

# Optimizing Medication Management during the COVID-19 Pandemic

## Post-Acute and Long-term Care Facility Checklist

DONE POTENTIAL CHANGE



### Discontinue medications

#### **Medications that are often unnecessary, provide no to minimal clinical benefit, e.g.,**

- Iron, vitamins including multivitamins, Vitamins A, B1, B3 (Niacin), B6 (Pyridoxine), E, Biotin, Coenzyme Q10
- Herbal medications: e.g., Ginkgo Biloba, Ginseng, Valerian Root, Echinacea, Red Yeast Rice, Garlic, Saw Palmetto, Flaxseed
- Others: Docusate, cranberry tablets, glucosamine, low-dose fish oil, probiotics, appetite stimulants

#### **Medications often discordant with goals of care and potential time to benefit, e.g.,**

- Long-term preventive medications (e.g., aspirin, statins) in residents with comfort-oriented care goals or limited life expectancy

#### **Medications appropriate in many residents but safe to temporarily discontinue, e.g.,**

- Calcium, magnesium, bisphosphonates, Vitamin B12, Vitamin D



### Reduce frequency of medication-associated monitoring

- Reduce frequency of monitoring (e.g. heart rate, finger sticks) to track drug effects especially if resident is stable and prior monitoring values/parameters stable. If appropriate, discontinue medications that require frequent monitoring.



### Reduce medication dosing frequency

- Change from short- to long-acting formulations, e.g., metformin, metoprolol, carvedilol, diltiazem, others
- Change analgesic regimens to allow greater spacing between doses, consolidate laxatives
- Switch from short- to long-acting insulins, reduce PPIs from twice daily to daily or discontinue



### Change timing of doses

- Move statins (e.g., atorvastatin), alpha blockers (e.g. tamsulosin), levothyroxine to consolidated dosing times



### Administer medications differently

- Change medications that require crushing to liquid formulation if possible; consider liquid/powder potassium



### Consolidate administration times

- Consolidate dispensing times - e.g., q12 hours to BID, eliminate outlier medication administration times
- Liberalize allowable time period to administer meds



### Reduce risks of COVID-19 transmission

- Use hand-held inhalers (with spacer if possible) instead of nebulizers; consider product(s) availability and usability
- Where appropriate, change acetaminophen from regular to as-needed dosing to aid in COVID-19 fever surveillance
- Where possible, avoid directly touching residents when passing meds
- Reduce unnecessarily frequent monitoring; identify alternatives for meds that require frequent administration

BOX:

## Stepwise approach to prioritizing and implementing recommendations

Consider a stepwise approach for implementing recommendations in your community. A suggested approach is listed below, although adaptation is encouraged based on local circumstances.

### Priority for implementation

#### 1. Changes that are essential for infection control

- Transition from nebulizers to hand-held inhalers for residents needing inhaled therapy when feasible, safe, and available. (Table 4)
- Among residents with known or suspected COVID-19: changes that reduce frequency, duration, and infection risk of medication passes (All tables)

#### 2. Changes that are generally low risk, can be quickly evaluated for individual appropriateness, and can be done immediately.

- Discontinuation of medications that do not provide benefit for most residents, can be stopped abruptly, and do not need extensive monitoring after discontinuation (Table 1)
- Change from short- to longer-acting medications where conversion is routine and changes are typically well-tolerated (Table 1)
- Conversion to dosing forms that are easier to use and administer (Table 2)
- Consolidate and liberalize administration times for medications that do not need to be given at very specific times or intervals (Table 3)
- Enhanced hygiene measures during medication passes (Table 4)

#### 3. Changes that are generally low risk but may take more time for implementation, individual evaluation, communication with care team and resident, and monitoring

- Changes in insulins, analgesic regimens (Tables 1 and 2)
- Changes in monitoring regimens (Table 2)
- Reduction in long-term preventive medications among residents with comfort-oriented care goals or limited life expectancy (Table 1)
- Other changes not listed in this guide such as reductions in psychotropic medication use and overaggressive management of hyperglycemia and blood pressure

TABLE 1:

