

# **A BASIC APPROACH TO PHARMACOTHERAPY**

**A 1 ½ hour course providing information  
helpful to counselors, social workers,  
marriage and family therapists and psychologists  
in assessing and treating clients with  
mental and emotional disorders**

**By**

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# **A BASIC APPROACH TO PHARMACOTHERAPY**

## **Objectives:**

**At the conclusion of this lesson you will:**

- **Understand the importance of pharmacotherapy for the benefit of clients seen by counselors, social workers, marriage and family therapists and psychologists**
- **Be knowledgeable about the basic function of neurotransmitters**
- **Be familiar with some common medications, their prescribed use, side effects and contraindications**
- **Learn some off-label uses for mental health medications**
- **Know more about when to refer for medication therapy**
- **Be able to recognize some symptoms of adverse reaction/toxicity in clients**

**The benefit of medications in mental health therapy has been substantiated for some time now. Counselors, social workers, marriage and family therapists and psychologists cannot prescribe, of course, but they can use their knowledge of pharmacotherapy to be beneficial to their clients. A basic knowledge of the anatomy of the brain, neurotransmitters, actions of drugs on them, common side effects, contraindications and signs of adverse reaction or toxicity will help therapists perform better for their clients. Knowing how to take a complete medical history on intake, including medications already in use, will provide the therapist with knowledge necessary when networking with psychiatrists and other physicians. Finally, knowing when and how to make a referral for pharmacotherapy will be discussed.**

## **THE BRAIN**

### **Anatomy**

**Was there ever a more mysterious or remarkable system than the human Central Nervous System? This control system for the entire body has two main parts: the brain and the spinal cord. A nerve cell or neuron has two parts: axons for sending impulses and dendrites for receiving them. The contact points between these two are synapses. The axons emit chemical messengers called neurotransmitters which trigger the receptors on the dendrites and thus electrical currents travel along throughout the central nervous system.**

**Extraordinary amounts of chemical information are exchanged simultaneously to allow for the complex and diverse functions of the human body. No computer has ever come close to matching the ability of the human brain. Therefore, intervening therapeutically within this intricate system without doing damage is infinitely challenging. However, modern medicine has been able to do so with many forms of medication to treat all kinds of physical and mental health diseases and disorders. Depression, anxiety, obsessive compulsive disorder, bipolar disorder, psychotic disorders, ADHD, chemical dependency, Alzheimer's disease are the classes of disorders most therapists work with.**

Being familiar with the medications physicians and nurse practitioners typically prescribe for them helps the therapist monitor the client and, if necessary, network with the prescriber for the benefit of the client.

**Taking A Medical History :**

There are specific pieces of information that may be asked for by a psychiatrist or physician when they are networking with the therapist concerning a client. Having meaningful data to give the physician not only benefits the client's care, it promotes the profession of counseling, social work, marriage and family therapy and psychology.

This does not require specific or newly created forms to complete on intake. Basic understanding of the components of a good medical history is all that is necessary to achieve the information necessary to assist the physician.

A list of current medications including dosage, frequency, how long they have been taking the medication, and any side effects or problems in taking the medication, the client's age, any surgeries and dates of surgery, illnesses outside of typical childhood illness, family history of illness, and hospitalizations for mental health related issues all are very important pieces of information for the therapist *and* the physician to know.

**The Neurotransmitters**

Neurotransmitters are chemicals that are used to relay, amplify and modulate electrical signals between a neuron and another cell.

<b>Small Molecule Neurotransmitter Substances</b>		
<b>Acetylcholine (ACh)</b>	<b>Dopamine (DA)</b>	<b>Norepinephrine (NE)</b>
<b>Serotonin (5-HT)</b>	<b>Histamine</b>	<b>Epinephrine</b>

A large number of chemicals are believed to act as neurotransmitters in the brain but not all have been identified. The first to be identified was Acetylcholine (ACh) in 1920 by Otto Loewi during his research on autonomic nerves. Some of the most heavily researched of the chemicals are serotonin, dopamine, epinephrine, and norepinephrine.

