

# How to uncover post-stroke depression

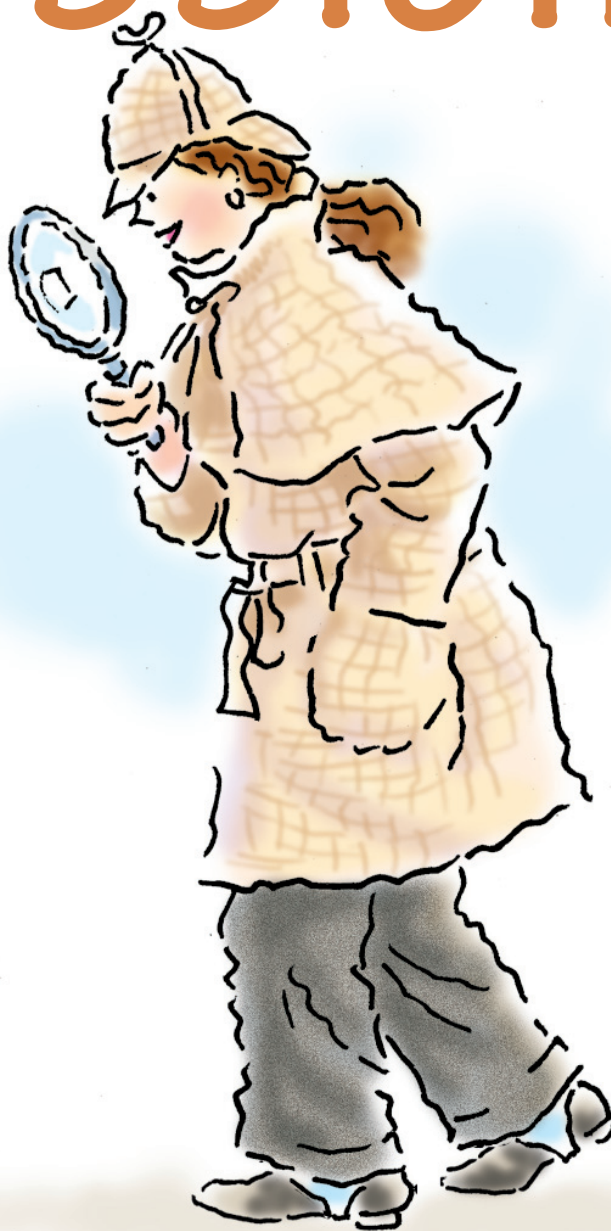
*Often undetected, post-stroke depression occurs in at least one-third of stroke survivors. Nurses can help by recognizing and responding to patients who become depressed after experiencing a stroke. We fill you in on how to assess this disorder and what treatment options are available.*

By Sherri Melrose, PhD, RN  
Assistant Professor • Centre for Nursing  
and Health Studies • Athabasca University  
Athabasca, Alberta, Canada

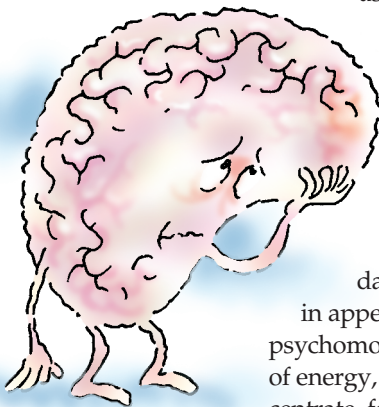
The author has disclosed that she has no significant relationships with or financial interest in any commercial companies that pertain to this educational activity.

Emotional disturbances following the trauma of experiencing a stroke aren't unexpected. Survivors often feel angry and fearful, experiencing a deep sense of loss. Rehabilitating from the devastation of paralysis, sensory disturbance, language deficits, and problems with thinking and memory is seldom straightforward. All too often, however, the psychiatric illness of post-stroke depression is overlooked and undertreated within the rehabilitative process.

In this article, I'll identify the incidence and prevalence of post-stroke depression,



At least 33% of stroke survivors will experience depression.



describe measurement considerations to detect the disorder, and discuss treatment approaches.

### Defining depression

The *Diagnostic and Statistical Manual of Mental Disorders, 4th edition, Text Revision (DSM-IV-TR)* categorizes post-stroke depression as a mood disorder due to a general medical condition. Major depression and minor depression are the conditions most often associated with stroke.

