



UNIVERSITY of MARYLAND  
SCHOOL OF PHARMACY  
THE PETER LAMY CENTER  
ON DRUG THERAPY AND AGING

# OPTIMIZING MEDICATION MANAGEMENT DURING THE COVID-19 PANDEMIC

**Maryland Dietitians in Health Care Communities**

**March 23, 2021**

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# Disclosures

Nothing to disclose

# Objectives

1. Identify 2 medications that can be administered differently due to COVID-19
2. Define 2 tactics to reduce transmission risk during COVID-19
3. List 2 dietary changes that can be implemented in light of medication administration

# Context of COVID-19 and Older Adults

## CDC Has Information For Older Adults at Higher Risk

**8** out of **10** COVID-19 deaths reported in the U.S. have been in adults 65 years old and older. Visit [CDC.gov/coronavirus](https://www.cdc.gov/coronavirus) for steps to reduce your risk of getting sick.



# Risk for COVID-19 Infection, Hospitalization, and Death By Age Group

Rate compared to 5-17-years <sup>1</sup>	0-4 years	5-17 years	18-29 years	30-39 years	40-49 years	50-64 years	65-74 years	75-84 years	85+ years
Cases <sup>2</sup>	<1x	Reference group	3x	2x	2x	2x	2x	2x	2x
Hospitalization <sup>3</sup>	2x	Reference group	7x	10x	15x	25x	35x	55x	80x
Death <sup>4</sup>	2x	Reference group	15x	45x	130x	400x	1100x	2800x	7900x

All rates are relative to the 5-17-year age category. Sample interpretation: Compared with 5-17-year-olds, the rate of death is 45 times higher in 30-39-year-olds and 7,900 times higher in 85+-year-olds. Compared with 18-29-year-olds, the rate of hospitalization is 8 times higher in 75-84-year-olds (55 divided by 7 equals 7.9).

## How to Slow the Spread of COVID-19



Wear a mask



Stay 6 feet apart



Avoid crowds and poorly ventilated spaces



Wash your hands



[cdc.gov/coronavirus](https://cdc.gov/coronavirus)