Based on what is now known about the chemistry of the brain, anyone can develop a mental illness. Neurotransmitters are affected in many ways such as chemical imbalances, genetics, nutrition, other disease states and physical and emotional stress. The medications introduced in the 1950's and developed and refined since then can help people live a better life.

Wikipedia, the Free Encyclopedia

## PSYCHOTHERAPEUTIC MEDICATIONS

### Classes of Drugs

<u>Brand Name</u>	<u>Generic Name</u>
<b>Alcohol Dependence</b>	<b>Treat Symptoms of Alcohol Dependence</b>
<b>Antabuse</b>	<b>Disulfiram</b>
<b>Anti-ADHD</b>	<b>Treat symptoms of ADD/ADHD</b>
<b>Adderall</b>	<b>dextroamphetamine &amp; amphetamine</b>
<b>Catapres</b>	<b>clonidine</b>
<b>Concerta</b>	<b>methylphenidate</b>
<b>Desoxyn</b>	<b>methamphetamine</b>
<b>Dexedrine</b>	<b>dextroamphetamine</b>
<b>Focalin XR</b>	<b>dexmethylphenidate</b>
<b>Ritalin</b>	<b>methylphenidate</b>
<b>Strattera</b>	<b>atomoxetine</b>
<b>Anti-Alzheimer's</b>	<b>Treat symptoms of Alzheimer's</b>
<b>Aricept</b>	<b>donepezil</b>
<b>Eldepryl</b>	<b>selegiline</b>
<b>Namenda</b>	<b>memantine</b>

<b>Anti-anxiety</b>	<b>Treat symptoms of anxiety and panic</b>
<b>BuSpar</b>	<b>bupirone</b>
<b>Catapres</b>	<b>clonidine</b>
<b>Klonopin</b>	<b>clonazepam</b>
<b>Tranxene</b>	<b>clorazepate</b>
<b>Valium</b>	<b>diazepam</b>
<b>Vistaril</b>	<b>hydroxyzine</b>
<b>Xanax</b>	<b>alprazolam</b>
<b>Anti-depressant</b>	<b>Treat symptoms of depression</b>
<b>Anafranil</b>	<b>clomipramine</b>
<b>Celexa</b>	<b>citalopram</b>
<b>Cymbalta</b>	<b>duloxetine</b>
<b>Effexor</b>	<b>venlafaxine</b>
<b>Eskalith CR-450</b>	<b>lithium carbonate – slow release</b>
<b>Lexapro</b>	<b>escitalopram</b>
<b>Nardil</b>	<b>phenazine</b>
<b>Norpramin</b>	<b>desipramine</b>

<b>Pamelor</b>	<b>nortriptyline</b>
<b>Parnate</b>	<b>tranylcypromine</b>
<b>Paxil</b>	<b>paroxetine</b>
<b>Prozac</b>	<b>fluoxetine</b>
<b>Remeron</b>	<b>mirtazapine</b>
<b>Sinequan</b>	<b>doxepin</b>
<b>Surmontil</b>	<b>trimipramine</b>
<b>Tofranil-PM</b>	<b>imipramine</b>
<b>Vivactil</b>	<b>protriptyline</b>
<b>Wellbutrin</b>	<b>bupropion</b>
<b>Zoloft</b>	<b>sertraline</b>
<b>Anti-psychotic</b>	<b>Treat symptoms of psychotic disorders</b>
<b>Abilify</b>	<b>aripiprazole</b>
<b>Clozaril</b>	<b>clozapine</b>
<b>Compazine</b>	<b>prochlorperazine</b>
<b>Haldol</b>	<b>haloperidol</b>
<b>Loxitane</b>	<b>loxapine</b>
<b>Moban</b>	<b>molindone</b>
<b>Navane</b>	<b>thiothixene</b>
<b>Orap</b>	<b>pimozide</b>
<b>Risperdal</b>	<b>risperidone</b>
<b>Serentil</b>	<b>mesoridazine</b>
<b>Seroquel</b>	<b>quetiapine fumarate</b>
<b>Stelazine</b>	<b>trifluoperazine</b>
<b>Thorazine</b>	<b>chlorpromazine</b>
<b>Zyprexa</b>	<b>olanzapine</b>

