2025 Dementia due to Alzheimer's Disease Reference Sheet

Medication	Geriatric Dosing	Important Highlights	Class Clinical Pearls
Acetylcholinesterase Inhibitors (AChEIs)			
Donepezil (Aricept™, Aricept ODT™, Adlarity™)	5 mg daily x 4-6 weeks; ↑ 10 mg daily Option to ↑23 mg daily 5 mg per 24 hours patch once weekly x 4-6 weeks; may ↑ 10 mg per 24 hrs patch	- Approved for mild, moderate and severe AD dementia -Lowest rates of GI AEs and anorexia; but increased rates N/V and anorexia with doses of 23 mg dose - Available in combination with memantine (Namzaric™) - Once daily dosing (in the evening) as it has a long $T_{1/2}$ - Donepezil once-weekly patch (Adlarity™): needs to be refrigerated - Conversion from oral to WEEKLY patch: ✓ 5 mg oral daily = 5 mg/24 hrs weekly patch ✓ 10 mg oral daily=10 mg/24 hrs weekly patch	Slow dose titration is to minimize GI adverse effects (AEs) Oral rivastigmine has the highest risk for GI AEs If experience GI AEs or anorexia, consider reducing dose and/or administer with food If experience nightmares (more common with donepezil), administer in the morning
Galantamine (Razadyne™, Razadyne ER™)	IR: 4 mg BID x 4-6 weeks, ↑8 mg BID for ≥4 weeks, can consider ↑ 12 mg BID ER: 8 mg daily x 4 weeks, ↑16 mg ≥4 weeks, can ↑ 24 mg if tolerated	- Approved for mild-moderate AD dementia only - IR form BID dosing - If CrCl < 60 mL/min – max dose is 16 mg/day - If treatment is interrupted for ≥ 3 days, dose should be restarted at lowest dose and re-titrated	
Rivastigmine (Exelon™, Exelon patch™)	PO: 1.5 mg BID; titrate every 2 weeks by 3 mg/day TD: 4.6 mg/24 hrs once daily; after 4 weeks increase to 9.5 mg/24 hrs; 13.3 mg/24 hrs	- PO approved for mild, moderate AD dementia - Rivastigmine patch approved for mild, moderate, and severe AD dementia (high dose rivastigmine patch) - Available transdermally → which ↓ GI adverse effects & is approved for mild, moderate & severe dementia - Only AChEI FDA-approved for Parkinson's disease dementia - Conversion from oral to patch: ✓ Oral < 6mg/day=4.6mg/24 hrs patch ✓ Oral ≥ 6mg/day=9.5mg/24 hrs patch	
N-methyl-D-aspartate (NMDA) receptor antagonist			
Memantine (Namenda™)	IR: Week 1: 5 mg daily Week 2: 5 mg BID Week 3: 5 mg + 10 mg Week 4: 10 mg BID XR: Week 1: 7 mg/day Week 2: 14 mg/day Week 3: 21 mg/day Week 4: 28 mg/day	- Approved for moderate, and severe AD dementia only - Requires renal dosage adjustment - If CrCl < 30 mL/min max dose for IR is 5 mg BID; XR is 14 mg/day - Overall well tolerated - Available in combination with donepezil as a capsule (Namzaric™): the capsule can be opened and the content can be sprinkled over a small spoonful of applesauce, then swallowed whole	

