Medication Concerns & Best Practice in the Skilled Nursing Facility Setting

Presented by: Jessica Behrens Pharm.D. and Scott Stewart Pharm.D.

Learning Objectives

- Determine areas of medication concerns in the skilled nursing facility setting.
- Determine what the regulations state regarding areas of concern.
- Determine best practice for each of the areas of concern.

Topics Being Discussed

- Insulin
- Crushing Medications
- Antipsychotics and Psychotropics
- Antibiotics
- Opioids
- Diuretics

Insulin

Insulin – Overview

- High risk med, associated with a high rate of errors, adverse events, hospitalizations
- Hypoglycemia is the most common insulin-related adverse event
- Yearly cost in US of medication-induced hypoglycemia among older adults estimated to be $509 million
- Insulin, warfarin and digoxin are responsible for 1/3 of medication-related ED visits even though they account for fewer than 3% of outpatient meds

Insulin – Top Concerns

- Hypoglycemia
  - Falls, hospitalizations, death
  - Importance of hypoglycemia protocols
  - Timing of meal-time insulin
- Administration Technique
  - Priming (usually 2 units)
  - Air bubbles or incorrect needle attachment could mean failure to deliver dose
- Potential for errors
  - Wrong insulin (regular, rapid, long-acting, etc.)
  - Wrong concentration (U-100, U-500)
- Sliding Scale Insulin
  - Potential for errors
  - Poor glycemic control and increased risk of hypoglycemia
- Storage/stability
  - Dating of insulin vials/pens when removed from fridge
  - Sanitary storage (individual bags) to prevent cross-contamination

Insulin – Regulations

CMS-20082 Unnecessary Medications

- "Demonstrates monitoring for each medication as appropriate... Insulin – Monitoring of blood glucose levels, hemoglobin A1c (HbA1c), and symptoms of hyper/hypoglycemia"

CMS-20056 Medication Administration

- "Insulin Pens must be clearly labeled with resident's name... to verify the correct pen is used on the correct resident"
- "Insulin pens should be stored in a sanitary manner to prevent cross-contamination"
- "Multi-dose vials which have been opened or accessed are dated and discarded within 28 days unless manufacturer specifies a different date"

Insulin – Best Practice

- Page 783 of Appendix PP
- https://www.cdc.gov/injectionsafety/blood-glucose-monitoring.html.
- ADA 2023 Standards of Care - https://diabetes.org/newsroom/press-releases/2022/american-diabetes-association-2023-standards-care-diabetes-guide-for-prevention-diagnosis-treatment-people-living-with-diabetes

Crushing Medications

Crushing Medications - Overview

- Dysphagia occurs in about 31% of adults in long term care settings
- PEG tube prevalence among nursing home residents with cognitive impairment is between 18% and 34%
- Potential for Medication Errors and Patient Harm
  - Improper absorption, erratic drug levels, toxicities
- More Complicated Medication Administration
  - Time consuming medication passes
  - Potential for nurse exposure to hazardous substances

Crushing Medications – Top Concerns

- Extended release/enteric coated tablets (CD, CR, ER, LA, SA, SR, TD, TR, XL, etc.)
  - Crushing damages delayed release properties (can lead to toxicity)
  - Enteric coating protects meds from stomach acid
  - Medication coating can clump/clog feeding tube
- Hazardous meds
  - Crushing meds can expose nurses to hazardous substances (e.g. finasteride)
- Cocktailing Meds
  - Crushing meds together and administering all at once via G-tube can lead to drug incompatibilities, clogging of tube

Crushing Medications - Regulations

CMS-20056 Medication Administration Observation

- "Staff did not crush tablets or capsules that manufacturer states 'do not crush,' such as enteric coated or time-released medications"
- "Staff did not crush and combine medications and then give medications all at once via feeding tube"
- "...tube flushed with the required amount of water before and after each medication..."

