

Understanding depression and optimizing care to support a healthy workforce.



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 **TELUS** Health

What is a Chief Neuroscience Officer?

- TELUS Health Care Centres
 - New mental health centre
- TELUS Health Virtual Care
- Espri App (mental health app for first-responders and front-line healthcare workers)
- Education to confront stigma and support our team members, our customers and our communities
- TELUS team members have access to mental health resources and a “mental healthcare account”



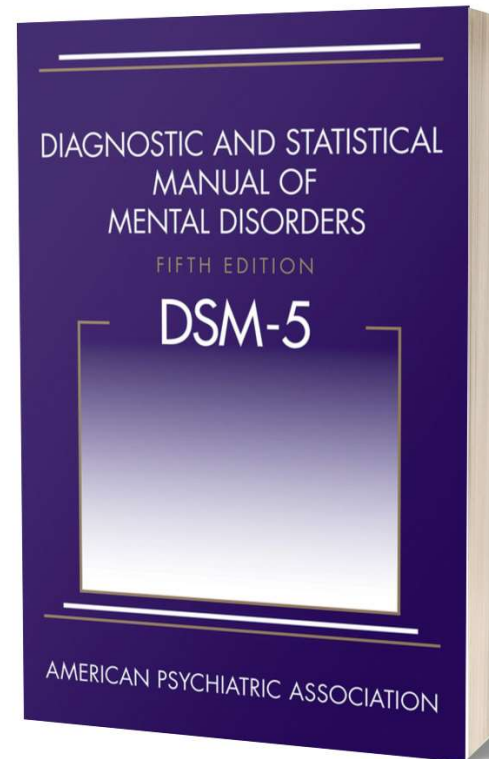


1. Depression is very difficult to define.

The Depression Top 10










The Big Book of Psychiatric Diagnosis

Depression = Major Depressive Disorder



DSM-5: Major depressive disorder

Five or more symptoms | >2 weeks | Change in previous functioning

 <p>Depressed mood</p>	 <p>Markedly diminished interest or pleasure</p>	 <p>Weight or appetite changes</p>
 <p>Insomnia or hypersomnia</p>	 <p>Physically or mentally slowed down or agitated</p>	 <p>Fatigue or loss of energy</p>
 <p>Feelings of worthlessness or excessive or inappropriate guilt</p>	 <p>Cognitive dysfunction</p>	 <p>Recurrent thoughts of death or suicidal ideation / attempt</p>

= 1000 ways depression may present.



2. All mental illnesses have bio-psycho-social origins.

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Risk factors for mental illness