Amyloid beta-directed antibody (Beta amyloid monoclonal antibodies)			
Donanenab (Kisunla™)	700mg is to be given as an intravenous (IV) infusion over 30 minutes every 4 weeks for the first three doses, followed by 1400mg every 4 weeks	- FDA approved on July 2024 - Indication: a disease modifying therapy for for MCI and mild dementia due to AD. - Only indicated for clinical criteria for MCI due to AD or mild dementia due to AD and when there is amyloid positive PET or CSF findings consistent with AD. - Most common AEs: headache, infusion-site reactions (manageable usually by pre-treatment of corticosteroinds, diphenhydramine and acetaminophen), Amyloid Related Imaging Abnormalities (ARIA) especially in the presence of APO ε4 genotype (40.6% vs 3.4% in placebo) ✓ ARIA-Edema (ARIA-E): vasogenic edema or sulcal effusion ✓ ARIA-Hemorrhage (ARIA-H): brain microhemorrhages or localized superficial siderosis - Enhanced clinical vigilance for ARIA is recommended during the first 24 weeks of treatment. Risk of ARIA, including symptomatic ARIA, was increased in ApoE ε4 homozygotes compared to heterozygotes and noncarriers. - For safety and ARIA monitoring patient will need baseline MRI (recent/within on year) and MRI prior to the 2nd, 3rd, 4th, and 7th infusions. - If radiographically observed ARIA occurs, treatment recommendations are based on type, severity, and presence of symptoms. - AChEIs and/or memantine treatment is allowed with this treatment	The efficacy of donanemab, supporting its FDA approval, was evaluated from industry-sponsored studies, including a phase 2b, early Alzheimer disease trial (TRAILBLAZER-ALZ) and an 18-month, multicenter, double-blind, phase 3 trial (TRAILBLAZER-ALZ-2) It demonstrated ability to lower brain levels of beta-amyloid (PET imaging) and **slow cognitive and functional decline** in early-stage cases of AD. However, the clinical significance is uncertain at this time. While donanemab effectively removes beta-amyloid, the clinical benefit of doing so is uncertain.
Lecanemab (Leqembi™)	10 mg/kg, over an hour, every 2 weeks	- FDA approved on July 2024 - Indication: a disease modifying therapy for for MCI and mild dementia due to AD. - Only indicated for clinical criteria for MCI due to AD or mild dementia due to AD and when there is amyloid positive PET or CSF findings consistent with AD. - Most common AEs: headache, infusion-site reactions (manageable usually by pre-treatment of corticosteroinds, diphenhydramine and acetaminophen), Amyloid Related Imaging Abnormalities (ARIA) especially in the presence of APO ε4 genotype (40.6% vs 3.4% in placebo) ✓ ARIA-Edema (ARIA-E): vasogenic edema or sulcal effusion ✓ ARIA-Hemorrhage (ARIA-H): brain microhemorrhages or localized superficial siderosis - Amyloid Related Imaging Abnormalities (ARIA):	The efficacy of lecanemab supporting its FDA approval, was evaluated from industry-sponsored studies, including a phase 2b, dose-finding trial (Study 201, NCT0176311) and an 18-month, multicenter, double-blind, phase 3 trial (Clarity AD) It demonstrated ability to lower brain levels of beta-amyloid (PET imaging) and **moderately slow cognitive and**

		Enhanced clinical vigilance for ARIA is recommended during the first 14 weeks of treatment. Risk of ARIA, including symptomatic ARIA, was increased in apolipoprotein E e4 homozygotes compared to heterozygotes and noncarriers. - Enhanced clinical vigilance for ARIA is recommended during the first 8 doses of treatment, particularly during titration. - MRI at baseline (or within of one year of the treament initiation) and then prior to the 5th, 7th, and 14th infusions. If radiographically observed ARIA occurs, treatment recommendations are based on type, severity, and presence of symptoms - AChEIs and/or memantine treatment is allowed with this treatment	**functional decline** in early-stage cases of AD. While lecanemab effectively removes beta-amyloid, the clinical benefit of doing so is uncertain.