# Context of COVID-19 and Older Adults

Confirmed Staff Cases

4,326

Confirmed Staff Deaths

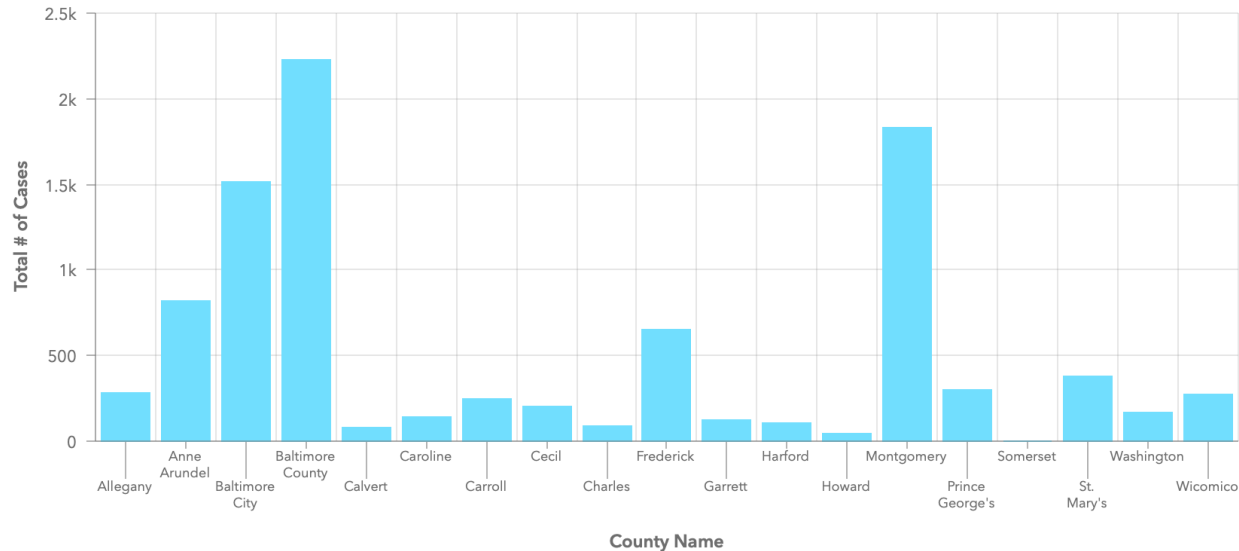
11

Confirmed Resident Cases

5,164

Confirmed Resident Deaths

1,050



Maryland COVID-19 in Congregate Facility Settings: Week of March 17, 2021

# Context of COVID-19 and Older Adults

Year in which death occurred	Sex	Age Group	All Deaths involving COVID-19 [1]	Deaths from All Causes	Deaths involving Pneumonia [2]	Deaths involving COVID-19 and Pneumonia [2]	All Deaths involving Influenza [3]	Deaths involving Pneumonia, Influenza, or COVID-19 [4]
2020/2021	All Sexes	0-17 years	226	37,537	634	42	178	996
2020/2021	All Sexes	18-29 years	1,866	71,479	2,063	827	150	3,240
2020/2021	All Sexes	30-39 years	5,485	101,822	4,993	2,514	318	8,260
2020/2021	All Sexes	40-49 years	14,792	153,493	12,649	7,258	493	20,607
2020/2021	All Sexes	50-64 years	77,215	648,381	70,813	40,738	2,123	109,091
2020/2021	All Sexes	65-74 years	113,198	795,802	102,457	60,267	1,932	157,012
2020/2021	All Sexes	75-84 years	144,064	969,808	125,817	72,833	1,949	198,728
2020/2021	All Sexes	85 years and over	160,729	1,189,298	126,291	66,724	1,839	221,904
2020/2021	All Sexes	All Ages	517,575	3,967,620	445,717	251,203	8,982	719,838

# Background

- Residents of post-acute and long-term care facilities often prescribed multiple medications which are dosed multiple times per day
- Often this is:
  - Unnecessary & potentially harmful
  - Burdensome to residents (e.g. fingersticks, vital signs many times per day)
  - Burdensome to staff.
    - Nursing staff spend enormous amounts of time each shift passing meds, thus reducing availability for other direct care activities
  - Increases potential infection transmission between staff and residents as a result of multiple up-close contacts



# Goal of Implementation Guide

- To improve resident-centered health and well-being by:
  - Reducing use of unnecessary medications
  - Simplifying medication management &
  - Reducing opportunities for transmission of COVID-19 between residents and staff
- Furthermore, by streamlining medication administration, these changes may also increase the time that staff have available for other direct care activities.
- Intended to complement (not replace) other efforts to improve care quality and safety and infection control
- Intended for use during COVID-19 pandemic

# Overview

- Background and goal of guide
- Recommendations
- Key issues to consider when implementing recommendations
- Avoiding unintended consequences
- Other resources

# Acknowledgements

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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>	<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).</p>
<p><b>Vitamins (oral): *</b></p> <p>Multivitamins</p> <p>Vitamin A</p> <p>Vitamin B1 (Thiamine)</p> <p>Vitamin B3 (Niacin)</p> <p>Vitamin B6 (Pyridoxine)</p> <p>Vitamin E</p> <p>Biotin</p> <p>Coenzyme Q10</p>	<p>Discontinuation</p>	<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>
<p><b>Herbal medications:</b> For example</p> <p>Ginkgo Biloba</p> <p>Ginseng</p> <p>Valerian Root</p> <p>Echinacea</p> <p>Red Yeast Rice</p> <p>Garlic</p> <p>Saw Palmetto</p> <p>Flaxseed</p>	<p>Discontinuation unless evidence of clinical benefit for resident</p>	<p>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>

<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>

# Recommendations-As Applicable

## Examples

- Discontinue vitamins, herbals
- Change meds from 2x/day to once-daily formulations
  - Metoprolol, metformin
- Consolidate bedtime meds with morning meds
  - Statins, urinary alpha-blockers
- Reduce unnecessary monitoring
  - Blood glucose
- Convert nebs to hand-held inhalers

## 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

# Medications Considerations

- Meds that can often safely be discontinued e.g.
  - Iron, many vitamins and supplements, herbal medications
  - Miscellaneous others including docusate, cranberry tablets, glucosamine, low-dose fish oil, probiotics, appetite stimulants
- Meds often discordant with goals of care and life expectancy e.g.
  - Aspirin, statins, etc. in people with comfort-oriented goals and/or shorter life expectancy
- Meds that are often appropriate but can temporarily be stopped e.g.
  - Calcium, magnesium, bisphosphonates, Vitamins D and B12