Biological



Psychological



Social





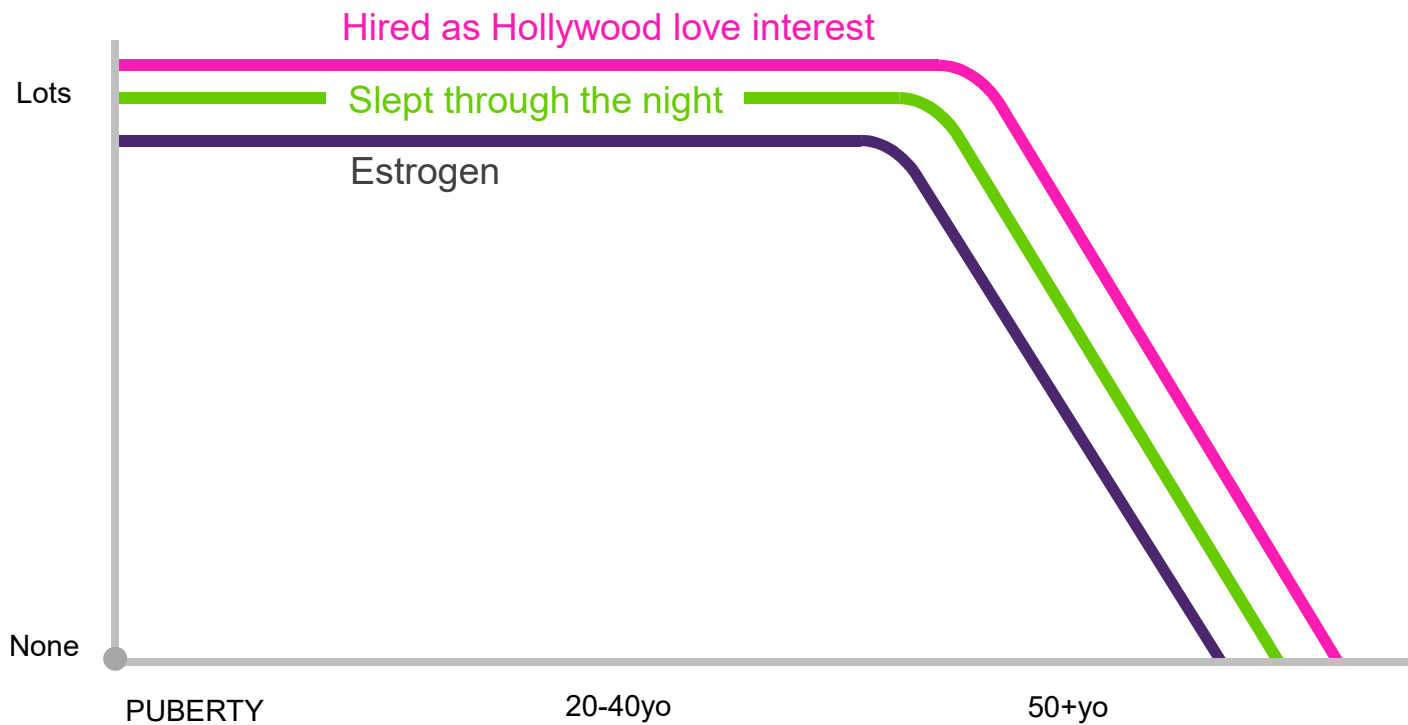
3. Men and women are different. Duh.

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Women are **2x more likely** to develop depression and many other mental illnesses.

I blame estrogen



Our bodies are also different

Activity	Gender difference	Impact on drug level in
Absorption		
Gastric absorption	Lower in women	Reduced
Gastric acidity	Lower in women	Increased
Intestinal transit time	Lower in women	Reduced
Distribution		
Body weight	Lower in women	Increased in women
Body fat	Higher in women	Reduced in women
Metabolism		
CYP450 enzyme activity	Some more active and others less active	Depends on the drug
Elimination		
Renal (kidney) elimination	Slower in women	Increased in women

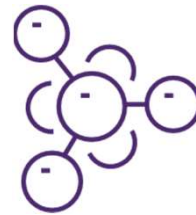




4. Depression is an inflammatory illness.

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The inflamed brain



Chronically high stress

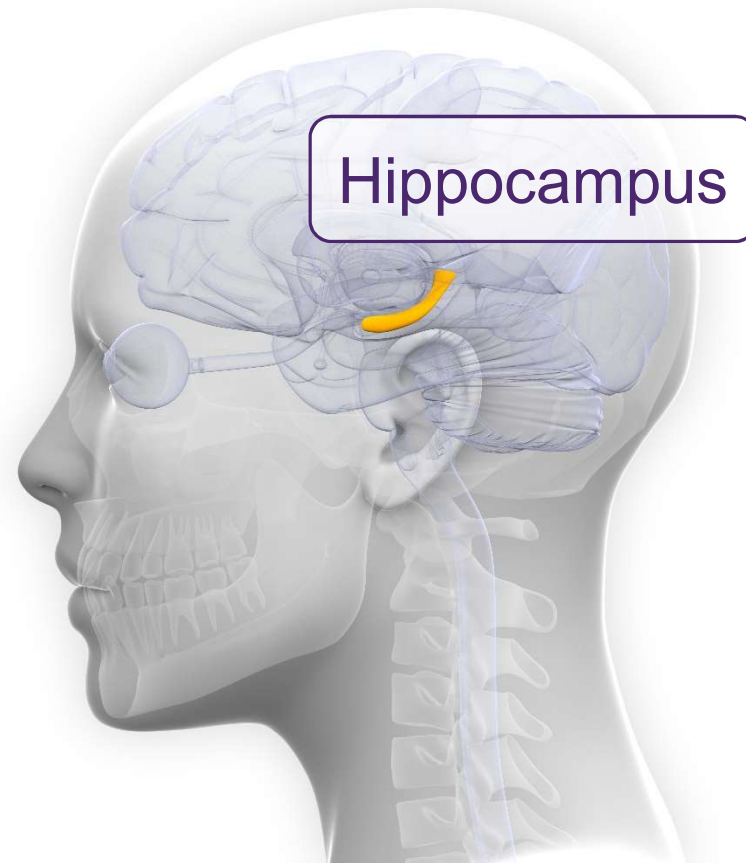
Chronically high cortisol

Damaged glial cells (astrocytes and microglia)

Damage and death of neurons



Shrinkage!