Crushing Medications – Best Practice

- http://www.ismp.org/tools/DoNotCrush.pdf.
- The standard of practice is that **c**rushed medications should not be combined and given all at once via feeding tube. (Page 596 of Appendix PP)
- A facility is not required to flush the tubing between each medication if there is a physician's order that specifies a different flush schedule because of a fluid restriction.
- Before giving medications via feeding tube, the placement of the feeding tube should be confirmed in accordance with the facility's policy based on current standards of practice.
- The administration of enteral nutrition formula and administration of phenytoin (Dilantin) must be separated to minimize interaction, according to drug and enteral formula manufacturer recommendations.
- ASPEN Safe Practices for Enteral Nutrition Therapy at https://www.ismp.org/tools/articles/ASPEN.pdf (2009) and http://pen.sagepub.com/content/early/2016/11/09/0148607116673053.full.pdf (2016)
- Crushing Oral Medications – To address concerns with physical and chemical incompatibility and complete dosaging, best practice would be to separately crush each medication and separately administer each medication with food. However, separating crushed medications may not be appropriate for all residents and is generally not counted as a medication error unless there are instructions not to crush the medication(s). Facilities should use a person-centered, individualized approach to administering all medications.

Antipsychotics and Psychotropics

Antipsychotics and Psychotropics - Overview

- OIG found that from 2011 through 2019, about 80 percent of Medicare's long-stay nursing home residents were prescribed a psychotropic drug.
- OIG also found that from 2015 through 2019 both the reporting of residents with schizophrenia in the MDS and the number of residents who lacked a corresponding schizophrenia diagnosis in Medicare claims and encounter data increased by 194 percent.
- OIG additionally found that while CMS focused its efforts to reduce the use of one category of psychotropic drug—antipsychotics—the use of another category of psychotropic drug—anticonvulsants—increased.

Antipsychotics and Psychotropics – Top Concerns

- Indication of use
- Duration of use of PRN psychotropics
- Clinical rationale for not attempting a dose reduction
- Multiple psychotropic medications
- Side effects
  - Just look at the adverse effect profile for antipsychotics some time – next slide

Antipsychotic Adverse Effects

Comparative Risk of Adverse Effects of Antipsychotic Medications*

Adverse effect	*Low-potency FGAs†*	*High-potency FGAs‡*	*SGAs*					
			Aripiprazole (Abilify)	*Clozapine (Clozaril)*	*Olanzapine (Zyprexa)*	*Quetiapine (Seroquel)*	*Risperidone (Risperdal)*	*Ziprasidone (Geodon)*
Anticholinergic effects	+++	+	0	+++	+	+	0	0
Dyslipidemia	++	+	0	+++	+++	++	+	0
Extrapyramidal symptoms	+	+++	+	0	+	0	++	+
Hyperprolactinemia	++	+++	0	0	+	0	+++	+
Neuroleptic malignant syndrome	+	++	+	+	+	+	+	+
Postural hypotension	+++	+	+	+++	+	++	++	+
Prolonged QT interval	++§	+	+	+	+	+	+	++
Sedation	+++	+	+	+++	++	++	+	+
Seizures	+	+	+	+++	+	+	+	+
Sexual dysfunction	+++	++	+	+	+	+	++	+
Type 2 diabetes mellitus	+	+	+	++	++	+	+	+
Weight gain	++	+	0	+++	+++	++	++	0

note: *0 = rare; + = lower risk; ++ = medium risk; +++ = higher risk.*

FGAs = first-generation antipsychotics; SGAs = second-generation antipsychotics.

**— Effects are approximate, and relative to other antipsychotic medications rather than absolute risk of an adverse effect occurring.*

† — FGAs with lower potency dopamine D_2 neuroreceptor blockade, including chlorpromazine and thioridazine.

‡ — FGAs with higher potency dopamine D_2 neuroreceptor blockade. These include fluphenazine, haloperidol (formerly Haldol), thiothixene (Navane), neuroreceptor blockade, with an adverse and trifluoperazine. Please note that the FGA perphenazine is considered to have intermediate dopamine D_2 effect profile between the low- and high-potency FGAs.

§ — Individually, thioridazine has a higher risk of prolonged QT interval and should be used only when no other appropriate options are available.

Adapted with permission from Gardner DM, Baldessarini RJ, Waraich P. Modern antipsychotic drugs: a critical overview. CMAJ. 2005;172(13):1703–1711, with additional information from reference 6.

Antipsychotics and Psychotropics - Regulations

- Recent updates to Appendix PP changed the following:
  - Added that any medication affecting brain activity is subject to requirements of psychotropics if it appears to be given in the place of another psychotropic medication (ie: antihistamines, anti-cholinergic medications, and central nervous system agents.)
  - Surveyors directed to screen medications prescribed for inadequate indication for use.
  - Multiple psychotropics – surveyors guided to screen for provider rationale.