**Medications that can be discontinued, reduced, or changed**

Type of action: Temporarily or permanently discontinue medication		
Medication(s)	Options	Considerations
<b>Oral iron supplements</b>	<p>Discontinuation if no indication.</p> <p>Reduction in dose frequency to every-other-day dosing if iron supplementation is indicated.</p>	Every-other-day dosing results in better absorption than daily use. Use in the absence of iron deficiency anemia is not indicated except for people receiving erythropoietin-stimulating agents (ESAs).
<b>Vitamins (oral): *</b> Multivitamins Vitamin A Vitamin B1 (Thiamine) Vitamin B3 (Niacin) Vitamin B6 (Pyridoxine) Vitamin E Biotin Coenzyme Q10	Discontinuation	<p>In most circumstances, little evidence supports routine vitamin supplementation in the absence of established deficiencies .</p> <p>Certain exceptions may apply; see footnotes.</p>
<b>Herbal medications:</b> For example Ginkgo Biloba Ginseng Valerian Root Echinacea Red Yeast Rice Garlic Saw Palmetto Flaxseed	Discontinuation unless evidence of clinical benefit for resident	Little evidence of benefit for most herbal medications, often used for unclear indications, and may result in adverse drug effects and drug-drug and drug-nutrient interactions.

<p><b>Other medications:</b>  Docusate  Cranberry tablets  Glucosamine  Fish Oil (low dose, i.e., &lt; 2 grams/day)  Probiotics (long-term use)  Appetite Stimulants (e.g., Megestrol, Dronabinol)</p>	<p>Discontinuation unless meaningful benefit from use.*</p>	
<p><b>Long-term preventive medications:</b>  For example:  Statins  Aspirin and other antiplatelets</p>	<p>Discontinuation if resident's goals of care are oriented exclusively toward comfort or resident has limited life expectancy</p>	<p>Requires clarification of goals of care. Medications for long-term prevention provide limited benefits for residents at or near the end of life.</p>
<p><b>Calcium Magnesium</b></p>	<p><b>Temporary</b> discontinuation if resident has difficulty swallowing but medication is still indicated.</p> <p>Permanent discontinuation if unnecessary.</p>	<p>Difficulty swallowing may lead to cough reflex and close contact between nurse and resident.</p> <p>For most uses, short-term discontinuation is safe. Do not discontinue in residents with known history of clinically important hypocalcemia or hypomagnesemia.</p>
<p><b>Oral bisphosphonates</b></p>	<p><b>Temporary</b> discontinuation (to reduce the need for additional medication pass)</p>	<p>Often appropriate, but special timing considerations often require an extra medication pass, increasing opportunities for exposure and workload. Temporary discontinuation unlikely to be harmful.</p>
<p><b>Vitamin B12 Vitamin D</b></p>	<p><b>Temporary</b> discontinuation if established indication (to reduce pill burden).</p> <p>Permanent discontinuation if no established indication (although may require monitoring)</p>	<p>Short-term discontinuation unlikely to have adverse clinical effects. If indication or baseline serum levels unclear, consider re-evaluate levels in approximately 6 months, determine if resumption is indicated</p>

Type of action: **Change to medication formulations or regimens that require less frequent dosing**