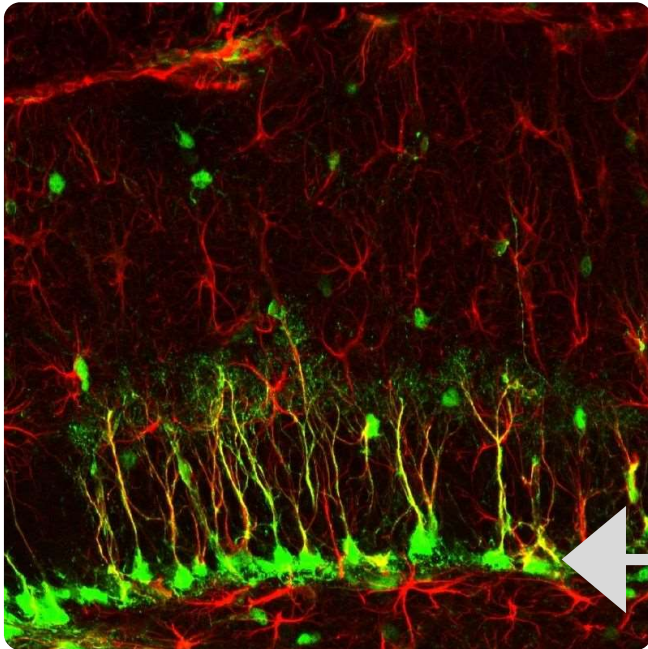
Good news!

We **grow new brain cells** and rewire our brain every day.

In fact, **recovery from depression** depends on it.



Neurogenesis



Brand new neurons, which will eventually join their senior colleagues as full members of the “hippocampal team”.

Hastings NB, Gould E. J Comp Neurol 1999;413 (1):146-54; Van Praag H et al. Nature 2002; 415 (6875):1030-4





5. The mind-body connection is real.

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Mental illnesses are associated with:



Physical pain



Abdominal symptoms



Heart disease



Diabetes



Obesity



Other inflammatory illnesses



- 6** ■ Depression can become a chronic disorder and should be treated as such.

Depression is neuroprogressive

The **longer duration/ more episodes** of depression promotes more substantial structure and functional brain changes, which may lead to **treatment resistance and cognitive deficits**.



Berk M. *Int J Neuropsychopharmacol.* (2009) 12:441–5; erk M, Kapczinski F, Andreazza AC, Dean OM, Giorlando F, Maes M, et al. *Neuroscience Biobehav Rev.* (2011) 35:804–17.

Depression must be treated with a sense of urgency



Depression must be treated
early, and fully to avoid
long-term harm.

A window of opportunity



Best chance of achieving remission with treatment is within the first 6 months of MDD onset.¹

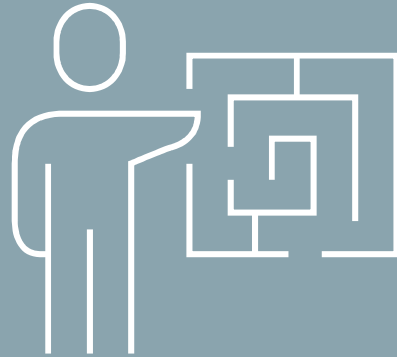
In some treatment resistant depression:

<20%

achieve short-term remission.^{*,2}

<10%

are free from substantial depressive symptoms after two years of treatment.²



- 7.** **Personalized treatment:** choosing the right treatment for the right person at the right time.