# Medication Monitoring Considerations

- May apply to:
  - Reduced frequency of fingerstick blood glucose checks
    - e.g., stable regimens without short-acting insulins
  - Reduced frequency of BP or HR checks
    - e.g., if on stable, long-term anti-hypertensive meds

# Medication Dosing Considerations

- Change from short- to longer-acting formulations
  - e.g., metoprolol, carvedilol, diltiazem, metformin
  - Insulins (e.g. short-acting formulations often unnecessary, cause more harm than good, can use basal-only insulin and/or oral diabetes meds instead)
- Change analgesic regimens to wider spacing
  - e.g., acetaminophen ER or immediate release
  - Be careful to avoid potentially harmful switches, e.g., long-acting opioids

# Medication Timing Considerations

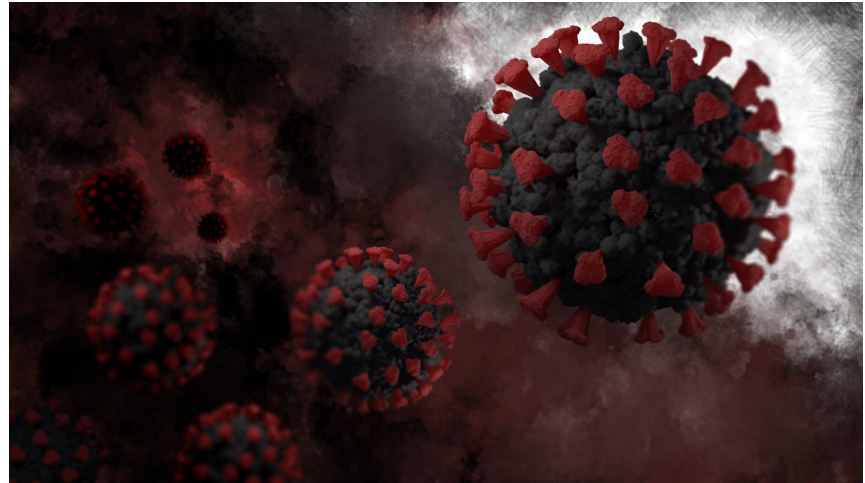
- Consolidate dispensing times
  - e.g., q12 hours to BID
- Eliminate outlier medication administration times
  - e.g. Give statins, alpha blockers, levothyroxine at consolidated times - often do NOT need nighttime or early AM dosing
- Liberalize allowable time period to administer meds

# What about Megestrol (Megace)?

- Megestrol: a progestin that stimulates appetite
- Strong AGS Beers Criteria warning against its use
- Weight gain is primarily fat, no improvement in quality of life or survival
- Risk of **deep-vein thrombosis, fluid retention, edema, CHF exacerbation, and death**



# How can we reduce the transmission risk during COVID-19?

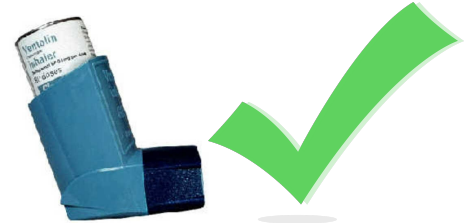


# Reduce risks of COVID-19 transmission

- Use hand-held inhalers (with spacer if possible) instead of nebulizers
  - Availability and usability of products may vary
- Where appropriate, change acetaminophen from regular to prn schedule
  - 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

# Reduce risks of COVID-19 transmission

- Reduce the administration frequency and minimizing unnecessary medications
- Nebulizers can lead to aerosolization of the virus; use handheld inhaler where possible



- Avoid direct contact with patients
- Consider switching to medications that require less frequent monitoring (of HR, BP, blood glucose) especially if the patient has been stable
- Group together medications that can be given at the same time and if drug that can be temporarily be discontinued is an outlier, then consider discontinuing it

# COVID-19 Vaccines



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# Implementation: Tactics and Lessons Learned

# Implementation

## Avoid potential pitfalls

- Communication with residents, families, prescribers
- Social isolation
- Cost implications of med changes
- Monitoring and documentation

## Avoiding unintended consequences

While the recommendations in this guide are intended to improve health and safety during the COVID-19 pandemic, there is always a danger of unintended consequences.