2025 Epilepsy Reference Sheet

Antiseizure Medications (ASMs)			
	Dosing, Initial (range)	**Important Highlights**	**Serum Levels**
Carbamazepine (Tegretol™, Carbatrol™)	IR: 100 mg BID (200-800 mg/day divided TID or QID) XR: 100 mg BID (100 mg BID – 400 mg BID) Dose based on levels; adjust dose initially at weekly intervals	- Potent hepatic enzyme inducer=many drug interactions!! - Autoinducer - Hyponatremia, DRESS BW: agranulocytosis, aplastic anemia; serious rash (HLA-B*1502 allele); folic acid, vitamins B12 and D depletion (negative bone health impact) - Level monitoring - Potential to exacerbate SIADH	4-12 mcg/mL
Lacosamide (Vimpat™)	50 mg BID (100 mg BID – 200 mg BID) Max 300 mg/day If CrCl ≤ 30 mL/min or mild-mod hepatic impairment. Avoid in severe hepatic impairment	- Prefered in older adults due to sagety and broad efficacy against many seizures - Level monitoring not required, cardiac monitoring (PR-interval prolongation), baseline ECG - Available PO and IV - Renal dosage adjustments - No CYP450 induction	Not indicated
Lamotrigine (Lamictal™)	<u>Of on monotherapy:</u> 25 mg dailyx 2 weeks 50 mg daily x 2 weeks ↑50 mg/day every 1-2 weeks (100 mg BID – 150 mg BID) <u>If on valproic acid or divalproex sodium</u> Initial: 25 mg every other day x 2 weeks; 25 mg daily x 2 weeks; ↑ by 25-50 mg every 1-2 weeks (50 mg BID-100 mg BID) <u>If on carbamazepine, phenobarbital, phenytoin or primidone:</u> Initial dose 50 mg qd x 2weeks; 50 mg BID x2weeks; ↑ 100 mg/day every 1-2 weeks (150 mg BID-250 mg BID)	- Preferred in older adults due to its safety and broad efficacy - BW: serious rash (SJS/TEN), hypersensitivity reactions, blurred vision - Slow dose titration to minimize risk of rash and skin reactions - Drug interactions with valproic acid/divalprox and estrogen - Level monitoring is available can be helpful in epilepsy but is not widely used when used in psychiatry (mood stabilizer) - Renal adjustment	4-18 mcg/mL (2-20 mcg/mL): may slightly varies based on the laboratory

Levetiracetam (Keppra™)	Initial 500 mg q12 hrs (500-1500 mg q12 hrs Renal impairment initial 250 q12 hrs; Range if CrCl (mL/min/1.73m^2) 50-80: 500-1000 mg q12 hrs 30-50: 250-750 mg q12hrs < 30: 250-500 mg q12hrs	- Preferred in older adults due to its safety and broad efficacy - Renal dosage adjustments needed in older adults - Higher rates of psychiatric AEs: irritability/behavior changes, depression - Level monitoring not required - Available PO and IV - Negligible protein binding - No CYP450 induction/inhibition	Not indicated
Oxcarbazepine (Trileptal™)	Adults initial 300 mg BID Older adults and in renal impairment (CrCl < 30 mL/min) initial 150 mg BID Range 150 mg BID – 600 mg BID	- Hyponatremia and potential to exacerbate SIADH – more common in older adults - Less CYP3A4 induction than carbamazepine (dose-dependent) - Some drug interactions - Renal dosage adjustment - No level monitoring	Not indicated
Phenobarbital (Luminal™)	50-100 mg BID-TID	- Potent hepatic enzyme inducer - Many drug interactions!! - Level monitoring - Folic acid, B12, vitamin D depletion, negative bone health impact - Beers Criteria Avoid Barbiturates	15-40 mcg/mL
Phenytoin (Dilantin™, Phenytek™)	100 mg TID Once stabilized can be switched to qd dosing 300 mg qhs Dosing based on levels Clearance ↓ in older adults	- Potent hepatic enzyme inducer - Many drug interactions!! - Level monitoring - High albumin binding (90%) - Long-term AEs: gingival hyperplasia, hirsutism, coarsening of facial features, folic acid, vitamins B12 and D deficiency (negative bone health impact)	Total level: 10-20 mcg/mL Free level: 1-2 mcg/mL
Topiramate (Topamax™)	Week 1: 25 mg BID Week 2: 50 mg BID Week 3: 75 mg BID Week 4: 100 mg BID Week 5: 150 mg BID Week 6: 200 mg BID If CrCl <70 mL/min ↓by 50%	- AEs include kidney stones (nephrolithiasis), hyperchloremic metabolic acidosis, secondary angle closure glaucoma; weight loss - Renal dosage adjustments - Cognitive slowing (especially at the doses ≥200 mg/day)	Not indicated
Valproic Acid and its derivatives (Depakene™, Depakote™)	Initially dosing range in older adults - 125 mg BID- TID or 250 mg BID	- AEs: sedation, edema, diarrhea, thrombocytopenia, tremor, less commonly hyponatremia; hyperammonemia encephalopathy GI adverse effects less with enteric- coated (vs. IR) and even less with ER formulation - BW: hepatoxicity, pancreatitis - Inhibits UGT (interaction with lamotrigine) and epoxide hydrolase (interaction with carbamazepine)	50-100 mcg/mL

