



**PEP Performance:
Postdoctoral Psychopharmacology Training Programs
2000–2007**

Prepared by



P · E · S

Professional Examination Service
475 Riverside Drive – Suite 600
New York, NY 10115-0089

© 2007 by the APA Practice Organization. All rights reserved.

No part of this document may be reproduced in any form without the permission in writing of the APA Practice Organization. For information contact: APA Practice Organization, 750 First Street, NE, Washington, DC 20002-4242.

© 2007 by the APA Practice Organization. All rights reserved. No part of this document may be reproduced in any form without the permission in writing of the APA Practice Organization. For information contact APA Practice Organization, 750 First St., NE, Washington, DC 20002-4242

TABLE OF CONTENTS

FOREWORD	3
THE PURPOSE OF THE PEP	4
TEST CONSTRUCTION	5
TEST CONTENT AND ADMINISTRATION	6
KNOWLEDGE-BASED CONTENT OUTLINE OF THE PEP.....	7
FURTHER INFORMATION	15
PEP PERFORMANCE BY POSTDOCTORAL TRAINING PROGRAM	16

FOREWARD

The American Psychological Association Practice Organization's College of Professional Psychology is pleased to present the first edition of the *PEP Performance: Postdoctoral Psychopharmacology Training Programs*.

Data included reflect the performance of candidates who have completed postdoctoral psychopharmacology training programs and have taken the Psychopharmacology Examination for Psychologists, An Examination for Practitioners (PEP). The listing of postdoctoral psychopharmacology training programs is accompanied by statistical information for examinations taken January, 2000 through June, 2007. The information includes the number of tests taken by graduates from each program, the mean and standard deviation for the overall scores, and the mean scores for each of the ten knowledge areas. Programs with less than three graduates taking the PEP are not included to maintain candidate confidentiality.

We sincerely hope that this document will prove useful to postdoctoral psychopharmacology training programs and to practicing psychologists considering training. We very much appreciate your interest in performance on the PEP. Correspondence should be sent to the APA Practice Organization, College of Professional Psychology at the address below.

Katherine Nordal, PhD
Chair, Committee for the
Advancement of Professional
Psychology
APA Practice Organization

Russ Newman, PhD, JD
Executive Director
APA Practice Organization

Robert H. Lipkins, PhD
PEP Program Director
Professional Examination Service

I. Leon Smith, PhD
President and CEO
Professional Examination Service

Mailing Address:
APA Practice Organization
College of Professional Psychology
750 First Street, NE
Washington, DC 20002

THE PURPOSE OF THE PEP

The Psychopharmacology Examination for Psychologists, An Examination for Practitioners (PEP), developed by the APA Practice Organization's College of Professional Psychology, is provided to state and provincial boards of psychology to assist them in evaluating psychologists applying for certification to prescribe. This standardized examination is constructed by the Practice Organization's College of Professional Psychology with the assistance of Professional Examination Service (PES). The PEP is administered continuously in computerized delivery format through the Prometric network of computer testing centers. Prometric maintains a network of approximately 320 Prometric Technology Centers in the U. S. and Canada in order to provide access to computer-based testing for customers. The PEP is not available in paper and pencil format.

The PEP is only one part of the evaluation of a psychologist's competence to prescribe psychotropic medications. Licensing boards typically require specific psychopharmacology education and training in addition to the PEP. The PEP is designed to evaluate the psychopharmacology knowledge that is required for the safe and effective practice of psychology involving psychotropic medications. Candidates taking the PEP have obtained a doctoral degree, are licensed to practice psychology and have completed a postdoctoral training program in psychopharmacology. Such candidates are expected to have acquired the requisite knowledge base which is assessed through the candidate's responses to objective, multiple-choice questions representative of the practice of psychology involving psychopharmacology.

Neither the APA Practice Organization nor PES provides copies of the PEP to candidates. The APA Practice Organization's College of Professional Psychology publishes the detailed knowledge domains tested as part of its application materials. Tips for taking the PEP and samples of question formats used on the PEP are also included in application materials.

