

Drug Information Bulletin

Drug Information Center (DIC), Pharmacy Executive Office
Hamad Medical Corporation

COVID-19 Issue 1, April 2020

Message from the Executive Director of Pharmacy

In light of the current situation of COVID-19, the Drug Information Center at the Pharmacy Executive Office at Hamad Medical Corporation has initiated the Drug Information Bulletin to provide evidence-based information on Covid medications. The Drug Information Center is providing medication related information to healthcare professionals and all patients five days a week from 8.30 AM until 8.00 PM.

Ensuring continuous provision of drug information during the COVID-19 pandemic is important. Drug information services will provide appropriate evidence regarding medication dose, frequency, clinical appropriateness of the medication in such conditions, alternate choice in case of allergy, therapeutic drug monitoring, drug-drug interactions, drug disease interactions, etc. The drug information pharmacists shall be prepared to provide skilled and effective services for healthcare professionals as well as patients to ensure medication safety and promote the overall COVID-19 pandemic control.

For any urgent medication related information, please contact
Drug Information Center
Phone - 40260747
Email: dic@hamad.qa

Let us work together to overcome the current situation.

Regards,
Dr. Moza Al Hail
Executive Director of Pharmacy
Hamad Medical Corporation
Doha, Qatar
Email: malhail2@hamad.qa



COVID-19 drug administration guideline

Patients with swallowing difficulties and feeding tubes

Drug	Dosage form	Can be crushed	Extemporaneous preparation available through pharmacy	Additional information
Hydroxychloroquine (HCQ) 200 mg*	Tablet	Yes	Yes (page 3) HCQ 25 MG /ML Susp.	
Azithromycin (AZM) 500 mg	Capsule	No	No Ready-to-use AZM 200 mg/5 ml Susp.	Alternately use IV route. Caution should be taken in fluid restricted patients.
Oseltamivir (OTV) 75 mg	Capsule	No	Yes (page 3) OTV 15 MG/ML Susp.	
Lopinavir/ritonavir (LPV/r) 500 mg	Tablet	No ⁺	Ready-to-use LPV/r (80/20 mg/ml)	Alternatively use Darunavir/Cobicistat
Darunavir/cobicistat (DRV/Cobi) 800/150 mg	Tablet	Yes ^{sa}	Yes (page 4)	

* The manufacture doesn't recommend crushing the tablets but there are many studies supporting that it can be crushed.

⁺ Bioavailability of lopinavir can be reduced by 45% when the tablet is crushed¹

^{sa} Manufacture doesn't recommend crushing

^a Tablets are immediate-release formulation; no anticipated absorption issues if the tablets are chewed, split or crushed. ^{2,3}

References:

1. Best BM, Capparelli EV, Diep H, et al. Pharmacokinetics of lopinavir/ritonavir crushed versus whole tablets in children. *J Acquir Immune Defic Syndr*. 2011; 58:385–391.
2. Huesgen, E, DeSear, KE, Egelund, EF, Smith, R, Max, B, Janelle, J. A HAART-breaking review of alternative antiretroviral administration: practical considerations with crushing and enteral tube scenarios. *Pharmacotherapy*. 2016; 36:1145–1165.
3. Brown, K, Thomas, D, McKenney, K, et al. Impact of splitting or crushing on the relative bioavailability of the darunavir/cobicistat/emtricitabine/tenofovir alafenamide single-tablet regimen. *Clin Pharmacol Drug Dev* 2019; 8: 541–548.
4. Experimental COVID-19 Therapies, Administration in Cases of Swallowing Difficulties, Liverpool Drug Interaction Group, University of Liverpool, Updated: 13 March, 2020; Accessed: 30/03/2020; Available: https://liverpool-covid19.s3.eu-west-2.amazonaws.com/landing-page/Covid__Swallowing_2020_Mar13.pdf

Hydroxychloroquine Sulphate 25 mg/ml Suspension

FORMULA:

NAME	QTY	UNIT
HYDROXYCHLOROQUINE SULPH 200MG	15	TAB
ORA-PLUS	60	ML
ORA-SWEET	60	ML

PROCEDURE:

1. Prepare the vehicle by measuring and mixing Ora-plus and Ora-sweet in a measuring cylinder.
2. Crush tablets and triturate to a fine powder using mortar and pestle.
3. Wet the powder with minimal amount of the vehicle and levigate to form a viscous, but smooth and uniform paste.
4. Add more of vehicle in the mortar and mix well to form the suspension.
5. Transfer the suspension to a measuring cylinder.
6. Use the vehicle to rinse the mortar and pestle before completing to the final volume.
7. Transfer the suspension to an amber glass bottle

