

# MEDICATION FACT BOOK FOR PSYCHIATRIC PRACTICE

Sample Pages of the 6th Edition (2022)  
Available at [www.thecarlatreport.com](http://www.thecarlatreport.com)



**Talia Puzantian, PharmD, BCPP**  
**Daniel J. Carlat, MD**

# Table of Contents

<b>Introduction</b> .....	<b>7</b>
<b>ADHD Medications</b> .....	<b>11</b>
General Prescribing Tips .....	11
Amphetamine (Adzenys XR-ODT, Dyanavel XR, Evekeo) .....	19
Atomoxetine (Strattera) .....	20
Clonidine (Catapres, Kapvay) .....	21
Dexmethylphenidate (Azstarys, Focalin, Focalin XR) .....	22
Dextroamphetamine (Dexedrine, ProCentra, Zenzedi) .....	23
Guanfacine (Intuniv, Tenex) .....	24
Lisdexamfetamine (Vyvanse) .....	25
Methamphetamine (Desoxyn) .....	26
Methylphenidate IR (Methylin, Ritalin) .....	27
Methylphenidate ER (Concerta, Ritalin SR and LA, others) .....	28
Methylphenidate Transdermal (Daytrana) .....	29
Mixed Amphetamine Salts (Adderall, Adderall XR, Mydayis) .....	30
Viloxazine XR (Qelbree) .....	31
<b>Antidepressants</b> .....	<b>33</b>
General Prescribing Tips .....	33
Brexanolone (Zulresso) .....	43
Bupropion (Wellbutrin, others) .....	44
Citalopram (Celexa) .....	45
Clomipramine (Anafranil) .....	46
Desvenlafaxine (Pristiq) .....	47
Duloxetine (Cymbalta, Drizalma Sprinkle) .....	48
Escitalopram (Lexapro) .....	49
Esketamine (Spravato) .....	50
Fluoxetine (Prozac, Prozac Weekly, Sarafem) .....	51
Fluvoxamine (Luvox, Luvox CR) .....	52
Ketamine (Ketalar) .....	53
Levomilnacipran (Fetzima) .....	54
Mirtazapine (Remeron) .....	55
Monoamine Oxidase Inhibitors (MAOIs) .....	56
Nefazodone (Serzone) .....	57
Paroxetine (Brisdelle, Paxil, Paxil CR, Pexeva) .....	58
Selegiline Transdermal (Emsam) .....	59
Sertraline (Zoloft) .....	60
Thyroid (Cytomel, Synthroid, others) .....	61
Trazodone (Desyrel) .....	62
Tricyclic Antidepressants (TCAs) .....	63
Venlafaxine (Effexor, Effexor XR) .....	
Vilazodone (Viibryd) .....	
Vortioxetine (Trintellix) .....	
<b>Antipsychotics</b> .....	
General Prescribing Tips .....	
Aripiprazole (Abilify) .....	

© CARLAT PUBLISHING

**MEDICATION FACT BOOK  
FOR PSYCHIATRIC PRACTICE**

SIXTH EDITION



Talia Puzantian, PharmD, BCPP  
Daniel J. Carlat, MD

Asenapine (Saphris, Secuado) .....	76
Brexpiprazole (Rexulti) .....	77
Cariprazine (Vraylar) .....	78
Chlorpromazine (Thorazine) .....	79
Clozapine (Clozaril, FazaClo, Versacloz) .....	80
Fluphenazine (Prolixin) .....	83
Haloperidol (Haldol) .....	84
Iloperidone (Fanapt) .....	85
Loxapine (Adasuve, Loxitane) .....	86
Lumateperone (Caplyta) .....	87
Lurasidone (Latuda) .....	88
Molindone (Moban) .....	89
Olanzapine (Lybalvi, Symbyax, Zyprexa) .....	90
Paliperidone (Invega) .....	91
Perphenazine (Trilafon) .....	92
Pimavanserin (Nuplazid) .....	93
Quetiapine (Seroquel, Seroquel XR) .....	94
Risperidone (Risperdal) .....	95
Thioridazine (Mellaril) .....	96
Thiothixene (Navane) .....	97
Trifluoperazine (Stelazine) .....	98
Ziprasidone (Geodon) .....	99
Long-Acting Injectable (LAI) Antipsychotics .....	100

**Anxiolytic and Hypnotic Medications..... 105**

General Prescribing Tips for Anxiolytics .....	105
General Prescribing Tips for Hypnotics .....	105
Alprazolam (Xanax) .....	112
Antihistamines (Diphenhydramine, others) .....	113
Bupirone (BuSpar) .....	114
Clonazepam (Klonopin) .....	115
Diazepam (Valium) .....	116
Doxepin (Silenor) .....	117
Eszopiclone (Lunesta) .....	118
Flurazepam (Dalmane) .....	119
Hydroxyzine (Atarax, Vistaril) .....	120
Lemborexant (Dayvigo) .....	121
Lorazepam (Ativan, Loreev XR) .....	122
Prazosin (Minipress) .....	123
Propranolol (Inderal) .....	124
Ramelteon (Rozerem) .....	125
Suvorexant (Belsomra) .....	126
Temazepam (Restoril) .....	127
Triazolam (Halcion) .....	128
Zaleplon (Sonata) .....	129
Zolpidem (Ambien, Edluar, Intermezzo, Zolpimist) .....	

**Dementia Medications .....**

General Prescribing Tips .....	
Aducanumab (Aduhelm) .....	
Donepezil (Aricept) .....	
Galantamine (Razadyne, Razadyne ER) .....	