Potential Unintended Consequences	Mitigation Strategies
Long-term failure to restart useful medications that were temporarily discontinued, and for which long-term use remains indicated.	Keep a list of all medications that are discontinued and involve the consulting pharmacist in this process.  Schedule a meeting time with your pharmacist, medical director, and director of nursing in 8 weeks to re-evaluate all medications on the discontinued list.
Return of symptoms and/or other markers of disease activity, which may result in worsening health and additional care needs.	For each discontinued medication, make note of potential symptoms to monitor.  Assess for those symptoms, and document with COVID-19 symptom assessments.
Potential resident and care partner perceptions of abandonment and reduced quality of care.	Assure them of steps being taken to monitor and encourage them to let you know if they have concerns or are noticing any changes in symptom control.  See section on "Communication Around Medication Changes" for additional suggestions.
Social isolation and fewer opportunities for evaluation as a result of less contact with staff.	In care planning meetings, assess and address impacts of changes in medication-related interactions with nursing staff, for example impacts on hydration, loneliness.  Note that additional assessments to monitor for early symptoms of COVID-19 infection may balance out the decrease in time spent in distributing medications.
Increased costs if less expensive medications are replaced with more expensive medications.	Work with dispensing pharmacy to identify formulary/cost issues.
Potential legal or survey consequences if adverse outcomes are attributed to medication management changes.	Document your rationale for making the medication changes and the monitoring that you are doing to keep residents safe.

It may be wise to adapt or defer medication-related changes if potential harms are likely to exceed the benefits of these changes.

# Key Issues in Implementation

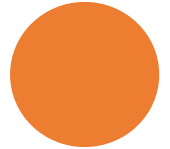
- Review recommendations with interdisciplinary team
  - Attention to workflow and leadership support are important
  - Scheduled meetings and structured follow ups with IDT team involved in the process
  - COVID pandemic may cause burnout; provide support to the team throughout the process
  - Medical Directors active involvement throughout the process of MMG
  - Person centered approach
  - Ongoing communication with the team, residents and families

# Key issues in implementation

- Consider a stepwise, resident-centered approach for implementing recommendations
  - Step 1: Changes essential for infection control
  - Step 2: Changes that are low risk, can be quickly evaluated for individual appropriateness, and can be done immediately
  - Step 3: Changes that are low risk but may take more time for person-centered evaluation and communication, implementation, and monitoring

# Key issues in implementation

- For some medications, temporary discontinuation may be advisable.
  - Need to establish process for potential future resumption (!)
- Attention to potential harms and to communication among providers, residents, and families and care partners is essential



[https://www.myamericannurse.com/wp-content/uploads/2010/10/polypharmacy\\_elderly\\_patient.jpg](https://www.myamericannurse.com/wp-content/uploads/2010/10/polypharmacy_elderly_patient.jpg)

<https://www.mymedshealth.com.au/wp-content/uploads/2017/01/What-is-polypharmacy.jpg>

# Unintended harms

- **Failure to restart useful medications that were temporarily discontinued**
  - Keep a list of meds, establish a process, schedule a meeting time with pharmacist, medical director, director of nursing in 8 weeks to review
- **Return of symptoms and/or other markers of disease activity**
  - Make note of symptoms and signs to watch for and plan for monitoring
- **Perceptions of abandonment and reduced quality of care**
  - Good communication

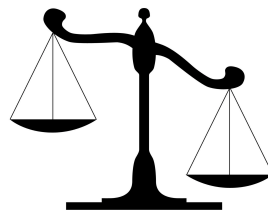


# COST



## Unintended harms

- **Social isolation and fewer opportunities for evaluation**
  - Assess and address potential impacts of changes, e.g., hydration, loneliness
- **Increased costs (inexpensive meds replaced with \$\$\$ medications)**
  - Work with community pharmacy to identify formulary/cost issues
- **Potential legal or survey consequences if adverse outcomes are attributed to medication management changes**
  - Document rationale for making the medication changes and monitoring you are doing to keep residents safe



# Unintended harms How to Avoid



Ongoing communication



Interprofessional approach



Person-centered care



Openness and honesty



Accept limitations



Avoid burnout – remember the Quadruple Aim





# OPTIMIZING MEDICATION MANAGEMENT DURING THE COVID-19 PANDEMIC IMPLEMENTATION GUIDE FOR POST-ACUTE AND LONG-TERM CARE

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Optimizing Medication Management during the COVID-19 Pandemic: Implementation Guide for Post-Acute and Long-Term Care

◀ Back to the Lamy Center

Optimizing Medication Management during the COVID-19 Pandemic: Implementation Guide for Post-Acute and Long-Term Care

Welcome to this implementation guide for improving medication management in post-acute and long-term care settings during the COVID-19 pandemic.