TEST CONSTRUCTION

The PEP is developed by the APA Practice Organization's College of Professional Psychology Expert Working Group in Psychopharmacology and Professional Examination Service (PES). The examination development process maximizes the content validity of the examination. A brief outline of the process follows:

1. Items are written in advance of and during Item Development Workshops conducted periodically. These workshops, attended by subject-matter experts in psychopharmacology, are led by PES staff with expertise in item development and psychometrics. This staff provides training and guides the development and validation of new items.
2. All items are reviewed and validated by subject-matter expert teams at Item Development Workshops. Items are evaluated for subject-matter accuracy, relevance, professional level of mastery, contribution to public protection, and freedom from bias.
3. Items judged to be of sufficient quality by subject-matter experts then receive editorial and psychometric review by PES staff to ensure conformity to established psychometric principles and PEP Style Guidelines.
4. Items that are approved by subject-matter experts at Item Development Workshops and by PES staff are then entered into the PEP item bank.
5. A draft examination is constructed by PES psychologists. This draft is constructed on the basis of a content outline derived from a job analysis and a role delineation study of the practice of psychology involving psychopharmacology. At a meeting of the Expert Working Group, the preliminary draft is reviewed on an item-by-item basis. Items are reviewed, validated and replaced with bank items in accordance with the test specifications and the Expert Working Group's judgment.
6. PES constructs a second draft of the examination in accordance with the Expert Working Group's recommendations. Items are again edited and reviewed by PES staff.
7. The second draft of the examination is reviewed on an item-by-item basis. Group members use their content expertise and item statistics to draft a final form of the examination.
8. PES constructs a final form of the examination on the basis of the Expert Working Group's second review and comments. The final form of the examination is made available on the Prometric system at more than 320 testing centers in the U. S. and Canada.

TEST CONTENT AND ADMINISTRATION

The PEP consists of objective multiple-choice questions covering knowledge essential to the safe and effective practice of psychology involving the prescribing of psychotropic medications or collaborating with those who prescribe. Each form of the examination contains 150 items. Each item has four suggested answers, only *one* of which is correct.

The PEP is administered by computer under standardized conditions at approximately 320 Prometric Technology Centers in the United States and Canada in accordance with procedures approved by the APA Practice Organization's College of Professional Psychology and made available at each testing center. Candidates with documented disabilities or impairments who wish to be tested under nonstandard conditions can do so in accordance with procedures published by the College of Professional Psychology in the PEP application materials.

A candidate's score on the PEP is based on the total number of correct responses. Therefore, it is to the candidate's advantage to answer every item, even when uncertain of the correct response. There is no penalty for incorrect answers.

Prometric reports scores on the PEP to the APA Practice Organization's College of Professional Psychology. The College then reports the scores to the candidate. Scores are provided to licensing jurisdictions, to psychopharmacology training programs, and to other entities only upon written instruction from the examinee.

All procedures and decisions with regard to the authority to prescribe are the responsibility of, and fully within the authority of, licensing boards. Any questions about these procedures and decisions should be directed to the appropriate licensing board.

KNOWLEDGE-BASED CONTENT OUTLINE

The knowledge sampled by the PEP is organized into 10 Knowledge-Based Content Areas with associated definitions and knowledge statements. The 10 content areas are represented on the PEP according to the percentages indicated after the title for the area. For example, 15% of the items (22-23 items out of the 150) are drawn from Content Area 1, 8% from Content Area 2 (12 items out of the 150), etc. Percentages reflect the relative importance of each category for safe and effective practice as well as the amount of knowledge each category contains.

Please bear in mind that the PEP samples from the content areas. Thus, not every knowledge statement, nor each and every possible aspect of any specific content area, may be represented on the PEP.

CONTENT AREA DEFINITIONS AND KNOWLEDGE STATEMENTS

Validated for Inclusion in the Psychopharmacology Examination for Psychologists (PEP)

Content Area 1: Integrating clinical psychopharmacology with the practice of psychology (15%)

Refers to the implementation of clinical practices of biopsychosocial assessment, multiaxial diagnosis, and treatment, including pharmacotherapy, in the context of a complex of factors influencing functioning. These factors include biological (e.g., genetic, sex, age, disease), psychological (e.g., cognitive, emotional, dynamic, motivational, behavioral), psychosocial (e.g., gender, cultural/ethnic, interpersonal), and ecological/environmental factors.