Antipsychotics and Psychotropics - Regulations

- Recent updates to Appendix PP changed the following:
  - CMS stated, “they are aware of situations in which patients have been inaccurately diagnosed or coded with conditions for which antipsychotics are approved, such as schizophrenia, in order to exclude them from the long-stay antipsychotic quality measure.”
  - CMS provided detailed definition of schizophrenia and bipolar disorders in update of F740.
  - Surveyors additionally directed to F658 (provider diagnostic practices) and F641 (accurate assessment by facility).

Antipsychotics and Psychotropics - Regulations

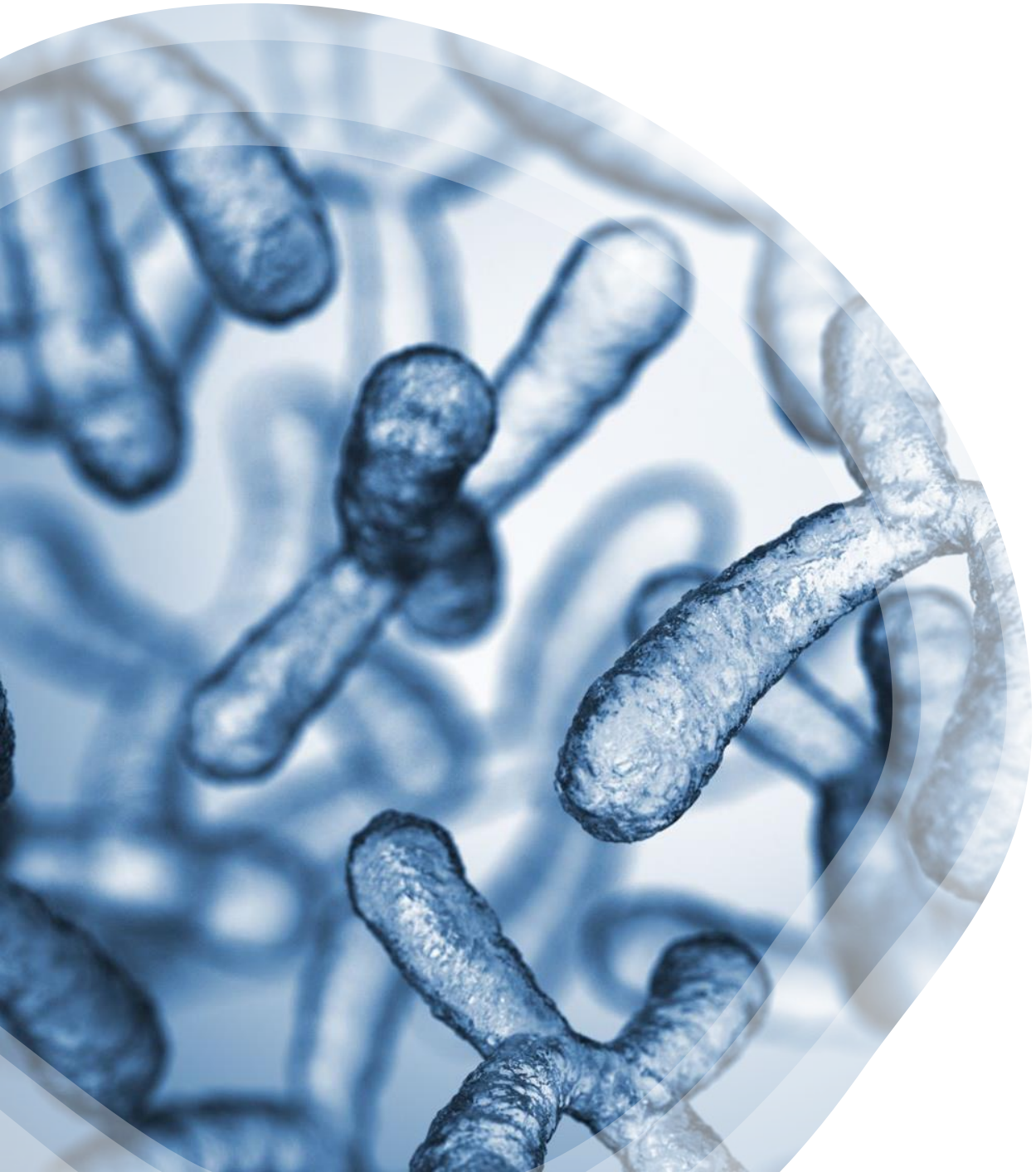
- Recent updates to Appendix PP changed the following:
  - Updated guidance on dose reduction attempts:
    - “Dose reductions should occur in modest increments over adequate periods of time to minimize withdrawal symptoms and to monitor symptom recurrence. Compliance with the requirement to perform a GDR may be met if, for example, within the first year in which a resident is admitted on a psychotropic medication or after the prescribing practitioner has initiated a psychotropic medication, a facility attempts a GDR in two separate quarters (with at least one month between the attempts), unless clinically contraindicated. Additional information related to gradual dose reduction may be found The American Psychiatric Association Practice Guidelines on the use of Antipsychotics to Treat Agitation or Psychosis in Patients with Dementia, 2016, https://psychiatryonline.org/doi/full/10.1176/appi.books.9780890426807.ap02 and at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3119470/, Discontinuing Medications: A Novel Approach for Revising the Prescribing Stage of the Medication-Use Process (2008).”