Medication(s)	Options	Considerations
<p><b>Metformin</b></p> <p><b>Metoprolol, carvedilol, diltiazem</b></p> <p><b>Other medications as appropriate</b></p>	<p>Change from short-acting to longer-acting formulations (e.g., metoprolol succinate, carvedilol CR).</p> <p>Dose less frequently</p>	<p>Use caution if resident takes medications crushed, as long-acting formulations often not crushable.</p> <p>Avoid substitutions that may result in unintended change in medication purpose (e.g., changing short-acting opioids used as needed to scheduled, long-acting varieties).</p> <p>Be mindful of cost and formulary considerations. Avoid changing to long-acting sulfonylureas (e.g., glyburide, glimepiride) and other medications that may increase risk of adverse events (e.g., hypoglycemia) or result in suboptimal disease control.</p> <p>See footnote and dose conversion table for common medications in “Additional resources” section.</p>
<p><b>Analgesics</b></p>	<p>Consider reducing dosing frequency and/or switching to longer-acting analgesic formulations or alternatives, as appropriate</p>	<p>See table in “Additional resources” section for guidance on less frequent acetaminophen dosing.</p> <p>See footnote for considerations in people taking chronic opioids and gabapentin.</p>
<p><b>Laxatives</b></p>	<p>Consider consolidating e.g., twice-daily senna to once-daily, or administer multiple laxatives at same time.</p>	<p>Also evaluate if regimen may be de-intensified</p>
<p><b>Short-acting insulins</b> (e.g., correctional or sliding scale)</p>	<p>Consider discontinuation and switch to only long-acting insulin</p>	<p>In older adults with type 2 diabetes, short-acting insulins often confer little clinical benefit and impose substantial burden including insulin administration, frequent blood glucose monitoring, and hypoglycemia. See footnote for cautions.*</p>
<p><b>Proton pump inhibitors (PPIs)</b></p>	<p>Re-evaluate chronic use per deprescribing guidelines.* May include change from twice-daily to once-daily dosing, or tapering from once-daily dosing to full discontinuation</p>	<p>Often overused.</p> <p>Abrupt discontinuation may lead to rebound symptoms.</p>

\* Vitamins: Specific deficiencies of vitamins listed here are rare in most people. Some of the more common indications for which use may be appropriate include:

- **Multivitamins:** Does not include AREDS preparations (e.g., Eye-Vite) used for treatment of macular degeneration. Indications for “regular” multivitamins include history of bariatric surgery with malabsorption
- **Vitamin B1 (thiamine):** Wernicke’s encephalopathy or people with alcohol use disorder at risk for this condition
- **Vitamin B3 (niacin):** Malabsorptive conditions including people who have had bariatric surgery, hyperlipidemia unable to tolerate or not responsive to statin therapy
- **Vitamin B6 (pyridoxine):** Concurrent use of certain drugs including isoniazid
- **Biotin:** People receiving total parenteral nutrition
- **Vitamin A:** Few indications in developed countries
- **Vitamin E:** Disorders affecting the small intestine including pancreatic exocrine insufficiency, small bowel resection, severe cholestatic liver disease
- **Co-enzyme Q10:** Little evidence to support benefit for prevention or treatment of statin-associated muscle symptoms and cardiovascular risk reduction

\* Other medications:

- **Docusate:** Often ineffective for constipation
- **Cranberry tablets:** Evidence of benefit to prevent urinary tract infections is weak. May interact with warfarin; check INR after stopping.
- **Glucosamine:** Efficacy for knee osteoarthritis is limited, although there may be strong placebo effects.
- **Fish oil (low dose, i.e., <2 grams/day):** Little evidence for benefit of low-dose fish oil for general primary or secondary cardiovascular prevention; higher doses may yield some cardiovascular benefits. Fish oil is generally indicated and effective for management of hypertriglyceridemia.
- **Probiotics:** Long-term use generally not indicated; exceptions may include management of chronic gastrointestinal inflammatory disease (e.g., ulcerative colitis, Crohn’s disease, pouchitis after gut anastomosis). Probiotics may reduce constipation.
- **Megestrol, dronabinol:** Megestrol and dronabinol often ineffective for substantial weight gain, can cause serious adverse events.

\* Medication formulation changes:

- **Metformin:** Single-daily dosing of IR formulation up to 1000 mg given at a single dose is well-tolerated by many people, although monitoring for GI upset is warranted. Different ER formulations may widely differ in price.
- **Metoprolol, carvedilol, diltiazem:** Changes from short- to long-acting versions are typically well-tolerated.
- **Opioids:** Residents taking regularly scheduled opioids several times per day, every day may be considered for transition to longer-acting formulations. Transition to long-acting formulations is NOT recommended for people with short-term opioid use or those taking opioids intermittently or as-needed.
- **Gabapentin:** Often dosed three times per day, may be possible to administer same total daily dose twice daily or daily at evening/bedtime.
- **Short-acting insulins:** Changes to insulin regimens should be individualized. Short-term monitoring after changes may be needed to ensure clinical stability. Certain patients, including those with Type 1 diabetes, require short-acting insulin and are not candidates for discontinuation. ***Changes involving insulin often require individualization and heightened short-term monitoring, so may be more difficult to achieve in the short term but can substantially reduce medication administration burden and contact between nurses and residents.***
- **Proton pump inhibitors:** For guidance on indications and process of dose reduction and deprescribing see <https://deprescribing.org/resources/deprescribing-guidelines-algorithms/>