**Major depression** lasts longer than 2 weeks. It's characterized by loss of interest or pleasure for most of the day, almost every day, and is accompanied by changes in appetite and sleep patterns, fatigue, psychomotor agitation or retardation, loss of energy, reduced ability to think or concentrate, feelings of worthlessness, recurrent thoughts of death, and even specific plans for suicide. Major depression includes clinically significant distress or impairment in social, occupational, or other important areas of functioning. **Minor depression** also lasts longer than 2 weeks, but involves less functional impairment.

Using *DSM-IV-TR* criteria, a recent study revealed that major depression was present in 15% of stroke survivors and minor depression in an additional 28%.

### Who's at risk?

The prevalence of post-stroke depression ranges from 30% to 50%, according to the American Stroke Association. Clinical depression may occur within the first 3 months post stroke and can last for several years if left untreated. The wide range of prevalence rates is related to methodological differences among studies, inconsistent definitions of depression, the use of different depression screening instruments, excluding stroke patients with physical or cognitive impairments, and assessing depression at different time intervals post stroke. Despite these

variances, at least 33% of stroke survivors of all types can be expected to experience diagnosable clinical depression.

Risk factors include a history of depression, increased stroke severity, and post-stroke cognitive or physical impairment. Post-stroke depression is more common among patients living in a rehabilitation setting than in the general community. Stroke survivors with aphasia are also at high risk. Despite an abundance of research, the influence of stroke location on the risk of developing post-stroke depression hasn't been determined. Whether the stroke location was ischemic, hemorrhagic, or a supratentorial, infratentorial, lacunar, cardioembolic, cortical, subcortical, or subarachnoid stroke subtype, the severity of a stroke is the strongest predictor of post-stroke depression.

### Getting down to brass tacks

The etiology of post-stroke depression isn't well understood. Researchers have hypothesized that increased production of proinflammatory cytokines resulting from brain ischemia in cerebral areas is linked to the pathogenesis of mood disorders. With increased inflammation, particularly in the limbic areas, serotonin can become depleted. Serotonin regulates levels of alertness, the ability to categorize information, and perceptions of well-being. Lack of serotonin or disruption of the serotonergic system when neuronal synapses are injured or destroyed may lead to post-stroke depression.

Post-stroke depression has been associated with poor recovery and rehabilitation response, reduced social functioning, greater use of healthcare services, and increased risk of subsequent cardiac and stroke events. Although the negative impact of depression on stroke survivors is well recognized, healthcare professionals often fail to respond to a patient's distress both at an early stage post stroke and later on in the recovery process when the distress has become established as a mood disorder. This failure to respond may be related to difficulty

assessing post-stroke depression and understanding treatment approaches that can help.

### By the measure

Assessing post-stroke depression is particularly challenging because vegetative symptoms such as fatigue, psychomotor retardation, and insomnia may be related directly to the stroke disorder but are also part of the *DSM-IV-TR* criteria for diagnosing depression. One in three stroke survivors will experience aphasia—defined as impaired language comprehension and expressive abilities—and yet aphasic patients are often excluded from research examining post-stroke depression. Aphasia and other cognitive problems make it almost impossible to adequately assess depression with interview questions and observation alone. Despite these challenges, you can invite family members and all staff members who are or have been involved with a stroke survivor's care to share their observations of the patient's mood.

### Scales

If your patient is able to speak, you can use scales or questionnaires to assess post-stroke depression. Although scales are used extensively in research studies, they're underused in routine clinical care. Scales can be constructed as self-reporting, with stroke survivors providing answers themselves, or they can be observational, with caregivers recording observations. Note that before implementing any kind of scale, it's necessary to review the original publication in which the instrument was introduced and investigate the kind of reliability and validity testing that has been done on it.