Zonisamide (Zonegran™)	100 mg/day x2 weeks; ↑100 mg/day every 2 weeks (Range 100-400 mg/day) Maximum 600 mg/day	- AEs include kidney stones (nephrolithiasis), hyperchloremic metabolic acidosis, secondary angle closure glaucoma; weight loss - Renal dosage adjustments - Non CYP450 induction/inhibition - Long $T_{1/2}$=once-daily dosing	Not indicated

BW = box warning

2025 Antipsychotics in Neurology Reference Sheet

Antipsychotics Use Summary

- Usually try to avoid, except in FDA approved indications such as schizophrenia, bipolar disorder, Parkinson disease psychosis or adjunctive treatment of major depressive disorder, or for short-term
- Avoid antipsychotics for behavioral problems of dementia or delirium unless documented nonpharmacologic options (e.g., behavioral interventions) have failed and/or the patient is threatening substantial harm to self or others.
- In general avoind all antipsychotics in Parkinsons disease except for pimavaserin, clozapine and quetiapine.
- All antipsychotics, typical and atypical, carry an increased risk of stroke and greater rate of cognitive decline and mortality in older individuals with dementia.
- <u>Safety of Antipsychotics:</u>
    - All antipsychotics – typical and atypical antipsychotiics carry a box warning of an increased risk for mortality in dementia- related psychosis (primarily related to infection, cardiovascular, or cerebrovascular).
    - In general first generation, high potency antipsychotics (e.g., haloperidol, fluphenazine) carry a higher risk of pseudoparkinsonism, acute dystonia, akathisia, and tardive dyskinesia.
    - Second generation antipsychotics such as olanzapine and clozapine carry a higher risk of metabolic disturbances. Recently a new warning was added to second generation antipsychotics regarding risk of orthostasis. All carry a risk for dysphagia, tardive dyskinesia (AIMs monitoring required at nursing home facilities).
    - If used, periodic deprescribing attempts should be considered to assess ongoing need and/or lowest effective dose.
        - Gradual dose reductions (GDR) – First year of initiation, must attempt a GDR in 2 separate quarters (≥ 1 month apart); after initial year, GDR annually unless contraindicated.

Medication	Dosing	Important Highlights
First Generation Antipsychotics		
Haloperidol (Haldol™)	0.5 mg – 2 mg single dose Dosed qhs or BID Max recommended inolder adults 2 mg/day	Available PO, IM, and IV (IV off-label); Caution QTc prolongation if used IV Potent D2 receptor antagonist and thus it can be associated with medication-induced parkinsonism , acute dystonia, akathisia.
Chlorpromazine (Thorazine™)	Not recommended in older adults 10-25 mg as a single dose up to TID. Titrate slowly by no more than 10-25mg/day every 4-7 days	Available PO, IM; IV Listed on Beer's list for caution in patients with history of syncope, seizures, delirium; as well as having strong anticholinergic properties Other AEs: QTc prolongation, highly anticholinergic, high risk of orthostasis