<b>Mood stabilizer</b>	<b>Treat symptoms of bipolar disorder</b>
<b>Abilify</b>	<b>aripiprazole</b>
<b>Depakote</b>	<b>divalproex</b>
<b>Eskalith</b>	<b>lithium carbonate</b>
<b>Delbarton</b>	<b>felbamate</b>
<b>Klonopin</b>	<b>clonazepam</b>
<b>Lamictal</b>	<b>lamotrigine</b>
<b>Lithobid</b>	<b>lithium carbonate – slow release</b>
<b>Neurontin</b>	<b>gabapentin</b>
<b>Tegretol</b>	<b>carbamazepine</b>
<b>Topamax</b>	<b>topiramate</b>

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Psychotherapeutic drugs augment counseling and social work. It can be difficult to focus or participate in therapy until medications level the playing field for the client. Finding the right medication to reduce symptoms helps the client think more clearly and say what is bothering them.

The development of mental health medications has increased the scientific knowledge of the workings of the human brain. The study of various chemicals and their action on the neurotransmitters has provided much-needed understanding of brain chemistry and its role in mental health.

### The Action and Reaction of Psychotherapeutic Medications

Mental health drugs do not produce a cure but rather control the symptoms of many disorders. This is comparable to drugs taken for pain which do not address the condition which causes the pain. Medication taken in conjunction with talk therapy and other forms of therapy can produce long-lasting effects if not a cure.

Most of these medications require some time to reach a therapeutic level in the patient's bloodstream before any benefit can be seen. This is variable but usually takes two to four weeks and, in some cases, as much as six weeks. When the level is sub-therapeutic the client is not receiving a little bit of help. Sub-therapeutic literally means *below* any level of being therapeutic. Clients need to understand this and be helped to monitor how they are taking the drug. Therapists, doctors, nurses and pharmacists play a role in helping clients understand their medication regimen and why it is so important to take it as prescribed.

If a medication is prescribed twice a day (bid) the client should know to take it every twelve hours so that a therapeutic level is maintained around the clock. Some clients think this means with breakfast and dinner and do not realize there will be a reduced level of the medication in their blood between dinner and breakfast the next day. When the prescription orders the medicine to be taken three times a day (tid) it should be taken every eight hours. Finally, if it is ordered for four times a day (qid) it should be taken every six hours. These dosing intervals are generally the rule, but exceptions do exist as in not interrupting sleep to take a dose or taking a CNS stimulant too close to bedtime. Some medications are ordered to be taken bid, or tid, or qid as needed (prn). Clients often focus only on how often the medicine should be taken and fail to see the "as needed" part of the prescription. They should be advised that a prn medication is not necessarily taken every day but only when necessary to reduce symptoms. Examples of this would be Valium and Xanax.

The Placebo Effect should also be noted. People in cross-over, double-blind studies, who receive a placebo (inactive substance made to look exactly like the drug) experience a reduction in symptoms that is clinically significant. "When a new drug is being developed, investigators conduct studies to compare the effect of the drug with that of a placebo because any drug can have a placebo effect, unrelated to its action. The drug must perform significantly better than the placebo to justify its use. In some studies, as many as 50% of participants taking the placebo improve,

making it difficult to show the effectiveness of the drug being tested.” The Merck Manual of Medical Information 2nd Edition

As with most medications, psychotherapeutic drugs do not produce the same results in everybody. Therapists, pharmacists, nurses and physicians need to listen to the client as they describe their reactions to the medications they are taking. The clinician can encourage the client to assume responsibility for their health and press for help in managing their symptoms. Therapists with a basic knowledge of pharmacotherapy can provide answers to client questions about typical reactions and side effects. They should, of course, refer the client back to the prescriber for more in-depth answers or serious problems.