  
**MEDICATION FACT BOOK**
  
**FOR PSYCHIATRIC PRACTICE**
  
 SIXTH EDITION



Memantine (Namenda, Namenda XR) .....	138
Memantine ER/Donepezil (Namzaric) .....	139
Rivastigmine (Exelon, Exelon Patch) .....	140
<b>Mood Stabilizers and Anticonvulsants .....</b>	<b>141</b>
General Prescribing Tips .....	141
Carbamazepine (Epitol, Equetro, Tegretol, others) .....	145
Gabapentin (Gralise, Horizant, Neurontin) .....	146
Lamotrigine (Lamictal, Lamictal XR, Subvenite) .....	147
Lithium (Eskalith, Lithobid) .....	148
Oxcarbazepine (Oxtellar XR, Trileptal) .....	149
Pregabalin (Lyrica, Lyrica CR) .....	150
Topiramate (Eprontia, Qudexy XR, Topamax, Trokendi XR) .....	151
Valproic Acid (Depakene, Depakote, others) .....	152
<b>Natural Treatments .....</b>	<b>153</b>
General Prescribing Tips .....	153
Lavender Essential Oil (CalmAid, Silexan) .....	154
L-Methylfolate (Deplin) .....	155
L-Tryptophan .....	156
Melatonin .....	157
N-Acetylcysteine (NAC) .....	158
Omega-3 Fatty Acids (Fish Oil) .....	159
S-Adenosyl-L-Methionine (SAME) .....	160
St. John's Wort .....	161
Vitamin D .....	162
<b>Sexual Dysfunction Medications .....</b>	<b>163</b>
General Prescribing Tips .....	163
Avanafil (Stendra) .....	165
Bremelanotide (Vyleesi) .....	166
Cyproheptadine (Periactin) .....	167
Flibanserin (Addyi) .....	168
Sildenafil (Viagra) .....	169
Tadalafil (Cialis) .....	170
Testosterone (various) .....	171
Vardenafil (Levitra) .....	172
<b>Side Effect Management .....</b>	<b>173</b>
General Management Tips .....	173
<b>Medications</b>	
Amantadine (Gocovri, Symmetrel) .....	175
Benzotropine (Cogentin) .....	176
Deutetrabenazine (Austedo) .....	177
Metformin (Glucophage, Glumetza, Riomet) .....	178
Tetrabenazine (Xenazine) .....	179
Trihexyphenidyl (Artane) .....	180
Valbenazine (Ingrezza) .....	181
<b>Symptoms</b>	
Akathisia .....	182
Bruxism .....	183


  
**MEDICATION FACT BOOK**
  
**FOR PSYCHIATRIC PRACTICE**
  
 SIXTH EDITION



Talia Puzantian, PharmD, BCPP
   
 Daniel J. Carlat, MD

Constipation .....	185
Diarrhea .....	186
Dry Mouth (Xerostomia) .....	187
Dystonia .....	188
Excessive Sweating (Hyperhidrosis) .....	189
Fatigue .....	190
Nausea .....	191
Neuroleptic Malignant Syndrome (NMS) .....	192
Orthostatic Hypotension (Postural Hypotension) .....	193
Parkinsonism .....	194
Prolactinemia .....	195
QT Interval Prolongation .....	196
Serotonin Syndrome .....	197
Sexual Dysfunction .....	198
Sialorrhea (Hypersalivation) .....	199
Tardive Dyskinesia .....	200
Tremor .....	202
Weight Gain .....	203

**Sleep Disorder Medications..... 205**

General Prescribing Tips .....	205
Armodafinil (Nuvigil) .....	207
Dopamine Agonists (Mirapex, Neupro, Requip, Sinemet) .....	208
Modafinil (Provigil) .....	209
Oxybates (Xyrem, Xywav) .....	210
Pitolisant (Wakix) .....	211
Solriamfetol (Sunosi) .....	212
Tasimelteon (Hetlioz) .....	213

**Somatic Treatments..... 215**

Bright Light Therapy .....	216
Electroconvulsive Therapy (ECT) .....	217
Transcranial Magnetic Stimulation (TMS) .....	218
Vagus Nerve Stimulation (VNS) .....	219

**Substance Use Disorder Medications..... 221**

General Prescribing Tips .....	221
Smoking Cessation .....	227
Acamprosate (Campral) .....	228
Buprenorphine (Sublocade, Subutex) .....	229
Buprenorphine/Naloxone (Bunavail, Suboxone, Zubsolv) .....	230
Bupropion SR (Zyban) .....	231
Disulfiram (Antabuse) .....	232
Lofexidine (Lucemyra) .....	233
Methadone (Methadose) .....	234
Naloxone (Kloxxado, Narcan Nasal Spray, Zimhi) .....	234
Naltrexone (ReVia, Vivitrol) .....	234
Nicotine Gum/Lozenge (Nicorette, others) .....	234
Nicotine Inhaled (Nicotrol Inhaler) .....	234
Nicotine Nasal Spray (Nicotrol NS) .....	234
Nicotine Patch (Nicoderm CQ, others) .....	234
Varenicline (Chantix) .....	234



**MEDICATION FACT BOOK FOR PSYCHIATRIC PRACTICE**

SIXTH EDITION



**Appendices ..... 243**

Appendix A: Drug Interactions in Psychiatry ..... 243  
Appendix B: Psychiatric Medications in Pregnancy and Lactation ..... 251  
Appendix C: Classifications of Controlled Substances ..... 256  
Appendix D: Lab Monitoring for Psychiatric Medications ..... 257  
Appendix E: Urine Toxicology Screening ..... 259  
Appendix F: Pharmacogenetic Testing ..... 261  
Appendix G: Anticholinergic Agents Often Used in Psychiatry ..... 263  
Appendix H: Dosing of Psychotropic Medications in Patients With Hepatic or Renal Impairment ..... 264

