia. In C. L. Shriqui & H. A. Nasrallah (Eds.), Contemporary issues in the treatment of schizophrenia. (pp. 225-243). Washington, DC: American Psychiatric Press.
- Seeman, M. V. (1995). Gender differences in treatment response in schizophrenia. In M. V. Seeman (Ed.), Gender and psychopathology (pp. 227-251). Washington, DC: American Psychiatric Press.
- Yamamoto, J., & Lin, Keh-Ming (1995). Psychopharmacology, ethnicity, and culture. In J. M. Oldham & M. B. Riba (Eds.), American Psychiatric Press review of psychiatry (Vol. 14), (pp. 529-542). Washington DC: American Psychiatric Press.

6. Dual Diagnosis Issues and Use of Adjunctive Medication

- DeLisi, L. E. (Ed.). (1990). Depression in schizophrenia. Washington, DC: American Psychiatric Press.
- Plasky, P. (1991). Antidepressant usage in schizophrenia. Schizophrenia Bulletin, 17, (pp. 649-657).
- Schulz, S. C., & Buckley, P. F. (1995). Treatment-resistant schizophrenia. In S. R. Hirsch, & D. R. Weinberger (Eds.), Schizophrenia (pp. 469-484). Cambridge, MA: Blackwell Science.
- Simhandl, C., & Meszaros, K. (1992). The use of carbamazepine in the treatment of schizophrenic and schizoaffective psychoses: A review. Journal of Psychiatry and Neuroscience, 17, (pp. 1-17).

Siris, S. G. (1990). Pharmacological treatment of depression in schizophrenia. In L. E. Delisi (Ed.), Depression in schizophrenia (pp. 141-162). Washington, DC: American Psychiatric Press.

Siris, S. G. (1993). Adjunctive medication in the maintenance treatment of schizophrenia and its conceptual implications. British Journal of Psychiatry, 163 (Suppl. 22), (pp. 66-78).

Wolkowitz, O. M., and Pickar, D. (1991). Benzodiazepines in the treatment of schizophrenia: A review and reappraisal. American Journal of Psychiatry, 148, (pp. 714-726).

F. Research

American Psychological Association. (1982). Ethical principles in the conduct of research with human participants. Washington, DC: American Psychological Association.

Campbell, D. T., & Stanley, J. C. (1963). Experimental and quasi-experimental designs for research. Chicago: Rand McNally College Publishing Company.

Fine, M. A., & Kurdek, L. A. (1993). Reflections on determining authorship credit and authorship order on faculty-student collaborations. American Psychologist, 48, (pp. 1,141-1,147).

Fleiss, J. L. (1986). The design and analysis of clinical experiments. New York: John Wiley and Sons.

Hayes, S., & Barlow, D. H. (1984). Single case experimental designs: Strategies for studying behavioral change. New York: Pergamon Press.

Isaac, S., & Michael, W. B. (1987). Handbook in research and evaluation (2nd ed.). San Diego, CA: Edits Publishers.

Kazdin, A. E. (Ed.). (1992). Methodological issues and strategies in clinical research. Washington, DC: American Psychological Association.

Lidz, C. W., et al. (1984). Informed consent. New York: Guilford.

Sidman, M. (1960). Tactics of scientific research. New York: Basic Books.

Vignettes

- A. Accountability and cost saving have become the dominant themes for the North Central Mental Health Center. NCMHC provides services to about 100 priority clients with severe and disabling mental illness. All clients have prescriptions for antipsychotic or antidepressive medications. In addition, the treatment team led by a half-time psychiatrist attempts to help clients with problems of daily living through case management activities. A prevocational training program is being developed. The clinical director wonders whether the most effective treatments are being applied for each client and has asked the psychologist to design a system for conducting on-going evaluations of client progress. This system should be particularly sensitive to medication-related changes, but should also be responsive to other activities of the NCMHC.
- B. Richard, a 27-year old Pueblo Indian who is deaf and has schizophrenia, had not responded well to haloperidol or to prolixin. He lives in the community in a board and care facility. His mother urged the clinic team to ask the part-time psychiatrist to prescribe risperidone. This was done, and Richard showed a marked improvement. He became active in the psychosocial club and made more visits home, especially at ceremonial times. After several months of this, he told his mother he was feeling so good he knew he did not need to take the medication. Despite her urging compliance, he quit taking the medication, and his symptoms rapidly became much worse. The community mental health center team has asked the psychologist for help in designing a medication compliance program with measures of the patient's progress.
- C. Julia has not responded to antipsychotic medications as well as expected. Her symptoms abate and then become much worse. This pattern is not related to dosage level, and Julia insists that she takes the medication regularly. She denies illicit drug use. The general practitioner who is treating her has asked Dr. Lopez, a clinical psychologist, to look into the matter and advise him about what might be done to improve the situation.
- D. Alfred A, a 38-year old ranch hand with a long-standing diagnosis of schizophrenia, disorganized type, also has a history of a closed head injury suffered at age 25 when he was thrown from a horse. He has been stable for many years on a regimen of low dose haloperidol and low dose benztropine. In the past, you have provided social skills training to him and regularly discussed his case with the local general practitioner, who manages his medications. Recently, he visited his physician with complaints of recurrent, severe neck and shoulder pain and was given several pain compounds, including cyclobenzaprine. He presented acutely several days later with disorganized behavior and visual hallucinations. His physician suspects a psychotic break brought on by recent stressors. Discuss your assessment and management strategies.
- E. Rachel K is a 20-year old woman who suffered a psychotic episode during her junior year of college. She was hospitalized in a distant major medical center for several weeks, and a course of haloperidol, benztropine, and lorazepam was initiated. She was discharged after 14 days and returned to her rural home. Her medications are managed by the nurse practitioner at the county health facility where you consult. Her parents, although extremely distressed by the new onset of their daughter's illness and the many positive symptoms she continues to display, have sought