- 1 Knowledge of biopsychosocial variables as determinants of medication effects (e.g., family history, differential familial medication response, patient belief systems, economics, social support, current environmental circumstances)
- 2 Knowledge of relative effects of psychopharmacological and psychological interventions as sole, additive, or interactive treatments for given disorders
- 3 Knowledge of limitations and value of single-treatment modalities, combined interventions (i.e., medication employed alone or in conjunction with a psychological therapy), and patient perceptions (e.g., attributions of therapeutic and adverse effects, psychological meaning of medication, motivations, treatment expectations)
- 4 Knowledge of timing and sequencing of interventions to achieve maximum treatment effectiveness, including importance of patient instruction
- 5 Knowledge of practitioner-patient relationship, including its impact on medication adherence, efficacy, adverse effects, and response to side effects, and implications for the relationship when physical and pharmacological interventions are utilized
- 6 Knowledge of the development and implementation of a coherent and organized treatment plan of psychological and pharmacological intervention
- 7 Knowledge of case and medication management techniques to enhance adherence to treatment plan (e.g., biological and psychological principles relevant to adherence, communication skills, patient education techniques, cultural competence)
- 8 Knowledge of pharmacoeconomics/cost issues in treatment planning

Content Area 2: Neuroscience (8%)

Refers to the anatomy, physiology, and biochemistry of the nervous system and its interfaces with other major body systems.

- 1 Knowledge of the structure and function of nervous system cells

- 2 Knowledge of the structure and function of the central and peripheral nervous systems
- 3 Knowledge of the major neuronal pathways and their functions, including second messenger systems
- 4 Knowledge of the vascular supply of the brain, and the blood-brain and placental barriers
- 5 Knowledge of cellular and molecular nervous system biology and regulatory processes
- 6 Knowledge of major neurotransmitter and neuromodulator synthesis, storage, release, distribution throughout the brain and the rest of the body, action, reuptake, and degradation
- 7 Knowledge of neuropeptides (e.g., enkephalin, endorphin, substance P)
- 8 Knowledge of the endocrine system and the interface of various hormones and other neurotransmitters

Content Area 3: Nervous system pathology (9%)

Refers to disorders of the nervous system resulting in abnormal function or behavioral/mood disruption. Includes biochemical, structural (congenital or acquired), or neurophysiological abnormalities and their impact on other body systems.

- 1 Knowledge of etiological factors and diagnoses of dementia, delirium, and other cognitive disorders
- 2 Knowledge of etiological factors and diagnosis of chronic pain, including headache (e.g., differentiation of pain syndromes with primarily nervous, musculoskeletal, and tension-related etiology)
- 3 Knowledge of etiological factors and diagnosis of sleep disorders as related to the nervous system and psychopathology
- 4 Knowledge of etiological factors and diagnosis of movement disorders (e.g., including Parkinson's, Huntington's, and Tourette's syndromes)
- 5 Knowledge of etiological factors and diagnosis of mental retardation
- 6 Knowledge of etiological factors and diagnosis of neurodevelopmental disorders (e.g., fetal alcohol syndrome, pervasive developmental disorders, Fragile-X syndrome)
- 7 Knowledge of etiological factors and diagnosis of central nervous system vascular disorders (e.g., cerebral vascular accidents [CVAs], transient ischemic attacks [TIAs])
- 8 Knowledge of etiological factors and diagnosis of seizure disorders
- 9 Knowledge of traumatic brain injury
- 10 Knowledge of other nervous system pathology (e.g., multiple sclerosis, infectious diseases, neoplasms)
- 11 Knowledge of neurobehavioral/psychological disorders that have an hypothesized neuropathological basis (e.g., schizophrenia, affective disorders, anxiety, ADHD)
- 12 Knowledge of basic neurodiagnostic markers of neurobehavioral disorders (e.g., as found on EEG and diagnostic imaging, and in neuropsychological assessment)
- 13 Knowledge of the mechanism of extrapyramidal dysfunction (e.g., dystonic reactions and tardive dyskinesia)

Content Area 4: Physiology and pathophysiology (9%)

Refers to normal physiology and pathophysiology across the life span, and to their impact on psychological functioning and psychopharmacology.

