DISCLOSURES

JULIE FUSSNER – I have no actual or potential conflict of interest in relation to this presentation.

CESAR VELASCO – I have no actual or potential conflict of interest in relation to this presentation.
OBJECTIVES

STROKE SCALES
• Discuss the most current, relevant scoring systems and scales being used for the stroke population
• Identify the strengths, limitations, and application of these scales
• Recognize each scoring system and scale property that is important and relevant to all assessment tools

WHY ARE SCORING SYSTEMS AND SCALES USED?
✓ Assess the impact of therapeutic interventions in research
✓ Aids in improving diagnostic accuracy
✓ Helps determine clinical pathways of treatment
✓ Severity measurement
✓ Handoff Communication
✓ Assists in predicting and evaluating a patient’s clinical outcome

A “ONE SIZE FITS ALL” APPROACH DOES NOT APPLY TO STROKE EVALUATION AND TREATMENT.
### SCORING SYSTEMS AND SCALES

**PREHOSPITAL STROKE ASSESSMENT SCALES**
- Cincinnati Prehospital Stroke Scale (CPSS)
- Los Angeles Prehospital Stroke Scale (LAPSS)
- Rapid Arterial oCclusion Evaluation Scale (RACE)

**OUTCOME ASSESSMENT SCALES**
- Barthel Index
- Glasgow Outcome Scale

**ACUTE ASSESSMENT SCALES**
- Glasgow Coma Scale (GCS)
- NIH Stroke Scale (NIHSS)
- Modified NIHSS scale
- Intracerebral Hemorrhage Scale (ICH)

**FUNCTIONAL ASSESSMENT SCALES**
- Berg Balance Scale
- Modified Rankin Scale (mRS)

**OTHER DIAGNOSTIC & SCREENING TEST**
- Hachinski Ischaemia Score
- Hamilton Rating Scale for Depression
- PHQ2 and PHQ9 for Depression

### DEFINITIONS

**SENSITIVITY**
- Sensitivity also called the true positive rate measures the proportion of actual positives that are correctly identified.
- Refers to a test's ability to designate an individual with disease as positive.
- A highly sensitive test means that there are few false negative results, and thus fewer cases of disease are missed.

**SPECIFICITY**
- Specificity also called the true negative rate measures the proportion of actual negatives that are correctly identified.
- The percentage of healthy people who are correctly identified as not having the condition.
- Specificity avoids false positives.
PREHOSPITAL STROKE ASSESSMENT SCALES

CINCINNATI PREHOSPITAL STROKE SCALE (CPSS)

- Identifies facial paresis, arm drift, and abnormal speech.
- 80% of stroke patients will exhibit one or more of these symptoms.
- However, it has the same limitations for certain stroke-related deficits that can occur in isolation. Does not identify posterior circulation strokes.
- **Strength**: Quick and easy for EMS to use.

### CINCINNATI PREHOSPITAL STROKE SCALE

#### Facial Droop
- **Normal**: Both sides of face move equally
- **Abnormal**: One side of face does not move at all

#### Arm Drift
- **Normal**: Both arms move equally or not at all
- **Abnormal**: One arm drifts compared to the other

#### Speech
- **Normal**: Patient uses correct words with no slurring
- **Abnormal**: Slurred or inappropriate words or mute
PREHOSPITAL STROKE ASSESSMENT SCALES (CONTINUED)

LOS ANGELES PREHOSPITAL STROKE SCALE (LAPSS)

• Assesses for unilateral deficit facial paresis, hand grip weakness, and arm drift

• Pre-hospital stroke screening criteria:
  1. Patient is >45 years of age
  2. Has no history of seizure/epilepsy
  3. Symptom duration is < 24 hours
  4. Patient is not bedridden or wheelchair dependent at baseline
  5. Blood glucose is between 60-400 mg/dL.