Antipsychotics and Psychotropics – Regulations

- **CMS-20082 – Unnecessary Medications**
- **All psychotropics –** monitor behavioral expressions or indications of distress.
- **Demonstrates a system for and documents gradual dose reduction (GDR) for psychotropic medications *and non-pharmacological approaches*, unless contraindicated.**
- **Demonstrates adherence to requirements for as needed (PRN) psychotropic and antipsychotic medications.**
- Residents do not receive PRN psychotropic medications unless necessary to treat a diagnosed specific condition *that is* documented in the record.
- PRN orders for psychotropic medications which **are not** antipsychotic medications are limited to 14 days. The attending physician/prescriber may extend the order beyond 14 days if he or she believes it is appropriate. If the attending physician extends the PRN for the psychotropic medication, the medical record *should* contain a documented rationale and determined duration.
- PRN orders for psychotropic medications which **are** antipsychotic medications are limited to 14 days. A PRN order for an antipsychotic cannot be renewed unless the attending physician/prescriber evaluates the resident to determine if it is appropriate to write a new PRN order for the antipsychotic medication. The evaluation entails direct evaluation of the resident and assessment of the resident's current conditions and progress to determine if the PRN antipsychotic medication is still needed. Attending physician/prescribing practitioner documentation of the evaluation should address:
    - Whether the antipsychotic medication is still needed on a PRN basis?
    - What is the benefit of the medication to the resident?
    - Have the resident's expressions or indications of distress improved as a result of the PRN antipsychotic medication?

Antipsychotics and Psychotropics – Best Practice

- Beers Criteria for Potentially Inappropriate Medication Use in Older Adults provides information on safely prescribing medications for older adults, http://www.healthinaging.org/medications-older-adults/. AGS just released 2023 Beers Criteria.
- The American Psychiatric Association Practice Guidelines on the use of Antipsychotics to Treat Agitation or Psychosis in Patients with Dementia, 2016, https://psychiatryonline.org/doi/full/10.1176/appi.books.9780890426807.ap02 and at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3119470/, Discontinuing Medications: A Novel Approach for Revising the Prescribing Stage of the Medication-Use Process (2008).
- Appendix PP – Pages 562-591



Antibiotics

Antibiotics - Overview

- An estimated 50-75 % of nursing home residents receive an antibiotic over the course of a year.
  - Up to 75% are prescribed inappropriately.
- Residents in nursing homes have many of the risk factors for colonization with resistant pathogens.
  - Catheters, feeding tubes, lower functional status, incontinence, pressure ulcers, recent hospitalization and antibiotic use, diabetes, heart failure, pulmonary disease, renal failure….
  - A recent meta-analysis representing over 2,700 nursing home residents found the prevalence of MDR-GNB (multi-drug resistant gram-negative bacteria) was around 27%.
  - Reported rates of MRSA have been as high as 30% and VRE around 5-18%.

