

Major Depressive Disorder and Suicide Risk

Major depression with suicide risk comes from broken mood circuits in the brain, plus access to deadly things, plus a life crisis that pushed the person past their limit.

THE ONE-LINE TRUTH

Keep the person alive first, then fix the brain chemistry and the life problems that fed it.

The chain — how it unfolds

1. Chronic stress, genes, trauma, or medical illness damage the prefrontal cortex (the brain's planning and brake center), hippocampus (the memory center), and amygdala (the alarm center). — why: High cortisol poisons brain cells, kills connections, and shrinks these structures. Genes can make serotonin receptors work poorly or reduce serotonin production from birth. Trauma or illness trigger inflammation that damages brain circuits.
2. Serotonin, norepinephrine, and dopamine drop too low. — why: Damaged circuits can't make enough of these messengers, or the receptors that receive them stop working well. Without these chemicals, the brain loses its ability to steady mood, power energy, or feel pleasure.
3. The person feels crushing sadness, loses interest in everything (anhedonia), can't sleep or sleeps all the time, can't eat or eats too much, feels exhausted, can't concentrate, feels worthless, and thinks about death. — why: Low serotonin → sadness, sleep chaos, appetite chaos. Low norepinephrine → exhaustion, brain fog. Low dopamine → anhedonia. Weak prefrontal cortex → can't see a future, can't control dark thoughts. Overactive amygdala → fear, hopelessness. Shrinking hippocampus → can't remember that pain ended before.
4. The person starts thinking 'I wish I were dead' (passive suicidal ideation), then 'I want to kill myself' (active suicidal ideation), then makes a plan for how to do it. — why: The broken prefrontal cortex can't imagine a future or stop catastrophic thinking. The overactive amygdala floods the person with unbearable emotional pain. Suicide thoughts appear as the brain's desperate, wrong solution to end suffering.

5. If the person has access to lethal means (guns, pills, heights, ropes) and a fresh crisis hits (breakup, job loss, humiliation, medical diagnosis), the risk of death in the next hours to days becomes very high. — why: Access to means makes the plan easy to carry out. A fresh crisis adds unbearable shame or hopelessness that pushes the person past their last bit of endurance. Impulsivity (from a damaged prefrontal cortex) means the person may act within minutes of deciding.
6. We intervene by removing or locking up all lethal means, admitting the person to the hospital if risk is high, starting an antidepressant (usually an SSRI like sertraline or escitalopram) to rebuild serotonin, and beginning psychotherapy (especially cognitive-behavioral therapy or dialectical behavior therapy) to teach new ways to handle pain and challenge hopeless thoughts. — why: Removing means buys time and prevents impulsive death. Hospitalization provides 24-hour monitoring during the highest-risk period. SSRIs increase serotonin in the synapse by blocking reuptake, which slowly rebuilds mood regulation over 4–8 weeks. Therapy rewires thought patterns and teaches skills the damaged prefrontal cortex can't generate on its own.
7. We watch closely in the first 1–2 weeks of treatment and the first 30 days after discharge, because energy may return before hope does, giving the person the strength to act on a plan—and we address life stressors (housing, job, relationships, trauma) because fixing brain chemistry alone won't work if the environment keeps reinjuring the person. — why: Suicide is never just biology and never just circumstance—it's both. Treat the brain and the life, or the person will keep cycling back into crisis.
8. With consistent treatment—medicine, therapy, safety planning, and life stability—serotonin, norepinephrine, and dopamine rise, the prefrontal cortex regrows connections, the amygdala calms, and the hippocampus heals. Suicidal thoughts fade, hope returns, and the person can see a future again. — why: The brain can heal if we give it time, chemistry support, new skills, and a safer environment. Recovery is real, but it takes weeks to months and requires the person to stay alive long enough for the circuits to rebuild.

Spot it — what you see, and why

- Persistent sad, empty, or hopeless mood lasting most of the day, nearly every day for at least two weeks: The brain's mood circuits—especially the prefrontal cortex (the thinking and planning area) and limbic system (the feeling center including the amygdala)—become less active, and serotonin (a brain messenger that steadies mood) and norepinephrine (a messenger that helps with energy and focus) drop too low, so the person feels stuck in sadness and can't see a way forward.