• Sensitivity = 91% and Specificity = 97%

• Strength: Allows rapid identification while excluding common mimics

• Limitation: Number of items for EMS to complete

### LOS ANGELES PREHOSPITAL STROKE SCALE (LAPSS)

<table>
<thead>
<tr>
<th>Screening Criteria</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Age over 45 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. No prior history of seizure disorder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. New onset of neurologic symptoms in last 24 hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Patient was ambulatory at timeline (prior to event)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Blood glucose between 60 and 400</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

V. Examine for obvious asymmetry

<table>
<thead>
<tr>
<th>Facial smile/grin</th>
<th>Normal</th>
<th>Right</th>
<th>Left</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Grip</td>
<td>Grip</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Weak</td>
<td>No Grip</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Weak</td>
<td>No Grip</td>
</tr>
</tbody>
</table>

Arm weakness:

<table>
<thead>
<tr>
<th>Dribble Down</th>
<th>Falls Rapidly</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on exam, patient has only unilateral (and not bilateral) weakness:

Yes ☐  No ☐

10. If yes (or unknown) to all items above LAPSS screening criteria met:

Yes ☐  No ☐

11. ILAPSS criteria for stroke met, call receiving hospital with “CODE STROKE,” if not then return to the appropriate treatment protocol. (Note: the patient may still be experiencing a stroke if even ILAPSS criteria are not met.)

Yes ☐  No ☐
PREHOSPITAL STROKE ASSESSMENT SCALES (CONTINUED)

SEVERITY SCALES FOR LARGE VESSEL OCCLUSION

2018 AHA Guidelines: Uncertainty exists over optimal algorithm and optimal prehospital LVO screen

- **RACE**: Rapid Arterial Occlusion Evaluation
- **LAMS**: Los Angeles Motor Scale
- **FAST-ED**: Field Assessment Stroke Triage for Emergency Destination
- **CSTAT**: Cincinnati Prehospital Stroke Severity Scale
- **VAN**: Vision, Aphasia, Neglect Assessment
- **MEND**: Miami Emergency Neurologic Deficit
- **ROSIER**: Recognition of Stroke in the Emergency Room

“Off hand, I’d say your suffering from an arrow through your head, but just to play it safe, I’m going to conduct a bunch of assessments.”

Why you can’t have a perfect scale:

- Up to 29% of patient with baseline of NIHSS =0 had a proximal occlusion on CTA
- Most scales are subsets of NIHSS scores
- Patients with ICH, post seizure paralysis, hyperglycemia in the field can have high NIHSS
PREHOSPITAL STROKE ASSESSMENT SCALES (CONTINUED)

RAPID ARTERIAL OCCLUSION EVALUATION SCALE (RACE)

• This tool is based on the items of the NIHSS with the highest predictive value for large vessel occlusion (LVO).
• Focuses on facial palsy, extremity motor function, head and gaze deviation, and aphasia or agnosia.
• The RACE scale score range is 0-9 points
• RACE scale score >5 points is associated with detection of a LVO
• RACE has as a sensitivity of 85% and specificity of 68%

<table>
<thead>
<tr>
<th>ITEM</th>
<th>INSTRUCTION</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facial palsy</td>
<td>Ask patient to smile</td>
<td>Absent = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mild = 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Moderate to severe = 2</td>
</tr>
<tr>
<td>Arm motor function</td>
<td>Extend patient’s arm 90 degrees if sitting; 45 degrees if supine</td>
<td>Normal to mild = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Moderate = 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Severe = 2</td>
</tr>
<tr>
<td>Leg motor function</td>
<td>Extend patient’s leg 30 degrees in supine position</td>
<td>Normal to mild = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Moderate = 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Severe = 2</td>
</tr>
<tr>
<td>Head and gaze deviation</td>
<td>Observe deviation to one side</td>
<td>Absent = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Present = 1</td>
</tr>
<tr>
<td>Aphasia (right side)</td>
<td>Ask patient to close their eyes and make a fist</td>
<td>Normal = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Moderate = 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Severe = 2</td>
</tr>
<tr>
<td>Agnosia (left side)</td>
<td>Ask patient to recognize familiar objects</td>
<td>Normal = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Moderate = 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Severe = 2</td>
</tr>
</tbody>
</table>
ACUTE ASSESSMENT SCALES