to educate themselves about the disorder and its treatment. They are particularly concerned that she will develop tardive dyskinesia and wish to stop treatment with haloperidol. Discuss both psychological and pharmacological management of this case.

LEVEL 2 CURRICULUM

Mental Retardation and Developmental Disabilities

I. Professional and Legal Issues

Purpose and Learning Objectives

The participants will acquire advanced knowledge and understanding of:

- A. The nature of the collaborative relationship between psychologist and psychiatrist/family practitioner. A focus on the benefits obtained and difficulties involved in collaborative practice for the purpose of facilitating an integrative relationship in the care of people with developmental disabilities
- B. The legal and ethical issues to consider as part of a collaborative practice with the introduction of pharmacological interventions with people with developmental disabilities

Content Areas

- A. Interdisciplinary collaboration between psychologist and family practitioner and psychiatrist
 - 1. Benefits
 - 2. Training, philosophical, assessment, and treatment issues between psychologists and physicians
 - 3. Responsibility issues
 - 4. Client/family caregiver variables and their effect on the collaborative process
 - 5. Development of an integrated collaborative relationship
- B. Legal and ethical issues
 - 1. Scope of practice limitations
 - a. Consultation and referral
 - b. Providing mental health services to those referred by others
 - c. Boundaries of competence and need to maintain current knowledge
 - d. Avoiding harm

- e. Vicarious liability
- 2. Confidentiality
- 3. Informed consent
 - a. Providing information
 - b. Volunteering for consent
 - c. Individuals' competencies to provide consent
 - d. Special ethical considerations in which consent may not be obtained
 - e. Specific consent issues with developmentally disabled populations
 - i. Parental or caretaker authority
 - ii. Authority of children
 - iii. Developmental issues in obtaining competency
 - iv. Assent
 - f. Procedures for obtaining custody
 - g. Documenting consent
 - h. Issues of consenting and custody
 - i. Refusing treatment
 - i. Child
 - ii. Parent or caretaker
 - iii. Privilege
 - iv. Malpractice as a function of psychologists' having greater knowledge of psychopharmacology
- 4. Governmental restrictions related to prescribing practices
 - COBRA 1987 restrictions (Medicare/Medicaid patients)

5. Practice guidelines for treatment of mental disorders
6. Psychological and substance abuse evaluation

II. Assessment

Purpose and Learning Objectives

The participants will acquire advanced knowledge and understanding of:

Assessment and monitoring of physical effects, behavioral, emotional, and cognitive effects of various pharmacotherapies for individuals with specific developmental/medical disabilities

Content Areas

A. Physical

1. Baseline physical assessment
2. Medical review of organ systems
3. Physical and neurological examinations
4. Speech and language assessment
5. Monitoring untoward side effects
 - a. Side effects rating scales
 - b. Physical and neurological examinations
6. Laboratory measures
 - a. Biochemical assessment of blood and urine
 - b. Electrophysiological measurement (i.e., EKG)

B. Psychological

1. Rating scales
2. Direct observations of behavior
3. Laboratory measures

- a. Intellectual functioning
 - b. Measures of executive functioning
 - c. Vigilance measures
 - d. Measures of learning and tests of achievement
4. Psychological and substance abuse disorder evaluation
- C. Pharmacological
- 1. Efficacy and untoward effects
 - 2. Evaluating response to medication
- D. Environmental
- 1. Misattributing behavior change to medication
 - a. Teacher
 - b. Parents
 - c. Child
 - d. Peers
 - 2. Placebo effects
 - 3. Informed consent
 - 4. Interaction of environment with psychopharmacotherapy