- Loss of interest or pleasure in nearly all activities, even things the person used to love: The reward pathway in the brain—especially the ventral striatum and nucleus accumbens (areas that make activities feel good)—stops responding normally because dopamine (the brain's main pleasure and motivation signal) is too low, so nothing feels worth doing anymore.
- Significant weight change (loss or gain of more than 5% in a month) or change in appetite nearly every day: Depression disrupts the hypothalamus (the brain's control tower for hunger, stress, and sleep), changing levels of cortisol (the body's main stress hormone) and other signals that tell the body when to eat, so the person either loses all interest in food or eats much more to try to feel better.
- Insomnia (trouble falling or staying asleep) or hypersomnia (sleeping too much) nearly every day: The brain's sleep-wake cycle, controlled by the suprachiasmatic nucleus in the hypothalamus and regulated by serotonin and melatonin (a sleep hormone), gets thrown off balance, so the person either cannot sleep at all or sleeps all the time but never feels rested.
- Psychomotor agitation (restless, can't sit still) or retardation (moving and thinking in slow motion) nearly every day, noticeable to others: Dopamine and norepinephrine imbalances affect the basal ganglia (deep brain structures that control movement) and motor cortex (the strip of brain that runs body movements), so the person either feels wound up and jittery or so slowed down that even simple actions feel like wading through thick mud.
- Fatigue or loss of energy nearly every day: Low serotonin, norepinephrine, and dopamine sap the brain's ability to generate drive and alertness, and chronic high cortisol from ongoing stress wears down the body like a battery running low, leaving the person exhausted even after rest.

Red flags — act now

- Any mention of a suicide plan, especially if the person has access to firearms, large amounts of pills, or other lethal means
- Recent suicide attempt or self-harm, or a history of past attempts (each prior attempt raises future risk)
- Severe hopelessness, saying things like 'everyone would be better off without me' or 'there's no point in going on'
- Sudden calm or improvement after a long depression—sometimes means the person has decided on suicide and feels relief that the pain will end
- Giving away prized possessions, writing goodbye notes, or putting affairs in order

Treat it — in this order

1. Suicide risk assessment using C-SSRS; remove access to means (firearms, medications, poisons) → Identifies imminent danger and stops the fastest paths to death. Buys time for the brain to heal.
2. Hospitalization if active plan plus intent plus access to means → Creates a safe place where the person cannot act on suicidal thoughts while medication and monitoring start working.
3. Start an SSRI (e.g. sertraline, escitalopram) or SNRI (e.g. venlafaxine, duloxetine) → SSRIs block the cleanup of serotonin (a brain messenger that steadies mood and sleep) so more stays in the gap between brain cells. SNRIs do the same for serotonin and norepinephrine (a brain messenger that powers energy and focus). This rebuilds the mood circuit in 4 to 6 weeks.
4. Psychotherapy (CBT or interpersonal therapy) plus daily phone contact in first 2 weeks → CBT teaches the person to notice thought traps (like 'I am worthless' or 'nothing will get better') and replace them with real evidence. Interpersonal therapy helps rebuild relationships that were damaged by depression. Daily check-ins catch worsening early.
5. ECT (electroconvulsive therapy) if depression is severe, treatment-resistant, or catatonic → Resets abnormal electrical patterns in the prefrontal cortex (the front of the brain that controls planning and emotion) and the limbic system (the brain's emotion center). This is the fastest treatment for life-threatening depression. Works in 1 to 2 weeks.

Your top priorities at the bedside

1. Complete suicide risk assessment using the Columbia Suicide Severity Rating Scale (C-SSRS) within the first 15 minutes of contact, and remove all lethal means from the environment immediately — why: The first two weeks after starting an SSRI carry the highest suicide risk because the medication increases energy and motivation before it lifts mood, giving a depressed person the activation to act on suicidal thoughts; removing guns, pills, and poisons prevents impulsive action during this window
2. Establish one-to-one observation (a staff member within arm's reach at all times) if the patient endorses a plan plus intent, or use 15-minute safety checks if lower risk — why: Suicide attempts often happen impulsively within minutes of the decision; continuous observation interrupts the private moment needed to act and allows immediate intervention if the patient decompensates

3. Administer prescribed SSRI or SNRI at the same time every day, and educate the patient that the medication takes four to six weeks to work fully but side effects start immediately — why: Serotonin (a brain chemical that regulates mood) takes weeks to rebuild in the synapses (gaps between brain cells); explaining the delay prevents the patient from stopping the medication early when they feel nausea or headache but no mood improvement yet