Second Generation Antipsychotics		
Aripiprazole (Abilify™)	2 -5 mg; ↑2-5 mg increments Range 2-15 mg/day vs. adult max 30 mg/day	More activating than other antopsychotics AEs: less likely to cause EPS, QTc prolongation or metabolic effects; however common reports of dizziness, newer reports of pathological gambling
Clozapine (Clozaril™)	12.5-25 mg at bedtime If > 48 hrs elapse since last dose restart at 12.5-25 mg/day to reduce risk of syncope/ hypotension	- 5 box warnings: dementia mortality; severe neutropenia; syncope & orthostasis; seizures; myocarditis Other AEs: drooling, sedation, metabolic risks, very anticholinergic Severe neutropenia: monitor ANC weekly x6 months, then every 2 weeks x 6 months, then monthly thereafter (refer to clozapinerems.com) - option in Parkinson disease psychosis (PDP) Listed on Beers list for caution in patients with history of seizures, delirium
Pimavanserin (Nuplazid™)	34 mg qd No renal dosage adjustments and no titration needed. Not recommended in severe renal impairment or in hepatic impairment	Indicated only for Parkinsons disease psychosis with or without dementia QTc prolongation No affinity for D2 receptors, therefore no worsening of motor symptoms in PD Also lower risk of orthostasis CYP3A4 substrate
Quetiapine (Seroquel™)	12.5 – 25 mg single dose; Dosed qhs up to TID Max recommended in older adults 200 mg/day	Supported by SCCM PAD guidelines Weak D2 antagonist, only available PO Potential option in Parkinson disease psychosis
Risperidone (Risperdal™)	Initial 0.25-0.5 mg HS or BID; ↑0.25-0.5 mg increments Max recommended in older adults 2 mg/day	One of the stronger D2 antagonist from atypical antipsychotics, only available PO AEs: orthostasis, dose-dependent EPS, hyperprolactinemia (↑risk of osteoporosis), sedation, higher risk of worsening motor symtoms in PD and causing pseudoparkinsonism
Olanzapine (Zyprexa™)	2.5 mg at bedtime ↑2.5 mg/day increments Maximum in older adults 7.5 mg/day	Available PO and IM Caution using IM in combination with IM BZDs → ↑ mortality AEs: anticholinergic, high risk of metabolic effects, sedation, constipation, rash including DRESS Caution in patients with history of syncope, seizures, delirium.
Ziprasidone (Geodon™)	20 mg BID (max 80 mg)	PO requires food for absorption, Available IM. Limited data in BPSD Dose-dependent QT prologation Low risk for metabolic adverse effects