Antibiotic Stewardship – Goals and Top Concerns

- Reduce antibiotic resistance rates
- Avoid adverse effects
  - Nearly 16% of all adverse drug events are cause by antibiotics
  - Antibiotics hold the same risk as antipsychotics for potential ADEs
  - 1 in 5 of all the adverse drug events in nursing homes are due to antibiotics
- Reduce C. difficile infections
  - Antibiotics increase risk by 8-fold
  - Increasing prevalence in hypervirulent strains
  - Highest risk is seen with cephalosporins, clindamycin, and fluoroquinolones
- Reduce hospital admissions and unnecessary costs associated with antibiotic use
- Reduce unnecessary medications and inappropriate use

Antibiotics – Regulations

- Refer to CMS-20054 Infection Prevention and Control and Immunization- Critical Element Pathway (CEP)
- Refer to CMS-20082 Unnecessary Medication- Critical Element Pathway (CEP)
  - **"Antibiotics –** interactions with other medications (e.g., warfarin), adverse events (e.g., rash, diarrhea); prescriptions must include documentation of indication, dose, route and duration and be reviewed 2-3 days after antibiotic initiation to assess response and labs, and prescriber should reassess antibiotic selection as appropriate."
- Appendix PP
  - Pages: 261, 361-362, 366-367, 391, 428-429, 476, 537, 539, 541, 549, 557, 565, 584-585, 589, 752, 759, 765, 770, **794-800 (F-881 -Antibiotic Stewardship), 801-806 (F-882 – Infection Preventionist)**.

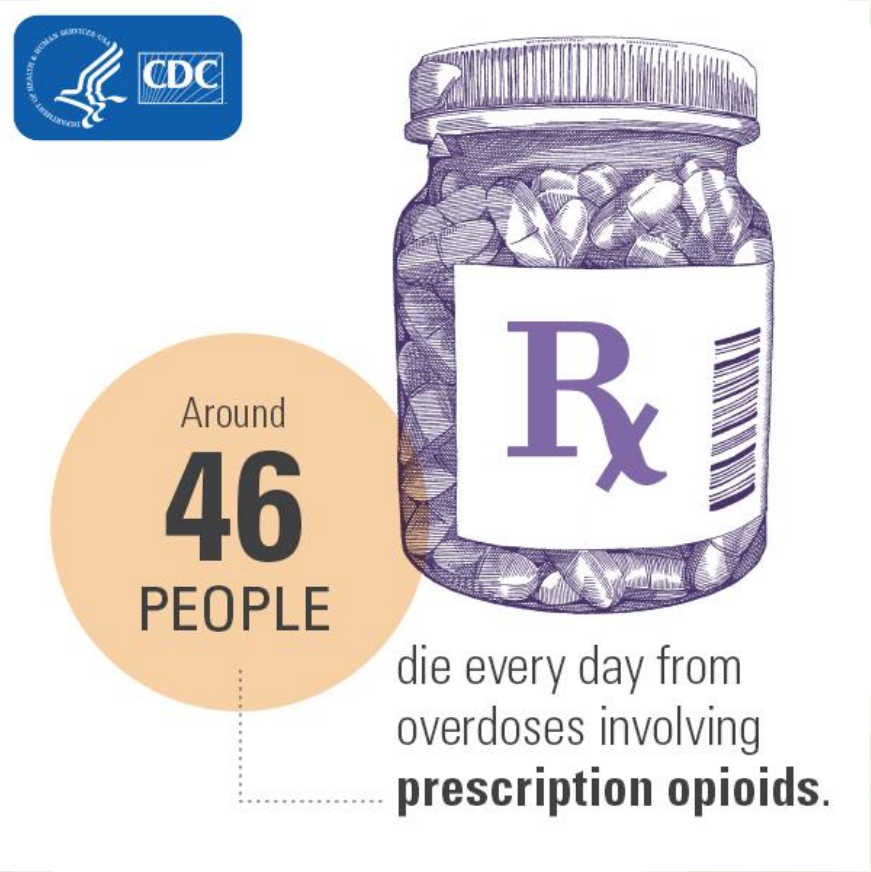
Antibiotics – Best Practice

- Core Elements of Antibiotic Stewardship in Nursing Homes
  - https://www.cdc.gov/antibiotic-use/core-elements/nursing-homes.html
- The Agency for Healthcare Research and Quality's "Nursing Home Antimicrobial Stewardship Guide" http://www.ahrq.gov/nhguide/index.html for examples of antibiotic use protocols, policies and practices.