- 1 Knowledge of indications for referral to other health care providers for treatment or additional assessment
- 2 Knowledge of basic cardiovascular system physiology and pathophysiology across the life span (e.g., rhythm and rate disorders such as prolonged QT interval)
- 3 Knowledge of interrelationships between cardiovascular functioning and (a) psychopharmacology (e.g., EKG changes secondary to TCAs, blood pressure changes secondary to psychotropics, beta blockers, and depression), and (b) psychopathology (e.g., mitral valve prolapse related to panic disorder, tachycardia related to generalized anxiety disorder)
- 4 Knowledge of basic pulmonary system physiology and pathophysiology across the life span
- 5 Knowledge of interrelationships between pulmonary functioning and (a) psychopharmacology (e.g., theophylline and anxiety, beta blockers and asthma), and (b) psychopathology (e.g., hypoxia versus dementia)
- 6 Knowledge of basic renal/genitourinary system physiology and pathophysiology across the life span (e.g., effect of electrolyte imbalance on mental status)
- 7 Knowledge of interrelationships between renal/genitourinary functioning and (a) psychopharmacology (e.g., effect of psychotropic substances on urinary/sexual functioning), and (b) psychopathology (e.g., urinary tract infection and mental status changes in the elderly)
- 8 Knowledge of basic hepatic system physiology and pathophysiology across the life span (e.g., first-pass metabolism, disorders affecting first-pass metabolism)
- 9 Knowledge of interrelationships between hepatic functioning and (a) psychopharmacology (e.g., the interaction between psychotropics and liver enzymes, such as the cytochrome P450 system), and (b) psychopathology (e.g., metabolic encephalopathy and delirium; carcinoid tumor and anxiety)
- 10 Knowledge of basic endocrine system physiology and pathophysiology across the life span (e.g., relationship between thyroid function tests and hypothyroidism and hyperthyroidism)
- 11 Knowledge of interrelationships between endocrine functioning and (a) psychopharmacology (e.g., elevated prolactin and antipsychotic medications), and (b) psychopathology (e.g., hormonal disequilibrium and perimenstrual dysphoria, depression and Cushing's disease)
- 12 Knowledge of basic hematological system physiology and pathophysiology across the life span
- 13 Knowledge of interrelationships between hematological functioning and (a) psychopharmacology (e.g., agranulocytosis and clozapine, thrombocytopenia and carbamazepine), and (b) psychopathology (e.g., anemia and depression)
- 14 Knowledge of basic muscular/skeletal/dermatologic system physiology and pathophysiology across the life span (e.g., hypercalcemia and depression)
- 15 Knowledge of interrelationships between muscular/skeletal/ dermatologic functioning and (a) psychopharmacology (e.g., alopecia and valproic acid), and (b) psychopathology (e.g., OCD and trichotillomania)
- 16 Knowledge of basic immunologic/rheumatology system physiology and pathophysiology across the life span (e.g., systemic lupus erythematosus [SLE])
- 17 Knowledge of interrelationships between immunologic/ rheumatologic functioning and (a)

psychopharmacology, and (b) psychopathology (e.g., SLE and depression, fibromyalgia and depression, AIDS-related dementia)

- 18 Knowledge of interface of psychological, physiological, and behavioral factors and their relationship in complex behaviors and processes involving multiple body systems (e.g., psychoneuroimmunology, sexual functioning)
- 19 Knowledge of relationship of complex behaviors involving multiple body systems with (a) psychopharmacology (e.g., sleep disruption secondary to antidepressant medication), and (b) psychopathology (e.g., sexual dysfunction and depression)

Content Area 5: Biopsychosocial and pharmacologic assessment and monitoring (10%)

Refers to a range of biopsychosocial (psychological, neurological, behavioral, physical, biomedical) and pharmacologic assessment techniques and procedures for baseline and ongoing evaluation of the individual's physical and psychological health status as well as the assessment of therapeutic efficacy, adverse effects, contraindications for usage, drug interactions, and appropriateness for medication continuation, modification, or discontinuation.