Its goal is to improve resident-centered health and well-being by reducing use of unnecessary medications, simplifying medication management, and reducing opportunities for transmission of COVID-19 between residents and staff. By streamlining medication administration, these changes will help reduce the risk of COVID-19 infection among residents and staff.

<https://www.pharmacy.umaryland.edu/PALTC-COVID19-MedOpt>

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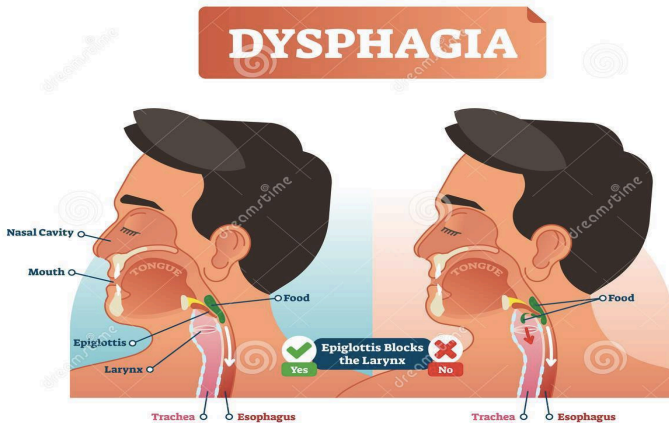
Advancing research to optimize medication use among older adults.



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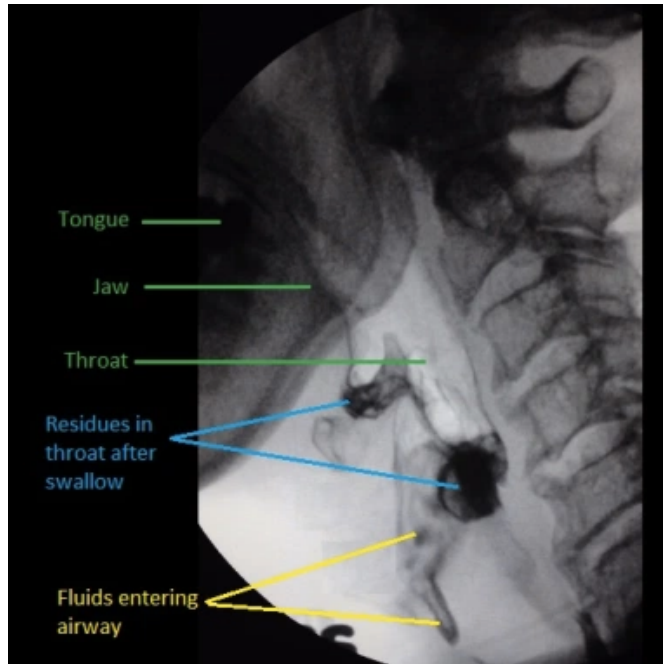
# COVID-19 Complications : Dysphagia



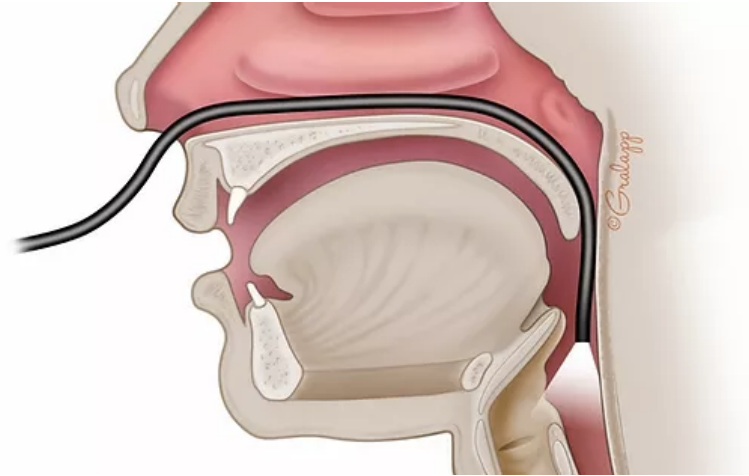
# Common States that can Lead to Dysphagia in Older Adults due to COVID-19