Opioids

Opioids - Overview

- In older adults, it is reported that 40-50% report having chronic pain. (Marten, Larsson, Patel)
- 1 in 3 (14.4 million of 43.6 million) Medicare Part D beneficiaries received opioids in 2016.
- Majority (>80%) were Schedule II and III opioids.
- About half a million received high dose opioid use with average morphine equivalent of greater than 120mg a day for at least a period of 3 months.
- In 2016, those that received opioids for longer than 3 months numbered around five million.
- 90,000 beneficiaries were at high risk for opioid overdose or misuse.
- 69,563 beneficiaries received extreme amounts (>240mg of morphine or equivalent). (Opioids in Med D article)



Opioids – Top Concerns

- Naloxone is now recommended in the long-term care setting for those on opioid medications.
- Diversion
- Side effects
  - Central nervous system effects such as dizziness and sedation
    - This can lead to falls, fractures, respiratory depression
    - Higher rates of depression
  - Endocrine system
    - Long term use affects the hypothalamic-pituitary-adrenal axis
  - Musculoskeletal
    - Increase risk of fractures
  - Immune system
    - Morphine and fentanyl have been documented to have immunosuppressive effects
  - Respiratory system
    - Respiratory depression, bradycardia, hypotension
  - Gastrointestinal system
    - Constipation
- Concomitant use of other central nervous system depressants such as benzodiazepines, barbiturates, and alcohol aggravate respiratory depression and can progress to apnea.

Opioids – Regulations

- New guidance in Appendix PP recommends a written policy and procedure for what to do in the event of an opioid overdose.
- Also recommend naloxone be kept on hand for those at risk for overdose.
  - Additionally, staff should be educated on how to use naloxone.
    - https://www.cdc.gov/opioids/naloxone/training/index.html
    - https://www.samhsa.gov/medications-substance-use-disorders/medications-counseling-related-conditions/naloxone
- Fentanyl patch destruction
  - Now recommended to use drug disposal products or systems to destroy (see page 547 of Appendix PP)

Opioids – Regulations

- Pain appears on the following Critical Element Pathways:
  - CMS-20053
  - CMS-20056
  - CMS-20062
  - CMS-20066
  - CMS-20068
  - CMS-20070
  - CMS-20071
  - CMS-20073
  - CMS-20074
  - **CMS-20076 – Pain Management**
  - CMS-20077
  - CMS-20078
  - CMS-20080
  - CMS-20082
  - CMS-20092
  - CMS-20093
  - CMS-20120
  - CMS-20123
  - CMS-20125
  - CMS-20133

Opioids – Best Practice

- CDC, Clinical Practice Guidelines
  - https://www.cdc.gov/mmwr/volumes/71/rr/rr7103a1.htm
- HHS – Pain Management Best Practices
  - https://www.hhs.gov/opioids/prevention/pain-management-options/index.html
- VA – Clinical Practice Guidelines for Chronic Pain
  - https://www.healthquality.va.gov/guidelines/pain/cot/

Diuretics

Diuretics - Overview

- In Gerwitz, J, et.al study, residents on diuretics were included as being at a high risk for adverse effects in LTC setting.
- Briesacher, B; et.al journal showed diuretics the top heart category medication prescribed in LTC.
  - Number still remains high based on professional practice experience since study.
- Fall risk is increased with diuretic use.
- FYI – Amlodipine can cause peripheral edema and sometimes changing that to a different HTN medication will remedy.

Diuretics – Top Concerns

- Make sure to check electrolytes
  - Loop diuretics e.g. furosemide, check potassium
    - Often need potassium supplementation
- Edema/Weight
- Trending weight gain and increased fluid, worry for heart failure exacerbation.
- Side effects
  - Common and shared side effects of the loop diuretics include dizziness, headache, gastrointestinal upset, hyponatremia, hypokalemia and dehydration.

Diuretics - Regulations

- CMS-20092
  - “What other limitations or factors impact the resident’s hydration (e.g., difficulty getting to the bathroom, medications (**diuretics**), dialysis, restraint use, fluid restriction, or end of life)?”
- CMS-20093
  - “What review has occurred of medications known to cause a drug/nutrient interaction or having side effects potentially affecting food intake or enjoyment by affecting taste or causing anorexia, increasing weight, causing **diuresis**, or associated with GI bleeding such as Coumadin or NSAIDs?”
- CMS-20082
  - **Demonstrates monitoring for each medication as appropriate.**
    - **Diuretics –** edema, potassium level, signs of electrolyte imbalance.

Diuretics – Best Practice

- Up-to-date - https://www.uptodate.com/contents/use-of-diuretics-in-patients-with-heart-failure
- American College of Cardiology - https://www.acc.org/latest-in-cardiology/ten-points-to-remember/2020/03/09/15/28/diuretic-therapy-for-patients-with-heart-failure

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