2025 Parkinson's Disease Reference Sheet

LEVODOPA FORMULATIONS	-Levodopa is the gold standard medication for management of PD -Protein intake may delay absorption of levodopa especially in adavanced stages (start to separated from protein) -Greater risk of motor fluctuations with episodic administration of carbidopa/levodopa vs. dopamine agonists -ER capsules (Rytary and Crexont) are not interchangeable with each other or other carbidopa/levodopa products. Need to use specific conversion Carbidopa/levodopa ODT was discontinued and is no lonfer available in the US	
Medication	**Geriatric Dosing**	**Important Highlights**
Carbidopa/Levodopa		
Carbidopa/levodopa IR (Sinemet™, DHIVY™)	25 mg/100 mg 3 times daily → maximum of 8 tablets/day or 200 mg of carbidopa and 2,000 mg of levodopa	DHIVY: carbidopa/levodopa 25/100 mg tablet that is scored (4 fragments; carbidopa 6.25 mg/levodopa 25mg per fragment)
Carbidopa/levodopa CR (Sinemet CR™)	50 mg carbidopa/200 mg levodopa twice daily → maximum of 8 tablets/day	- Commonly used formulation.
Carbidopa/levodopa ER (Rytary™)	23.75mg carbidopa/95mg levodopa TID (starting dose in levodopa naïve patients)	-Capsule containing IR and XR beads of carbidopa/levodopa. This provides initial and extended levodopa plasma concentration. -Indicated for Parkinson's disease Can be started in levodopa naïve patient and also can be used to convert a patient from IR formulations -Better "off" period management and more good "on" time than IR carbidopa/levodopa
Carbidopa/levodopa ER (Crexont™)	35mg carbidopa/140 mg levodopa BID x 3 days **t**hereafter, dosage may be increased gradually as needed to a maximum daily dosage of 525 mg carbidopa/2,100 mg levodopa divided up to four times daily.	- NEW formulation approved in August 2024 -Capsule containing IR and XR beads of carbidopa/levodopa. The mechanism that confers the extended-release nature of Crexont is innovative and unique= a mucoadhesive polymer which keeps the extended-release beads adherent to the area of absorption of carbidopa-levodopa longer. - Better "off" period management and more good "on" time than IR carbidopa/levodopa -In a different analysis of the same study, Crexont levodopa levels outlasted Rytary and IR carbidopa/levodopa
Carbidopa/levodopa enteral gel (Duopa™)	Based on 1:1 conversion from levodopa IR total daily dose. See manufacturer's label for more information.	-Intestinal infusion via PEG-J tube -Administered over 16 hours in the form of a morning bolus, continuous maintenance dose, and additional boluses PRN -Need for surgery
Foscarbidopa/foslevodopa solution for subcutaneous infusion (Vyalev™)	Dosing in individualized and the infusion rate is calculated during the titration period and is informed by the patient's current use of levodopa and	-NEW formulation approved in October 2024. -Solution of carbidopa and levodopa prodrugs - It is the first subcutaneous 24-hour continuous infusion of levodopa-based therapy - It allows for personalized dosing based on

	other medications for PD. See manufacturer's label for more Information.	individual needs, morning, day and night Indication: Treatment of motor fluctuations in advanced Parkinson's disease -It is used as a maintainance therapy -The most frequent AEs (≥10% than CD/LD IR incidence) were infusion site events, hallucinations, and dyskinesia
Levodopa powder for inhalation (Inbrija™)	84 mg oral inhalation (2 capsules) Administered via Breath-actuated inhaler (Acura System with dry powder)	-Approved in 2019 as on-demand rescue medication -Only adjunct therapy to **CD/LD** treatment for "OFF" periods up to 5 times/day -Onset in 10 minutes lasting up to 60 minutes -Adverse Effects: cough, upper respiratory tract infection, nausea, and discolored sputum -Not recommended in patients with asthma/COPD/other chronic lung disease due to bronchospasm risk
Catechol-O-MethylTransferase (COMT) Inhibitors		
Entacapone (ComTan™)	200 mg with each dose of carbidopa/levodopa	-Only adjunctive therapy for carbidopa/levodopa -Entacapone and tolcapone are associated with delayed-onset diarrhea and darkening of body fluids (e.g., urine) -Carbidopa/levodopa/entacapone combination tablet available in the U.S. as Stalevo™ -Tolcapone associated with hepatotoxicity, requiring regular LFTs - Opicopone no hepatic impairment and no darkening of body fluid and delayed diarrhea
Tolcapone (Tasmar™)	100 mg 3 times daily → 200 mg 3 times daily	
Opicapone (Ongentys™)	50 mg daily (qhs)	
Monoamine Oxidase-B (MAO-B) Inhibitors		
Rasagiline (Azilect™)	0.5-1 mg daily	-FDA-approved for monotherapy or with concomitant carbidopa/levodopa therapy SE: nausea, headache, orthostatic hypotension
Selegiline (Eldepryl™, Zelapar ODT™)	IR capsule: 5 mg in the morning with food; if needed, can add 5 mg dose at noon ODT: 1.25 mg in the morning before breakfast → 2.5 mg daily	-Some clinicians recommend ≤5 mg/day when combined with levodopa to decrease dopaminergic AEs -2nd dose of IR capsule given at noon (no later than 1 PM) to avoid insomnia associated with l-amphetamine and l-methamphetamine metabolites; ODT formulation is rapidly absorbed in the oral cavity, thus avoiding 1st pass metabolism and duodenal absorption (↑ bioavailability, ↓ amphetamine metabolite formation) -AEs: confusion, insomnia, orthostatic hypotension
Safinamide (Xadago™)	50 mg daily → 100 mg daily	-AEs: dyskinesia, falls, nausea, insomnia Only used as an adjunctive therapy for management of OFF periods