III. Pharmacological Issues and Disabilities Variations

Purpose and Learning Objectives

The participants will acquire advanced knowledge and understanding of:

Basic tenets in pharmacology including pharmacokinetics and mechanisms of drug actions (pharmacodynamics) as they specifically relate to: (1) Normally developing populations; (2) populations with mental disorders; (3) populations with developmental and/or physical disabilities requiring medication; and (4) populations with developmental disabilities and

comorbid mental disorders

Content Areas

- A. Mental retardation and developmental disorders for which psychotherapeutic agents may be administered for symptom management:
1. Tourette's Disorder
 2. Language Development Disorders
 - a. Landau-Kleffner's Syndrome
 3. Seizure Disorders
 4. Conduct problems related to mental retardation:
 - a. Aggression
 - b. Stereotypy
 - c. Self-injury
 - d. Property destruction
 5. Learning Disabilities
 - a. Dyslexia
 - b. Acalculia
 6. Autism Spectrum Disorders
 - a. Autistic Disorder
 - b. Asperger's Syndrome
 7. Traumatic Injuries
 - a. Closed Head Injuries
 - b. Spinal Cord Injuries
 - c. Multiple Sclerosis

8. Huntington's Disease
9. Parkinson's Disease
10. Dementia
 - a. Alzheimer's Disease
 - b. Pick's Disease

B. Common classes of drugs used therapeutically:

1. Stimulants
2. Antidepressants
3. Antipsychotics
4. Mood stabilizers
5. Anxiolytics, sedative-hypnotics
6. Antihypertensives
7. Anticonvulsants
8. Nontraditional pharmacotherapies:
 - a. Cognex
 - b. L-DOPA and Mazindol
 - c. Naltrexone
 - d. Steroids (e.g., in CNS neurodegenerative conditions)
 - e. Nicotine (e.g., in Tourette's Syndrome and Dementia)

C. Routes of drug administration

D. Distribution

E. Elimination

1. Biotransformation

- a. Hepatic
- b. Intestinal
- c. Gastric
- d. Renal

2. Variability in biotransformation in populations with developmental disabilities

3. Excretion

- a. Urine
- b. Feces
- c. Lungs
- d. Sweat

F. Pharmacokinetics

1. Volume of distribution

2. Elimination and clearance

3. Metabolism

- a. Ethnobiologic considerations
- b. Gender considerations

G. Pharmacodynamics

1. Receptor density

2. Function

H. Drug concentrations

I. Time course of action

- J. Dose dependent drug effects
- K. Mechanisms of drug action
- L. Tolerance and dependence
- M. Pharmacokinetics

IV. Unique Issues for Youth With Developmental and Medical Conditions

Purpose and Learning Objectives

The participants will acquire advanced knowledge and understanding of:

The interaction between psychopharmacological treatment and developmental/medical conditions that might affect side effects and treatment outcome

Content Areas

- A. Physical sequelae
- B. Pharmacological factors
- C. Unique untoward side effects
- D. Response factors

V. Treatment Issues

Learning Objectives

The participants will acquire advanced knowledge and understanding of:

- A. Social and environmental factors that influence medication administration, efficacy, and untoward effects; specifically, the role of institutions including schools and residential facilities as they influence pharmacotherapy with those individuals with developmental/medical disabilities
- B. Various phases in psychopharmacotherapy including the decision of whether or not to initiate pharmacotherapy, assessing long-term benefits as well as untoward effects, and considering whether discontinuation of pharmacotherapy is warranted
- C. Psychopharmacotherapy, particularly as it interacts with various nonsomatic psychotherapies. This will include an essential understanding of efficacy of various psychopharmacologies in

either combination with psychotherapy or alone

- D. Assessment of and management of nonadherence and specifically with prescribed psychopharmacotherapy

Content Areas

A. Overall planning of treatment strategies

1. Clinical judgment
2. Use of behavioral evidence
3. Use of clinical pathways
4. Use of algorithms/decision trees

B. Initiation of treatment of psychopharmacotherapy

1. Physical assessment and baseline physical assessment and laboratory tests
 - a. Pre-drug physical
 - b. Laboratory assessment
 - c. Psychological and substance abuse assessment
2. Patient caregiving and family education
3. Obtaining consent for treatment
4. Gender and ethnic considerations

