

ANTIPSYCHOTIC COMPARISON CHART

Name: Generic/TRADE (& receptor activity)	GROUP	Clinical Equivalency (mg)	SIDE EFFECTS (%)				ANTI-EMETIC	DOSE: INITIAL; MAX; {elderly}	USUAL DOSE RANGE	\$ /Month
			Anticholinergic	Sedation	Hypotension	EPS				
Chlorpromazine LARGACTIL (10,25,50,100mg tab; 5,20,40mg/ml soln; 50mg/2ml amp); (100mg supp *)	Aliphatic	100	>30	>30	>30	>10	Pregnancy category → ++++	25mg 1200mg	50mg po bid 100mg po bid	19 30
			Cholestatic jaundice <1%, Weight gain ~3-5kg, Seizures <1%							
Methotrimeprazine NOZINAN (2.5,25,50mg tab; 5mg/ml,40mg/ml liquid); (25mg/ml amp*)	Phenothiazine	70	>30	>30	>30	>10	+	5mg 1000mg	25mg po bid 50mg po bid	15 19
Pericyazine NEULEPTIL (5,10,20mg cap; 10mg/ml liquid)		15	>30	>30	>10	>2	++++	5mg; (max 60mg)	10mg po bid	25
Pipotiazine PIPORTIL (DEPOT) 25mg/ml, 100mg/2ml Amp)	Piperidine	20mg IM q4week	>10	>10	>2	>30	+	25-250mg IM q4w	25mg IM q10d 50-75mg IM q2-4w	50 50
			Less akathisia & dystonic reactions than other DEPOT medications							
Thioridazine MELLARIL (10,25,50,100mg tab; 30mg/ml liquid)	Phenothiazine	100	>30	>30	>30	>2	+	25mg 800mg → Retinal pigmentosa	50mg po bid 100mg po bid	16 25
			ECG changes -↑ QT interval (sertindole >thioridazine >ziprasidone), T wave Δ's, priapism, retrograde ejaculation							
Fluphenazine MODECATE,MODITEN (DEPOT) 125mg/5ml Vial, 100mg/1ml Amp; 1, 5,10mg tab); (2mg ^{DC 2002})	Piperazine	5 15mg IM q4week	>2	>2	>2	>30	+	1-40mg PO 12.5-75mg IM/SC q2w	2mg po bid 25-50mg IM q2-4w	22 15
Perphenazine TRILAFON (2,4,8,16mg tab); (5mg/ml amp *)		8	>2	>10	>2	>30	++++	2mg 64mg	4mg po bid 8mg po bid	10 11
Trifluoperazine STELAZINE (1,2,5,10mg tab; 10mg/ml soln)		6	>2	>2	>10	>30	++++	2mg 40mg	2mg po bid 5mg po bid	17 20
Flupenthixol FLUANXOL (DEPOT) 200mg/10ml, 200mg/2ml Vial; 0.5,3mg tab)	Thioxanthene	10 24mg IM q4week	>10	>2	>2	>30	++	2-12mg po 10-80mg IM q2-3w	3mg po bid 20-40mg Im q2-3w	43 20
Zucloperthixol CLOPIXOL (10,25,40mg tabs), Accuphase (50mg/ml, 100mg/2ml amp*) DEPOT 2000mg/10ml Vial)		50 120mg IM q4week	>10	>30	>2	>30	++	20-100mg po 50-400mg IM q2w	10mg po bid 25mg po bid 100-200mg IM q2-3w	33 71 35
			LESS with DEPOT							
Clozapine CLOZARIL (25,100mg tab) D2,D1,D4,5HT1A,2,α1,α2,H1,M1	Dibenzodiazepine	50	>30	>30	>30	>2	+	6.25-25mg 900mg	100mg po tid 200mg po bid	394 516
			SE: Dizzy,drowsy,constipation,NV,fever,↑HR,↓BP,↑salivation,seizures(up to 5%-dose related),agranulocytosis(1%)→CBC q week,weight ↑↑,ECG Δ's,cardiomyopathy;↑ALT ≤37%,diabetes,akathisia >10%. Drug interactions: carbamazepine ↓ clozapine level & ↑ neutropenia risk; fluvoxamine & erythromycin ↑ levels of clozapine; benzodiazepines -rare respiratory arrest; ← prolactin effect							
Haloperidol HALDOL (0.5,1,2.5,10mg tab; 2mg/ml soln; DEPOT 250mg/5ml, 500mg/5ml Vial, 100mg/1ml Amp*; 5mg/ml amp) D2-D1	Butyrophenone	2 - 6 40mg IM q4week	>2	>2	>2	>30	+++	1-100mg PO 25-300mg IM q4w {0.25-2mg/d}	2mg po bid 5mg po bid 50-100mg IM q2-4w	15 18 20
			↑ALT ≤16%,Weight gain ≤1 kg							
Loxapine LOXAPAC (5,10,25,50mg tab); (25mg/ml soln *; 50mg/ml amp *)	Dibenzoxapine	15	>10	>30	>10	>30	+	5mg 250mg	5mg po bid 25mg po bid	18 35
Olanzapine ZYPREXA (2.5,5,7.5,10,15mg tab) (ZYDIS 5,10mg tab) D2,D1,D3,D4, 5HT1A,2,α1,α2,H1,M1	Thienobenzodiazepine	2.5 - 5	>10	>30	>2	>2	+	2.5-5mg {1.25-10mg/d} 20mg	10mg po od 15-20mg po od	245 346-462
			SE:somnolence, dry mouth, dizzy,asthenia, constipation,dyspepsia,↑ALT ≤6%, diabetes, weight ↑↑, akathisia >10%, postural hypotension, seizures (0.9%), ← prolactin effect							
Pimozide ORAP (2,4mg tab)	Diphenylbutyl piperidine	2	>2	>10	>2	>10	+	2mg 8-20mg	2mg po bid 4mg po bid	25 39
Quetiapine SEROQUEL (25,100,150,200,300mg tab) D2, 5HT1A,2,α1,α2, H1 -little M1	Dibenzothiazepine	60 - 75	>2	>10-30	>10	>2	+	12.5mg 750mg {12.5-150mg/d}	200mg po tid ac 300mg po bid-tidac	278 270-392
			SE: somnolence, dizzy,drowsy,constipation,dry mouth,lens changes in beagles-annual slit lamp exam,↓BP,weight ↑, seizures (≤0.8%), dyspepsia, headache, diabetes,↑ALT (≤9%), akathisia >2%. ↑ triglycerides (17%), ↑ cholesterol (11%), hypothyroidism low EPS effect, ← prolactin effect							
Risperidone RISPERDAL (0.25,0.5,1,2,3,4mg tab; M-TAB melts 0.5,1,2 mg tab *; 1mg/ml soln) D2,D3,D4, 5HT1A,2,α1,α2,H1 -little M1	Benzisoxazole	2	>2	>2-10	>10-30	>10	+	0.25-1mg 6-10mg {0.25-2mg/d}	1mg po bid 2mg po bid	81 155
			SE: sedation, headache, dry mouth, constipation, blurred vision, urinary incontinence, vertigo, insomnia, agitation, asthenia, nausea, ↓BP, rhinitis, akathisia >10%, ↓ appetite, TTP, seizures (≤0.3%), photosensitive, ? stroke, weight ↑. Oral liquid not mix with cola or tea. ↑ EPS at doses >4mg/day & ↑ prolactin effect							