**Index ..... 268**

**LIST OF TABLES**

Table 1: ADHD Medications ..... 14  
Table 2: Relative Equivalency and Conversion Guide for Stimulants ..... 18  
Table 3: Risk of Discontinuation Syndrome With Various Antidepressants and Recommendations for Management .. 34  
Table 4: Recommended Strategies for Switching Antidepressants ..... 35  
Table 5: Antidepressants ..... 38  
Table 5A: Selective Serotonin Reuptake Inhibitors (SSRIs) ..... 40  
Table 6: Relative Side Effects of Antidepressants ..... 41  
Table 7: Metabolic Monitoring Recommendations for Patients on Second-Generation Antipsychotics ..... 69  
Table 8: First-Generation Antipsychotics ..... 71  
Table 9: Second-Generation Antipsychotics ..... 72  
Table 10: Comparison of Relative Side Effects Among Antipsychotics ..... 74  
Table 11: Monitoring and Managing Patients on Clozapine ..... 81  
Table 11A: ANC Monitoring for Clozapine Treatment ..... 82  
Table 12: Long-Acting Injectable Antipsychotics ..... 103  
Table 13: Anxiolytic and Hypnotic Medications ..... 110  
Table 13A: Benzodiazepine Dosage Equivalencies ..... 111  
Table 14: Dementia Medications ..... 134  
Table 15: Mood Stabilizers ..... 144  
Table 16: Anticonvulsants ..... 144  
Table 17: Natural Treatments ..... 153  
Table 18: Sexual Dysfunction Medications ..... 164  
Table 19: Sleep Disorder Medications ..... 206  
Table 20: Substance Use Disorder Medications ..... 225  
Appendix Table A1: CYP450 Drug Interactions for Some Common Psychiatric Medications ..... 244  
Appendix Table A2: Most Common Clinically Significant Drug Interactions in Psychiatry ..... 248  
Appendix Table A3: MAOI Dietary and Medication Restrictions ..... 249  
Appendix Table B: Psychiatric Medications in Pregnancy and Lactation ..... 253  
Appendix Table C: Classifications of Controlled Substances ..... 256  
Appendix Table D: Recommended Laboratory Tests for Psychiatric Medications ..... 258  
Appendix Table E: Urine Drug Testing ..... 260  
Appendix Table F: FDA Label Information Relevant to Pharmacogenetic Testing for Psychiatric Drugs ..... 262  
Appendix Table G: Some Commonly Used Highly Anticholinergic Medications .....  
Appendix Table H: Dosing of Psychotropic Medications in Patients With Hepatic or Renal Impairment.....

**LIST OF TREATMENT ALGORITHMS**

Adult ADHD .....  
Depression .....  
Treatment-Resistant Depression .....

  
**MEDICATION FACT BOOK  
FOR PSYCHIATRIC PRACTICE**  
SIXTH EDITION



Talia Puzantian, PharmD, BCPP  
Daniel J. Carlat, MD

Psychosis .....	70
Anxiety .....	108
Insomnia .....	109
Dementia .....	133
Bipolar Mania .....	143
Alcohol Use Disorder .....	223
Opioid Use Disorder .....	224

 CARLAT PUBLISHING

**MEDICATION FACT BOOK  
FOR PSYCHIATRIC PRACTICE**

SIXTH EDITION



Talia Puzantian, PharmD, BCPP  
Daniel J. Carlat, MD



# Introduction

## HOW TO USE THIS BOOK

Medication information is presented in three ways in this book:

- *Fact sheets.* In-depth information for select medications, somatic treatments, and side effects. There are 164 fact sheets in this book. The medication fact sheets don't cover all psychiatric medications, but we have included most of the commonly prescribed and newer medications.
- *Quick-scan medication tables.* These are most often located at the beginning of each therapeutic category and list the very basics: generic and brand names, available strengths, starting doses, and target doses. These tables contain most of the commonly prescribed psychiatric medications.
- *Treatment algorithms.* These quick-reference decision trees can serve as a memory aid and help in clinical decision making. They don't cover every medical nuance but serve as general overviews.

## CHANGES AND ADDITIONS TO THE SIXTH EDITION

We've updated the medication fact sheets to reflect availability of newer strengths and formulations, as well as generics. The fact sheets also reflect new clinical data where available. We've expanded our coverage of many categories of medications, including the Side Effect Management chapter; included in this edition are 16 new fact sheets, five new tables, and eight appendices. We've also added a new treatment algorithm to this edition: treatment-resistant depression.

## CATEGORIES OF MEDICATIONS

We did our best to categorize medications rationally. However, in some cases a medication can fall into more than one category. In such cases, we categorized the medication with the types of disorders for which it is most often used. If you're having trouble finding a medication in a particular chapter, look in the index to find its page number.

## MORE ON THE MEDICATION FACT SHEETS

The goal of these fact sheets is to provide need-to-know information (on a single page) that can be easily and quickly absorbed during a busy day of seeing patients. Please refer to the *PDR (Physicians' Desk Reference)* when you need more in-depth information.