- 1 Knowledge of psychological assessment and history taking procedures (e.g., comprehensive individual and family medical and mental health history, dietary habits, mental status, and behavioral assessments)
- 2 Knowledge of basic physical and neurological examination procedures
- 3 Knowledge of normal laboratory values in screening, assessment, and monitoring techniques, and the implication of disease states, sample timing, and medications on those values
- 4 Knowledge of laboratory tests and assessment procedures indicated for general assessment (e.g., basic screening panel), appropriate for use with special populations (e.g., females, individuals 5 Knowledge of medication-specific therapeutic drug monitoring, and indications for monitoring of experiencing first psychotic break), or before prescribing particular medications (e.g., lithium)
- 5 Knowledge of medication-specific therapeutic drug monitoring, and indications for monitoring of clinical laboratory values (e.g., TCA levels, renal functioning in lithium use)
6. Knowledge of behavioral assessment methods (e.g., rating scales, direct observation of behaviors, parent/teacher/self report) in baseline and ongoing monitoring of therapeutic effectiveness, quality of life, and adverse effects of psychopharmacological agents (e.g., tardive dyskinesia with antipsychotics, sexual dysfunction with antidepressants)
7. Knowledge of techniques for differential diagnosis and indications for referral to other health care providers based on identification by abnormal biopsychosocial or pharmacological evaluation measures
8. Knowledge of intellectual and neuropsychological assessment as it pertains to aiding diagnosis (e.g., depression versus dementia), indications for medication regimens, and ability to provide informed consent

Content Area 6: Differential diagnosis (13%)

Refers to the use of comprehensive diagnostic information about a patient to establish an accurate diagnosis from among possible medical and psychological diagnoses in order to select appropriate treatment modalities and determine appropriateness of referral to other health care providers.

- 1 Knowledge of medical disorders that present as psychological disorders (e.g., ADHD versus PKU versus autism, anxiety versus Graves' disorder)
- 2 Knowledge of psychological disorders that present as medical disorders (e.g., factitious disorders, somatization disorders)

- 3 Knowledge of psychological signs and symptoms (e.g., mental status changes, memory dysfunction, depression, psychosis) secondary to substances of abuse, prescribed and over-the-counter [OTC] medications, supplements, and alternative treatments (e.g., St. John's wort, steroids)
- 4 Knowledge of varied presentations of psychological disorders in different populations (e.g., depression versus dementia in the elderly, ADHD versus anxiety in children, mania versus paranoid schizophrenia in African Americans)
- 5 Knowledge of the use of psychological testing, physical and laboratory assessment, and medication response to clarify diagnostic dilemmas (e.g., mania versus cocaine abuse versus hyperthyroidism versus theophylline overdose)
- 6 Knowledge of psychopharmacological implications for mental health disorders with overlapping symptomatology (e.g., major depressive disorder with psychotic features, anxious depression)
- 7 Knowledge of dual diagnosis and co-morbid conditions (e.g., double depression, alcoholism and schizophrenia, depression with Parkinson's disease)
- 8 Knowledge of iatrogenic effects of medication versus primary symptoms of disease progression (e.g., akathisia versus anxiety; depression versus negative symptoms of schizophrenia; anticholinergic reactions versus dementia; medication-induced tremor, dystonic reaction, or tardive dyskinesia versus primary movement disorders)

Content Area 7: Pharmacology (12%)

Refers to the interactions of drugs with biophysiological systems; encompasses pharmacokinetics, pharmacodynamics, pharmacogenetics, and the epidemiology of various medications such as psychotropics, adjunctive agents, and other medications used in the practice of medicine, as well as substances of abuse, OTC products, and food and dietary supplements. The influence of cultural/ethnic factors, environmental factors, and responses of special populations are considered.