C. Stabilization of psychopharmacotherapy

1. Monitoring efficacy of psychopharmacotherapy
 - a. Cross-situational evidence of efficacy
 - i. Parents
 - ii. Teachers/school, residential, and vocational personnel

- iii. Client
- b. Rating scales
- c. Direct observations of behavior
- d. Laboratory measures of cognition
- 2. Assessment of untoward side effects
 - a. Formal behavioral assessments
 - i. Rating scales
 - ii. Direct observations
 - iii. Physiological assessments
 - iv. Blood and urine measurements
 - b. Family and caregiver assessments
 - i. Caregiver education and anticipatory guidance
 - ii. Rating scales
- 3. Dose-response relationships
- D. Maintenance of psychopharmacotherapy
 - 1. Tolerance
 - a. Behavioral and psychological tolerance
 - b. Physical tolerance
 - 2. Dependence
 - Assessment of addiction potential
 - 3. Ongoing monitoring and assessment of efficacy
 - 4. Ongoing monitoring and assessment of untoward side effects

5. Short-term versus long-term gains
6. Normalization of behavior, cognition, and learning
7. Domain specificity and individual differences

E. Discontinuation/followup

1. Patient education
2. Systematic evaluation of behavior across informants
 - a. Rating scales
 - b. Direct observations of behavior
3. Titration of dose
4. Ongoing psychoeducation and psychotherapy

F. Multimodal therapies

1. Attributional effects of medication used alone
2. Benefits of both biologically mediated therapies and psychological therapies (Biopsychosocial model)
3. Systematic evaluation of comparative efficacy of psychopharmacotherapy and traditional psychotherapy and the combination of therapies

G. Compliance

1. Enhancing compliance
2. Counseling and education
3. Relationship between client or patient and prescribing physician
4. Assessment of compliance
 - a. Length of psychopharmacotherapy
 - b. Number of doses

5. Direct measures of compliance
 - a. Laboratory measures
 - b. Blood levels
6. Indirect measures of compliance
 - a. Interviews
 - b. Pill counts
7. Factors associated with treatment adherence
 - a. Patient-related variables
 - i. Cultural
 - ii. Biological
 - iii. Gender
 - iv. Untoward (uncomfortable) side effects
 - b. Clinician-related variables
 - c. Family-related variables
 - d. Peer-related variables

H. Psychoeducation

1. Patient and parent education
2. Teacher and school education

VI. Research

Purpose and Learning Objectives

The participants will acquire advanced knowledge and understanding of:

- A. The importance of new developments in the fields of developmental psychopharmacology and developmental disabilities through systematic reading and critical analysis of recent research

with regard to safety, efficacy, and cost benefits

B. Knowledge and understanding of systematic controlled clinical research including clinical trials, single subject designs

C. Theoretical models of central nervous system mechanisms

Content Areas

A. Research preparation

1. Literature retrieval strategies
2. Pharmacological retrieval strategies and databases
3. Research strategies for single case and group studies

B. Preclinical/clinical research

1. Theoretical models of mechanisms of disorder
2. Models of drug development
3. Measurement and design strategies
4. Safety/abuse liability

C. Conducting of clinical research

1. Acute trials
2. Long-term followup trials
3. Developmental issues
4. Multimodal trials
5. Consumer satisfaction
6. Cost-effectiveness
7. Meta-analytic strategies