Self-report scales offering reliable and valid assessment of post-stroke depression include the Beck Depression Inventory (BDI), the Hamilton Rating Scale for Depression (HAM-D), the Center for Epidemiologic Studies Depression Scale (CES-D), and the Geriatric Depression Scale (Short Form), or GDS-SF. The BDI was originally developed

## The GDS-SF

Choose the best answer for how you've felt over the past week:

1. Are you basically satisfied with your life? YES/NO
2. Have you dropped many of your activities and interests? YES/NO
3. Do you feel that your life is empty? YES/NO
4. Do you often get bored? YES/NO
5. Are you in good spirits most of the time? YES/NO
6. Are you afraid that something bad is going to happen to you? YES/NO
7. Do you feel happy most of the time? YES/NO
8. Do you often feel helpless? YES/NO
9. Do you prefer to stay at home, rather than going out and doing new things? YES/NO
10. Do you feel you have more problems with memory than most? YES/NO
11. Do you think it's wonderful to be alive now? YES / NO
12. Do you feel pretty worthless the way you are now? YES/NO
13. Do you feel full of energy? YES/NO
14. Do you feel that your situation is hopeless? YES/NO
15. Do you think that most people are better off than you are? YES/NO

A score of greater than 3 points is suggestive of post-stroke depression.

A score of greater than 5 points is suggestive of depression.

A score of greater than 10 points is almost always indicative of depression.

Source: Sheikh J, Yesavage J. Geriatric Depression Scale (GDS): recent findings and development of a shorter version. In: Brink TL (ed.), *Clinical Gerontology: A Guide to Assessment and Intervention*. New York, NY: Howarth Press; 1986.

to assess depression in psychiatric settings; it requires specialized training and is under copyright with the American Psychological Association, so may not be used freely. The HAM-D is often used in clinical trials to measure efficacy of antidepressant medication and is appropriate for adults of all ages. The CES-D is used extensively in epidemiologic research to investigate depression in the general adult population. The GDS-SF is used widely and efficiently with adults over age 65; with a cutoff score of 3, it's currently recommended for post-stroke depression screening (see *The GDS-SF*).

Observation scales that offer reliable and valid assessment of post-stroke depression include the Clinical Global Impression Severity Scale (CGI-S) and the Signs of Depression Scale (SDSS). The CGI-S requires clinicians to have psychiatric experience as they compare the individual being assessed with typical cases. The SDSS, initially developed as a tool for screening depression in

Using scales can help with assessment.



elderly medical patients, is now emerging as a relevant, easy-to-complete tool specifically for nurses and caregivers to use in the assessment of post-stroke depression (see *The SDSS*).

Visual analog scales aren't recommended. Similarly, scales such as the Stroke Aphasic Depression Questionnaire and the Aphasic Depression Rating Scale have been found to have limited reliability and validity. When assessing aphasic patients, you can point to "yes" or "no" choices and record nonverbal responses on more established scales (see *Communicating with an aphasic patient*). Involving family members and staff caregivers is an adaptive strategy for assessing depression even when aphasia is present.

With the exception of the BDI, all of the aforementioned scales are readily available on the Internet. They can be printed out, completed at different times, and included in the stroke patient's file. Traditionally, universally recognized depression scales haven't always been included in the assessment process; however, scores from these scales can provide strong advocacy data for treating the debilitating symptoms of post-stroke depression.

### Crying behaviors

Identifying distinctions among crying behaviors is an important aspect of assessing

post-stroke depression. Although crying is an expected coping response, frequent and sustained bouts of crying can also be an indication of depression. Observing crying responses in relation to whether a motivating stimulus or trigger is present is a critical distinction. For example, when crying is congruent with discussion of or private reflection on sadness, the behavior is a reflection of mood. But when congruent crying occurs frequently and continues for long periods, depression is likely present. Facial expressions and the presence of tears may appear similar among all types of crying behaviors, but assessing the congruence between crying and mood or affect of sadness will help distinguish the diagnosis of post-stroke depression.

Other crying behaviors, such as pathologic crying, emotionalism, and catastrophic reactions, are disorders of emotional expression rather than symptoms of a depressive mood disorder. Pathologic crying (or pathologic laughing) occurs without any apparent triggering stimulus and may be related to damage in the motor areas of the cerebral cortex and brainstem. Emotionalism occurs when the patient has difficulty controlling his emotional behavior and may suddenly start crying (or, less commonly, laughing) for no apparent reason; this may be related to damage in the right cerebral hemisphere. Catastrophic reactions are expressed when crying is accompanied by anxiety, aggressive behavior, swearing, or withdrawing and may be triggered by a task made difficult or impossible by a neurologic deficit, such as trying to move a hemiplegic arm. Pathologic crying, emotionalism, and catastrophic reactions often coexist with post-stroke depression, but they're separate conditions that require separate treatment approaches.