GLASGOW COMA SCALE (GCS)

- Identifies ocular, verbal, and motor response to examination
- Tool is used to communicate the level of consciousness (LOC) of patients with an acute brain injury
- The scale was developed to complement and not replace assessments of other neurological functions
- **Strength:** Fast and easy to use
- **Limitation:** Developed as a trauma scale. Stroke patient with plegic arm can be scored a 6 on the motor response if they follow commands

<table>
<thead>
<tr>
<th>OPENS EYES</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Spontaneous</td>
<td>To verbal command</td>
<td>To pain</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>No response</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BEST MOTOR RESPONSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obeys verbal command</td>
</tr>
<tr>
<td>Localizes to pain</td>
</tr>
<tr>
<td>Flexion withdrawal to pain</td>
</tr>
<tr>
<td>Flexion abnormal to pain</td>
</tr>
<tr>
<td>Extension to pain</td>
</tr>
<tr>
<td>No response</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BEST VERBAL RESPONSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oriented, converses</td>
</tr>
<tr>
<td>Disoriented, converses</td>
</tr>
<tr>
<td>Inappropriate words</td>
</tr>
<tr>
<td>Incomprehensible sounds</td>
</tr>
<tr>
<td>No response</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TOTAL</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3 – 15</td>
<td>3 – 15</td>
</tr>
</tbody>
</table>
ACUTE ASSESSMENT SCALES

Emergency Evaluation
2.1 Stroke Scales

Standardized severity scales quantify neurologic deficit.
- Facilitate communication
- Identify patients for acute treatments
- Monitor for improvement or worsening

National Institute of Health Stroke Scale
- Preferred severity scale
  - Rapid
  - Accurate
  - Reliable
  - Can be performed by broad spectrum of providers

ACUTE ASSESSMENT SCALES

NATIONAL INSTITUTES OF HEALTH STROKE SCALE (NIHSS)

- Uses a 11 Item scale to measure neurological impairment
- Originally developed to be a research tool for Alteplase patients to determine 90 day outcomes
- NIHSS has become the “gold standard” scale in clinical trials and as part of clinical practice in the United States
- Baseline NIHSS scores are predictive values of an acute stroke patient’s clinical outcomes
- Quality metric for PSC, TSC and CSC Certifications
- Score what the patient does, not what you think they can do
Scoring range is 0-42 points. The higher the number, the greater the severity.

<table>
<thead>
<tr>
<th>Score</th>
<th>Stroke Severity</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No stroke symptoms</td>
</tr>
<tr>
<td>1-4</td>
<td>Minor stroke</td>
</tr>
<tr>
<td>5-15</td>
<td>Moderate stroke</td>
</tr>
<tr>
<td>16-20</td>
<td>Moderate to severe stroke</td>
</tr>
<tr>
<td>21-42</td>
<td>Severe stroke</td>
</tr>
</tbody>
</table>

**Strength:** Reliable tool to rapidly assess effects of stroke
- Medical providers and registered nurses expertly trained in the use of the scale are proven to have similar levels of accuracy
- Further reliability improved through the use of a standard training video

**Limitation:** Tool does not capture ALL stroke-related impairments
- Unsteady gait, dizziness, or diplopia attributed to posterior circulation stroke
- More complicated with patient in coma, intubated or aphasic
ACUTE ASSESSMENT SCALES

NATIONAL INSTITUTES OF HEALTH STROKE SCALE (NIHSS)

- Limitation: Difference between Left and Right Stroke scoring
  - Heavily weighted to Left Stroke: 0-5 points for language
  - Case Study: Joe, police officer
    - Slurred speech, facial droop, right arm and leg weakness
    - Scoring 4-10 depending on severity
  - Case Study: Sherry, retired teacher
    - Sudden onset headache, difficulty walking, nausea and left field visual cut
    - Score = 2

