

Mnemonics in a nutshell: 32 aids to psychiatric diagnosis

Clever, irreverent, or amusing, a mnemonic you remember is a lifelong learning tool

From SIG: E CAPS to CAGE and WWHHHHIMPS, mnemonics help practitioners and trainees recall important lists (such as criteria for depression, screening questions for alcoholism, or life-threatening causes of delirium, respectively). Mnemonics' efficacy rests on the principle that grouped information is easier to remember than individual points of data.

Not everyone loves mnemonics, but recollecting diagnostic criteria is useful in clinical practice and research, on board examinations, and for insurance reimbursement. Thus, tools that assist in recalling diagnostic criteria have a role in psychiatric practice and teaching.

In this article, we present 32 mnemonics to help clinicians diagnose:

- affective disorders (*Box 1, page 28*)^{1,2}
- anxiety disorders (*Box 2, page 29*)³⁻⁶
- medication adverse effects (*Box 3, page 29*)^{7,8}
- personality disorders (*Box 4, page 30*)⁹⁻¹¹
- addiction disorders (*Box 5, page 32*)^{12,13}
- causes of delirium (*Box 6, page 32*).¹⁴

We also discuss how mnemonics improve one's memory, based on the principles of learning theory.

How mnemonics work

A mnemonic—from the Greek word “mnemonikos” (“of memory”)—links new data with previously learned information. Mnemonics assist in learning by reducing the amount of information (“cognitive load”) that needs



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Mnemonics

to be stored for long-term processing and retrieval.¹⁵

Memory, defined as the “persistence of learning in a state that can be revealed at a later time,”¹⁶ can be divided into 2 types:

- declarative (a conscious recollection of facts, such as remembering a relative’s birthday)
- procedural (skills-based learning, such as riding a bicycle).

Declarative memory has a conscious component and may be mediated by the medial temporal lobe and cortical association structures. Procedural memory has less of a conscious component; it may involve the basal ganglia, cerebellum, and a variety of cortical sensory-perceptive regions.¹⁷

Declarative memory can be subdivided into working memory and long-term memory.

With working memory, new items of information are held briefly so that encoding and eventual storage can take place.

Working memory guides decision-making and future planning and is intricately related to attention.¹⁸⁻²¹ Functional MRI and positron emission tomography as well as neurocognitive testing have shown that working memory tasks activate the prefrontal cortex and brain regions specific to language and visuo-spatial memory.

The hippocampus is thought to rapidly absorb new information, and this data is consolidated and permanently stored via the prefrontal cortex.²²⁻²⁶ Given the hippocampus’ limited storage capacity, new information (such as what you ate for breakfast 3 weeks ago) will disappear if it is not repeated regularly.¹⁷

BOX 1. MNEMONICS FOR DIAGNOSING AFFECTIVE DISORDERS

Depression

SIG: E CAPS*

- S**uicidal thoughts
- I**nterests decreased
- G**uilt
- E**nergy decreased
- C**oncentration decreased
- A**ppetite disturbance
(increased or decreased)
- P**sychemotor changes
(agitation or retardation)
- S**leep disturbance
(increased or decreased)

* Created by Carey Gross, MD

Dysthymia

HE’S 2 SAD²

- H**opelessness
- E**nergy loss or fatigue
- S**elf-esteem is low
- 2** years minimum of depressed mood most of the day, for more days than not
- S**leep is increased or decreased
- A**ppetite is increased or decreased
- D**ecision-making or concentration is impaired

Mania

DIG FAST

- D**istractibility
- I**ndiscretion
- G**randiosity
- F**light of ideas
- A**ctivity increase
- S**leep deficit
- T**alkativeness

Depression

C GASP DIE¹

- C**oncentration decreased
- G**uilt
- A**ppetite
- S**leep disturbance
- P**sychemotor agitation or retardation
- D**eath or suicide (thoughts or acts of)
- I**nterests decreased
- E**nergy decreased

Hypomania

TAD HIGH

- T**alkative
- A**ttention deficit
- D**ecreased need for sleep
- H**igh self-esteem/grandiosity
- I**deas that race
- G**oal-directed activity increased
- H**igh-risk activity

Mania

DeTeR the HIGH*

- D**istractibility
- T**alkativeness
- R**eckless behavior
- H**yposomnia
- I**deas that race
- G**randiosity
- H**ypersexuality

