



Administration of Intravenous (IV) Meds in LTC: What is Appropriate??

The first IV medication guide – IV Push Medications Recommended Guidelines – lists medications that can be safely “pushed” or directly injected into a vascular access device (VAD) or IV or through the proximal injection port of an administration set of a compatible, continuous IV infusion in a nursing facility. As with any nursing procedure, the nurse must obtain appropriate education in order to demonstrate the knowledge, skills, and ability to perform this procedure safely and accurately. Also, the nursing facility should have a list of IV medications that are allowed to be administered at the facility with approval of the DON, LNHA and medical director. Check with your state’s nursing practice act regarding any restrictions that may exist and to know whether an LPN is allowed to perform the IV push procedure.

The second IV medication guide – Intravenous Medications With Special Requirements – lists medications that should NOT be administered in the traditional LTC environment because of requirements, such as:

- Continuous cardiac monitoring of EKG, heart rate and/or blood pressure
- Cytotoxic precautions
- Frequent monitoring of vital signs and/or continual observation of patient for anaphylaxis, s/s of hypersensitivity reactions, hypotension or respiratory decline.

However, these medications may be given in properly equipped and staffed post-acute care setting with appropriate, highly trained nurses in IV therapy, advanced cardiac life support (ACLS), and continuous cardiac monitoring.

IV PUSH MEDICATIONS RECOMMENDED GUIDELINES

MEDICATION	DOSE/RATE OF ADMINISTRATION	CONSIDERATIONS
Dextrose 50%	20-50 mL slowly at 3 mL/minute	Administer into a large peripheral vein or Central Vascular Access Device (CVAD).
Famotidine (Pepcid)	Each 20 mg or fraction thereof over at least 2 minutes	Dilute 20 mg to 5-10 mL with 0.9% sodium chloride.
Furosemide (Lasix)	Each 40 mg or fraction thereof over 1-2 minutes	Monitor BP, electrolytes, CO ₂ , and BUN. Risk of ototoxicity increases with higher doses, rapid injection, decreased renal function, or concurrent use with other ototoxic drugs.
Glucagon	1 mg or fraction thereof over 1 minute	Admix with diluent supplied.
Heparin Sodium	1,000 units or fraction thereof over 1 minute	After test dose of 1000 units, any single injection (5,000 units or fraction thereof) may be given over 1 minute.
Hydrocortisone (Solu-Cortef)	Each 100 mg or fraction thereof over 30 seconds-1 minute	Extend administration time to 10 minutes for doses greater than 500 mg.
Hydromorphone HCL (Dilaudid)	2 mg or fraction thereof over 2-5 minutes	Causes respiratory depression.* Monitor VS and observe patient frequently to continuously based on dose.
Insulin Regular	5-30 units over 1 minute	Use ONLY regular insulin.
Methylprednisolone (Solu-Medrol)	Over several minutes	For higher doses, administer by IVPB. Too rapid administration of high doses (greater than 500 mg administered over less than 10 minutes) may precipitate hypotension, cardiac arrhythmia and sudden death.
Metoclopramide (Reglan)	10 mg or fraction thereof over 2 minutes	For doses greater than 10 mg, administer IVPB. Too rapid IV injection will cause intense anxiety, restlessness, and then drowsiness.
Morphine Sulfate	15 mg or fraction thereof over 4-5 minutes	Dilute in 4-5 mLs 0.9% sodium chloride or sterile water. Causes respiratory depression.* Keep patient supine; orthostatic hypotension and fainting may occur.
Naloxone (Narcan)	Each 0.4 mg or fraction thereof over 15 seconds	May be given diluted or undiluted. For narcotic overdose, may repeat in 2-3 minutes if indicated. Symptomatic treatment with O ₂ and artificial ventilation as necessary should be continued until naloxone is effective.
Ondansetron HCL (Zofran)	4 mg given over 2-5 minutes	For doses greater than 4 mg, administer IVPB. Observe closely. Monitor for irregular pulse. Ambulate slowly to avoid orthostatic hypotension.
Prochlorperazine (Compazine)	Each 5 mg or fraction thereof over 1 minute	Keep patient in supine position and monitor BP and HR before administration and between doses.
Ranitidine (Zantac)	Each 50 mg or fraction thereof not to exceed 4 mL/minute diluted solution (20 mL over 5 minutes)	Too rapid administration has precipitated rare instances of bradycardia, tachycardia, and cardiac dysrhythmias.
Sodium Bicarbonate	Over 1-3 minutes (during cardiac arrest)	Confirm absolute patency of vein as extravastion can cause cellulitis, necrosis, ulceration, or sloughing. Flush vascular access device thoroughly before and after administration.