- Avoid “Too Good to Treat”
  - Disability Questions
    - Will this stroke impact how you perform your regular activities and hobbies?
    - Will you be able to return to work as normal?
    - Are you right or left handed?
ACUTE ASSESSMENT SCALES

MODIFIED NATIONAL INSTITUTES OF HEALTH STROKE SCALE

• Shortened, validated version of the NIHSS
  ➢ Created in 2001, goal of both simplifying the scale, improving its reproducibility and providing more relevance to each assigned point
  ➢ 1A, 7 and 10 are eliminated, and 3 and 4 are combined
  ➢ Same correlation with clinical outcomes as the NIHSS but with better interrater reliability
  ➢ Performs as well as the original score in predicting patients at high risk of hemorrhage if given tPA and which patients are likely to have good clinical outcomes.

• Per Joint Commission Surveyors: Use validated version, do not create your own version.
  ➢ Many organizations use for their basic neuro checks
  ➢ Need to ensure all presenting symptoms are assessed with each neuro check
ACUTE ASSESSMENT SCALES

INTRACEREBRAL HEMORRHAGE SCALE (ICH SCORE)

- Uses a 5-item scale
- Predictor of 30 day mortality
- Developed to standardize clinical grading to improve communication and consistency between healthcare providers.

- **Sensitivity** = 66% in predicting 30 day mortality

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FUNCTIONAL ASSESSMENT SCALES

BERG BALANCE SCALE (BBS)

- 14-item scale designed to measure the balance of older patients in the clinical setting
- Scoring range is 0-4 points. The greater the number, the higher the level of function.
  - 41-56 = Independent
  - 21-40 = Walking with assistance
  - 0-20 = Wheelchair bound
- **Sensitivity** = 91% and **Specificity** = 82%

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Intracerebral Hemorrhage Volume

\[
\text{XYZ/2} = \text{volume in cm}^3 (\text{ml})
\]

\[
X = \text{largest width in cm}
\]

\[
Y = \text{largest length in cm}
\]

\[
Z = \text{slice (image slice width in cm)}
\]

Intracerebral Hemorrhage Score

<table>
<thead>
<tr>
<th>Score</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glasgow Coma Score</td>
<td>3 – 4</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>5 – 12</td>
<td>1</td>
<td>3 – 15</td>
<td>0</td>
</tr>
<tr>
<td>ICH Volume</td>
<td>≥ 30cc</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>&lt; 30cc</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Intraventricular Hemorrhage</td>
<td>yes</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>no</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Intracisternal Hemorrhage</td>
<td>yes</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>no</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>≥ 80 years</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>&lt; 80 years</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>0 – 6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
FUNCTIONAL ASSESSMENT SCALES

MODIFIED RANKIN SCALE (mRS)

- 7-grade scale measuring functional independence and gait stability
- mRS has been used to measure stroke outcomes and functional impact post-stroke
- The scale is used a “core metric” of Comprehensive Stroke Centers; evaluating 90-day clinical outcomes of post-IV tPA (Alteplase) or endovascular intervention (EVT) patients
- A mRS score appears to show moderate correlation with the volume of cerebral infarction
- Good Outcome: 0-2
OUTCOME ASSESSMENT SCALES

BARTHEL INDEX (BI)

• The index measures 10 basic aspects of self-care and patient's physical dependency.
• A normal Barthel Index score = 100
  ➢ >60 = Assisted independence
  ➢ <40 = Severe dependency
• Strength: An excellent validity and reliability rate and widely used for stroke.
• Limitation: A low sensitivity for high-level functioning or chronically disabled.