* Created by Carey Gross, MD



Long-term memory, on the other hand, is encoded knowledge that is linked to facts learned in the past; it is consolidated in the brain and can be readily retrieved. Neuroimaging studies have demonstrated opposing patterns of activation in the hippocampus and prefrontal cortex, depending on whether the memory being recalled is:

- new (high hippocampal activity, low prefrontal cortex activity)

- old (low hippocampal activity, high prefrontal cortex activity).²⁷

Mnemonics are thought to affect working memory by reducing the introduced cognitive load and increasing the efficiency of memory acquisition and encoding. They reduce cognitive load by grouping objects into a single verbal or visual cue that can be introduced into working memory. Learning is optimized when the load on

BOX 2. MNEMONICS FOR DIAGNOSING ANXIETY DISORDERS

Generalized anxiety disorder

Worry WARTS³

Wound up
Worn-out
Absentminded
Restless
Touchy
Sleepless

Posttraumatic stress disorder

TRAUMA⁵

Traumatic event
Re-experience
Avoidance
Unable to function
Month or more of symptoms
Arousal increased

Anxiety disorder due to a general medical condition

Physical Diseases That Have Commonly Appeared Anxious:

Pheochromocytoma
Diabetes mellitus
Temporal lobe epilepsy
Hyperthyroidism
Carcinoid
Alcohol withdrawal
Arrhythmias

Generalized anxiety disorder

WATCHERS⁴

Worry
Anxiety
Tension in muscles
Concentration difficulty
Hyperarousal (or irritability)
Energy loss
Restlessness
Sleep disturbance

Posttraumatic stress disorder

DREAMS⁶

Disinterest in usual activities
Re-experience
Event preceding symptoms
Avoidance
Month or more of symptoms
Sympathetic arousal

BOX 3. MNEMONICS FOR DIAGNOSING MEDICATION ADVERSE EFFECTS

Antidepressant discontinuation syndrome

FINISH⁷

Flu-like symptoms
Insomnia
Nausea
Imbalance
Sensory disturbances
Hyperarousal (anxiety/agitation)

Neuroleptic malignant syndrome

FEVER⁸

Fever
Encephalopathy
Vital sign instability
Elevated WBC/CPK
Rigidity

WBC: white blood cell count
CPK: creatine phosphokinase

Serotonin syndrome

HARMED

Hyperthermia
Autonomic instability
Rigidity
Myoclonus
Encephalopathy
Diaphoresis



Mnemonics

working memory is minimized, enabling long-term memory to be facilitated.²⁸

Mnemonics may use rhyme, music, or visual cues to enhance memory. Most mnemonics used in medical practice and education are word-based, including:

- **Acronyms**—words, each letter of which stands for a particular piece of information to be recalled (such as RICE for treatment of a sprained joint: rest, ice, compression, elevation).
- **Acrostics**—sentences with the first letter of each word prompting the desired recollection (such as “To Zanzibar by motor car” for the branches of the facial nerve: temporal, zygomatic, buccal, mandibular, cervical).
- **Alphabetical sequences** (such as ABCDE of trauma assessment: airway, breathing, circulation, disability, exposure).²⁹

An appropriate teaching tool?

Dozens of mnemonics addressing psychiatric diagnosis and treatment have been published, but relatively few are widely used. Psychiatric educators may resist teaching with mnemonics, believing they might erode a humanistic approach to patients by reducing psychopathology to “a laundry list” of symptoms and the art of psychiatric diagnosis to a “check-box” endeavor. Mnemonics that use humor may be rejected as irreverent or unprofessional.³⁰ Publishing a novel mnemonic may be viewed with disdain by some as an “easy” way of padding a curriculum vitae.

Entire Web sites exist to share mnemonics for medical education (see *Related Resources, page 33*). Thus it is likely that trainees are using them with or without their teachers’ supervision. Psychiatric ed-

BOX 4. MNEMONICS FOR DIAGNOSING PERSONALITY DISORDERS

Paranoid personality disorder

SUSPECT⁹

- S**pousal infidelity suspected
- U**nforgiving (bears grudges)
- S**uspicious
- P**erceives attacks (and reacts quickly)
- E**nemy or friend? (suspects associates and friends)
- C**onfiding in others is feared
- T**hreats perceived in benign events

Schizotypal personality disorder

ME PECULIAR⁹

- M**agical thinking
- E**xperiences unusual perceptions
- P**aranoid ideation
- E**ccentric behavior or appearance
- C**onstricted or inappropriate affect
- U**nusual thinking or speech
- L**acks close friends
- I**deas of reference
- A**nxiety in social situations
- R**ule out psychotic or pervasive developmental disorders