The typical route for most medications for outpatient clients is oral (po)  
“Absorption affects bioavailability – how quickly and how much of a drug reaches its intended (target) site of action. Factors that affect absorption (and therefore bioavailability) include the way a drug product is designed and manufactured, its physical and chemical properties, and the physiologic characteristics of the person taking the drug. Physiologic characteristics that may affect the absorption of drugs taken by mouth include how long the stomach takes to empty, what the acidity (pH) of the stomach is, and how quickly the drug is moved through the digestive tract.”  
The Merck Manual of Medical Information 2<sup>nd</sup> Ed.

### Typical Side Effects/Adverse Reactions

Any medication that can cause a therapeutic (desired) reaction on the brain has the potential to produce an adverse reaction (side effect) as well. In pre-clinical testing a medication is studied in animals for how it works, its efficacy, and any toxic effects it may have. If it is not rejected at this stage of development, it will be studied in humans for types and frequency of side effects.

Some adverse reactions are simply unwanted while others are potentially harmful. Typical side effects are herein qualified as the more common in the general population; however some people may experience noxious or serious events as a result of the medication.

There are many factors that determine response to a drug. Everything from a person’s genetic makeup to dietary factors, stress, liver function, renal function, disease states, occupational exposures, alcohol intake and drug/drug interactions play some role. Helping clients understand the complexity of biochemistry will provide them with information necessary for monitoring reactions to medications they take.

Here is the complete list of adverse reactions attributable to SSRI medications: (e.g. Prozac, Zoloft, Abilify, Celexa, Lexapro, and Paxil)

1. Insomnia
2. Vivid and violent dreams

3. Inability to detect dreams from reality (The world takes on an other-worldly aspect)
4. No emotions
5. Inability to feel guilt or cry
6. Nausea
7. Loss of appetite
8. Rash; Breathing or lung problems
9. Heart fluttering
10. Shaking - jitteriness
11. Unusual energy surges at times producing super human strength (adrenalin rushes)
12. Memory impairment
13. Hair loss
14. Blurred vision or pressure behind the eyes
15. Inability to discontinue use of drug and increasing own dose
16. Cravings for alcohol, sweets, and other substances or drinking large sums of alcohol, coffee or other caffeinated drinks, diet pop with NutraSweet, etc.
17. Headaches
18. Swelling and/or pain in joints
19. Burning or tingling in extremities
20. Muscle twitching or contractions
21. Tongue numbness and slurred speech
22. Sweating
23. Dizziness
24. Confusion
25. Chills or cold sweats
26. Muscle weakness
27. Extreme fatigue
28. Diabetes or hypoglycemia
29. Lowered immune system
30. Seizures or convulsions
31. Weight gain or weight loss
32. Mood swings
33. Altered personality
34. Symptoms of mania, i.e., inability to sit still or restlessness, racing thoughts, acting silly or giddy (like a teenager again)
35. Sexual promiscuity leading to unwanted pregnancy or divorce
36. Irresponsibility, wild spending sprees, gambling, criminal behavior, shoplifting, embezzling, stealing, hostility, etc.
37. Deceitfulness
38. Blank staring
39. Inability to see any alternatives in situations
40. Hyperactivity
41. Aggressive or violent behavior
42. Wanting to ram other cars or driving irrationally
43. Impulsive behavior with no concern about consequences
44. Numbness in various body parts - legs go numb and right out from under patient
45. Sexual organs go numb making orgasm impossible
46. Pulling away from loved ones and others (isolating oneself)
47. Divorce
48. No desire to be touched
49. Paranoia
50. Falsely accusing others of abuse - family members or acquaintances
51. Loss of spirituality
52. Feeling "possessed" or that something evil is inside

- 53. Self destructive behavior and suicidal ideation
- 54. Suicide attempts
- 55. Muscle tremors
- 56. Loss of co-ordination
- 57. Mania
- 58. Psychosis

[SOURCE: *PROZAC: PANACEA OR PANDORA?* BY ANN BLAKE TRACY, PH.D.]

Some of the side effects are serious and must be acted on immediately, e.g., seizures, loss of co-ordination, suicidal ideation, psychosis, aggressive or violent behavior, while others may be difficult to attribute exclusively to the drug..