For the most part, each fact sheet contains the following information:

- *Drug names.* Each sheet lists both brand and generic names.
- *Generic availability.* **We include a [G] or (G) if a drug is available as a generic.**
- *Bottom line.* **We begin with a super-condensed summary, including our overall assessment of the drug's value in clinical practice. If you're in a rush, you can get the basics from this alone.**
- *FDA-approved indications.* Psychiatric indications are in bold.
- *Off-label uses.* We list the more common off-label uses, based on both the medical literature and our clinical experience. Just because we list a potential use does not imply that we endorse a medication as being particularly effective for that use. We are simply alerting you to the fact that there is some evidence for efficacy.
- *Dosage forms,* along with available strengths.
- *Dosage guidance.* We provide recommendations on how to dose medications; these are derived from a variety of sources, including package inserts, clinical trials, and common clinical practice. In other words, don't be surprised when our dosing instructions are at odds with what you find in the *PDR*. New to this edition, we have added specific advice on whether to dose certain meds in the morning or at night—a common question from patients.
- *Lab monitoring recommendations.* We include the usual routine monitoring measures for each medication you may need to think beyond the "routine" if the clinical picture warrants it.
- *Cost information.* We obtained pricing information for a one-month supply of a common dosing regimen website GoodRx ([www.goodrx.com](http://www.goodrx.com)), accessed in November 2021. These are the prices patients would have if they had no insurance (GoodRx also offers coupons to purchase certain medications at reduced prices of wide variations in price depending on the pharmacy, we list price categories rather than the price in categories are:
  - \$: Inexpensive (<\$50/month)

ARLAT PUBLISHING

**MEDICATION FACT BOOK  
FOR PSYCHIATRIC PRACTICE**

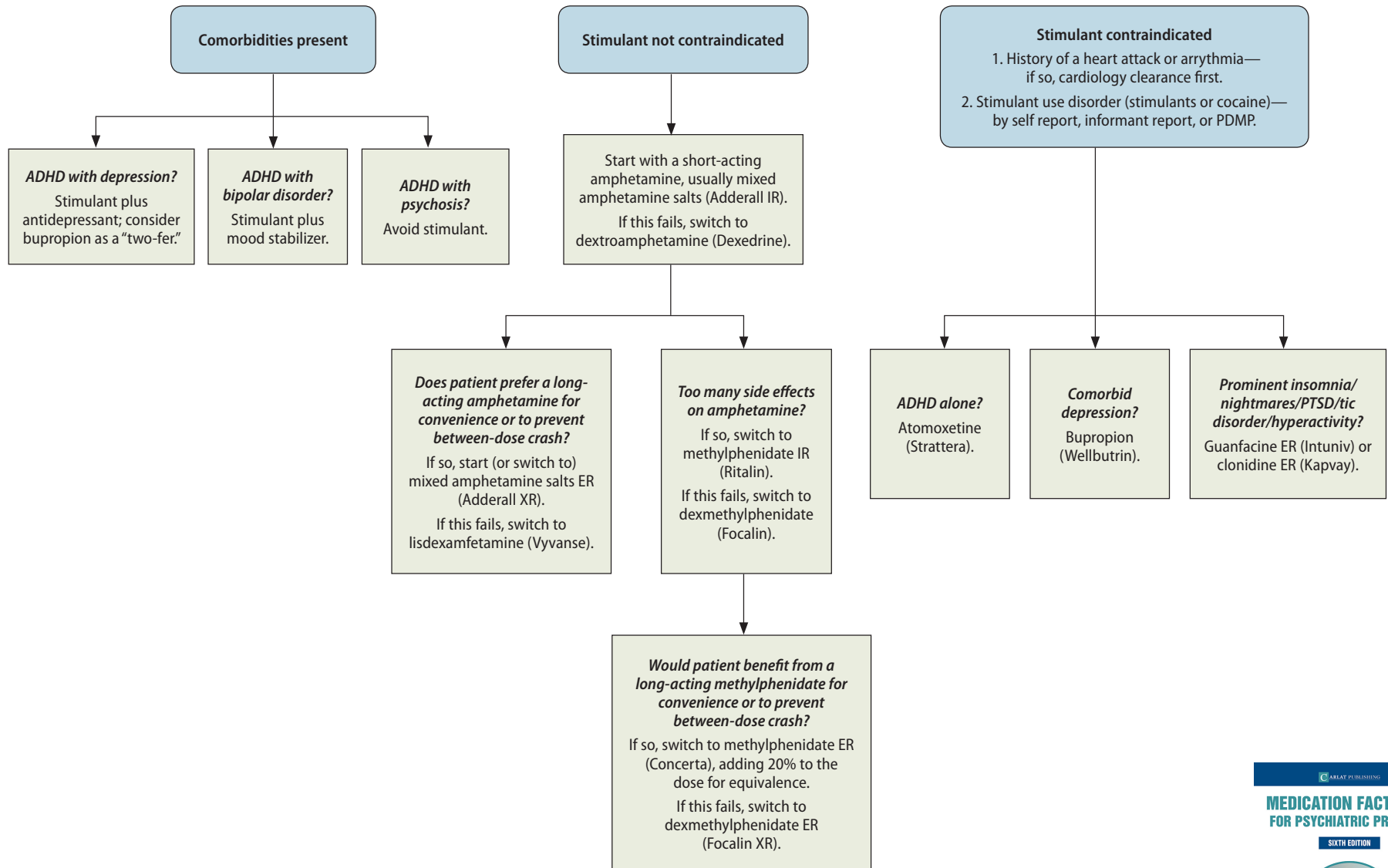
SIXTH EDITION



Talia Puzantian, PharmD, BCPP  
Daniel J. Carlat, MD



## Adult ADHD Treatment Algorithm



© CARLAT PUBLISHING

**MEDICATION FACT BOOK  
FOR PSYCHIATRIC PRACTICE**

SIXTH EDITION



Talia Puzantian, PharmD, BCPP  
Daniel J. Carlat, MD

# Antidepressants

## GENERAL PRESCRIBING TIPS

It's particularly hard to suggest a first-line antidepressant prescription because antidepressants are effective for so many other conditions. Nonetheless, it's helpful to review the most common clinical scenarios.