Borderline personality disorder

IMPULSIVE¹⁰

- I**mpulsive
- M**oodiness
- P**aranoia or dissociation under stress
- U**nstable self-image
- L**abile intense relationships
- S**uicidal gestures
- I**nappropriate anger
- V**ulnerability to abandonment
- E**mptiness (feelings of)

Schizoid personality disorder

DISTANT⁹

- D**etached or flattened affect
- I**ndifferent to criticism or praise
- S**exual experiences of little interest
- T**asks done solitarily
- A**bsence of close friends
- N**either desires nor enjoys close relationships
- T**akes pleasure in few activities

Antisocial personality disorder

CORRUPT⁹

- C**annot conform to law
- O**bligations ignored
- R**eckless disregard for safety
- R**emorseless
- U**nderhanded (deceitful)
- P**lanning insufficient (impulsive)
- T**emper (irritable and aggressive)

Borderline personality disorder

DESPAIRER*

- D**isturbance of identity
- E**motionally labile
- S**uicidal behavior
- P**aranoia or dissociation
- A**bandonment (fear of)
- I**mpulsive
- R**elationships unstable
- E**mptiness (feelings of)
- R**age (inappropriate)

* Created by Jason P. Caplan, MD

ucators need to be aware of the mnemonics their trainees are using and to:

- screen these tools for factual errors (such as incomplete diagnostic criteria)
- remind trainees that although mnemonics are useful, psychiatrists should approach patients as individuals without the prejudice of a potentially pejorative label.

Our methodology

In preparing this article, we gathered numerous mnemonics (some published and some novel) designed to capture the learner’s attention and impart information pertinent to psychiatric diagnosis and treatment. Whenever possible, we credited each mnemonic to its creator, but—given the difficulty in confirming authorship of (what in many cases has become) oral his-

tory—we’ve listed some mnemonics without citation.

Our list is far from complete because we likely are unaware of many mnemonics, and we have excluded some that seemed obscure, unwieldy, or redundant. We have not excluded mnemonics that some may view as pejorative but merely report their existence. Including them does not mean that we endorse them.

This article lists 32 mnemonics related to psychiatric diagnosis. Thus, it seems odd that an informal survey of >60 residents at the Massachusetts General Hospital (MGH)/McLean Residency Training Program in Psychiatry revealed that most were aware of only 2 or 3 psychiatric mnemonics, typically:

- SIG: E CAPS (a tool to recall the criteria for depression)

continued

Histrionic personality disorder

PRAISE ME⁹

- P**rovocative or seductive behavior
- R**elationships considered more intimate than they are
- A**ttention (need to be the center of)
- I**nfluenced easily
- S**tyle of speech (impressionistic, lacking detail)
- E**motions (rapidly shifting, shallow)
- M**ake up (physical appearance used to draw attention to self)
- E**motions exaggerated

Narcissistic personality disorder

GRANDIOSE¹¹

- G**randiose
- R**equires attention
- A**rrogant
- N**eed to be special
- D**reams of success and power
- I**nterpersonally exploitative
- O**thers (unable to recognize feelings/needs of)
- S**ense of entitlement
- E**nvious

Dependent personality disorder

RELIANCE⁹

- R**eassurance required
- E**xpressing disagreement difficult
- L**ife responsibilities assumed by others
- I**nitiating projects difficult
- A**lone (feels helpless and uncomfortable when alone)
- N**urturance (goes to excessive lengths to obtain)
- C**ompanionship sought urgently when a relationship ends
- E**xaggerated fears of being left to care for self

Histrionic personality disorder

ACTRESSS*

- A**ppearance focused
- C**enter of attention
- T**heatrical
- R**elationships (believed to be more intimate than they are)
- E**asily influenced
- S**eductive behavior
- S**hallow emotions
- S**peech (impressionistic and vague)

* Created by Jason P. Caplan, MD

Avoidant personality disorder

CRINGES⁹

- C**riticism or rejection preoccupies thoughts in social situations
- R**estraint in relationships due to fear of shame
- I**nhibited in new relationships
- N**eeds to be sure of being liked before engaging socially
- G**ets around occupational activities with need for interpersonal contact
- E**mbarrassment prevents new activity or taking risks
- S**elf viewed as unappealing or inferior

Obsessive-compulsive personality disorder

SCRIMPER*

- S**tubborn
- C**annot discard worthless objects
- R**ule obsessed
- I**nflexible
- M**iserly
- P**erfectionistic
- E**xcludes leisure due to devotion to work
- R**eluctant to delegate to others

* Created by Jason P. Caplan, MD





Mnemonics

- DIG FAST (a list of criteria for diagnosing mania)
- WWHHHHIMPS (a tool for recalling life-threatening causes of delirium).