Knowing the potential side effects and adverse reactions to specific medications is helpful in teaching and monitoring the client and/or making an appropriate referral for medication or to follow up with the prescribing physician. Therapists are one part of the safety net for clients to prevent harm while promoting their well-being.

The following are some commonly used medication in psychotherapy, their side effects and contraindications:

**Ativan** (lorazepam) Contraindications: psychoses, acute narrow-angle glaucoma, shock, coma, acute alcoholic intoxication with depression of vital signs, pregnancy, impaired liver or kidney function.

**Side Effects:** drowsiness, sedation, depression, lethargy, apathy, fatigue, lightheadedness, disorientation, anger, hostility, restlessness, slurred speech, constipation, dry mouth, nausea, changes in libido, hiccups, and nasal congestion.

**BuSpar tablets** (buspirone) Contraindications: Contraindicated in patients hypersensitive to buspirone hydrochloride.

**Side Effects:** Drowsiness/sedation, dry mouth, blurred vision, dizziness/hypertension, daytime sedation, nervousness, headache, fatigue/tiredness, upset stomach

**Clozaril** (clozapine) Contraindications: Contraindicated in patients with myeloproliferative disorders, uncontrolled epilepsy or a history of Clozaril induced agranulocytosis or severe granulocytopenia. Also, it is contraindicated in severe central nervous system depression or comatose states from any cause.

**Side effects:** Drowsiness; sedation; dizziness; headache; tremor; salivation; sweating; dry mouth; fainting; rapid heartbeat; constipation; nausea and fever

**Haldol (haloperidol)** Contraindications: Haldol is contraindicated in severe toxic central nervous system depression or comatose states from any cause and individuals who are hypersensitive to this drug or have Parkinson disease.

Side effects: Extrapyramidal syndrome, tardive dyskinesia, tardive dystonia, insomnia, restlessness, agitation, drowsiness, depression, lethargy, confusion, vertigo, grand mal seizures, hallucinations, possible impaired liver functioning, breast enlargement, menstrual irregularities, nausea, vomiting, constipation, increase depth of respiration, and visual imbalance.

**Lithium (lithium carbonate)** Contraindications: Lithium should not be given to patients with significant renal or cardiovascular disease, severe debilitation, dehydration, sodium depletion, and to patients receiving diuretics for angiotensin converting enzyme (ACE) inhibitors since the risk of lithium toxicity is very high.

Side effects: Tremors; headaches; impaired memory; lethargy; fatigue; nausea; excessive urination; diarrhea

**Mellaril (thioridazine)** Contraindications: With other phenothiazines, Mellaril is contraindicated with severe central nervous depression or comatose states from any cause including advanced central nervous system depression.

Side effects: Initial nausea, vomiting, dizziness, fatigue, and photosensitivity

**Prozac (fluoxetine)** Contraindications: There have been reports of serious, sometimes fatal reactions in patients receiving fluoxetine in combination with a monoamine oxidase inhibitor (MAOI) and in patients who have recently discontinued fluoxetine and then started on a MAOI.

Side Effects: Dry mouth; sweating; dizziness; increase in appetite; agitation; dry eyes; blurred vision; sedation lethargy; photosensitivity, rash and allergic events, insomnia, reduced appetite and weight, activation of mania, hypomania, seizures, suicide., dizziness, lightheadedness and possible gastrointestinal complaints.

**Stelazine (trifluoperazine)** Contraindications: A known hypersensitivity to phenothiazines, comatose and greatly depressed states due to central nervous system depressed states and in case of existing blood dyscrasias bone marrow depression and pre-existing liver damage.