Learning Resources

- Aman, M. G. (1984). Drugs and learning in mentally retarded persons. Advances in Human Psychopharmacology, 3, (pp. 121-163).
- Aman, M. G. (1991). Assessing psychopathology and behavior problems in persons with mental retardation: A review of available instruments. (DHHS Publication No. ADM 91-1712). Rockville, MD: U.S. Department of Health and Human Services.
- Aman, M. G., & Kern, R. A. (1989). Review of fenfluramine in the treatment of the developmental disabilities. Journal of the American Academy of Child and Adolescent Psychiatry, 28, (pp. 549-565).
- Aman, M. G., & Kern, R. A., McGhee, D. E., & Arnold, L. E. (1993). Fenfluramine and methylphenidate in children with mental retardation and ADHD: Clinical and side effects. Journal of the American Academy of Child and Adolescent Psychiatry, 32, (pp. 851-859).
- Aman, M. G., Sarpfhere, G., & Burrow, W. H. (1995). Psychotropic drugs in group homes: Prevalence and relation to demographic/psychiatric variables. American Journal on Mental Retardation, 99, (pp. 500-509).
- Aman, M. G., & Singh, N. N. (1988). Psychopharmacology of the developmental disabilities. New York: Springer-Verlag.
- Baumeister, A. A., Todd, M. E. & Sevin, J. A. (1993). Efficacy and specificity of pharmacological therapies for behavioral disorders in persons with mental retardation. Clinical Neuropharmacology, 16, (pp. 271-294).
- Bezchlibnyk-Butler, K. Z., Jeffries, J. J., & Martin, B. A. (Eds.). (1989). Clinical handbook of psychotropic drugs. Seattle: Hogrefe & Huber.
- Bodfish, J. W., & Madison, J. T. (1993). Diagnosis and fluoxetine treatment of compulsive behavior disorder of adults with mental retardation. American Journal on Mental Retardation, 98, (pp. 360-367).
- Boyd, R. D. (1993). Neuroleptic malignant syndrome and mental retardation: Review and analysis of 29 cases. American Association on Mental Retardation, 98, (pp. 143-155).
- Campbell, M., Anderson, L. T., Meier, M., Cohen, I. L., Small, A. M., Samit, C., & Sachar, B. J. (1978). A comparison of haloperidol and behavior therapy and their interaction in autistic children. Journal of the American Academy of Child Psychiatry, 17, (pp. 640-655).
- Chadsey-Rusch, J., & Sprague, R. L. (1989). Maladaptive behaviors associated with neuroleptic drug maintenance. American Journal on Mental Retardation, 93, (pp. 607-617).

- Cook, E. H. J., Rowlett, R., Jaselskis, C., & Leventhal, B. L. (1992). Flouxetine treatment of children and adults with autistic disorder and mental retardation. Journal of the American Academy of Child Psychiatry, 31, (pp. 739-745).
- Fankhauser, M. P., Karumanchi, V. C., German, M. L., Yates, A., & Karumanchi, S. D. (1992). A double-blind, placebo-controlled study of the efficacy of transdermal clonidine in autism. Journal of Clinical Psychiatry, 53, (pp. 77-82).
- Gadow, K. D. (1992). Pediatric psychopharmacotherapy: A review of recent research. Journal of Child Psychology and Psychiatry, 33, (pp.153-195).
- Gadow, K. D. & Poling, A. (1988). Pharmacotherapy and mental retardation. Boston: Little Brown.
- Garber, H. J., McGonigle, J. J., Slomka, G. T., & Monteverde, E. (1992). Clomipramine treatment of stereotypic behaviors and self-injury in patients with developmental disabilities. Journal of the American Academy of Child and Adolescent Psychiatry, 31, (pp. 1,157-1,160).
- Gross, E. J., Hull, H. G., Lytton, G. J., Hill, J. A., & Piersel, W. C. (1993). Case study of neuroleptic-induced akathisia: Important implications for individuals with mental retardation. American Journal on Mental Retardation.
- Handen. B. L., Breaux, A. M., Gosling, A., Ploof, D. L., & Feldman, H. (1990). Efficacy of methylphenidate among mentally retarded children with attention deficit hyperactivity disorder. Pediatrics, 86, (pp. 922-930).
- Handen. B. L., Feldman, H., Gosling, A., Breaux, A. M., & McAuliffe, S. (1991). Adverse side effects of Ritalin among mentally retarded children with ADHD. Journal of the American Academy of Child and Adolescent Psychiatry, 30, (pp. 241-245).
- Hill, B. K, Balow, E. A. & Bruininks, R. H. (1985). A national study of prescribed drugs in institutions and community residential facilities for mentally retarded persons. Psychopharmacology Bulletin, 21, (pp. 279-284).
- Kalachnik, J. E., & Sprague, R. L. (1993). The Dyskinesia Identification System Condensed User Scale (DISCUS): Reliability, validity, and a total score cut off for mentally ill and mentally retarded populations. Journal of Clinical Psychology, 49, (pp. 177-189).
- Kalachnik, J. E., Sprague, R. L., & Kalles, R. (1991). Tardive dyskinesia monitoring and the Dyskinesia Identification System Condensed User Scale (DISCUS). East Hanover, NJ: Sandoz.
- King, B. H. (1993). Self-injury by people with mental retardation: A compulsive behavior hypothesis. American Journal on Mental Retardation, 98, (pp. 93-111).