Stability and Shelf Life: 30 Days

Storage and Auxiliary Labels: Refrigerate, shake well before use, amber bottle

Reference:

Pesko LJ, «Compounding: Hydroxychloroquine,»Am Druggist, 1993, 207:57

Oseltamivir 15 mg/ml Suspension

FORMULA:

NAME	QTY	UNIT
OSELTAMIVIR 75 MG CAPSULES	10	CAP
METHYLCELLULOSE 1%	qs to	50 ML

PROCEDURE:

1. Empty the content of the Oseltamivir capsules, (Or) weigh 750 mg of Oseltamivir phosphate powder, into a glass mortar.
2. Triturate the granules to fine powder.
3. Add a small amount of methylcellulose 1% to form a paste. Slowly levigate, alternately adding the remaining methylcellulose 1% until a uniform suspension is achieved.
4. Transfer to a graduated cylinder.
5. Rinse mortar with the methylcellulose 1% and quantity sufficient to final volume.
6. Transfer to an appropriately sized amber glass bottle and shake well

Stability and Shelf Life: 90 days

Storage: Refrigerate

Auxiliary Labels: Shake well before use.

Reference:

Lloyd V. Allen, Jr. Tamiflu Oral Suspension. US Pharm. 2009;34 (12):54-55

Darunavir/ Cobicistat 800/150 mg

FORMULA:

NAME	QTY	UNIT
Darunavir/ Cobicistat	1	TAB
Distilled Water	qs to	20 ML

PROCEDURE:

1. Take 1 tablet of Darunavir/ Cobicistat
2. Add 20 ml of distilled water
3. Dissolve each tablet in 20 mL water.
4. Wait until the tablet disintegrates fully and shake if needed.
5. Once dissolved, should be administered immediately. Assure that there is no precipitate left after dissolution.

Stability and Shelf Life: : Immediate use

Storage: NA

Auxiliary Labels: Shake well before use.

Reference:

1. Brown, K, Thomas, D, McKenney, K, et al. Impact of splitting or crushing on the relative bioavailability of the darunavir/ cobicistat/emtricitabine/tenofovir alafenamide single-tablet regimen. Clin Pharmacol Drug Dev 2019; 8: 541–548.
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COVID-19 - Drug interactions (HMC Formulary Drugs)





Drug Information Center Pharmacy Executive Office
Hamad Medical Corporation

	LPV/r	RDV	FAVI	CLQ	HCLQ	NITA	RBV
Anesthetics & Muscle Relaxants							
Bupivacaine							
Cisatracurium							
Desflurane							
Dexmedetomidine							
Ephedrine							
Halothane							
Isoflurane							
Ketamine							
Propofol							
Rocuronium							
Sevoflurane							
Suxamethonium (succinylcholine)							
Thiopental							
Tizanidine							
Vecuronium							

Key to abbreviations:

LPV/r	Lopinavir/ritonavir
RDV	Remdesivir
FAVI	Favipiravir
CLQ	Chloroquine
HCLQ	Hydroxychloroquine
NITA	Nitazoxanide
RBV	Ribavirin

Key to colors:

	These drugs should not be coadministered
	Potential interaction - may require close monitoring, alteration of drug dosage or timing of administration
	Potential interaction likely to be of weak intensity. Additional action/monitoring or dosage adjustment is unlikely to be required
	No clinically significant interaction expected

	LPV/r	RDV	FAVI	CLQ	HCLQ	NITA	RBV
Analgesics							
Aspirin							
Buprenorphine							
Celecoxib							
Codeine							
Diclofenac							
Dihydrocodeine							
Fentanyl							
Hydrocodone							
Ibuprofen							
Methadone							
Morphine							
Naproxen							
Oxycodone							
Paracetamol (Acetaminophen)							
Pethidine (Meperidine)							
Remifentanyl							
Tramadol							