Modified Rankin Score: Disability Score

Can the patient walk without the assistance of a person? (may use a cane or walker)

5  Severe: bed-bound, incontinent, requiring 24-hour care and supervision
4  Mod-severe: not bed-bound but requires the assistance of a person to walk, unable to attend to own bodily needs without assistance, might be able to be left alone for a few hours a day

Can the patient live alone without any help from another person? (independent in ADLS, preparing meals and managing finances)

3  Moderate: can walk without a person but needs assistance, might be able to be left alone for a few days at a time, could not live alone

Is the patient back to all pre-stroke activities? (albeit slower or modified in some fashion)

2  Slight: unable to carry out usual activities, usually able to look after own affairs, able to live alone with some outside assistance

Did the stroke symptoms completely resolve?

1  No significant disability: despite residual symptoms from stroke, able to return to all usual duties and responsibilities
0  No stroke symptoms: at all (may have other complaints)

Stroke 2010; 41:1048
BARTHEL ADL INDEX: GUIDELINES

1. The index should be used as a record of what a patient does, not as a record of what a patient could do.

2. The main aim is to establish degree of independence from any help, physical or verbal, however minor and for whatever reason.

3. The need for supervision renders the patient not independent.

4. A patient’s performance should be established using the best available evidence. Asking the patient, friends/relatives and nurses are the usual sources, but direct observation and common sense are also important. However, direct testing is not needed.

5. Usually the patient’s performance over the preceding 24-48 hours is important, but occasionally longer periods will be relevant.

6. Middle categories imply that the patient supplies over 50% of the effort.

7. Use of aids to be independent is allowed.

<table>
<thead>
<tr>
<th>Barthel Activities of Daily Living Index: Score what the patient actually does, not what you think he or she can do.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Feeding</strong></td>
</tr>
<tr>
<td><strong>Dressing</strong></td>
</tr>
<tr>
<td><strong>Grooming</strong></td>
</tr>
<tr>
<td><strong>Bathing</strong></td>
</tr>
<tr>
<td><strong>Transfers</strong></td>
</tr>
<tr>
<td><strong>Mobility</strong></td>
</tr>
<tr>
<td><strong>Stairs</strong></td>
</tr>
<tr>
<td><strong>Toilet Use</strong></td>
</tr>
<tr>
<td><strong>Bladder</strong></td>
</tr>
<tr>
<td><strong>Bowel</strong></td>
</tr>
</tbody>
</table>

OUTCOME ASSESSMENT SCALES

GLASGOW OUTCOME SCALE (GOS)

• Global scale evaluating functional outcome of patients status post traumatic brain injury

• GOS predicts the long-term course of rehabilitation to return to work and everyday life

• The scale rates:
  - Severe injury or death without recovery of consciousness
  - Severe damage with prolonged state of unresponsiveness; lack of mental functions
  - Severe injury with permanent need for help with daily living
  - No need for assistance, employment is possible but may require special equipment
  - Light damage with minor neurological and psychological deficits
OTHER DIAGNOSTIC & SCREENING SCALES

HACHINSKI ISCHAEMIA SCORE (HIS)

- 13-item scale used for differentiating various types of dementia
- A high HIS score of 7 or greater = vascular dementia
- A low HIS score of 6 or less = a non-vascular dementia neurological change
- Valid in predicting a true diagnosis based on acceptable sensitivity and specificity defining vascular dementia.
- Research suggests that high HIS scores may indicate the presence of another vascular factor, such as stroke, as the cause for a patient's decrease in cognitive function.

GLASGOW OUTCOME SCALE

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DEATH</td>
</tr>
<tr>
<td>2</td>
<td>PERSISTENT VEGETATIVE STATE</td>
</tr>
<tr>
<td></td>
<td>Patient exhibits no obvious cortical function.</td>
</tr>
<tr>
<td>3</td>
<td>SEVERE DISABILITY</td>
</tr>
<tr>
<td></td>
<td>(Conscious but disabled). Patient depends upon others for daily support due to mental or physical disability or both.</td>
</tr>
<tr>
<td>4</td>
<td>MODERATE DISABILITY</td>
</tr>
<tr>
<td></td>
<td>(Death/Independent). Patient is independent as far as daily life is concerned. The disabilities found include varying degrees of dysphasia, hemiparesis, or amsia, as well as intellectual and memory deficits and personality changes.</td>
</tr>
<tr>
<td>5</td>
<td>GOOD RECOVERY</td>
</tr>
<tr>
<td></td>
<td>Resumption of normal activities even though there may be minor neurological or psychological deficits.</td>
</tr>
</tbody>
</table>