- 1 Knowledge of drug classifications for psychotropic and adjunctive medications (e.g., stimulants, sedatives, antidepressants, anticholinergics), other drugs used in the practice of medicine, OTC medications, and substances of abuse
- 2 Knowledge of biological factors affecting pharmacokinetics and pharmacodynamics
- 3 Knowledge of absorption (e.g., delayed-release preparations, rates of absorption after oral dosing or parenteral injection, area under the curve, timing with food intake)
- 4 Knowledge of distribution (e.g., plasma protein binding, influence of lipophilicity)
- 5 Knowledge of metabolism (e.g., drug metabolism, understanding of the substrate and inhibitors and inducers of the "family" of P450 enzymes, other enzymes outside the liver)
- 6 Knowledge of excretion (e.g., renal filtration rate, clearance of drugs)
- 7 Knowledge of importance of biological half-life in determining steady-state drug concentrations, dosing schedules, accumulation
- 8 Knowledge of drug properties and characteristics (e.g., therapeutic index, therapeutic blood levels/prescription doses, potency, bioavailability, efficacy, cognitive and behavioral manifestations of toxicity, dose-response relationships)
- 9 Knowledge of types of drugs and other agents interacting with receptors (e.g., direct and indirect agonists, antagonists, and inverse agonists)
- 10 Knowledge of drug-induced cellular adaptation (e.g., cellular signaling, ion channels, second messengers, neurotransmitter release, sensitivity, supersensitivity)

- 11 Knowledge of drug effects on genetic expression (e.g., down-regulation)
- 12 Knowledge of specific neurotransmitters, receptors, modulators, and neuropeptides
- 13 Knowledge of mechanisms of action of a range of therapeutic agents with particular focus on psychotropic and adjunctive medications
- 14 Knowledge of theoretical relationships thought to exist between neurotransmitter systems and psychopathological conditions based on known mechanisms of action and clinical observations (e.g., roles of serotonin in depression, dopamine in psychosis and substance abuse)
- 15 Knowledge of drug-drug and drug-food interactions for a range of medications as well as substances of abuse, and supplements and other OTC products
- 16 Knowledge of drug-induced disease, dysfunction, and adverse reactions (e.g., hepatotoxicity, agranulocytosis, dystonias)
- 17 Knowledge of genetic polymorphisms (e.g., ethnic and gender differences, differences in cytochrome P450 isoenzymes in drug metabolism)
- 18 Knowledge of familial patterns of drug response and toxicity
- 19 Knowledge of pharmacoepidemiology (e.g., epidemiology of psychotropic drug use)
- 20 Knowledge of tolerance, dependence, and withdrawal

Content Area 8: Clinical psychopharmacology (13%)

Refers to the application of pharmacology to the management of psychological/behavioral disorders. This includes indications, contraindications, dosing, adverse effects and toxicities of psychotropic and adjunctive medications, interactions with other medications (including other drugs used in medicine, for recreational purposes, and available for OTC purchase) as well as the management of adverse reactions, overdoses, and toxicities.

- 1 Knowledge of indications, contraindications, and off-label uses of various psychotropic and adjunctive medications
- 2 Knowledge of rationale for psychotropic medication selection, taking into account diagnoses, target symptoms, patient and family history, premorbid personality, demographics, comorbid medical conditions, existing medication regimen and potential for interactions, and differences among medications within classes of drugs
- 3 Knowledge of dosing, time course of therapeutic action and adverse effects; and patient factors that influence dose (e.g., weight, gender, ethnicity, age, concurrent disease)
- 4 Knowledge of therapeutic monitoring, augmentation strategies, and dose adjustment (e.g., titration, cross-taper, discontinuation)
- 5 Knowledge of routes of administration (e.g., oral, intramuscular, intravenous, inhalation) and differential response
- 6 Knowledge of specific drug toxicities, management of adverse reactions, including overdose, and indications for referral for appropriate medical care (e.g., acute allergic reaction, extrapyramidal symptoms, hypertensive crisis)
- 7 Knowledge of interactions of psychotropic and adjunctive medications with other medications (including other drugs used in medicine, for recreational purposes, and available for OTC purchase)
- 8 Knowledge of relapse prevention, maintenance, and prophylaxis (e.g., strategies for sustaining remission of substance abuse, ensuring treatment compliance, preventing