Side effects: drowsiness; dizziness; mild skin reactions; dry mouth; insomnia; amenorrhea; fatigue; extrapyramidal reactions on high doses as well as muscular weakness, anorexia, rash, lactation and blurred vision

**Thorazine (chlorpromazine) Contraindications: Do not use with known hypersensitivity to phenothiazines. DO not use in comatose states or in the presence of CNS depression.**

**Side effects: excessive drowsiness; momentary fainting or dizziness; dry mouth; nasal congestion; photosensitivity; skin rash; extrapyramidal reaction**

**Tofranil (imipramine) Contraindications: the concomitant use of MAOI compounds is contraindicated. The potential effects can be serious and potentially fatal. The drug is contraindicated during the acute recovery period after a myocardial infarction. The possibility of cross-sensitivity to other dibenzazepine compounds should be kept in mind.**

**Side effects: Excessive drowsiness; dizziness; insomnia; dry mouth; hyperactivity or stimulation; tardive dyskinesia**

**Valium (diazepam) Contraindications: Valium is contraindicated in patients with known hypersensitivity to this drug; acute narrow angle glaucoma and open angle glaucoma unless patients are receiving appropriate therapy.**

**Side effects: Fatigue; drowsiness and ataxia; mild nausea; dizziness; blurred vision; headaches; slurred speech; tremors; skin rash**

**Vistaril capsules (hydroxyzine) Contraindications: Contraindicated in early pregnancy**

**Side Effects: Dry mouth, drowsiness, tremor, convulsions, hypersensitivity**

**Wellbutrin Capsules (bupropion) Contraindications: Patients with seizure disorders, current or prior bulimia or anorexia. The concurrent administration of Wellbutrin and a monoamine oxidase inhibitor (MAOI) (e.g. Nardil, Parnate) is contra indicated. At least 14 days should elapse between discontinuation of MAOI.**

**Side Effects: agitation and insomnia, activation of psychosis or mania, altered appetite, suicide, seizures.**

**Xanax (alprazolam) Contraindications: Tablets are contraindicated in patients with known sensitivity to this drug or other benzodiazepines. Xanax may be used in patients with open angle glaucoma who are receiving appropriate therapy but is contraindicated in patients with acute narrow angle glaucoma.**

**Side Effects: drowsiness/sedation, dry mouth, blurred vision, dizziness/hypertension, daytime sedation.**

**Zoloft (sertraline)** Contraindications: Concomitant uses in patients taking MAOIs are contraindicated.

Side effects: Mania/hypomania, weight loss, seizures, suicide

Physician's Desk Reference and RList The Internet Drug List

**Off-label uses of Mental Health Medications:**

Off-label means the use of a drug to treat conditions other than those approved by the FDA for that drug. (e.g. Benadryl for sleep or tricyclic antidepressants and anticonvulsants for adjunct pain relief.) Clinicians need to be aware of the possibility of atypical uses of psychotherapeutic medications. There does appear to be an increase in off-label prescribing and that may be a concern due to the potential for side effects and adverse reactions with all medications.

**"As Unapproved Uses Multiply, So Do The Dangers"**: A six-month *Knight Ridder* investigation found that off-label use of prescription drugs is "flourishing in a climate created by aggressive drug company marketing, receptive doctors and limited federal oversight," *Knight Ridder/Observer* reports. In the past year, about 115 million prescriptions were written for uses not specifically approved, leading in some cases to patient injuries and deaths nationwide, according to *Knight Ridder/Observer*

 Associated Press

Updated: 2:29 p.m. ET April 21, 2005

**WASHINGTON - The Food and Drug Administration has begun a preliminary inquiry into whether epilepsy drugs might increase the risk of suicidal behavior in some patients, particularly those who use them for psychiatric illnesses instead of seizure prevention.**

Source: MSNBC.com

There are a growing number of supporters of an FDA law that would require physicians to advise patients when they are prescribing medications for their off-label potential in treating the patient's pain, depression, seizures, etc. According to the 1992 American Medical Association Study, 40 to 60% of all prescriptions in the United States are for off-label use. Therapists can be instrumental in helping their clients monitor the prescribed use of the drug and talking to their doctor about possible side effects.