### Medication-Naïve Patients With “Just” Depression

For these patients (admittedly unusual in a psychiatric practice), you want something effective and with minimal side effects. This means either an SSRI or bupropion. While most of us start with an SSRI, we recommend considering bupropion as your go-to first-line agent. With bupropion, you get an effective antidepressant with essentially no sexual side effects, no weight gain, no sedation, and a boost in attention. While it has not been approved for any anxiety disorders, bupropion is just as effective as SSRIs for the nonspecific anxiety that usually accompanies depression. On the downside, you have potential insomnia, and, at doses above 300 mg/day, a small risk of seizure.

If you start with an SSRI, go with escitalopram or sertraline. Both have minimal side effects and minimal drug-drug interactions.

### Patients Who Have Comorbid Conditions

Patients with depression plus another psychiatric disorder can be tried on “two-fer” meds—that is, antidepressants that have clear efficacy for two conditions. Here are some of the common secondary conditions and meds that are effective for them: anxiety disorders (TCAs, SSRIs), bulimia (fluoxetine), smoking cessation (bupropion), ADHD (bupropion), fibromyalgia (duloxetine), diabetic neuropathic pain (duloxetine), and premenstrual dysphoric disorder (SSRIs). Finally, mirtazapine—an antidepressant sometimes shunned because it causes weight gain—is an excellent choice for patients with depression who are underweight and have insomnia, and it has the benefit of no sexual side effects.

### Patients Who Have Been on Other Antidepressants

“Treatment-resistant depression” is usually defined as the failure of at least two prior trials of antidepressants at adequate doses and for adequate lengths of time. There are unfortunately no convincing data on what your next step should be. The STAR\*D trial tried to tease out strategies such as switching vs augmenting, but it could not find statistical differences between the techniques. That means we're left with a combination of the few clinical trials that have been published, leavened with a great deal of personal preference. Here's a reasonable approach:

- First, try switching to an antidepressant in a different class (though some clinicians believe that the best next step is to augment; see the bullet below). Assuming the treatment failures were on SSRIs, the usual sequence of subsequent trials would be: 1) bupropion or mirtazapine; 2) an SNRI (venlafaxine, duloxetine, levomilnacipran); 3) an MAOI or a tricyclic.
- Second, try a combination. A suggested order of combinations is: 1) SSRI/SNRI + bupropion; 2) SSRI/SNRI + second-generation antipsychotic; 3) SSRI/SNRI + lithium or thyroid supplementation (we've included a thyroid fact sheet in this chapter). There are many more combination possibilities, but these are probably the highest-yield options with which to begin.
- Third, consider the neurostimulation devices, such as ECT, TMS, and others. You'll find more details on these options in our chapter on somatic treatments.

### Class Warnings

There are some side effects or warnings that apply to **all** antidepressants. They are listed here in order to minimize repetition in the fact sheets that follow:

- **Suicide risk.** In 2004, the FDA added a black box warning to the labeling of all antidepressants regarding an increased risk of suicidal ideation in children and adolescents. The warning was based on retrospective reports that showed a very slight increase in suicidal ideation in patients on nine different antidepressants. The warning was revised in 2007 to include adolescents and young adults, up to age 24. Since then, more prospective data emerged that do not support an association, and this warning has been called into question. For now, the warning remains and is applied to the labeling of all medications approved for the treatment of depression. You should monitor all patients closely—especially early in therapy or after medication discontinuation—worsening, changes in behavior, or suicidality.
- **Mania switch.** Activation of mania or hypomania may occur with the use of any antidepressant in individuals who are at risk. Antidepressants should be used with caution in patients with a history of mania or hypomania, or those with a family history of bipolar disorder.

© ARJAT PUBLISHING

MEDICATION FACT BOOK  
FOR PSYCHIATRIC PRACTICE

SIXTH EDITION



Talia Puzantian, PharmD, BCPP  
Daniel J. Carlat, MD

## CITALOPRAM (Celexa) Fact Sheet [G]

### Bottom Line:

Citalopram has a favorable profile in that it's not particularly sedating or activating and has a low risk for drug interactions. However, it has fewer FDA indications than other SSRIs, and its higher risk for QT prolongation makes us favor escitalopram.

### FDA Indications:

**Major depression.**

### Off-Label Uses:

OCD; PTSD; social anxiety; generalized anxiety disorder; panic disorder; PMDD.

### Dosage Forms:

- **Tablets (G):** 10 mg, 20 mg (scored), 40 mg (scored).
- **Oral solution (G):** 10 mg/5 mL.

### Dosage Guidance:

- Start 10–20 mg QD; may ↑ by increments of 10–20 mg/day weekly to max 40 mg QD.
- Most patients take it in the morning, but bedtime dosing is OK if there is no insomnia.
- Max dose is 20 mg/day in patients >60 years of age or in those taking CYP2C19 inhibitors, or who are CYP2C19 poor metabolizers.

**Monitoring:** Sodium in patients at risk; ECG in patients on doses >40 mg/day, CYP2C19 poor metabolizers, or if cardiac disease.