### Previous coping strategies

Given the difficulty of differentiating features of post-stroke depression from neurologic deficits caused by the stroke itself, the importance of understanding how a patient

## The SDSS

1. Does the patient sometimes look sad, miserable, or depressed? YES/NO
2. Does the patient ever cry or seem weepy? YES/NO
3. Does the patient seem agitated, restless, or anxious? YES/NO
4. Is the patient lethargic or reluctant to mobilize? YES/NO
5. Does the patient need a lot of encouragement to do things for him or herself? YES/NO
6. Does the patient seem withdrawn, showing little interest in the surroundings? YES/NO

Score 1 for "yes" and 0 for "no."

A score of greater than 2 points is suggestive of depression.

Source: Hammond MF, O'Keeffe ST, Barer DH. Development and validation of a brief observer-rated screening scale for depression in elderly medical patients. *Age Ageing*. 2000;29(6):511-515.

has coped in previous crisis situations becomes clear. Asking patients who are able to speak to describe situations in which they've tackled overwhelming challenges in the past will illustrate the kinds of coping strengths they value. Similarly, asking family members to paint a picture of how the stroke patient coped with previous difficulties will reveal important insights. Assessment of previous coping strategies must also include inquiring about previous responses to loss and typical expressions of anger and anxiety, as well as patterns of crying. Knowing that patients previously diagnosed with depression are significantly at risk for developing post-stroke depression, assessing previous psychiatric history, including treatments that worked and those that didn't, is critical.

### Approaches to treatment

Given the high incidence and prevalence of post-stroke depression, immediate and continued assessment of both major and minor depression using *DSM-IV-TR* criteria after a stroke has occurred is an essential feature of any treatment protocol. Despite the challenge of aphasia and other cognitive impairments, early interviews with family members can help distinguish expected grief reactions from clinical depression. Completing self-report and observational scales at different times will offer data that can be used to measure the depression, as well as the stroke patient's response to treatment. And, before depressive symptoms develop into a mood disorder, prompt initiation of antidepressant medications, behavioral therapy, and alternative treatment approaches can help.

### Antidepressant medications

The use of a prophylactic antidepressant medication, such as escitalopram, and problem-solving therapy within 3 months of a stroke has been found to reduce the rate of post-stroke depression. Stroke survivors receiving either kind of treatment were less likely to develop depression compared

## Communicating with an aphasic patient

- Face the patient and establish eye contact.
- Speak in a normal manner and tone.
- Use short phrases and pause between phrases to allow the patient time to understand what's being said.
- Limit conversation to practical and concrete matters.
- Use gestures, pictures, objects, and writing.
- As the patient uses and handles an object, say what the object is. It helps to match the words with the object or action.
- Be consistent in using the same words and gestures each time you give instructions or ask a question.
- Keep extraneous noises and sounds to a minimum. Too much background noise can distract the patient or make it difficult to sort out the message being spoken.

with those on placebo. For escitalopram, the risk was 4.4 times less than on placebo; for problem-solving therapy, it was 2.2 times less. Escitalopram is a selective serotonin reuptake inhibitor (SSRI). There has been research into the merit of prescribing an SSRI medication as soon as a stroke has occurred.

After post-stroke depression is determined to be present, other SSRI antidepressant medications, such as sertraline, citalopram, and nortriptyline, have demonstrated efficacy. An important consideration with any pharmacologic treatment is that the dosages required to achieve therapeutic blood levels may be lower or even half the usual dose and may take time to titrate in patients who are medically ill. SSRI antidepressants may take longer to absorb, distribute, metabolize, and be eliminated. Common adverse reactions include nausea, sedation, dizziness, somnolence, headache, weight gain, and, when first started, excitability. Taking SSRIs with meals to reduce gastrointestinal disturbances is recommended. Although many stroke survivors respond to antidepressant therapy with a decrease in their vegetative symptoms in about 1 week, others may take longer. Simultaneously monitoring the adverse reactions of antidepressant medication, post-stroke depression symptoms, stroke deficits, and any existing medical conditions isn't easy, but it's necessary.

Medication +  
problem-solving  
therapy = reduced  
incidence.



### Behavioral therapy

Therapeutic intervention to address potential or established depression must also become part of any post-stroke protocol. Problem-solving therapy, in which mental health professionals meet with stroke survivors to facilitate awareness of problems and help develop solutions, can help. Similarly, brief psychosocial behavioral intervention, in which stroke survivors are provided with opportunities to interact with educational materials and interventionists, may also be helpful.