**Conclusions:**

**There is much to know about Psycho-pharmacotherapy and the task can be daunting without sufficient resources and peers to consult with. With a basic understanding of the anatomy of the brain, the function of its neurons, neurotransmitters and synapses there is a foundation for understanding the interactions of the brain and medications.**

**There is no “magic pill.” There is no “magic process” by which clients are instantly improved. There is a distinct chemical action/reaction that is dependent upon many variables and predictable only to certain degree.**

**This does not mean therapists should be slow to refer clients for pharmacotherapy. Neither should they be quick to do so. Having a good sense of when to refer is part science and part art. Consultation is an important component as is having sufficient resources for referrals to psychiatrists and prescribing physicians with knowledge of mental health drugs.**

**The benefit of medications in treating mental diseases and disorders is well established. As counselors, social workers, marriage and family therapists and psychologists increasingly network with psychiatrists and physicians, the information they gather in a medical history, including a list of medicines the client takes and why, will improve client care.**

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## A Basic Approach to Pharmacotherapy

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**A BASIC APPROACH TO PHARMACOTHERAPY**

**POST TEST QUESTIONNAIRE**

- 1. The two main parts of the control system for the entire body are:**
  - a. Nerve cells and neurons**
  - b. Neurons and synapses**
  - c. The brain and the spinal cord**
  - d. Nerve Cells and neurotransmitters**
  
- 2. When networking with psychiatrists and other physicians, \_\_\_\_\_ will provide therapists the knowledge necessary.**
  - a. a basic knowledge of brain anatomy**
  - b. knowing how to take a complete medical history on intake**
  - c. knowing about the neurotransmitters of the brain**
  - d. knowing all the above**
  
- 3. A neurotransmitter does which of the following?**
  - a. relays, amplifies, and modulates electrical signals between a neuron and another cell.**
  - b. changes the outer membrane of a cell**
  - c. makes enzymes that block cell-to-cell communication**
  - d. none of the above.**
  
- 4. The first neurotransmitter to be identified was: \_\_\_\_\_**
  - a. Acetylcholine (Ach)**
  - b. Histamine**
  - c. Serotonin (5-HT)**
  - d. Dopamine (DA)**

5. A drug that is used to treat ADD/ADHD and anxiety /panic disorder is

\_\_\_\_\_

- a. Ritalin
- b. Catapres
- c. Valium
- d. Klonopin

6. Abilify can be prescribed for the treatment of \_\_\_\_\_ and

\_\_\_\_\_.

- a. alcohol dependence and psychotic disorders
- b. depression and ADD/ADHD
- c. Alzheimer's and depression
- d. psychotic disorders and bipolar disorder

7. Medication taken in conjunction with talk therapy and other forms of therapy:

\_\_\_\_\_.

- a. does not relieve symptoms as well as talk therapy
- b. does not relieve symptoms as well as medications alone
- c. has not been proven as effective
- d. can produce long-lasting effects, if not a cure

**TRUE OR FALSE**

8. \_\_\_True \_\_\_False If a medication is prescribed twice a day the correct medical term is bid.

9. \_\_\_True \_\_\_False A medication prescribed: "Take one tablet by mouth two or three times a day as needed." Translates to "Take 1 po, bid or tid, prn."

10. \_\_\_True \_\_\_False The placebo effect simply means an active substance that has a reaction in patients that is unrelated to its usual action.

11. \_\_\_True \_\_\_False Psychotherapeutic drugs produce the same reaction in everybody.

12. \_\_\_True \_\_\_False One factor that affects absorption is the physiologic characteristics of the person taking the drug.

13. \_\_\_True \_\_\_False Response to a drug is essentially determined only by the person's genetic makeup.

14. \_\_\_True \_\_\_False Therapists are only one part of the safety net for clients to prevent harm while promoting their well-being.

**MATCHING**

- |                    |                |
|--------------------|----------------|
| 15. Valium _____   | a. lorazepam   |
| 16. Vistaril _____ | b. sertraline  |
| 17. Zoloft _____   | c. diazepam    |
| 18. BuSpar _____   | d. hydroxyzine |
| 19. Ativan _____   | e. alprazolam  |
| 20. Xanax _____    | f. bupropion   |

I, \_\_\_\_\_ (name of participant) affirm that I am the person who completed this home study and am responsible for this post test.

Signature: \_\_\_\_\_