TOTAL (1-5): ______

Note: The scale presented here is based on the original article by Jennett and Bond. It has become common practice in clinical trial administration, however, to use a modified version that places the scores in reverse order (i.e., “good recovery” = 1, “moderate disability” = 2, etc.).
OTHER DIAGNOSTIC & SCREENING SCALES

PATIENT HEALTH QUESTIONNAIRE-2 (PHQ2):

• The purpose of the PHQ-2 is to screen for depression in a “first-step” approach, not to assess depression severity.

• A PHQ-2 score ranges from 0-6. The authors identified a score of 3 as the optimal cutpoint when using the PHQ-2 to screen for depression.

• If the score is 3 or greater, major depressive disorder is likely.

• Patients who screen positive should be further evaluated with the PHQ-9, other diagnostic instruments, or direct interview to determine whether they meet criteria for a depressive disorder

• A PHQ-2 score of 3 or greater has a sensitivity for major depression of 83%, a specificity of 90%

• Limitation: Not validated in an inpatient setting
OTHER DIAGNOSTIC & SCREENING SCALES

PATIENT HEALTH QUESTIONNAIRE-2 (PHQ2):

<table>
<thead>
<tr>
<th>Over the last 2 weeks, how often have you been bothered by the following problems?</th>
<th>Not at all</th>
<th>Several days</th>
<th>More than half the days</th>
<th>Nearly every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Little interest or pleasure in doing things</td>
<td>0</td>
<td>+1</td>
<td>+2</td>
<td>+3</td>
</tr>
<tr>
<td>2. Feeling down, depressed or hopeless</td>
<td>0</td>
<td>+1</td>
<td>+2</td>
<td>+3</td>
</tr>
</tbody>
</table>

The PHQ-9 is a multipurpose instrument for screening, diagnosing, monitoring and measuring the severity of depression.

PHQ-9 score ranges from 0 to 27 for 9 items.

Advantages of the PHQ-9:

- Shorter than other depression rating scales
- Can be administered in person by a clinician, by telephone, or self-administered
- Facilitates diagnosis of major depression
- Provides assessment of symptom severity
- Is well validated and documented in a variety of populations
- Can be used in adolescents as young as 12 years of age

Question 9 is a single screening question on suicide risk. A patient who answers yes to question 9 needs further assessment for suicide risk by an individual who is competent to assess this risk.

Score of 10 or greater, has sensitivity for major depression of 88%, a specificity of 88%

Limitation: Limited in identifying individuals with anxiety disorders. Not been examined for administration to psychiatric patients.

OTHER DIAGNOSTIC & SCREENING SCALES

PATIENT HEALTH QUESTIONNAIRE-9 (PHQ9):

- The PHQ-9 is a multipurpose instrument for screening, diagnosing, monitoring and measuring the severity of depression

- PHQ-9 score ranges from 0 to 27 for 9 items

- Advantages of the PHQ-9:
  - Shorter than other depression rating scales
  - Can be administered in person by a clinician, by telephone, or self-administered
  - Facilitates diagnosis of major depression
  - Provides assessment of symptom severity
  - Is well validated and documented in a variety of populations
  - Can be used in adolescents as young as 12 years of age

- Question 9 is a single screening question on suicide risk. A patient who answers yes to question 9 needs further assessment for suicide risk by an individual who is competent to assess this risk.