One program implemented by a nurse involved giving participants written stroke recovery materials from the American Stroke Association, including information about depression, and meeting with a study interventionist once a week for 8 weeks. Participants completed a medication diary and were encouraged to include family members and caregivers in the meetings.

The intervention, in combination with antidepressants, reduced post-stroke depression significantly and the effect was sustained for up to 2 years.

### Alternative therapy

Acupuncture shows promise in treating post-stroke depression with fewer adverse reactions than antidepressants. Repetitive transcranial magnetic stimulation—a noninvasive method of triggering brain activity by exciting neurons with electromagnetic induction—may be an effective and safe alternative for stroke survivors

who don't respond to antidepressants. Electroconvulsive therapy may also be an effective treatment. Listening to music during the early post-stroke stage can enhance cognitive recovery and prevent negative mood.

### A depression-free recovery

Post-stroke depression is a serious problem that complicates recovery for one-third of stroke survivors. Stroke survivors living in a rehabilitation setting and those who are aphasic are especially vulnerable. Nurses can help by recognizing the condition as a psychiatric illness and responding with an understanding of treatment approaches. *DSM-IV-TR* criteria for major and minor depression and scales such as the GDS-SF and the SDSS offer reliable and valid measurement and can be readily included in routine nursing assessments. Similarly, working with family and caregivers to distinguish crying that's congruent with a mood of sadness from other crying behaviors is important. Knowing about how patients coped with previous crises will help support their present efforts. Treatments such as antidepressant medications, behavioral therapy, and alternative therapy have all demonstrated efficacy. As nurses continue to learn about post-stroke depression and seek out ways to understand the condition more fully, other opportunities to help stroke patients will emerge. ■

### Learn more about it

- American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders, Text Revision*. 4th ed. Washington, DC: American Psychiatric Association; 2000.
- Berg A, Lönnqvist J, Palomäki H, Kaste M. Assessment of depression after stroke: a comparison of different screening instruments. *Stroke*. 2009;40(2):523-529.
- Boyd M. *Psychiatric Nursing: Contemporary Practice*. 4th ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2008.
- Carota A, Berney A, Aybek S, et al. A prospective study of predictors of poststroke depression. *Neurology*. 2005; 64(3):428-433.
- Hackett ML, Yapa C, Parag V, Anderson CS. Frequency of depression after stroke: a systematic review of observational studies. *Stroke*. 2005;36(6):1330-1340.
- He J, Shen PF. Clinical study on the therapeutic effect of acupuncture in the treatment of post-stroke depression [abstract]. *Zhen Ci Yan Jiu*. 2007;32(1):58-61.
- House A, Hackett ML, Anderson CS, Horrocks JA. Pharmaceutical interventions for emotionalism after stroke. *Cochrane Database Syst Rev*. 2004;(2):CD003690. doi:10.1002/14651858.CD003690.pub2.
- Johnson JL, Minarik PA, Nyström KV, Bautista C, Gorman MJ. Poststroke depression incidence and risk factors: an integrative literature review. *J Neurosci Nurs*. 2006;38(4 suppl):316-327.

### Emotional deficits of stroke

- Loss of self-control
- Emotional lability
- Decreased tolerance to stressful situations
- Depression
- Withdrawal
- Fear, hostility, and anger
- Feelings of isolation

cheat

sheet

Jorge RE, Robinson RG, Tateno A, et al. Repetitive transcranial magnetic stimulation as treatment of post-stroke depression: a preliminary study. *Biol Psychiatry*. 2004;55(4):398-405.

Lightbody CE, Auton M, Baldwin R, et al. The use of nurses' and carers' observations in the identification of poststroke depression. *J Adv Nurs*. 2007;60(6):595-604.

Mitchell PH, Veith RC, Becker KJ, et al. Brief psychosocial-behavioral intervention with antidepressant reduces poststroke depression significantly more than usual care with antidepressant: living well with stroke: randomized, controlled trial. *Stroke*. 2009;40(9):3073-3078.

Parvizi J, Coburn KL, Shillcutt SD, Coffey CE, Lauterbach EC, Mendez MF. Neuroanatomy of pathological laughing and crying: a report of the American Neuropsychiatric Association Committee on Research. *J Neuropsychiatry Clin Neurosci*. 2009;21(1):75-87.