General: Onset 7days; a good trial is 2-6 weeks. 25% of pts. respond poorly to Tx, yet 30% of these respond to clozapine. Positive S/Sx: hallucinations, delusions, thought disorders; Negative S/Sx: social withdrawal & isolation & apathy.

Neuroleptic Malignant Syndrome upto 1%, often within 30day;esp. younger males,high potency depot; mortality of 10% S/Sx: >39°C,muscle rigidity,delirium,autonomic instability(ie.↑↓BP),↑CPK,↑HR,arrythmias,tremors,seizures & coma.TX: D/C neuroleptic,cooling blanket,hydrate,dantrolene,bromocriptine &benzodiazepines.

Tardive dyskinesia-after months to yrs of neuroleptic use,↑ in elderly.S/Sx: fly catching/protruding motions of tongue,tics of the face, chewing motions or excessive blinking.TX: D/C/↓ neuroleptic,tetrabenazine,Vitamin E 800-1600iu/d.

Depot Medications: after 3-6 months many accumulate;thereby, requiring ↓ dose,onset of action for most are 2-3 days(Peak 4-7day),except **Clopixol Accuphase** with onset: 2-4hr,duration: 2-3days and max. sedation at 8hr.

Pregnancy: Consider the risk versus benefit! -use lowest possible dose, high potency agent preferred (ie. haloperidol FDA Category C), if possible try to D/C before delivery. Avoid if possible especially during first trimester.