- Oropharyngeal dysphagia can occur as a result of intubation
- Fluid buildup in lungs due to pneumonia or stroke can also lead to dysphagia
- Patients with cognitive disorders like Alzheimer's or dementia or neurodegenerative disorders like Parkinson's

# Dysphagia Screening Before COVID-19



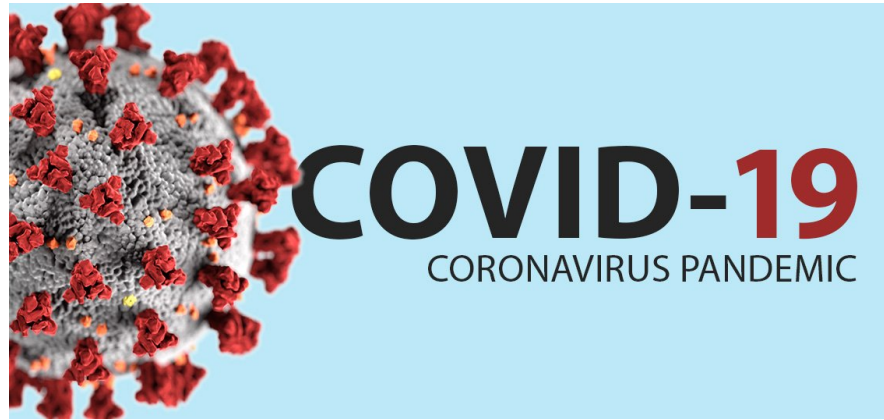
**Videofluoroscopy (VFS)**



**Fiberoptic Endoscopic  
Evaluation of Swallowing  
(FEES)**

# Goal for Dysphagic Patients due to COVID-19

- provide medications that prevent risk of coughing and aspiration in an older adult with COVID-19 and dysphagia while minimizing risk of transmission



# The Impact of COVID-19 and Dysphagia

- Decreased quality of life
- Aspiration at risk
- Risk of malnutrition and dehydration
- Impact the route of administration of medications

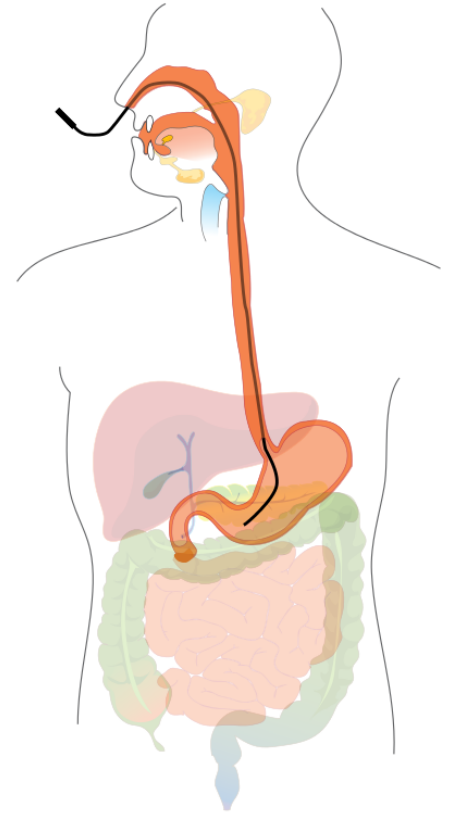




# If unable to swallow

Those who are unable to take adequate nutrition, fluids and medication orally should:

- receive **tube feeding with a nasogastric tube** within 24 hours of admission unless they have had thrombolysis
- be considered for a **nasal bridle tube or gastrostomy** if they are unable to tolerate a nasogastric tube



# If able to swallow



- medications that require crushing or opening a capsule, or chewed such as antacids may be changed to liquid formulation
- consider patients taking regularly scheduled opioids multiple times a day may be able to switch to longer acting formulation
- if drug has no alternative formulation, then check to see if another drug in same class does

# Role of Dietitians and Pharmacists in Dysphagic Patients

- **be referred** to an appropriately trained **healthcare professional** for detailed **nutritional assessment, individualized advice and monitoring (dietician role)**
- **have their medications reviewed** to amend either the **formulation or the route of administration (pharmacist role)**