**Cost:** \$

### Side Effects:

- Most common: Nausea, somnolence, sexual side effects, headache.
- Serious but rare: Hyponatremia, mainly in the elderly; gastrointestinal bleeding, especially when combined with NSAIDs such as ibuprofen.

### Mechanism, Pharmacokinetics, and Drug Interactions:

- Serotonin reuptake inhibitor.
- Metabolized primarily through CYP2C19 and 3A4;  $t_{1/2}$ : 35 hours.
- Avoid use with MAOIs (two-week washout period); avoid other serotonergic agents (serotonin syndrome).
- Use caution in patients taking CYP2C19 inhibitors including cimetidine, omeprazole (will increase citalopram levels and potential for QT prolongation).

### Clinical Pearl:

The FDA reduced citalopram's maximum daily dose from 60 mg/day to 40 mg/day in August 2011 due to data suggesting increased QTc interval prolongation at doses >40 mg/day. Mean QTc interval prolongation at 60 mg/day was 18.5 msec (vs ziprasidone, which has been shown to increase this interval by 20.6 msec). As of this writing, no comparable warning has been issued for escitalopram.

### Fun Fact:

Citalopram given as an intravenous infusion in treatment-resistant OCD and depression has been studied over the last 20 years and is available for use throughout Europe.

ARLAT PUBLISHING

**MEDICATION FACT BOOK  
FOR PSYCHIATRIC PRACTICE**

SIXTH EDITION



Talia Puzantian, PharmD, BCPP  
Daniel J. Carlat, MD

# HALOPERIDOL (Haldol) Fact Sheet [G]

## Bottom Line:

Haloperidol is an effective, inexpensive first-generation antipsychotic with low weight gain potential and a long history of experience and use, but clinical utility is limited due to EPS and potential for TD. It's favored by many clinicians for treatment of acute agitation, especially when given in an IM "cocktail" with lorazepam and diphenhydramine.

## FDA Indications:

**Psychosis; Tourette's disorder.**

## Off-Label Uses:

Bipolar disorder; behavioral disturbances; impulse control disorders; delirium.

## Dosage Forms:

- **Tablets (G):** 0.5 mg (scored), 1 mg (scored), 2 mg (scored), 5 mg (scored), 10 mg (scored), 20 mg (scored).
- **Oral concentrate (G):** 2 mg/mL.
- **Injection (G):** 5 mg/mL.
- **Long-acting injection (G):** 50 mg/mL and 100 mg/mL (see LAI fact sheet and table).

## Dosage Guidance:

- Schizophrenia: Start 1–2 mg BID (5 mg BID for hospitalized patients); adjust to lowest effective dose. Usual dose range is 5–20 mg/day. Max FDA-approved dose is 100 mg/day, but doses >20 mg/day are rarely used.
- IM for agitation: 2.5–10 mg IM, often combined with lorazepam 1 mg IM and diphenhydramine 50 mg IM; maximum 20 mg/day.
- IV for severe agitation (generally in the ICU setting): 2.5–10 mg IV Q4–8 hours; maximum 20 mg/day.

**Monitoring:** No routine monitoring recommended unless clinical picture warrants. Monitor ECG with IV use due to increased risk for QT prolongation.

**Cost:** \$

## Side Effects:

- Most common: EPS, headache, drowsiness, dry mouth, prolactin elevation (sexual side effects, amenorrhea, galactorrhea).
- Serious but rare: See class warnings in chapter introduction.

## Mechanism, Pharmacokinetics, and Drug Interactions:

- Dopamine D2 receptor antagonist.
- Metabolized primarily by CYP2D6 and CYP3A4;  $t_{1/2}$ : 21–24 hours. Patients who are poor metabolizers of CYP2D6 metabolize the drug more slowly; may have increased effects.
- CYP2D6 inhibitors (eg, fluoxetine, paroxetine, quinidine) may increase haloperidol levels. May inhibit CYP2D6; caution with substrates of 2D6 as haloperidol may increase their levels and effects.

## Clinical Pearls:

- Haloperidol is a high-potency first-generation antipsychotic; this leads to more EPS compared to mid- or low-potency agents (eg, perphenazine or chlorpromazine, respectively) and to less sedation, less orthostasis, and fewer anticholinergic side effects compared to low-potency agents (eg, chlorpromazine).
- Relatively lower seizure side effect risk compared to lower-potency agents.
- Short-acting injectable and oral liquid formulations allow for more flexibility in administration.
- Long-acting injectable decanoate formulation allows option for patients who don't take oral formulation reliably.

## Fun Fact:

Haldol was discovered in 1958 by Paul Janssen, the founder of Belgian pharmaceutical company Janssen Pharmaceutica.