Level ↓ by: antacid,cholestyramine,carbamazepine,phenobarbital,phenytoin,rifampin&smoking. **Level ↑ by:** amitriptyline,amiodarone,cimetidine,ciprofloxacin,diltiazem,erythromycin,fluoxetine,fluvoxamine,grapefruit juice,isoniazid,ketoconazole,nefazodone, paroxetine,propranolol,quinidine,Krionavir.

EPS Acute dystonia-spasm of face,neck&back-like seizure(Onset 1-5day esp. young male,Tx: **benztropine**) Akathisia-motor restless-not verbal,pacing,fidgety(Onset 5-60day, esp. old female;Tx:↓dose or Δ low potency,lorazepam,propranolol,diphenhydramine)

Parkinsonism-rigid,bradykinesia,shuffling gait,tremor (Onset 5-30 day esp. old female;Tx: **benztropine**, amantadine) Rabbit Syndrome-rapid chewing movements (Onset after months esp. old females; Tx: **benztropine**). ⚡ =EDS ✖ = Non-formulary Sask

Not in : **Aripiprazole ABILIFY** (10,15,20,30mg tabs) 10-15mg od. Max 30mg od; minimal weight gain, ↑ anxiety; D1: fluoxetine, erythromycin & carbamazepine. **Ziprasidone GEODON** (20,40,60,80mg caps) 20-80mg bid with meals; ↑ QT interval, EPS ~5%, minimal weight gain. **41**

1. What is the difference in WEIGHT GAIN among the different antipsychotics?¹

Estimated weight change at 10 weeks:^{1,2}
using a Fixed effects Model:

	kg
loxapine	minimal
haloperidol	0.48
risperidone	2.0
chlorpromazine	2.1
quetiapine	~2.5
thioridazine	3.49
olanzapine	3.51
clozapine	3.9

Allison, David
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The following statements from the CPS or specific studies state:

risperidone -can ↑ weight by 2 kg at 10 weeks, then 2.3kg
 RISPERDAL after long term treatment
 -18% of patients & 9% of placebo patients increased >7% from baseline body weight

quetiapine -can ↑ weight by 2 kg at 4-8 weeks, 3.5kg at 18-26 week & 5.6kg at 1 year
 SEROQUEL
 -25% of patients & 4% of placebo patients increased >7% from baseline body weight

olanzapine -can ↑ weight by ~3.5kg at 10 weeks, then 5.4kg at 6-8months
 ZYPREXA
 -29% of patients & 3% of placebo patients increased >7% from baseline body weight

clozapine -can ↑ weight by 4 kg at 10 weeks
 CLOZARIL

2. What are the different EXTRAPYRAMIDAL SIDE EFFECTS (EPS) and COSTS?

Atypical agent	EPS effect	Prolactin levels	Younger patients (Dose & Cost/month)	Geriatric patients (Dose & Cost/month)
haloperidol	High	↑↑	5mg po bid \$ 18	1mg po hs \$ 10
risperidone RISPERDAL	Low ⁺	↑	1mg po bid \$ 81 2mg po bid \$155	0.5mg po hs \$ 34 1mg po hs \$ 44
olanzapine ZYPREXA	Lower ⁺	↑ ↔	10mg po od \$245 15mg po od \$346	2.5mg po od \$ 67 5mg po od \$128
quetiapine SEROQUEL	Even lower	↔	100mg po tid \$144 200mg po bid \$191	25mg po hs \$ 25 50mg po hs \$ 41
clozapine	Lowest*	↔	100mg po tid \$394	100mg po hs \$142

⁺ dose dependent *even some anti- tremor effect

3. Are there any SPECIAL SITUATIONS where one agent differs from the other agents?

Atypical agent	Liver Enzymes (↑ ALT 2-3x)	Seizure Risk	Neutropenia	Special differences
risperidone RISPERDAL	Rare	≤ 0.3%	NO	Approved→behavioral disturbances in severe dementia; Liquid formulation available; Parkinson's motor function worse esp. if >2mg/d
olanzapine ZYPREXA	↑ ≤ 6%	≤ 0.9%	Rare	Approved for acute treatment of mania, ↑ weight, anticholinergic. Zydis wafer available.
quetiapine SEROQUEL	↑ ≤ 9%	≤ 0.8%	NO	Better tolerated in Tx of Parkinson's psychosis, ↑ cholesterol (11%), ↑ triglycerides (17%), TSH changes (ie hypothyroidism ~0.4%) Eye lens changes→ cataracts in beagle dogs
clozapine CLOZARIL	↑ ≤ 37%	≤ 5% ⁺	YES 1%	Anti-tremor effects, Useful for Parkinson's induced psychosis but ADR's & weekly blood monitoring discourage its use
haloperidol	↑ ≤ 16%	<1%	NO	Available in IV/IM & depot formulations, Useful option for acute treatment of delirium