Although this unscientific survey may be biased because faculty or trainees at MGH created the above 3 mnemonics, it nonetheless begs the question of what qualities make a mnemonic memorable.

Learning theory provides several clues. George Miller's classic 1956 paper, "The magical number seven, plus or minus two: some limits on our capacity for processing information," discussed the finding that 7 seems to be the upper limit of individual pieces of data that can be easily remem-

bered.³¹ Research also has shown that recruiting the limbic system (potentially through the use of humor) aids in the recall of otherwise dry, cortical information.^{32,33}

Intuitively, it would seem that nonrepeating letters would facilitate the recall of the linked data, allowing each letter to provide a distinct cue, without any clouding by redundancy. Of the 3 most popular psychiatric mnemonics, however, only DIG FAST fits the learning theory. It contains 7 letters, repeats no letters, and has the limbic cue of allowing the learner to imagine a person with mania digging furiously.

SIG: E CAPS falls within the range of 7 plus or minus 2, includes a limbic cue

BOX 5. MNEMONICS FOR DIAGNOSING ADDICTION DISORDERS

Substance dependence

ADDICTeD¹²

- A**ctivities are given up or reduced
- D**ependence, physical: tolerance
- D**ependence, physical: withdrawal
- I**ntrapersonal (Internal) consequences, physical or psychological
- C**an't cut down or control use
- T**ime-consuming
- D**uration or amount of use is greater than intended

Substance abuse

WILD¹²

- W**ork, school, or home role obligation failures
- I**nterpersonal or social consequences
- L**egal problems
- D**angerous use

Alcohol abuse

CAGE¹³

- Have you ever felt you should **CUT DOWN** your drinking?
- Have people **ANNOYED** you by criticizing your drinking?
- Have you ever felt bad or **GUILTY** about your drinking?
- Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover (**EYE-OPENER**)?

CLIP AND SAVE

BOX 6. MNEMONICS FOR DIAGNOSING DELIRIUM

Causes

I WATCH DEATH

- I**nfection
- W**ithdrawal
- A**cute metabolic
- T**rauma
- C**NS pathology
- H**ypoxia
- D**eficiencies
- E**ndocrinopathies
- A**cute vascular
- T**oxins or drugs
- H**heavy metals

Life-threatening causes

WWHHHHIMPS*

- W**ernicke's encephalopathy
- W**ithdrawal
- H**ypertensive crisis
- H**ypoperfusion/hypoxia of the brain
- H**ypoglycemia
- H**yper/hypothermia
- I**ntracranial process/infection
- M**etabolic/meningitis
- P**oisons
- S**tatus epilepticus

* Created by Gary W. Small, MD

Deliriogenic medications

ACUTE CHANGE IN MS¹⁴

- A**ntibiotics
- C**ardiac drugs
- U**rinary incontinence drugs
- T**heophylline
- E**thanol
- C**orticosteroids
- H**2 blockers
- A**ntiparkinsonian drugs
- N**arcotics
- G**eriatric psychiatric drugs
- E**NT drugs
- I**nsomnia drugs
- N**SAIDs
- M**uscle relaxants
- S**eizure medicines

CLIP AND SAVE

(although often forgotten, it refers to the prescription of energy capsules for depression), but repeats the letter S.

WVHHHHHIMPS, with 10 letters, exceeds the recommended range, repeats the W (appearing twice) and the H (appearing 4 times), and provides no clear limbic cue.

It may be that recruiting the limbic system provides the greatest likelihood of recall. Recruiting this system may add increased valence to a particular mnemonic for a specific individual, but this same limbic valence may limit its usefulness in a professional context.

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Related Resources

- Free searchable database of medical mnemonics. www.medicalmnemonics.com.
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Clinical Point

We included some mnemonics that may be viewed as pejorative, but that does not mean we endorse them

Bottom Line

Recollecting diagnostic criteria is useful in clinical practice, on board examinations, and for insurance reimbursement. Mnemonics are well-suited to learning and recalling lists of signs and symptoms required for accurate psychiatric diagnosis.