Note: When using a glass ampule, withdraw with a filter needle, then change to a regular needle for administration.

* Narcan and oxygen must be available

Reference: Gahart BL, Nazareno AR. 2013 Intravenous Medications. 29th ed. St Louis, MO; Mosby/Elsevier.

Intravenous Medications With Special Requirements

(Note: this list is **not** all inclusive)

1. Intravenous medications (IV push and/or IV infusion) requiring continuous cardiac monitoring of EKG, heart rate and/or blood pressure:
 - adenosine
 - Amiodarone HCL
 - Atenolol
 - Atropine sulfate
 - Digoxin
 - Diltiazem HCL
 - Dobutamine HCL - although continuous cardiac monitoring is not required for a non-titrated (set rate) dobutamine infusion, use in LTC **not** recommended
 - Dopamine HCL
 - Edetate calcium disodium
 - Epinephrine HCL
 - Esmolol HCL
 - Ibutilide fumarate
 - Isoproterenol HCL
 - Labetalol HCL
 - Lidocaine HCL
 - Metoprolol tartrate
 - Milrinone lactate
 - Nicardipine HCL
 - Nitroglycerin
 - Nitroprusside sodium
 - Norepinephrine bitartrate
 - Potassium chloride infusion (in any given amount of solution) of greater than 10 meq in 1 hr (**direct injection of any concentrated KCL solution can cause instant death**)
 - Phenytoin sodium
 - Procainamide HCL
 - Propranolol HCL
 - Quinidine gluconate
 - Sotalol HCL
 - Verapamil HCL

2. Cytotoxic or chemotherapeutic agents- cytotoxic precautions required for handling/disposal:
 - Ganciclovir sodium (anti-viral agent; but cytotoxic precautions required)
 - IV chemotherapeutic agents

3. Intravenous medications (IV push and/or IV infusion) requiring frequent monitoring of vital signs and/or continual observation of patient for anaphylaxis, s/s of hypersensitivity reactions, hypotension or respiratory decline; emergency resuscitative medications and supplies must be readily available:
 - Calcium gluconate (IV push)
 - Dextran low molecular weight
 - Dextran high molecular weight
 - Epoprostenol sodium (Flolan)
 - Fentanyl citrate
 - Ferumoxytol (Feraheme)
 - Immune globulin (IVIG)
 - Iron dextran
 - Lorazepam
 - Magnesium sulfate (IV push)
 - Midazolam

NOTE: Iron sucrose (Venofer) and sodium ferric gluconate complex (Ferrlecit) have a safer medication profile than the other iron preparations and may be administered in the LTC setting; we recommend approval of Medical Director and DON. Facility should have an administration/monitoring policy and procedure for these medications and above monitoring parameters are recommended.

4. Promethazine HCL IV push: As per the FDA – due to the risks of IV injection, the preferred route of administration is deep intramuscular injection; subcutaneous injection is contraindicated. Perivascular extravasation, unintentional intra-arterial injection and intraneuronal or perineuronal infiltration of promethazine may result in severe chemical irritation and severe tissue damage, including gangrene requiring amputation following IV administration of promethazine, regardless of the route of administration.

Reference regarding monitoring of medications:

Gahart BL, Nazareno AR. 2013 Intravenous Medications. 29th ed. St Louis, MO; Mosby/Elsevier.