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	LPV/r	RDV	FAVI	CLQ	HCLQ	NITA	RBV
Antivirals							
Lopinavir/ritonavir	Green	Green	Green	Orange	Orange	Green	Green
Remdesivir*	Green	Green	Green	Green	Green	Green	Green
Favipiravir*	Green	Green	Green	Green	Green	Green	Green
Chloroquine	Orange	Green	Green	Green	Red	Green	Green
Hydroxychloroquine	Orange	Green	Green	Red	Green	Green	Green
Ribavirin	Green	Green	Green	Green	Green	Green	Green
Oseltamivir	Green	Green	Green	Green	Green	Green	Green
Antibacterials							
Amikacin	Black	Green	Green	Orange	Orange	Green	Green
Amoxicillin	Black	Green	Green	Orange	Orange	Green	Green
Ampicillin	Black	Green	Green	Orange	Orange	Green	Green
Azithromycin	Black	Green	Green	Orange	Orange	Green	Green

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	LPV/r	RDV	FAVI	CLQ	HCL	NITA	RBV
Antibacterials							
Cefalexin	Orange	Green	Green	Orange	Orange	Green	Green
Cefazolin	Orange	Green	Green	Orange	Orange	Green	Green
Cefixime	Orange	Green	Green	Orange	Orange	Green	Green
Cefotaxime	Orange	Green	Green	Orange	Orange	Green	Green
Ceftazidime	Orange	Green	Green	Orange	Orange	Green	Green
Ceftriaxone	Orange	Green	Green	Orange	Orange	Green	Green
Chloramphenicol	Orange	Green	Green	Orange	Orange	Green	Green
Ciprofloxacin	Orange	Green	Green	Orange	Orange	Green	Green
Clarithromycin	Orange	Green	Green	Orange	Orange	Green	Green
Clavulanic acid	Orange	Green	Green	Orange	Orange	Green	Green
Clindamycin	Orange	Green	Green	Orange	Orange	Green	Green
Clofazimine	Orange	Green	Green	Orange	Orange	Green	Green
Cloxacillin	Orange	Green	Green	Orange	Orange	Green	Green
Cycloserine	Orange	Green	Green	Orange	Orange	Green	Green
Dapsone	Orange	Green	Green	Orange	Orange	Green	Green
Doxycycline	Orange	Green	Green	Orange	Orange	Green	Green
Ertapenem	Orange	Green	Green	Orange	Orange	Green	Green
Erythromycin	Orange	Green	Green	Orange	Orange	Green	Green
Ethambutol	Orange	Green	Green	Orange	Orange	Green	Green
Gentamicin	Orange	Green	Green	Orange	Orange	Green	Green
Isoniazid	Orange	Green	Green	Orange	Orange	Green	Green
Levofloxacin	Orange	Green	Green	Orange	Orange	Green	Green
Linezolid	Orange	Green	Green	Orange	Orange	Green	Green
Meropenem	Orange	Green	Green	Orange	Orange	Green	Green
Metronidazole	Orange	Green	Green	Orange	Orange	Green	Green
Moxifloxacin	Orange	Green	Green	Orange	Orange	Green	Green
Nitrofurantoin	Orange	Green	Green	Orange	Orange	Green	Green
Ofloxacin	Orange	Green	Green	Orange	Orange	Green	Green
Penicillins	Orange	Green	Green	Orange	Orange	Green	Green
Piperacillin	Orange	Green	Green	Orange	Orange	Green	Green
Pyrazinamide	Orange	Green	Green	Orange	Orange	Green	Green
Rifampicin	Orange	Green	Green	Orange	Orange	Green	Green
Rifapentine	Orange	Green	Green	Orange	Orange	Green	Green
Streptomycin	Orange	Green	Green	Orange	Orange	Green	Green
Sulfadiazine	Orange	Green	Green	Orange	Orange	Green	Green
Tazobactam	Orange	Green	Green	Orange	Orange	Green	Green
Tetracyclines	Orange	Green	Green	Orange	Orange	Green	Green
Tinidazole	Orange	Green	Green	Orange	Orange	Green	Green
Trimethoprim/Sulfamethoxazole	Orange	Green	Green	Orange	Orange	Green	Green
Vancomycin	Orange	Green	Green	Orange	Orange	Green	Green

	LPV/r	RDV	FAVI	CLQ	HCL	NITA	RBV
Antipsychotics /Neuroleptics							
Amisulpride							
Aripiprazole							
Chlorpromazine							
Clozapine							
Fluphenazine							
Haloperidol							
Olanzapine							
Paliperidone							
Pimozide							
Quetiapine							
Risperidone							
Zuclopenthixol							