- Lewis, M. H., Aman, M. G., Gadow, K. D., Schroeder, S. R., & Thompson, T. Psychopharmacology. In J. Jacobson & J. Mulick (Eds.), Manual of Diagnosis and Professional Practice in Mental Retardation. (In Press).
- Lewis, M. H., Bodfish, J. W., Powell, S. B. & Golden, R. N. (1995). Clomipramine treatment for stereotypy and related repetitive movement disorders associated with mental retardation. American Journal on Mental Retardation, 11, (pp. 299-312).
- Lewis, M. H., & Mailman, R. B. (1988). Psychotropic drug blood levels: Measurement and relation to behavioral outcome in mentally retarded persons. In M. Aman & N. Singh (Eds.) Psychopharmacology of the developmental disabilities. New York: Springer-Verlag (pp. 58-81).
- Lewis, M. H., Steer, R. A., Favell, J., McGimsey, J., Clontz, L., Trivette, C., Jodry, W., Schroeder, S., Kanoy, R., & Mailman, R. B. (1986). Thioridazine metabolism and effects on stereotyped behavior in mentally retarded patients. Psychopharmacology Bulletin, 22, (pp. 1040-1044.)
- Markowitz, P. I. (1992). Effect of fluoxetine on self-injurious behavior in the developmentally disabled: A preliminary study. Journal of Clinical Psychopharmacology, 12, (pp.27-31).
- McDougle, C. et al. (1995). Risperidone in adults with autism or pervasive developmental disorder. Child & Adolescent Psychopharmacology, 5, (pp. 273-282).
- McDougle, C.J., Price, L. H., Volkmar, F. R., Goodman, W. K., Ward O'Brien, D., Nielsen, J., Bregman, J., & Cohen, D. J. (1992). Clomipramine in autism: Preliminary evidence of efficacy. Journal of the American Academy of Child and Adolescent Psychiatry, 31, (pp.746-750).
- Poling, A. & LeSage, M. (1995). Evaluating psychotropic drugs in people with mental retardation: Where are the social validity data? American Journal on Mental Retardation, 100, (pp. 193-200).
- Ratey, J. J. (Ed). (1991). Mental retardation: Developing pharmacotherapies. Washington, DC: American Psychiatric Press, Inc.
- Ratey, J. J., Sovner, R., Parks, A., & Rogentine, K. (1991). Buspirone treatment of aggression and anxiety in mentally retarded patients: A multiple baseline placebo lead-in study. Journal of Clinical Psychiatry, 52, (pp. 159-162).
- Reiss, S. (1988). the Reiss Screen for Maladaptive Behavior. Orland Park, IL: International Diagnostic Systems.

- Sachdev, P. (1994). Research diagnostic criteria for drug-induced akathisia: Conceptualization, rationale, and proposal. Psychopharmacology, 14, (pp. 181-186).
- Sandman, C. A., Hetrick, W.P., Taylor, D.V., et al. (1993). Naltrexone reduces self-injury and improves learning. Experimental & Clinical Psychopharmacology, 1, (pp. 242-258).
- Schaal, D. W. & Hackenberg, T. (1994). Toward a functional analysis of drug treatment for behavior problems of people with developmental disabilities. American Journal on Mental Retardation, 99, (pp. 123-140).
- Schroeder, S. R. et al. (1995). Clinical trials of D1 and D2 dopamine modulating drugs and self-injury in mental retardation and developmental disability. Mental Retardation and Developmental Disabilities Research Reviews, 1, (pp. 120-129).
- Schroeder, S. R., Lewis, M. H., & Lipton, M. A. (1983). Interactions of drugs with behavior management among learning and behaviorally disordered children. In K. D. Gadow & I. Bialer (Eds.). Advanced in learning and behavioral disabilities (Vol. 2) (pp. 179-225), Greenwich, CT: JAI Press, Inc.
- Sovner, R., Fox, C. J., Lowry, M. J., et al. (1993). Fluoxetine treatment of depression and associated self-injury in two adults with mental retardation. Intellectual Disability Research, 37, (pp. 301-311).
- Sovner, R., & Hurley, A. (1983). Do the mentally retarded suffer from affective illness. Archives of General Psychiatry, 40, (pp. 61-67).
- Spirrison, C. L., & Grosskopf, L. G. (1991). Psychotropic medication efficacy graphs: An application of applied behavior analysis. Mental Retardation, 29, (pp. 139-147).
- Sprague, R. L., & Kalachnik, J. E. (1991). Reliability, validity, and a total score cutoff for the Dyskinesia Identification System: Condensed User Scale (DISCUS) with mentally ill and mentally retarded populations. Psychopharmacology Bulletin, 27, (pp.51-58).
- Symons, F. J., Fox, N. E., Thompson, T. (1997, in press). Functional communication training and naltrexone treatment of self-injurious behavior. Journal of Applied Research and Intellectual Disabilities.
- Thompson, T., Hackenberg, T., Cerutti, D., Baker, D., & Axtell, S. (1994). Opioid antagonist effects on self-injury in adults with mental retardation: Response form and location as determinants of medication effects. American Journal on Mental Retardation, 99, (pp. 85-102).
- Thompson, T., & Gray, D. B. (Eds.). (1994). Destructive behavior in developmental disabilities. Newbury Park, CA: Sage Publications, Inc.