Robinson RG, Jorge RE, Moser DJ, et al. Escitalopram and problem-solving therapy for prevention of poststroke depression: a randomized controlled trial. *JAMA*. 2008;299(20):2391-2400.

Särkämö T, Tervaniemi M, Laitinen S, et al. Music listening enhances cognitive recovery and mood after middle cerebral artery stroke. *Brain*. 2008;131(pt 3):866-876.

Spalletta G, Bossù P, Ciaramella A, Brià P, Caltagirone C, Robinson RG. The etiology of poststroke depression: a review of the literature and a new hypothesis involving inflammatory cytokines. *Mol Psychiatry*. 2006;11(11):984-991.

Starkstein SE, Mizrahi R, Power BD. Antidepressant therapy in post-stroke depression. *Expert Opin Pharmacother*. 2008;9(8):1291-1298.

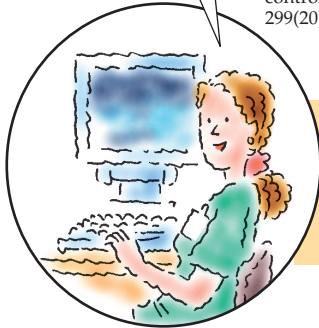
Teasell R, Foley N, Salter K, Bhogal S, Jutai J, Speechley M. Post-stroke depression. In: *Evidence-Based Review of Stroke Rehabilitation (EBRSR)*. 11th ed. London, ON, Canada: Canadian Stroke Network; 2008.

Thomas SA, Lincoln NB. Predictors of emotional distress after stroke. *Stroke*. 2008;39(4):1240-1245.

Townend M, Brady M, McLaughlan K. A systematic evaluation of the adaptation of depression diagnostic methods for stroke survivors who have aphasia. *Stroke*. 2007;38(11):3076-3083.

Watkins CL, French B. Psychological intervention post-stroke: ready for action? *Stroke*. 2009;40(9):2951-2952.

CE made  
incredibly  
easy!



For more than 24 additional continuing-education articles related to psychiatric/psychosocial topics, go to [Nursingcenter.com/CE](http://Nursingcenter.com/CE).

**CE CONNECTION**

**Earn CE credit online:**

Go to <http://www.nursingcenter.com/CE/nmie> and receive a certificate *within minutes*.

#### INSTRUCTIONS

#### How to uncover post-stroke depression

##### TEST INSTRUCTIONS

- To take the test online, go to our secure Web site at <http://www.nursingcenter.com/CE/nmie>.
- On the print form, record your answers in the test answer section of the CE enrollment form on page 54. Each question has only one correct answer. You may make copies of these forms.
- Complete the registration information and course evaluation. Mail the completed form and registration fee of \$17.95 to: Lippincott Williams & Wilkins, CE Group, 2710 Yorktowne Blvd., Brick, NJ 08723. We will mail your certificate in 4 to 6 weeks. For faster service, include a fax number and we will fax your certificate within 2 business days of receiving your enrollment form.
- You will receive your CE certificate of earned contact hours and an answer key to review your results. There is no minimum passing grade.
- Registration deadline is August 31, 2012.

##### DISCOUNTS and CUSTOMER SERVICE

- Send two or more tests in any nursing journal published by Lippincott Williams & Wilkins together by mail and deduct \$0.95 from the price of each test.
- We also offer CE accounts for hospitals and other health care facilities on [nursingcenter.com](http://nursingcenter.com). Call 1-800-787-8985 for details.

##### PROVIDER ACCREDITATION

Lippincott Williams & Wilkins, publisher of *Nursing made Incredibly Easy!*, will award 1.9 contact hours for this continuing nursing education activity.

Lippincott Williams & Wilkins is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's Commission on Accreditation.

This activity is also provider approved by the California Board of Registered Nursing, Provider Number CEP 11749 for 1.9 contact hours. Lippincott Williams & Wilkins is also an approved provider of continuing nursing education by the District of Columbia and Florida #FBN2454.

Your certificate is valid in all states.

The ANCC's accreditation status of Lippincott Williams & Wilkins Department of Continuing Education refers only to its continuing nursing educational activities and does not imply Commission on Accreditation approval or endorsement of any commercial product.