- recurrence of depression)
- 9 Knowledge of drug effects in special populations (e.g., developmentally disabled, elderly, pregnant or lactating women)
 - 10 Knowledge of pharmacological implications for comorbidity of age-related and disability-related disorders (e.g., overanxious disorder comorbid with ADHD)
 - 11 Knowledge of potential psychological and physiological manifestations of medications (including OTC drugs, supplements, and herbal substances) used for nonpsychological purposes (e.g., beta blockers, steroids)
 - 12 Knowledge of psychological and physiological manifestations of various recreational substances and treatment of intoxication or addiction, including strategies for assisted withdrawal, maintenance, and relapse prevention
 - 13 Knowledge of tolerance, cross-tolerance, dependence and withdrawal, sensitization/cross-sensitization with respect to specific medications, and the management strategies used to treat them
 - 14 Knowledge of drug-seeking behavior, and potential for abuse of prescription medications
 - 15 Knowledge of culturally appropriate educational techniques to inform patients about drug utilization, risks, benefits, potential complications, and alternatives to pharmacotherapy (e.g., procedures to enhance compliance, techniques to teach appropriate attribution and self-monitoring)

Content Area 9: Research (4%)

Refers to the methodology, standards, and conduct of research on psychoactive substances. The knowledge base facilitates research design and implementation, accurate data interpretation and communication, effective utilization of findings, the accumulation of scientific knowledge, and the improvement of the practice of clinical psychopharmacology.

- 1 Knowledge of psychopharmacological retrieval systems and data bases
- 2 Knowledge of research designs and analytic techniques used in psychopharmacological research (e.g., double-blind, drug washout, control groups, dose-response relationships, intent-to-treat analyses, endpoint analyses, within-subject and group designs, cross-over, use of “rescue” medications, and concurrent administration of other drugs [including OTC and nonpsychotropic medications])
- 3 Knowledge of the FDA drug development process (i.e., Phase I: Human Pharmacology; Phase II: Therapeutic Exploratory; Phase III: Therapeutic Confirmatory; Phase IV: Therapeutic Use)
- 4 Knowledge of measurement issues in psychopharmacological research (e.g., sample heterogeneity; sample size; random assignment of participants to treatment conditions; drug levels; outcome measures; standard monitoring procedures for side effects, adverse effects, and drug levels; interpretation issues; and interobserver reliability)
- 5 Knowledge of community and participatory research strategies to enhance the relevance of studies on ethnic/cultural and other underserved populations (e.g., use of community advisory boards, community involvement in research planning)
- 6 Knowledge of regulatory issues in psychopharmacological research (e.g., FDA regulations, informed consent, research ethics, Institutional Review Board [IRB], safety, abuse liability, follow-up, compassionate care)

- 7 Knowledge of how to critically review clinical research data and use the information for making treatment decisions
- 8 Knowledge of current status of research regarding specific medications

Content Area 10: Professional, legal, ethical, and interprofessional issues (7%)

Refers to knowledge of ethics, standards of care, laws, and regulations relevant to the practice of psychology involving psychopharmacology.