Thompson, T., Schaal, D. W. & Hackenberg, T. D. (1991). Pharmacological treatments for behavior problems in developmental disabilities. In Treatment of destructive behaviors in persons with developmental disabilities (pp. 343-440), NIH Publication No. 91-2410. Bethesda, MD: Department of Health and Human Services.

Thompson, T., Symons, F., Delaney, D., & England, C. (1995) Self-injurious behavior as endogenous neurochemical self-administration. Mental retardation and developmental disabilities research reviews, 1, (pp. 137-148).

White, M. J., et al. (1995). Diagnostic overshadowing and mental retardation: A meta-analysis. American Journal on Mental Retardation, 100, (pp. 293-298).

Vignettes

- A. Roger M. is a 17-year old young man with moderate mental retardation of unknown origin. Though he was slow in his developmental milestones, Roger developed basic skills (self-feeding, dressing, toileting) and limited language. His mother is of low normal intellectual ability who works in a hotel in the housekeeping department. She expresses frequent unhappiness about her lot in life, but has no major mental health problems. His father is an unskilled laborer who has held odd jobs over his adult life, usually being laid off or quitting because he didn't get along with fellow workers or supervisors. His father will not attend staffings and it is difficult to know whether he has received a psychological or psychiatric evaluation. Roger has one older sister who is single, and lives in a city across the country. She works night shifts in a hospital as an aide, and rarely visits Roger or the rest of the family, and is thought to be something of a loner.

Roger lives in a community residence with 7 other adults with mental retardation. He works in a workshop and has intermittently been tried in supported employment settings, but fails due to his behavior problems. His primary reason for referral for psychotropic medication evaluation is his violent outbursts, including striking others with his fists and occasionally biting other people. Roger prefers to be in his room alone most of the time he is at home. He sits and smokes cigarettes in his room and stares out the window. At other times he sits and talks to himself, and occasionally is seen in a very agitated state during these self-conversations, sometimes sobbing uncontrollably. When he is encouraged to participate in activities with the other residents, he loudly tells the staff to leave him alone. At work, he tends to work at the end of the table and resists sitting next to other workers. Sometimes when his supervisor gives him instructions he appears not to hear them, and goes on doing what he was doing without regard to instructions. At other times he verbally lashes out at his supervisor. Occasionally, when his supervisor picks up the parts he is working on to inspect them, Roger grabs the supervisor's arm and bites him.

The staff leave him alone most of the time. Most are afraid of his violent outbursts. When he has an outburst, the staff says he is "like a wild animal." In the last six months, he has averaged 1.2 physical outbursts per week, and 4.3 milder aggressive verbal outbursts and threats per week. He has been treated with Inderal (120 LA), Haldol (4 mg/day), Prozac (40 mg/day), and Buspar, none of which were associated with a significant improvement in his outbursts. The staff in the group home thinks he should be moved to the nearby state institution because of his violent outbursts.

- B. Mary P is a 43-year old woman who has resided in a community residential facility for disabled adults for the past 5 years. Her cognitive functioning falls within the mild range of mental retardation, evidenced by her performance on the WAIS-R (full scale IQ, 56; verbal IQ, 61; performance IQ, 59). Adaptive functioning is more significantly compromised with a social age equivalent of 9 years achieved on the Vineland. Mary has had long-standing difficulties with impulse control (kleptomania, verbal and physical aggression, temper tantrums, self-abuse, sexual exhibitionism, and inappropriate touching). These difficulties have

been attributed to organic deficits secondary to brain damage sustained at birth due to anoxia. In addition, at the age of 5, Mary developed a seizure disorder and she receives anticonvulsant medication. She has one younger sibling, a brother (age 39) who is a physician. Both parents are in good health and remain actively involved in Mary's life. Family visits are significant in Mary's life, although the transitions to her current residence remain difficult, and behavioral problems typically intensify after extended visits with her parents.

Mary receives lithium, depakene, and dilantin, as well as vitamin supplements. Although some improvement has been noted in intensity of mood swings, verbal and physical aggression, property destruction, self-abuse, and temper tantrums continue to recur. Mary is verbally abusive to staff, frequently cursing at them or threatening physical harm. Although the frequency of physical aggression has diminished to two to three times per year, Mary's daily verbal hostility alienates others. She scratches her chest and bangs her head against the wall. On occasion, Mary has sustained serious bodily harm from self-injury, i.e., breaking a glass window with her fist after returning from a family visit.