Dopamine Agonists (non-ergot)		
Pramipexole (Mirapex™, Mirapex ER™)	IR: 0.125 mg 3 times daily → usual maintenance dose of 0.5-1.5 mg 3 times daily ER: 0.375 mg daily → maximum of 4.5 mg daily	-Greater risk of hallucinations, psychosis, and impulse control disorders vs. carbidopa/levodopa -Pramipexole excreted in the urine (90% as unchanged drug); renal dosing adjustment required if CrCl=50 mL/min or less
Ropinirole (Requip™, Requip XL™)	IR: 0.25 mg 3 times daily → maximum of 24 mg/day ER: 2 mg daily → maximum of 24 mg/day	
Rotigotine (Neupro patch™)	2 mg/24 hrs patch applied daily → maximum of 8 mg/24 hrs	-Initial dosing depends on PD stage (i.e., early vs. advanced); in advanced disease, can start with 4 mg/24 hours patch
Apomorphine (Apokyn™ subcutaneous injection)	Sub-Q: 2 mg as needed (up to 5 times/day) → 6 mg as needed (up to 5 times/day)	-Rescue medication for "OFF" periods up to 5 times/day -Onset in 10 minutes lasting up to 60 minutes -it initiation can be associated with nausea and vomiting requiring anti-emetic therapy -Premedicate with trimethobenzamide (no longer available) -Do not use concomitantly with 5-HT3 antagonist (eg. endansetron) due to risk of severe hypotension -Initiate under medical supervision with and monitor BP and HR during the initiation Unfortunately, the pharmaceutical company voluntarily discontinued the rescue therapy Kynmobi™ (apomorphine sublingual film) in summer 2023, and it is no longer available in the U.S.
Anticholinergics (hardly used in PD)		
Benztropine (Cogentin™) available PO, IM, IV)	0.5-1 mg daily at bedtime or in 2-4 divided doses → usual dose of 1-2 mg/day	-Not useful in management in PD in older adults - May be used for younger patients with tremor- predominant symptoms as it is no effective for management of bradykinesia or muscle rigidity -Anticholinergic AEs limit use in older adults.
Trihexyphenidyl (Artane™)	1 mg daily → usual dose of 6-10 mg/day in 3-4 divided doses	
Adenosine A2A Receptor Antagonists		
Istradefylline (Nourianz™)	Initial daily dose 20 mg (up to 40 mg/day)	-Approved in 2019 as once-daily dosing for "off periods" as add-on to CD/LD -Special dosing: ○ Patient smoking ≥ 20 cigarettes/day requires 40 mg/day ○ Patients on strong CYP3A4 inhibitors: 20 mg/day ○ Patient on strong CYP3A4 inducers: avoid use -AEs: dyskinesia, dizziness, constipation, nausea, hallucination, and insomnia Note: it is associated with similar adverse effects as dopaminergic medication but does not cause orthostatic hypotension

NMDA Receptor Antagonist		
Amantadine (IR=formerly Symmetrel™ ER tablet=Osmolex™ ER capsule=Gocovri™)	IR: 100 mg bid → 400 mg/day in divided doses ER capsule: 137 mg daily (evening) → 274 mg daily (can titrate after 1 week; 274 mg is usual daily dose) ER tablet: 129-322 mg once daily (mornig)	-IR: patients with serious concomitant illness or those receiving high doses of antiparkinson drugs should start at 100 mg daily -Renal dosing adjustment required if CrCl=50 mL/min or less; use is contraindicated if CrCl <15 mL/min -Potential for anticholinergic AEs and livedo reticularis as well as other dopaminergic AEs