TABLE 2:

## Changes to how medications are administered and monitored

Type of action: Reduce frequency of medication-associated monitoring		
Medication(s)	Options	Considerations
<b>Antihypertensives</b>  <b>Digoxin</b>  <b>Diabetes medications</b>	<p>Consider reducing the frequency of monitoring (e.g., pulse, blood pressure, fingerstick glucose) to track drug effects especially if resident and prior values have been stable.</p> <p>Does not apply to monitoring related to COVID surveillance.*</p>	<p>Also, consider discontinue medication if not indicated, especially short-acting insulins and as-needed blood pressure medications.</p> <p>Intensive monitoring of these medications during the COVID-19 pandemic in a resident who is well managed and stable may be unnecessary, impose burdens on residents and staff, and increase risk of infection transmission.</p>

Type of action: Administer medication at a different time to reduce number of medication passes		
Medication(s)	Options	Considerations
<b>Statins</b>  <b>Alpha blockers</b> (e.g., tamsulosin, alfuzosin, terazosin)  <b>Levothyroxine</b>  <b>Other medications as appropriate</b>	<p>Change administration time to when other medications are dispensed.</p> <p>Discontinue if not indicated.</p>	<p>Statins, alpha blockers, and levothyroxine are often prescribed for specific times. In many cases, efficacy and safety of these medications is not affected by special dosing schedules, so timing can be changed to simplify administration. See footnote for additional comments.*</p>

Type of action:

**Administer medication differently**

Medication(s)	Options	Considerations
<b>Medications that require crushing</b> (various)	Change to liquid formulations	Crushing medications can be time-intensive. Be mindful of potential price differences between pill/capsule and liquid formulations.  Use caution for medications where precise dosing is important and meaningful differences in dose or pharmacokinetic effects between pill/capsule and liquid preparations, e.g., phenytoin.
<b>Potassium</b>	Change to liquid/powder formulations if possible and available	Difficulty swallowing potassium may lead to cough reflex and close contact between nurse and resident. Check with pharmacy / pharmacist about available options.

\* Monitoring, for example blood glucose, blood pressure, pulse:

- Daily or more frequent blood glucose monitoring is generally not necessary for residents on oral-only diabetes medication regimens who are stable. Pulse and/or blood pressure checks taken prior to administering blood pressure medications to ensure that parameters are within limits prior are often not needed among residents who are stable and for whom prior values have been consistently within limits.

\* Considerations for timing of medication doses:

- **Statins:** Long-acting statins that may be dosed any time of day include atorvastatin, lovastatin XR, pitavastatin, pravastatin, and rosuvastatin. Cholesterol-lowering effects of shorter-acting statins including fluvastatin, lovastatin IR, and simvastatin may be more sensitive to timing of dose, with preference for evening dose. Consider changing to long-acting statin.
- **Alpha blockers:** Can cause positional hypotension when first initiated or shortly after doses are increased, but effects wane with continued use, and frequency of nocturia is not strongly influenced by dose timing. Prazosin is often used for non-urinary indications such as PTSD, and in this setting nocturnal dosing to prevent night terrors should not be changed.
- **Levothyroxine:** Absorption is affected by timing relative to food intake and certain other medications (e.g., within 4 hours of calcium, iron-containing products, or cholestyramine). For most residents, reasonable to administer at a convenient, consistent time (e.g., with regular morning medication pass). If timing of administration changes, may require recheck serum levels and modify dose if needed.



TABLE 3:

## Appropriate alignment of medication administration times

Please also see the “Regulatory Considerations” section for regulatory issues related to recommendations in this table.