Behavioral techniques implemented to date have included: time-out, social isolation, verbal reprimands, and loss of privileges. On the whole, the frequency of behavioral incidents has remained somewhat constant, though the intensity has gradually been decreased. It is not clear whether this change is a function of behavioral interventions, medical treatment, or to the overall adjustment to residential and vocational life at the community residential facility. However, the daily incidents continue to pose serious problems for Mary.

- C. Roberta J. is a 45-year old African-American woman with a VIQ of 65 and an FSIQ of 60. Ms. Jones is nonambulatory but wheelchair mobile. Sensorium is intact and functional. She feeds herself and is toilet trained, but requires some assistance with personal care tasks due to left hemiparesis/dystonia. She initiates social interaction with others and speaks in full sentences. She is also able to read some.

Roberta J. had a relatively normal life until 8 years of age when she suffered closed head injury in an automobile accident resulting in left hemiparesis/dystonia. She was in a coma for 4 months following the accident. When she emerged from the coma, she was unable to walk, talk, toilet, or feed herself. During the next eleven years, she gradually regained speaking, walking, toileting, and self-feeding skills. At age 27, Roberta's adaptive skills began to deteriorate and behavior problems (e.g., aggressiveness) emerged, resulting in a psychiatric hospitalization. Since that time, there have been other psychiatric hospitalizations and numerous brief nursing home admissions.

Roberta has displayed recurrent depression, suicidal ideation, pica, unauthorized departure, inappropriate sexual behavior, public undressing, sleep disturbances, verbal aggression, and aggression toward others. Roberta's mother reports that Roberta has a history of recurring brief periods of psychomotor retardation coupled with mutism. Her mother further reports incidents of extreme violence when Roberta has attempted to kill other family members when

having an outburst of rage. Roberta attacked others with knives, hands, feet, or other weapons. Roberta's history includes years of sexual exploitation by others and one known rape.

Roberta is either hyperactive, hypertalkative, hypersexual, and aggressive when receiving psychoactive or unresponsive to social stimuli, mute, motionless, and with a masklike stare when drug-free.

- D. Lois R. is a 25-year old Hispanic woman residing in a three person group home. She was born at home without complications in a rural area of a Southwestern state. The possible cause of her mental retardation is an episode of spinal meningitis when she was 3- years old. Lois was briefly enrolled in elementary school, but withdrawn for behavioral reasons. Prior to moving to a group home, Lois lived with her mother and father. Her father died in May of 1988, and her mother shortly thereafter. Lois has a history of self-injurious behavior, hitting herself and biting her arms. Lois's IQ is in the upper 20s with severe adaptive deficits. She has no physical impairment. She is primarily Spanish speaking, but understands English.

Lois exhibits SIB for attention and to avoid tasks that are difficult for her. Lois craves attention and will often exhibit behavior problems to obtain attention. She also exhibits these behavior problems if favorite staff are attending to other clients and not her. Lois doesn't like going to the workshop; she doesn't like interaction with other clients; she doesn't like noisy situations. Within her home and workshop environments, she avoids tasks or routines through these disruptive behaviors. Lois's SIB is highly episodic. She will at times go several months without incident. There appears to be seasonal escalations in early winter and late spring. Behavioral intervention strategies, environmental manipulations, and restraint have been used with no success.

- E. Jack W. is a 14-year old ward of the state. His mother has mental retardation. He lived with his grandmother until he was removed five years ago due to physical abuse. He then lived with a foster family until he was placed in a private group home facility. The group home includes five other adolescents his age with similar backgrounds and disadvantages. He has been diagnosed as having a seizure disorder and has mild scoliosis. Jack's full scale IQ measures 58, with performance well above verbal IQ. He currently receives Depakeke syrup 1 1/2 BID and Imipramine 25 mg 1 capsule BID.

Jack exhibits occasional dangerous and unpredictable behavior. He is verbally and physically aggressive. These aggressions include extreme cursing; refusal to take medications; refusing to participate in daily active training; running into traffic on a nearby, extremely busy highway; teasing; chasing; cursing; biting; hitting; threatening other residents; stealing knives from the kitchen drawers and threatening to cut staff and other residents. He also exhibits property destruction like throwing rocks at windows, knocking pictures off walls, scratching paint off walls, and tearing his own clothes. Staff has tried verbal re-direction; removal from undesirable situations; offering choices of activities; rewarding positive behavior, and verbal praise. Staff also uses physical restraints as a last resort.