2025 Pain Disease Reference Sheet

Medication	Geriatric Dosing	Important Highlights
Select Non-Opioid Analgesics		
Acetaminophen (Tylenol™)	325-500 mg every 4 hours or 500-1,000 mg every 6 hours	-For mild-moderate pain -favorable sagety profile in comparison to NSAIDs -not antiinflammatory -Maximum daily dose 4 grams; consider dose reduction (2 grams/day) in older adults who are frail an those at risk for acetaminophen-related hepatotoxicity (e.g., frailty, alcohol use, liver insufficiency) -Consider all sources of acetaminophen and all routes of administration
Ibuprofen (Motrin™, Advil™)	200 mg 3-4 times per day	-For mild-moderate pain -Maximum OTC daily dose is 1,200 mg and RX daily dose is 3,200 mg -Use lowest effective dose for shortest time possible to limit risk of ADRs (e.g., GI bleeding and ulceration, CV events, renal dysfunction) -Gastroprotection recommended (PPI or misoprostol) if taking NSAID for >1 month
Celecoxib (Celebrex™)	100-200 mg daily	-For mild-moderate pain -More expensive compared to other NSAIDs -Higher doses → higher incidence of GI and CV AEs; as with non-selective NSAIDs, use lowest effective dose for shortest time possible
Nortriptyline (Pamelor™)	10-20 mg daily at bedtime	-For diabetic peripheral neuropathy and postherpetic neuralgia (both off-label) -Maximum daily dose 160 mg -Fewer anticholinergic AEs vs. amitriptyline; should still be monitor for anticholinergic AEs
Duloxetine (Cymbalta™)	30-60 mg daily	-For diabetic peripheral neuropathy, fibromyalgia, and chronic low back pain, and osteoarthritis -Preferred SNRI for older adults -Associated with hyponatremia/SIADH, as with other SNRIs Renal adjustment, may exacerbate BPH urine flow (off label use for stress incontinence)
Milnacipran (Savella™)	50 mg once daily	-Approved for fibromyalgia -SNRI with higher affinity for NE > 5-HT AEs: similar to other SNRI with possibly higher effects on BP and insomnia
Gabapentin (Neurontin™)	100 mg three times daily	-For postherpetic neuralgia, diabetic peripheral neuropathy (off-label), and fibromyalgia (off-label); note: pregabalin has FDA approval for all 3 indications -Maximum daily dose 3,600 mg -Renal dosing adjustment recommended if CrCl <60 mL/min -Increased risk of falls related to dizziness, somnolence
Pregabalin (Lyrica™)	25-75 mg once daily or in 2-3 devided doses	-for postherpetic neuralgia, diabetic peripheral neuropathy, and fibromyalgia (off-label) -better absorption (linear kinetics) in comparison to gabapentin -less frequent dosing for immaediate release formulations
Select Opioid Analgesics		
Tramadol (Ultram™)	Initiation: IR 25 mg 1-2 times daily + IR 25 mg every 6 hours PRN	-Tramadol: watch for movement disorder, serotonin syndrome especially in combination with other serotonergic meds, and risk of seizures -Continue nonpharmacologic and nonopioid interventions concurrently as opioid-sparing measures -Oxycodone, hydromorphone, and fentanyl considered "safer" options for older adults; must consider existing data and administration routes though -Treat constipation preemptively with senna±
Oxycodone (Oxycontin™ and others)	Different dosing (refer to package inserts of differet formulations)	

Morphine (MS Contin™ and others)		docusate; tolerance to constipation does not develop over time New 2022 CDC guideline regarding opioids: CDC Clinical Practice Guideline for Prescribing Opioids for Pain — United States, 2022. Available at https://www.cdc.gov/mmwr/volumes/71/rr/rr7103a1.htm?s_cid=rr7103a1_w. accessed on January 16, 2025.