©DESIGNALIKE



**You pressed the emergency button, are you ok?**

**Oh, I'm fine. It's my food that needs medical attention.**

# COVID-19 as a Mediator of Malnutrition

- Due to many factors: physiological, psychological, and social factors
  - Association between feelings of loneliness and malnutrition and subjective age, especially during the pandemic and quarantine
  - COVID-19 can cause symptoms like decreased appetite and loss of taste and smell, which can also contribute to not eating
  - Prolonged hospitalization due to COVID-19 or dysphagia due to COVID-19 can lead to malnutrition

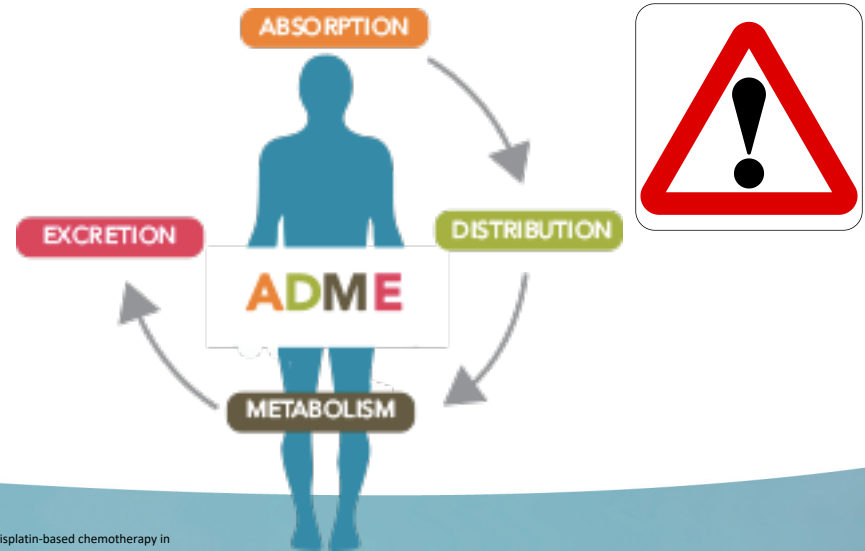


# Ensuring the Older Patient is not Malnourished

- Malnutrition can lead to reduced weight or BMI
- Medications not adjusted for weight and/or frailty can lead to too high circulating drug concentrations/affect ADME and higher risk for adverse events

## Cockcroft-Gault Formula for Estimating Creatinine Clearance

$$\text{CrCl (mL/min)} = \frac{(140 - \text{age}) \times \text{Lean Body Weight (kg)}}{\text{Serum Creatinine (mg/dL)} \times 72} \quad (\times 0.85 \text{ if female})$$



# Malnutrition due to Dysphagia

- Use of **thickeners** may help the patient swallow food and/or drinks.
- Common water-soluble thickeners include xanthan gum or starch:
  - Thick It<sup>®</sup> (modified corn starch)
  - Hormel Thick & Easy<sup>®</sup> (modified corn starch)
  - Nestle Resource<sup>®</sup> ThickenUP<sup>®</sup> Clear (xanthan gum)



# Precautions with Thickeners

- Starch may result in post swallow residue
- Institute for Safe Medication Practices (ISMP) in Canada reported an incident where a patient who had received Poly Ethylene Glycol (PEG) laxative powder mixed in a starch-based pre-thickened juice, died following suspected aspiration



Institute for Safe Medication Practices Canada  
REPORT MEDICATION INCIDENTS  
Online: [www.ismp-canada.org/err\\_index.htm](https://www.ismp-canada.org/err_index.htm)  
Phone: 1-866-544-7672

A KEY PARTNER IN  
CMIRPS SCDPIM  
Canadian Medication Incident Reporting System  
Canadian Society for Drug Poisoning

## ISMP Canada Safety Bulletin

Volume 19 - Issue 7 - August 28, 2019

### Potentially Harmful Interaction between Polyethylene Glycol Laxative and Starch-Based Thickeners

- *Addition of polyethylene glycol (PEG) laxative to a liquid that has been thickened with a starch-based thickener results in a mixture that is thin and watery, effectively undoing the intended act of thickening.*
- *Multiple strategies are available to prevent the occurrence of this interaction:*
  - *Establish an electronic interface to connect the order entries between medication, dietary and other health-related computer order entry systems within the healthcare facility.*
  - *Update health information systems to include an interaction alert when a PEG laxative and a starch-based thickener are prescribed for the same patient.*
  - *Before prescribing or recommending a PEG laxative for a patient with dysphagia, determine whether the patient is using any products thickened with a starch-based thickener.*
  - *Ensure that xanthan gum-based thickeners are available, to provide a safe option for patients with dysphagia who also require a PEG laxative to manage their constipation.*