ARLAT PUBLISHING

MEDICATION FACT BOOK  
FOR PSYCHIATRIC PRACTICE

SIXTH EDITION



Talia Puzantian, PharmD, BCPP  
Daniel J. Carlat, MD

**Table 15: Mood Stabilizers**

Generic Name (Brand Name) Year FDA Approved for Bipolar Disorder or Mania <i>[G] denotes generic availability</i>	Relevant FDA Indication(s)	Available Strengths (mg)	Usual Dosage Range (starting-max) (mg)
Carbamazepine [G] (Carbatrol, Epitol, Equetro, Tegretol, Tegretol XR, Teril) 2004	Bipolar disorder (Equetro: Acute mania)	CH: 100, 200 IR: 100, 200, 300, 400 ER: 100, 200, 300, 400 Oral solution: 100 mg/5 mL	200–800 BID
Lamotrigine [G] (Lamictal, Lamictal CD, Lamictal ODT, Lamictal XR, Subvenite) 2003	Bipolar disorder (maintenance)	IR: 25, 50, 100, 150, 200 CH: 2, 5, 25 ODT: 25, 50, 100, 200 ER: 25, 50, 100, 200, 250, 300	25 QD–100 BID 25 QD–50 BID if on VPA
Lithium [G] (Eskalith, Lithobid) 1970	Acute mania Bipolar maintenance	IR: 150, 300, 600 ER: 300, 450 Oral solution: 300 mg/5 mL	300–600 QHS–1200 BID
Oxcarbazepine [G] (Oxtellar XR, Trileptal) 2000	Not approved for any bipolar indication	IR: 150, 300, 600 ER: 150, 300, 600 Oral suspension: 300 mg/5 mL	300–1200 BID
Valproic acid [G] (Depakene, Depakote, Depakote ER, Depakote Sprinkles) 1995	Bipolar disorder (acute mania)	IR: 250 Liquid: 250 mg/5 mL DR: 125, 250, 500 ER: 250, 500	250–500 QHS–2000 BID

CH = chewable, IR = immediate release, ER = extended release, ODT = orally disintegrating tablet, DR = delayed release

**Table 16: Anticonvulsants**

Generic Name (Brand Name) Year FDA Approved <i>[G] denotes generic availability</i>	Off-Label Psychiatric Uses	Available Strengths (mg)	Usual Dosage Range (starting-max) (mg)
Gabapentin [G] (Gralise, Horizant, Neurontin) 1993	Anxiety disorders Withdrawal from alcohol or benzodiazepines Alcohol dependence	Capsule: 100, 300, 400 Tablet: 600, 800 Oral solution: 50 mg/mL ER tablet: 300, 600	100 QHS–300 TID
Pregabalin [G] (Lyrica, Lyrica CR) 2004	Generalized anxiety disorder Withdrawal from alcohol or benzodiazepines Alcohol dependence	Capsule: 25, 50, 75, 100, 150, 200, 225, 300 Oral solution: 20 mg/mL ER tablet: 82.5, 165, 330	75–300 BID
Topiramate [G] (Eprontia, Qudexy XR, Topamax, Trokendi XR) 1996	Alcohol dependence Bipolar disorder PTSD Binge-eating disorder Obesity	Tablet: 25, 50, 100, 200 Capsule: 15, 25 ER capsule: 25, 50, 100, 150, 200 Oral solution: 25 mg/mL	25–150 BID

ARLAT PUBLISHING

**MEDICATION FACT BOOK  
FOR PSYCHIATRIC PRACTICE**

SIXTH EDITION



Talia Puzantian, PharmD, BCPP  
Daniel J. Carlat, MD

# Side Effect Management

## GENERAL MANAGEMENT TIPS

If you're like most psychiatrists, you probably severely underestimate the number of side effects your patients are experiencing. According to one survey, patients on antidepressants reported *20 times* more side effects than were actually recorded by their psychiatrists (Zimmerman M et al, *J Clin Psychiatry* 2010;71(4):484–490).

Sometimes we don't ask about side effects because we're not sure what to do about them. In order to help you expand your side effect battling arsenal, we have provided this side effect management chapter. We've included 20 fact sheets, including three new ones (diarrhea, neuroleptic malignant syndrome, and serotonin syndrome), covering some of the most common side effects you are likely to encounter in your patients. We had to pick and choose which ones to include, so if there are important symptoms that are missing, please let us know so we can add them to the next edition.

In addition to the side effect management sheets, we've included seven regular medication fact sheets on agents that we use primarily to treat side effects. These include amantadine, benztropine, and trihexyphenidyl for extrapyramidal symptoms of antipsychotics; deutetrabenazine, tetrabenazine, and valbenazine for tardive dyskinesia; and metformin for weight gain caused by psychotropic drugs.

Here's a quick orientation to the side effect fact sheet format:

- **Characteristics:** We describe what the side effect feels like for patients and how you can recognize it.
- **Meds That Cause It:** These are the medications that are most likely to cause the side effect in question. We include only psychotropics in this list.
- **Mechanism:** Although we usually don't know exactly how psychotropics cause most side effects, we posit mechanisms that seem to be most popular with experts.
- **General Management:** This refers to everything other than prescribing specific antidotes. Included here are things like watchful waiting, reducing the dose, switching to a different medication, shifting the timing of the dose (usually to bedtime), taking with food, and so on. Mostly these are commonsense interventions, which you should try before prescribing a new anti-side effect medication.
- **First-Line Medications:** In some cases, most experts agree on a few medications that are most likely to be effective for managing specific side effects. That said, since there are very few clinical trials testing meds for side effects, judgments about what qualifies as a first-line vs a second-line medication are fallible, and we won't be offended if you disagree.
- **Second-Line Medications:** This section is reserved for the various nostrums—drugs that have been tried by various people and might work. You would likely resort to these only out of desperation.
- **Clinical Pearls:** Hard-won wisdom from the trenches.
- **Fun Fact:** Sometimes entertaining, sometimes intriguing... and sometimes just present.

A note on information sources: It's not easy to find reliable information on side effect management. There are very few well-designed clinical trials on such uses, meaning that we must rely on uncontrolled trials, small case series, anecdotes, or simply expert opinion. In doing research for the symptom fact sheets in this chapter, we relied primarily on the following three sources, supplemented by various articles and our own clinical experiences:

- Annamalai A. *Medical Management of Psychotropic Side Effects*. New York, NY: Springer Publishing; 2017.
- Goldberg JF and Ernst CL. *Managing the Side Effects of Psychotropic Medications*. 2nd ed. Arlington, VA: American Psychiatric Association; 2019.
- Mago R. *Side Effects of Psychiatric Medications*. Createspace Independent Pub; 2014.