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Antidepressants							
Agomelatine							
Amitriptyline							
Bupropion							
Citalopram							
Clomipramine							
Duloxetine							
Escitalopram							
Fluoxetine							
Fluvoxamine							
Imipramine							
Lithium							
Maprotiline							
Mirtazapine							
Nortriptyline							
Paroxetine							
Sertraline							
Trimipramine							
Venlafaxine							

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Anxiolytics /Hypnotics /Sedatives							
Alprazolam							
Bromazepam							
Bupirone							
Chlordiazepoxide							
Clobazam							
Diazepam							
Hydroxyzine							
Lorazepam							
Midazolam (parenteral)							
Temazepam							
Zolpidem							

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	LPV/r	RDV	FAVI	CLQ	HCL	NITA	RBV
Steroids							
Beclometasone							
Betamethasone							
Budesonide							
Clobetasol							
Dexamethasone							
Fludrocortisone							
Fluocinolone							
Fluticasone							
Hydrocortisone (oral)							
Hydrocortisone (topical)							
Megestrol acetate							
Methylprednisolone							
Mometasone							
Prednisolone							
Testosterone							
Triamcinolone							

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Anti-diabetics							
Acarbose							
Dapagliflozin							
Dulaglutide							
Empagliflozin							
Exanatide							
Glibenclamide (Glyburide)							
Gliclazide							
Glimepiride							
Glipizide							
Insulin							
Linagliptin							
Liraglutide							
Metformin							
Pioglitazone							
Repaglinide							
Saxagliptin							
Sitagliptin							
Vildagliptin							

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Lipid Lowering Agents							
Atorvastatin	Orange	Green	Green	Green	Green	Green	Green
Evolocumab	Green	Green	Green	Green	Green	Green	Green
Ezetimibe	Green	Green	Green	Green	Green	Green	Green
Fenofibrate	Green	Green	Green	Green	Green	Green	Green
Fish oils	Green	Green	Green	Green	Green	Green	Green
Fluvastatin	Green	Green	Green	Green	Green	Green	Green
Gemfibrozil	Yellow	Green	Green	Green	Green	Green	Green
Pravastatin	Green	Green	Green	Green	Green	Green	Green
Rosuvastatin	Orange	Green	Green	Green	Green	Green	Green
Simvastatin	Red	Green	Green	Green	Green	Green	Green

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Beta Blockers							
Atenolol							
Bisoprolol							
Carvedilol							
Metoprolol							
Nebivolol\$							
Propranolol							
Timolol							
Calcium Channel Blockers							
Amlodipine							
Diltiazem							
Felodipine							
Nifedipine							
Verapamil							

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Hypertension / Heart Failure Agents							
Amiloride							
Bosentan							
Candesartan							
Captopril							
Cilazapril							
Clonidine							
Digoxin							
Dopamine							
Doxazosin							
Enalapril							
Eplerenone							
Epoprostenol							
Eprosartan							
Fosinopril							
Furosemide							
Hydralazine							
Hydrochlorothiazide							
Iloprost							
Indapamide							
Irbesartan							
Isosorbide dinitrate							
Ivabradine							
Labetalol							
Lisinopril							
Losartan							
Methyldopa							
Metolazone							
Moxonidine							
Olmesartan							
Perindopril							
Prazosin							
Ramipril							
Ranolazine							
Sacubitril							
Sildenafil (PAH)							
Sodium nitroprusside							
Spirolactone							
Tadalafil (PAH)							

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Hypertension / Heart Failure Agents							
Telmisartan							
Torsemide							
Treprostinil							
Valsartan							
Antiarrhythmics							
Amiodarone							
Disopyramide							
Flecainide							
Lidocaine (Lignocaine)							
Mexiletine							
Propafenone							

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Anti-coagulant, Anti-platelet and Fibrinolytic							
Apixaban	Red	Green	Green	Yellow	Yellow	Green	Green
Argatroban	Green	Green	Green	Green	Green	Green	Green
Aspirin (anti-platelet)	Green	Green	Green	Green	Green	Green	Green
Clopidogrel	Red	Green	Green	Green	Green	Green	Green
Dabigatran	Orange	Green	Green	Orange	Orange	Green	Green
Dalteparin	Green	Green	Green	Green	Green	Green	Green
Dipyridamole	Orange	Green	Green	Green	Green	Green	Green
Eltrombopag	Orange	Green	Green	Green	Green	Green	Green
Enoxaparin	Green	Green	Green	Green	Green	Green	Green
Fondaparinux	Green	Green	Green	Green	Green	Green	Green
Heparin	Green	Green	Green	Green	Green	Green	Green
Prasugrel	Green	Green	Green	Green	Green	Green	Green
Rivaroxaban	Red	Green	Green	Yellow	Yellow	Green	Green
Streptokinase	Green	Green	Green	Green	Green	Green	Green
Ticagrelor	Red	Green	Green	Green	Green	Green	Green
Warfarin	Orange	Green	Green	Green	Green	Orange	Orange