Patients with dysphagia, or difficulty swallowing, are often advised to avoid thin, watery liquids and to consume only liquids that have had their viscosity altered by thickeners (known as "thickened liquids" or "thickened fluids"). Swallowing a thickened liquid will improve bolus control and reduce the risk of aspiration. ISMP Canada received a medication incident about patient harm potentially associated with an under-recognized but important drug interaction between **polyethylene glycol (PEG) laxative** and a **starch-based thickener**. This incident is being shared to raise awareness of the interaction and to present system-based strategies to prevent its occurrence and mitigate the risk of patient harm, especially in long-term care homes where residents who may be on thickened fluids are often prescribed laxatives. The bulletin also highlights the ever-present need to report and learn from unexpected or novel treatment interactions.

#### INCIDENT DESCRIPTION

PEG 3350 laxative, to be dissolved in liquid, was prescribed to treat constipation in a hospital inpatient. The patient was switched to a thickened diet for dysphagia, therefore PEG 3350 was mixed in a starch-based prethickened juice. On the second day of administration, the patient was noted to be very



# Precautions with Thickeners

- PEG-starch mixture resulted in a thin, watery liquid
- This interaction was also seen when PEG powder was added to starch thickened apple juice, thickened water or thickened coffee, resulting in a reduction in the viscosity of the mixture
- Not the case for xanthan gum mixed with PEG laxative powder



# Drug-Food Considerations

- Drugs that alleviate mild symptoms of COVID such as:
  - **Acetaminophen** to reduce fever and body aches
    - May administer without regards to food, but food can decrease possible GI upset
    - Avoid alcohol as this can result in hepatotoxicity
  - **Albuterol inhaler** as a bronchodilator
    - Contraindicated in milk protein hypersensitivity
    - Caffeinated beverages may enhance nervousness and increased heart rate
    - Cannabinoid products may enhance increased heart rate

# Other Drug-Food Considerations

- Warfarin interactions
  - Gingko biloba → Increased risk of bleeding
  - Vitamin K rich foods, St. John's Wort, ginseng → Increased risk of clotting



Ginkgo-Biloba -- Warfarin Sodium. Micromedex Solutions. Greenwood Village, CO: Truven Health Analytics. <http://micromedex.com/>. Updated date. March 15, 2021

Richardson B. Medication Management and Nutrition. *Nutrition and Foodservice EDGE*. 2018:16-20.

Consistency, Not Avoidance: The Truth About Blood Thinners, Leafy Greens, And Vitamin K. Penn Medicine. <https://www.pennmedicine.org/updates/blogs/heart-and-vascular-blog/2015/june/consistency-not-avoidance-the-truth-about-blood-thinners-leafy-greens-and-vitamin-k>. Published June 3, 2015. Accessed March 15, 2021.

# Grapefruit Juice Interactions

- Grapefruit juice is a CYP 3A4 inhibitor and will increase the levels of drugs that are 3A4 substrates, thus increasing the risk of serious side effects.
- Grapefruit juice should be avoided while taking:
  - Calcium channel blockers
  - Statins
  - Anti-cancer drugs
  - Dronedarone
  - Lurasidone



# Lessons Learned

- The COVID-19 pandemic has brought new challenges to the healthcare system in general and to long term acute institutions.
- Guide is a resource to help support PA-LTC teams to reduce medication burden relevant to resident centered needs.
- Review and adapt to your local facility circumstances.
- The process is as important as the medication recommendations and pay attention to communication, systems of care, as well as unintended consequences
- Not a substitute for **clinical judgement**: recommendations should be evaluated in light of each resident's clinical situation and preferences.

# Conclusion

- some medications that can be administered differently due to COVID-19 but mindful of what to monitor
- tactics to reduce transmission risk during COVID-19 can include discontinuation, dosing frequency, timing, etc.
- be familiar with dietary changes that can be implemented in light of medication administration
- work closely with the other members of the team



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