Issue	Recommendation
<p><b>Medications with similar dosing schedules</b>, for example:</p> <ul style="list-style-type: none"> <li>- Daily (QD) and qAM</li> <li>- Twice daily (BID) and q12 hours</li> </ul>	<p>Similar schedules can often be consolidated. For example, many medications that are ordered for q12 hour dosing can safely be administered BID, and vice versa. Exceptions include medications that require precise dosing times. See footnote for details.*</p>
<p><b>Liberalization of allowable time period for medication administration</b></p>	<p>Facility policies may adopt less exact time windows for distribution of medications that do not require precise dosing times.</p>
<p><b>Elimination of outlier medication administration times</b></p>	<p>Evaluate outlier medication pass times such as where only one medication is administered at that time. If possible, adjust to align with another medication pass.</p>

\* Medications that typically require precise dosing times include (but are not limited to):

- Antibiotics
- Antiparkinsonian medications
- Chemotherapeutic and other antineoplastic therapies
- Certain immunosuppressive medications
- Scheduled opioids
- Medications that should not be administered within a specified time period of one another (e.g., antacids and fluoroquinolones)
- Medications that require dosing prior to or after meals such as short-acting insulins, meglitinides (e.g., repaglinide), alpha-glucosidase inhibitors (e.g., acarbose), glimepiride, pancrelipase, bisphosphonates
- Certain antiepileptic medications
- Nitrate products

TABLE 4:

## Medication issues specific to COVID-19 and infection prevention

*During the COVID-19 pandemic, consider the following in addition to standard recommendations for infection control during staff-resident contact (e.g., staff hand hygiene, use of personal protective equipment, social distancing)*

Issue	Recommendation
<p><b>Nebulizers</b> can aerosolize viral particles, resulting in increased risk of transmission.</p>	<p>Transition from nebulizers to hand-held inhalers for residents needing inhaled therapy when feasible, safe, and available. Aggressiveness of implementing this recommendation should be informed by resident-centered clinical considerations and by facility-wide COVID-19 risk. MDIs with spacers and other hand-held inhalers <b>may be</b> effectively used in many (although not all) residents with mild to moderate dementia. Be mindful of potential shortages in hand-held inhaler availability.</p> <p>Consult latest infection control guidance. See footnote for potential substitutions.*</p>
<p><b>Frequent, regular use of acetaminophen may mask fever.</b></p>	<p>For residents undergoing fever surveillance, consider temporarily replacing standing-dose acetaminophen with as-needed dosing. Monitor for pain control (e.g., using verbal and non-verbal cues) and use caution in residents unable to advocate for their needs.</p>
<p><b>Residents may transmit infections to nurses</b> through direct contact during medication passes.</p>	<p>Observe resident hand hygiene prior to medication passes.</p> <p>If resident does not require direct help with medication delivery, place disposable containers containing medications and water cups for swallowing on bedside tables rather than handing directly to residents. Use verbal cueing.</p>
<p><b>Frequent monitoring and medication administration</b> increases risk of infection transmission and may contribute to depletion of personal protective equipment.</p>	<p>Reduction or substitution of medications that require frequent monitoring, where such medications add little to no clinical value over alternatives.</p> <p>Reduction in frequency of vital sign monitoring specific to medications when the resident’s clinical condition does not necessitate frequent monitoring.</p>

\* Science about medications that may treat or worsen COVID-19 and infection control guidance is rapidly evolving. Stay abreast of latest recommendations.

\* For guidance on infection control with hand-helds see <https://ismp.org/resources/revisiting-need-mdi-common-canister-protocols-during-covid-19-pandemic>

\* Potential transitions from nebulized medications (“Neb”) to hand-held inhalers shown below. With MDIs, use spacers where possible.

Albuterol Neb → Albuterol HFA (e.g., ProAir)	Levalbuterol Neb → Levalbuterol HFA	Ipratropium Neb → Ipratropium HFA
Albuterol/Ipratropium Neb (Duonebs) → Combivent	Arformoterol Neb (Brovana) → Salmeterol DPI (Serevent)	Formoterol Neb (Perforomist) → Salmeterol DPI (Serevent)