The mental health spectrum



Interventions across the mental health spectrum

	Self-care/ social support		Professional help	
	Healthy	Stressed	Functional impairment	Crisis
Patient / employee indicators	<ul style="list-style-type: none"> • Solid support systems • Healthy work relationships • Feels “in control” 	<ul style="list-style-type: none"> • Some anxiety/ sleep pattern disturbance • Reduced confidence, self-doubt • Irritability • Tension with team members • Increasing sense of burnout • Physical illness 	<ul style="list-style-type: none"> • Self-medication (E.g. alcohol) • Mood and anxiety symptoms; sleep disturbance, low energy • Isolation, irritability, anger • Breakdown of work relationships • Cognitive challenges (E.g. memory, concentration, organization, mental slowing) 	<ul style="list-style-type: none"> • Worsening functional impairment+ • Overt and impairing psychiatric symptoms including cognitive impairment • Incapacitated • Need for workplace leave
Impact	Functioning at desired level: productive at home and at work.	Still functioning but not optimally: reduced focus and quality of performance.	Functionally impaired. Inability to complete work responsibilities. Presenteeism and some absenteeism.	Potentially life threatening. Inability to attend work. Disability claim.



Interventions across the mental health spectrum

	Self-care/ social support		Professional help	
	Healthy	Stressed	Functional impairment	Crisis
Interventions	<ul style="list-style-type: none"> • Exercise/yoga • Professional coaching • Dietitian • Mindfulness/meditation • Intermittent assessment • E-solutions (E.g. steps, sleep) 	<ul style="list-style-type: none"> • Heathy + • Psychotherapy (CBT/iCBT/DBT) • Financial budgeting / parenting support / MH education • Sleep tools 	<ul style="list-style-type: none"> • Psychotherapy • GP / NP / supported by psychiatric option (algorithm-based care) 	<ul style="list-style-type: none"> • GP / psychiatrist / psychologist • Disability management program





8



Medication choice must be **individualized** to meet each patient's needs.

Do antidepressants work?

Yes, for moderate to severe depression and for anxiety.

- Depression might be related to bipolar disorder
- Requires other treatment approaches

For large populations: Are all antidepressants the same?



Every antidepressant is unique



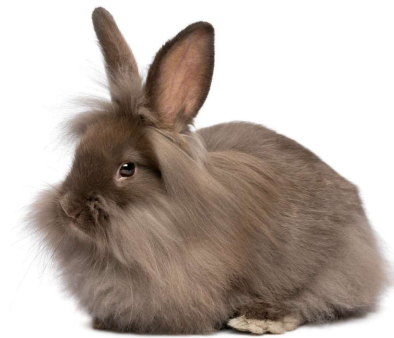
Rabbit



Rabbit



Rabbit



Rabbit

CANMAT 2016 recommendations for antidepressants

1st Line

- Agomelatine* (MT1, MT2 agonist; 5-HT2 antagonist)
- Bupropion (NDRI)
- Citalopram (SSRI)
- Desvenlafaxine (SNRI)
- Duloxetine (SNRI)
- Escitalopram (SSRI)
- Fluoxetine (SSRI)
- Fluvoxamine (SSRI)
- Mianserin* (α2-adrenergic agonist; 5-HT2 antagonist)
- Milnacipran* (SNRI)
- Mirtazapine (α2-adrenergic agonist; 5-HT2 antagonist)
- Paroxetine (SSRI)
- Sertraline (SSRI)
- Venlafaxine (SNRI)
- Vortioxetine (multimodal)

2nd Line

- Amitriptyline, clomipramine, others (TCAs)
- Levomilnacipran (SNRI)
- Moclobemide (reversible inhibitor MAO-A)
- Quetiapine (AAP)
- Selegiline transdermal* (irreversible inhibitor MAO-B)
- Trazodone (SRI; 5-HT2 antagonist)
- Vilazodone (SRI, 5-HT1A partial agonist)

3rd Line

- Phenelzine (irreversible inhibitor MAO)
- Tranylcypromine
- Reboxetine* (NRI)

= 25 antidepressants

Access to evidence-based treatments

Individualized treatment required because every medication has a **unique receptor profile** and every brain is unique.

Access to the right treatment is a huge barrier to managing mental illness early and fully.

Innovative treatments are limited only to those that can afford them (e.g. esketamine, newer antidepressants with fewer sexual and weight side effects).