- Score of 10 or greater, has sensitivity for major depression of 88%, a specificity of 88%

- Limitation: Limited in identifying individuals with anxiety disorders. Not been examined for administration to psychiatric patients.
### PATIENT HEALTH QUESTIONNAIRE-9 (PHQ9):

**Over the last 2 weeks, how often have you been bothered by any of the following problems?**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Not at all</th>
<th>Several days</th>
<th>More than half the days</th>
<th>Nearly every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Little interest or pleasure in doing things</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2. Feeling down, depressed, or hopeless</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3. Trouble falling or staying asleep, or sleeping too much</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4. Feeling tired or having little energy</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5. Poor appetite or overeating</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6. Feeling bad about yourself or that you are a failure or have let yourself or your family down</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7. Trouble concentrating on things, such as reading the newspaper or watching television</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8. Moving or speaking so slowly that other people could have noticed. Or the opposite - being so fidgety or restless that you have been moving around a lot more than usual</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9. Thoughts that you would be better off dead or of hurting yourself in some way</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

(For office coding: Total Score = ___ + ___ + ___ + ___)

---

### Interpretation

<table>
<thead>
<tr>
<th>PHQ-9 Score</th>
<th>Depression Severity</th>
<th>Proposed Treatment Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 4</td>
<td>None-minimal</td>
<td>None</td>
</tr>
<tr>
<td>5 – 9</td>
<td>Mild</td>
<td>Watchful waiting; repeat PHQ-9 at follow-up</td>
</tr>
<tr>
<td>10 – 14</td>
<td>Moderate</td>
<td>Treatment plan, considering counseling, follow-up and/or pharmacotherapy</td>
</tr>
<tr>
<td>15 – 19</td>
<td>Moderately severe</td>
<td>Active treatment with pharmacotherapy and/or psychotherapy</td>
</tr>
<tr>
<td>20 – 27</td>
<td>Severe</td>
<td>Immediate initiation of pharmacotherapy and, if severe impairment or poor response to therapy, expedited referral to a mental health specialist for psychotherapy and/or collaborative management</td>
</tr>
</tbody>
</table>
OTHER DIAGNOSTIC & SCREENING SCALES

HAMILTON RATING SCALE FOR DEPRESSION (HAM-D)

- 17-item questionnaire used to evaluate for depression and evaluate a patient’s recovery status.
- Score of 0-7 is normal while a score of 20 or high is indicating a least moderate severity.
- Designed for adults and rates the severity of individual patient depression by examining; mood, feelings of guilt, thoughts of suicide, insomnia, agitation, cognitive delay, anxiety, loss of weight, and somatic symptoms.
- **Limitation:** Focuses on insomnia; rather than feelings of hopelessness, suicidal ideation or action.

### HAMILTON RATING SCALE FOR DEPRESSION

<table>
<thead>
<tr>
<th>Item</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Patient’s mood today is more depressed than yesterday.</td>
</tr>
<tr>
<td>2.</td>
<td>Difficulty initiating and maintaining sexual activity.</td>
</tr>
<tr>
<td>3.</td>
<td>Weight loss.</td>
</tr>
<tr>
<td>4.</td>
<td>Difficulty falling asleep.</td>
</tr>
<tr>
<td>5.</td>
<td>Difficulty maintaining a sleep pattern.</td>
</tr>
<tr>
<td>6.</td>
<td>Loss of interest or pleasure.</td>
</tr>
<tr>
<td>7.</td>
<td>Difficulty concentrating.</td>
</tr>
<tr>
<td>8.</td>
<td>Feelings of guilt.</td>
</tr>
<tr>
<td>9.</td>
<td>Insomnia.</td>
</tr>
<tr>
<td>10.</td>
<td>Anxiety.</td>
</tr>
</tbody>
</table>

**Note:**
- A score of 0-7 is normal.
- A score of 20 or high is indicating a least moderate severity.
WHAT SCALE TO USE?

- Most Common:
  - CPS
  - NIHSS
  - mRS
  - Barthel

- No one scale fits every situation

- Which scale you use should be based on the question you are trying to answer and the scales properties.

- They do not always tell the whole story
REFERENCES