⁺ dose dependent

1. Allison DB et al. Antipsychotic Induced Weight Gain: A comprehensive Research Synthesis. Am J Psychiatry 1999;156(11):1686-96.
 2. Allison DB, Casey DE. Antipsychotic-induced weight gain: a review of the literature. J Clin Psychiatry. 2001;62 Suppl 7:22-31.
 3. Expert Consensus Guideline Series- Treatment of Schizophrenia 1999. J Clin Psychiatry 1999;60 (Suppl 11)
 4. Switching Antipsychotics- Canadian Expert Consensus Panel July 2000
 5. Canadian Clinical Practice Guidelines for the Treatment of Schizophrenia, Nov 1998, Vol 43, Supp 2

4. What are the DEPOT MEDICATIONS mixed with?

MEDICATION	DEPOT SOLUTION
flupenthixol -Fluanxol	fluphenazine -Modecate
haloperidol -Haldol	pipotiazine -Piportil
zuclophenthixol -Clopixol Depot	coconut oil

5. Selecting Medications for SPECIFIC COMPLICATING PROBLEMS^{2,3,4}

	Recommended antipsychotic medication choices	Recommended adjunctive medication
Aggression/violence Agitation/excitement	haloperidol 2-5mg IM/1-2mg IV q1h prn Max 20mg/d lorazepam 1-4mg IV/IM/ q1h prn Max 8mg/d zuclophenthixol accuphase 50-150mg IM q2d prn Max total cumulative dose ≤ 400mg & ≤ 4 inj High potency CAP or AAP (ie. risperidone)	valproic acid Possibly lithium, carbamazepine, propranolol, BZ(if no hx of substance abuse)
Insomnia	AAP (quetiapine,olanzapine) or low potency CAP preferred	Bz -short term use of temazepam/ lorazepam/oxazepam
♦ if history of abuse consider trazodone, diphenhydramine, hydroxyzine & methotrimeprazine		
Dysphoria	AAP strongly preferred over CAP	SSRI
Suicidal behavior	AAP strongly preferred over CAP	SSRI-if in the context of postpsychotic depression
Comorbid substance abuse	AAP preferred over CAP Depot meds may be helpful for non-compliance	
Cognitive problems	AAP strongly preferred over CAP	
Compulsive water drinking (psychogenic polydipsia)	AAP preferred over CAP clozapine (but not for initial treatment)	

6. Selecting Medications to Avoid SIDE EFFECTS^{3,4,5}

	LEAST likely to cause	MOST likely to cause
Sedation	risperidone high potency CAP	Low potency CAP clozapine, quetiapine, olanzapine
Weight Gain	haloperidol, then risperidone (aripiprazole & ziprasidone seem less)	clozapine most, then olanzapine, then quetiapine
Extrapyramidal effects (EPS side effects)	clozapine quetiapine olanzapine risperidone ↓ More EPS	Mid & high potency CAP
Anticholinergic side effects & Cognitive side effects	risperidone quetiapine, high potency CAP	Low potency CAP clozapine
Sexual side effects	quetiapine,olanzapine,clozapine	CAP
Cardiovascular side effects	risperidone olanzapine, high potency CAP, quetiapine	Low potency CAP (eg. thioridazine) ziprasidone
Tardive dyskinesia (TD)	clozapine quetiapine olanzapine risperidone ↓ More TD	CAP
Recurrence of neuroleptic malignant syndrome	olanzapine clozapine quetiapine,risperidone ↓ More	CAP

AAP -atypical antipsychotics (clozapine, olanzapine, quetiapine & risperidone); BZ -benzodiazepines;
 CAP -conventional antipsychotics (chlorpromazine,haloperidol,zuclophenthixol etc...);
 Low potency CAP - chlorpromazine, methotrimeprazine, & thioridazine etc.;
 Mid potency CAP - perphenazine; High potency CAP - flupenthixol, fluphenazine, haloperidol, loxapine, trifluoperazine etc.

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