Restrictive formularies limit treatment options:

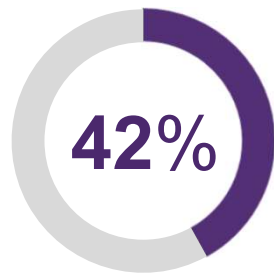
- Many clinicians unwilling to take the time to complete forms or are unaware of special requirements of insurers
- Many clinicians, including physicians and pharmacists, lack the clinical experience to make the best choices- more education is required



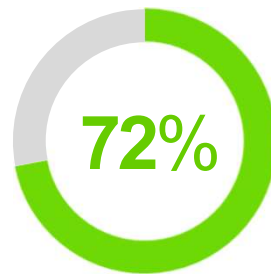
9 ■ No drug will work
if it's not taken.

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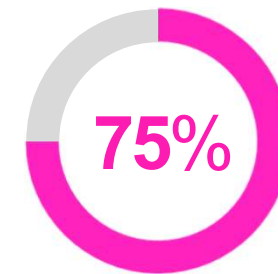
Challenges in depression therapy: Early discontinuation



of patients **discontinued** their antidepressant treatment during the **first 30 days**.



of patients **stopped** their antidepressant treatment **within 90 days**.



of depressed patients are **partially adherent**; on an average of **40% of days**, no antidepressant is taken.



Treatment choices



Patient's needs

Severity of illness

Other health / mental health issues

Type of symptoms

What worked before

Game changing side effects (e.g. sexual, weight gain)

Cost / coverage



Psychotherapy+

Psychotherapy can be personalized by providing multiple modalities: 1:1, virtually, iCBT, +/- skilled guidance

- Exercise
 - Sleep
 - Light therapy
 - Strong social support
(includes a supportive employer/work environment)
- Mindfulness
 - Balanced Omega 3/6
 - Faith
 - A healthy diet promotes a healthy gut microbiome





10. Medicine has changed,
but not enough.

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Capitalizing on key trends

Patients own their data and should also own their healthcare decisions:

- I am the well-informed navigator- my patients drive their own ship

Doctors are no longer willing to give their life to medicine.

Virtual care is critical for the survival of our healthcare system and will improve health outcomes:

- Democratizing medicine and meeting patients where they are

Continuity of care is still critical.



Critical questions



Does it meet a need?

Is it evidence-based?

- Does it work?
- Is it measurable?

Is it accessible?

- Is it easy to use?
- Is it intuitive/ understandable?
- Bilingual?

Is it acceptable to patients and providers?

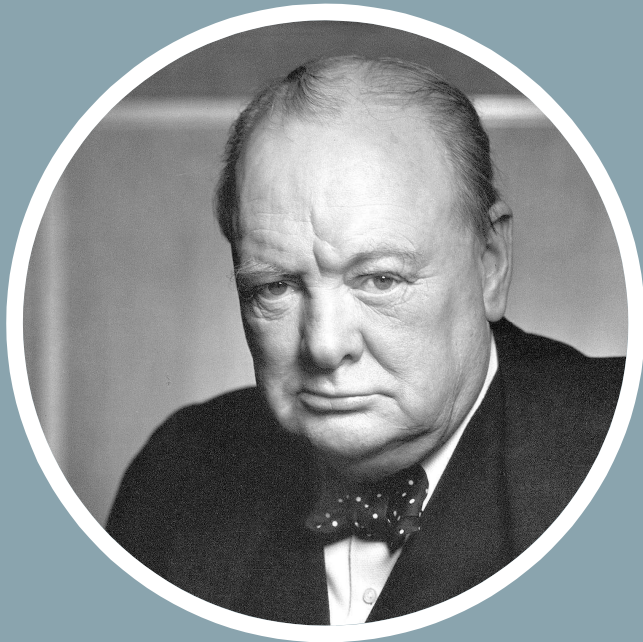
- Is it safe?
- Will they actually use it/ will clinicians recommend it?

Is it aligned with the TELUS mental health vision?

Does it meet TELUS' high quality standards?



Never, never,
never give up.



“Success is the ability to go from failure to failure without losing your enthusiasm”

— Winston Churchill



Here's to
success

 TELUS® Health