ARLAT PUBLISHING

MEDICATION FACT BOOK  
FOR PSYCHIATRIC PRACTICE

SIXTH EDITION



Talia Puzantian, PharmD, BCPP  
Daniel J. Carlat, MD



## ACAMPROSATE (Campral) Fact Sheet [G]

### Bottom Line:

Acamprosate is best for maintaining abstinence in patients who have already quit, but it can be helpful even after patients relapse. Naltrexone is the better choice for patients who are still drinking, since it is better at helping patients quit. Acamprosate is also preferred over naltrexone in patients with hepatic impairment.

### FDA Indications:

**Alcohol dependence.**

### Dosage Forms:

**Delayed-release tablets (G):** 333 mg.

### Dosage Guidance:

- Start 666 mg TID. Give 333 mg TID in patients with renal impairment.
- Can give 999 mg twice a day if patients can't remember to take it three times daily.

**Monitoring:** No routine monitoring recommended unless clinical picture warrants.

**Cost:** \$\$

### Side Effects:

- Most common: Diarrhea (dose related, transient), weakness, peripheral edema, insomnia, anxiety.
- Serious but rare: Acute renal failure reported in a few cases; suicidal ideation, attempts, and completions rare but greater than with placebo in studies.

### Mechanism, Pharmacokinetics, and Drug Interactions:

- Mechanism of action is not fully defined; it appears to work by promoting a balance between the excitatory and inhibitory neurotransmitters, glutamate and GABA, respectively (GABA and glutamate activities appear to be disrupted in alcohol dependence).
- Not metabolized, cleared unchanged by kidneys;  $t_{1/2}$ : 20–33 hours.
- No significant drug interactions.

### Clinical Pearls:

- Approved by the FDA in 2004, but it has been used in France and other countries since 1989.
- Does not eliminate or treat symptoms of alcohol withdrawal. Usually prescribed for maintenance of abstinence; may continue even if patient relapses with alcohol.
- Clinically, acamprosate has demonstrated efficacy in more than 25 placebo-controlled trials and has generally been found to be more effective than placebo in reducing risk of returning to any drinking and increasing the cumulative duration of abstinence. However, in reducing heavy drinking, acamprosate appears to be no better than placebo.
- Acamprosate can be used with naltrexone or disulfiram (different mechanism of action), although the combination with naltrexone may not increase efficacy per available studies.
- Taking with food is not necessary, but it may help compliance to do so.
- Compared to naltrexone and disulfiram, acamprosate is not metabolized by the liver and is not impacted by alcohol use, so it can be administered to patients with hepatitis or liver disease and to patients who continue drinking alcohol.

### Fun Fact:

Each 333 mg tablet contains 33 mg of elemental calcium (because it is available as acamprosate calcium salt).

ARLAT PUBLISHING

**MEDICATION FACT BOOK  
FOR PSYCHIATRIC PRACTICE**

SIXTH EDITION



Talia Puzantian, PharmD, BCPP  
Daniel J. Carlat, MD



# Medication Fact Book for Psychiatric Practice, Sixth Edition

**“An essential reference for busy clinicians.”**

**Mark Leary, MD**

Professor of Psychiatry, UCSF School of Medicine

**“A most useful desk-side book for the clinician who needs accurate and practical information about commonly used medications.”**

**Vivien Burt, MD, PhD**

Founder and Co-Director, UCLA Women’s Life Center; Professor of Psychiatry, UCLA School of Medicine

**“The facts you need as a prescriber are right here.”**

**Jerrold F. Rosenbaum, MD**

Psychiatrist-in-Chief Emeritus, Director of the Center for Neuroscience of Psychedelics and Center for Anxiety and Traumatic Stress Disorders (CATSD), Massachusetts General Hospital

**“Provides great information in a concise, thoughtfully developed format that is perfect for busy clinicians.”**

**Stephen Strakowski, MD**

Professor of Psychiatry and Associate Vice President of Regional Mental Health, Dell Medical School, University of Texas at Austin

The *Medication Fact Book* is a comprehensive reference guide covering all the important facts, from cost to pharmacokinetics, about the most commonly prescribed medications in psychiatry. Composed of single-page, reader-friendly fact sheets, treatment algorithms, and quick-scan medication tables, this book offers guidance, clinical pearls, and bottom-line assessments of more than 100 of the most common medications you use and are asked about in your practice.

## Get the information you need at a glance:

- Off-label uses
- Dosages and generic availability
- Mechanisms of action
- Cost information
- Bottom-line impressions

## This revised edition features:

- 164 fact sheets, 16 of which are new
- 33 updated reference tables, five of which are new
- Plus, eight appendices and 10 treatment algorithms

## AUTHORS



**Talia Puzantian, PharmD, BCPP**, is a professor of clinical sciences at Keck Graduate Institute School of Pharmacy and Health Sciences in Claremont, CA. She is the deputy editor of *The Carlat Report* newsletters and co-author of the *Child Medication Fact Book for Psychiatric Practice*.



**Daniel J. Carlat, MD**, is the founder and president of Carlat Publishing and is associate clinical professor of psychiatry at Tufts University School of Medicine.

## Sample Pages

Available at [www.thecarlatreport.com](http://www.thecarlatreport.com)