- 1 Knowledge of ethical codes and standards as they pertain to pharmacological practice and research (e.g., the APA Ethical Principles of Psychologists and Code of Conduct, APA Standards for Providers of Psychological Services, AERA/APA/NCME Standards for Educational and Psychological Testing, ASPPB Code of Conduct, Joint Commission on the Accreditation of Healthcare Organizations [JCAHO] Standards)
- 2 Knowledge of practice guidelines and standards of care for prescribing psychotropic medications (e.g., documentation requirements, nomenclature for writing prescriptions, written and verbal orders, elements of informed consent, patient education, institutional formulary restrictions, chemical restraints, Agency for Health Care Policy and Research [AHCPR] guidelines, National Institute of Mental Health [NIMH] consensus panel protocols, health care organization rules)
- 3 Knowledge of federal and state laws and statutes for prescribing psychotropic medications (e.g., FDA regulations, Medicare, controlled substance laws, specifics of psychologists' licensing laws, patient's rights)
- 4 Knowledge of issues involved in collaboration/ consultation with other health care providers who are also prescribers and/or psychotherapists (e.g., "ownership" of patients, when to refer or seek consultation, differences in theoretical orientation, triangulation, appropriate levels of disclosure)
- 5 Knowledge of provision of psychotropic medications within specific environments (e.g., structured and unstructured environments, classroom and home, correctional institutions, military, substance abuse facilities)
- 6 Knowledge of patient's rights (e.g., informed consent, right to refuse treatment, right to treatment within the least restrictive environment, duty to warn, and privileged communication)
- 7 Knowledge of issues regarding relationships with pharmaceutical companies (e.g., acceptance of gifts, revealing sources of funding and affiliations)

Note: The complex of factors influencing human functioning noted in Content Area 1, i.e., biological (e.g., genetic, sex, age, disease), psychological (e.g., cognitive, emotional, dynamic, motivational, behavioral), psychosocial (e.g., gender, cultural/ethnicity, interpersonal), and ecological/environmental factors should be considered as they apply across all knowledge areas.

FURTHER INFORMATION

To obtain application materials for the Psychopharmacology Examination for Psychologists (PEP), contact the APA Practice Organization's College of Professional Psychology online at <http://www.apapractice.org/apo/pracorg/pep.html#>, call 202-336-6100, or call toll-free 800-374-2723.

For information about procedures and requirements for prescriptive authority write to the psychology licensing board in the jurisdiction in which prescriptive authority is sought. Contact information for psychology licensing boards is available from the Association of State and Provincial Psychology Boards (ASPPB) on their website: <http://www.asppb.org/about/boardContactStatic.aspx>. A listing of addresses for psychology licensing boards is published annually in the June issue of the *American Psychologist*.

Professional Examination Service

for

American Psychological Association Practice Organization (APAPO) - PEP Exam
Training Program Report for All Candidates

Tested 11/1/2000 - 6/30/2007

Training Program	Number of Tests Taken	Mean Total Score	Standard Deviation	Integrating Clin. Psychology	Neuro-science	Nervous System Pathology	Physiology Pathophysiology	Biopsychosocial / Monitoring	Differential Diagnosis	Pharmacology	Clinical Psychopharmacology	Research	Professional / Legal / Ethical
Alliant International University (All campuses), CA	74	110.08	13.90	16.15	8.96	8.25	8.46	11.62	13.95	14.93	15.85	4.53	7.35
Fairleigh Dickinson University, NJ	49	105.45	15.35	15.92	7.69	8.14	8.39	10.59	13.57	14.39	14.69	4.90	7.16
Illinois School of Prof. Psychology, IL	5	100.20	5.74	15.00	4.60	8.20	5.80	11.20	13.40	13.80	16.40	4.40	7.40
Massachusetts School of Prof. Psychology, MA	11	109.09	7.93	16.36	9.09	8.09	7.73	12.36	13.73	14.00	15.09	4.91	7.73
New Mexico State University, NM	10	107.10	11.21	14.60	7.70	8.50	8.20	11.30	13.40	15.30	15.00	4.90	8.20
NOVA Southeastern University, FL	12	112.25	6.10	16.75	9.33	8.42	7.83	11.50	14.33	15.42	16.42	4.67	7.58
Prescribing Psychologists Register, Inc., FL	13	111.23	13.97	15.92	7.77	8.15	8.38	11.15	14.15	16.62	17.23	4.54	7.31
University of Georgia & Georgia State University, GA	16	101.94	14.17	15.56	8.25	7.81	8.12	9.38	12.62	13.81	14.44	4.69	7.25