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Bronchodilators							
Aminophylline	Orange	Green	Green	Green	Green	Green	Green
Formoterol	Orange	Green	Green	Green	Green	Green	Green
Indacaterol	Green	Green	Green	Green	Green	Green	Green
Ipratropium bromide	Green	Green	Green	Green	Green	Green	Green
Montelukast	Yellow	Green	Yellow	Green	Green	Green	Green
Salbutamol	Green	Green	Green	Green	Green	Green	Green
Salmeterol	Orange	Green	Green	Orange	Orange	Green	Green
Theophylline	Orange	Green	Green	Green	Green	Green	Green
Tiotropium bromide	Green	Green	Green	Green	Green	Green	Green

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Immunosuppressants							
Adalimumab	Orange	Green	Green	Green	Green	Green	Green
Anti-thymocyte globulin	Orange	Green	Green	Green	Green	Green	Green
Azathioprine	Orange	Green	Green	Green	Green	Green	Green
Basiliximab	Orange	Green	Green	Green	Green	Green	Green
Ciclosporin	Orange	Green	Green	Green	Green	Green	Green
Mycophenolate	Orange	Green	Green	Green	Green	Green	Green
Sirolimus	Orange	Green	Green	Green	Green	Green	Green
Tacrolimus	Orange	Green	Green	Green	Green	Green	Green

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Contraceptives/HRT							
Desogestrel (COC)	Orange	Green	Green	Yellow	Yellow	Green	Green
Desogestrel (POP)	Orange	Green	Green	Yellow	Yellow	Green	Green
Drospirenone (COC)	Orange	Green	Green	Yellow	Yellow	Green	Green
Drospirenone (HRT)	Orange	Green	Green	Yellow	Yellow	Green	Green
Dydrogesterone (HRT)	Orange	Green	Green	Yellow	Yellow	Green	Green
Estradiol	Orange	Green	Green	Yellow	Yellow	Green	Green
Ethinylestradiol	Orange	Green	Green	Yellow	Yellow	Green	Green
Gestodene (COC)	Orange	Green	Green	Yellow	Yellow	Green	Green
Levonorgestrel (COC)	Orange	Green	Green	Yellow	Yellow	Green	Green
Levonorgestrel (IUD)	Orange	Green	Green	Yellow	Yellow	Green	Green
Medroxyprogesterone (depot inj.)	Orange	Green	Green	Yellow	Yellow	Green	Green
Norethisterone (COC)	Orange	Green	Green	Yellow	Yellow	Green	Green
Norethisterone(POP)	Orange	Green	Green	Yellow	Yellow	Green	Green
Norgestrel (COC)	Orange	Green	Green	Yellow	Yellow	Green	Green

Key to abbreviations:

LPV/r	Lopinavir/ritonavir
RDV	Remdesivir
FAVI	Favipiravir
CLQ	Chloroquine
HCLQ	Hydroxychloroquine
NITA	Nitazoxanide
RBV	Ribavirin

Key to colors:

Red	These drugs should not be coadministered
Orange	Potential interaction - may require close monitoring, alteration of drug dosage or timing of administration
Yellow	Potential interaction likely to be of weak intensity. Additional action/monitoring or dosage adjustment is unlikely to be required
Green	No clinically significant interaction expected

	LPV/r	RDV	FAVI	CLQ	HCL	NITA	RBV
Gastrointestinal Agents							
Antacids							
Bisacodyl							
Esomeprazole							
Lactulose							
Lansoprazole							
Loperamide							
Mesalazine							
Omeprazole							
Pantoprazole							
Prucalopride							
Rabeprazole							
Ranitidine							
Senna							
Gastrointestinal Agents (anti-emetics)							
Aprepitant							
Domperidone							
Granisetron							
Metoclopramide							
Ondansetron							
Prochlorperazine							

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